790 - 2500 MHz
Base Station Antennas for Mobile Communications

KATHREIN
Antennen · Electronic

www.tt-telecom.ru

Photo on title page: Selection of products for UMTS networks.

Catalogue Issue 02/04

All data published in previous catalog issues hereby becomes invalid.
We reserve the right to make alterations in accordance with the requirements of our customers, therefore for binding datas please check valid datasheets!

Please note:

As a result of more stringent legal regulations and judgements regarding product liability, we are obliged to point out certain risks that may arise when products are used under extraordinary operating conditions.

The mechanical design is based on the environmental conditions as stipulated in ETS 300 019-1-4, which include the static mechanical load imposed on an antenna by wind at maximum velocity.

Extraordinary operating conditions, such as heavy icing or exceptional dynamic stress (e.g. strain caused by oscillating support structures), may result in the breakage of an antenna or even cause it to fall to the ground.

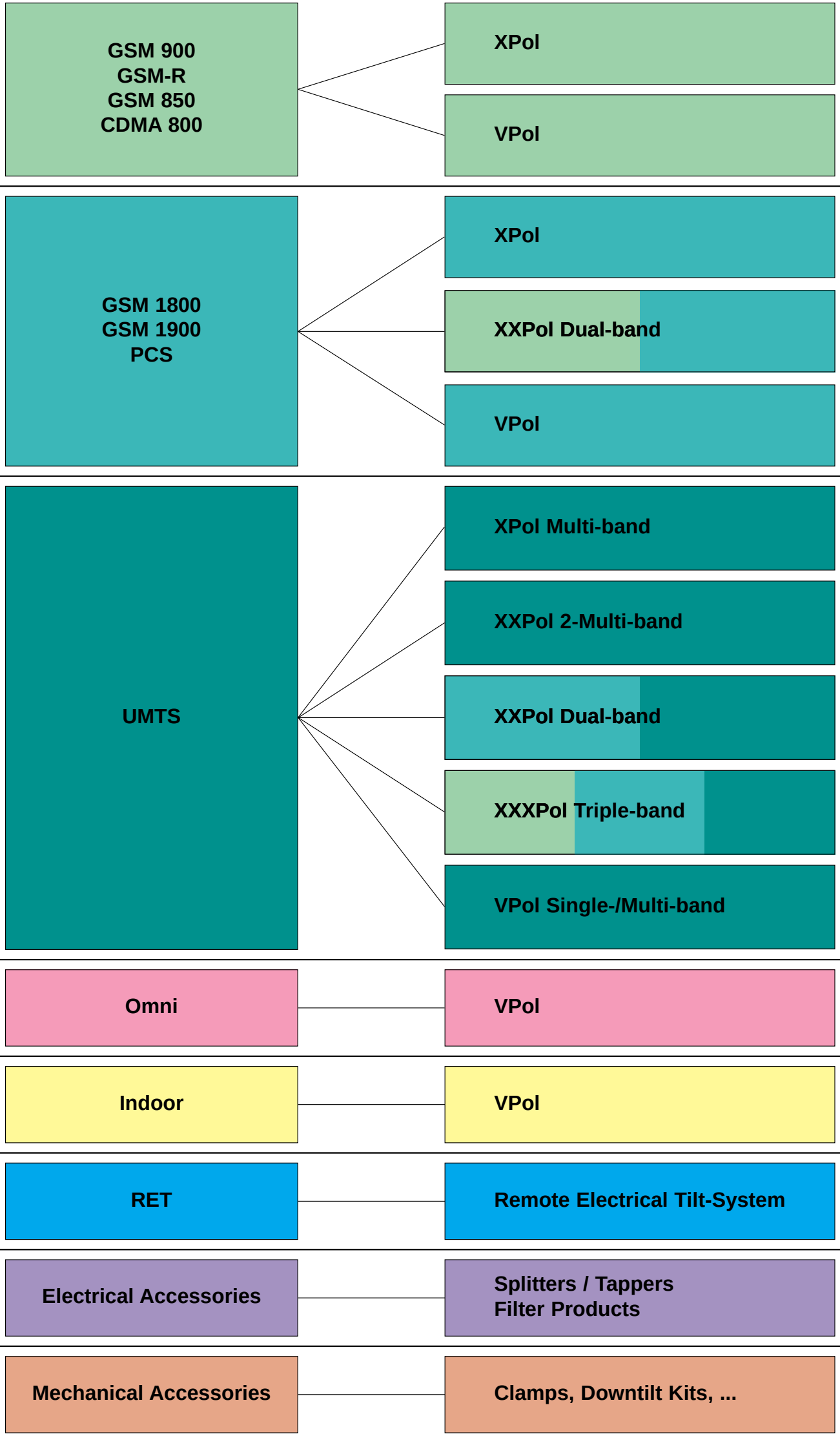
These facts must be considered during the site planning process.

The details given in our data sheets have to be followed carefully when installing the antennas and accessories.
In addition, please use our information brochure about mounting configurations.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

“Quality leads the way”

Being the oldest and largest antenna manufacturer worldwide, we take on every day the challenge arising from our own motto. One of our basic principles is to look always for the best solution in order to satisfy our customers.
Our quality assurance system conforms to DIN EN ISO 9001 and applies to the product range of the company: Antenna systems, communication products as well as active and passive distribution equipment.

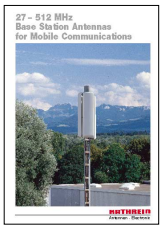

GSM 900
GSM-R
GSM 850
CDMA 800
XPol
VPol
GSM 1800
GSM 1900
PCS
XPol
XXPol Dual-band
VPol
UMTS
XPol Multi-band
XXPol 2-Multi-band
XXPol Dual-band
XXXPol Triple-band
VPol Single-/Multi-band
Omni
VPol
Indoor
VPol
RET
Remote Electrical Tilt-System
Electrical Accessories
Splitters / Tappers
Filter Products
Mechanical Accessories
Clamps, Downtilt Kits, ...

List of available Catalogues for Mobile Communication Antennas and Accessories

KATHREIN
Antennen · Electronic

790 – 2500 MHz Base Station Antennas for Mobile Communications

27 – 512 MHz Base Station Antennas for Mobile Communiations



Ground-to-Air Communication Antennas

Antennas for Trains and Busses

790 – 2500 MHz Filters, Combiners, Amplifiers for Mobile Communications

450 MHz Filters, Combiners, Amplifiers for Mobile Communications

80 / 160 MHz Filters, Combiners Amplifiers for Mobile Communications

The listed catalogues are also available on CD-ROM

Summary of Types

KATHREIN
Antennen · Electronic

The articles are listed by type number in numerical order.

Type No.	Page	Type No.	Page	Type No.	Page	Type No.	Page
730 ...		734 328	74	737 547	45	739 630	23
730 368	43	734 330	75	737 971	190	739 632	17
730 376	46	734 360	194	737 972	189 ...	739 633	18
730 378	48	734 361	194	737 973	189 ...	739 634	20
730 380	49	734 362	194	737 974	189 ...	739 636	24
730 382	50	734 363	194	737 975	189 ...	739 637	24
730 677	43	734 364	194	737 976	190	739 648	26
730 691	44	734 365	194	737 978	189 ...	739 649	29
						739 650	31
731 ...		***735 ...***		***738 ...***		739 655	28
731 651	186	735 147	73	738 187	134	739 658	26
		735 727	40	738 192	126	739 660	29
732 ...				738 440	201	739 662	32
732 317	197	***736 ...***		738 445	114	739 664	27
732 318	197	736 347	127	738 446	114 ...	739 665	30
732 319	197	736 349	128	738 449	129 ...	739 666	33
732 321	197	736 350	125	738 450	122 ...	739 684	19
732 322	197	736 854	47	738 454	136 ...	739 685	22
732 327	197	736 855	47	738 546	186 ...	739 686	25
732 689	46	736 801	170 ...	738 908	198	739 695	56
732 691	44	736 802	170 ...			739 707	57
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733 677	186			739 490	53	739 854	45
733 678	186	***737 ...***		739 491	53	739 856	50
733 679	186	737 190	135	739 494	54	739 927	52
733 680	186	737 303	171	739 495	55		
733 695	41	737 304	171	739 498	55	***741 ...***	
733 736	41 ...	737 305	171	739 619	16	741 264	54
		737 306	171	739 620	16	741 316	60
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734 304	73	737 308	171	739 623	20	741 322	64
734 318	74	737 398	199	739 624	23	741 324	66

Summary of Types

KATHREIN
Antennen · Electronic

The articles are listed by type number in numerical order.

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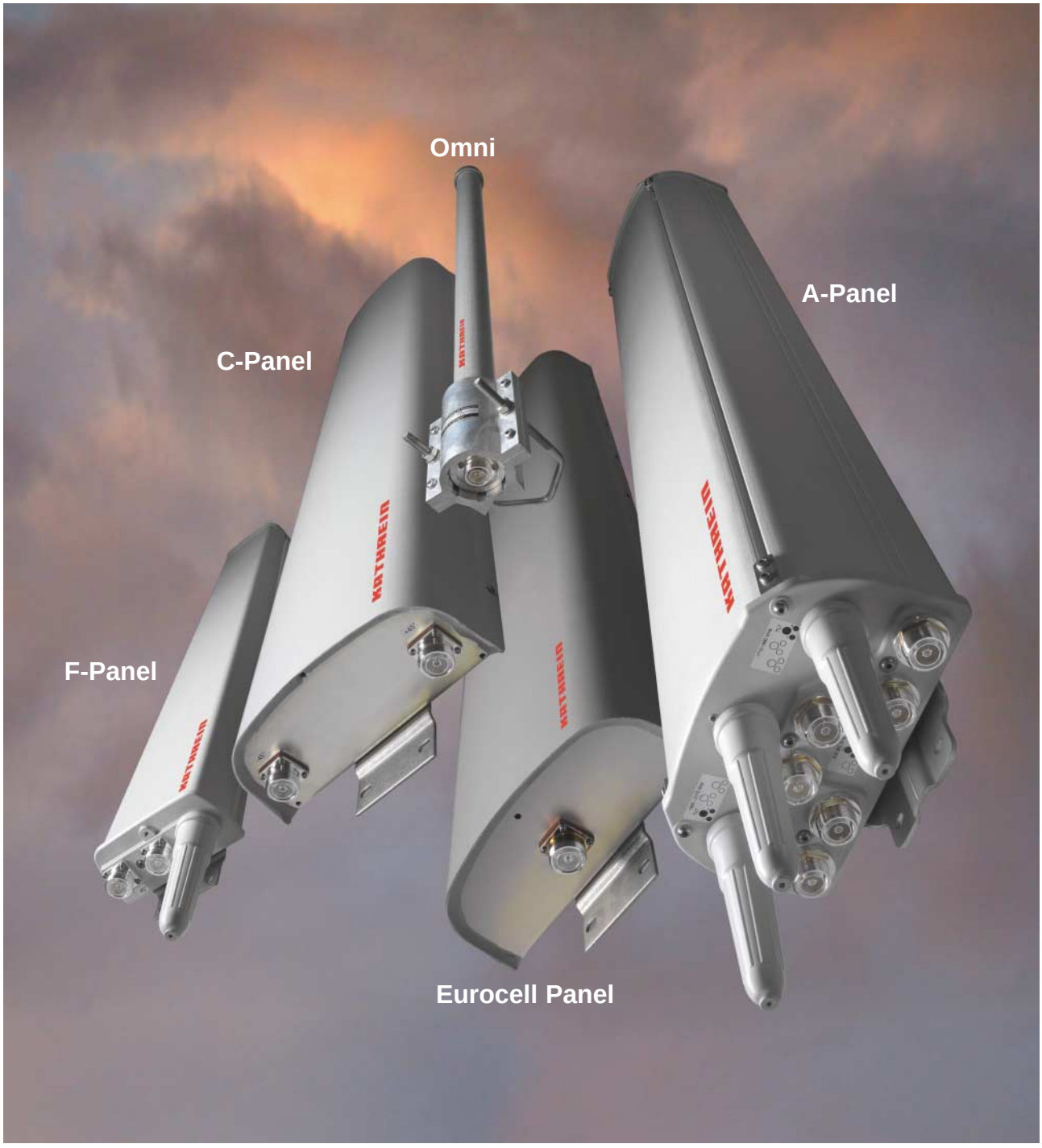
Omni
A-Panel
C-Panel
F-Panel
Eurocell Panel

Design	Small size and elegant design are the distinguishing features of Kathrein's antenna families.
Radome	The radomes cover the internal antenna components. Fiberglass material guarantees optimum performance with regards to stability, stiffness, UV resistance, painting and best weather protection.
Environmental influences	The design of Kathrein antennas is based on fundamental engineering knowledge and also on decades of practical experience, during which the various constructions and materials used have proved their outstanding reliability.
Environmental conditions	Kathrein cellular antennas are designed to operate under the environmental conditions as described in ETS 300 019-1-4 class 4.1 E. The antennas exceed this standard with regards to the following items: – Low temperature: –55 °C – High temperature (dry): +60 °C
Large variety of half-power beam width, gain values, electrical downtilt	According to the antenna type selected, customer can choose from different half-power beam widths. Gain values up to 22.5 dBi and electrical downtilts up to 15° for panel antennas are available. Downtilts are either fixed or adjustable or even controlled by remote electrical tilt system (RET).
Low intermodulation products (typically –150 dBc)	After many years of experience in the construction of antennas and after intensive research into the effects of intermodulation, we have been able to optimize the material and technology used for antennas (the given value refers to 3rd order products measured with 2 carriers of 20 W each).
Multi-band design	Depending on antenna family broad-band, multi-band, dual-band and triple-band versions can be offered. Therefore the varity of antennas used can be kept to a minimum.
Excellent grounding	The antennas are DC grounded according EN 50083-1.
Multi-functional installation hardware	Depending on the type, the antennas are equipped with up to 3 fixing points. Panels can be wall mounted without any additional hardware. For mast mounting, stainless steel brackets and mechanical downtilt kits are available. To assist the installation technicians in aligning the panels, an azimuth adjustment tool can be supplied (see Mechanical Accessories).

Directional Antenna Designs:
Special Directional Antennas
For Particular Applications

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Antennas for

- **tunnel use**
- **railway use**
- **micro cells (street use)**
- **high gain link for repeaters**

The distinguishing features of these special versions, e.g. parabolic panels or log. periodic antennas, are:

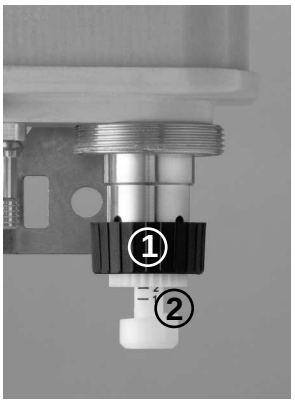
- **very small half-power beam width (high gain)**
- **high sidelobe suppression**
- **also Dual-band and Multi-band versions**
- **bidirectional horizontal pattern.**

Mechanical downtilt

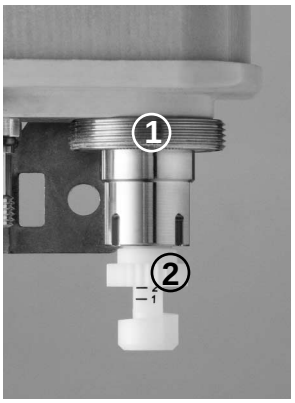
For further technical information please see “Mechanical Accessories”, pages 189 and 197.

Electrical downtilt

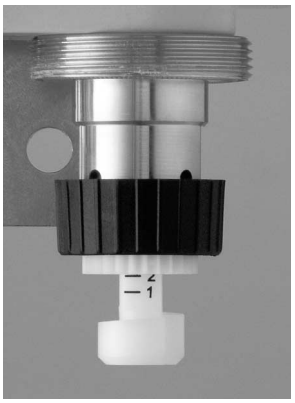
Description of the interface (protective cap removed):



① Adjustment wheel with twist-lock function.
② Downtilt spindle with integrated scale.



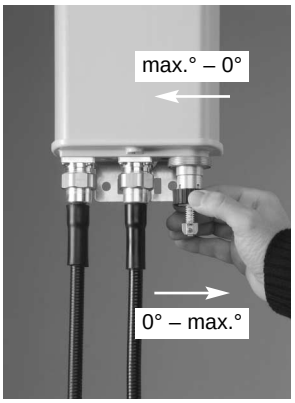
① Thread for fixing of the protective cap or the RCU (Remote Control Unit).
② Gearwheel for RCU-power drive.



To set the downtilt angle exactly, you must look horizontally at the scale. The lower edge of the gearwheel must be used for alignment purposes.

Manual adjustment procedure: (General example)

Remove protective cap.



Set downtilt angle by rotating the adjustment wheel.

Screw on the protective cap again.

For antennas without RET, the interface looks different. In this case you just have to rotate the adjustment wheel in order to set the downtilt.

Remote Electrical Tilt (RET)

For further technical information please see “RET”, page 150...

Kathrein Antennas
Product Description (Type)

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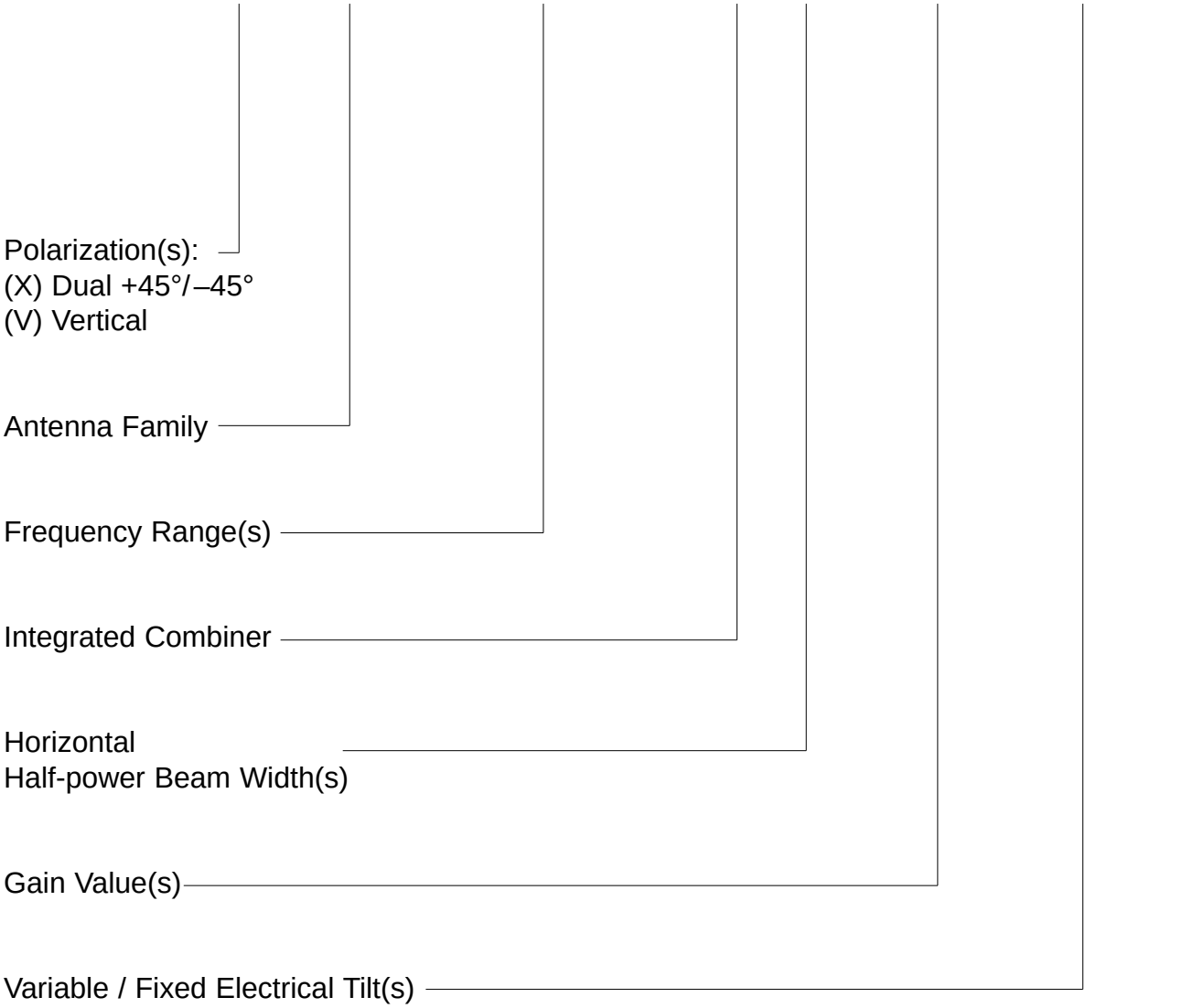
XXPol A-Panel 870–960/1710–1880 C 65°/60° 17/18dBi 2°–8°T/2°T



Summary – Directional Antennas
Dual Polarization +45°/–45°
GSM 900 / GSM-R / GSM 850 / CDMA 800

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Dual Polarization +45°/–45°

Type					Type No.	Height [mm]	Connector position	Page
XPol A-Panel	870–960	30°	15.5dBi		741 717	656	bottom	14
XPol A-Panel	806–960	30°	18.5dBi		800 10141	1296	bottom	14
XPol A-Panel	870–960	30°	21dBi		741 785	2580	bottom	15
XPol A-Panel	806–960	65°	9dBi		739 619	256	bottom or top	16
XPol A-Panel	806–960	65°	12.5dBi		739 620	656	bottom or top	16
XPol A-Panel	806–960	65°	15.5dBi		739 622	1296	bottom or top	17
XPol A-Panel	806–960	65°	15dBi	6°T	739 632	1296	bottom	17
XPol A-Panel	806–960	65°	15dBi	12°T	739 633	1296	bottom	18
XPol A-Panel	806–960	65°	15dBi	0°–14°T	739 684	1296	bottom	19
XPol A-Panel	806–960	65°	17dBi		739 623	1936	bottom or top	20
XPol A-Panel	806–960	65°	17dBi	6°T	739 634	1936	bottom	20
XPol A-Panel	824–960	65°	17dBi	9°T	741 622	1936	bottom	21
XPol A-Panel	824–960	65°	16.5dBi	0°–10°T	739 685	1996	bottom	22
XPol A-Panel	870–960	65°	18dBi		739 630	2580	bottom or top	23
XPol A-Panel	806–960	65°	18dBi		739 624	2580	bottom or top	23
XPol A-Panel	806–960	65°	18dBi	6°T	739 636	2580	bottom	24
XPol A-Panel	806–960	65°	18dBi	9°T	739 637	2580	bottom	24
XPol A-Panel	806–960	65°	17.5dBi	0°–7°T	739 686	2580	bottom	25
XPol A-Panel	806–960	90°	13.5dBi		739 648	1296	bottom or top	26
XPol A-Panel	806–960	90°	13.5dBi	6°T	739 658	1296	bottom	26
XPol A-Panel	824–960	88°	13.5dBi	0°–14°T	739 664	1296	bottom	27
XPol A-Panel	870–960	90°	15.5dBi		739 655	1936	bottom or top	28
XPol A-Panel	806–960	88°	15.5dBi		739 649	1936	bottom or top	29
XPol A-Panel	806–960	88°	15.5dBi	6°T	739 660	1936	bottom	29
XPol A-Panel	806–960	88°	15dBi	0°–10°T	739 665	1996	bottom	30
XPol A-Panel	806–960	88°	17dBi		739 650	2580	bottom or top	31
XPol A-Panel	806–960	88°	17dBi	6°T	739 662	2580	bottom	32
XPol A-Panel	806–960	88°	16dBi	0°–7°T	739 666	2580	bottom	33

Compact Panel (C-Panel)

XPol C-Panel	806–960	65°	15.5dBi		**800 10202**	1294	bottom	34
XPol C-Panel	806–960	65°	17dBi		**800 10203**	1934	bottom	35
XPol C-Panel	806–960	65°	18dBi		**800 10204**	2254	bottom	36
XPol C-Panel	806–960	65°	15dBi	6°T	**800 10207**	1294	bottom	37

New Products

A-Panel
Dual Polarization
Half-power Beam Width

800/900

X

30°

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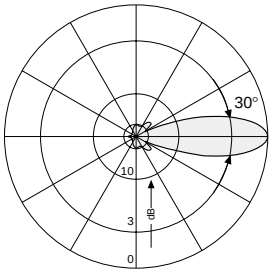
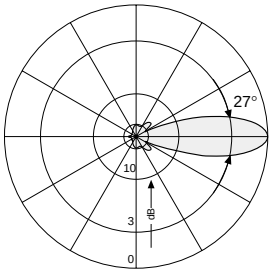
XPol A-Panel 870–960 30° 15.5dBi

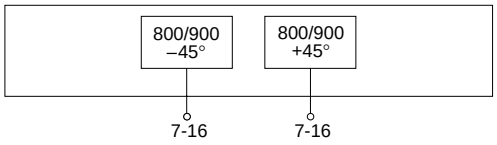
Type No.	741 717
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 30° Vertical: 27°
Front-to-back ratio, copolar	> 30 dB
Isolation	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	500 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	13 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 60 N / 470 N
Max. wind velocity	200 km/h
Height/width/depth	656 / 560 / 116 mm



Horizontal Pattern

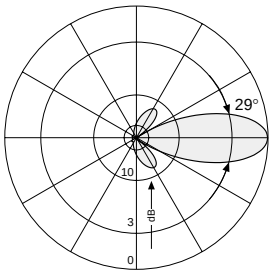


Vertical Pattern

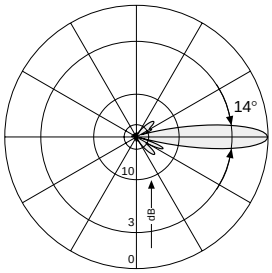


XPol A-Panel 806–960 30° 18.5dBi

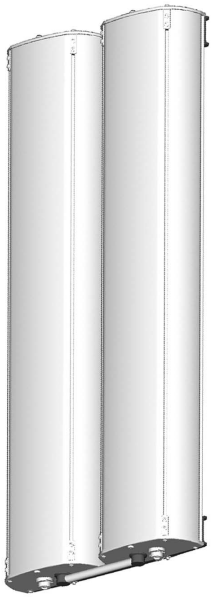
Type No.	800 10141	
Frequency range	**806–960**	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 31° Vertical: 15°	Horizontal: 29° Vertical: 14°
Front-to-back ratio, copolar	> 25 dB	> 29 dB
Isolation	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	22 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 680 N / 130 N / 970 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 560 / 116 mm	



Horizontal Pattern



Vertical Pattern



Mounting accessories are not included in the scope of delivery (see page 185)

A-Panel
Dual Polarization
Half-power Beam Width

870–960

X

30°

KATHREIN
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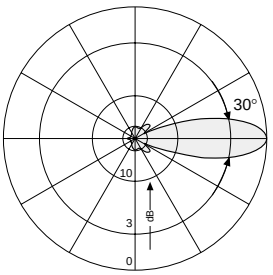
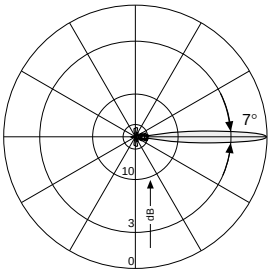
XPol A-Panel 870–960 30° 21dBi

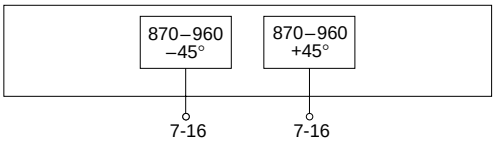
Type No.	741 785
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 21 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 30° Vertical: 7°
Front-to-back ratio, copolar	> 30 dB
Isolation	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	40 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 1460 N / 280 N / 2090 N
Max. wind velocity	200 km/h
Height/width/depth	2580 / 560 / 116 mm



Horizontal Pattern



Vertical Pattern



A-Panel
Dual Polarization
Half-power Beam Width

806–960

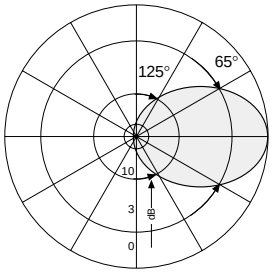
X

65°

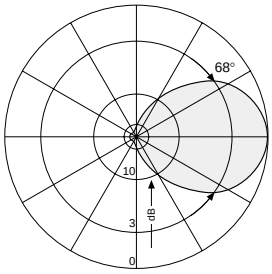
KATHREIN
Antennen · Electronic

XPol A-Panel 806–960 65° 9dBi

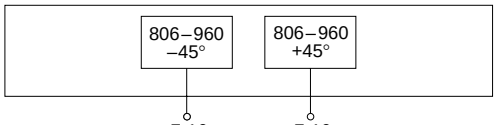
Type No.	739 619	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 9 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 70°	Horizontal: 65° Vertical: 68°
Front-to-back ratio, copolar	> 27 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	350 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	3 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 40 N / 25 N / 90 N	
Max. wind velocity	200 km/h	
Height/width/depth	256 / 262 / 116 mm	



Horizontal Pattern

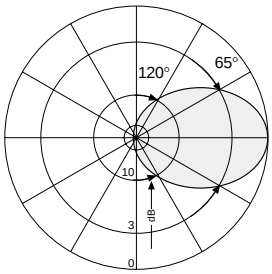


Vertical Pattern

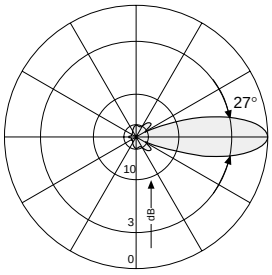


XPol A-Panel 806–960 65° 12.5dBi

Type No.	739 620	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 12 dBi	2 x 12.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 29°	Horizontal: 65° Vertical: 27°
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	6 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 110 N / 60 N / 240 N	
Max. wind velocity	200 km/h	
Height/width/depth	656 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

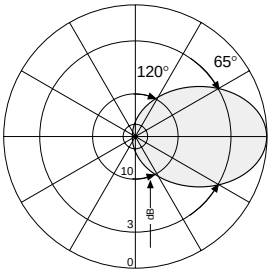
A-Panel
Dual Polarization
Half-power Beam Width

806 – 960
X
65°

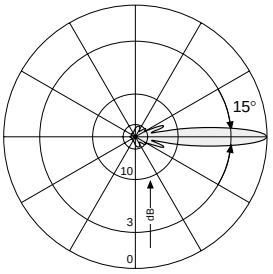
KATHREIN
Antennen · Electronic

XPol A-Panel 806–960 65° 15.5dBi

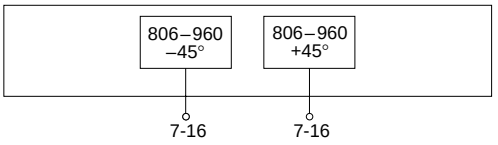
Type No.	739 622	
Frequency range	806 – 960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 16°	Horizontal: 65° Vertical: 15°
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.4	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	11 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern

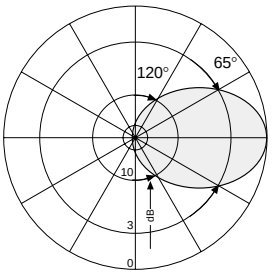


Vertical Pattern

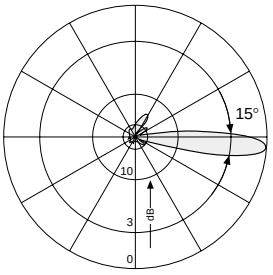


XPol A-Panel 806–960 65° 15dBi 6°T

Type No.	739 632	
Frequency range	806 – 960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 14.5 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 16°	Horizontal: 65° Vertical: 15°
Electrical tilt	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥ 16 dB
Front-to-back ratio, copolar	> 28 dB	> 30 dB
Isolation	> 30 dB	> 32 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	11 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

A-Panel
Dual Polarization
Half-power Beam Width

806 – 960

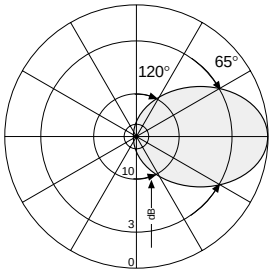
X

65°

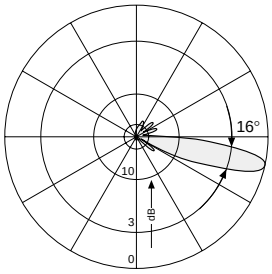
KATHREIN
Antennen · Electronic

XPol A-Panel 806–960 65° 15dBi 12°T

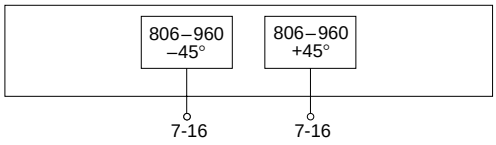
Type No.	739 633	
Frequency range	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 14.5 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 17°	Horizontal: 65° Vertical: 16°
Electrical tilt	12°, fixed	12°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥ 16 dB
Front-to-back ratio, copolar	> 28 dB	> 30 dB
Isolation	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	8 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
12° electrical downtilt



Mounting accessories are not included in the scope of delivery (see page 186 – 191)

A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

806–960
X
65°
0°–14°

set by hand or by optional RCU (Remote Control Unit)

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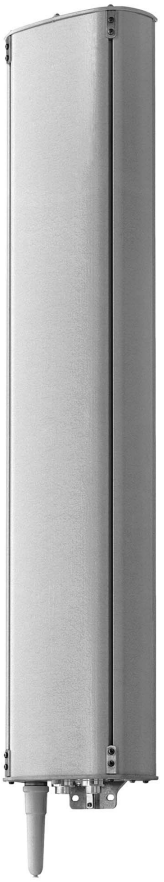
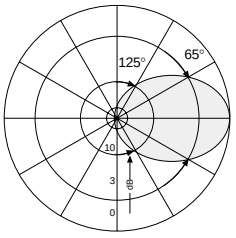
XPol A-Panel 806–960 65° 15dBi 0°–14°T

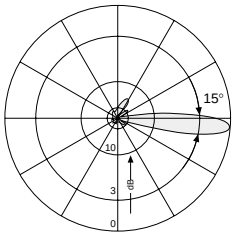
Type No.	739 684		
Frequency range	806 – 866 MHz	806–960 824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	14.5 dBi	14.7 dBi	15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 16°	Horizontal: 68° Vertical: 15.5°	Horizontal: 65° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°	0°–14°
Sidelobe suppression for sector 0°–30° above horizon	14 dB	15 dB	15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		



880 – 960 MHz: +45°/–45° Polarization

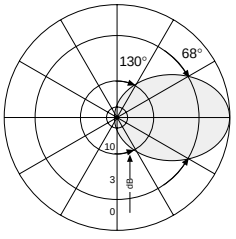


Horizontal Pattern

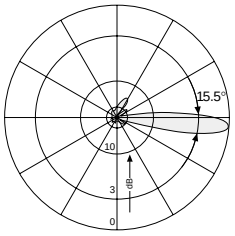


Vertical Pattern
0°–14° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

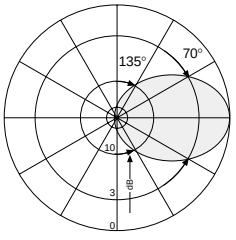


Horizontal Pattern

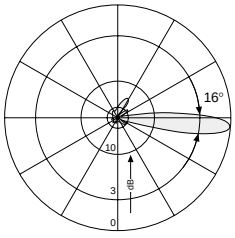


Vertical Pattern
0°–14° electrical downtilt

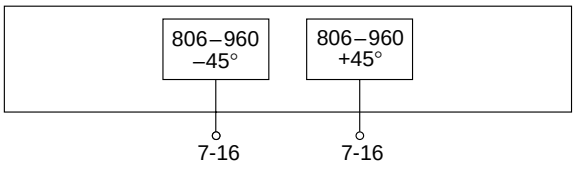
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1562 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

A-Panel
Dual Polarization
Half-power Beam Width

806 – 960

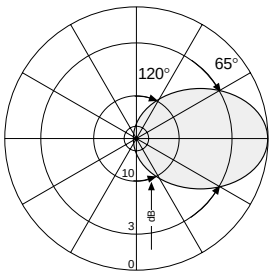
X

65°

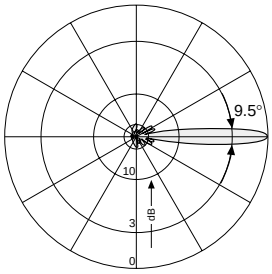
KATHREIN
Antennen · Electronic

XPol A-Panel 806–960 65° 17dBi

Type No.	739 623	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	12 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	

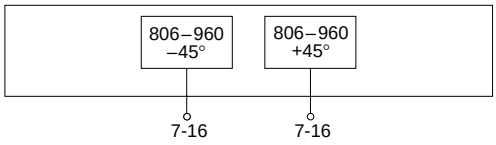


Horizontal Pattern



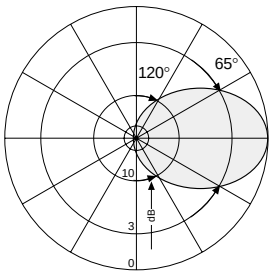
Vertical Pattern

first null-fill below horizon better or equal –25 dB below maximum gain

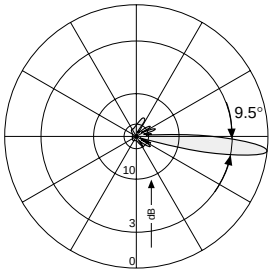


XPol A-Panel 806–960 65° 17dBi 6°T

Type No.	739 634	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Electrical tilt	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥18 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation	> 32 dB	> 32 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	7-16 female	
Connector position	Bottom	
Weight	12 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 350 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

A-Panel
Dual Polarization
Half-power Beam Width

824–960

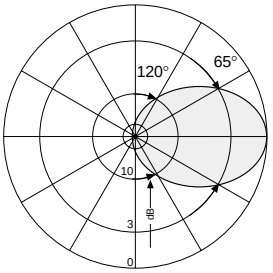
X

65°

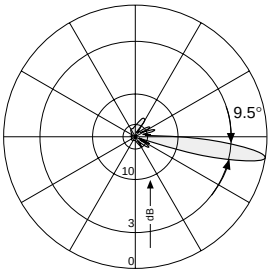
KATHREIN
Antennen · Electronic

XPol A-Panel 824–960 65° 17dBi 9°T

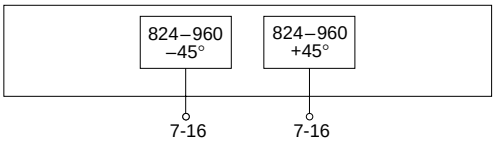
Type No.	741 622	
Frequency range	824–960	
	824 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Electrical tilt	9°, fixed	9°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB	≥16 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation	> 32 dB	> 32 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	12 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
9° electrical downtilt



A-Panel 806–960
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electr. Downtilt 0°–10°

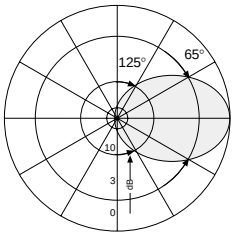
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

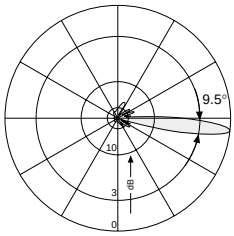
XPol A-Panel 806–960 65° 16.5dBi 0°–10°T

Type No.	739 685		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16 dBi	2 x 16 dBi	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 10°	Horizontal: 68° Vertical: 10°	Horizontal: 65° Vertical: 9.5°
Electrical tilt continuously adjustable	0.5°–10°	0.5°–10°	0.5°–10°
Sidelobe suppression for first sidelobe above horizon sector 0°–30° above horizon	0° ... 3° ... 6° ... 10°T 15 ... 14 ... 12 ... 12 dB 12 dB	0° ... 3° ... 6° ... 10°T 15 ... 15 ... 15 ... 14 dB 13 dB	0° ... 3° ... 6° ... 10°T 17 ... 17 ... 17 ... 17 dB 15 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

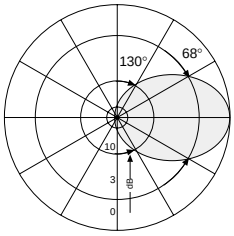


Horizontal Pattern

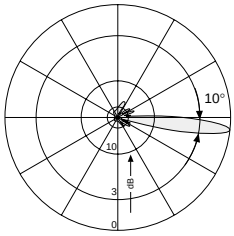


Vertical Pattern
0.5°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

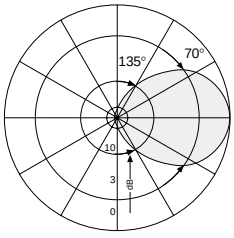


Horizontal Pattern

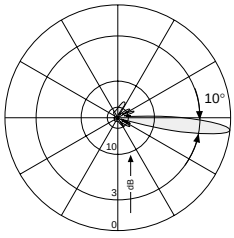


Vertical Pattern
0.5°–10° electrical downtilt

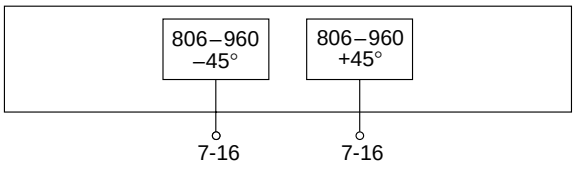
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0.5°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2262 x 287 x 165 mm
Height/width/depth	1996 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

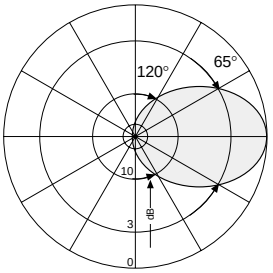
A-Panel
Dual Polarization
Half-power Beam Width

800/900
X
65°

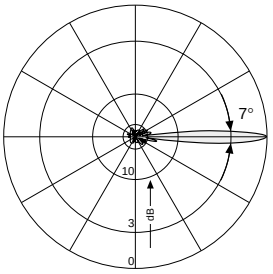
KATHREIN
Antennen · Electronic

XPol A-Panel 870–960 65° 18dBi

Type No.	739 630
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB
Front-to-back ratio, copolar	> 30 dB
Isolation	> 32 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	600 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	19 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N
Max. wind velocity	200 km/h
Height/width/depth	2580 / 262 / 116 mm

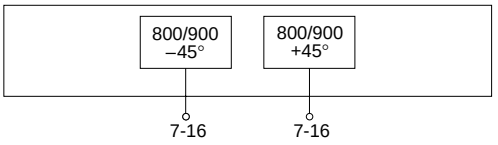


Horizontal Pattern



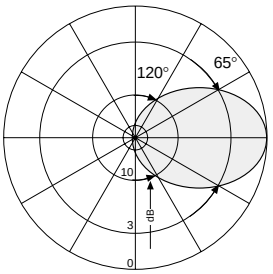
Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain

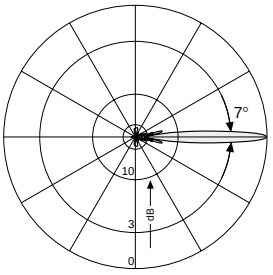


XPol A-Panel 806–960 65° 18dBi

Type No.	739 624	
Frequency range	806–960	
	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 7.5°	Horizontal: 65° Vertical: 7°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation	> 30 dB	> 32 dB
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern

A-Panel
Dual Polarization
Half-power Beam Width

806 – 960

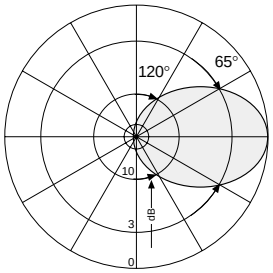
X

65°

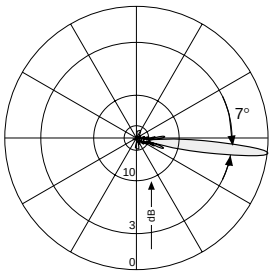
KATHREIN
Antennen · Electronic

XPol A-Panel 806–960 65° 18dBi 6°T

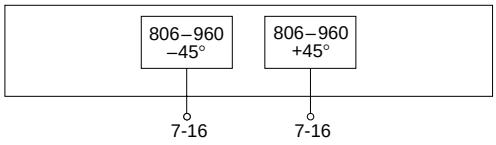
Type No.	739 636	
Frequency range	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 7.5°	Horizontal: 65° Vertical: 7°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 32 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



Horizontal Pattern

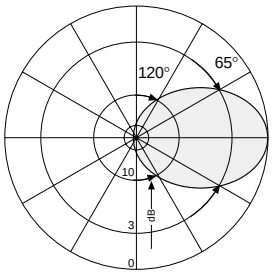


Vertical Pattern
6° electrical downtilt

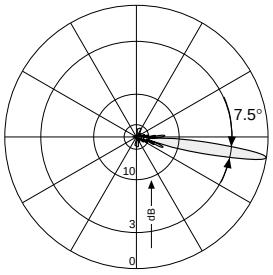


XPol A-Panel 806–960 65° 18dBi 9°T

Type No.	739 637	
Frequency range	806 – 870 MHz	870 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7.5°	
Electrical tilt	9°, fixed	
Sidelobe suppression for first sidelobe above horizon	better 18 dB below maximum gain	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 32 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	19 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
9° electrical downtilt

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

806 – 960 | X | 65° | 0° – 7°

set by hand or by optional RCU (Remote Control Unit)

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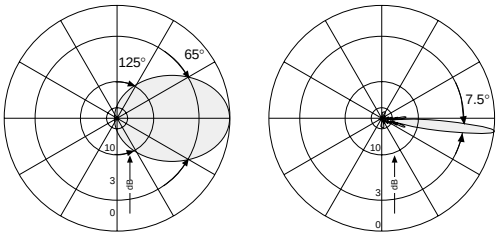
XPol A-Panel 806–960 65° 17.5dBi 0°–7°T

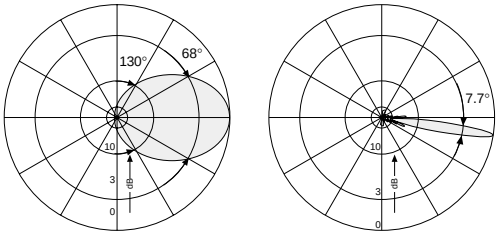
Type No.	739 686		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 17 dBi	2 x 17.2 dBi	2 x 17.5 dBi
Half-power beam width Copolar +45°/ -45°	Horizontal: 70° Vertical: 7.9°	Horizontal: 68° Vertical: 7.7°	Horizontal: 65° Vertical: 7.5°
Electrical tilt continuously adjustable	0° – 7°	0° – 7°	0° – 7°
Sidelobe suppression for first sidelobe above horizon sector 0°–30° above horizon	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB 14 ... 14 ... 14 ... 14 dB	0° ... 2° ... 4° ... 7° T 18 ... 18 ... 18 ... 18 dB 15 ... 15 ... 15 ... 15 dB	0° ... 2° ... 4° ... 7° T 18 ... 18 ... 18 ... 18 dB 17 ... 17 ... 17 ... 17 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



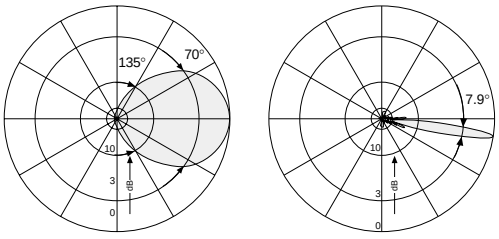
Horizontal Pattern — Vertical Pattern 0°–7° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

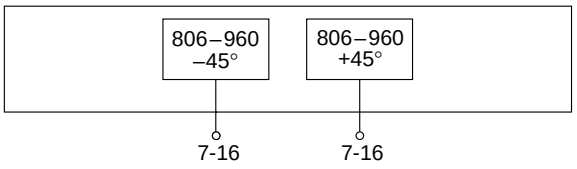


Horizontal Pattern — Vertical Pattern 0°–7° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–7° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	22 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2846 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

A-Panel
Dual Polarization
Half-power Beam Width

806 – 960

X

90°

KATHREIN
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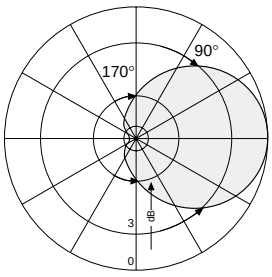
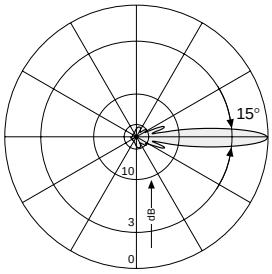
XPol A-Panel 806–960 90° 13.5dBi

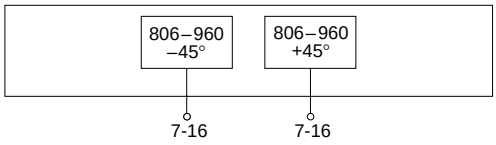
Type No.	739 648	
Frequency range	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 13 dBi	2 x 13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 16°	Horizontal: 90° Vertical: 15°
Sidelobe suppression for first sidelobe above horizon	≥ 16 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 32 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	10 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern

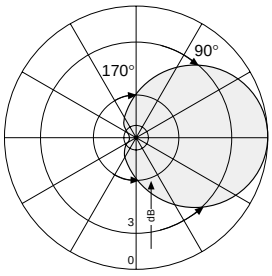


Vertical Pattern

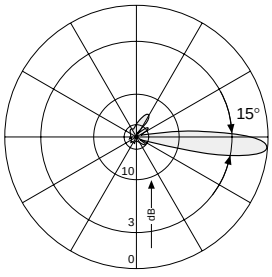


XPol A-Panel 806–960 90° 13.5dBi 6°T

Type No.	739 658	
Frequency range	806 – 880 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 13 dBi	2 x 13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 16°	Horizontal: 90° Vertical: 15°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	500 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	8 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 230 N / 130 N / 500 N	
Max. wind velocity	200 km/h	
Height/width/depth	1296 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

824–960
X
88°
0°–14°

set by hand or by optional RCU (Remote Control Unit)

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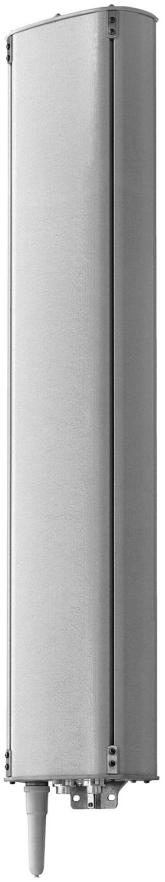
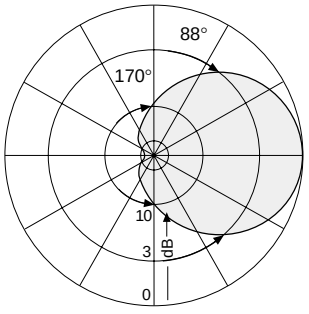
XPol A-Panel 824–960 88° 13.5dBi 0°–14°T

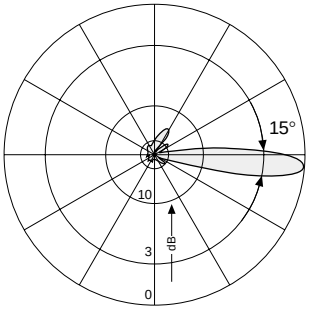


Type No.	739 664	
Frequency range	824–960	
	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	13.5 dBi	13.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 15.5°	Horizontal: 88° Vertical: 15°
Electrical tilt continuously adjustable	0°–14°	0°–14°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 8° ... 14° T 16 ... 16 ... 16 ... 16 dB	0° ... 4° ... 8° ... 14° T 15 ... 16 ... 16 ... 16 dB
Front-to-back ratio, copolar	> 23 dB	> 23 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 25 dB > 10 dB	 Typically: 25 dB > 10 dB
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	400 W (at 50 °C ambient temperature)	

880 – 960 MHz: +45°/–45° Polarization

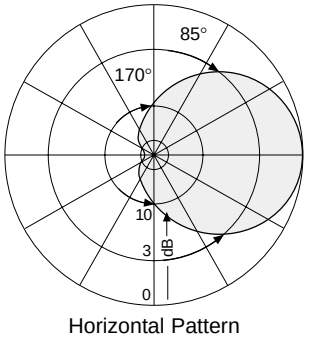


Horizontal Pattern

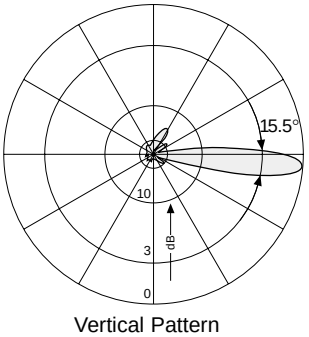


Vertical Pattern
0°–14° electrical downtilt
continuously adjustable

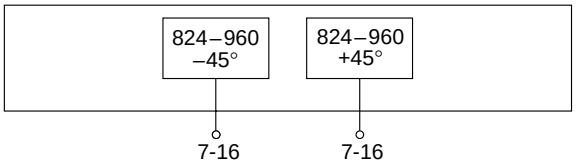
824 – 894 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–14° electrical downtilt
continuously adjustable



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1562 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

A-Panel
Dual Polarization
Half-power Beam Width

870 – 960

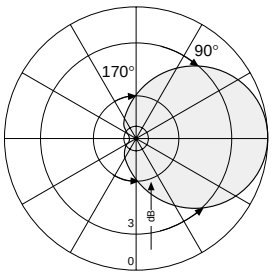
X

90°

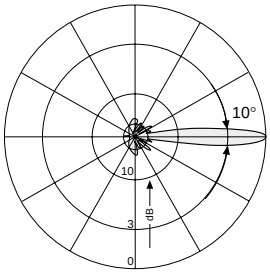
KATHREIN
Antennen · Electronic

XPol A-Panel 870–960 90° 15.5dBi

Type No.	739 655
Frequency range	870 – 960 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 10°
Sidelobe suppression for first sidelobe above horizon	≥ 15 dB
Front-to-back ratio, copolar	> 25 dB
Isolation	> 32 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	600 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	14 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N
Max. wind velocity	200 km/h
Height/width/depth	1936 / 262 / 116 mm

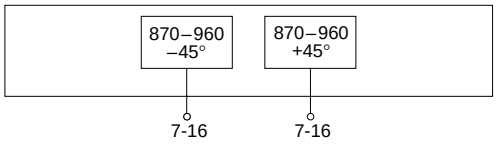


Horizontal Pattern



Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain



Mounting accessories are not included in the scope of delivery (see page 186 – 191)

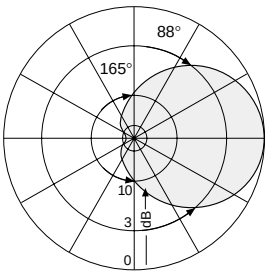
A-Panel
Dual Polarization
Half-power Beam Width

806–960
X
88°

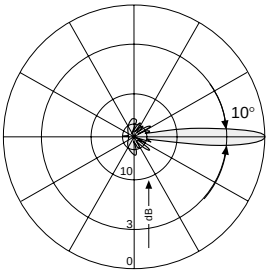
KATHREIN
Antennen · Electronic

XPol A-Panel 806–960 88° 15.5dBi

Type No.	739 649	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 88° Vertical: 10°
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	17.1 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	

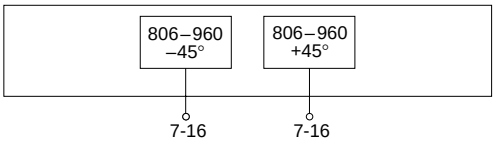


Horizontal Pattern



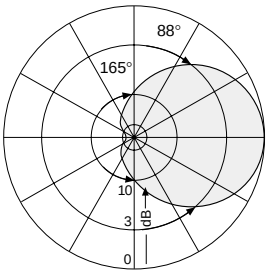
Vertical Pattern

first null-fill below horizon better or equal –25 dB below maximum gain

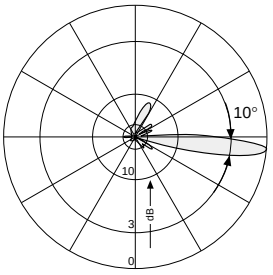


XPol A-Panel 806–960 88° 15.5dBi 6°T

Type No.	739 660	
Frequency range	806–960	
	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 88° Vertical: 10°
Electrical tilt	6°, fixed	
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.3	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	17 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 330 N / 200 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1936 / 262 / 116 mm	



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

A-Panel 806–960
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electr. Downtilt 0°–10°

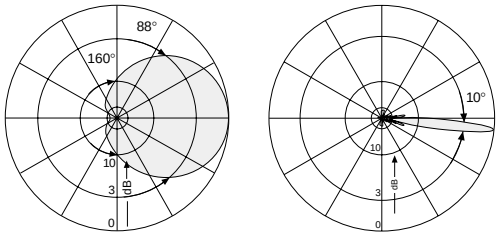
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

XPol A-Panel 806–960 88° 15dBi 0°–10°T

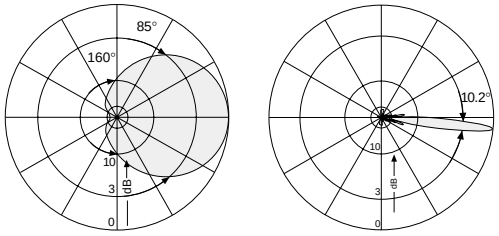
Type No.	739 665		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 15 dBi	2 x 15 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 10.5°	Horizontal: 85° Vertical: 10.2°	Horizontal: 88° Vertical: 10°
Electrical tilt continuously adjustable	0.5°–10°	0.5°–10°	0.5°–10°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 17 ... 17 dB	0° ... 4° ... 8° ... 10° T 16 ... 16 ... 18 ... 18 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



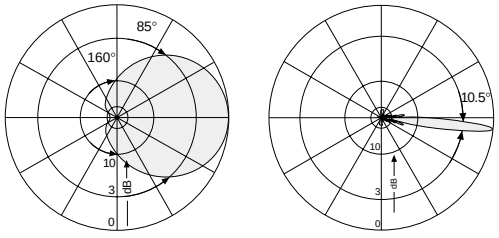
Horizontal Pattern — Vertical Pattern 0.5°–10° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

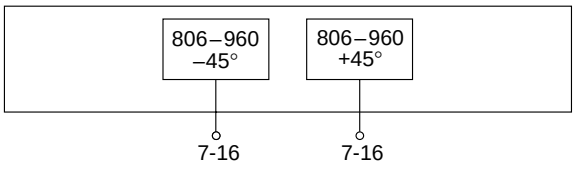


Horizontal Pattern — Vertical Pattern 0.5°–10° electrical downtilt

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0.5°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2262 x 287 x 165 mm
Height/width/depth	1996 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

A-Panel
Dual Polarization
Half-power Beam Width

806 – 960

X

88°

KATHREIN
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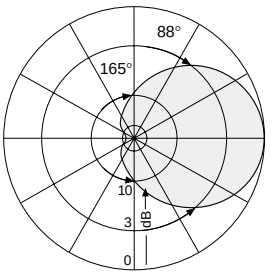
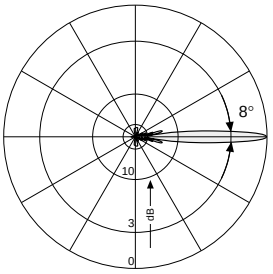
XPol A-Panel 806–960 88° 17dBi

Type No.	739 650	
Frequency range	806 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.5°	Horizontal: 88° Vertical: 8°
Sidelobe suppression for first sidelobe above horizon	≥ 18 dB	
Front-to-back ratio, copolar	> 25 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	600 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom or top	
Weight	22.6 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 470 N / 280 N / 1040 N	
Max. wind velocity	200 km/h	
Height/width/depth	2580 / 262 / 116 mm	

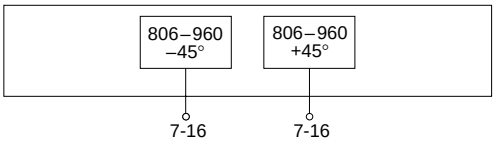


Horizontal Pattern



Vertical Pattern

first null-fill below horizon
better or equal –25 dB
below maximum gain



A-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

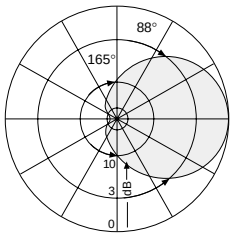
806 – 960
X
88°
6°

KATHREIN
Antennen · Electronic

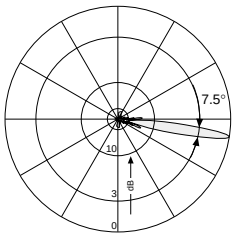
XPol A-Panel 806–960 88° 17dBi 6°T

Type No.	739 662		
Frequency range		**806–960**	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16.3 dBi	2 x 16.5 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.3°	Horizontal: 85° Vertical: 7.9°	Horizontal: 88° Vertical: 7.5°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for first sidelobe above horizon	16 dB	16 dB	17 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB
Isolation	> 32 dB	> 32 dB	> 32 dB
Cross polar ratio Maindirection 0° Sector ±60°	 > 23 dB > 14 dB	 > 23 dB > 14 dB	 > 23 dB > 14 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

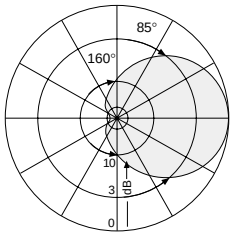


Horizontal Pattern

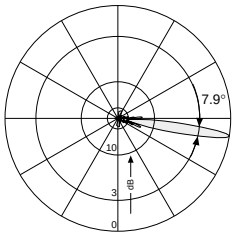


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

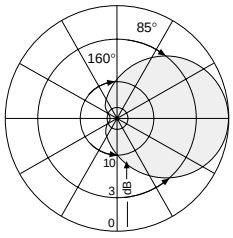


Horizontal Pattern

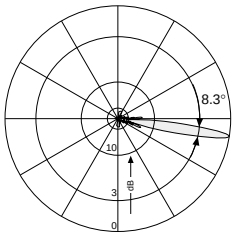


Vertical Pattern
6° electrical downtilt

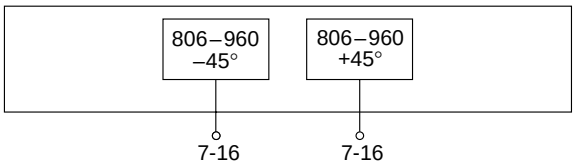
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	21.4 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2721 x 302 x 172 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

806 – 960
X
88°
0° – 7°

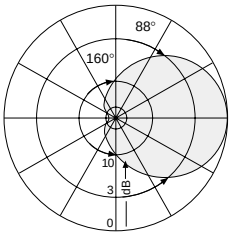
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

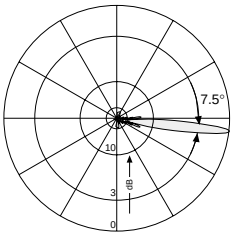
XPol A-Panel 806–960 88° 16dBi 0°–7°T

Type No.	739 666		
Frequency range	806–960		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45	+45°, –45°
Gain	2 x 16 dBi	2 x 16.1 dBi	2 x 16.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 85° Vertical: 8.2°	Horizontal: 85° Vertical: 8°	Horizontal: 88° Vertical: 7.5°
Electrical tilt continuously adjustable	0° – 7°	0° – 7°	0° – 7°
Sidelobe suppression for first sidelobe above horizon	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB	0° ... 2° ... 4° ... 7° T 17 ... 17 ... 17 ... 17 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 25 dB	Copolar: > 25 dB	Copolar: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 15 dB	Typically: 25 dB > 15 dB	Typically: 25 dB > 15 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	400 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

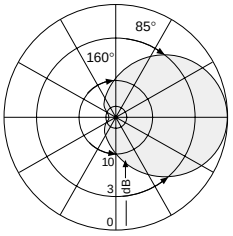


Horizontal Pattern

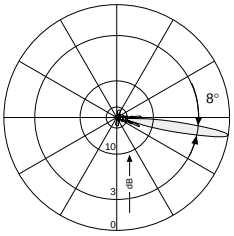


Vertical Pattern
0°–7° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

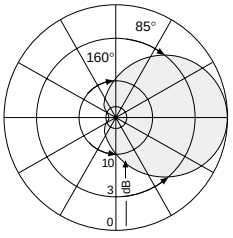


Horizontal Pattern

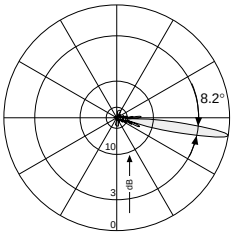


Vertical Pattern
0°–7° electrical downtilt

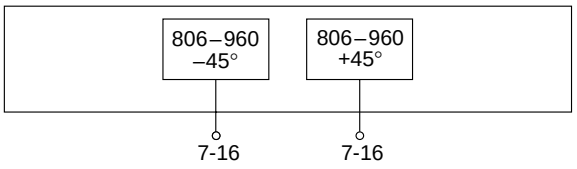
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–7° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	22 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2846 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Compact Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

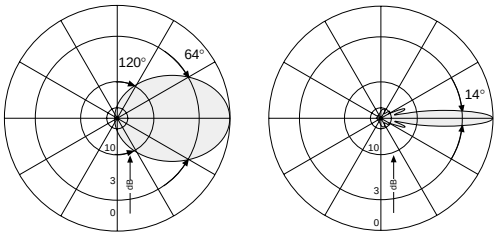
806 – 960
X
65°
0°

KATHREIN
Antennen · Electronic

XPol C-Panel 806–960 65° 15.5dBi 0°T

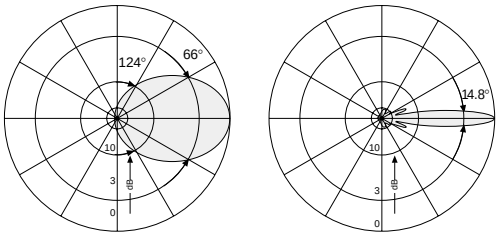
Type No.	800 10202		
Frequency range		**806 – 960**	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 15.5°	Horizontal: 66° Vertical: 14.8°	Horizontal: 64° Vertical: 14°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	 > 15 dB > 15 dB	 > 15 dB > 15 dB	 > 14 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Crosspolar ratio Maindirection 0° Sector ±30° Sector ±60°	 > 20 dB > 19 dB > 11 dB	 > 20 dB > 19 dB > 11 dB	 > 20 dB > 20 dB > 11 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization



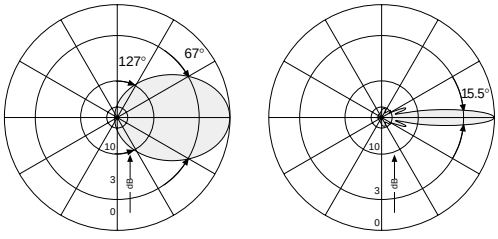
Horizontal Pattern Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

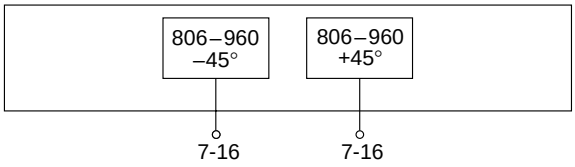


Horizontal Pattern Vertical Pattern

806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.5 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 272 x 160 mm
Height/width/depth	1294 / 259 / 112 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Compact Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

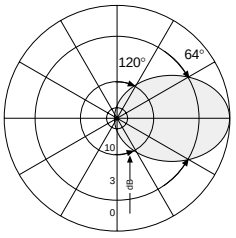
806–960
X
65°
0°

KATHREIN
Antennen · Electronic

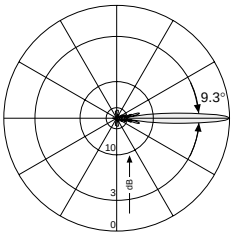
XPol C-Panel 806–960 65° 17dBi 0°T

Type No.	800 10203		
Frequency range		**806–960**	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.7 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.2°	Horizontal: 66° Vertical: 10°	Horizontal: 64° Vertical: 9.3°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	 > 17 dB > 15 dB	 > 17 dB > 15 dB	 > 17 dB > 15 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±30° Sector ±60°	 > 20 dB > 18 dB > 12 dB	 > 20 dB > 18 dB > 12 dB	 > 20 dB > 18 dB > 12 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

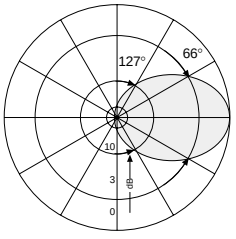


Horizontal Pattern

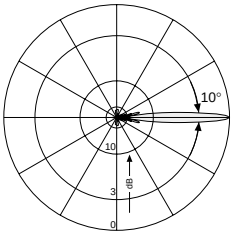


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

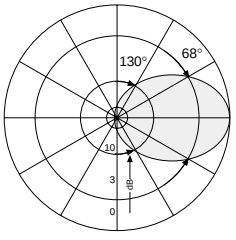


Horizontal Pattern

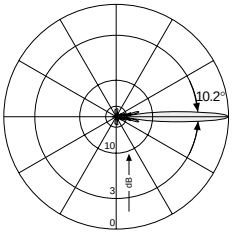


Vertical Pattern

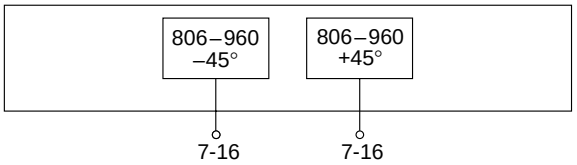
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	9.5 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 220 N (at 150 km/h) Rearside: 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2062 x 272 x 160 mm
Height/width/depth	1934 / 259 / 112 mm

Compact Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

806 – 960
X
65°
0°

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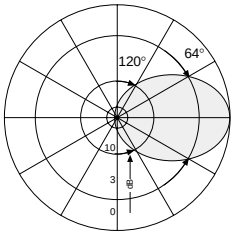
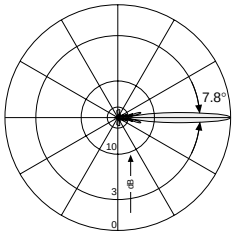
XPol C-Panel 806–960 65° 18dBi 0°T

Type No.	800 10204		
Frequency range		806 – 960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.4 dBi	2 x 17.6 dBi	2 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.5°	Horizontal: 66° Vertical: 8.3°	Horizontal: 64° Vertical: 7.8°
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	> 15 dB > 15 dB	> 15 dB > 15 dB	> 15 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±30° Sector ±60°	> 18 dB > 16 dB > 10 dB	> 19 dB > 16 dB > 10 dB	> 20 dB > 17 dB > 11 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.4	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

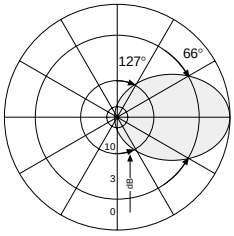


Horizontal Pattern

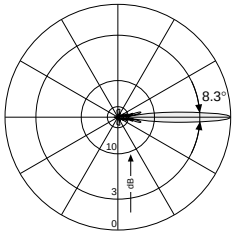


Vertical Pattern

824 – 894 MHz: +45°/–45° Polarization

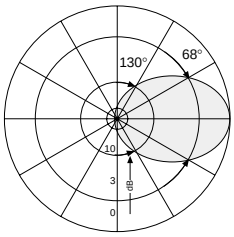


Horizontal Pattern

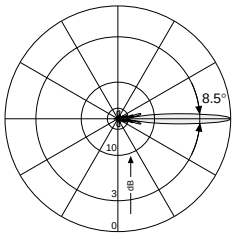


Vertical Pattern

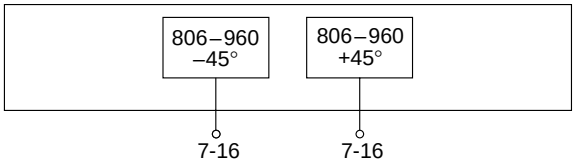
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Rearside
Weight	11 kg
Wind load	Frontal: 400 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 890 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2382 x 272 x 160 mm
Height/width/depth	2254 / 259 / 112 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Compact Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

806 – 960
X
65°
6°

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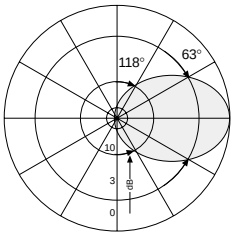
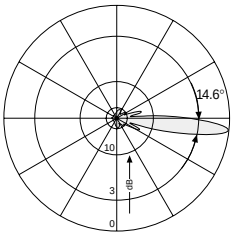
XPol C-Panel 806–960 65° 15dBi 6°T

Type No.	800 10207		
Frequency range		806 – 960	
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.5 dBi	2 x 14.7 dBi	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 16°	Horizontal: 65° Vertical: 15.7°	Horizontal: 63° Vertical: 14.6°
Electrical tilt	6°, fixed	6°, fixed	6°, fixed
Sidelobe suppression for: first sidelobe above horizon sector 0°–30° above horizon	 > 14 dB > 14 dB	 > 15 dB > 15 dB	 > 16 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Isolation	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Tpyically: > 20 dB Typically: > 10 dB	 Typically: > 20 dB Typically: > 10 dB	 Typically: > 20 dB Typically: > 10 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.3	< 1.3	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	500 W (at 50 °C ambient temperature)		

880 – 960 MHz: +45°/–45° Polarization

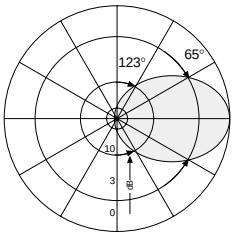


Horizontal Pattern

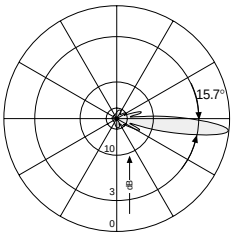


Vertical Pattern
6° electrical downtilt

824 – 894 MHz: +45°/–45° Polarization

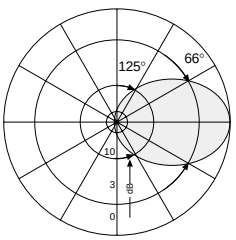


Horizontal Pattern

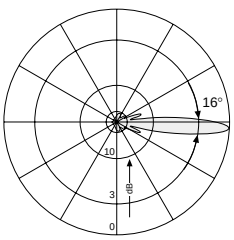


Vertical Pattern
6° electrical downtilt

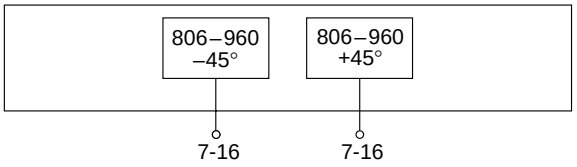
806 – 866 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.5 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 272 x 160 mm
Height/width/depth	1294 / 259 / 112 mm

Summary – Directional Antennas
Vertical Polarization
GSM 900 / GSM-R / GSM 850 / CDMA 800

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Vertical Polarization – 800/900

Type					Type No.	Height [mm]	Connector position	Page
VPol Panel	870–960	20°	16.5dBi		735 727	500	bottom	40
VPol ParPanel	870–960	36°	20dBi		K 73 45 64 7	2250	bottom	41
VPol LogPer	790–960	51°	12dBi		K 73 22 67	300	bottom	42
VPol Panel	860–960	65°	9dBi		730 677	264	bottom or top	43
VPol Panel	870–960	65°	15.5dBi		730 368	1294	bottom	43
VPol Panel	806–960	65°	15.5dBi	6°T	732 691	1294	bottom	44
VPol Panel	870–960	65°	17dBi		730 691	1934	rearside	44
VPol Panel	870–960	65°	17dBi	9°T	737 547	1934	rearside	45
VPol Panel	870–960	65°	18dBi		739 854	2254	rearside	45
VPol Panel	870–960	65°	18.5dBi		730 376	2574	rearside	46
VPol Panel	870–960	65°	18.5dBi	6°T	732 689	2574	bottom	46
VPol F-Panel	872–960	90°	7.5dBi		736 854	262	bottom or top	47
VPol F-Panel	872–960	90°	10dBi		736 855	502	bottom or top	47
VPol Panel	870–960	90°	15.5dBi		732 967	1934	rearside	48
VPol Panel	870–960	90°	17dBi		730 378	2574	rearside	48
VPol Panel	870–960	105°	16.5dBi		730 380	2574	rearside	49
VPol Panel	870–960	120°	15.5dBi		739 856	2254	rearside	50
VPol Panel	870–960	120°	16dBi		730 382	2574	rearside	50

Additional versions on request

Panel
Vertical Polarization
Half-power Beam Width

870 – 960

V

20°

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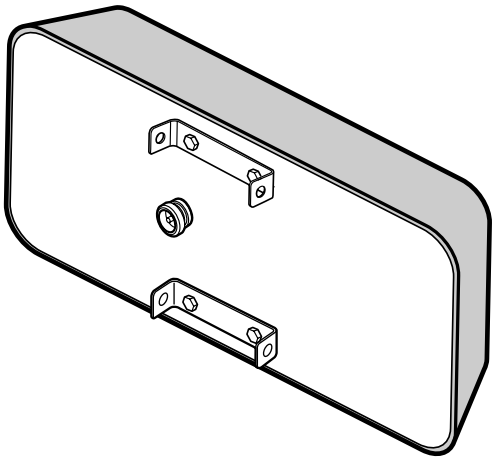
VPol Panel 870–960 20° 16.5dBi

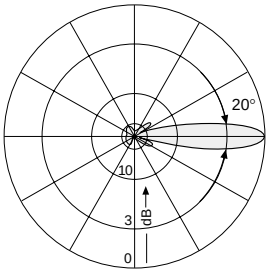
Type No.	735 727
Input	7-16 female
Frequency range	870 – 960 MHz
VSWR	< 1.3
Gain	16.5 dBi
Impedance	50 Ω
Polarization	Vertical
Front-to-back-ratio	> 24 dB
Half-power Beam Width	H-plane: 20°/ E-plane: 33°
Max. power	500 W (at 50 °C ambient temperature)
Weight	10 kg
Wind load	Frontal: 500 N (at 150 km/h)
	Lateral: 110 N (at 150 km/h)
	Rearside: 715 N (at 150 km/h)
Max. wind velocity	230 km/h
Packing size	1062 x 562 x 275 mm
Height/width/depth	492 / 992 / 190 mm

Material:	Radiator: Aluminum. Reflector screen: Weather-proof aluminum. Radome: Fiberglass, colour: White. All screws and nuts: Stainless steel.
Ice protection:	Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.
Grounding:	All metal parts of the antenna as well as the inner conductor are DC grounded.

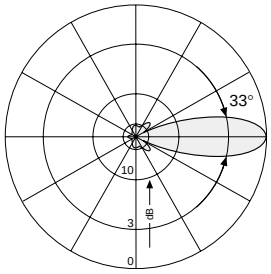


Accessories (order separately)

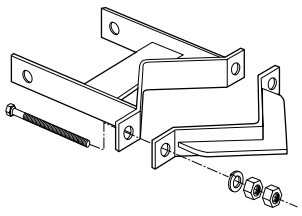
Type No.	Description	Remarks
K 61 14 02	2 clamps	Mast: 60 – 115 mm diameter
K 61 14 03	2 clamps	Mast: 115 – 210 mm diameter
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter



Horizontal Pattern



Vertical Pattern



K 61 14 03

Parabolic Panel
Vertical Polarization
Half-power Beam Width

870 – 960

V

36°

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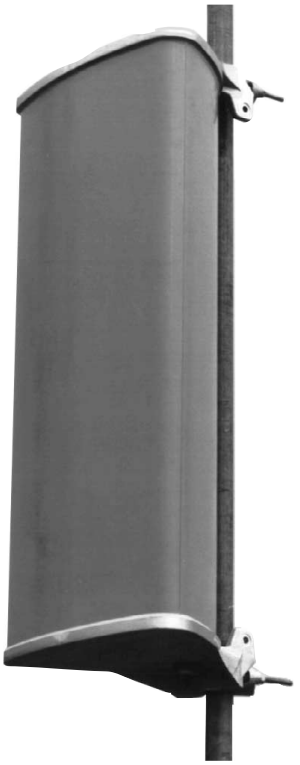
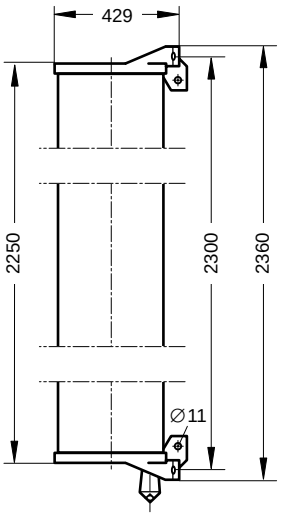
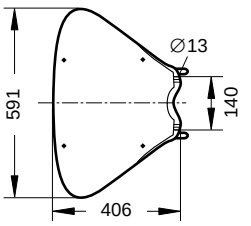


VPol ParPanel 870–960 36° 20dBi

Type No.	K 73 45 64 7
Input	7-16 female
Frequency range	870 – 960 MHz
VSWR	< 1.3
Gain	20 dBi
Impedance	50 Ω
Polarization	Vertical
Front-to-back ratio	> 30 dB
Half-power Beam Width	H-plane: 36°/ E-plane: 8°
Max. power	500 W (at 50 °C ambient temperature)
Weight	30 kg
Wind load	Frontal: 950 N (at 150 km/h) Lateral: 600 N (at 150 km/h) Rearside: 950 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2420 x 640 x 465 mm
Height/width/depth	2250 / 591 / 406 mm

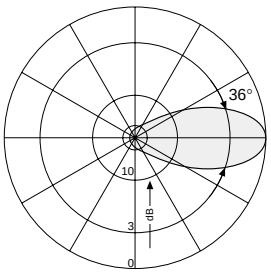
Material:	Radiator: Weather-proof aluminum. Reflector screen: Weather-proof aluminum. Radome: Fiberglass, colour: Grey. All screws and nuts: Stainless steel.
Ice protection:	Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.
Grounding:	All metal parts of the antenna are DC grounded. The inner conductor is coupled capacitively.



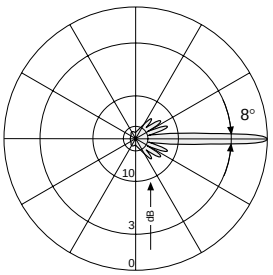


Accessories (order separately)

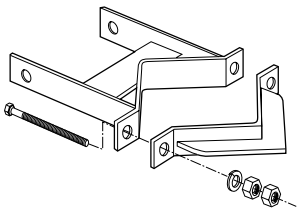
Type No.	Description	Remarks
733 736	2 clamps	Mast: 50 – 125 mm diameter
K 61 14 03	2 clamps	Mast: 115 – 210 mm diameter
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter
733 695	1 downtilt kit	Downtilt angle: 0° – 10° Use the downtilt kit together with 2 clamps suitable for the mast diameter.



Horizontal Pattern



Vertical Pattern



K 61 14 03

Logarithmic periodic Vertical Polarization Half-power Beam Width

790 – 960

V

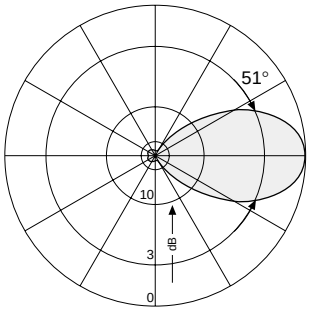
51°

KATHREIN
Antennen · Electronic

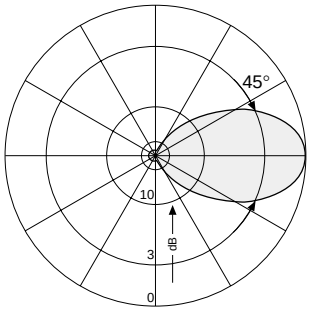
VPol LogPer 790–960 51° 12dBi

Type No.	K 73 22 67
Input	7-16 female
Frequency range	790 – 960 MHz
VSWR	< 1.4
Gain	12 dBi
Impedance	50 Ω
Polarization	Vertical
Side-lobe supression	> 25 dB
Front-to-back ratio	> 30 dB
Half-power Beam Width	H-plane: 51°/ E-plane: 45°
Max. power	500 W (at 50 °C ambient temperature)
Weight	6.3 kg
Wind load	Frontal: 20 N (at 150 km/h)
	Lateral: 260 N (at 150 km/h)
	Rearside: 30 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 360 x 175 mm
Height/width/depth	300 / 155 / 785 mm

Material:	Radiator: Weather-proof aluminum. Reflector screen: Weather-proof aluminum. Radome: Fiberglass, colour: Grey. All screws and nuts: Stainless steel.
Mounting:	The antenna can be mounted on tubular mast with a diameter of 30 – 70 mm with supplied clamps.
Ice protection:	Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.
Grounding:	All metal parts of the antenna as well as the inner conductor are DC grounded.



Horizontal Pattern



Vertical Pattern

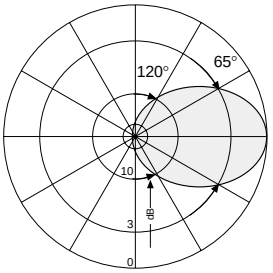
Eurocell Panel
Vertical Polarization
Half-power Beam Width

900
V
65°

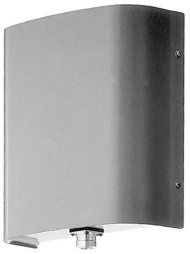
KATHREIN
Antennen · Electronic

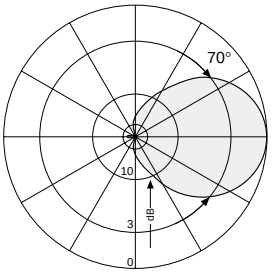
VPol Panel 860–960 65° 9dBi

Type No.	730 677
Frequency range	860 – 960 MHz
Polarization	Vertical
Gain	9 dBi
Half-power beam width	H-plane: 65° E-plane: 70°
Front-to-back ratio	> 25 dB (890 – 960 MHz) > 20 dB (860 – 890 MHz)
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	350 W (at 50 °C ambient temperature)
Input	N female
Connector position	Bottom or top
Weight	1.2 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 40 N / 25 N / 90 N
Max. wind velocity	230 km/h
Height/width/depth	264 / 258 / 103 mm



Horizontal Pattern

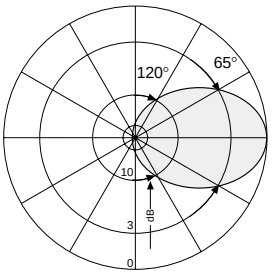




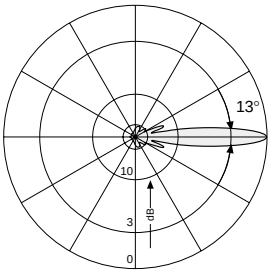
Vertical Pattern

VPol Panel 870–960 65° 15.5dBi

Type No.	730 368
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	15.5 dBI
Half-power beam width	H-plane: 65° E-plane: 13°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 220 N / 140 N / 490 N
Max. wind velocity	200 km/h
Height/width/depth	1294 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Eurocell Panel
Vertical Polarization
Half-power Beam Width

800/900

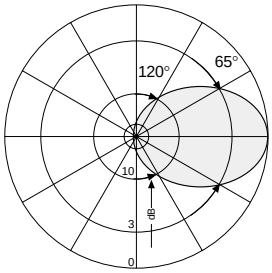
V

65°

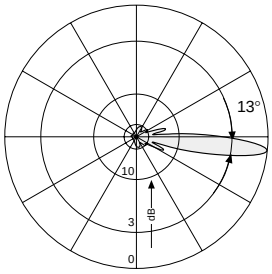
KATHREIN
Antennen · Electronic

VPol Panel 806–960 65° 15.5dBi 6°T

Type No.	732 691
Frequency range	806 – 960 MHz
Polarization	Vertical
Gain	15.5 dBi
Half-power beam width	H-plane: 65° E-plane: 13°
Electrical downtilt	6°, fixed
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 220 N / 140 N / 490 N
Max. wind velocity	200 km/h
Height/width/depth	1294 / 258 / 103 mm



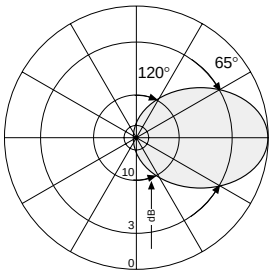
Horizontal Pattern



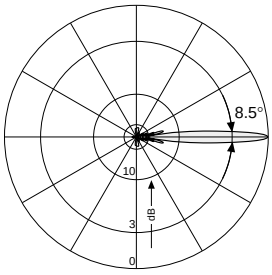
Vertical Pattern
6° electrical downtilt

VPol Panel 870–960 65° 17dBi

Type No.	730 691
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 65° E-plane: 8.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 340 N / 220 N / 750 N
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Eurocell Panel
Vertical Polarization
Half-power Beam Width

870 – 960

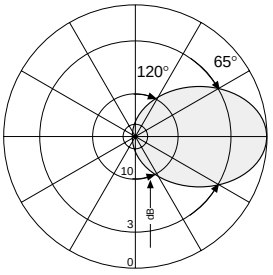
V

65°

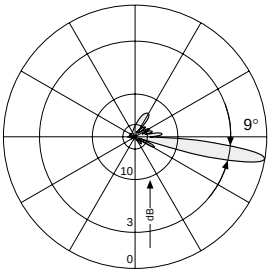
KATHREIN
Antennen · Electronic

VPol Panel 870–960 65° 17dBi 9°T

Type No.	737 547
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 65° E-plane: 8.5°
Electrical downtilt	9°, fixed
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 340 N / 220 N / 750 N
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



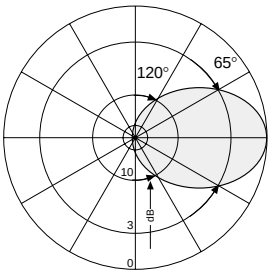
Horizontal Pattern



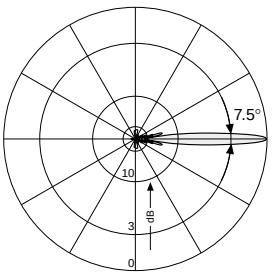
Vertical Pattern
9° electrical downtilt

VPol Panel 870–960 65° 18dBi

Type No.	739 854
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	18 dBi
Half-power beam width	H-plane: 65° E-plane: 7.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	400 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	10.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 400 N / 260 N / 890 N
Max. wind velocity	180 km/h
Height/width/depth	2254 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Eurocell Panel
Vertical Polarization
Half-power Beam Width

870 – 960

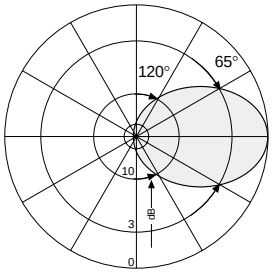
V

65°

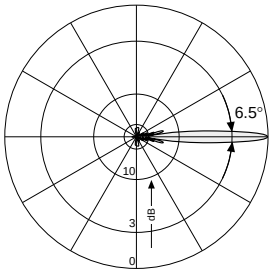
KATHREIN
Antennen · Electronic

VPol Panel 870–960 65° 18.5dBi

Type No.	730 376
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	18.5 dBi
Half-power beam width	H-plane: 65° E-plane: 6.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



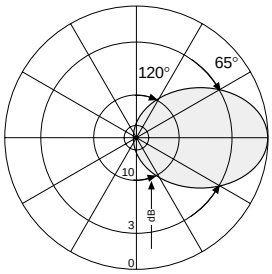
Horizontal Pattern



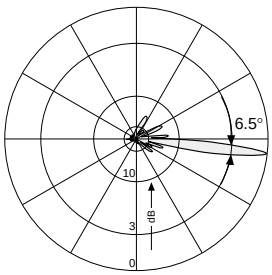
Vertical Pattern

VPol Panel 870–960 65° 18.5dBi 6°T

Type No.	732 689
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	18.5 dBi
Half-power beam width	H-plane: 65° E-plane: 6.5°
Electrical downtilt	6°, fixed
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

F-Panel
Vertical Polarization
Half-power Beam Width

872 – 960

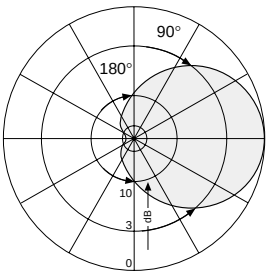
V

90°

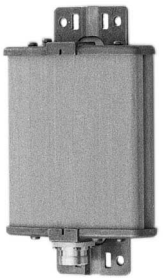
KATHREIN
Antennen · Electronic

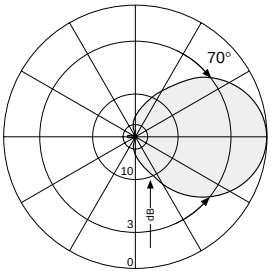
VPol F-Panel 872–960 90° 7.5dBi

Type No.	736 854
Frequency range	872 – 960 MHz
Polarization	Vertical
Gain	7.5 dBi
Half-power beam width	H-plane: 90° E-plane: 70°
Front-to-back ratio	> 20 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –140 dBc
Max. power	350 W (at 50 °C ambient temperature)
Input	N female
Connector position	Bottom or top
Weight	1.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 45 N / 20 N / 60 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	262 / 155 / 49 mm



Horizontal Pattern

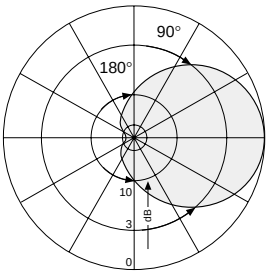




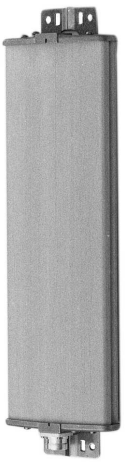
Vertical Pattern

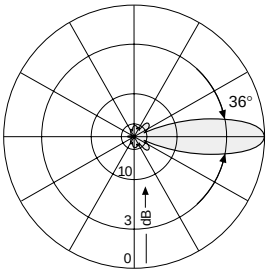
VPol F-Panel 872–960 90° 10dBi

Type No.	736 855
Frequency range	872 – 960 MHz
Polarization	Vertical
Gain	10 dBi
Half-power beam width	H-plane: 90° E-plane: 36°
Front-to-back ratio	> 20 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	400 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom or top
Weight	2.3 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 90 N / 40 N / 110 N
Max. wind velocity	200 km/h
Height/width/depth	502 / 155 / 49 mm



Horizontal Pattern





Vertical Pattern

Eurocell Panel
Vertical Polarization
Half-power Beam Width

870 – 960

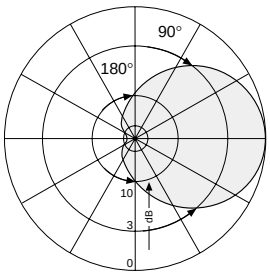
V

90°

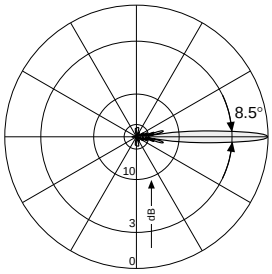
KATHREIN
Antennen · Electronic

VPol Panel 870–960 90° 15.5dBi

Type No.	732 967
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	15.5 dBi
Half-power beam width	H-plane: 90° E-plane: 8.5°
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 340 N / 220 N / 750 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	1934 / 258 / 103 mm



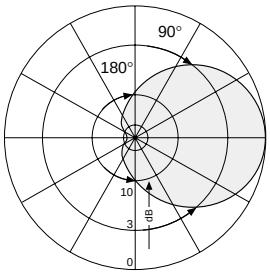
Horizontal Pattern



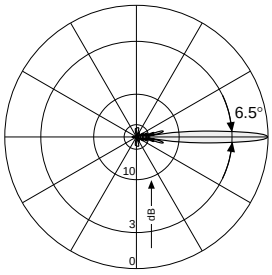
Vertical Pattern

VPol Panel 870–960 90° 17dBi

Type No.	730 378
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	17 dBi
Half-power beam width	H-plane: 90° E-plane: 6.5°
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Eurocell Panel
Vertical Polarization
Half-power Beam Width

870 – 960

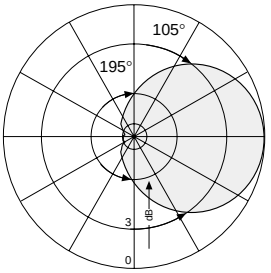
V

105°

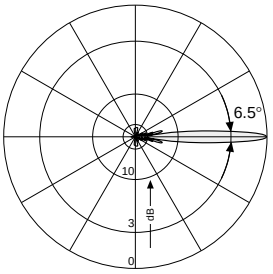
KATHREIN
Antennen · Electronic

VPol Panel 870–960 105° 16.5dBi

Type No.	730 380
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	16.5 dBi
Half-power beam width	H-plane: 105° E-plane: 6.5°
Front-to-back ratio	> 22 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Eurocell Panel
Vertical Polarization
Half-power Beam Width

870 – 960

V

120°

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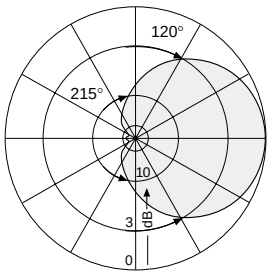
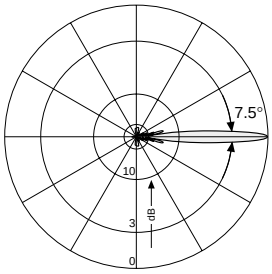
Antennen · Electronic

VPol Panel 870–960 120° 15.5dBi

Type No.	739 856
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	15.5 dBi
Half-power beam width	H-plane: 120° E-plane: 7.5°
Front-to-back ratio	> 20 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	400 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	10.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 400 N / 260 N / 890 N
Max. wind velocity	180 km/h
Height/width/depth	2254 / 258 / 103 mm



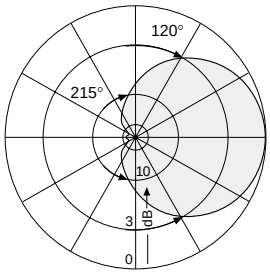
Horizontal Pattern



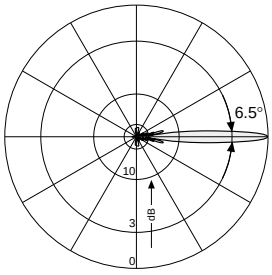
Vertical Pattern

VPol Panel 870–960 120° 16dBi

Type No.	730 382
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	16 dBi
Half-power beam width	H-plane: 120° E-plane: 6.5°
Front-to-back ratio	> 20 dB
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Rearside
Weight	12 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 460 N / 300 N / 1020 N
Max. wind velocity	200 km/h
Height/width/depth	2574 / 258 / 103 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Summary – Directional Antennas
Dual Polarization +45°/–45°
GSM 1800 / GSM 1900 / PCS

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Dual Polarization +45°/–45° – 1800/1900

Type					Type No.	Height [mm]	Connector position	Page
XPol F-Panel	1710–1880	33°	19.5dBi	2°T	739 927	982	bottom	52
XPol F-Panel	1710–1880	33°	22dBi	2°T	741 623	1942	bottom	52
XPol F-Panel	1710–1880	65°	15.5dBi		739 490	662	bottom or top	53
XPol F-Panel	1710–1880	65°	15.5dBi	6°T	739 491	662	bottom	53
XPol F-Panel	1710–1880	65°	15dBi	12°T	741 264	662	bottom	54
XPol F-Panel	1710–1880	65°	18dBi		739 494	1302	bottom or top	54
XPol F-Panel	1710–1990	65°	18dBi	2°T	739 495	1302	bottom	55
XPol F-Panel	1710–1990	65°	19.5dBi	2°T	739 498	1942	bottom	55
XPol F-Panel	1710–1990	90°	8dBi		739 695	174	bottom or top	56
XPol F-Panel	1710–1880	90°	16.5dBi	2°T	739 707	1302	bottom	57
XPol F-Panel	1710–1880	90°	16.5dBi	6°T	739 708	1302	bottom	57
XPol F-Panel	1710–1880	90°	17.5dBi	2°T	739 710	1902	bottom	58

F-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–1880	
X	
33°	
2°	

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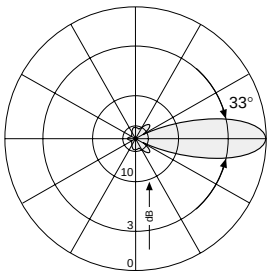
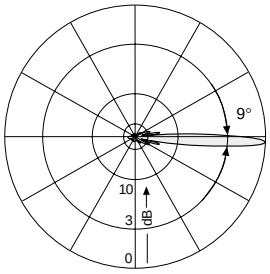
XPol F-Panel 1710–1880 33° 19.5dBi 2°T

Type No.	739 927	
Frequency range	1710 – 1880 MHz	
Polarization	+45°, –45°	
Gain	2 x 19.5 dBi	
Half-power beam width Copolar	+45° Horizontal: 33° Vertical: 9°	–45° Horizontal: 33° Vertical: 9°
Electrical tilt	2°, fixed	
Sidelobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	200 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	7 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 260 N / 95 N / 370 N	
Max. wind velocity	200 km/h	
Height/width/depth	982 / 262 / 59 mm	

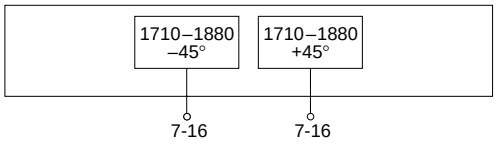


Horizontal Pattern



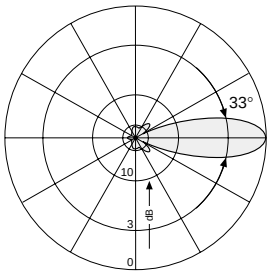
Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal –25 dB below maximum gain

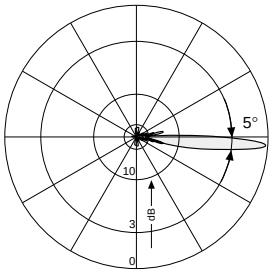


XPol F-Panel 1710–1880 33° 22dBi 2°T

Type No.	741 623	
Frequency range	1710 – 1880 MHz	
Polarization	+45°, –45°	
Gain	2 x 22 dBi	
Half-power beam width Copolar	+45° Horizontal: 33° Vertical: 5°	–45° Horizontal: 33° Vertical: 5°
Electrical tilt	2°, fixed	
Sidelobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain	
Front-to-back ratio, copolar	> 30 dB	
Isolation	> 30 dB	
Impedance	50 Ω	
VSWR	< 1.5	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	200 W (at 50 °C ambient temperature)	
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	11 kg	
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 540 N / 210 N / 770 N	
Max. wind velocity	200 km/h	
Height/width/depth	1942 / 262 / 59 mm	



Horizontal Pattern



Vertical Pattern
2° electrical downtilt

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

F-Panel
Dual Polarization
Half-power Beam Width

1710–1880

X

65°

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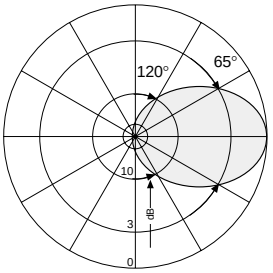
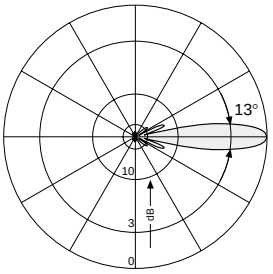
XPol F-Panel 1710–1880 65° 15.5dBi

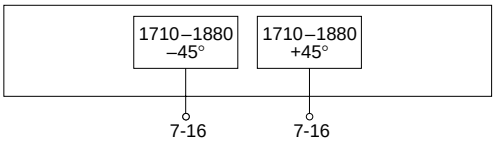
Type No.	739 490
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 13°
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	3.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 150 N / 55 N / 120 N
Max. wind velocity	200 km/h
Height/width/depth	662 / 155 / 49 mm



Horizontal Pattern

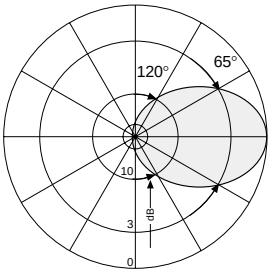


Vertical Pattern

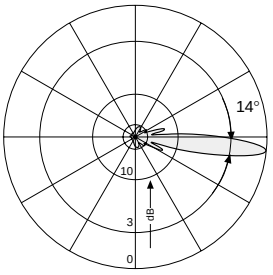


XPol F-Panel 1710–1880 65° 15.5dBi 6°T

Type No.	739 491
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 15.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°
Electrical tilt	6°, fixed
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	3.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 150 N / 55 N / 120 N
Max. wind velocity	200 km/h
Height/width/depth	662 / 155 / 49 mm



Horizontal Pattern

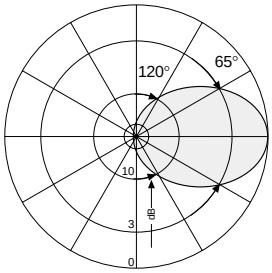


Vertical Pattern
6° electrical downtilt

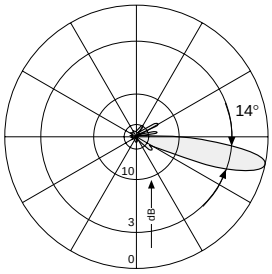
XPol

XPol F-Panel 1710–1880 65° 15dBi 12°T

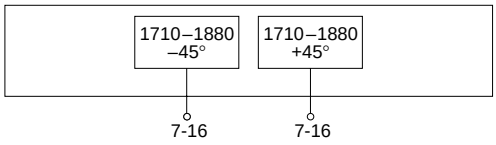
Type No.	741 264
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 15 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°
Electrical tilt	12°, fixed
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	3.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 150 N / 55 N / 120 N
Max. wind velocity	200 km/h
Height/width/depth	662 / 155 / 49 mm



Horizontal Pattern

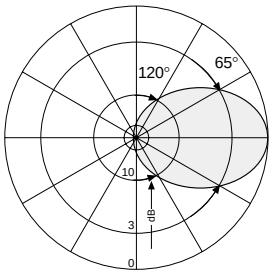


Vertical Pattern
12° electrical downtilt

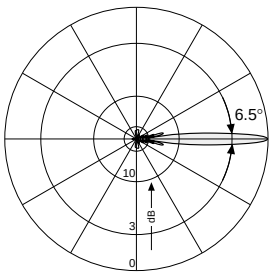


XPol F-Panel 1710–1880 65° 18dBi

Type No.	739 494
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 6.5°
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 310 N / 110 N / 250 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern

F-Panel
Dual Polarization
Half-power Beam Width

1710–1990

X

65°

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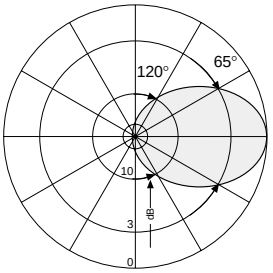
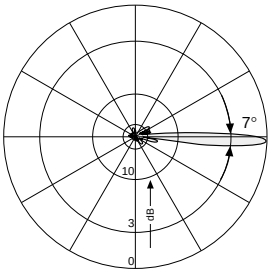
XPol F-Panel 1710–1990 65° 18dBi 2°T

Type No.	739 495
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4 (1710 – 1880 MHz) < 1.5 (1880 – 1990 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 310 N / 110 N / 250 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 49 mm

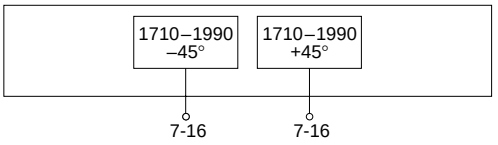


Horizontal Pattern



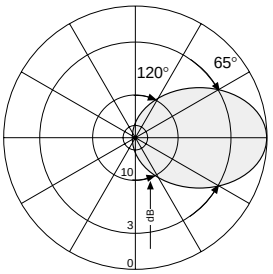
Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal –25 dB below maximum gain

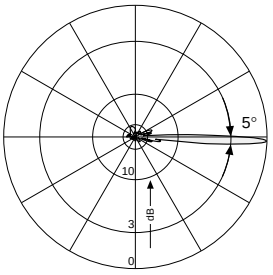


XPol F-Panel 1710–1990 65° 19.5dBi 2°T

Type No.	739 498
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 19.5 dBi (1880 – 1990 MHz) 2 x 19 dBi (1710 – 1880 MHz)
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 5°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 30 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	8.5 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 480 N / 180 N / 380 N
Max. wind velocity	200 km/h
Height/width/depth	1942 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern
2° electrical downtilt

F-Panel
Dual Polarization
Half-power Beam Width

1710 – 1990

X

90°

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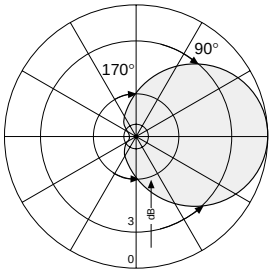
Antennen · Electronic

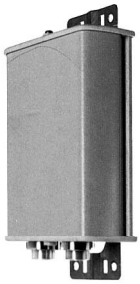
XPol

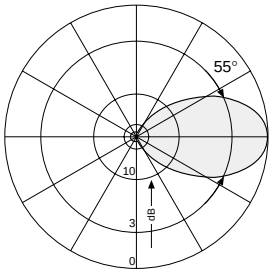
XPol F-Panel 1710–1990 90° 8dBi

Type No.	739 695
Frequency range	1710 – 1990 MHz
Polarization	+45°, –45°
Gain	2 x 8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 55°
Front-to-back ratio, copolar	> 20 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom or top
Weight	3 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 20 N / 15 N / 30 N
Max. wind velocity	200 km/h
Height/width/depth	174 / 155 / 69 mm

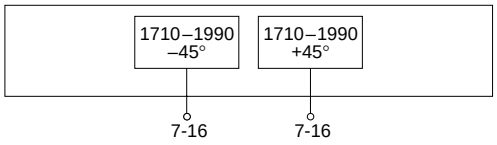


Horizontal Pattern





Vertical Pattern



Mounting accessories are not included in the scope of delivery (see page 194 – 197)

F-Panel
Dual Polarization
Half-power Beam Width

1710–1880

X

90°

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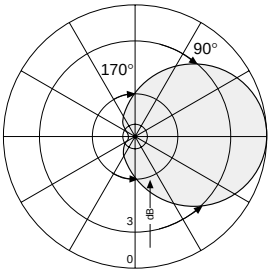
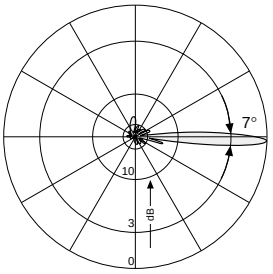
XPol F-Panel 1710–1880 90° 16.5dBi 2°T

Type No.	739 707
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 7°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 27 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 130 N / 110 N / 310 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 69 mm

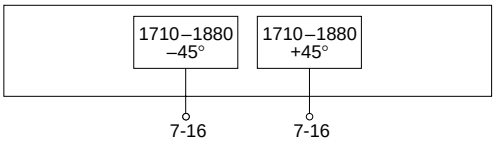


Horizontal Pattern



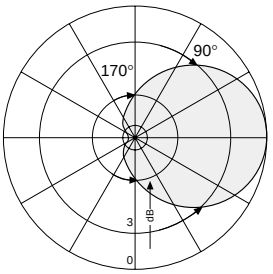
Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal –25 dB below maximum gain

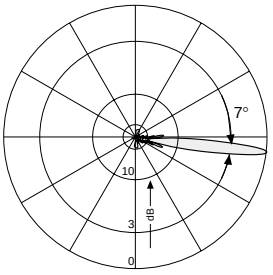


XPol F-Panel 1710–1880 90° 16.5dBi 6°T

Type No.	739 708
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 7°
Electrical tilt	6°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 27 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 130 N / 110 N / 310 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 69 mm



Horizontal Pattern



Vertical Pattern

– 6° electrical downtilt
– first null-fill below horizon better or equal –25 dB below maximum gain

F-Panel 1710–1880
Dual Polarization X
Half-power Beam Width 90°
Fixed Electrical Downtilt 2°

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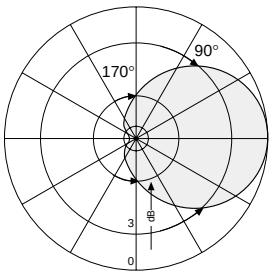
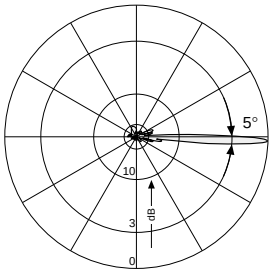
XPol

XPol F-Panel 1710–1880 90° 17.5dBi 2°T

Type No.	739 710
Frequency range	1710 – 1880 MHz
Polarization	+45°, –45°
Gain	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 90° Vertical: 5°
Electrical tilt	2°, fixed
Sidelobe suppression for first sidelobe above horizon	≥ 14 dB
Front-to-back ratio, copolar	> 25 dB
Isolation, between ports	> 30 dB
Impedance	50 Ω
VSWR	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power per input	200 W (at 50 °C ambient temperature)
Input	2 x 7-16 female
Connector position	Bottom
Weight	9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 190 N / 160 N / 470 N
Max. wind velocity	200 km/h
Height/width/depth	1902 / 155 / 69 mm

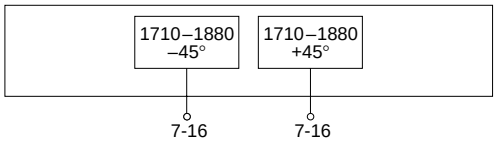


Horizontal Pattern



Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal –25 dB below maximum gain



Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Dual-band 800/900 1800/2000 – Dual Polarization +45°/–45°

Type						Type No.	Height [mm]	Page
XXPol A-Panel	870–960/1710–1880	C	65°/65°	12.5/13dBi		741 316	656	60
XXPol A-Panel	870–960/1710–1880	C	65°/60°	15/16.5dBi		741 320	1296	61
XXPol A-Panel	870–960/1710–1880		65°/60°	15/17dBi		741 326	1296	62
XXPol A-Panel	824–960/1710–1880	C	65°/63°	14.5/16.5dBi	0°–10°T/2°T	742 151	1296	63
XXPol A-Panel	870–960/1710–1880	C	65°/60°	17/18dBi		741 322	1936	64
XXPol A-Panel	870–960/1710–1880		65°/60°	17/18.5dBi		741 327	1936	65
XXPol A-Panel	870–960/1710–1880	C	65°/60°	18/19dBi		741 324	2580	66
XXPol A-Panel	870–960/1710–1880		65°/60°	18/19.5dBi		741 328	2580	67
XXPol A-Panel	870–960/1710–1880	C	65°/60°	17.5/17.5dBi	6°T	741 336	2580	68
XXPol A-Panel	870–960/1710–1880		65°/60°	17.5/18dBi	6°T	741 344	2580	69
XXPol A-Panel	870–960/1710–1880	C	65°/60°	17/18dBi	2°–8°T/2°T	742 047	2580	70

Connector position: Bottom

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Integrated Combiner

870–960	1710–1880
X	X
65°	65°
C	

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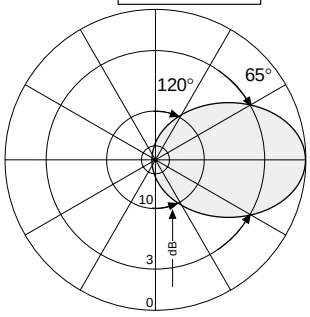
XXPol A-Panel 870–960/1710–1880 C 65°/65° 12.5/13dBi

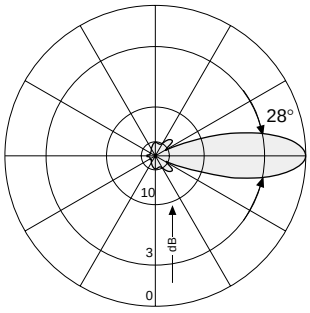
Type No.	741 316	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 12.5 dBi	2 x 13 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 28°	Horizontal: 60° Vertical: 19°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W

Integrated combiner	The insertion loss is included in the given antenna gain values.

870–960 +45°/–45° Polarization

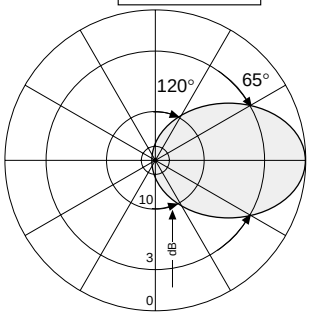


Horizontal Pattern

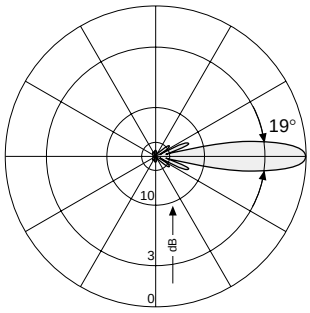


Vertical Pattern

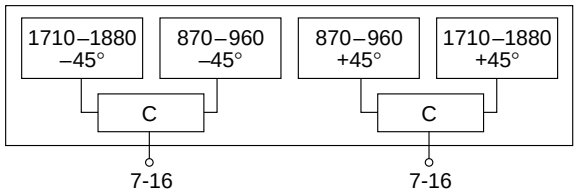
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	7 kg
Wind load	Frontal: 110 N (at 150 km/h) Lateral: 60 N (at 150 km/h) Rearside: 240 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	782 x 287 x 165 mm
Height/width/depth	656 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Integrated Combiner

	870 – 960	1710 – 1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Integrated Combiner	C	

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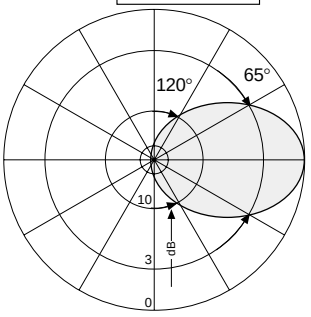
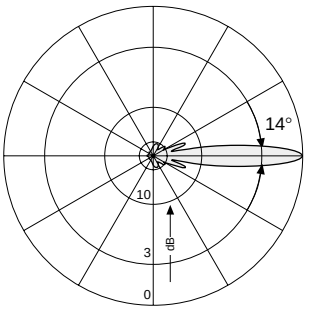
XXPol A-Panel 870–960/1710–1880 C 65°/60° 15/16.5dBi

Type No.	741 320	
Frequency range	870 – 960 870 – 960 MHz	1710 – 1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°	Horizontal: 60° Vertical: 8°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W
Integrated combiner	The insertion loss is included in the given antenna gain values.	

870 – 960 +45°/–45° Polarization

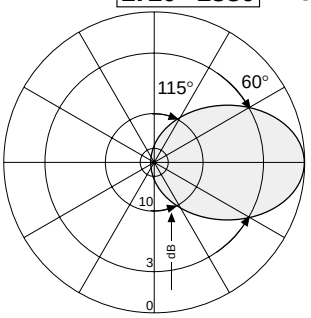


Horizontal Pattern

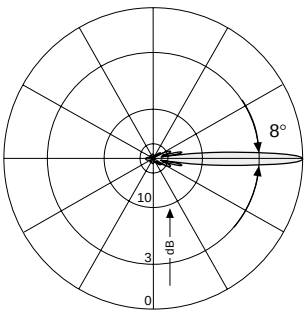


Vertical Pattern

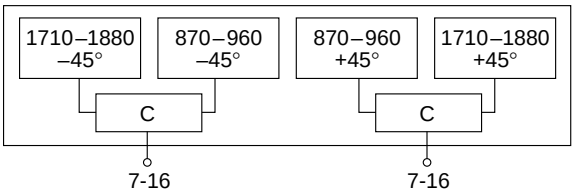
1710 – 1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	13 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

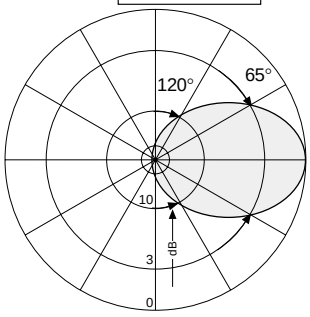
* Inverted mounting:
Connector position top: Change drain hole screw.

XXPol

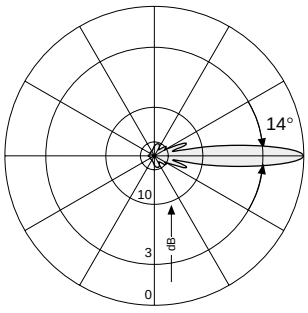
XXPol A-Panel 870–960/1710–1880 65°/60° 15/17dBi

Type No.	741 326	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 15 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 14°	Horizontal: 60° Vertical: 8°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W

870–960 +45°/–45° Polarization

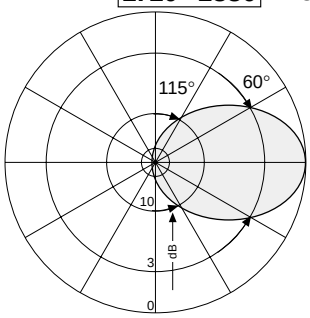


Horizontal Pattern

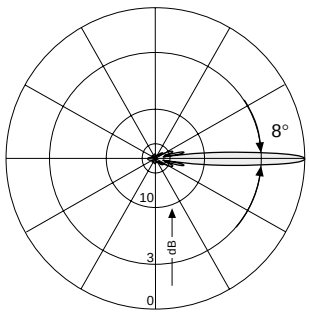


Vertical Pattern

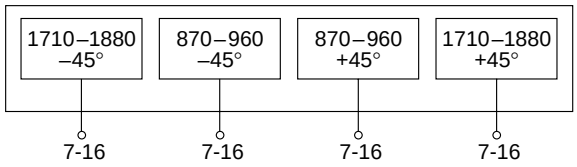
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	13 kg
Wind load	Frontal: 220 N (at 150 km/h) Lateral: 140 N (at 150 km/h) Rearside: 490 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Integrated Combiner

	824–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	63°
Adjust. Electr. Downtilt	0°–10°	2°
Integrated Combiner	C	

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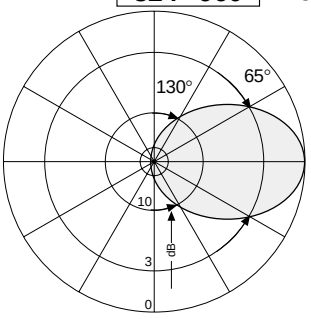
XXPol A-Panel 824–960/1710–1880 C 65°/63° 14.5/16.5dBi 0°–10°T/2°T

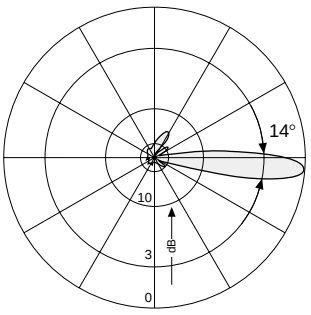
Type No.	742 151		
Frequency range	824–960		1710–1880
	824 – 880 MHz	880 – 960 MHz	1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14.5 dBi	2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.5°	Horizontal: 65° Vertical: 14°	Horizontal: 63° Vertical: 8.5°
Electrical tilt	0°–10°	0°–10°	2°
Sidelobe suppression for first sidelobe above horizon	0° ... 6° ... 10°T 16 ... 13 ... 12 dB	0° ... 6° ... 10°T 17 ... 15 ... 13 dB	16 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB		> 30 dB
Impedance	50 Ω		50 Ω
VSWR	< 1.5		< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)		150 W

Integrated combiner	The insertion loss is included in the given antenna gain values.

824–960 +45°/–45° Polarization

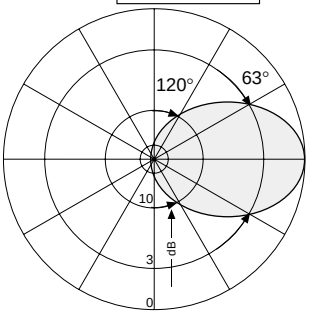


Horizontal Pattern

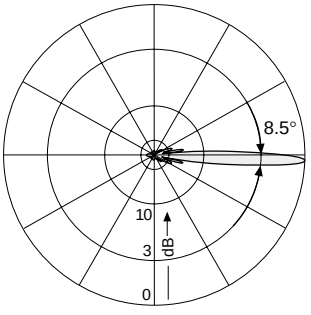


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

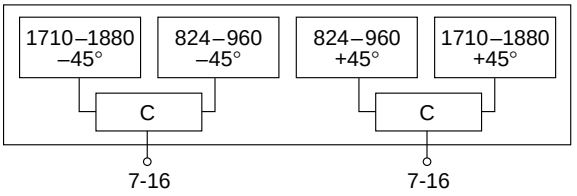
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	14 kg
Wind load	Frontal: 230 N (at 150 km/h) Lateral: 130 N (at 150 km/h) Rearside: 500 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1422 x 287 x 165 mm
Height/width/depth	1296 / 262 / 116 mm

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Integrated Combiner

	870–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Integrated Combiner	C	

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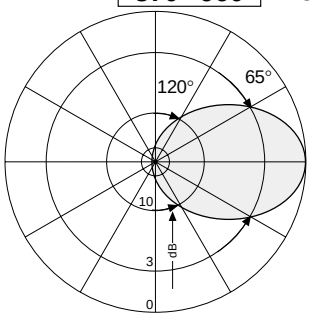
XXPol A-Panel 870–960/1710–1880 C 65°/60° 17/18dBi

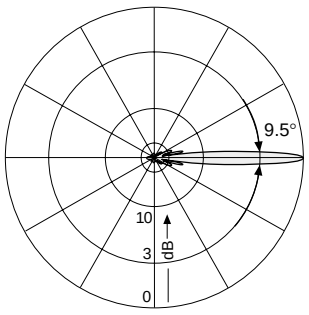
Type No.	741 322	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 9.5°	Horizontal: 60° Vertical: 5.5°
Sidelobe suppression for first sidelobe above horizon	> 15 dB	> 15 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W

Integrated combiner	The insertion loss is included in the given antenna gain values.

870–960 +45°/–45° Polarization

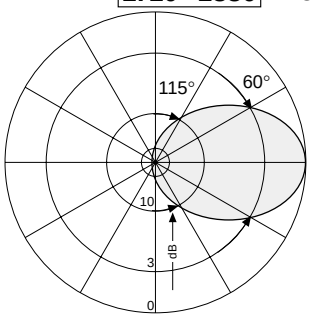


Horizontal Pattern

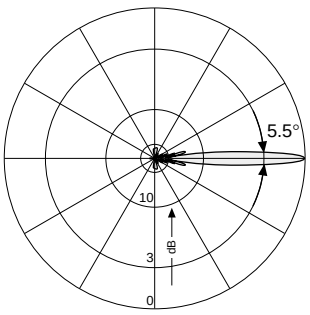


Vertical Pattern

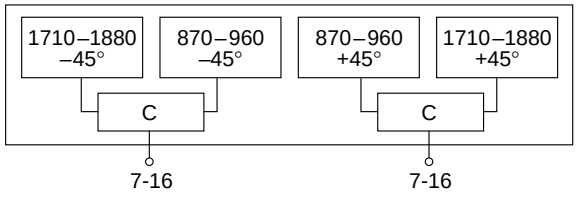
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	19 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2057 x 287 x 165 mm
Height/width/depth	1936 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Dual-band A-Panel
Dual Polarization
Half-power Beam Width

870 – 960	1710 – 1880
X	X
65°	60°

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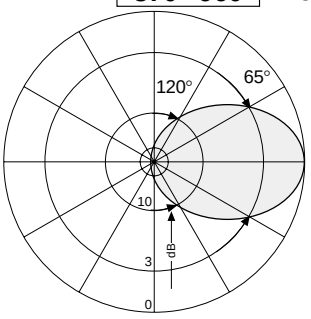
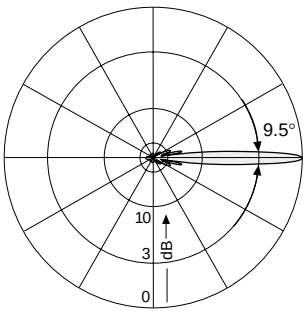
XXPol A-Panel 870–960/1710–1880 65°/60° 17/18.5dBi

Type No.	741 327	
Frequency range	870 – 960 870 – 960 MHz	1710 – 1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 9.5°	Horizontal: 60° Vertical: 5.5°
Sidelobe suppression for first sidelobe above horizon	> 15 dB	
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W

870 – 960 +45°/–45° Polarization

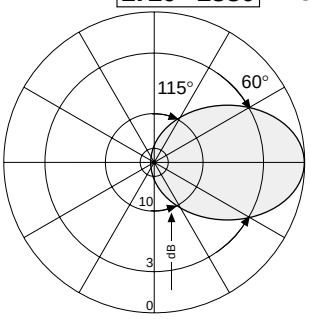


Horizontal Pattern

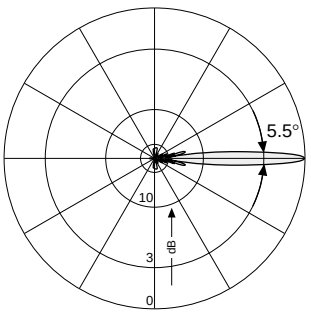


Vertical Pattern

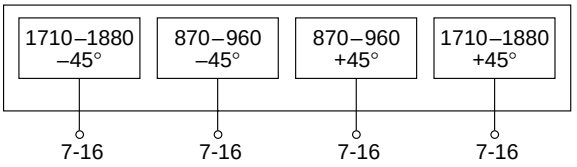
1710 – 1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	19 kg
Wind load	Frontal: 330 N (at 150 km/h) Lateral: 200 N (at 150 km/h) Rearside: 770 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2057 x 287 x 165 mm
Height/width/depth	1936 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Integrated Combiner

	870–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Integrated Combiner	C	

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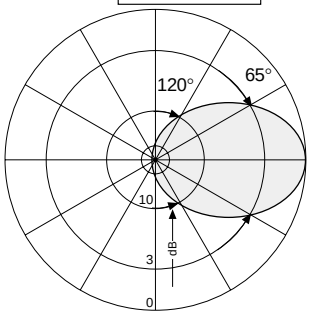
XXPol A-Panel 870–960/1710–1880 C 65°/60° 18/19dBi

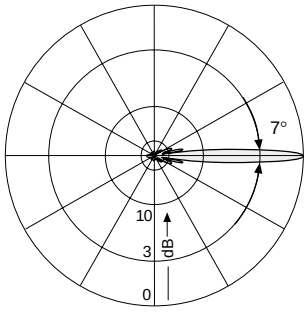
Type No.	741 324	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 19 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 4°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W

Integrated combiner	The insertion loss is included in the given antenna gain values.

870–960 +45°/–45° Polarization

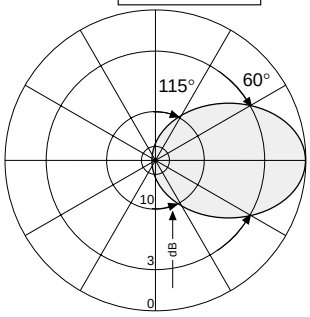


Horizontal Pattern

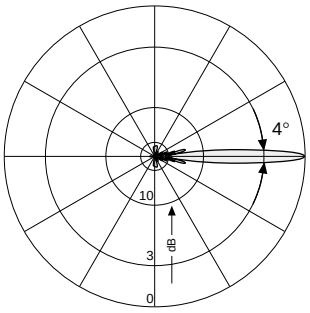


Vertical Pattern

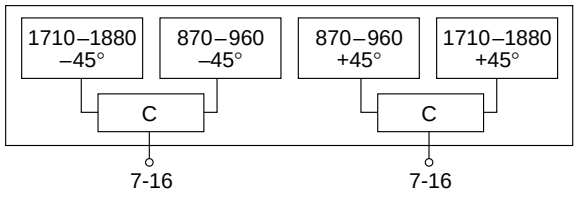
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position*	Bottom or top
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

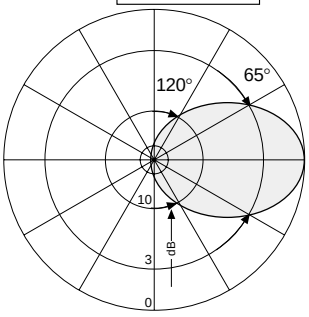
* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

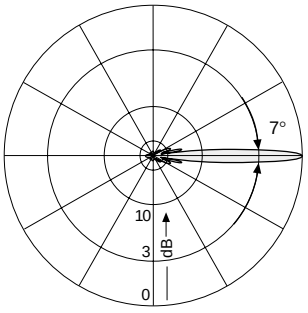
XXPol A-Panel 870–960/1710–1880 65°/60° 18/19.5dBi

Type No.	741 328	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 18 dBi	2 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 4°
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W

870–960 +45°/–45° Polarization

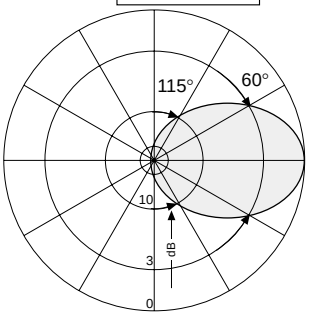


Horizontal Pattern

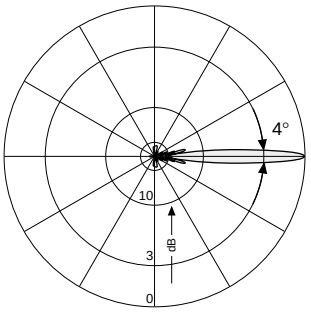


Vertical Pattern

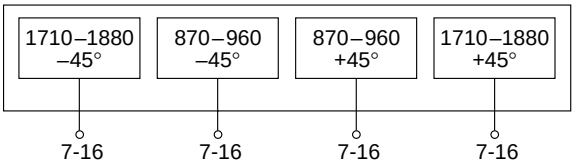
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	4 x 7-16 female
Connector position*	Bottom or top
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt
Integrated Combiner

	870–960	1710–1880
Dual Polarization	X	X
Half-power Beam Width	65°	60°
Fixed Electrical Downtilt	6°	6°
Integrated Combiner	C	

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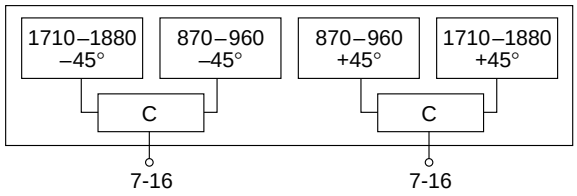
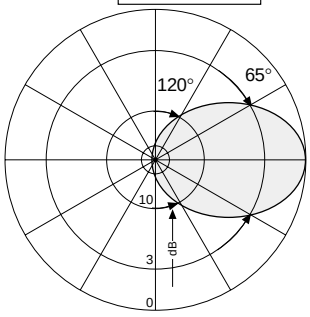
XXPol A-Panel 870–960/1710–1880 C 65°/60° 17.5/17.5dBi 6°T

Type No.	741 336	
Frequency range	870–960 870 – 960 MHz	1710–1880 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 17.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6.5°
Electrical tilt	6°, fixed	6°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W

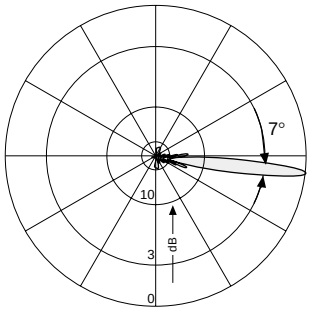
Integrated combiner	The insertion loss is included in the given antenna gain values.



870–960 +45°/–45° Polarization

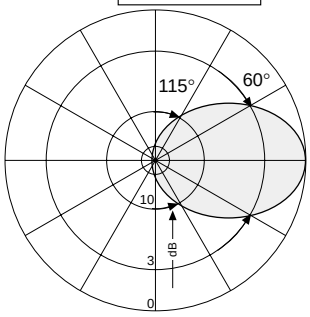


Horizontal Pattern

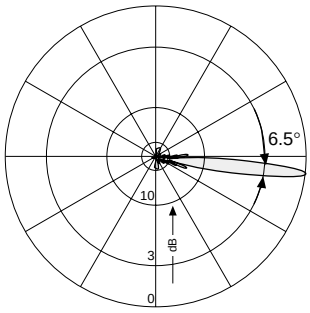


Vertical Pattern
6° electrical downtilt

1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Dual-band A-Panel	**870 – 960**	**1710 – 1880**
Dual Polarization	**X**	**X**
Half-power Beam Width	**65°**	**60°**
Fixed Electrical Downtilt	**6°**	**6°**

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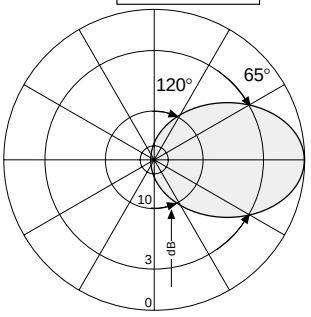
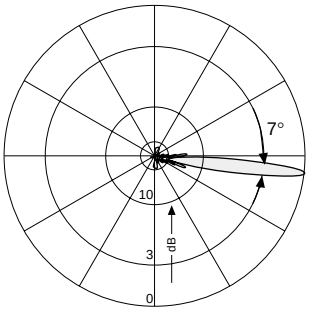
XXPol A-Panel 870–960/1710–1880 65°/60° 17.5/18dBi 6°T

Type No.	741 344	
Frequency range	**870 – 960** 870 – 960 MHz	**1710 – 1880** 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6.5°
Electrical tilt	6°, fixed	6°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB (GSM 900 – GSM 900) > 30 dB (GSM 1800 – GSM 1800) > 30 dB (GSM 900 – GSM 1800)	
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	400 W (at 50 °C ambient temperature)	200 W

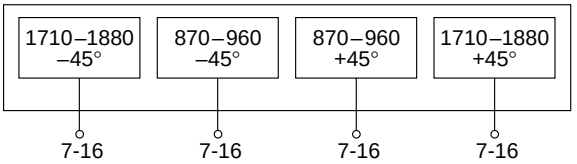
870 – 960 +45°/–45° Polarization



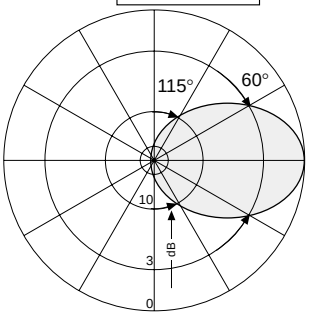
Horizontal Pattern



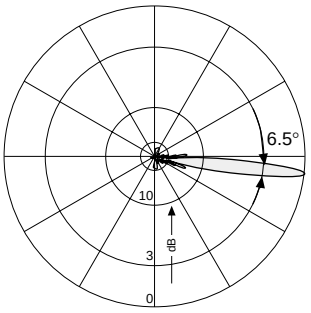
Vertical Pattern
6° electrical downtilt



1710 – 1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
6° electrical downtilt

Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt
Integrated Combiner

	870–960	**1710–1880**
	X	**X**
	65°	**60°**
	2°–8°	**2°**
	C	

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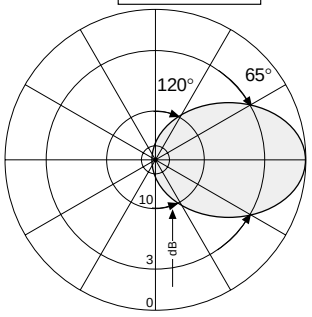
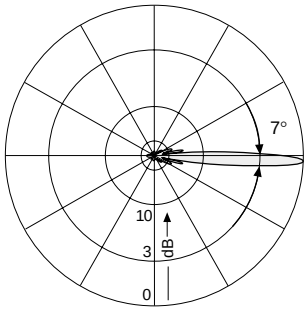
XXPol A-Panel 870–960/1710–1880 C 65°/60° 17/18dBi 2°–8°T/2°T

Type No.	**742 047**	
Frequency range	**870–960** 870 – 960 MHz	**1710–1880** 1710 – 1880 MHz
Polarization	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi (–0.5 dB)	2 x 18 dBi (–0.5 dB)
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 7°	Horizontal: 60° Vertical: 6°
Electrical tilt	2°–8°, adjustable	2°, fixed
Sidelobe suppression for first sidelobe above horizon	2° ... 4° ... 6° ... 8° T 20 ... 18 ... 17 ... 15 dB	2° T 17 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB
Isolation, between ports	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)	150 W
Integrated combiner	The insertion loss is included in the given antenna gain values.	

870–960 +45°/–45° Polarization

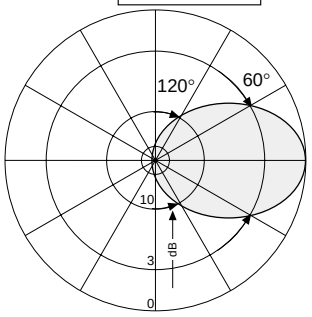


Horizontal Pattern

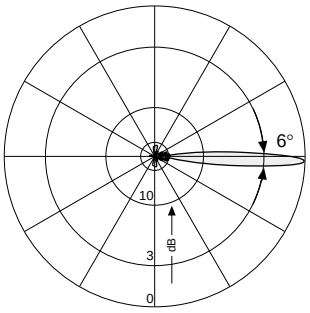


Vertical Pattern
2°–8° electrical downtilt
continuously adjustable

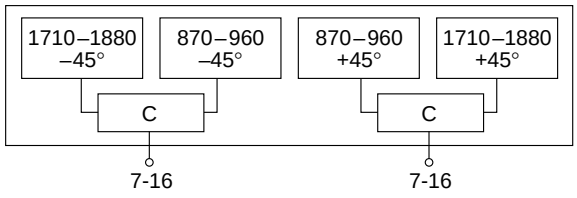
1710–1880 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	25 kg
Wind load	Frontal: 470 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 1040 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2692 x 287 x 165 mm
Height/width/depth	2580 / 262 / 116 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Summary – Directional Antennas
Vertical Polarization
GSM 1800 / GSM 1900 / PCS

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Vertical Polarization

Type					Type No.	Height [mm]	Connector position	Page
VPol F-Panel	1710–1990	33°	22.5dBi		739 136	1942	bottom or top	72
VPol F-Panel	1710–1900	65°	10dBi		734 304	182	bottom or top	73
VPol F-Panel	1710–1900	65°	18dBi	2°T	735 147	1302	bottom	73
VPol F-Panel	1710–1900	90°	8dBi		734 318	182	bottom or top	74
VPol F-Panel	1710–1900	90°	16.5dBi	2°T	734 328	1302	bottom	74
VPol F-Panel	1710–1900	90°	17.5dBi	2°T	734 330	1942	bottom	75

Additional versions on request

F-Panel
Vertical Polarization
Half-power Beam Width

1710–1990

V

33°

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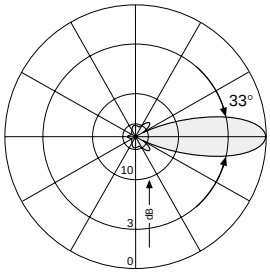
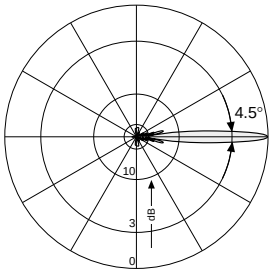
VPol F-Panel 1710–1990 33° 22.5dBi

Type No.	739 136
Frequency range	1710 – 1990 MHz
Polarization	Vertical
Gain	22.5 dBi (1880 – 1990 MHz) 22 dBi (1710 – 1880 MHz)
Half-power beam width	H-plane: 33° E-plane: 4.5°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom or top
Weight	11 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 540 N / 210 N / 770 N
Max. wind velocity	200 km/h
Height/width/depth	1942 / 262 / 59 mm



Horizontal Pattern



Vertical Pattern

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

F-Panel
Vertical Polarization
Half-power Beam Width

1710–1900

V

65°

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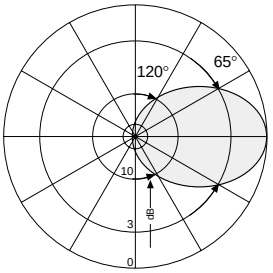
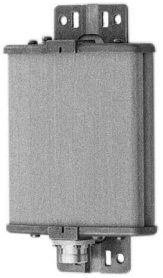
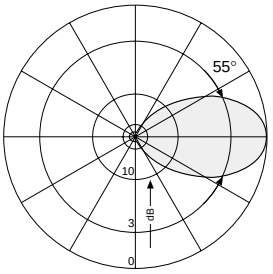
VPol F-Panel 1710–1900 65° 10dBi

Type No.	734 304
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	10 dBi
Half-power beam width	H-plane: 65° E-plane: 55°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom or top
Weight	1.3 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 30 N / 5 N / 40 N
Max. wind velocity	200 km/h
Height/width/depth	182 / 155 / 36 mm



Horizontal Pattern

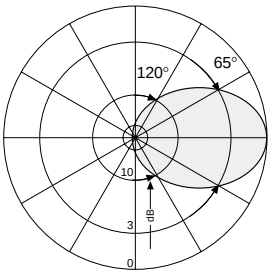




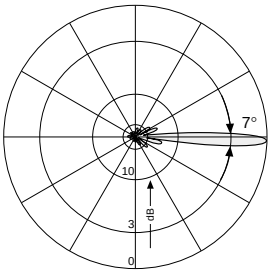
Vertical Pattern

VPol F-Panel 1710–1900 65° 18dBi 2°T

Type No.	735 147
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	18 dBi
Half-power beam width	H-plane: 65° E-plane: 7°
Electrical downtilt	2°, fixed
Side lobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	4.6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 260 N / 55 N / 310 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 36 mm

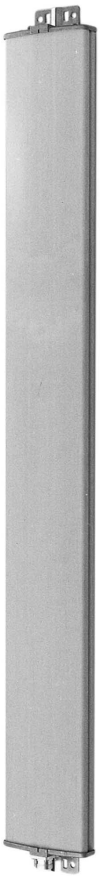


Horizontal Pattern



Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal to –25 dB below maximum gain



F-Panel
Vertical Polarization
Half-power Beam Width

1710–1900

V

90°

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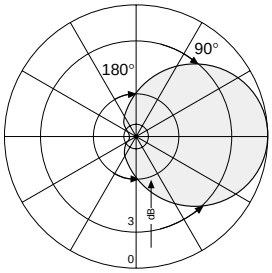
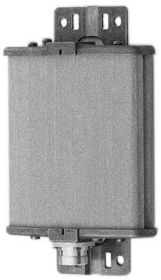
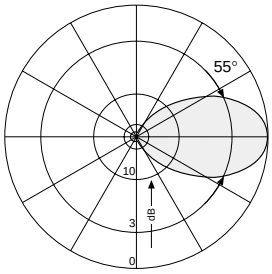
VPol F-Panel 1710–1900 90° 8dBi

Type No.	734 318
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	8 dBi
Half-power beam width	H-plane: 90° E-plane: 55°
Front-to-back ratio	> 19 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom or top
Weight	1.4 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 30 N / 15 N / 40 N (at 150 km/h)
Max. wind velocity	200 km/h
Height/width/depth	182 / 155 / 49 mm



Horizontal Pattern

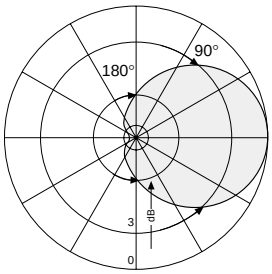




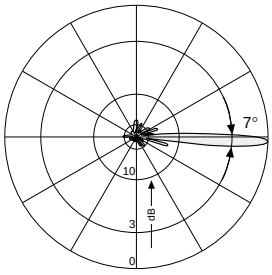
Vertical Pattern

VPol F-Panel 1710–1900 90° 16.5dBi 2°T

Type No.	734 328
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	16.5 dBi
Half-power beam width	H-plane: 90° E-plane: 7°
Electrical downtilt	2°, fixed
Side lobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	4.6 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 250 N / 110 N / 310 N
Max. wind velocity	200 km/h
Height/width/depth	1302 / 155 / 49 mm

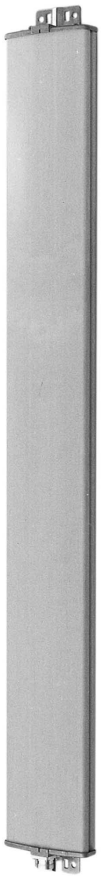


Horizontal Pattern



Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal to –25 dB below maximum gain



Mounting accessories are not included in the scope of delivery (see page 194 – 197)

F-Panel
Vertical Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–1900
V
90°
2°

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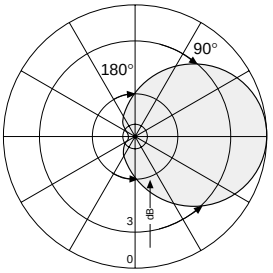
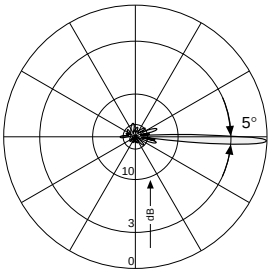
VPol F-Panel 1710–1900 90° 17.5dBi 2°T

Type No.	734 330
Frequency range	1710 – 1900 MHz
Polarization	Vertical
Gain	17.5 dBi
Half-power beam width	H-plane: 90° E-plane: 5°
Electrical downtilt	2°, fixed
Sidelobe suppression	above horizon for first sidelobe better or equal 14 dB below maximum gain
Front-to-back ratio	> 23 dB
Impedance	50 Ω
VSWR	< 1.3 (1710 – 1880 MHz) < 1.5 (1880 – 1900 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)
Input	7-16 female
Connector position	Bottom
Weight	6.9 kg
Wind load (at 150 km/h)	Frontal / Lateral / Rearside: 380 N / 180 N / 480 N
Max. wind velocity	200 km/h
Height/width/depth	1942 / 155 / 49 mm



Horizontal Pattern



Vertical Pattern

– 2° electrical downtilt
– first null-fill below horizon better or equal to –25 dB below maximum gain

VPol

Summary – Directional Antennas
Dual Polarization +45°/–45°
UMTS

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Dual Polarization +45°/–45° – 1800/1900/2000

Type					Type No.	Height [mm]	Page
XPol F-Panel	1710–2170	33°	20dBi	0°–10°T	800 10251	1046	78
XPol F-Panel	1710–2170	33°	21dBi	0°–8°T	742 351	1302	79
XPol F-Panel	1710–2170	45°	19.5dBi	0°–8°T	742 218	1306	80
XPol F-Panel	1710–2170	45°	21.5dBi	0°–6°T	742 219	1942	81
XPol F-Panel	1710–2170	65°	9dBi	0°T	742 210	155	82
XPol F-Panel	1710–2170	65°	12dBi	2°T	739 489	342	83
XPol F-Panel	1710–2170	65°	15.5dBi	0°–10°T	742 211	662	84
XPol F-Panel	1710–2170	65°	15.5dBi	0°–12°T	800 10247	735	85
XPol F-Panel	1710–2170	65°	16dBi	0°T	742 196	735	86
XPol F-Panel	1710–2170	65°	18dBi	0°–8°T	742 212	1302	87
XPol F-Panel	1710–2170	65°	18dBi	0°–10°T	742 215	1302	88
XPol F-Panel	1710–2170	65°	18.5dBi	2°T	741 794	1302	89
XPol F-Panel	1710–2170	65°	19.5dBi	0°–6°T	742 213	1942	90
XPol F-Panel	1710–2170	88°	11.5dBi	0°T	741 984	342	91
XPol F-Panel	1710–2170	88°	17dBi	2°T	741 987	1302	92
XPol F-Panel	1710–2170	88°	14dBi	0°–10°T	741 988	662	93
XPol F-Panel	1710–2170	88°	17dBi	0°–8°T	741 989	1302	94
XPol F-Panel	1710–2170	88°	18dBi	0°–6°T	741 990	1942	95

Connector position: Bottom

New Products

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 33°
Adjust. Electrical Downtilt 0°–10°

set by hand or by optional RCU (Remote Control Unit)

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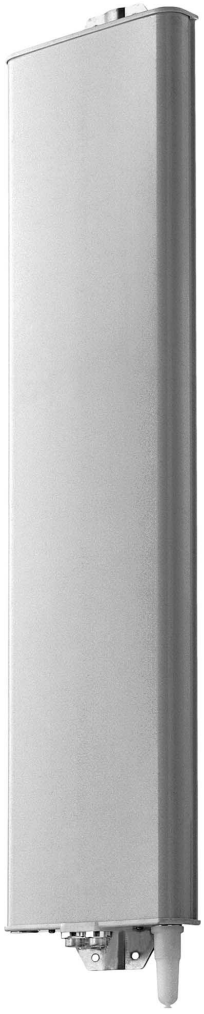
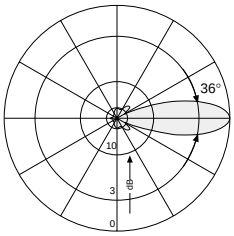


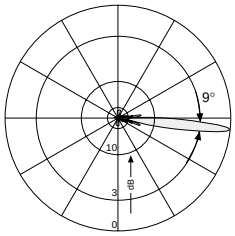
XPol F-Panel 1710–2170 33° 20dBi 0°–10°T

Type No.	800 10251		
Frequency range	1710 – 1880 MHz	1710–2170 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19.5 dBi	2 x 19.8 dBi	2 x 20.0 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 36° Vertical: 9°	Horizontal: 35° Vertical: 8.5°	Horizontal: 33° Vertical: 8°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression: Vertical Pattern – first side-lobe above horizon Horizontal Pattern	0° ... 5° ... 10°T 15 ... 15 … 15 dB > 14 dB	0° ... 5° ... 10°T 15 ... 15 ... 15 dB > 14 dB	0° ... 5° ... 10°T 15 ... 15 ... 15 dB > 14 dB
Front-to-back ratio, copolar (180° ± 30°)	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±30°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

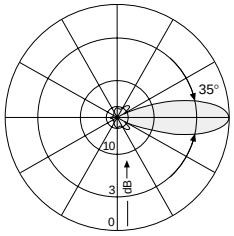


Horizontal Pattern

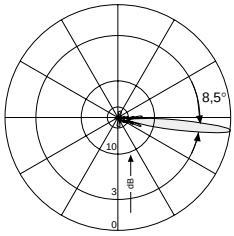


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

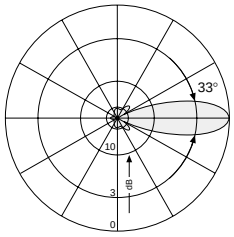


Horizontal Pattern

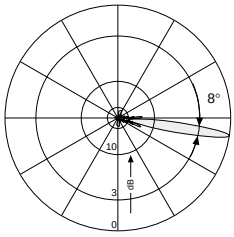


Vertical Pattern
0°–10° electrical downtilt

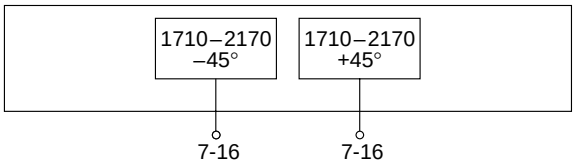
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 90 N (at 150 km/h) Rearside: 460 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1318 x 320 x 92 mm
Height/width/depth	1046 / 299 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 33°
Adjust. Electrical Downtilt 0°–8°

set by hand or by optional RCU (Remote Control Unit)

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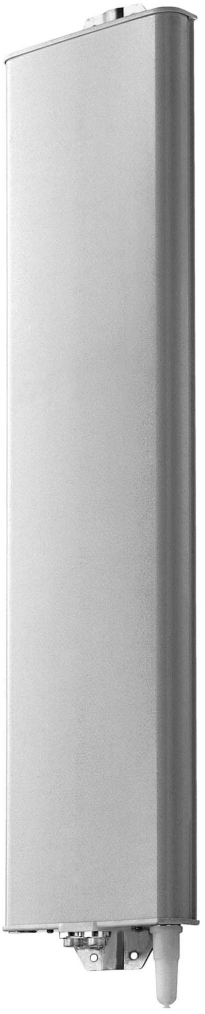
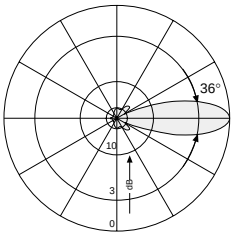


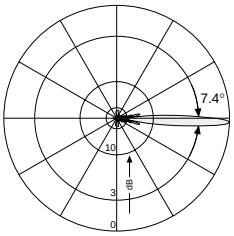
XPol F-Panel 1710–2170 33° 21dBi 0°–8°T

Type No.	742 351		
Frequency range	1710 – 1880 MHz	1710–2170 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 20.2 dBi	2 x 20.5 dBi	2 x 20.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 36° Vertical: 7.4°	Horizontal: 35° Vertical: 7.0°	Horizontal: 33° Vertical: 6.7°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression: Vertical Pattern – first side-lobe above horizon Horizontal Pattern	0° ... 4° ... 8° T 18 ... 17 … 16 dB > 14 dB	0° ... 4° ... 8° T 18 ... 18 ... 17 dB > 14 dB	0° ... 4° ... 8° T 18 ... 17 ... 16 dB > 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±30°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

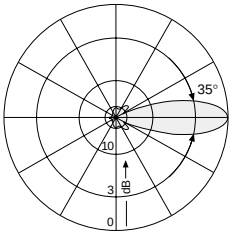


Horizontal Pattern

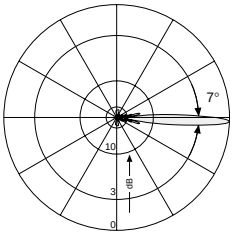


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

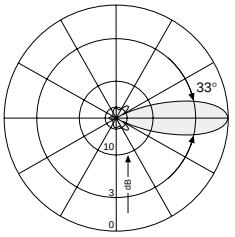


Horizontal Pattern

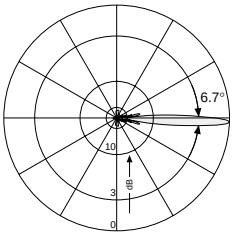


Vertical Pattern
0°–8° electrical downtilt

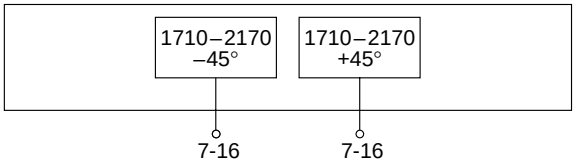
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	12 kg
Wind load	Frontal: 570 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 570 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 320 x 92 mm
Height/width/depth	1302 / 299 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 45°
Adjust. Electrical Downtilt 0°–8°

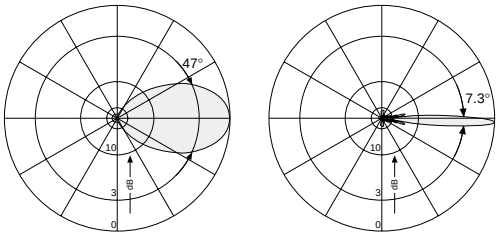
set by hand or by optional RCU (Remote Control Unit)

KATHREIN
Antennen · Electronic

XPol F-Panel 1710–2170 45° 19.5dBi 0°–8°T

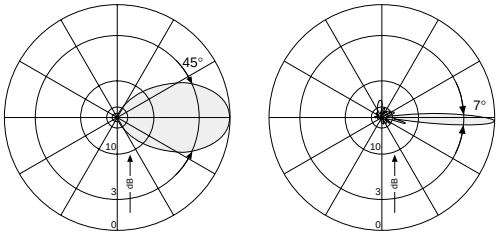
Type No.	742 218		
Frequency range	1710 – 1880 MHz	1710–2170 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19 dBi	2 x 19.5 dBi	2 x 19.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 47° Vertical: 7.3°	Horizontal: 45° Vertical: 7°	Horizontal: 44° Vertical: 6.7°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression: Vertical Pattern – first side-lobe above horizon Horizontal Pattern	0° ... 2° ... 5° ... 8° T 17 ... 17 ... 15 ... 15 dB > 18 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 17 ... 17 dB > 18 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 15 ... 15 dB > 18 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 27 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 27 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±30°	Typically: 18 dB > 13 dB	Typically: 18 dB > 13 dB	Typically: 18 dB > 13 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization



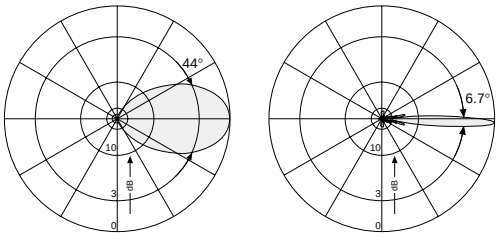
Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

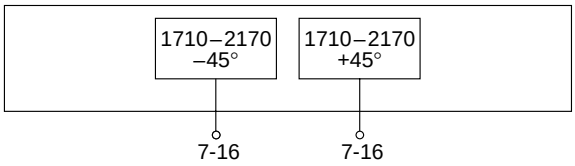


Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10.2 kg
Wind load	Frontal: 165 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 390 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1604 x 221 x 107 mm
Height/width/depth	1306 / 199 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 45°
Adjust. Electrical Downtilt 0°–6°

set by hand or by optional RCU (Remote Control Unit)

KATHREIN
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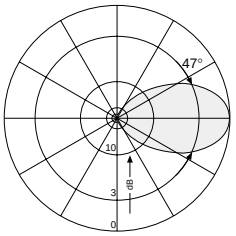
XPol

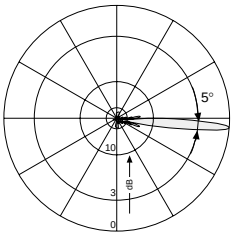
XPol F-Panel 1710–2170 45° 21.5dBi 0°–6°T

Type No.	742 219		
Frequency range	1710 – 1880 MHz	1710–2170 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 20.5 dBi	2 x 21 dBi	2 x 21.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 47° Vertical: 5°	Horizontal: 45° Vertical: 4.7°	Horizontal: 43° Vertical: 4.5°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Sidelobe suppression: Vertical Pattern – first side-lobe above horizon Horizontal Pattern	0° ... 2° ... 4° ... 6°T 17 ... 17 ... 17 ... 17 dB > 20 dB	0° ... 2° ... 4° ... 6°T 18 ... 18 ... 18 ... 18 dB > 20 dB	0° ... 2° ... 4° ... 6°T 18 ... 18 ... 18 ... 18 dB > 20 dB
Front-to-back ratio, copolar total power	> 25 dB > 25 dB	> 25 dB > 25 dB	> 25 dB > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 18 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 18 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 Watt (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

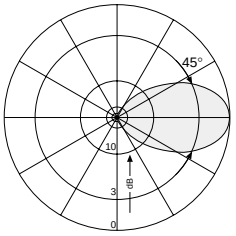


Horizontal Pattern

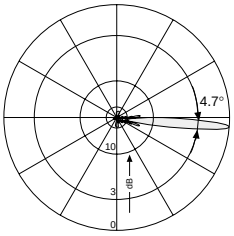


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

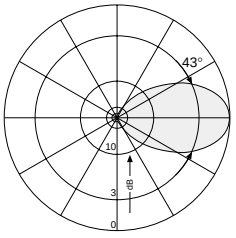


Horizontal Pattern

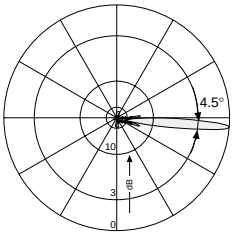


Vertical Pattern
0°–6° electrical downtilt

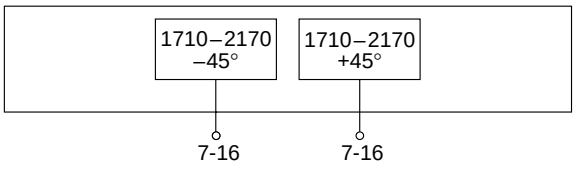
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	12 kg
Wind load	Frontal: 250 N (at 150 km/h) Lateral: 165 N (at 150 km/h) Rearside: 580 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2384 x 221 x 107 mm
Height/width/depth	1942 / 199 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170
X
65°
0°

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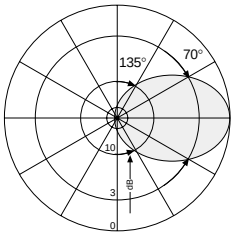
XPol F-Panel 1710–2170 65° 9dBi 0°T

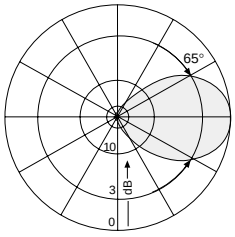
Type No.	742 210		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 8.5 dBi	2 x 8.6 dBi	2 x 8.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 70° Vertical: 65°	Horizontal: 68° Vertical: 65°	Horizontal: 65° Vertical: 63°
Electrical tilt	0°, fixed	0°, fixed	0°, fixed
Front-to-back ratio, copolar	> 25 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		

XPol

1710 – 1880 MHz: +45°/–45° Polarization

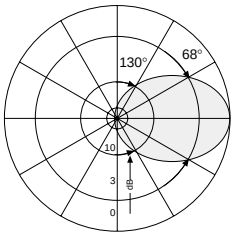


Horizontal Pattern

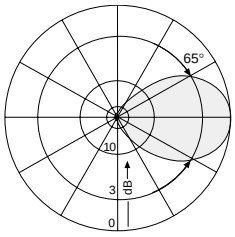


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

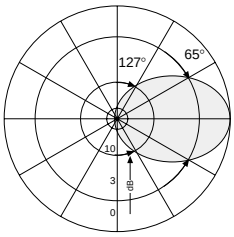


Horizontal Pattern

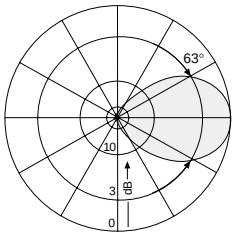


Vertical Pattern

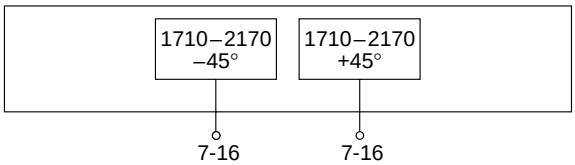
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications		
Input	2 x 7-16 female	
Connector position*	Bottom or top	
Weight	1.5 kg	
Wind load	Frontal:	20 N (at 150 km/h)
	Lateral:	15 N (at 150 km/h)
	Rearside:	40 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	257 x 172 x 92 mm	
Height/width/depth	155 / 155 / 69 mm	

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170

X

65°

2°

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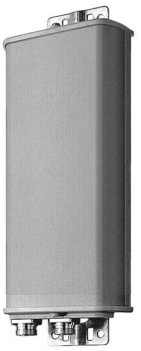
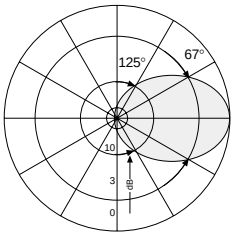
XPol F-Panel 1710–2170 65° 12dBi 2°T

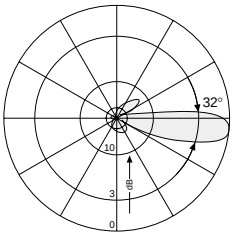


Type No.	739 489		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.5 dBi	2 x 12 dBi	2 x 12 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 32°	Horizontal: 65° Vertical: 30°	Horizontal: 63° Vertical: 28°
Electrical tilt	3°, fixed	2°, fixed	0°, fixed
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

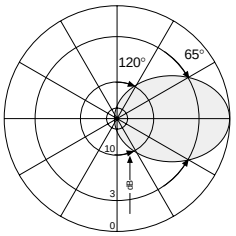


Horizontal Pattern

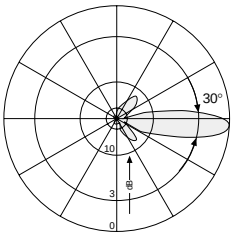


Vertical Pattern
3° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

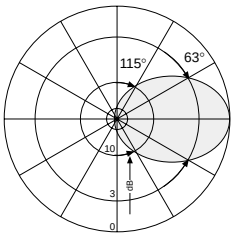


Horizontal Pattern

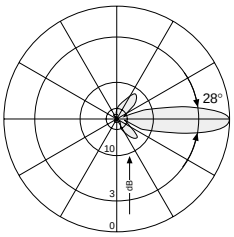


Vertical Pattern
2° electrical downtilt

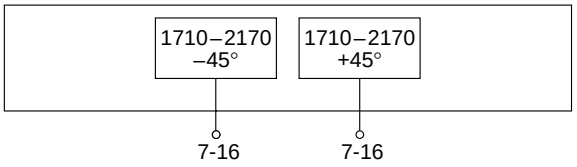
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0° electrical downtilt



Mechanical specifications		
Input	2 x 7-16 female	
Connector position	Bottom	
Weight	2 kg	
Wind load	Frontal: Lateral: Rearside:	35 N (at 150 km/h) 25 N (at 150 km/h) 80 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	444 x 172 x 92 mm	
Height/width/depth	342 / 155 / 69 mm	

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–10°

set by hand or by optional RCU (Remote Control Unit)

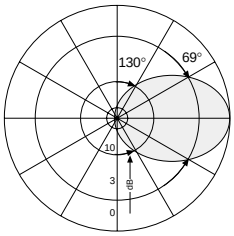
KATHREIN
Antennen · Electronic

XPol F-Panel 1710–2170 65° 15.5dBi 0°–10°T

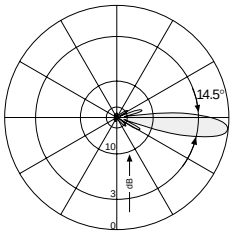
Type No.	742 211		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.7 dBi	2 x 15 dBi	2 x 15.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.5°	Horizontal: 67° Vertical: 14°	Horizontal: 64° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 8° ... 10°T 18 ... 16 ... 15 .... 15 dB	0° ... 4° ... 8° ... 10°T 18 ... 18 ... 18 ... 18 dB	0° ... 4° ... 8° ... 10°T 18 ... 18 ... 18 ... 16 dB
Front-to-back ratio	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.4	< 1.4	< 1.4
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

XPol

1710 – 1880 MHz: +45°/–45° Polarization

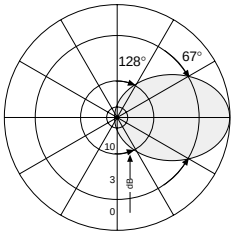


Horizontal Pattern

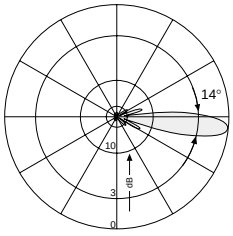


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

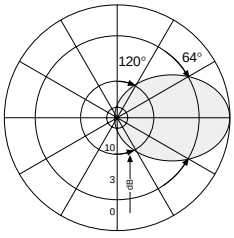


Horizontal Pattern

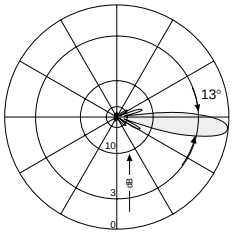


Vertical Pattern
0°–10° electrical downtilt

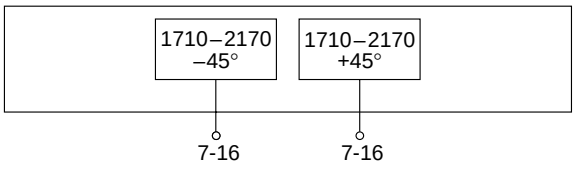
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.5 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	924 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–12°

set by hand or by optional RCU (Remote Control Unit)

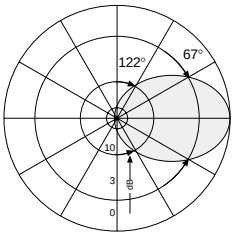
KATHREIN
Antennen · Electronic

XPol F-Panel 1710–2170 65° 15.5dBi 0°–12°T

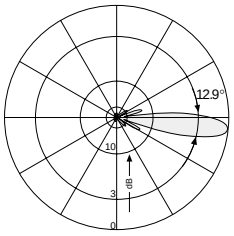
Type No.	800 10247		
Frequency range		1710–2170	
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain per input	0° ... 4° ... 8° ... 12° T 15.5 ... 15.4 ... 15.9 ...15.1 dBi	0° ... 4° ... 8° ... 12° T 15.6 ... 15.5 ... 15.4 ...15 dBi	0° ... 4° ... 8° ... 12° T 15.8 ... 15.7 ... 15.5 ...14.9 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.9°	Horizontal: 66° Vertical: 12.3°	Horizontal: 64° Vertical: 11.5°
Electrical tilt continuously adjustable	0°–12°	0°–12°	0°–12°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 8° ... 12° T 14 ... 14 ... 14 .... 14 dB	0° ... 4° ... 8° ... 12° T 14 ... 14 ... 14 ... 14 dB	0° ... 4° ... 8° ... 12° T 14 ... 14 ... 14 ... 14 dB
Front-to-back ratio	Copolar: > 27 dB	Copolar: > 27 dB	Copolar: > 27 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

XPol

1710 – 1880 MHz: +45°/–45° Polarization

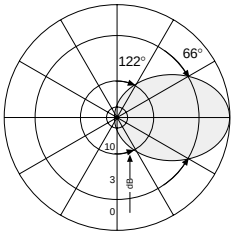


Horizontal Pattern

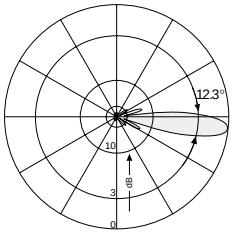


Vertical Pattern
0°–12° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

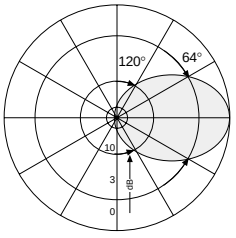


Horizontal Pattern

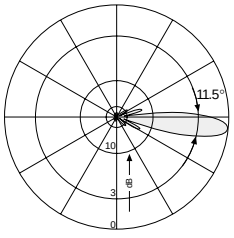


Vertical Pattern
0°–12° electrical downtilt

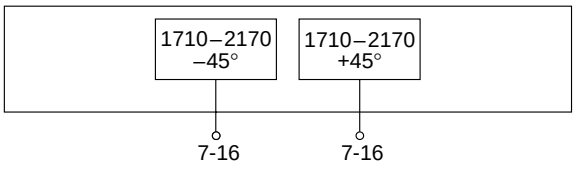
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–12° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.5 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 172 x 95 mm
Height/width/depth	735 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170
X
65°
0°

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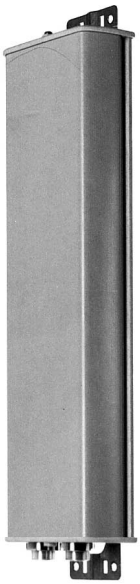
Antennen · Electronic

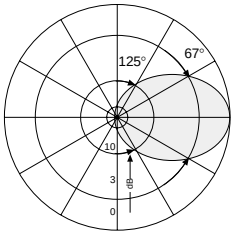
XPol F-Panel 1710–2170 65° 16dBi 0°T

Type No.	742 196		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.3 dBi	2 x 15.6 dBi	2 x 15.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 12.6°	Horizontal: 66° Vertical: 11.8°	Horizontal: 64° Vertical: 11°
Sidelobe suppression for first sidelobe above horizon	> 14 dB	> 16 dB	> 14 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

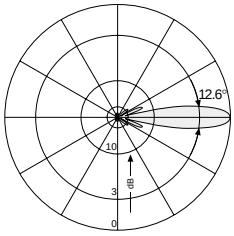


XPol

1710 – 1880 MHz: +45°/–45° Polarization

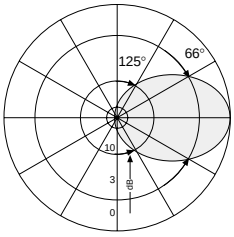


Horizontal Pattern

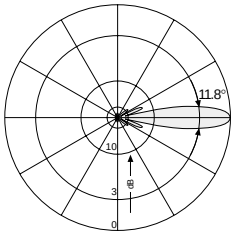


Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

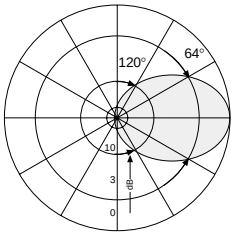


Horizontal Pattern

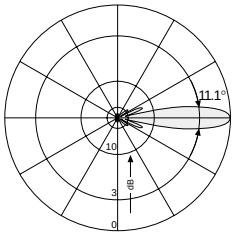


Vertical Pattern

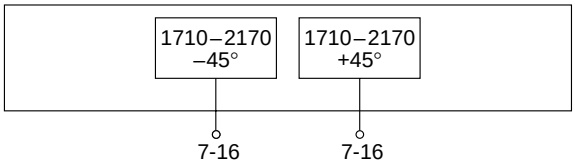
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	3.7 kg
Wind load	Frontal: 75 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 180 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1000 x 172 x 95 mm
Height/width/depth	735 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–8°

set by hand or by optional RCU (Remote Control Unit)

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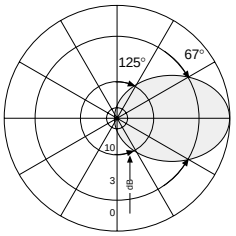
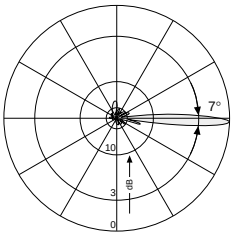
XPol F-Panel 1710–2170 65° 18dBi 0°–8°T

Type No.	742 212		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 17.7 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 63° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	0° ... 2° ... 5° ... 8° T 17 ... 17 ... 15 .... 15 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 18 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 16 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

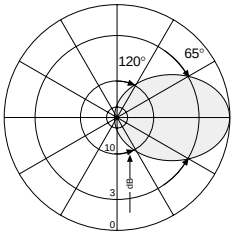


Horizontal Pattern

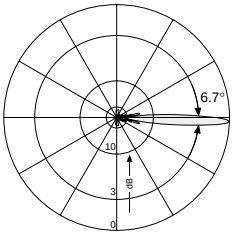


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

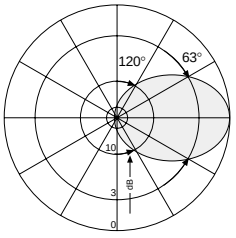


Horizontal Pattern

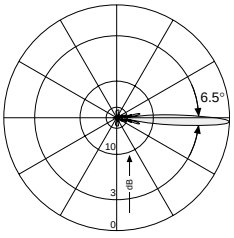


Vertical Pattern
0°–8° electrical downtilt

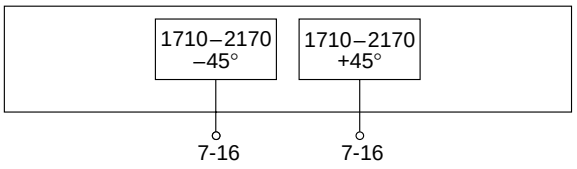
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	7.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electrical Downtilt
set by hand or by optional RCU (Remote Control Unit)

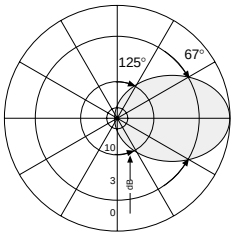
1710–2170
X
65°
0°–10°

KATHREIN
Antennen · Electronic

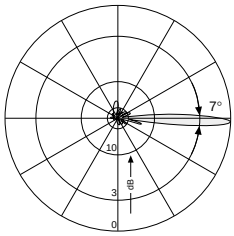
XPol F-Panel 1710–2170 65° 18dBi 0°–10°T

Type No.	742 215		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 17.7 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 63° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	0° ... 5° ... 10°T 16 ... 15 ... 14 dB	0° ... 5° ... 10°T 17 ... 16 ... 15 dB	0° ... 5° ... 10°T 17 ... 16 ... 15 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

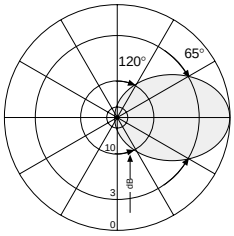


Horizontal Pattern

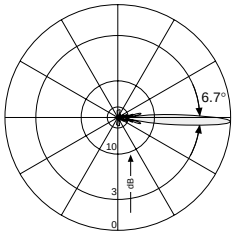


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

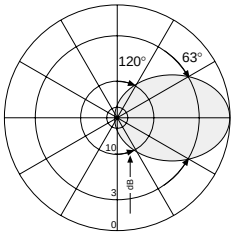


Horizontal Pattern

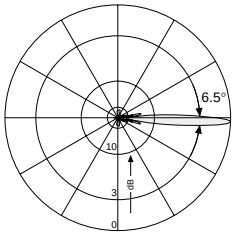


Vertical Pattern
0°–10° electrical downtilt

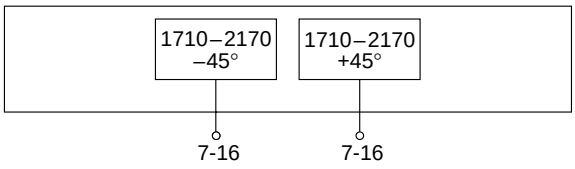
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	7.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

XPol

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170
X
65°
2°

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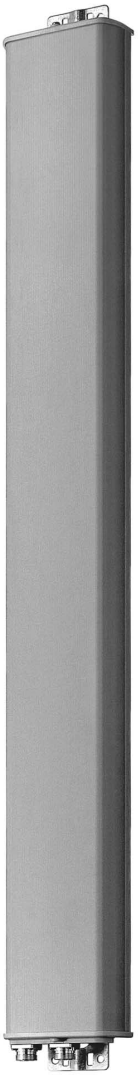
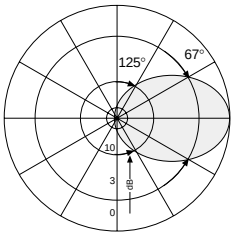
XPol F-Panel 1710–2170 65° 18.5dBi 2°T

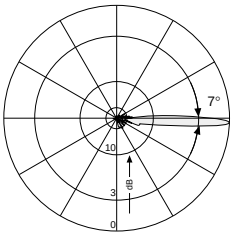


Type No.	741 794		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.5 dBi	2 x 18 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 63° Vertical: 6.5°
Electrical tilt	2°, fixed	2°, fixed	2°, fixed
Sidelobe suppression for first sidelobe above horizon	> 14 dB	> 14 dB	> 14 dB
Front-to-back ratio, copolar	> 30 dB	> 30 dB	> 30 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 30 dB > 10 dB	Typically: 30 dB > 10 dB	Typically: 30 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

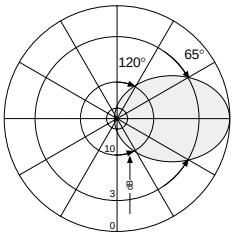


Horizontal Pattern

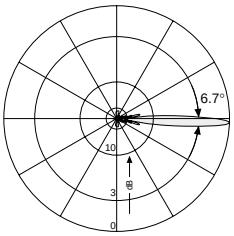


Vertical Pattern
2° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

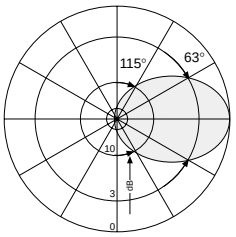


Horizontal Pattern

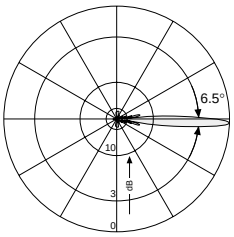


Vertical Pattern
2° electrical downtilt

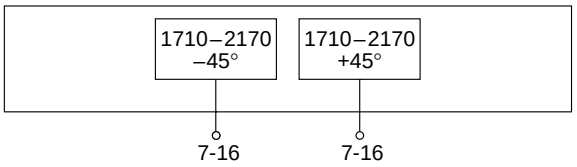
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.6 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 65°
Adjust. Electrical Downtilt 0°–6°

set by hand or by optional RCU (Remote Control Unit)

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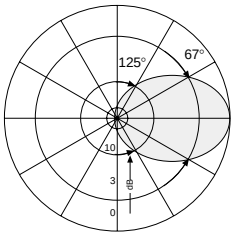
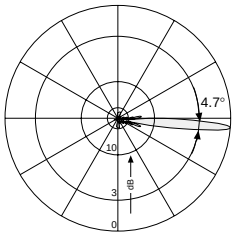
XPol F-Panel 1710–2170 65° 19.5dBi 0°–6°T

Type No.	742 213		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 19 dBi	2 x 19.2 dBi	2 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 4.7°	Horizontal: 65° Vertical: 4.5°	Horizontal: 63° Vertical: 4.3°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above horizon	0° ... 2° ... 4° ... 6° T 18 ... 17 ... 15 .... 15 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 15 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 17 ... 15 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

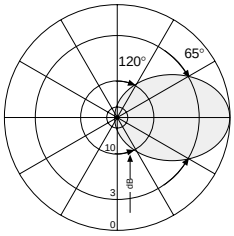


Horizontal Pattern

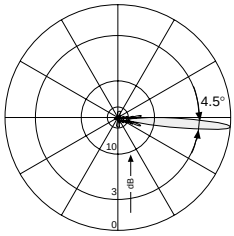


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

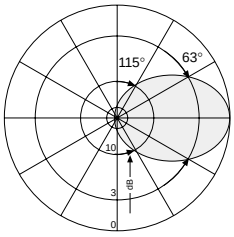


Horizontal Pattern

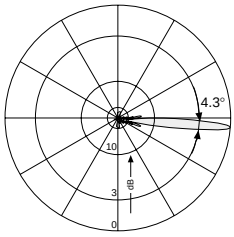


Vertical Pattern
0°–6° electrical downtilt

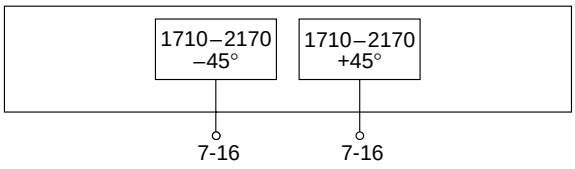
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	10 kg
Wind load	Frontal: 195 N (at 150 km/h) Lateral: 160 N (at 150 km/h) Rearside: 480 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2384 x 172 x 92 mm
Height/width/depth	1942 / 155 / 69 mm

XPol

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

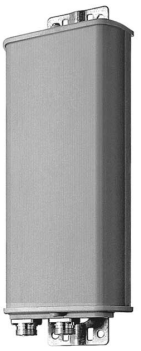
Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Excellent Sidelobe Suppression

1710–2170
X
88°
20 dB

KATHREIN
Antennen · Electronic

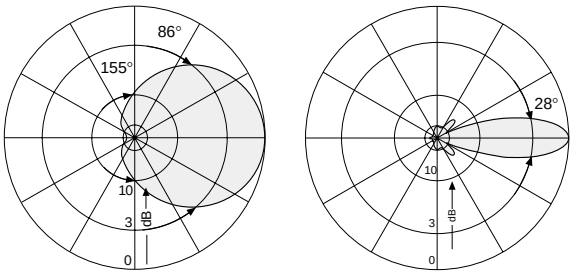
XPol F-Panel 1710–2170 88° 11.5dBi

Type No.	741 984		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.3 dBi	2 x 11.5 dBi	2 x 11.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 86° Vertical: 28°	Horizontal: 87° Vertical: 26°	Horizontal: 88° Vertical: 26°
Sidelobe suppression vertical sector ±45°	> 20 dB	> 20 dB	> 20 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 23 dB Total power: > 23 dB	Copolar: > 23 dB Total power: > 23 dB	Copolar: > 23 dB Total power: > 23 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 18 dB	Typically: 25 dB > 18 dB	Typically: 20 dB > 15 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	150 W (at 50 °C ambient temperature)		



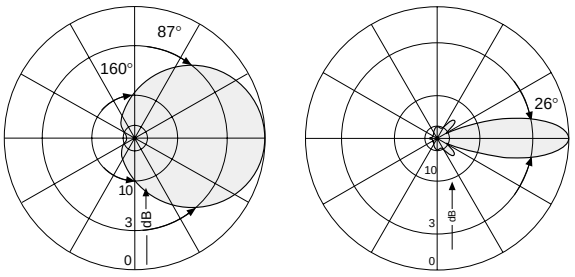
XPol

1710 – 1880 MHz: +45°/–45° Polarization



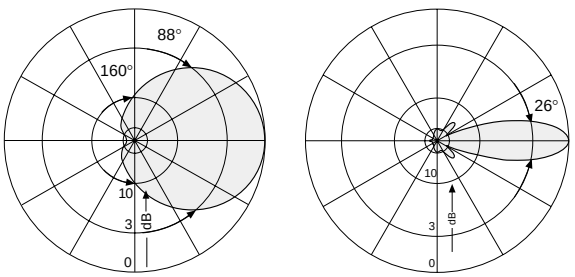
Horizontal Pattern Vertical Pattern

1850 – 1990 MHz: +45°/–45° Polarization

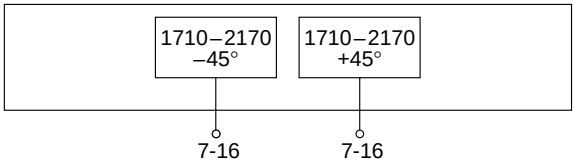


Horizontal Pattern Vertical Pattern

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern Vertical Pattern



Mechanical specifications		
Input	2 x 7-16 female	
Connector position*	Bottom or top	
Weight	2 kg	
Wind load	Frontal:	35 N (at 150 km/h)
	Lateral:	25 N (at 150 km/h)
	Rearside:	80 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	444 x 172 x 92 mm	
Height/width/depth	342 / 155/ 69 mm	

* Inverted mounting:
Connector position top: Change drain hole screw.

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Fixed Electrical Downtilt

1710–2170
X
88°
2°

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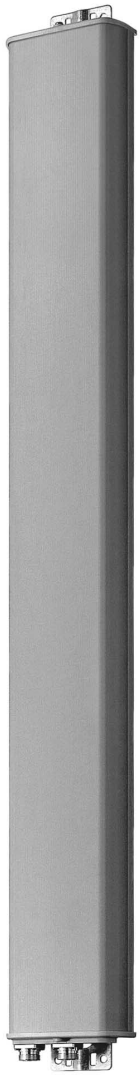
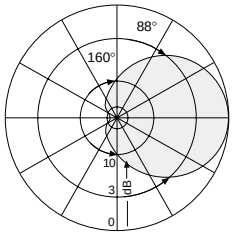
XPol F-Panel 1710–2170 88° 17dBi 2°T

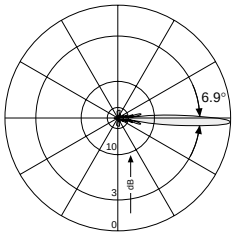


Type No.	741 987		
Frequency range	**1710–2170**		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.8 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 6.9°	Horizontal: 88° Vertical: 6.5°	Horizontal: 88° Vertical: 6.2°
Electrical tilt	2°, fixed	2°, fixed	2°, fixed
Sidelobe suppression for first sidelobe above horizon	> 16 dB	> 16 dB	> 16 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB		
Impedance	50 Ω		
VSWR	< 1.4		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

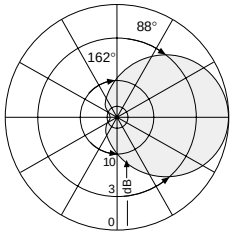


Horizontal Pattern

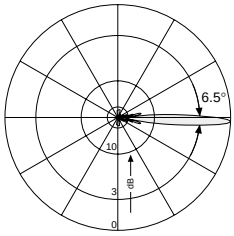


Vertical Pattern
2° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

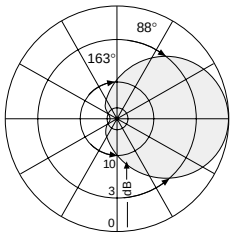


Horizontal Pattern

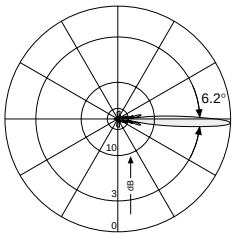


Vertical Pattern
2° electrical downtilt

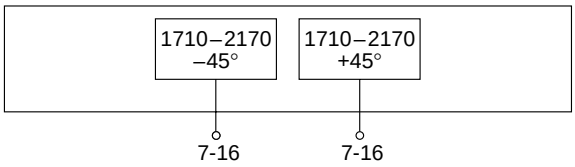
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
2° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Weight	6.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1404 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Multi-band F-Panel 1710–2170
Dual Polarization X
Half-power Beam Width 88°
Adjust. Electrical Downtilt 0°–10°

set by hand or by optional RCU (Remote Control Unit)

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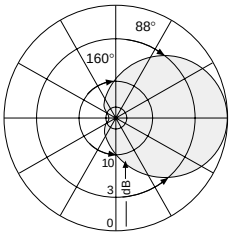
XPol F-Panel 1710–2170 88° 14dBi 0°–10°T

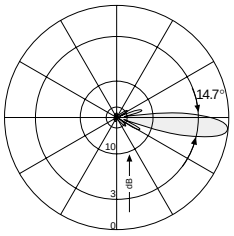
Type No.	741 988		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 13.7 dBi	2 x 14 dBi	2 x 14.1 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 14.7°	Horizontal: 88° Vertical: 14°	Horizontal: 88° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB	0° ... 4° ... 8° ... 10° T 18 ... 18 ... 18 ... 18 dB
Front-to-back ratio, copolar total power	> 25 dB > 25 dB	> 25 dB > 25 dB	> 25 dB > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

XPol

1710 – 1880 MHz: +45°/–45° Polarization

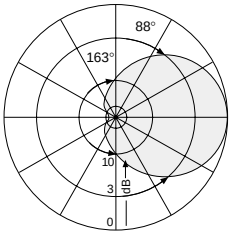


Horizontal Pattern

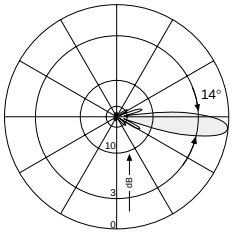


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

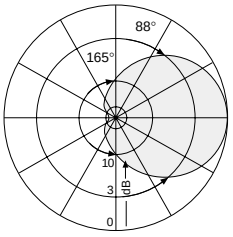


Horizontal Pattern

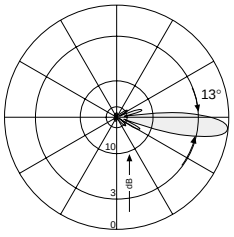


Vertical Pattern
0°–10° electrical downtilt

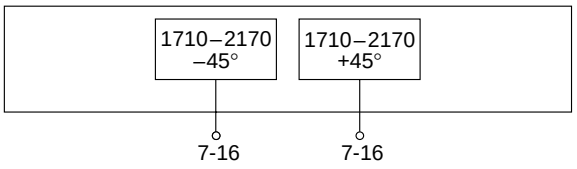
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	4.2 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	924 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electrical Downtilt
set by hand or by optional RCU (Remote Control Unit)

1710–2170
X
88°
0°–8°

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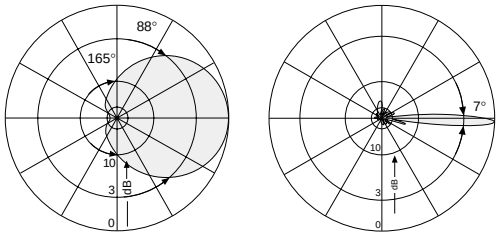
XPol F-Panel 1710–2170 88° 17dBi 0°–8°T

Type No.	741 989		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 16.8 dBi	2 x 16.7 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 7°	Horizontal: 88° Vertical: 6.7°	Horizontal: 88° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 16 .... 14 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 17 dB	0° ... 2° ... 5° ... 8° T 18 ... 18 ... 18 ... 17 dB
Front-to-back ratio (180° ± 30°)	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 24 dB Total power: > 24 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

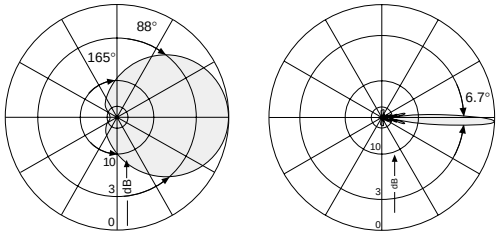
XPol

1710 – 1880 MHz: +45°/–45° Polarization



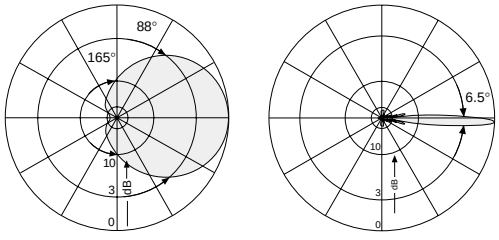
Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

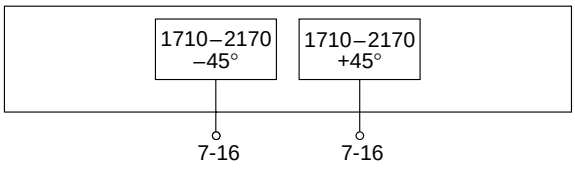


Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt

1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern 0°–8° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	7.5 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Multi-band F-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electrical Downtilt

1710–2170
X
88°
0°– 6°

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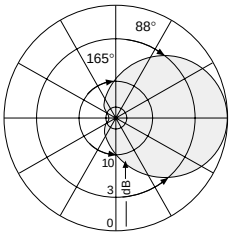
set by hand or by optional RCU (Remote Control Unit)

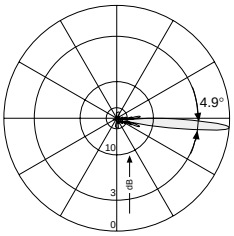
XPol F-Panel 1710–2170 88° 18dBi 0°–6°T

Type No.	741 990		
Frequency range	1710 – 1880 MHz	**1710–2170** 1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17.7 dBi	2 x 18 dBi	2 x 18.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 88° Vertical: 4.9°	Horizontal: 88° Vertical: 4.7°	Horizontal: 88° Vertical: 4.5°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above horizon	0° ... 2° ... 4° ... 6° T 17 ... 17 ... 17 ...17 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 18 ...18 dB	0° ... 2° ... 4° ... 6° T 18 ... 18 ... 18 ...18 dB
Front-to-back ratio, copolar total power	> 25 dB > 25 dB	> 25 dB > 25 dB	> 25 dB > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation, between ports	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

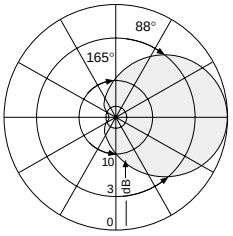


Horizontal Pattern

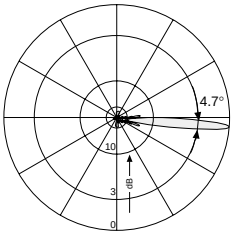


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

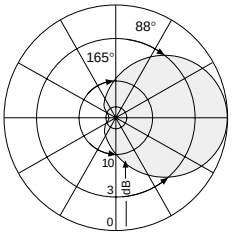


Horizontal Pattern

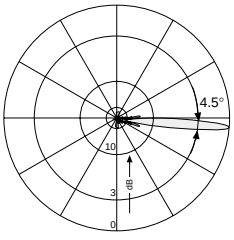


Vertical Pattern
0°–6° electrical downtilt

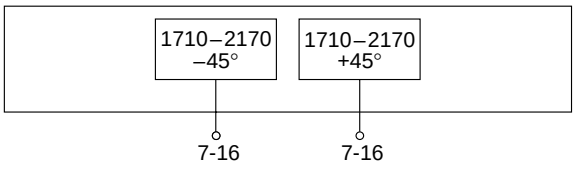
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	2 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	9 kg
Wind load	Frontal: 195 N (at 150 km/h) Lateral: 160 N (at 150 km/h) Rearside: 480 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2214 x 172 x 92 mm
Height/width/depth	1942 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Summary – Directional Antennas
2-Multi-band
UMTS

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Dual Polarization +45°/–45° – 1800/1900/2000

Type					Type No.	Height [mm]	Page
XXPol F-Panel	1710–2170 1710–2170	65° 65°	15dBi 15dBi	0°–10°T 0°–10°T	742 233	679	98
XXPol F-Panel	1710–2170 1710–2170	65° 65°	18dBi 18dBi	0°–8°T 0°–8°T	742 234	1304	99
XXPol F-Panel	1710–2170 1710–2170	65° 65°	19.5dBi 19.5dBi	0°–6°T 0°–6°T	742 235	1959	100

Connector position: Bottom

2-Multi-band F-Panel

Dual Polarization	**X**	**X**
Half-power Beam Width	**65°**	**65°**
Adjust. Electr. Downtilt	**0°–10°**	**0°–10°**

set by hand or by optional RCU (Remote Control Unit)

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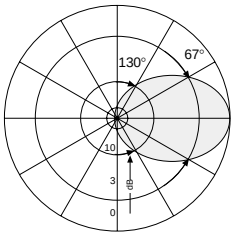
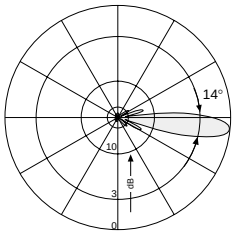
XXPol F-Panel 1710–2170/1710–2170 65°/65° 15/15dBi 0°–10°/0°–10°T

Type No.	**742 233**		
Frequency range	**1710–2170**		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 15 dBi	4 x 15.2 dBi	4 x 15.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 14°	Horizontal: 65° Vertical: 13.7°	Horizontal: 62° Vertical: 13°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 8° ... 10°T 16 ... 16 ... 15 .... 15 dB	0° ... 4° ... 8° ... 10°T 16 ... 16 ... 16 ... 16 dB	0° ... 4° ... 8° ... 10°T 16 ... 16 ... 16 ... 16 dB
Front-to-back ratio	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	 Typically: 20 dB Typically: 10 dB	 Typically: 20 dB Typically: 10 dB	 Typically: 20 dB Typically: 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

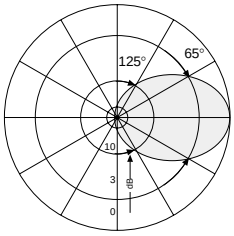


Horizontal Pattern

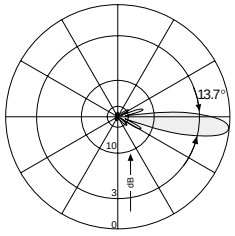


Vertical Pattern
0°–10° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

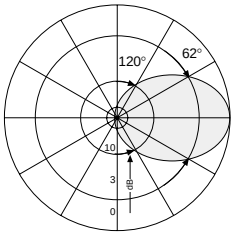


Horizontal Pattern

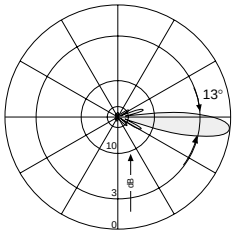


Vertical Pattern
0°–10° electrical downtilt

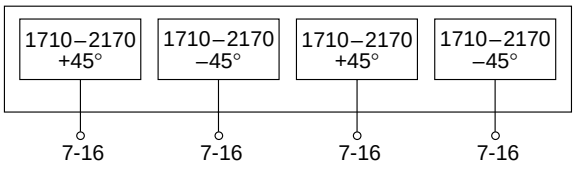
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	10.4 kg
Wind load	Frontal: 290 N (at 150 km/h) Lateral: 55 N (at 150 km/h) Rearside: 290 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	924 x 360 x 130 mm
Height/width/depth	679 / 322 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

2-Multi-band F-Panel

Dual Polarization	**X**	**X**
Half-power Beam Width	**65°**	**65°**
Adjust. Electr. Downtilt	**0°–8°**	**0°–8°**

set by hand or by optional RCU (Remote Control Unit)

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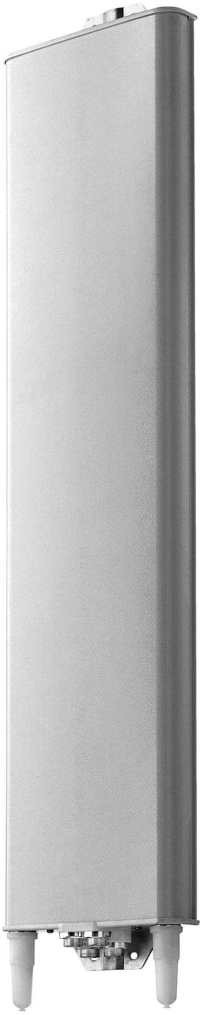
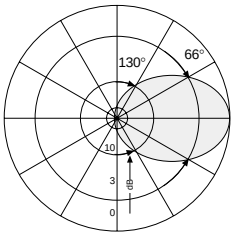


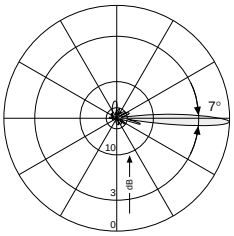
XXPol F-Panel 1710–2170/1710–2170 65°/65° 18/18dBi 0°–8°/0°–8°T

Type No.	742 234		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 17.5 dBi	4 x 17.7 dBi	4 x 17.8 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 66° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 64° Vertical: 6.5°
Electrical tilt continuously adjustable	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	0° ... 2° ... 5° ... 8° T 17 ... 17 ... 15 .... 15 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 18 dB	0° ... 2° ... 5° ... 8° T 20 ... 20 ... 18 ... 16 dB
Front-to-back ratio	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB	Copolar: > 25 dB Total power: > 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

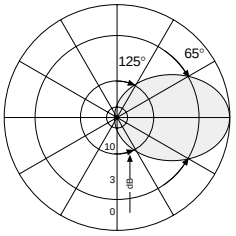


Horizontal Pattern

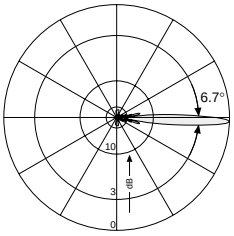


Vertical Pattern
0°–8° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

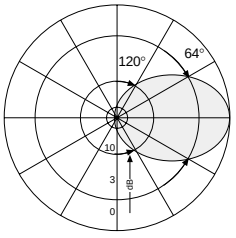


Horizontal Pattern

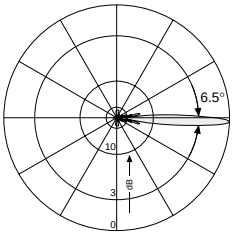


Vertical Pattern
0°–8° electrical downtilt

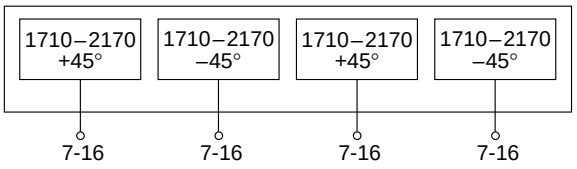
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	12 kg
Wind load	Frontal: 570 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 570 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 320 x 92 mm
Height/width/depth	1304 / 299 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

2-Multi-band F-Panel

Dual Polarization	**X**	**X**
Half-power Beam Width	**65°**	**65°**
Adjust. Electr. Downtilt	**0°–6°**	**0°–6°**

set by hand or by optional RCU (Remote Control Unit)

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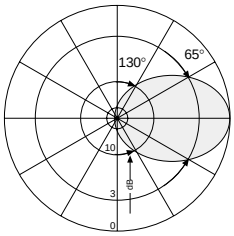
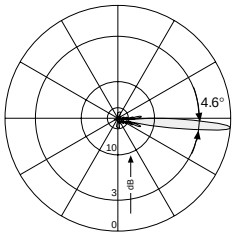
XXPol F-Panel 1710–2170/1710–2170 65°/65° 19.5/19.5dBi 0°–6°/0°–6°T

Type No.	742 235		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°	+45°, –45°; +45°, –45°
Gain	4 x 19 dBi	4 x 19.2 dBi	4 x 19.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 65° Vertical: 4.6°	Horizontal: 64° Vertical: 4.4°	Horizontal: 63° Vertical: 4.2°
Electrical tilt continuously adjustable	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above horizon	0° ... 2° ... 4° ... 6°T 17 ... 17 ... 14 .... 14 dB	0° ... 2° ... 4° ... 6°T 17 ... 17 ... 15 ... 15 dB	0° ... 2° ... 4° ... 6°T 17 ... 17 ... 15 ... 15 dB
Front-to-back ratio	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 25 dB	Copolar: > 30 dB Total power: > 24 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB
Isolation, between inputs	> 30 dB	> 30 dB	> 30 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power per input	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz: +45°/–45° Polarization

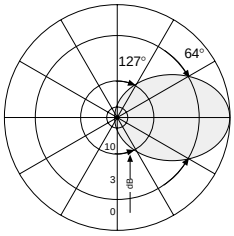


Horizontal Pattern

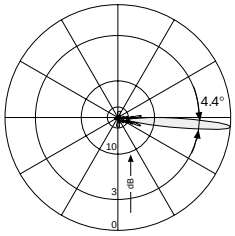


Vertical Pattern
0°–6° electrical downtilt

1850 – 1990 MHz: +45°/–45° Polarization

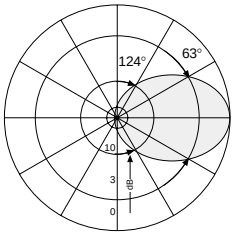


Horizontal Pattern

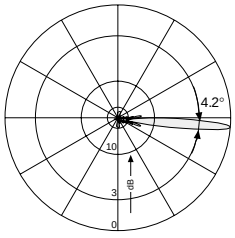


Vertical Pattern
0°–6° electrical downtilt

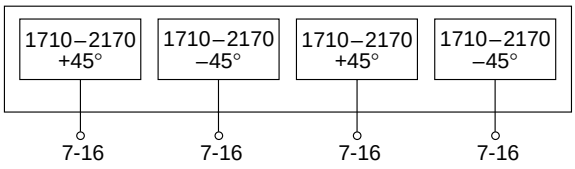
1920 – 2170 MHz: +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	18 kg
Wind load	Frontal: 870 N (at 150 km/h) Lateral: 230 N (at 150 km/h) Rearside: 870 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2384 x 360 x 130 mm
Height/width/depth	1959 / 323 / 71 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Summary – Directional Antennas
Dual-band
UMTS

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Dual Polarization +45°/–45° – 800/900 1800/1900/2000

Type						Type No.	Height [mm]	Page
XXPol A-Panel	806– 960 1710–2170		65° 60°	12dBi 14dBi	0°T 0°T	742 226	579	102
XXPol A-Panel	806– 960 1710–2170	C	65° 60°	12dBi 14dBi	0°T 0°T	742 222	579	103
XXPol A-Panel	824– 960 1710–2170		65° 65°	14dBi 17dBi	0°–14°T 0°–8°T	742 264	1316	104
XXPol A-Panel	824– 960 1710–2170		65° 65°	16dBi 18.5dBi	0°–10°T 0°–6°T	742 265	1916	105
XXPol A-Panel	824– 960 1710–2170		65° 65°	17dBi 18.5dBi	0°–7°T 0°–6°T	742 266	2516	106

Connector position: Bottom

New Product

Dual-band A-Panel	**806–960**	**1710–2170**
Dual Polarization	**X**	**X**
Half-power Beam Width	**65°**	**60°**
Fixed Electr. Downtilt	**0°**	**0°**

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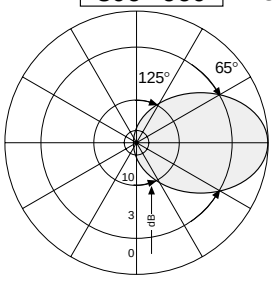
XXPol A-Panel 806–960/1710–2170 65°/60° 12/14dBi 0°/0°T

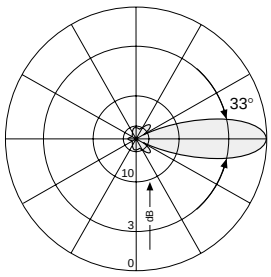
Type No.	742 226					
Frequency range	**806–960**			**1710–2170**		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.1 dBi	2 x 11.4 dBi	2 x 11.8 dBi	2 x 12.8 dBi	2 x 13.3 dBi	2 x 13.6 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 67° Vertical: 34°	Horizontal: 66° Vertical: 33°	Horizontal: 64° Vertical: 30°	Horizontal: 66° Vertical: 20°	Horizontal: 60° Vertical: 18°	Horizontal: 60° Vertical: 17.5°
Front-to-back ratio [dB] (180° ± 30°) [dB]	Copolar: > 23 Total power:> 20	Copolar: > 23 Total power:> 20	Copolar: > 25 Total power:> 22	Copolar: > 25 Total power:> 22	Copolar: > 25 Total power:> 22	Copolar: > 25 Total power:> 22
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–2170 MHz)					
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)			200 W (at 50 °C ambient temperature)		

XXPol Dual-b.

806–960 +45°/–45° Polarization

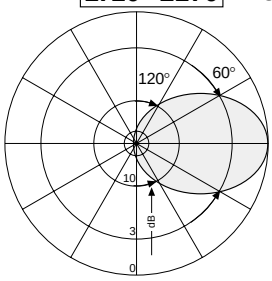


Horizontal Pattern

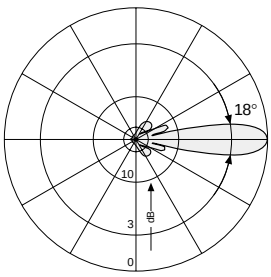


Vertical Pattern

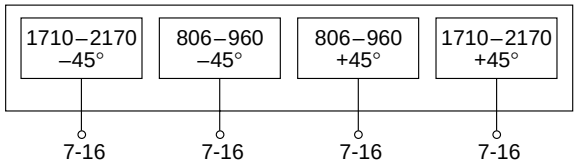
1710–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Mounting accessories are not included in the scope of delivery (see page 186 – 191)

Dual-band A-Panel	**806 – 960**	**1710 – 2170**
Dual Polarization	**X**	**X**
Half-power Beam Width	**65°**	**60°**
Fixed Electr. Downtilt	**0°**	**0°**
Integrated Combiner	**C**	

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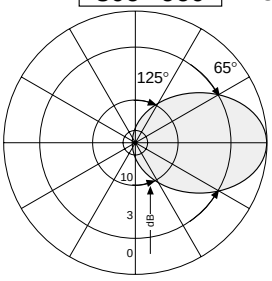
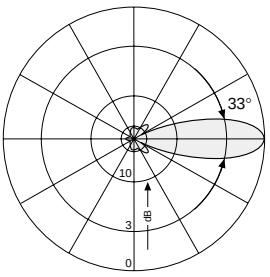
XXPol A-Panel 806–960/1710–2170 C 65°/60° 12/14dBi 0°/0°T

Type No.	742 222					
Frequency range	806 – 960			1710 – 2170		
	806 – 866 MHz	824 – 894 MHz	880 – 960 MHz	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 11.5 dBi	2 x 11.8 dBi	2 x 12 dBi	2 x 13.5 dBi	2 x 13.7 dBi	2 x 14 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 34°	Horizontal: 66° Vertical: 33°	Horizontal: 64° Vertical: 32°	Horizontal: 64° Vertical: 18.5°	Horizontal: 60° Vertical: 17.5°	Horizontal: 58° Vertical: 17.3°
Front-to-back ratio [dB] (180° ± 30°) [dB]	Copolar: > 23 Total power:> 20	Copolar: > 23 Total power:> 20	Copolar: > 25 Total power:> 22	Copolar: > 25 Total power:> 22	Copolar: > 25 Total power:> 22	Copolar: > 25 Total power:> 22
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–2170 MHz)					
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc		
Max. power per input	250 W (at 50 °C ambient temperature)			200 W (at 50 °C ambient temperature)		
Integrated combiner	The insertion loss is included in the given antenna gain values.					

806 – 960 +45°/–45° Polarization

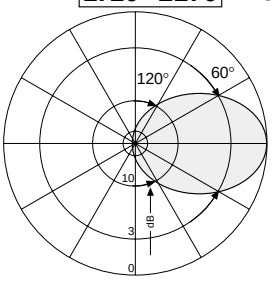


Horizontal Pattern

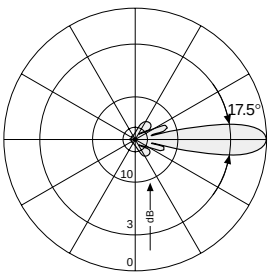


Vertical Pattern

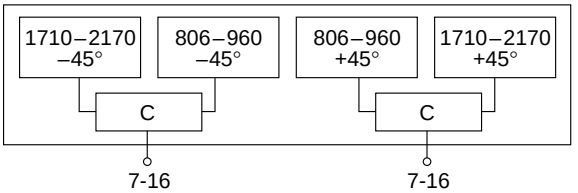
1710 – 2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern



Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	824–960	1710–2170
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	0°–14°	0°–8°

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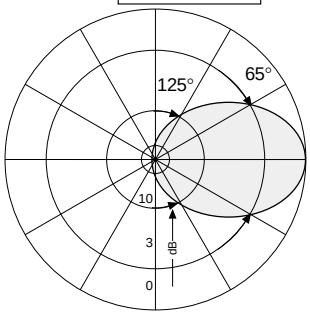
set by hand or by optional RCU (Remote Control Unit)

XXPol A-Panel 824–960/1710–2170 65°/65° 14/17dBi 0°–14°/0°–8°T

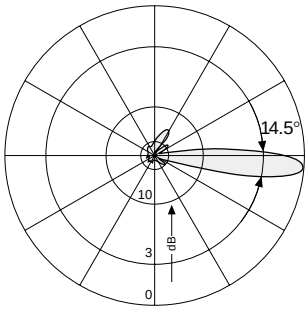
Type No.	742 264				
Frequency range	824–960		1710–2170		
	824–894 MHz	870–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14 dBi	2 x 14 dBi	2 x 16.5 dBi	2 x 16.8 dBi	2 x 17 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 16°	Horizontal: 65° Vertical: 14.5°	Horizontal: 65° Vertical: 7.8°	Horizontal: 65° Vertical: 7.3°	Horizontal: 63° Vertical: 6.8°
Electrical tilt continuously adjustable	0°–14°	0°–14°	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	0° ... 7° ... 14° T 14 ... 14 ... 13 dB	0° ... 7° ... 14° T 14 ... 14 ... 13 dB	0° ... 4° ... 8° T 14 ... 14 ... 14 dB	0° ... 4° ... 8° T 16 ... 16 ... 15 dB	0° ... 4° ... 8° T 15 ... 16 ... 15 dB
Front-to-back ratio, copolar	> 26 dB	> 26 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		< –150 dBc		
Max. power per input	250 W		200 W (at 50 °C ambient temperature)		

XXPol Dual-b.

824–960 +45°/–45° Polarization

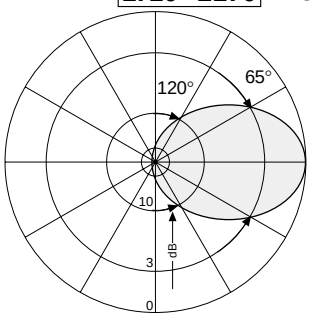


Horizontal Pattern

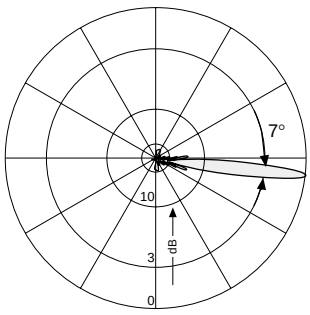


Vertical Pattern
0°–14° electrical downtilt

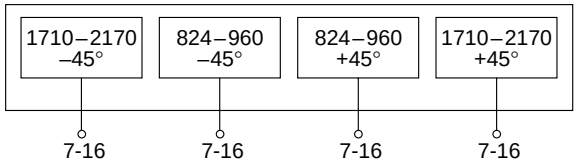
1710–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications		
Input	4 x 7-16 female	
Connector position	Bottom	
Adjustment mechanism	2x, Position bottom continuously adjustable	
Weight	16.5 kg	
Wind load	Frontal:	230 N (at 150 km/h)
	Lateral:	180 N (at 150 km/h)
	Rearside:	430 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	1615 x 302 x 192 mm	
Height/width/depth	1316 / 262 / 139 mm	

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	824–960	1710–2170
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	0°–10°	0°–6°

set by hand or by optional RCU (Remote Control Unit)

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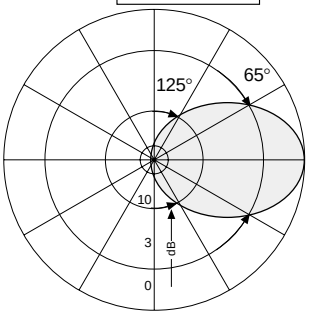
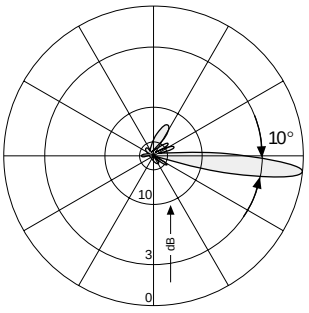
XXPol A-Panel 824–960/1710–2170 65°/65° 16/18.5dBi 0°–10°/0°–6°T

Type No.	742 265				
Frequency range	824–960		1710–2170		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 15.5 dBi	2 x 16 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.3 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 10.5°	Horizontal: 65° Vertical: 10°	Horizontal: 66° Vertical: 5.2°	Horizontal: 65° Vertical: 5.0°	Horizontal: 63° Vertical: 4.7°
Electrical tilt continuously adjustable	0.5°–9.5°	0.5°–9.5°	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above horizon	0° ... 5° ... 10° T 16 ... 16 ... 17 dB	0° ... 5° ... 10° T 18 ... 18 ... 18 dB	0° ... 3° ... 6° T 14 ... 13 ... 13 dB	0° ... 3° ... 6° T 18 ... 17 ... 14 dB	0° ... 3° ... 6° T 18 ... 17 ... 14 dB
Front-to-back ratio, copolar	> 27 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 18 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		< –150 dBc		
Max. power per input	250 W		200 W (at 50 °C ambient temperature)		

824–960 +45°/–45° Polarization

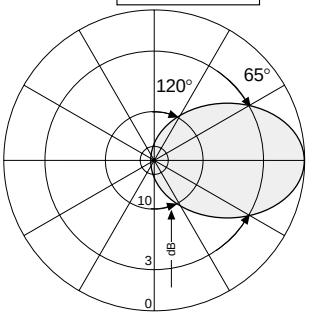


Horizontal Pattern

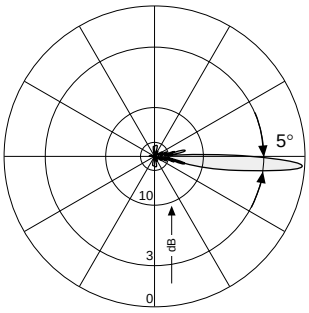


Vertical Pattern
0.5°–9.5° electrical downtilt

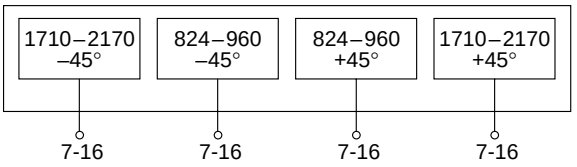
1710–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	23 kg
Wind load	Frontal: 340 N (at 150 km/h) Lateral: 280 N (at 150 km/h) Rearside: 640 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2215 x 302 x 192 mm
Height/width/depth	1916 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Dual-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	824–960	1710–2170
Dual Polarization	X	X
Half-power Beam Width	65°	65°
Adjust. Electr. Downtilt	0°–7°	0°–6°

set by hand or by optional RCU (Remote Control Unit)

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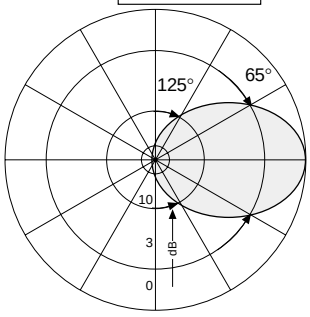
XXPol A-Panel 824–960/1710–2170 65°/65° 17/18.5dBi 0°–7°/0°–6°T

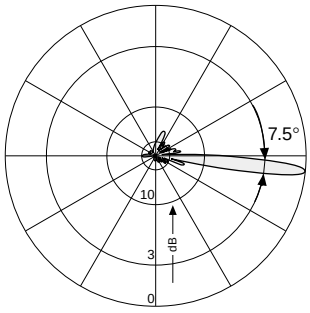
Type No.	742 266				
Frequency range	824–960		1710–2170		
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1900–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16.5 dBi	2 x 17 dBi	2 x 17.8 dBi	2 x 18.2 dBi	2 x 18.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.1°	Horizontal: 65° Vertical: 7.5°	Horizontal: 66° Vertical: 5.2°	Horizontal: 65° Vertical: 5.0°	Horizontal: 63° Vertical: 4.7°
Electrical tilt continuously adjustable	0.5°–7°	0.5°–7°	0°–6°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 3° ... 6° T 13 ... 13 ... 13 dB	0° ... 3° ... 6° T 16 ... 15 ... 14 dB	0° ... 3° ... 6° T 15 ... 15 ... 15 dB
Front-to-back ratio, copolar	> 28 dB	> 28 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		< –150 dBc		
Max. power per input	250 W		200 W (at 50 °C ambient temperature)		

XXPol Dual-b.

824–960 +45°/–45° Polarization

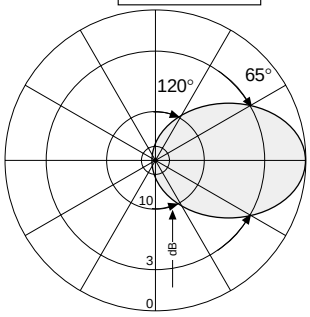


Horizontal Pattern

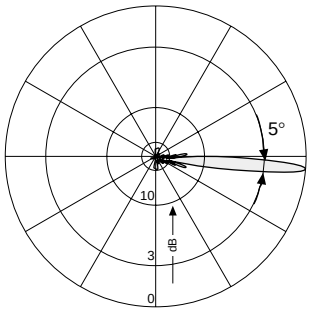


Vertical Pattern
0.5°–7° electrical downtilt

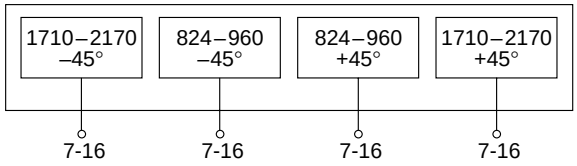
1710–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	4 x 7-16 female
Connector position	Bottom
Adjustment mechanism	2x, Position bottom continuously adjustable
Weight	26 kg
Wind load	Frontal: 460 N (at 150 km/h) Lateral: 380 N (at 150 km/h) Rearside: 860 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2815 x 302 x 192 mm
Height/width/depth	2516 / 262 / 139 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Summary – Directional Antennas
Triple-band
UMTS

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Dual Polarization +45°/–45° – 800/900 1800/1900 2000

Type					Type No.	Height [mm]	Page
XXXPol A-Panel	806– 960	66°	15dBi	0°–12°T	742 270	1498	108
	1710–1880	66°	16.5dBi	0°–8°T			
	1920–2170	65°	17dBi	0°–8°T			
XXXPol A-Panel	806– 960	67°	16.5dBi	0°–10°T	742 271	2058	109
	1710–1880	65°	17.5dBi	0°–6°T			
	1920–2170	65°	18dBi	0°–6°T			
XXXPol A-Panel	806– 960	66°	17.5dBi	0°–7°T	742 272	2628	110
	1710–1880	67°	17.5dBi	0°–6°T			
	1920–2170	65°	18dBi	0°–6°T			
XXXPol A-Panel	824– 960	65°	17dBi	0°–7°T	742 241	2628	111
	1710–2170	65°	17dBi	0°–8°T			
	1710–2170	65°	16.5dBi	0°–8°T			

Connector position: Bottom

New Products

Triple-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	806–960	1710–1880	1920–2170
Dual Polarization	X	X	X
Half-power Beam Width	66°	66°	65°
Adjust. Electr. Downtilt	0°–12°	0°–8°	0°–8°

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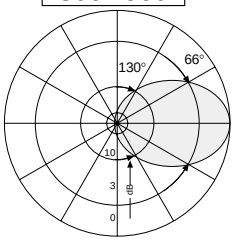
set by hand or by optional RCU (Remote Control Unit)

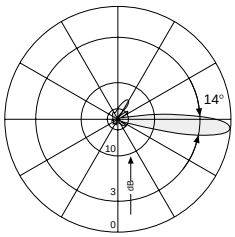
XXXPol A-Panel 806–960/1710–1880/1920–2170 66°/66°/65° 15/16.5/17dBi 0°–12°/0°–8°/0°–8°T

Type No.	742 270				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 14.8 dBi	2 x 15 dBi	2 x 15.2 dBi	2 x 16.5 dBi	2 x 17.2 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 14.3°	Horizontal: 68° Vertical: 14°	Horizontal: 66° Vertical: 13.3°	Horizontal: 66° Vertical: 7.1°	Horizontal: 65° Vertical: 6.5°
Electrical tilt continuously adjustable	0.5°–12°	0.5°–12°	0.5°–12°	0.5°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	0° ... 6° ... 12° T 13 ... 12 ... 10 dB	0° ... 6° ... 12° T 14 ... 14 ... 14 dB	0° ... 6° ... 12° T 16 ... 16 ... 16 dB	0° ... 4° ... 8° T 17 ... 16 ... 15 dB	0° ... 4° ... 8° T 17 ... 15 ... 13 dB
Front-to-back ratio, copolar	> 27 dB	> 27 dB	> 27 dB	> 23 dB	> 23 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

806–960 +45°/–45° Polarization

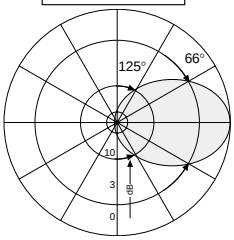


Horizontal Pattern

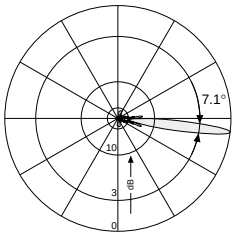


Vertical Pattern
0.5°–12° electrical downtilt

1710–1880 +45°/–45° Polarization

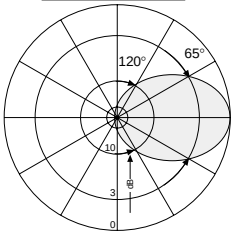


Horizontal Pattern

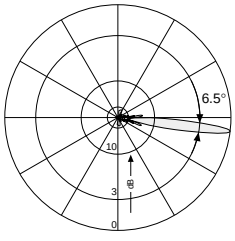


Vertical Pattern
0.5°–8° electrical downtilt

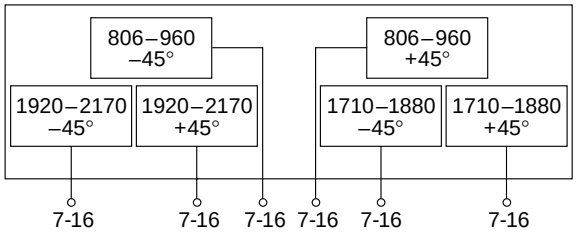
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–8° electrical downtilt



Mechanical specifications		
Input	6 x 7-16 female	
Connector position	Bottom	
Adjustment mechanism	3x, Position bottom continuously adjustable	
Weight	25 kg	
Wind load	Frontal:	260 N (at 150 km/h)
	Lateral:	210 N (at 150 km/h)
	Rearside:	580 N (at 150 km/h)
Max. wind velocity	200 km/h	
Packing size	1819 x 304 x 204 mm	
Height/width/depth	1498 / 262 / 149 mm	

Mounting accessories are not included in the scope of delivery (see page 186 – 191)

For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Triple-band A-Panel Dual Polarization Half-power Beam Width Adjust. Electr. Downtilt

	806–960	1710–1880	1920–2170
Dual Polarization	X	X	X
Half-power Beam Width	67°	65°	65°
Adjust. Electr. Downtilt	0°–10°	0°–6°	0°–6°

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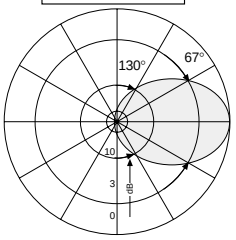
set by hand or by optional RCU (Remote Control Unit)

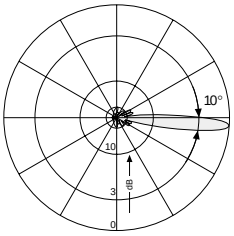
XXXPol A-Panel 806–960/1710–1880/1920–2170 67°/65°/65° 16.5/17.5/18dBi 0°–10°/0°–6°/0°–6°T

Type No.	742 271				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 16 dBi	2 x 16.1 dBi	2 x 16.3 dB	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 11°	Horizontal: 68° Vertical: 10.7°	Horizontal: 67° Vertical: 9.8°	Horizontal: 65° Vertical: 5.1°	Horizontal: 65° Vertical: 4.8°
Electrical tilt continuously adjustable	0°–10°	0°–10°	0°–10°	0°–6°	0°–6°
Sidelobe suppression for first sidelobe above horizon	0° ... 5° ... 10° T 15 ... 15 ... 13 dB	0° ... 5° ... 10° T 15 ... 15 ... 13 dB	0° ... 5° ... 10° T 15 ... 15 ... 13 dB	0° ... 3° ... 6° T 14 ... 15 ... 16 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 24 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

806–960 +45°/–45° Polarization

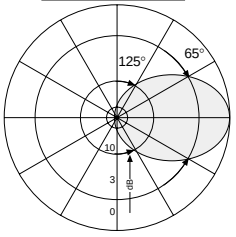


Horizontal Pattern

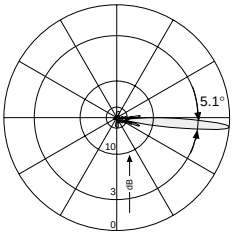


Vertical Pattern
0°–10° electrical downtilt

1710–1880 +45°/–45° Polarization

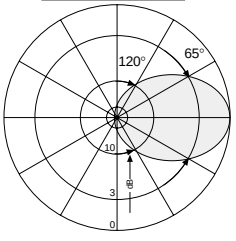


Horizontal Pattern

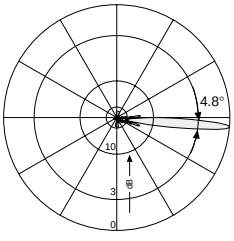


Vertical Pattern
0°–6° electrical downtilt

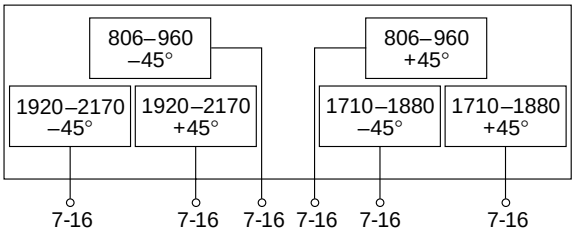
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	33 kg
Wind load	Frontal: 370 N (at 150 km/h) Lateral: 300 N (at 150 km/h) Rearside: 820 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2379 x 304 x 204 mm
Height/width/depth	2058 / 262 / 149 mm

XXXPol

Triple-band A-Panel
Dual Polarization
Half-power Beam Width
Adjust. Electr. Downtilt

	806–960	1710–1880	1920–2170
Dual Polarization	X	X	X
Half-power Beam Width	66°	67°	65°
Adjust. Electr. Downtilt	0°–7°	0°–6°	0°–6°

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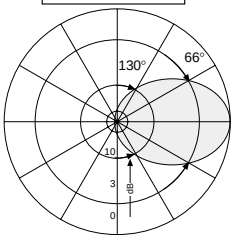
set by hand or by optional RCU (Remote Control Unit)

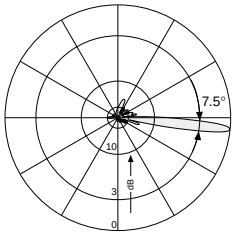
XXXPol A-Panel 806–960/1710–1880/1920–2170 66°/67°/65° 17.5/17.5/18dBi 0°–7°/0°–6°/0°–6°T

Type No.	742 272				
Frequency range	806–960			1710–1880	1920–2170
	806–866 MHz	824–894 MHz	880–960 MHz	1710–1880 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain	2 x 17 dBi	2 x 17.2 dBi	2 x 17.5 dBi	2 x 17.5 dBi	2 x 18 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 69° Vertical: 7.8°	Horizontal: 68° Vertical: 7.4°	Horizontal 66° Vertical: 7°	Horizontal: 67° Vertical: 5.2°	Horizontal: 65° Vertical: 4.8°
Electrical tilt continuously adjustable	0.5°– 7°	0.5°– 7°	0.5°– 7°	0°– 6°	0°– 6°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 7° T 15 ... 15 ... 14 dB	0° ... 4° ... 7° T 15 ... 15 ... 14 dB	0° ... 4° ... 7° T 15 ... 15 ... 15 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB	0° ... 3° ... 6° T 14 ... 14 ... 14 dB
Front-to-back ratio, copolar	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection Sector	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 25 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (806–960 // 1710–1880 MHz) > 50 dB (806–960 // 1920–2170 MHz) > 30 dB (1710–1880 // 1920–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc			< –150 dBc	< –150 dBc
Max. power per input	250 W (at 50 °C ambient temperature)			200 W	200 W

806–960 +45°/–45° Polarization

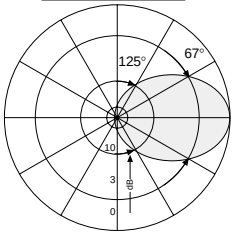


Horizontal Pattern

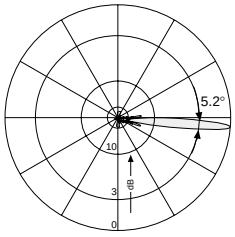


Vertical Pattern
0.5°–7° electrical downtilt

1710–1880 +45°/–45° Polarization

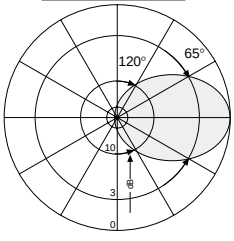


Horizontal Pattern

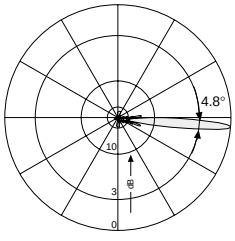


Vertical Pattern
0°–6° electrical downtilt

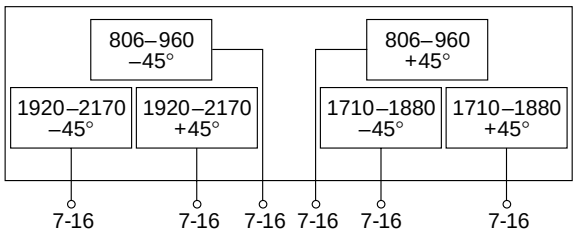
1920–2170 +45°/–45° Polarization



Horizontal Pattern



Vertical Pattern
0°–6° electrical downtilt



Mechanical specifications	
Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	40 kg
Wind load	Frontal: 480 N (at 150 km/h) Lateral: 390 N (at 150 km/h) Rearside: 1060 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2949 x 304 x 204 mm
Height/width/depth	2628 / 262 / 149 mm

Mounting accessories are not included in the scope of delivery (see page 186 – 191)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Triple-multiband A-Panel

	824–960	1710–2170	1710–2170
Dual Polarization	X	X	X
Half-power Beam Width	65°	65°	65°
Adjust. Electr. Downtilt	0°–7°	0°–8°	0°–8°

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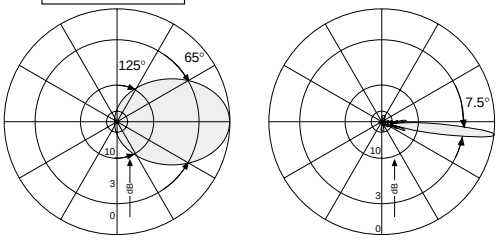
set by hand or by optional RCU (Remote Control Unit)

XXXPol A-Panel 824–960/1710–2170/1710–2170 65°/65°/65° 17/17/16.5dBi 0°–7°/0°–8°/0°–8°T

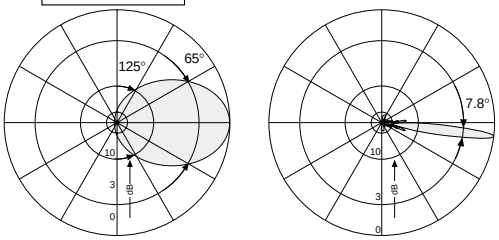
Type No.	742 241				
Frequency range	824–960		1710–2170	1710–2170	
	824–894 MHz	880–960 MHz	1710–1880 MHz	1850–1990 MHz	1920–2170 MHz
Polarization	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°	+45°, –45°
Gain: 824–960 MHz 1710–2170 MHz (Syst. 1) 1710–2170 MHz (Syst. 2)	2 x 16.5 dBi	2 x 17 dBi	2 x 16.5 dBi 2 x 16 dBi	2 x 16.8 dBi 2 x 16.3 dBi	2 x 17 dBi 2 x 16.5 dBi
Half-power beam width Copolar +45°/–45°	Horizontal: 68° Vertical: 8.1°	Horizontal: 65° Vertical: 7.5°	Horizontal: 65° Vertical: 7.8°	Horizontal: 65° Vertical: 7.3°	Horizontal: 63° Vertical: 6.8°
Electrical tilt continuously adjustable	0.5°–7°	0.5°–7°	0°–8°	0°–8°	0°–8°
Sidelobe suppression for first sidelobe above horizon	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 7° T 16 ... 16 ... 14 dB	0° ... 4° ... 8° T 14 ... 14 ... 14 dB	0° ... 4° ... 8° T 16 ... 16 ... 15 dB	0° ... 4° ... 8° T 15 ... 16 ... 15 dB
Front-to-back ratio, copolar	> 26 dB	> 26 dB	> 25 dB	> 25 dB	> 25 dB
Cross polar ratio Maindirection 0° Sector ±60°	Typically: 20 dB > 10 dB	Typically: 20 dB > 10 dB	Typically: 16 dB > 10 dB	Typically: 18 dB > 10 dB	Typically: 20 dB > 10 dB
Isolation: Intrasystem	> 30 dB	> 30 dB	> 30 dB	> 30 dB	> 30 dB
Isolation: Intersystem	> 50 dB (824–960 // 1710–2170 MHz) > 38 dB (1710–2170 // 1710–2170 MHz)				
Impedance	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		< –150 dBc		
Max. power per input	250 W		200 W (at 50 °C ambient temperature)		

824–960 +45°/–45° Polarization



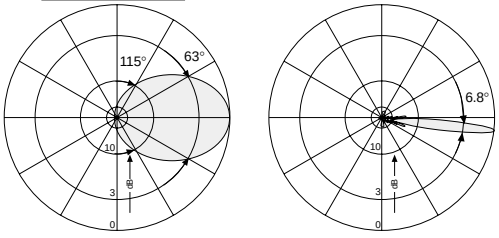
Horizontal Pattern — Vertical Pattern
0.5°–7° electrical downtilt

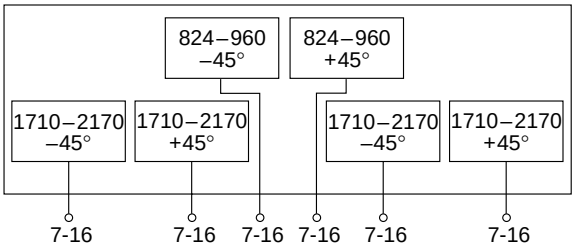
1710–1880 +45°/–45° Polarization



Horizontal Pattern — Vertical Pattern
0°–8° electrical downtilt

1920–2170 +45°/–45° Polarization





Mechanical specifications	
Input	6 x 7-16 female
Connector position	Bottom
Adjustment mechanism	3x, Position bottom continuously adjustable
Weight	34 kg
Wind load	Frontal: 480 N (at 150 km/h) Lateral: 390 N (at 150 km/h) Rearside: 1060 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	2944 x 304 x 204 mm
Height/width/depth	2628 / 262 / 149 mm

Summary – Directional Antennas
Vertical Polarization
Single-band and Multi-band – UMTS

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Vertical Polarization

Type						Type No.	Height [mm]	Page
VPol BiDir	824–960/1710–2170		65°	5dBi		738 445	310	114
VPol BiDir	824–960/1710–2170		65°	5dBi		738 446	310	114
VPol LogPer	806–2170		65°	11dBi		742 192	300	115
VPol F-Panel	1920–2170		60°	17.5dBi		**741 415**	982	116
Vpol F-Panel	1710–2170		65°	18dBi	0°–10°T	**742 445**	1302	117
VVPol F-Panel	824–960	C	90°	7dBi		**742 290**	328	118
	1710–2170		90°	7dBi				
VVPol F-Panel	824–960	C	90°	10dBi		**800 10046**	662	119
	1710–2170		90°	11.5dBi				
VPol F-Panel	1920–210		120°	14.5dBi		**741 786**	982	120

New Products

UMTS VPol

Multi-band Bidirectional Antenna
Vertical Polarization
Half-power Beam Width

824 – 960/1710 – 2170

V

65°

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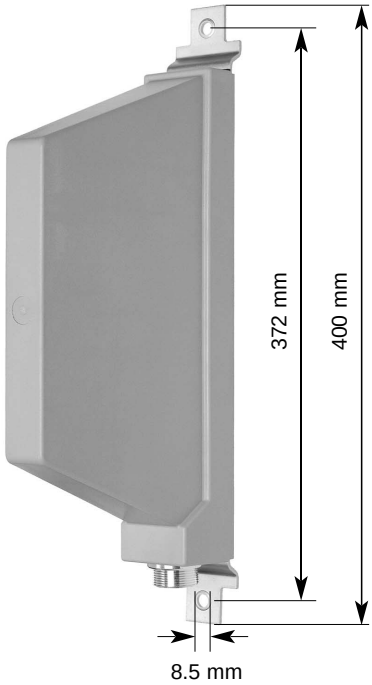
VPol BiDir 824–960/1710–2170 65° 5dBi

Type No.	738 445	738 446
Input	1 x 7-16 female	1 x N female
Frequency range	824 – 960 MHz, 1710 – 2170 MHz	
VSWR	< 1.5	
Gain	824 – 960 MHz: 5 dBi 1710 – 1880 MHz: 5.5 dBi 1880 – 2170 MHz: 6.5 dBi	
Impedance	50 Ω	
Polarization	Vertical	
Max. power (total)	200 W (at 50 °C ambient temperature)	
Weight	0.8 kg	
Wind load	Frontal: 25 N (at 150 km/h) Lateral: 65 N (at 150 km/h) Rearside: 35 N (at 150 km/h)	
Max. wind velocity	200 km/h	
Packing size	422 x 212 x 95 mm	
Height/width/depth	310 / 55 / 190 mm	

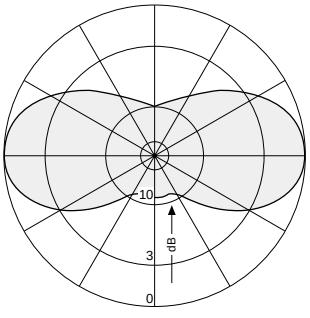


Material: Radiator: Tin plated copper.
Reflector: Weather-proof aluminum.
Radome: High impact plastic, colour: Grey.
All screws and nuts: Stainless steel.

Mounting: Wall mounting: No additional mounting kit needed.
For pipe mast mounting use clamps listed on the datasheet (order separately).

Ice protection: The radiating system is protected by the radome. Due to its very sturdy construction, the antenna remains operational even under icy conditions.

Grounding: All metal parts of the antenna as well as the inner conductor are DC grounded.



Typical Horizontal Pattern

Logarithmic Periodic Vertical Polarization Half-power Beam Width

806 – 2170 | **V** | **65°**

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VPol LogPer 806–2170 65° 11dBi

Type No.	742 192		
Input	1 x 7-16 female		
Connector position	Bottom		
Frequency range	806 – 1000 MHz	1000 – 1700 MHz	1700 – 2170 MHz
VSWR	< 1.5	< 1.5	< 1.5
Gain	11 dBi	11.3 dBi	11.5 dBi
Impedance	50 Ω	50 Ω	50 Ω
Polarization	Vertical	Vertical	Vertical
Front-to-back ratio	> 25 dB	> 25 dB	> 23 dB
Half-power Beam Width horizontal vertical	 65° 55°	 55° 50°	 50° 45°
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc	< –150 dBc
Max. power	300 W	250 W	200 W
	(at 50 °C ambient temperature)		
Weight	5.7 kg		
Wind load	Frontal: 20 N (at 150 km/h) Lateral: 260 N (at 150 km/h) Rearside: 30 N (at 150 km/h)		
Max. wind velocity	200 km/h		
Packing size	360 x 175 x 1000 mm		
Height/width/depth	300 / 155 / 785 mm		

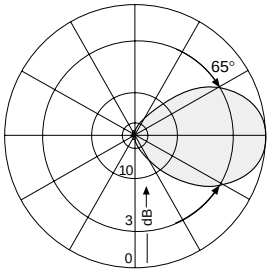
Material: Radiator: Weather-proof aluminum.
Reflector screen: Weather-proof aluminum.
Radome: Fiberglass, colour: Grey.
All screws and nuts: Stainless steel.

Mounting: The antenna can be mounted on tubular mast with a diameter of 30 – 70 mm with supplied clamps.

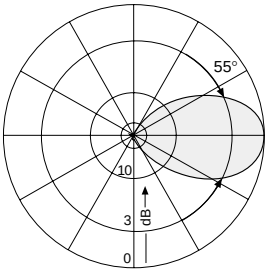
Ice protection: Due to the very sturdy antenna construction and the protection of the radiating system by the radome, the antenna remains operational even under icy conditions.

Grounding: All metal parts of the antenna as well as the inner conductor are DC grounded.

806 – 1000 MHz

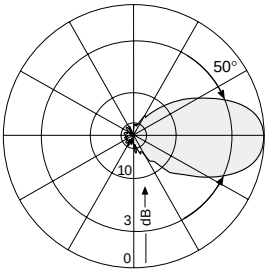


Horizontal Pattern

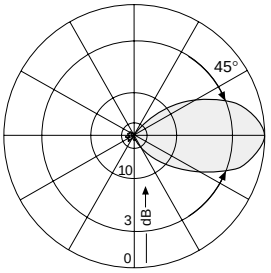


Vertical Pattern

1700 – 2170 MHz



Horizontal Pattern



Vertical Pattern

VPol

F-Panel
Vertical Polarization
Half-power Beam Width

1920 – 2170

V

60°

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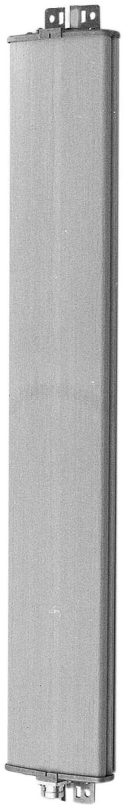
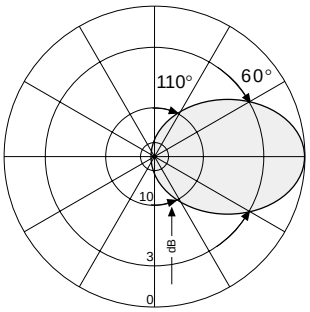
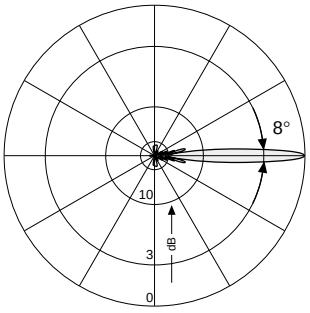
VPol F-Panel 1920–2170 60° 17.5dBi

Type No.	741 415
Frequency range	1920 – 2170 MHz
Polarization	Vertical
Gain	17.5 dBi
Half-power beam width	H-plane: 60° E-plane: 8°
Front-to-back ratio	> 25 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)





Horizontal Pattern



Vertical Pattern

Mechanical specifications	
Input	7-16 female
Connector position*	Bottom or top
Weight	3.7 kg
Wind load	Frontal: 190 N (at 150 km/h) Lateral: 40 N (at 150 km/h) Rearside: 230 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1084 x 172 x 62 mm
Height/width/depth	982 / 155 / 36 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Multi-band F-Panel
Vertical Polarization
Half-power Beam Width
Adjust. Electrical Downtilt
set by hand or by optional RCU (Remote Control Unit)

1710–2170
V
65°
0°–10°

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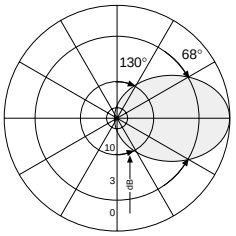
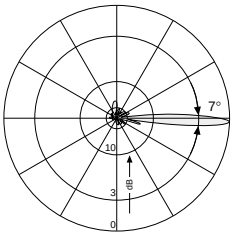
VPol F-Panel 1710–2170 65° 18dBi 0°–10°T

Type No.	742 445		
Frequency range	1710–2170		
	1710 – 1880 MHz	1850 – 1990 MHz	1920 – 2170 MHz
Polarization	Vertical	Vertical	Vertical
Gain	17.5 dBi	17.9 dBi	18.1 dBi
Half-power beam width	Horizontal: 68° Vertical: 7°	Horizontal: 65° Vertical: 6.7°	Horizontal: 63° Vertical: 6.5°
Electrical tilt	0°–10° continuously adjustable	0°–10° continuously adjustable	0°–10° continuously adjustable
Sidelobe suppression for first sidelobe above horizon	0° ... 5° ... 10° T 18 ... 16 .... 13 dB	0° ... 5° ... 10° T 18 ... 17 ... 14 dB	0° ... 5° ... 10° T 18 ... 17 ... 14 dB
Front-to-back ratio	> 25 dB	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω	50 Ω
VSWR	< 1.5	< 1.5	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	300 W (at 50 °C ambient temperature)		

1710 – 1880 MHz

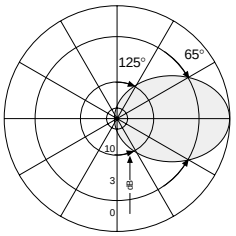


Horizontal Pattern

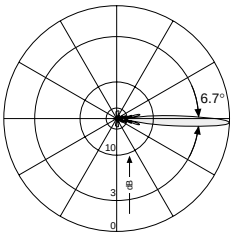


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

1850 – 1990 MHz

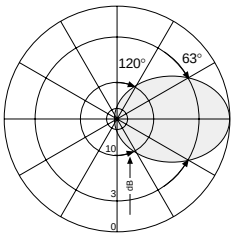


Horizontal Pattern

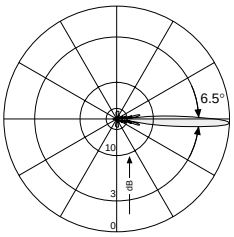


Vertical Pattern
0°–10° electrical downtilt
continuously adjustable

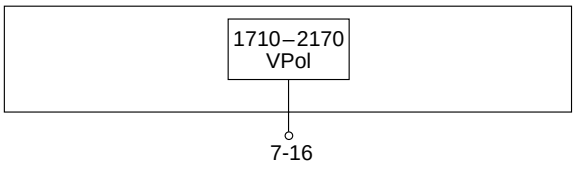
1920 – 2170 MHz



Horizontal Pattern



Vertical Pattern
0°–10° electrical downtilt
continuously adjustable



Mechanical specifications	
Input	1 x 7-16 female
Connector position	Bottom
Adjustment mechanism	1x, Position bottom continuously adjustable
Weight	6.8 kg
Wind load	Frontal: 130 N (at 150 km/h) Lateral: 110 N (at 150 km/h) Rearside: 310 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1574 x 172 x 92 mm
Height/width/depth	1302 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)
For more information about downtilt adjustment and preparation for Remote Control Unit (RCU) refer to pages 150 – 160

Dual-band F-Panel
Vertical Polarization
Half-power Beam Width
Integrated Combiner

824–960	1710–2170
V	V
90°	82°
C	

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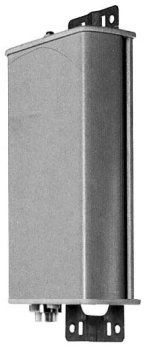
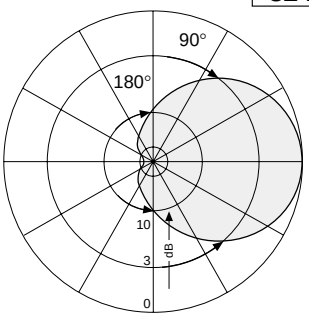
VVPol F-Panel 824–960/1710–2170 C 90°/82° 7/7dBi



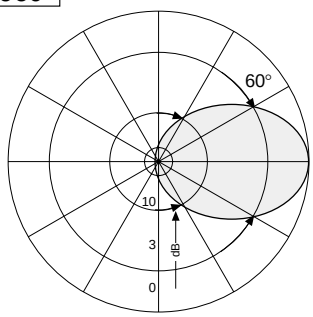
Type No.	742 290	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	7 dBi	7 dBi
Half-power beam width	Horizontal: 90° Vertical: 60°	Horizontal: 82° Vertical: 70°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)	< 1.7 (1710 – 2170 MHz) < 1.5 (1710 – 1990 MHz)
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power	100 W (at 50 °C ambient temperature)	

VPol

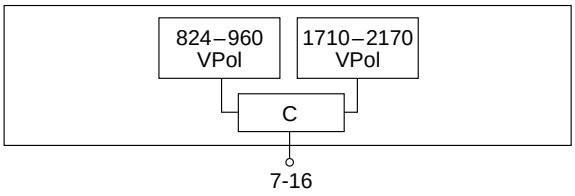
824–960



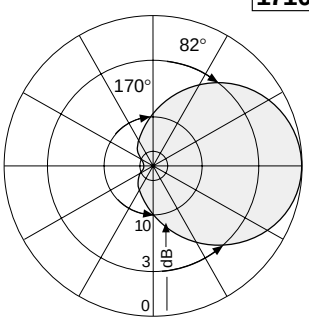
Horizontal Pattern



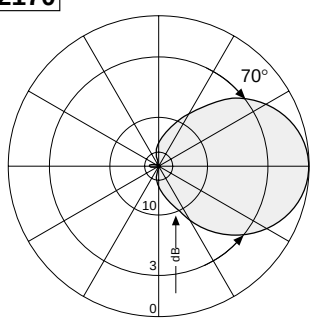
Vertical Pattern



1710–2170



Horizontal Pattern



Vertical Pattern

Mechanical specifications	
Input	1 x 7-16 female
Connector position	Bottom
Weight	2.5 kg
Wind load	Frontal: 30 N (at 150 km/h) Lateral: 25 N (at 150 km/h) Rearside: 70 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	444 x 172 x 92 mm
Height/width/depth	328 / 155 / 69 mm

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Dual-band F-Panel
Vertical Polarization
Half-power Beam Width
Integrated Combiner

824–960	1710–2170
V	V
90°	82°
C	

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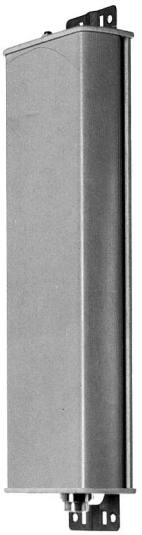
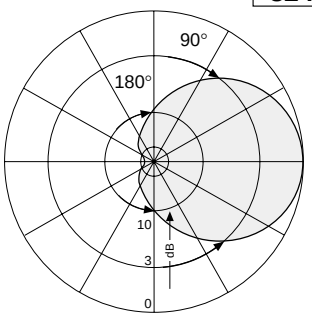
VVPol F-Panel 824–960/1710–2170 C 90°/82° 10/11dBi

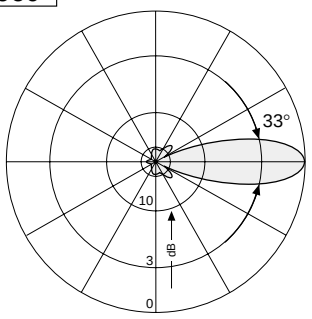
Type No.	800 10046	
Frequency range	824 – 960 MHz	1710 – 2170 MHz
Polarization	Vertical	Vertical
Gain	10 dBi	11 dBi
Half-power beam width	Horizontal: 90° Vertical: 33°	Horizontal: 82° Vertical: 19°
Front-to-back ratio	> 18 dB	> 20 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7 (824 – 960 MHz) < 1.5 (870 – 960 MHz)	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	< –150 dBc
Max. power	100 W (at 50 °C ambient temperature)	



824–960

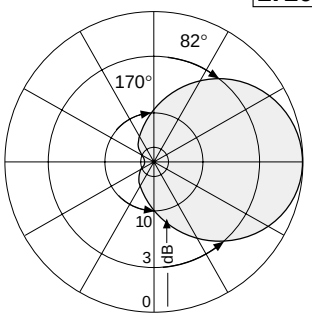


Horizontal Pattern

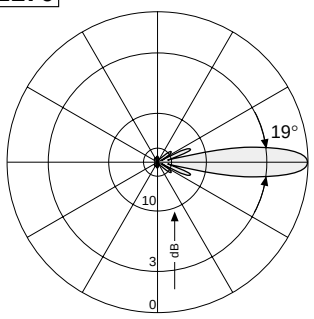


Vertical Pattern

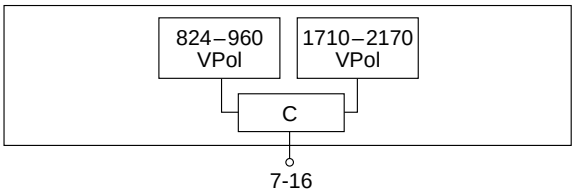
1710–2170



Horizontal Pattern



Vertical Pattern



Mechanical specifications	
Input	1 x 7-16 female
Connector position	Bottom
Weight	4.4 kg
Wind load	Frontal: 65 N (at 150 km/h) Lateral: 50 N (at 150 km/h) Rearside: 160 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	744 x 172 x 92 mm
Height/width/depth	662 / 155 / 69 mm

VPol

F-Panel
Vertical Polarization
Half-power Beam Width

1920 – 2170

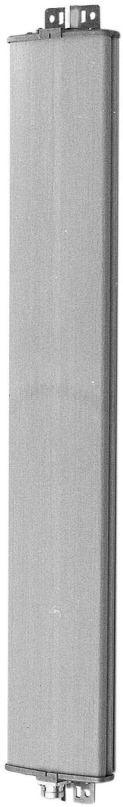
V

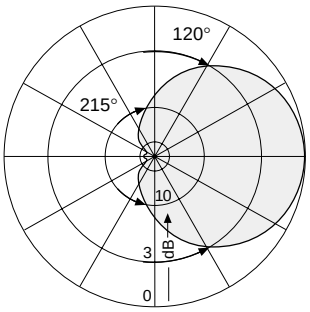
120°

KATHREIN
Antennen · Electronic

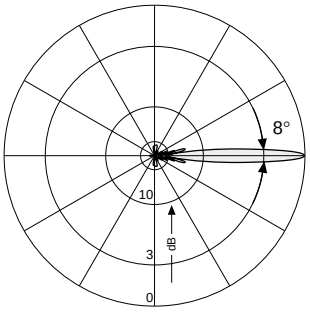
VPol F-Panel 1920–2170 120° 14.5dBi

Type No.	741 786
Frequency range	1920 – 2170 MHz
Polarization	Vertical
Gain	14.5 dBi
Half-power beam width	H-plane: 120° E-plane: 8°
Front-to-back ratio	> 18 dB
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)





Horizontal Pattern



Vertical Pattern

Mechanical specifications	
Input	7-16 female
Connector position*	Bottom or top
Weight	3.7 kg
Wind load	Frontal: 180 N (at 150 km/h) Lateral: 80 N (at 150 km/h) Rearside: 230 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1084 x 172 x 72 mm
Height/width/depth	982 / 155 / 49 mm

* Inverted mounting:
Connector position top: Change drain hole screw.

Mounting accessories are not included in the scope of delivery (see page 194 – 197)

Summary – Omnidirectional Antennas 800/900/1800/2000

KATHREIN
Antennen · Electronic

Vertical Polarization – 800/900

Type					Type No.	Connector female	Height [mm]	Remarks	Page
VPol Omni	870–960	360°	2 dBi		738 450	N	180	indoor/outdoor	122
VPol Omni	806–960	360°	2 dBi		K 75 11 61	N	273		123
VPol Omni	890–960	360°	5 dBi		K 75 15 64 1	N	635		124
VPol Omni	870–960	360°	8 dBi		736 350	7-16	1543		125
VPol Omni	806–894	360°	11 dBi		738 192	7-16	3237		126
VPol Omni	870–960	360°	11 dBi		736 347	7-16	3033		127
VPol Omni	870–960	360°	10.5 dBi	5°T	736 349	7-16	2954		128

Vertical Polarization – Dual-band

VPol Omni	870–960/1710–1880	360°	2 dBi		738 449	N	216	indoor/outdoor	129
VPol Omni	824–960/1805–2170	360°	2 dBi		800 10147	N	216	indoor/outdoor	130
VVPol Omni	870–960/1710–1880	360°	2 dBi		741 862	N	493	seperate	131
	870–960/1710–1880	360°	2 dBi					inputs	
VVPol Omni	870–960/1710–1880	360°	2 dBi		800 10111	N	493	seperate	132
	1920–2170	360°	2 dBi					inputs	

Vertical Polarization – 1800

VPol Omni	1710–1880	360°	8 dBi		739 785	7-16	800		133
VPol Omni	1710–1880	360°	11 dBi		738 187	7-16	1570		134
VPol Omni	1710–1880	360°	11 dBi	6°T	737 190	7-16	1560		135

Vertical Polarization – 1800/2000

VPol Omni	1710–2170	360°	2 dBi		738 454	N	115	indoor/outdoor	136
VPol Omni	1920–2170	360°	11 dBi		741 790	7-16	1387		137

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

870 – 960

V

KATHREIN
Antennen · Electronic

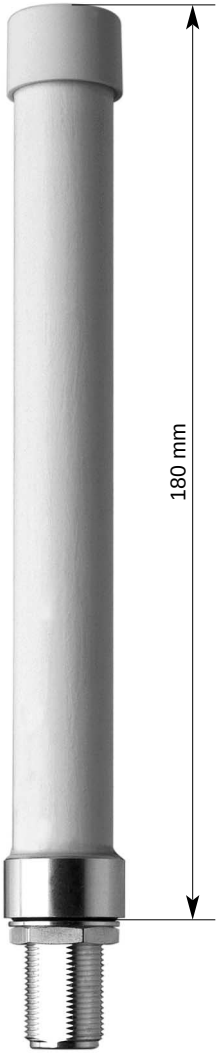
VPol Omni 870–960 360° 2dBi

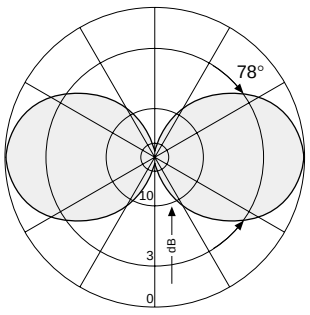
Type No.	738 450
Input	N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz
VSWR	< 1.5
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	100 Watt (at 50 °C ambient temperature)
Weight	200 g
Radome diameter	20 mm
Height	180 mm

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.

Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.





Vertical Pattern

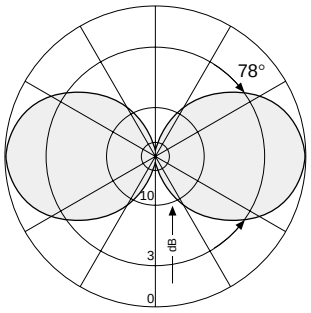
VPol Omni 806–960 360° 2dBi

Type No.	K 75 11 61
Frequency range	806 – 960 MHz
Polarization	Vertical
Gain	2 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	100 W (at 50 °C ambient temperature)

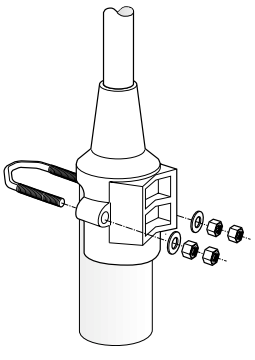
Mounting: The antenna can be attached in two ways with the supplied mounting kit:
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

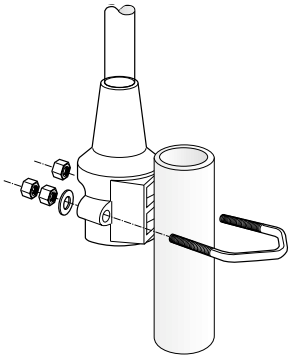
Material: Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern

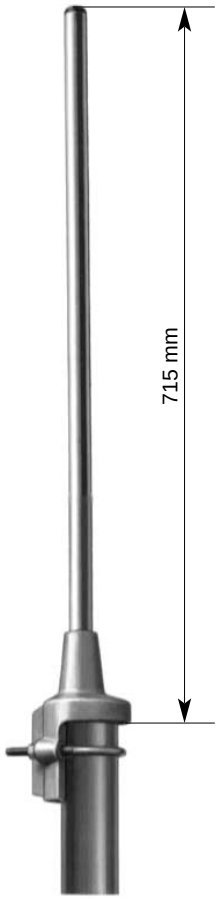

On the tip


Laterally at the tip

Mechanical specifications	
Input	N female
Connector position	Bottom
Weight	0.74 kg
Radome diameter	21 mm
Wind load	17 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	455 x 112x 97 mm
Height	348 mm

VPol Omni 890–960 360° 5dBi

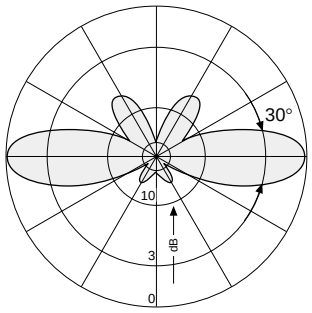
Type No.	K 75 15 64 1
Frequency range	890 – 960 MHz
Polarization	Vertical
Gain	5 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	250 W (at 50 °C ambient temperature)



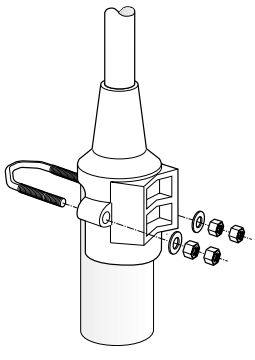
Mounting: The antenna can be attached in two ways with the supplied mounting kit:
1. On the tip of a tubular mast of 40 – 54 mm diameter (connecting cable runs inside the mast).
2. Laterally at the tip of a tubular mast of 20 – 54 mm diameter (connecting cable runs outside the mast).

Material: Radiator: Brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

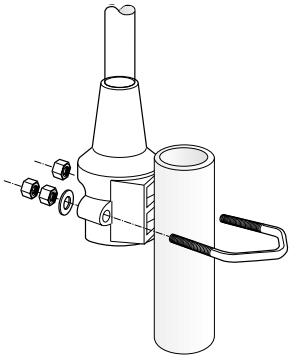
Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



On the tip



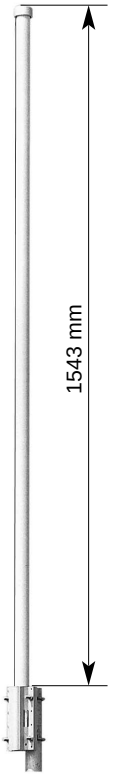
Laterally at the tip

Mechanical specifications	
Input	N female
Connector position	Bottom
Weight	0.90 kg
Radome diameter	21 mm
Wind load	20 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	825 x 112 x 97 mm
Height	715 mm

Brackets for side mounting (see page 198 – 200)

VPol Omni 870–960 360° 8dBi

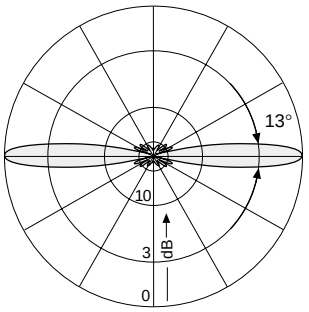
Type No.	736 350
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	8 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)



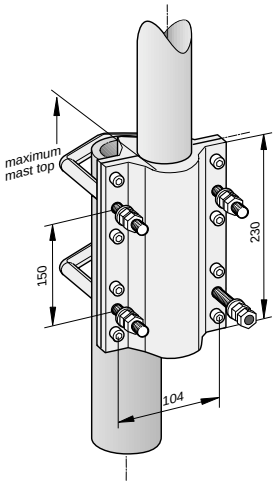
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass. Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications	736 350
Input	7-16 female
Connector position	Bottom
Weight	5.5 kg
Radome diameter	51 mm
Wind load	130 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1846 x 148 x 112 mm
Height	1543 mm

Brackets for side mounting (see page 198 – 200)

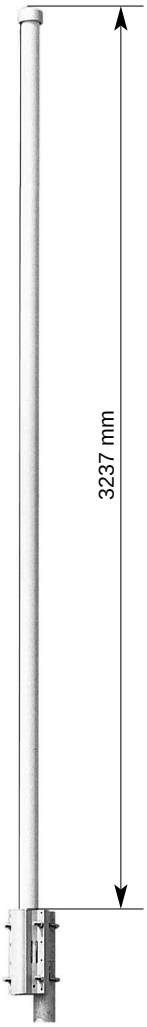
VPol Omni 806–894 360° 11dBi

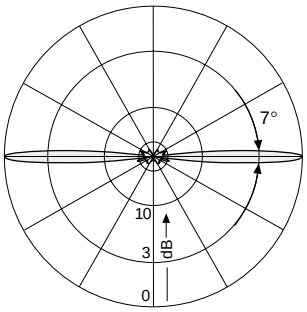
Type No.	738 192
Frequency range	806 – 894 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

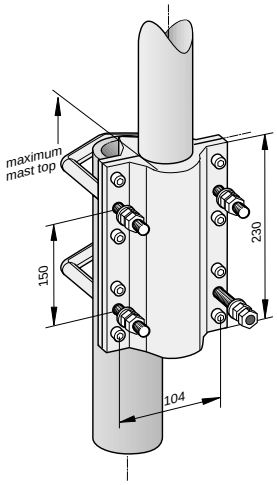
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.





Vertical Pattern



Mechanical specifications	
Input	7-16 female
Connector position	Bottom
Weight	8.5 kg
Radome diameter	51 mm
Wind load	230 N (at 150 km/h)
Max. wind velocity	180 km/h
Packing size	3516 x 148 x 112 mm
Height	3237 mm

Brackets for side mounting (see page 198 – 200)

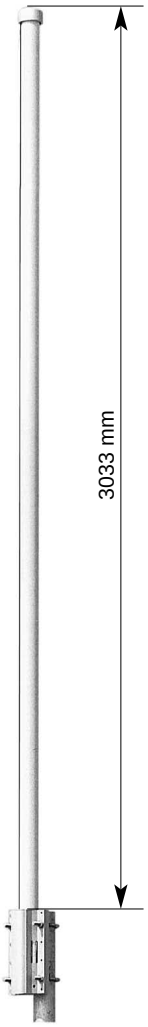
VPol Omni 870–960 360° 11dBi

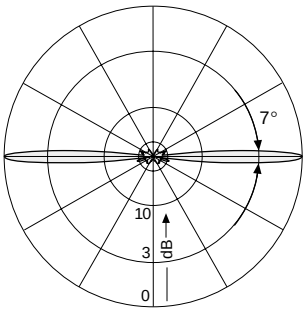
Type No.	736 347
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

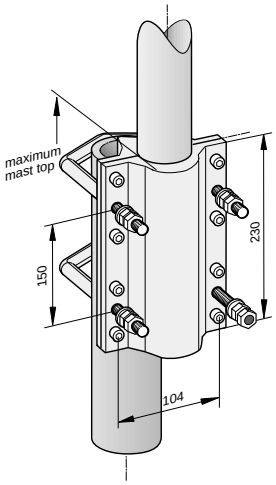
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.





Vertical Pattern



Mechanical specifications	736 347
Input	7-16 female
Connector position	Bottom
Weight	8 kg
Radome diameter	51 mm
Wind load	210 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3316 x 148 x 112 mm
Height	3033 mm

Brackets for side mounting (see page 198 – 200)

Omnidirectional Antennas
Vertical Polarization
Fixed Electrical Downtilt

870 – 960

V

5°

KATHREIN
Antennen · Electronic

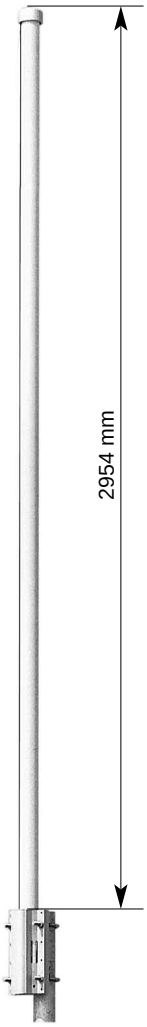
VPol Omni 870–960 360° 10.5dBi 5°T

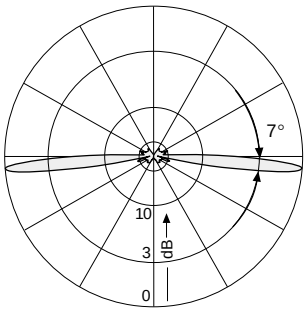
Type No.	736 349
Frequency range	870 – 960 MHz
Polarization	Vertical
Gain	10.5 dBi
Electrical tilt	5°, fixed
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	500 W (at 50 °C ambient temperature)

Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

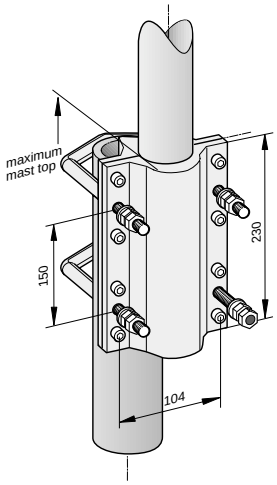
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.





Vertical Pattern
5° electrical downtilt



Mechanical specifications	736 349
Input	7-16 female
Connector position	Bottom
Weight	8 kg
Radome diameter	51 mm
Wind load	210 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	3316 x 148 x 112 mm
Height	2954 mm

VPol

Brackets for side mounting (see page 198 – 200)

Dual-band Omni Antenna 870–960/1710–1880
Vertical Polarization V
Indoor and outdoor use

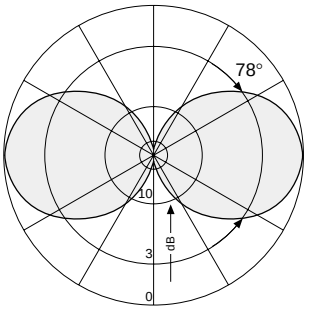
KATHREIN
Antennen · Electronic

VPol Omni 870–960/1710–1880 360° 2dBi

Type No.	738 449
Input	1 x N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz / 1710 – 1880 MHz
VSWR	< 1.7
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 Watt: 870 – 960 MHz 50 Watt: 1710 – 1880 MHz (at 50 °C ambient temperature)
Weight	250 g
Radome diameter	20 mm
Height	216 mm

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.



Vertical Pattern

VPol

Dual-band Omni Antenna 824–960/1805–2170
Vertical Polarization V
Indoor and outdoor use

KATHREIN
Antennen · Electronic

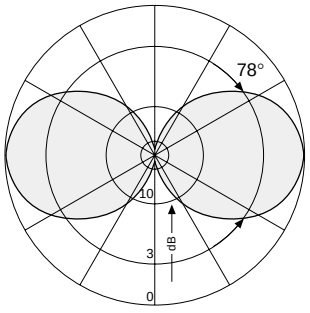
VPol Omni 824–960/1805–2170 360° 2dBi

Type No.	800 10147
Input	1 x N female
Connector position	Bottom or top
Frequency range	824 – 960 MHz / 1805 – 2170 MHz
VSWR	< 2.0
Gain	2 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power	50 Watt: 824 – 960 MHz 50 Watt: 1805 – 2170 MHz (at 50 °C ambient temperature)
Weight	250 g
Radome diameter	20 mm
Height	216 mm

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.

Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern

VPol

Dual-band Omni Antenna

870–960 1710–1880	870–960 1710–1880

Vertical Polarization

V	V

KATHREIN
Antennen · Electronic

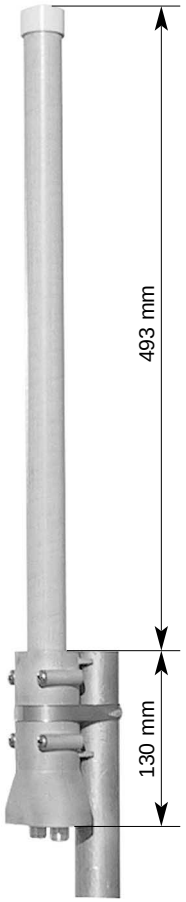
VVPol Omni 870–960/1710–1880 360°/360° 2/2dBi

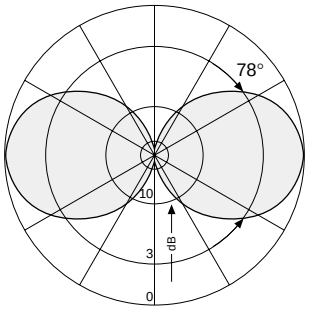
Type No.	741 862	
Frequency range	Upper unit 870 – 960 MHz 1710 – 1880 MHz	Lower unit 870 – 960 MHz 1710 – 1880 MHz
Polarization	Vertical	Vertical
Gain	2 dBi	2 dBi
Isolation, between ports	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.8	< 1.8
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	50 W (at 50 °C ambient temperature)	

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit and screws: Stainless steel.

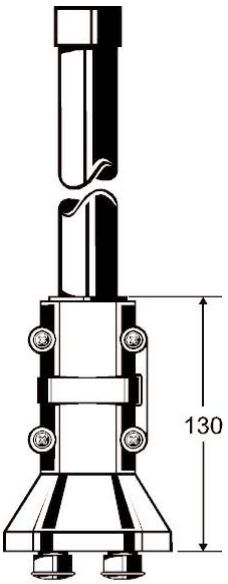
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 40 – 70 mm diameter with a mounting clamp supplied with the antenna. The connecting cables (not supplied) run outside the mast.

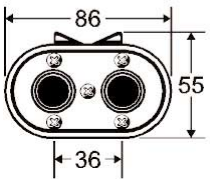
Excellent grounding: The metal parts of the antenna and the mounting kit (exclusive the inner conductor of the upper unit) are DC grounded.



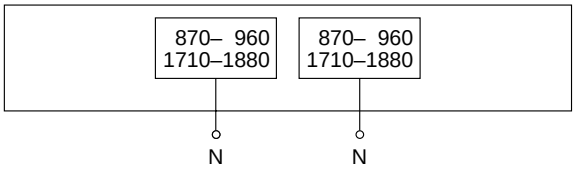


Vertical Pattern





Bottom view



Mechanical specifications	
Input	2 x N female
Connector position	Bottom
Weight	1.2 kg
Wind load	30 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	665 x 112 x 97 mm
Height	496 mm
Radome diameter	30 mm

VPol

Multi-band Omni Antenna

870 – 960 1710 – 1880	1920 – 2170

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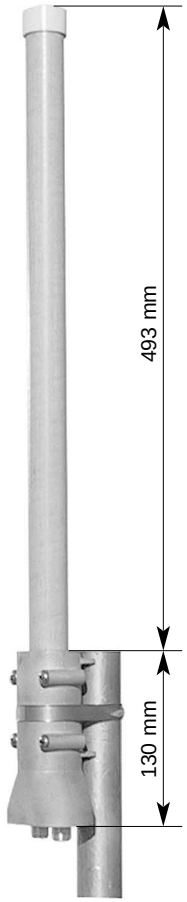
Antennen · Electronic

Vertical Polarization

V	V

VVPol Omni 870–960/1710–1880/1920-2170 360°/360° 2/2dBi

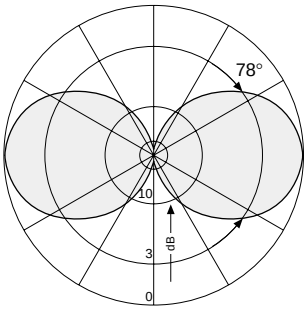
Type No.	800 10111	
Frequency range	Upper unit 870 – 960 MHz 1710 – 1880 MHz	Lower unit 1920 – 2170 MHz
Polarization	Vertical	Vertical
Gain	2 dBi	2 dBi
Isolation, between ports	> 25 dB	> 25 dB
Impedance	50 Ω	50 Ω
VSWR	< 1.7	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power per input	50 W (at 50 °C ambient temperature)	



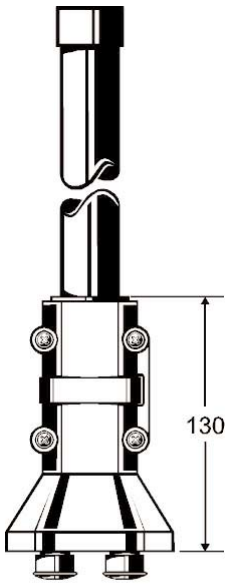
Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit and screws: Stainless steel.

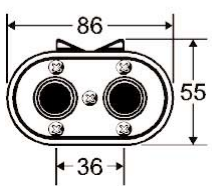
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 40 – 70 mm diameter with a mounting clamp supplied with the antenna. The connecting cables (not supplied) run outside the mast.

Excellent grounding: The metal parts of the antenna and the mounting kit (exclusive the inner conductor of the upper unit) are DC grounded.

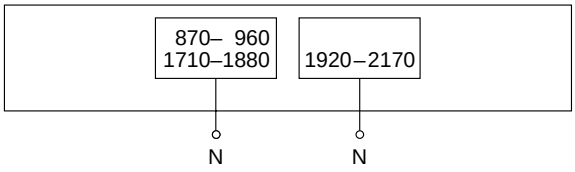


Vertical Pattern





Bottom view



Mechanical specifications	
Input	2 x N female
Connector position	Bottom
Weight	0.85 kg
Wind load	30 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	665 x 112 x 97 mm
Height	493 mm
Radome diameter	30 mm

VPol

Omnidirectional Antenna
Vertical Polarization

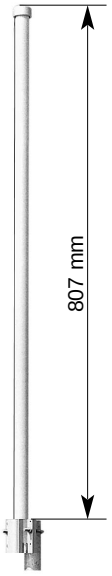
1710–1880

V

KATHREIN
Antennen · Electronic

VPol Omni 1710–1880 360° 8dBi

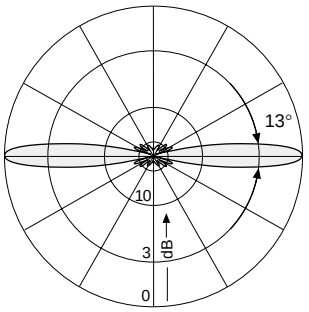
Type No.	739 785
Frequency range	1710 – 1880 MHz
Polarization	Vertical
Gain	8 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)



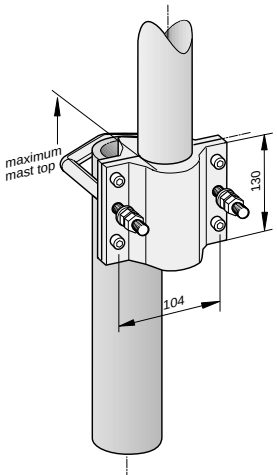
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



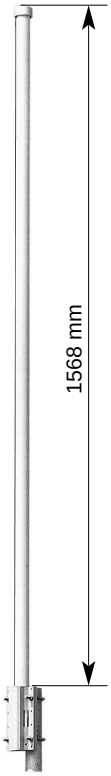
Mechanical specifications	
Input	7-16 female
Connector position	Bottom
Weight	4 kg
Radome diameter	51 mm
Wind load	90 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	986 x 148 x 112 mm
Height	807 mm

VPol

Brackets for side mounting (see page 198 – 200)

VPol Omni 1710–1880 360° 11dBi

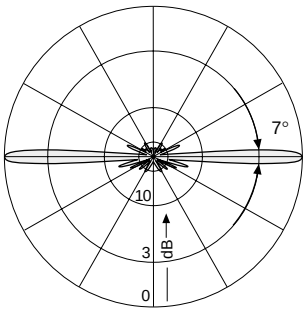
Type No.	738 187
Frequency range	1710 – 1880 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)



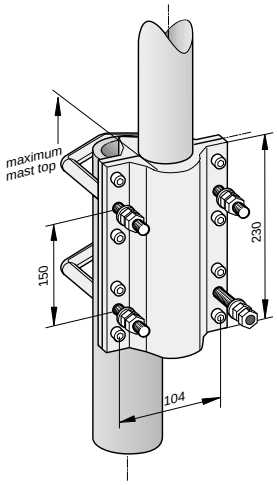
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications	738 187
Input	7-16 female
Connector position	Bottom
Weight	5.5 kg
Radome diameter	51 mm
Wind load	130 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1846 x 148 x 112 mm
Height	1568 mm

Brackets for side mounting (see page 198 – 200)

Omnidirectional Antenna
Vertical Polarization
Fixed Electrical Downtilt

1710–1880 | **V** | **6°**

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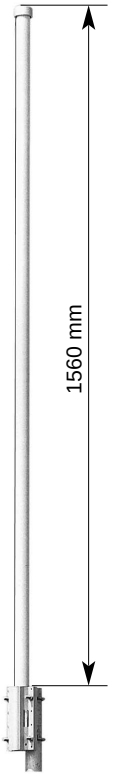
VPol Omni 1710–1880 360° 11dBi 6°T

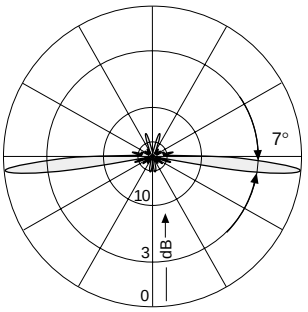
Type No.	737 190
Frequency range	1710 – 1880 MHz
Polarization	Vertical
Gain	11 dBi
Electrical tilt	6°, fixed
Impedance	50 Ω
VSWR	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	200 W (at 50 °C ambient temperature)



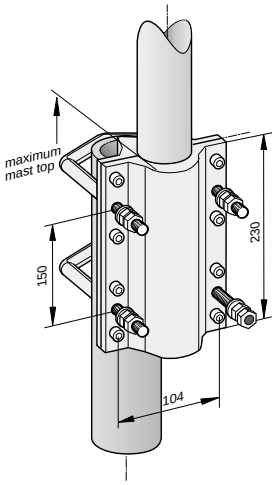
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with two U-bolt brackets supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern
6° electrical downtilt



Mechanical specifications	
Input	7-16 female
Connector position	Bottom
Weight	5.5 kg
Radome diameter	51 mm
Wind load	130 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1846 x 148 x 112 mm
Height	1560 mm

Brackets for side mounting (see page 198 – 200)

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

1710–2170

V

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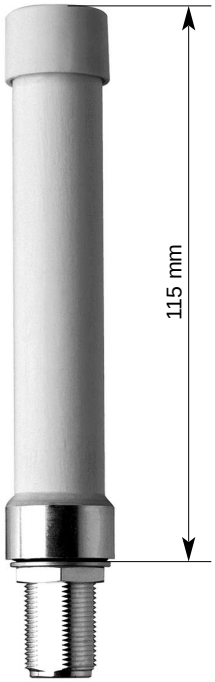
VPol Omni 1710–2170 360° 2dBi

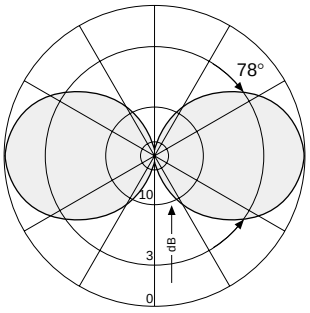


Type No.	738 454
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2170 MHz
VSWR	< 1.5
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W (at 50 °C ambient temperature)
Weight	150 g
Radome diameter	20 mm
Height	115 mm

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.

Grounding: All metal parts of the antenna and the mounting kit are DC grounded. The inner conductor is not DC grounded.



Vertical Pattern

VPol

Omnidirectional Antenna
Vertical Polarization

1920–2170

V

KATHREIN
Antennen · Electronic

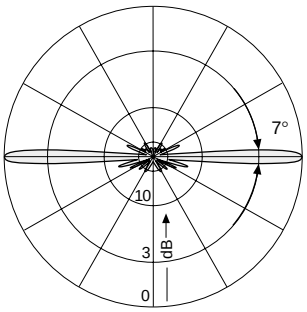
VPol Omni 1920–2170 360° 11dBi

Type No.	741 790
Frequency range	1920 – 2170 MHz
Polarization	Vertical
Gain	11 dBi
Impedance	50 Ω
VSWR	< 1.5
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Max. power	150 W (at 50 °C ambient temperature)

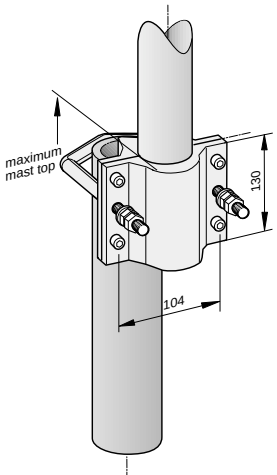
Mounting: The antenna can be attached laterally at the tip of a tubular mast of 50 – 94 mm diameter with one U-bolt bracket supplied with the antenna (connecting cable runs outside the mast).

Material: Radiator: Copper and brass.
Radome: Fiberglass, colour: Grey.
Base: Weather-proof aluminum.
Mounting kit, screws and nuts: Stainless steel.

Excellent grounding: From the solid metal tip right down to the base of the high gain antennas the grounding cross-section is 22 mm² copper or more, exceeding EN 50083-1.
The inner conductor is coupled capacitively.



Vertical Pattern



Mechanical specifications	
Input	7-16 female
Connector position	Bottom
Weight	5 kg
Radome diameter	51 mm
Wind load	120 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	1570 x 148 x 112 mm
Height	1387 mm

VPol

Brackets for side mounting (see page 198 – 200)

Summary – Indoor Antennas

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Vertical Polarization

Multi-band

Type			Type No.	Frequency range	Connector female	Page
VPol BiDir 824–960/1710–2170	65°	5dBi	738 446	824 – 960 MHz and 1710 – 2170 MHz	N	140
VPol Indoor 824–960/1710–2170	90°	7dBi	742 149	824 – 960 MHz and 1710 – 2170 MHz	N	141
VPol Indoor 1710–2170	360°	2dBi	741 573	1710 – 2500 MHz	N	142
VPol Indoor 824–960/1425–2170	360°	2dBi	741 572	824 – 960 MHz and 1425 – 2170 MHz	N	143
VPol Indoor 876–960/1710–2500	360°	2dBi	800 10137	876 – 960 MHz and 1710 – 2500 MHz	N	143
VPol Indoor 824–960/1425–2170	360°	2dBi	800 10177	824 – 960 MHz and 1425 – 2170 MHz	N	144
VPol Indoor 876–960/1710–2500	360°	2dBi	800 10173	876 – 960 MHz and 1710 – 2500 MHz	N	144

Indoor / Outdoor – Single-band

VPol Omni 870–960	360°	2dBi	738 450	870 – 960 MHz	N	145

Indoor / Outdoor – Dual-band / Multi-band

VPol Omni 870–960/1710–1880	360°	2dBi	738 449	870 – 960 MHz and 1710 – 1880 MHz	N	146
VPol Omni 1710–2170	360°	2dBi	738 454	1710 – 2170 MHz	N	147

Multi-band Bidirectional Antenna
Vertical Polarization
Half-power Beam Width

824 – 960/1710 – 2170

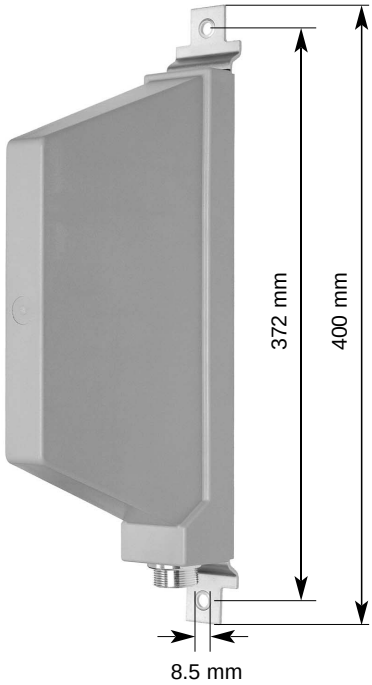
V

65°

KATHREIN
Antennen · Electronic

VPol BiDir 824–960/1710–2170 65° 5dBi

Type No.	738 446
Input	1 x N female
Frequency range	824 – 960 MHz, 1710 – 2170 MHz
VSWR	< 1.5
Gain	824 – 960 MHz: 5 dBi 1710 – 1880 MHz: 5.5 dBi 1880 – 2170 MHz: 6.5 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power (total)	200 W (at 50 °C ambient temperature)
Weight	0.8 kg
Wind load	Frontal: 25 N (at 150 km/h) Lateral: 65 N (at 150 km/h) Rearside: 35 N (at 150 km/h)
Max. wind velocity	200 km/h
Packing size	422 x 212 x 95 mm
Height/width/depth	310 / 55 / 190 mm

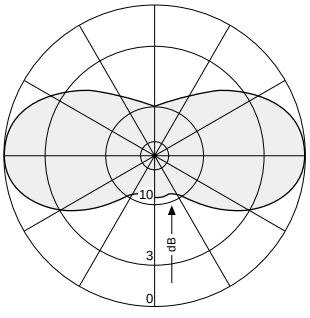


Material: Radiator: Tin plated copper.
Reflector: Weather-proof aluminum.
Radome: High impact plastic, colour: Grey.
All screws and nuts: Stainless steel.

Mounting: Wall mounting: No additional mounting kit needed.
For pipe mast mounting use clamps listed on the datasheet (order separately).

Ice protection: The radiating system is protected by the radome. Due to its very sturdy construction, the antenna remains operational even under icy conditions.

Grounding: All metal parts of the antenna as well as the inner conductor are DC grounded.



Typical Horizontal Pattern

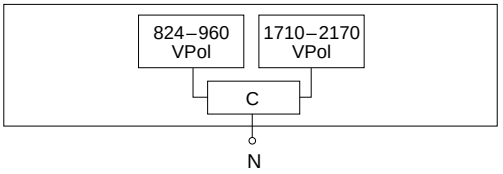
Indoor Multi-b. Direct. Antenna
Vertical Polarization
Half-power Beam Width
Integrated Combiner

824 – 960	1710 – 2170
V	V
90°	90°
C	

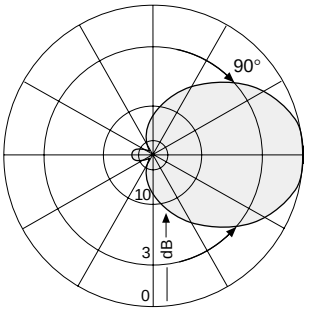
KATHREIN
Antennen · Electronic

VVPol Indoor 824–960/1710–2170 90° 7dBi

Type No.	742 149
Frequency range	824 – 960 MHz / 1710 – 2170 MHz
Polarization	Vertical
Gain	≈ 7 dBi
Half-power beam width	Horizontal: ≈ 90°
Impedance	50 Ω
VSWR	870 – 960 MHz and 1710 – 1900 MHz: < 1.6 824 – 960 MHz and 1710 – 2170 MHz: < 2.0
Max. power	50 W (at 50 °C ambient temperature)
Input	Cable RG 223/CU of 1m length, white, with N female connector
Weight	500 g
Packing size	321 x 165 x 50 mm
Height/width/depth	205 / 155 / 42 mm

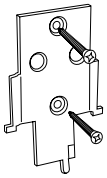


Material:	Radiator: Brass. Radome: ABS, colour: White. Reflector: Aluminum. Mounting plates: Stainless steel.
Mounting:	Two holes of 6 mm diameter in the mounting plate.
Grounding:	All metal parts inclusive the inner conductor are DC grounded.
Available accessories:	Broadband power splitter (800 – 2500 MHz).

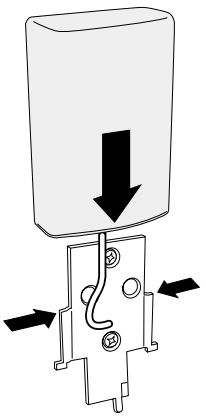


Horizontal Pattern

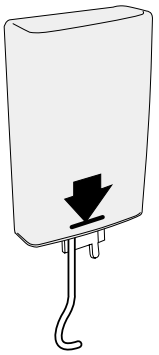
Mounting:



Mount the attachment plate to the wall using two screws of 4 mm diameter in the position as indicated.



Align the antenna over the attachment plate, keeping the cable in the middle of the plate.



Pull the antenna downwards until it clicks into place.

Indoor Omnidirectional Antenna
Vertical Polarization
Multi-band

1710–2500

V

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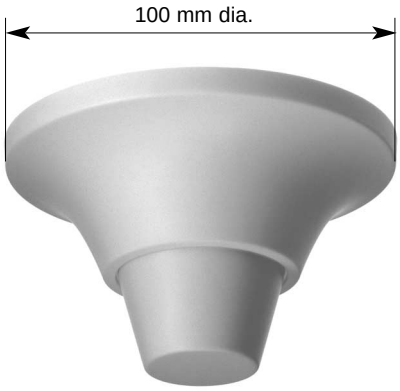
- The antenna can be operated in the total frequency range simultaneously.
- The antenna needs no additional groundplane.

VPol Indoor 1710–2500 360° 2dBi

Type No.	741 573
Frequency range	1710 – 2500 MHz
VSWR	1710 – 1880 MHz: < 1.6 1850 – 1990 MHz: < 1.6 1920 – 2170 MHz: < 1.6 2170 – 2500 MHz: < 2.0
Input	1 x N female
Gain	2 dBi
Impedance	50 Ω
Polarization	Vertical
Max. power (per band)	50 W (at 50 °C ambient temperature)
Weight	150 g
Diameter	100 mm
Height	50 mm (without connector)

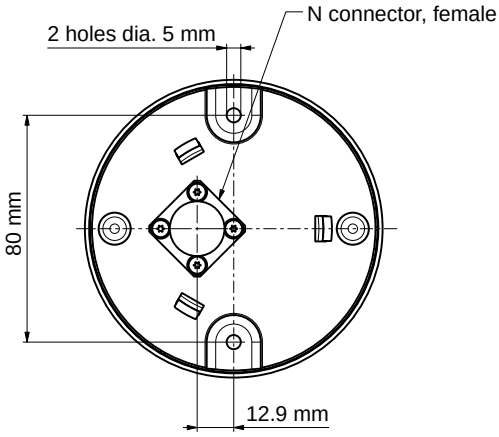


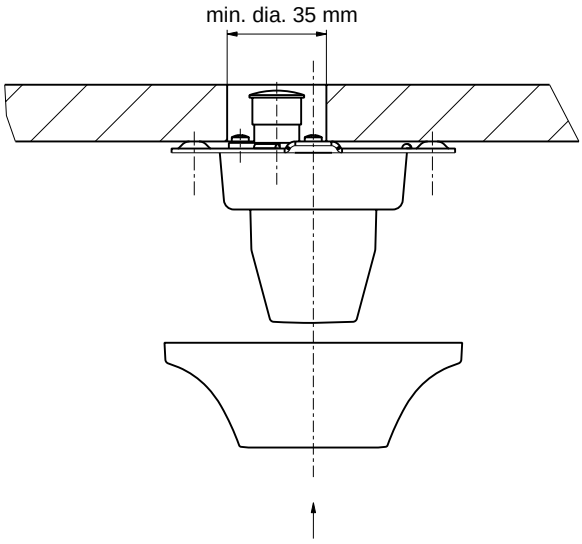
Material: Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.

Mounting: Holes in the base enable a mounting on the ceiling. Screws are supplied.
For the N connector a hole in the ceiling with a diameter of 35 mm is required.

Grounding: All metal parts including the inner conductor are DC grounded.

Available accessories: Broadband power splitters and tappers (800 – 2500 MHz).





Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

VPol

Indoor Omnidirectional Antennas
Vertical Polarization
Multi-band

- The antenna can be operated in all frequency ranges simultaneously.
- The antennas need no additional groundplane.

741 572: VPol Indoor 824–960/1425–2170 360° 2dBi
800 10137: VPol Indoor 876–960/1710–2500 360° 2dBi

Type No.	741 572	800 10137
Frequency range	824 – 960 MHz 1425 – 2170 MHz	876 – 960 MHz 1710 – 2500 MHz
VSWR	< 2.0: 824 – 960 MHz < 2.0: 1425 – 1710 MHz < 1.6: 1710 – 1990 MHz < 2.0: 1990 – 2170 MHz	< 1.9: 876 – 890 MHz < 1.6: 890 – 960 MHz < 1.6: 1710 – 2170 MHz < 2.0: 2170 – 2500 MHz
Input	1 x N female	
Gain	2 dBi	
Impedance	50 Ω	
Polarization	Vertical	
Max. power (per band)	50 W (at 50 °C ambient temperature)	
Weight	400 g	300 g
Diameter	260 mm	210 mm
Height	78 mm (without connector)	

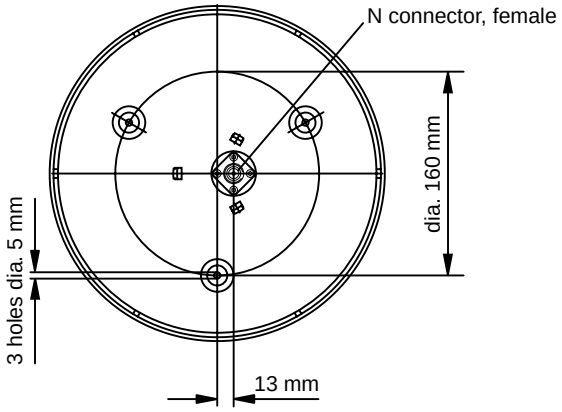
741 572

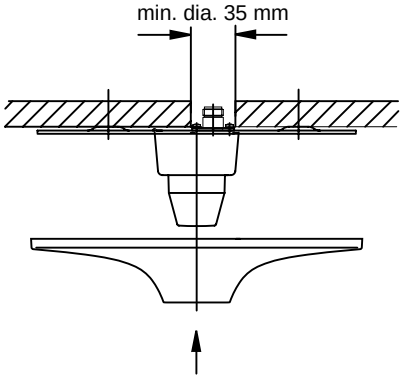
Material: Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.

Mounting: Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied. For the N connector a hole in the ceiling with a diameter of 35 mm is required.

Grounding: All metal parts including the inner conductor are DC grounded.

Available accessories: Broadband power splitters and tappers (800 – 2500 MHz).





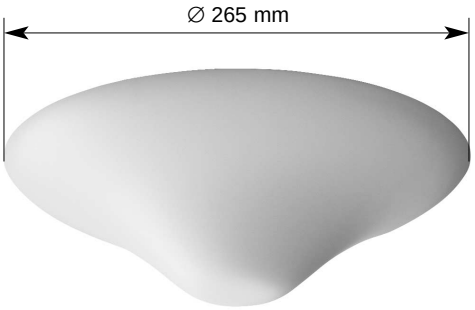
Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

Indoor Omnidirectional Antennas
Vertical Polarization
Multi-band

- New pleasant design.
- The antenna can be operated in all frequency ranges simultaneously.
- The antennas need no additional groundplane.

800 10177: VPol Indoor 824–960/1425–2170 360° 2dBi
800 10173: VPol Indoor 876–960/1710–2500 360° 2dBi

Type No.	800 10177	800 10173
Frequency range	824 – 960 MHz 1425 – 2170 MHz	876 – 960 MHz 1710 – 2500 MHz
VSWR	< 2.0: 824 – 960 MHz < 2.0: 1425 – 1710 MHz < 1.6: 1710 – 1990 MHz < 2.0: 1990 – 2170 MHz	< 1.8: 876 – 890 MHz < 1.6: 890 – 960 MHz < 1.6: 1710 – 2170 MHz < 2.0: 2170 – 2500 MHz
Input	1 x N female	
Gain	2 dBi	
Impedance	50 Ω	
Polarization	Vertical	
Max. power (per band)	50 W (at 50 °C ambient temperature)	
Weight	480 g	340 g
Diameter	265 mm	215 mm
Height	85 mm (without connector)	



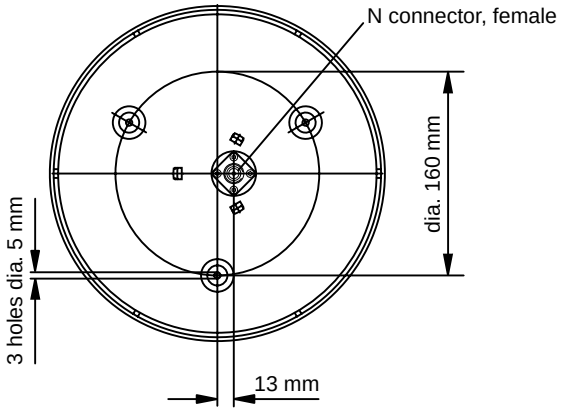
800 10177

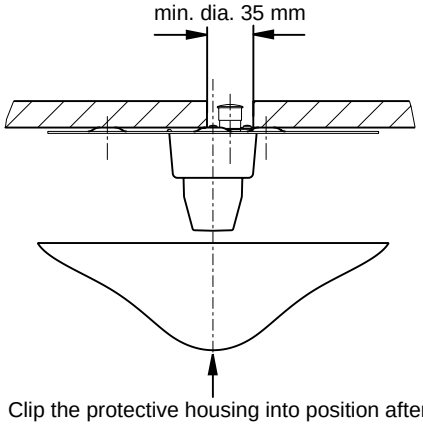
Material: Base: Aluminum.
Protective housing: High impact polystyrol, colour: White.
Additional painting is possible.

Mounting: Three holes in the base enable a mounting on the ceiling. Two types of screws are supplied. For the N connector a hole in the ceiling with a diameter of 35 mm is required.

Grounding: All metal parts including the inner conductor are DC grounded.

Available accessories: Broadband power splitters and tappers (800 – 2500 MHz).





Clip the protective housing into position after the antenna has been mounted with the help of the three supplied screws.

VPol

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

870 – 960

V

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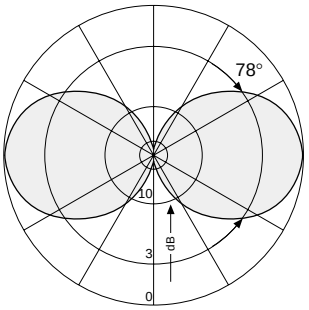
VPol Omni 870–960 360° 2dBi

Type No.	738 450
Input	N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz
VSWR	< 1.5
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	100 W (at 50 °C ambient temperature)
Weight	200 g
Radome diameter	20 mm
Height	180 mm

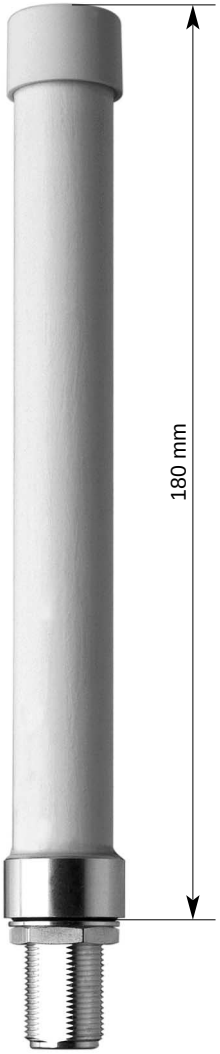
Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.

Grounding: All metal parts of the antenna as well as the inner conductor and the mounting kit are DC grounded.



Vertical Pattern



Dual-band Omni Antenna 870–960/1710–1880
Vertical Polarization V
Indoor and outdoor use

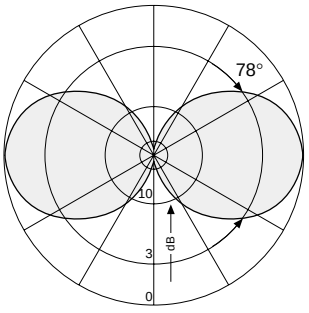
KATHREIN
Antennen · Electronic

VPol Omni 870–960/1710–1880 360° 2dBi

Type No.	738 449
Input	1 x N female
Connector position	Bottom or top
Frequency range	870 – 960 MHz / 1710 – 1880 MHz
VSWR	< 1.7
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W: 870 – 960 MHz 50 W: 1710 – 1880 MHz (at 50 °C ambient temperature)
Weight	250 g
Radome diameter	20 mm
Height	216 mm

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.



Vertical Pattern

VPol

Omnidirectional Antenna
Vertical Polarization
Indoor and outdoor use

1710–2170

V

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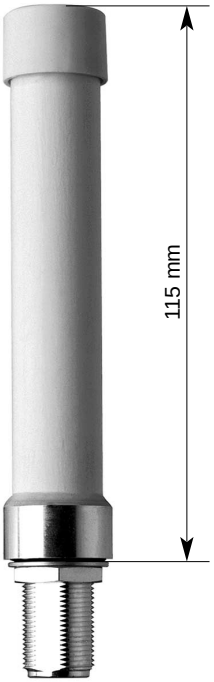
VPol Omni 1710–2170 360° 2dBi

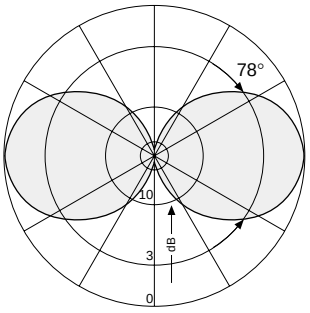


Type No.	738 454
Input	N female
Connector position	Bottom or top
Frequency range	1710 – 2170 MHz
VSWR	< 1.5
Gain	2 dBi
Impedance	50 Ω
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc
Polarization	Vertical
Max. power	50 W (at 50 °C ambient temperature)
Weight	150 g
Radome diameter	20 mm
Height	115 mm

Material: Radiator: Brass.
Radome: Fiberglass, colour: White.

Mounting: One hole mounting (16 mm diameter) to surfaces of max. 10 mm thickness.

Grounding: All metal parts of the antenna and the mounting kit are DC grounded. The inner conductor is not DC grounded.



Vertical Pattern

Summary – Remote Electrical Tilt (RET)

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Type	Type No.	Page
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Central Control Unit (CCU)	860 10006 / 860 10026	162
Power Supply and Signal Cable	860 10007	163
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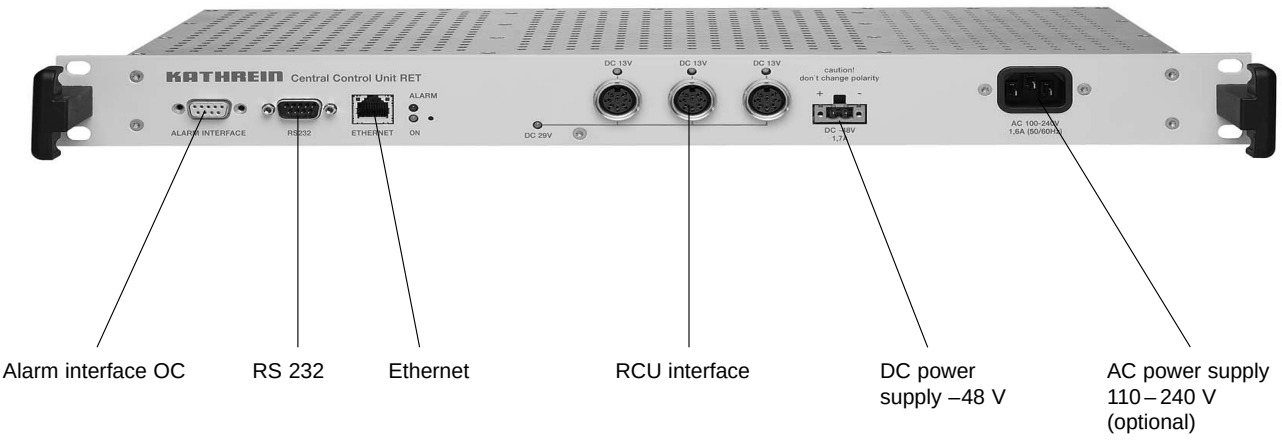
RET-system Components

	RCU **(Remote Control Unit)**	• Remote controlled motor, mounted at the antenna and used to adjust the downtilt angle
	CCU **(Central Control Unit)**	• Controls several RCUs • Provides power for connected devices; e.g. RCU, TMA and/or Smart Bias Tees • Handles alarming • Designed for indoor BTS installation
	Control cable	• Feeds power supply and control signals to the RCUs
	DC power and signal splitter	• Allocates power supply and control signals from a common input onto three outputs for multiple RCU-control
	Lightning protection device	• Protects the RET system against lightning • Needs to be utilised if RCUs are controlled with separate cable
	Earthing clamp	• Grounds the control cable

Optional

	TMA **(Tower Mounted Amplifier)**	• Installed to enhance coverage and improve voice quality • Forwards power supply and control signals to connected RCUs
	Smart Bias Tee	• Employed to feed control signals and power supply onto the RF cables

Controlling the RCU



The major component to control the RCU is the Central Control Unit (CCU), which is located at the BTS. In order to cover all required applications, the CCU can be accessed from the Operational Maintenance Center (OMC) via the Ethernet input and/or directly by a personal computer via the RS 232 input.

Connection between CCU and RCU

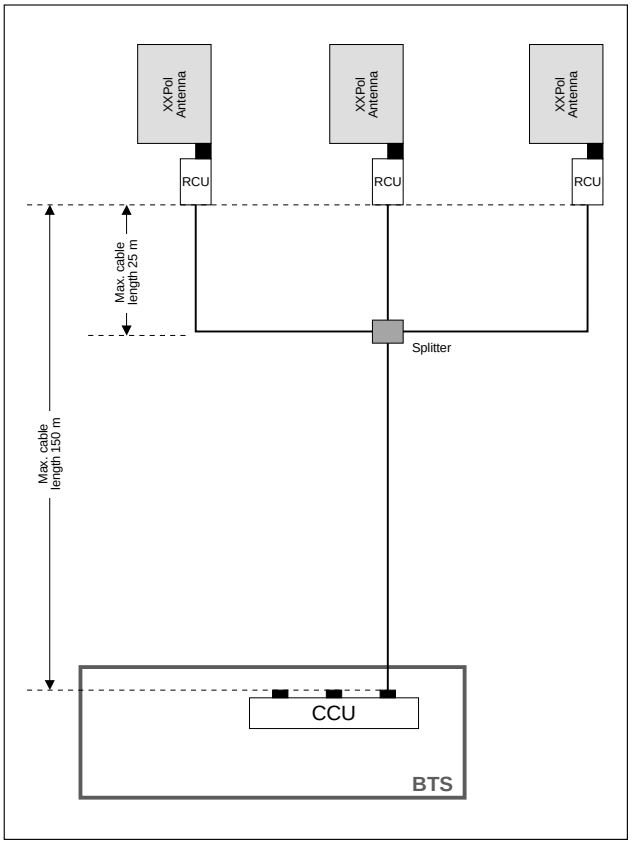
Three options may be offered:
– Separate cables
– using Smart Bias Tee's in the feeder lines
– via TMA

Utilising splitters up to nine RCUs may be connected to a single CCU.

Use of separate cables

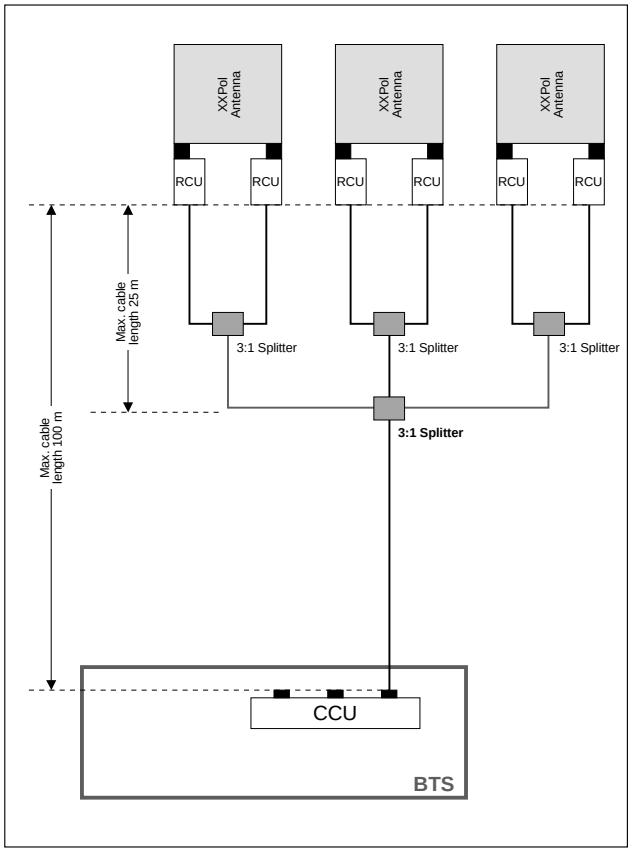
The 5-conductor cable consists of two wires for the HDLC data, two wires for the +29 V respectively +13 V power supplies and one for grounding.

The number of RCUs and the maximum usable cable length, depend on power losses along the cables.
Following, a summary of different examples is given about how to connect RCUs using separate cables:



Example to connect 3 RCUs with separate cables

Controlling the RCU



Example to connect 6 RCUs with separate cable

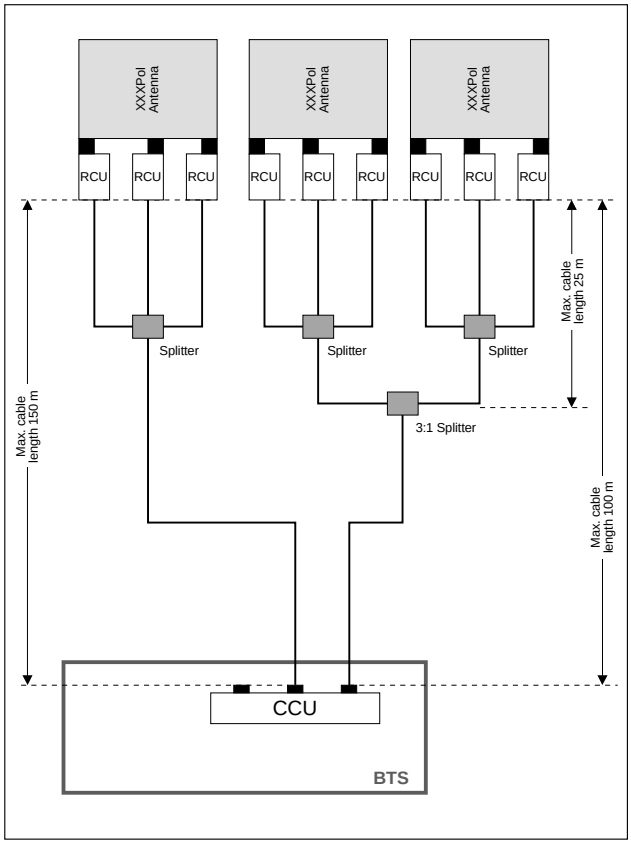
Via feeder cable employing two Smart Bias Tees

In order to reduce installation efforts and costs, Kathrein offers a solution, which uses the feeder line to forward the control signal and the power supply up to the RCU.

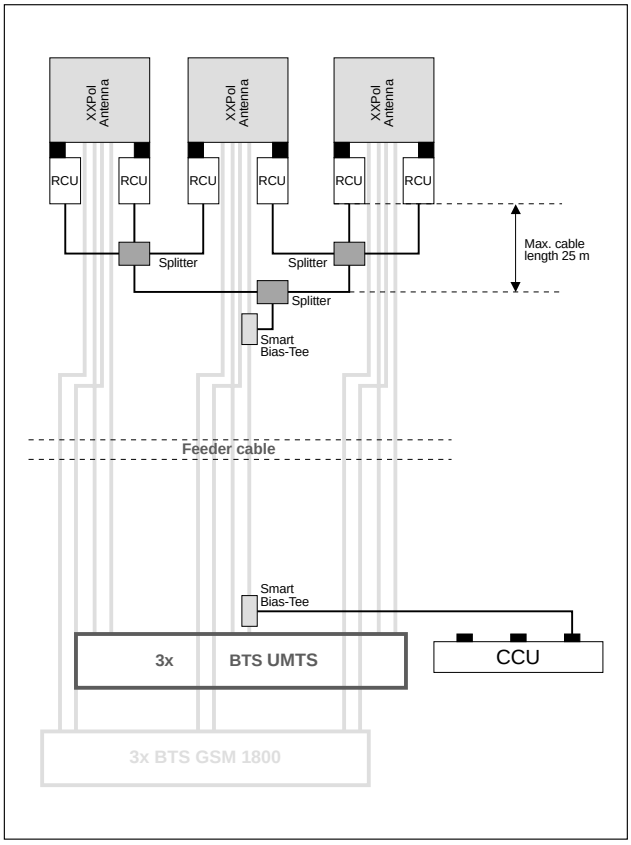
One of Kathrein's Smart Bias Tees is added into the feeder line close to the base station.

A second Smart Bias Tee is mounted near the antennas to recover the control signal and DC voltage from the feeder.

Due to the use of the existing feeder line for the RCU controlling, there is no need to install a separate cable with its own lightning protection system.



Example to connect 9 RCUs with separate cables

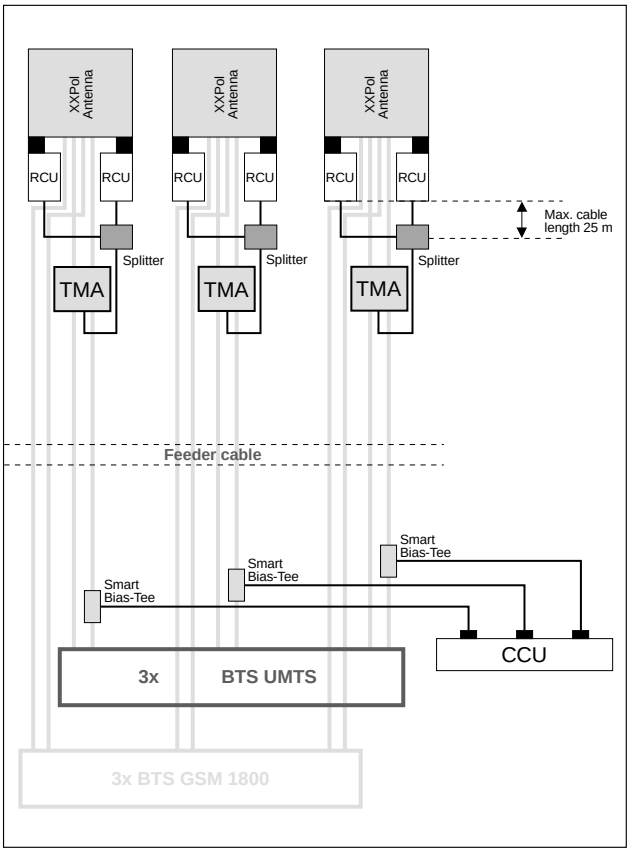


Example to connect 6 RCUs utilising two Smart Bias Tees

Controlling the RCU

Via feeder cable utilising one Smart Bias Tee and one TMA

Especially with UMTS, tower mounted amplifiers (TMA) are implemented to the system to enhance coverage and improve voice quality.
An elegant way of controlling the RET system is to combine a Kathrein TMA and a RCU. Both, the control signal and DC power supply are fed onto the RF cable via a Smart Bias-Tee. The TMA includes a Smart Bias-Tee to recover signals and voltage from the feeder cable forwarding them to the connected RCU's.
Each of the three CCU outputs is suitable for the connection of one TMA and max. 3 RCU's.

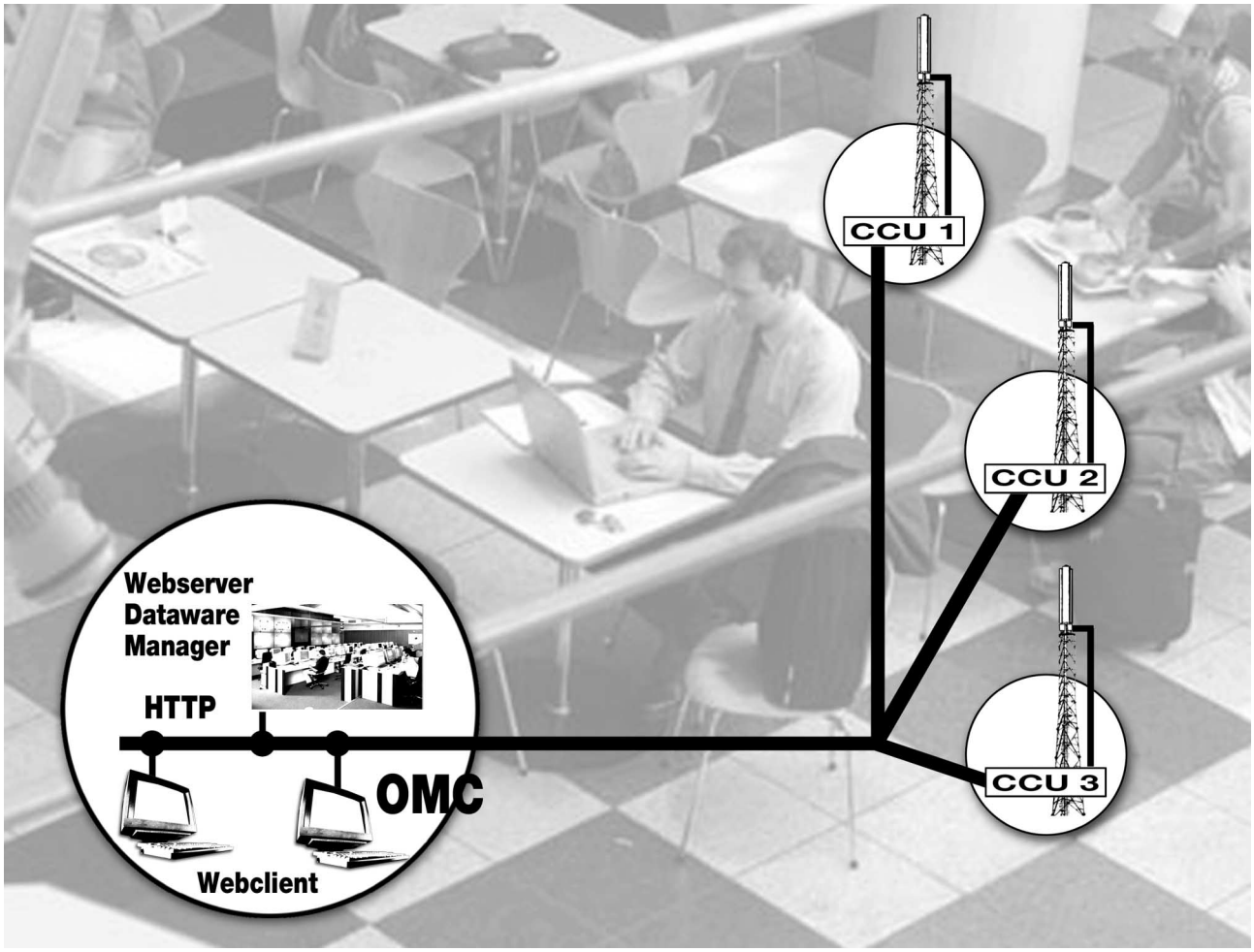


Example to connect 6 RCUs utilising Smart Bias Tees and TMAs

AISG (Antenna Interface Standards Group)

Kathrein's overall RET system works according the AISG standard.
The AISG was founded in 2001 as a sub-group of the UMTS standardisation group 3GPP (3G Partnership Project).
The purpose of the AISG standard is to embed the RET control into the UMTS standard and define all interfaces and protocols between the CCU and the RCU. The link between the OMC and the BTS is not standardised by the AISG!
Several antenna and TMA manufacturers (including Kathrein) as well as operators and OEM's are members of the AISG. The groups' overall goal is to guarantee the basic inter-operability of antennas and the control infra-structure.

Communication between OMC and CCU



Overview of general CCU network integration

The electrical tilt can be controlled either locally or remotely.

Local control:
Configuration of the RET system and simple adaptation to network changes can be made via local control. In this case, an installation team has to be sent out to the site. A laptop is connected to the RS232 interface and PPP link at the CCU.
Alternatively, you may use the Ethernet interface.

Remote control:
Due to the required network optimisation with UMTS, the downtilt of the vertical radiation pattern has to be adjusted much more often compared to a GSM network. To meet this demand, a remote controlled system via OMC is inevitable. The Ethernet interface may be selected for remote control in a local area network (LAN) or wide area network (WAN).

The following transport and application protocols are served by the CCU: TCP/IP, PPP, UDP, DHCP, HTML and ICMP/Ping. In future, the CCU will also be able to support a selection from the application protocols: XML-RPC, FTP, Telnet, SNMP and NFS.

It is also anticipated that the software of the CCU will be extended to allow the operation of a

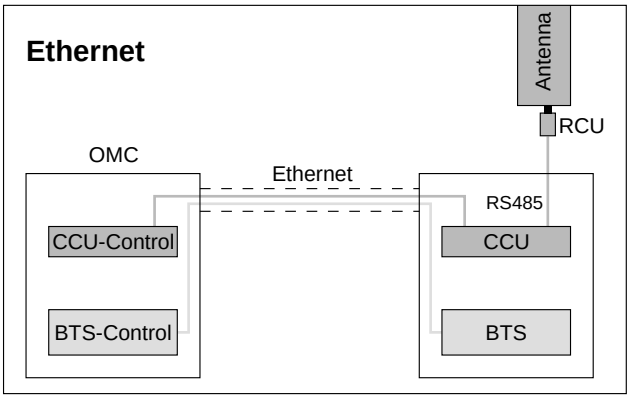
Communication between OMC and CCU

cablemodem or GSM-modem connected to the RS232 interface.

Different ways to communicate with the CCU from the OMC (Operational Maintenance Center) can be chosen depending on the network connections implemented:

Connection via ethernet

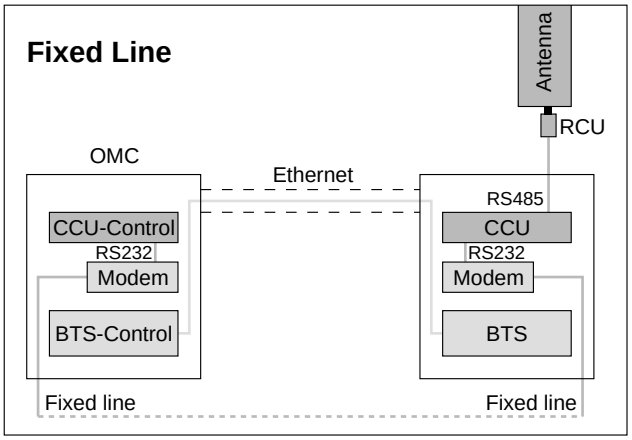
The base station transceivers on different sites are surveyed from the OMC via a supplier specific Ethernet connection.
Kathrein is also using the medium Ethernet to address and control the CCU from the OMC.



Communication between OMC and CCU via Ethernet

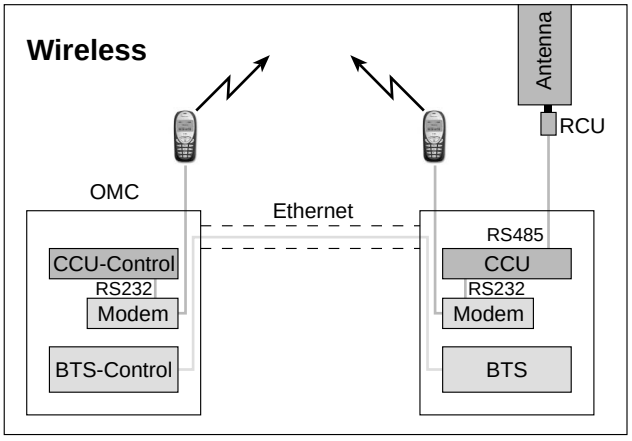
Connection via modems

The hardware interface RS232 on the CCU can be utilised to connect modems.
If a fixed telephone line is available at the site, the link between the OMC and the CCU can be accomplished using cable modems on both sides.



Communication between OMC and CCU via fixed line

In case of missing Ethernet and fixed telephone lines at the site a GSM-modem enables a wireless solution.



Communication between OMC and CCU via wireless units

Browser Application

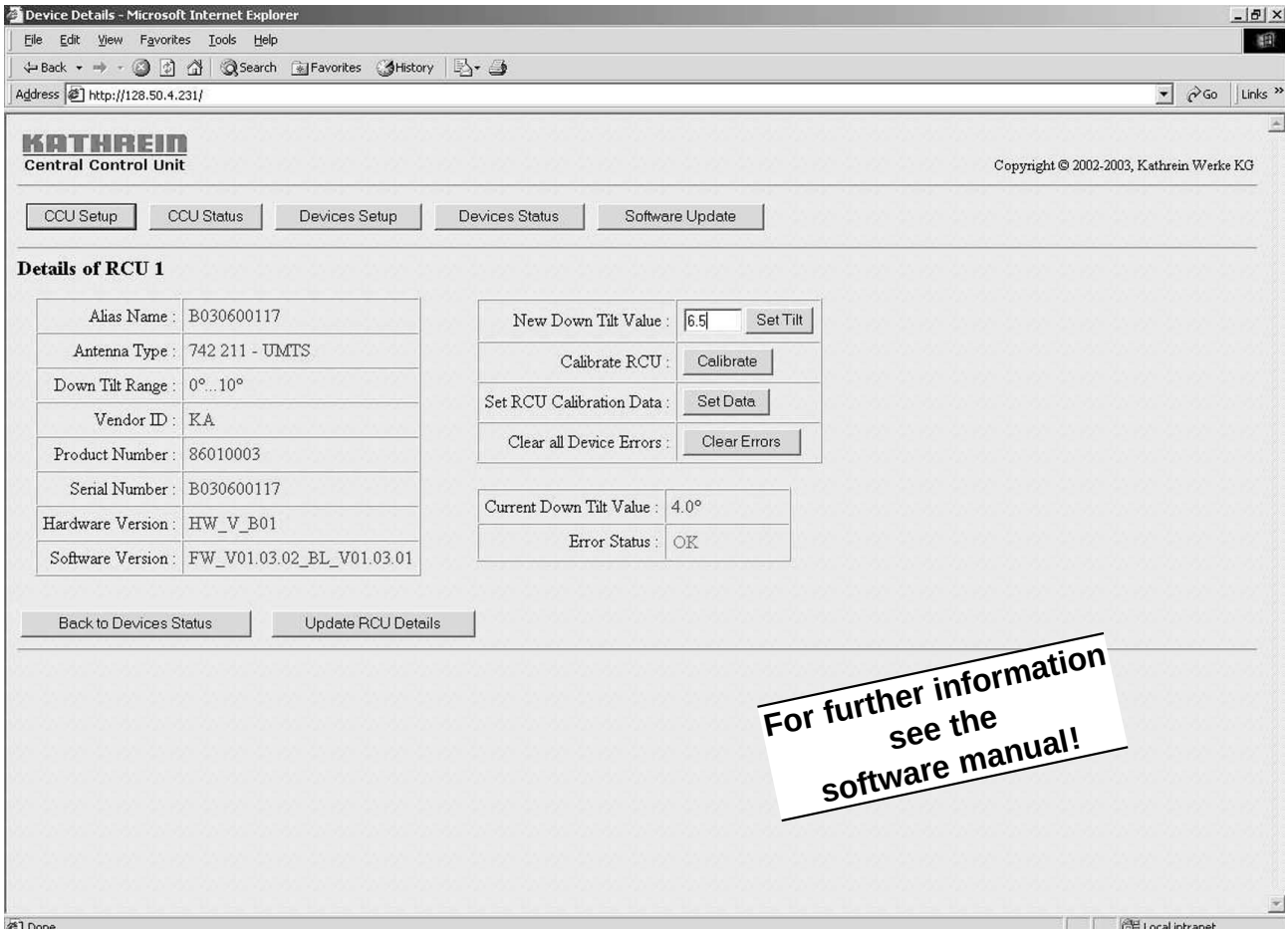
The CCU runs a webserver. RCUs and CCUs as part of a network can be configured and controlled through a standard browser, e.g. Netscape, Internet Explorer – no additional software is required. You can control the RET-system directly on site or via a long distance.

The connection to each CCU is generated easily by typing in its individual IP-address.

The appearing website contains all required control functions for normal service and installation.

The CCU program allows in addition to the configuration and control of the connected RCUs, to also display the device status, command history list and various system errors. It is also possible to perform CCU software updates. The browser application is a helpful tool for the installation team on site, especially during initial configuration of a RET-system

Each CCU and with it each of the connected RCUs can be addressed and controlled individually. Therefore, the browser application also offers a comfortable solution to respond on new situations by changing the individual downtilt angles fast and easily.



Screenshot of CCU browser application

Attachment of the RCU

KATHREIN
Antennen · Electronic

Attachment of the RCU (Remote Control Unit) for remote-controlled downtilt adjustment:

Remove the protective cap completely from the antenna.

Check the proper functioning of the phase-shifter over the entire adjustment range, by twisting the adjustment wheel in such a way that the spindle moves completely in and out.

Reset the downtilt to the previous value.

Completely remove the black adjustement wheel by simply pulling it downwards.

Push the attachment nut of the RCU down towards the housing.

Place the RCU carefully over the adjustment spindle, observing the correct alignment of the RCU with regards to the antenna, i.e. the flat surfaces of the attachment fixture on the antenna side and those inside the RCU housing must lie flat against each other.

Push-up the RCU carefully to the stop at the antenna.

Please note!
Do not twist the RCU in any way during attaching to the antenna, as this could damage the adjustment spindle.

Tighten the RCU attachment nut using a torque-wrench; wrench width = 41 mm, min. torque = 15 Nm max. torque = 18 Nm.

Connect the RCU control cable immediately after attachment of the RCU.

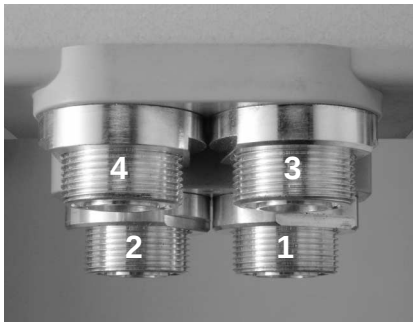
Please note!
In cases where a mechanical downtilt unit is installed, this must not be set for a downtilt of more than 14 degrees.

General Instructions for Feederline Installation for F-Panels with four Connectors arranged on two Levels

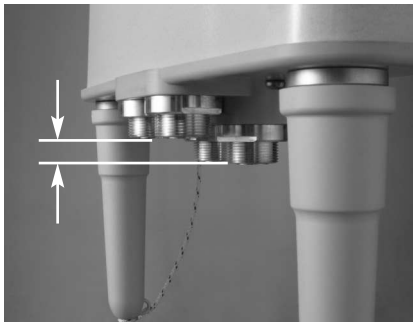
KATHREIN
Antennen · Electronic

Please note:
In order not to damage the interfaces, please make sure that only the right tools are used. For fixing the nut of the connector we recommend using a common torque-wrench with a suitable wrench width.

Description of connector arrangement:

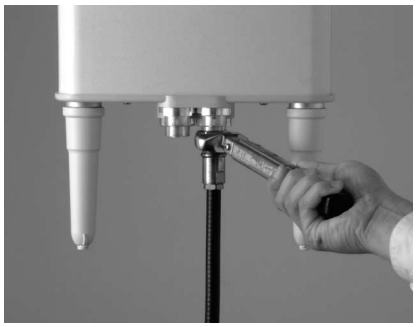


There are four interfaces for feeding the antenna located at the bottom.



To make the installation of the feederlines and the connectors easier, the interfaces are arranged on two levels.

Attachment of the feederline connector and the RCU:



Start with the rearside located interface no. 1.

Place the connector carefully and fix the nut using a torque-wrench (according to the manufacturers guidelines).

The further sequence for the installation is: feederlines no. 2, 3, 4.

After feederline installation the remote control units (RCU) can be attached.

For full description of RCU installation see datasheet Type no. 860 10003.

RET

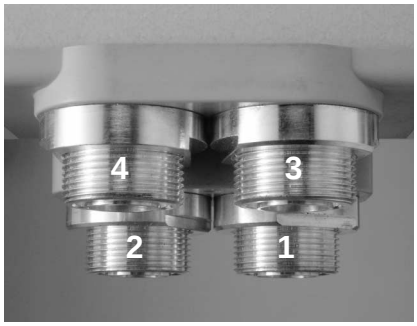
Please note:
Sealing of the correctly installed connector's cap nuts for additional weather protection is not required, nor is it recommended by the connector manufacturers.

General Instructions for Feederline Installation for A-Panels with four Connectors arranged on two Levels

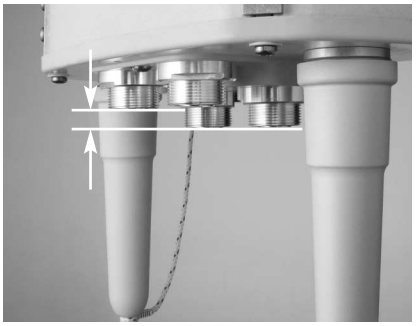
KATHREIN
Antennen · Electronic

Please note:
In order not to damage the interfaces, please make sure that only the right tools are used. For fixing the nut of the connector we recommend using a common torque-wrench with a suitable wrench width.

Description of connector arrangement:

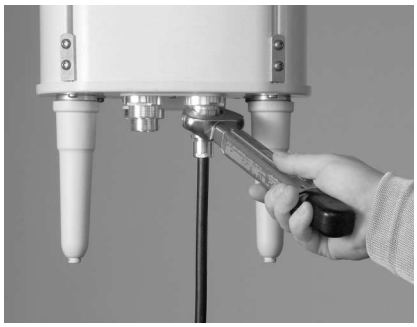


There are four interfaces for feeding the antenna located at the bottom.



To make the installation of the feederlines and the connectors easier, the interfaces are arranged on two levels.

Attachment of the feederline connector and RCU:



Start with the rearside located interface no. 1.

Place the connector carefully and fix the nut using a torque-wrench (according to the manufacturers guidelines).

The further sequence for the installation is: feederlines no. 2, 3, 4.

After feederline installation the remote control units (RCU) can be attached.

For full description of RCU installation see datasheet Type no. 860 10003.

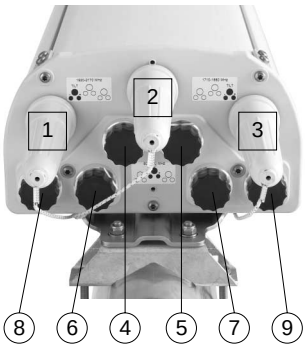
Please note:
Sealing of the correctly installed connector's cap nuts for additional weather protection is not required, nor is it recommended by the connector manufacturers.

General Instructions for Feederline Installation for Triple-band Antennas with Kathrein Installation Tool, Type No. 850 10005

KATHREIN
Antennen · Electronic

Note: To avoid any damage to the interfaces, please ensure that only suitable tools are used. To tighten the nuts of the feederline connectors, we strongly recommend using a special Kathrein installation tool (as shown below) in combination with a standard torque-wrench.

Description of connector arrangement:

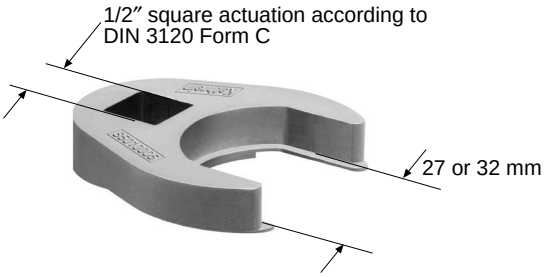


RET interfaces (1–3)

Feederline connectors (4–9)

There are six RF-Connections and three RET-interfaces located at the bottom of the antenna.

Kathrein installation tool: Type No. 850 10005



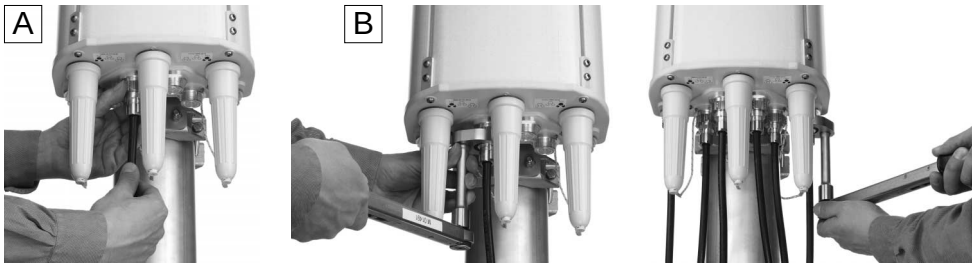
This tool is suitable for 7-16 connectors with a wrench size of 27 mm or 32 mm.

Tighten nut within a torque range of **25 – 33 Nm** depending on connector manufacturers' specifications.

The tool has to be ordered separately!

Two tools per type no. (27 and 32 mm) were delivered in a common package.

Attachment of the feederline connector and RCU:



The sequence for installation is: feederline no. 4, 5, 6, 7, 8, 9. Put the connector carefully in place and hand-screw the nut on.

Use a torque-wrench to finish installation (see installation tool).

Repeat operations as shown in figures A and B for each feederline!

After feederline installation, the remote control units (RCU) can be attached,

The sequence for the installation of the RCU's is: RCU no. 1, 2, 3.

For full description of RCU installation please refer to data sheet type no. 860 10003.

Note:
In order to protect the RET interface the protective caps have to be attached during feederline installation!

Before RCU installation, it is absolutely essential to set the downtilt to 0° (either manually or by remote control).

Not following these instructions may damage the downtilt spindle!

Note: Sealing of the correctly installed connector's cap nuts for additional weather protection is not required, nor is it recommended by the connector manufacturers.

Remote Control Unit (RCU)

KATHREIN
Antennen · Electronic

Remote Control Unit (RCU) for Kathrein base station antennas with adjustable electrical downtilt and appropriate mechanical interface.

Type No.	860 10003
Power supply	10 … 30 V
Hardware interface	RS485
Logical interface	HEX coded commands based on HDLC protocol, conform to AISG
Adjustment time (full range)	typically 30 sec., depending on antenna type
Adjustment cycles	> 50000
Temperature range	–40 °C … +60 °C
Material of housing	Aluminum
Weight	approx. 1.1 kg
Packing size	297 x 217 x 135 mm
Dimensions	85 x 130 x 150 mm (without connectors)

RCU in combination
with antenna 742 212

Scope of supply: RCU with suitable attachment interface for the antenna.

Features: The RCU can be easily attached without dismantling of the antenna.
The RCU is suitable for operation under outdoor conditions.

Two RCUs in combination
with antenna 742 234

Please note:

As a result of more stringent legal regulations and judgements regarding product liability, we are obliged to point out certain risks that may arise when products are used under extraordinary operating conditions.

The mechanical design is based on the environmental conditions as stipulated in ETS 300 019-1-4, which includes the static mechanical load imposed on an antenna by wind at maximum velocity. Extraordinary operating conditions, such as heavy icing or exceptional dynamic stress (e.g. strain caused by oscillating support structures), may result in the breakage of an antenna/RCU or even cause it to fall to the ground.These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.
The details given in our data sheets have to be followed carefully when installing the antennas and accessories.
The limits for the coupling torque of RF-connectors, recommended by the connector manufacturers must be obeyed.

Any previous datasheet issues have now become invalid.

RET

Central Control Unit (CCU)
For Remote Electrical Tilt (RET/RCU) and Tower Mounted Amplifier (TMA) Control, Indoor Use

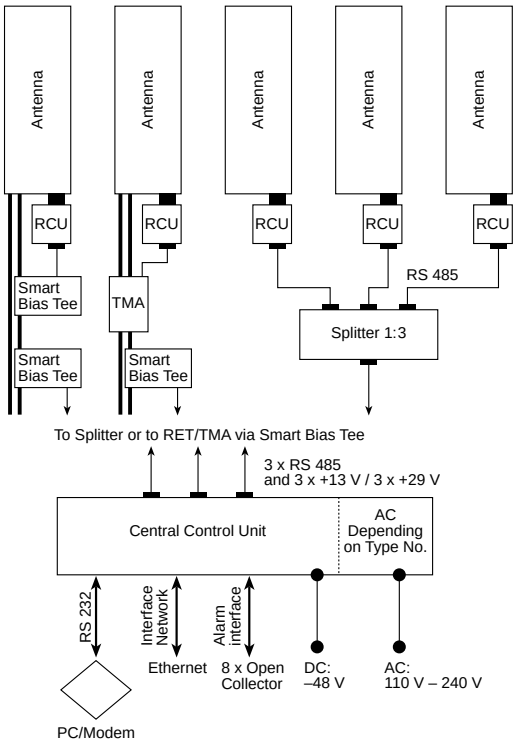
KATHREIN
Antennen · Electronic

Central Control Unit

Type No.	860 10006	860 10026
Connectors to RCU	3 x 8 pin connector according DIN 41 326, IEC 130, female, conform to AISG	
Power supply from BTS	DC: –48 V / max. 1.5 A AC: 110 V … 240 V / max 0.7 A	DC: –48 V / max. 1.5 A
Power supply to RCU	3 x +29 V / max. 2 A / max. 50 W	
Power supply to RCU (via TMA)	3 x 13 V / max. 1.5 A / max. 50 W	
Interface to RCU and TMA	RS 485 / power supply	
Protocol	HDLC hex-coded command set, conform to AISG	
Interface to BTS and protocol	Ethernet (10 base T) or RS 232 SNMP, HTTP, XML-RPC	
Alarm interface to BTS	8 x open collector output	
Modem support	GSM, Siemens MC35 Terminal or TC35 Terminal	
Max. number of RCU's and/or TMA's	6 … 9 pcs., depending on cable configuration and max. power	
Max. length of control cable	100 m / 6 RCU's (depending on configuration)	
Temperature range	–25 °C ... +55 °C ambient temperature	
Packing size	597 x 367 x 148 mm	
Height/width/depth	19" 1 HU* (43.6 / 483 / 250 mm)	

* HU = Height Unit

Smart Bias Tee 782 10253 (12 V), BTS
Smart Bias Tee 782 10255 (24 V), BTS
Smart Bias Tee 782 10254 (12 V), Antenna
Smart Bias Tee 782 10255 (24 V), Antenna



Accessories (order separately)

Type No.	Description	Length
860 10002	Splitter for RCU	
860 10003	Remote Control Unit (RCU)	
860 10007	RCU-Cable	1 m
860 10008	RCU-Cable	2 m
860 10029	RCU-Cable	3 m
860 10009	RCU-Cable	5 m
860 10010	RCU-Cable	10 m
860 10032	RCU-Cable	20 m
860 10011	RCU-Cable	25 m
860 10012	RCU-Cable	40 m
860 10033	RCU-Cable	50 m
860 10013	RCU-Cable	60 m
860 10014	RCU-Cable	80 m
860 10015	RCU-Cable	100 m
860 10034	Ethernet Cable Crossover	3 m

Power Supply and Signal Cable For Remote Control Unit (RCU) Indoor and Outdoor Use

KATHREIN
Antennen · Electronic

Cable for RCU assembled with suitable connectors for Remote Control Unit / Splitter / Central Control Unit

Type No.	860 10007 ...
Connectors	2 x 8 pin connector according DIN 41 326, IEC 130, female/male
Construction	Screen 1 x twisted pair 100 Ω/1 MHz 2 x power supply, 1 x ground AWM style 20317 I/II A/B
Rated current	4 A (power supply) (at 50 °C air temperature)
Temperature range	–40 °C to +80 °C, (fixed position)
Protection class	IP 67 (connected)
Cable diameter	8 mm
Flammability	VL 1581 VW-1 CSA FT 1

Minimum bending radius: one time 60 mm
several times 120 mm

RCU-Cable

Type No.	Description	Length
860 10007	RCU-Cable	1 m
860 10008	RCU-Cable	2 m
860 10029	RCU-Cable	3 m
860 10009	RCU-Cable	5 m
860 10010	RCU-Cable	10 m
860 10032	RCU-Cable	20 m
860 10011	RCU-Cable	25 m
860 10012	RCU-Cable	40 m
860 10033	RCU-Cable	50 m
860 10013	RCU-Cable	60 m
860 10014	RCU-Cable	80 m
860 10015	RCU-Cable	100 m

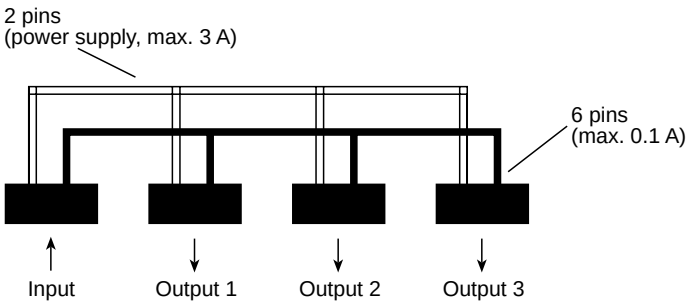
DC-Power and Signal Splitter
For Remote Control Unit (RCU)
Indoor and Outdoor Use

KATHREIN
Antennen · Electronic

3-way-Splitter for RCU

Type No.	860 10002
Connectors	4 x 8 pin connector according DIN 41 326, IEC 130-9 1 x male, 3 x female
Locking of connector	Screwing
Rated current (power supply)	3 A (at 50 °C)
Max. voltage	60 V
Protection class	IP 65
Weight	250 g
Packing size	114 x 117 x 117 mm
Height/width/depth	91 / 103 / 72 mm

Material:	Connector plate: Aluminum. Cap: Plastic.
Mounting:	To masts, 50 – 145 mm diameter by clamp (supplied). Wall mounting by screws (not supplied).
Note:	**Connectors must be situated at the bottom.** **No inverted mounting possible.**



Clamp, Art. No. 1311847

RET

Lightning Protection Device (LPD) For Remote Electrical Tilt (RET) Indoor and Outdoor Use

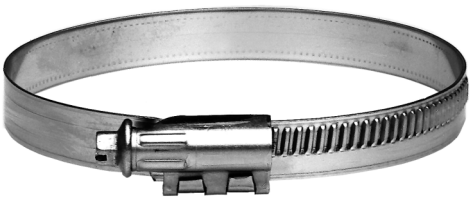
KATHREIN
Antennen · Electronic

The device is designed for lightning protection of control cables carrying partial lightning currents up to 25 kA (shield) and 2,5 kA (inner conductor), according IEC 61643-1, IEC 61312-3. Each pin is protected individually.

Lightning Protection Device for RET

Type No.	860 10030
Connectors	2 x 8 pin connector according DIN 41 326, IEC 130-9, input: male, output: female
SPD-Type	8 x bipolar gas tube
Max. impuls current	25 kA (housing, shield) (10/350 µs) inner conductors: 2,5 kA/pin (10/350 µs)
Max. dynamic overvoltage at spark gap (1 kV/µs)	< 700 V
Static overvoltage (100 V/s)	< 100 V
Grounding	Via mounting plate / clamps at metallic surfaces or via separate cable, min. cross-section 5 mm² Cu (screw M6)
Max. operation current	4 A at 50 °C
Max. operation voltage	60 V
Weight	250 g
Packing size	114 x 117 x 117 mm
Height/width/depth	91 / 103 / 72 mm

Material:	Connector plate: Aluminum. Cap: Plastic.
Mounting:	To masts, 50 – 145 mm diameter by clamp (supplied). Wall mounting by screws M4 (not supplied).
Note:	No decoupling elements are integrated. The coordination with additional LPD's (device input) should be checked according to IEC 61312. Grounding of the device via the mounting plate at metallic surfaces or via additional grounding cable (not included in the delivery extend). Connectors must be situated at the bottom. No inverted mounting possible. **Important:** A control cable with a minimum length of 2 meters is required between Lightning Protection Device and Central Control Unit at the BTS to achieve the required decoupling.



Clamp, Art. No. 1311847

Earthing Clamp
For Power Supply and Control Cable
For Remote Control Unit (RCU)

KATHREIN
Antennen · Electronic

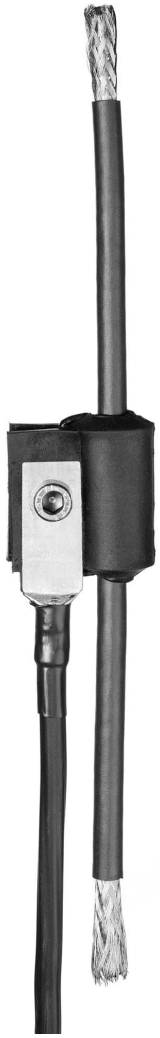
The clamp is designed for lightning protection of control cables according to EN 50164-1

Earthing clamp for RCU power supply and signal cable

Type No.	860 10031
Max. lightning current	≤ 100 kA (pulse 10/350 µsec)
Contact resistance	< 1 mΩ
Protection class	IP 68
Grounding	Via stranded grounding wire, 16 mm², length 1 m, with integrated cable eyes, hole diameter 8 mm
Packing size	Plastic bag: 210 x 210 mm
Weight	240 g

Material:
Body: Stainless steel with vulcanized Ethylene-Propylene-Caoutchouc
Screw: Stainless steel
Skin: Copper alloy
Grounding wire: Copper

Please note:
The earthing clamp is suitable only for the Kathrein Power Supply and Signal Cables, Type No. 860 10007 to 860 10015, 860 10029, 860 10032 and 860 10033 or shielded cables with
– shield diameter 6.1 mm
– jacket diameter 7.8 mm ±0.3 mm



RET

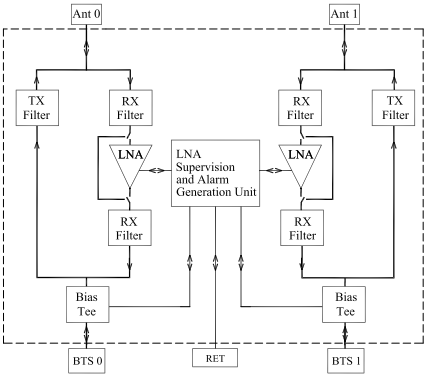
DTMA UMTS AISG

Fullband Double Dual Duplex Tower Mounted Amplifier (Masthead Amplifier)

KATHREIN
Antennen · Electronic

- Double unit for easy use with XPol antennas
- Kathrein *Cold Redundancy* (patent pending) amplifier design for improved system reliability
- By-pass mode to ensure cell operation in case of TMA failure
- Built-in lightning protection
- Compact size
- Suitable for antenna RET control according to AISG standard

RET = **R**emote **E**lectrical **T**ilt
AISG = **A**ntenna **I**nterface **S**tandards **G**roup



Technical Data

Type No.	782 10147 DTMA UMTS 12 AISG (12 dB gain)	782 10148 DTMA UMTS 24 AISG (24 dB gain)	782 10149 DTMA UMTS 32 AISG (32 dB gain)
Tx Characteristics			
Frequency range	2110 – 2170 MHz		
Bandwidth	60 MHz		
Insertion loss	Typically 0.3 dB		
Ripple	< ±0.2 dB		
Input power	< 100 W (+50 dBm) CW < 1.6 kW (+62 dBm) Peak		
Intermodulation products in Rx band	< –120 dBm (2 Tx carriers at +43 dBm)		
Return loss	Typically 20 dB		
Rx Characteristics			
Frequency range	1920 – 1980 MHz		
Bandwidth	60 MHz		
Loss in by-pass mode	< 2.6 dB (DC OFF)		
Gain ripple	< ±0.3 dB		
Return loss	Typically 20 dB 20 dB (DC ON) > 12 dB (DC OFF)		
Gain –40 … +65 °C +22 … +28 °C	 12 ±1.0 dB 12 ±0.5 dB	 24 ±1.0 dB 24 ±0.5 dB	 32 ±1.0 dB 32 ±0.5 dB
Noise figure	Typically 1.5 dB	Typically 1.5 dB	Typically 1.8 dB
Output 1-dB compression point	> 15 dBm	> 20 dBm	> 27 dBm
3rd order intercept point (OIP3)	> 25 dBm	> 30 dBm	> 37 dBm
Environmental Characteristics			
Operating temperature range	–40 … +65 °C		
IP rating	IP67		
MTBF	> 500 000 hours (Double TMA)		
EMC	ETS 300 343-3		
DC and Alarm Characteristics			
DC supply voltage	+12 V nominal (minus grounded)		+24 V nominal (minus grounded)
Power consumption	Typically 1.5 W per TMA	Typically 3 W per TMA	Typically 8 W per TMA
Alarm management	According to AISG standard		
Modem Characteristics	According to AISG standard		
Mechanical Characteristics			
Material	Aluminium housing		
Connectors RF RET DC	 7-16 female 8-pin female, IEC 60130-9 (Pin 1: +12 V DC nominal, pin 3: RS485A, pin 5: RS485B, pin 7: DC return, pin 6: 24 V DC; other pins: Not connected)		
Mounting	Wall mounting: With 4 screws (max. 8 mm diameter) Mast mounting: With additional clamp set		
Weight	5 kg		
Packing size	502 mm x 262 mm x 214 mm		
Dimensions (w x h x d)	172 mm x 262 mm x 84 mm (without connectors, without mounting brackets)		

Accessories (order separately)

Type No.	Clamp set suitable for mast diameter of
734 360	34 – 60 mm
734 361	60 – 80 mm
734 362	80 – 100 mm
734 363	100 – 120 mm
734 364	120 – 140 mm
734 365	45 – 125 mm

RET

Smart Bias Tee
800 – 2170 MHz

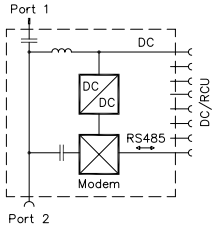
KATHREIN
Antennen · Electronic

The **Smart Bias Tee** combines the performance of a standard Bias Tee (e. g. type 793 304) with the function of an additional modem (AISG standard) in order to provide either DC voltage as well as remote control signals via an RF feeder cable to a TMA or RCU.
The Smart Bias Tee provides low RF signal insertion loss from port 1 to port 2 and vice versa.The measures taken to protect against static discharge and lightning ensure a high level of reliability and operational safety.

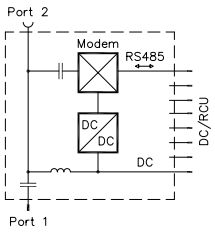
- **782 10253:** 12 V version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable
- **782 10254:** 12 V version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)
- **782 10255:** 24 V version for use near the BTS, in order to feed-in DC voltage and RCU control signals into a feeder cable
- **782 10256:** 24 V version for use near the antenna, in order to control an RCU (only required if **no TMA** is in use)

Abbreviations:
RCU = **R**emote **C**ontrol **U**nit for remote electrical control of antenna tilt
BTS = **B**ase **T**ransceiver **S**tation
TMA = **T**ower **M**ounted **A**mplifier
AISG = **A**ntenna **I**nterface **S**tandards **G**roup

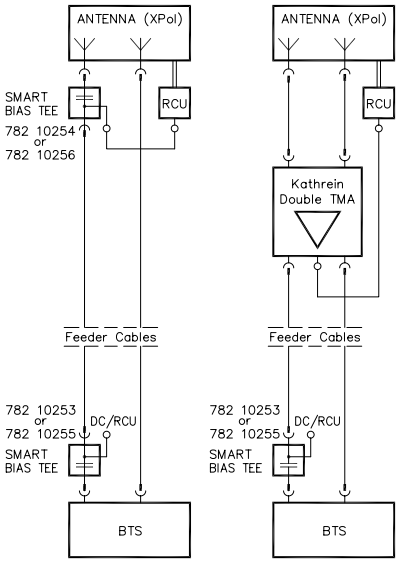
Port 1 = Port for BTS/Antenna
Port 2 = Port for feeder cable
Port DC/RCU = Port for DC voltage and remote control unit signals



Block diagram
782 10254
782 10256



Block diagram
782 10253
782 10255



Antenna system (1 sector) without TMA
Antenna system (1 sector) with Kathrein TMA

Application Examples

Technical Data

Type No.	782 10253 12 V / BTS	782 10254 12 V / Antenna	782 10255 24 V / BTS	782 10256 24 V / Antenna
Connectors				
Port 1	7-16 male			
Port 2	7-16 female			
Port DC/RCU	8-pin male connector (IEC 60130-9) Pin 1: 12 VDC in	8-pin female connector (IEC 60130-9) Pin 1: 12 VDC out	8-pin male connector (IEC 60130-9) Pin 6: 24 VDC in	8-pin female connector (IEC 60130-9) Pin 6: 24 VDC out
	(Pin 3: RS485-A, pin 5: RS485-B. pin 7: ground, other pins: not connected)			
Frequency range	800 – 2170 MHz			
Insertion loss				
Port 1 ↔ Port 2	< 0.1 dB (800 – 2170 MHz)			
Isolation for DC and RCU signals				
Port 1 ↔ Port 2	> 70 dB			
Port 1 ↔ Port DC/RCU	> 70 dB			
Port 2 ↔ Port DC/RCU	0 dB			
VSWR (all ports)	< 1.1 (800 – 2170 MHz)			
Input power				
Port 1 *or* port 2	< 250 W (800 – 2170 MHz)		< 250 W (800 – 2170 MHz)	
Port DC/RCU	< 2.5 A / +8 … +14 VDC		< 2.5 A / +14 … +30 VDC	
Intermodulation products	< –160 dBc (3rd order; with 2 x 20 W)			
Impedance	50 Ω			
Temperature range	–40 ... +60 °C			
Modem carrier frequency	2.176 MHz			
Application	Indoor *or* outdoor (IP66)			
Weight	0.65 kg			
Dimensions (w x h x d)	128 mm x 76 mm x 46 mm (including connectors)			

RET

Splitters

Type	Type No.	Frequency range	Remark	Max. power	Connector female	Page
2-way-Splitter 800/900	K 63 20 62 1	790 – 960 MHz	Indoor/Outdoor	500 W	N	170
2-way-Splitter 800/900	K 63 20 62 7	790 – 960 MHz	Indoor/Outdoor	1000 W	7-16	170
2-way-Splitter 800–2200	737 303	800 – 2200 MHz	Indoor/Outdoor	200 W	N	171
2-way-Splitter 800–2200	737 304	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	171
3-way-Splitter 800–2200	737 305	800 – 2200 MHz	Indoor/Outdoor	200 W	N	171
3-way-Splitter 800–2200	737 306	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	171
4-way-Splitter 800–2200	737 307	800 – 2200 MHz	Indoor/Outdoor	200 W	N	171
4-way-Splitter 800–2200	737 308	800 – 2200 MHz	Indoor/Outdoor	700 W	7-16	171
2-way-Splitter 800–2500	860 10017	800 – 2500 MHz	Indoor	100 W	N	172
3-way-Splitter 800–2500	860 10018	800 – 2500 MHz	Indoor	100 W	N	172
4-way-Splitter 800–2500	860 10019	800 – 2500 MHz	Indoor	100 W	N	172

Tappers

Type	Type No.	Frequency range	Remark	Max. power	Connector female	Page
2-way-Tapper 800–2500 7.0/1.0 dB	860 10020	800 – 2500 MHz	Indoor	100 W	N	173
2-way-Tapper 800–2500 10.4/0.4 dB	860 10021	800 – 2500 MHz	Indoor	100 W	N	173
2-way-Tapper 800–2500 15.1/0.1 dB	860 10022	800 – 2500 MHz	Indoor	100 W	N	173
2-way-Tapper 800–2200 7.0/1.0 dB	K 63 23 60 67	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	174
2-way-Tapper 800–2200 10.4/0.4 dB	K 63 23 61 07	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	174
2-way-Tapper 800–2200 15.1/0.1 dB	K 63 23 61 57	800 – 2200 MHz	Indoor/Outdoor	500 W	7-16	174

Continuously adjustable ratio

2-way-Tapper 824–960/1710–2170 5.0–15.0dB	K 63 23 60 01	824 – 960 MHz 1710 – 2170 MHz	Indoor	100 W	N	175
2-way-Tapper 870–960/1710–2500 5.0–15.0dB	860 10023	870 – 960 MHz 1710 – 2500 MHz	Indoor	100 W	N	175

Filter products summary

– Combiners, Filters, Bias Tees 176
– Duplexers 177
– DTMA 178
– 3-dB Couplers 179

For detailed information see the catalogue "790–2500 MHz Filters, Combiners, Amplifiers for Mobile Communications"

For indoor and outdoor use.

2-way-Splitter 790–960

Type No.	K 63 20 62 1	K 63 20 62 7
Frequency range	790 – 960 MHz	
For connecting ... antennas	2	
Insertion loss	< 0.05 dB	
Impedance	50 Ω	
VSWR	< 1.1	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power	500 W (at 50 °C ambient temperature)	1000 W (at 50 °C ambient temperature)
Connector (female)	N	7-16
Weight	approx. 1.3 kg	
Packing size	240 x 93 x 107 mm	
Max. size	210 / 80 / 80 mm	

Material: Housing: Aluminum.
Inner conductor: Brass.

Mounting: Bracket for wall mounting included in the scope of supply: For pipe mast mounting use clamps listed below (order separately).

DC capability: DC transmission between all terminations (suitable for remote power supply systems).

Input

K 63 20 62 7

Clamps (order separately)

Type No.	Description	Remarks
736 801	1 clamp	Mast: 34 – 60 mm diameter
736 802	1 clamp	Mast: 60 – 80 mm diameter
736 803	1 clamp	Mast: 80 – 100 mm diameter
736 804	1 clamp	Mast: 100 – 120 mm diameter
736 805	1 clamp	Mast: 120 – 140 mm diameter

736 805

For indoor and outdoor use.

2-way-Splitter 800–2200
3-way-Splitter 800–2200
4-way-Splitter 800–2200

Type No.	737 303	737 304	737 305	737 306	737 307	737 308
Frequency range	800 – 2200 MHz					
For connecting ... antennas	2		3		4	
Insertion loss	< 0.05 dB					
Impedance	50 Ω					
VSWR	< 1.15					
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc					
Max. power (at 50 °C ambient temperature)	200 W	700 W	200 W	700 W	200 W	700 W
Connector (female)	N	7-16	N	7-16	N	7-16
Weight	approx. 1.5 kg					
Packing size	310 x 93 x 107 mm					
Max. size	294 / 82 / 82 mm					

Material: Housing: Aluminum.
Inner conductor: Brass.

Mounting: Bracket for wall mounting included in the scope of supply.
For pipe mast mounting use clamps listed below (order separately).

DC capability: DC transmission between all terminations (suitable for remote power supply systems).

Input

737 308

Clamps (order separately)

Type No.	Description	Remarks
736 801	1 clamp	Mast: 34 – 60 mm diameter
736 802	1 clamp	Mast: 60 – 80 mm diameter
736 803	1 clamp	Mast: 80 – 100 mm diameter
736 804	1 clamp	Mast: 100 – 120 mm diameter
736 805	1 clamp	Mast: 120 – 140 mm diameter

736 805

Multi-band Low-loss Power Splitters 800–2500

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For indoor use.

2-way-Splitter 800–2500
3-way-Splitter 800–2500
4-way-Splitter 800–2500

Type No.	860 10017	860 10018	860 10019
Frequency range	800 – 2500 MHz		
For connecting ... antennas	2	3	4
Insertion loss	< 0.05 dB		
Impedance	50 Ω		
VSWR	< 1.25	< 1.25	< 1.3
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	100 W (at 50 °C ambient temperature)		
Connector	N female		
Weight	approx. 0.6 kg		
Profile cross-section	25 x 25 mm		
Packing size	242 x 110 x 95 mm		
Max. size	204 / 63 / 41 mm		

Material: Housing: Aluminum.
Inner conductor: Brass.

DC capability: DC transmission between all terminations
(suitbale for remote power supply systems).

Input
860 10019

For indoor use.

2-way-Tapper 800–2500 7.0 /1.0dB
2-way-Tapper 800–2500 10.4/0.4dB
2-way-Tapper 800–2500 15.1/0.1dB

Type No.	860 10020	860 10021	860 10022
Frequency range	800 – 2500 MHz		
Tap Loss Input ↔ P_1 Input ↔ P_2	 – 1.0 dB – 7.0 dB	 – 0.4 dB – 10.4 dB	 – 0.1 dB – 15.1 dB
For connecting ... antennas	2		
Insertion loss	< 0.05 dB		
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	100 W (at 50 °C ambient temperature)		
Connector	N female		
Weight	approx. 0.5 kg		
Profile cross-section	25 x 25 mm		
Packing size	267 x 95 x 111 mm		
Max. size	244 / 64 / 25 mm		

Material: Housing: Aluminum.
Inner conductor: Brass.

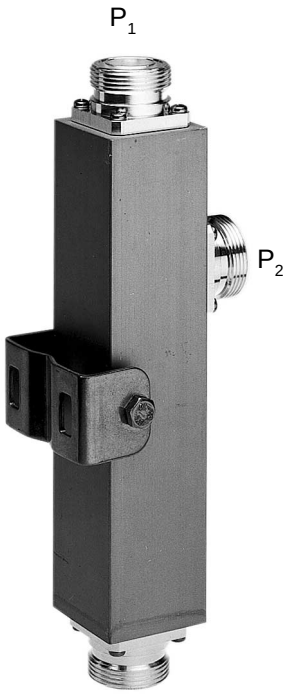
DC capability: DC transmission only between input and port P_1.
P_2 is coupled capacitively.

Input
860 10020

For indoor and outdoor use.

2-way-Tapper 800–2200 7.0 /1.0dB
2-way-Tapper 800–2200 10.4/0.4dB
2-way-Tapper 800–2200 15.1/0.1dB

Type No.	K 63 23 60 67	K 63 23 61 07	K 63 23 61 57
Frequency range	800 – 2200 MHz		
Tap Loss Input ↔ P_1 Input ↔ P_2	 – 1.0 dB – 7.0 dB	 – 0.4 dB – 10.4 dB	 – 0.1 dB – 15.1 dB
For connecting ... antennas	2		
Insertion loss	< 0.05 dB		
Impedance	50 Ω		
VSWR	< 1.5		
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc		
Max. power	500 W (at 50 °C ambient temperature)		
Connector	7-16 female		
Weight	approx. 1.3 kg		
Packing size	310 x 93 x 112 mm		
Max. size	244 / 90 / 55 mm		



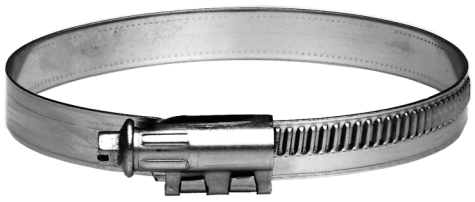
Material: Housing: Aluminum.
Inner conductor: Brass.

DC capability: DC transmission only between input and port P_1.
P_2 is coupled capacitively.

Mounting: Bracked for wall mounting included in the scope of supply.
For pipe mast mounting use clamps listed below (order separately).

Clamps (order separately)

Type No.	Description	Remarks
736 801	1 clamp	Mast: 34 – 60 mm diameter
736 802	1 clamp	Mast: 60 – 80 mm diameter
736 803	1 clamp	Mast: 80 – 100 mm diameter
736 804	1 clamp	Mast: 100 – 120 mm diameter
736 805	1 clamp	Mast: 120 – 140 mm diameter



736 805

Multi-band Low-loss Power Tapper Continuously Adjustable

824 – 960 | 1710 – 2500

5.0 – 15.0 | 5.0 – 15.0

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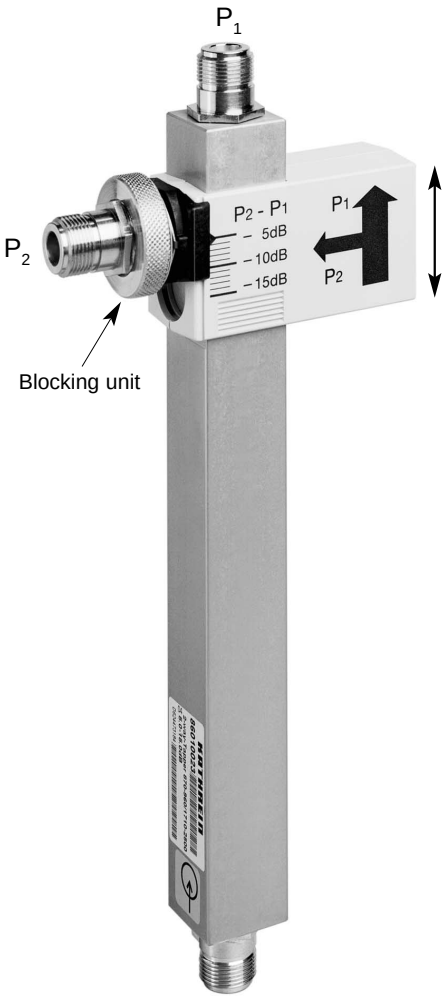
For indoor use.

K 63 23 60 01: 2-way-Tapper 824–960/1710–2170 5.0–15.0dB
860 10023: 2-way-Tapper 870–960/1710–2500 5.0–15.0dB

Type No.	K 63 23 60 01	860 10023
Frequency range	824 – 960 MHz and 1710 – 2170 MHz	870 – 960 MHz and 1710 – 2500 MHz
Power ratio between outputs ($P_2 - P_1$)	–5.0 dB to –15.0 dB continuously adjustable	
For connecting ... antennas	2	
Insertion loss	< 0.1 dB	
Impedance	50 Ω	
VSWR	< 1.7	
Intermodulation IM3 (2 x 43 dBm carrier)	< –150 dBc	
Max. power	100 W (at 50 °C ambient temperature)	
Connector	N female	
Weight	0.5 kg	
Profile cross-section	25 x 25 mm	
Packing size	249 x 111 x 40 mm	277 x 111 x 40 mm
Max. size	235 / 100 / 25 mm	263 / 100 / 25 mm

Material: Housing: Aluminum.
Inner conductor: Brass.
Adjustment mechanism: ASA.

DC capability: DC transmission only between input and port P_1.
P_2 is coupled capacitively.



Splitting table

P_2 / P_1 [dB]	Splitting ratio P_1 / P_2	Splitting attenuation $P_{Input} - P_1$ [dB]	Splitting attenuation $P_{Input} - P_2$ [dB]
–5	3.2	–1.2	–6.2
–6	4	–1.0	–7.0
–7	5	–0.8	–7.8
–8	6.3	–0.6	–8.6
–9	8	–0.5	–9.5
–10	10	–0.4	–10.4
–11	12.6	–0.3	–11.3
–12	15.8	–0.3	–12.3
–13	20	–0.2	–13.2
–14	25.1	–0.2	–14.2
–15	31.6	–0.1	–15.1

Dual-band Combiner

793 532	Single Unit	806 – 960 / 1710 – 2170 MHz
793 533	Double Unit	806 – 960 / 1710 – 2170 MHz
782 10250	Single Unit, built-in DC stop	806 – 960 / 1710 – 2170 MHz
782 10251	Double Unit, built-in DC stop	806 – 960 / 1710 – 2170 MHz
793 423	Single Unit	1710 – 1880 / 1920 – 2170 MHz
793 424	Single Unit	1710 – 1880 / 1920 – 2170 MHz
782 10243	Single Unit, built-in DC stop	1710 – 1880 / 1920 – 2170 MHz
782 10244	Double Unit, built-in DC stop	1710 – 1880 / 1920 – 2170 MHz
782 10264	Single Unit	50 – 2200 / 2400 – 2500 MHz

793 532
Single Unit

793 533
Double Unit

782 10250
Single Unit

782 10251
Double Unit

793 423, 782 10243
Single Unit

793 424, 782 10244
Double Unit

Triple-band Combiner

793 425	Single Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
793 426	Double Unit	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
782 10245	Single Unit built-in DC stop	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
782 10246	Double Unit built-in DC stop	880 – 960 / 1710 – 1880 / 1920 – 2170 MHz
793 528	Single Unit	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz
793 529	Double Unit	806 – 960 / 1710 – 1880 / 1920 – 2170 MHz

793 425, 782 10245
Single Unit

793 426, 782 10246
Double Unit

793 528
Single Unit

793 529
Double Unit

Smart Bias Tee

782 10253	12 V BTS	800 – 2170 MHz
782 10254	12 V Antenna	800 – 2170 MHz
782 10255	24 V BTS	800 – 2170 MHz
782 10256	24 V Antenna	800 – 2170 MHz

Bias Tee

793 304 — 800 – 2170 MHz

DC Stop

793 301 — 800 – 2170 MHz

Band-pass Filter

793 540 — 1710 – 1880 MHz

Low-pass Filter

793 539 — 876 – 960 MHz

Duplexers
824 – 2170 MHz

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Duplexer GSM-R / GSM

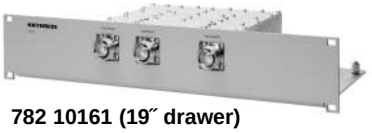
793 004	7-16	876 – 880 / 921 – 925 MHz
793 005	N	876 – 880 / 921 – 925 MHz
782 10164	7-16	890 – 915 / 935 – 960 MHz
782 10165	1 x N, 3 x 7-16	890 – 915 / 935 – 960 MHz
782 10161	7-16, 19" drawer	890 – 915 / 935 – 960 MHz
782 10162	7-16, outdoor	890 – 915 / 935 – 960 MHz
782 10167	7-16	880 – 915 / 925 – 960 MHz

793 004

793 005

782 10164 (indoor)

782 10162 (outdoor)



782 10161 (19˝ drawer)

Duplexer AMPS A-Band, B-Band A/B-Band

782 10168	7-16	824 – 835 / 869 – 880 MHz
782 10169	7-16, outdoor	824 – 835 / 869 – 880 MHz
782 10171	7-16	835 – 851 / 880 – 896 MHz
782 10172	7-16, outdoor	835 – 851 / 880 – 896 MHz
782 10215	7-16	824 – 851 / 869 – 896 MHz
782 10216	N	824 – 851 / 869 – 896 MHz
782 10257	7-16, 400 W	824 – 846.5 / 869 – 891.5 MHz
782 10265	7-16, 800 W	824 – 846.5 / 869 – 891.5 MHz

782 10168, 782 10171 (indoor)

782 10169, 782 10172 (outdoor)

782 10215, 782 10257

782 10216

Duplexer GSM 1800 / GSM 1900

792 542	7-16	1710 – 1785 / 1805 – 1880 MHz
792 544	7-16	1850 – 1910 / 1930 – 1990 MHz

Duplexer UMTS

782 10192	7-16	1920 – 1980 / 2110 – 2170 MHz

UMTS Double Tower Mounted Amplifier

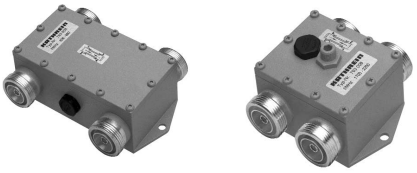
782 10071	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10072	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz

UMTS Double Tower Mounted Amplifier AISG Standard

782 10147	12 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10148	24 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz
782 10149	32 dB gain	UL: 1920 – 1980 / DL: 2110 – 2170 MHz

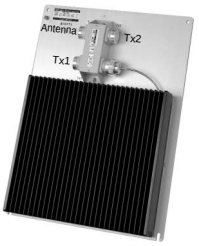
3-dB Coupler

793 506	7-16, outdoor	806 – 960 MHz
793 006	7-16, outdoor	1700 – 2200 MHz
793 554	7-16, outdoor	800 – 2200 MHz



3-dB Coupler with Cable Absorber

792 699	806 – 960 MHz
792 702	1700 – 2200 MHz
793 555	800 – 2200 MHz



Measuring Directional Coupler

792 972	824 – 2500 MHz

Summary – Mechanical Accessories
Clamps, Downtilt Kits ...

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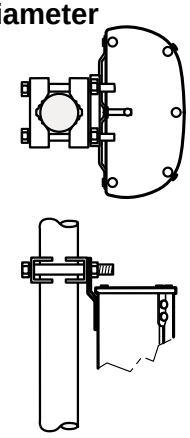
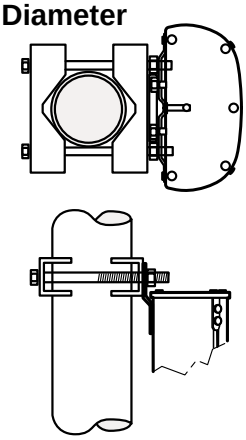
For additional information on the mounting of antennas, please check also our broschure:

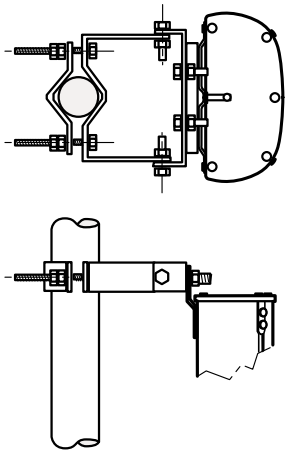
Small Pipe Diameter



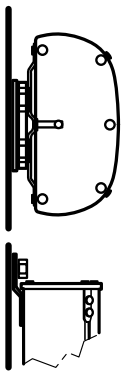
Large Pipe Diameter



Off-set

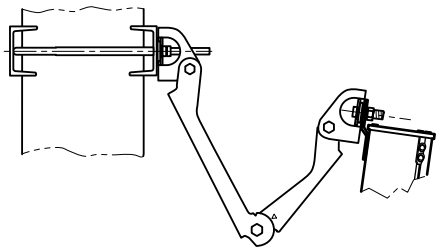


Flat Surface

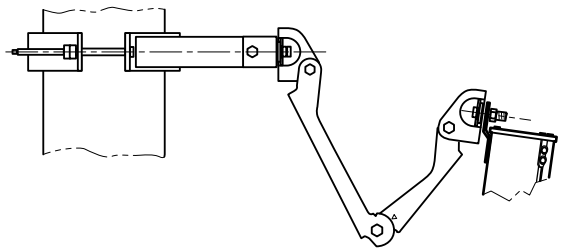


Not applicable for Eurocell Panels with connector position rearside.

Standard Downtilt



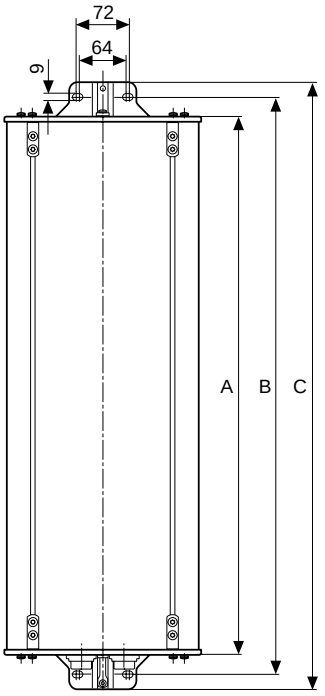
Off-set Downtilt



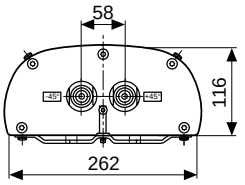
A-Panels
with 65° and 90° Half-power Beam Width

A	256 mm	656 mm	1296 mm	1936 mm	2580 mm
B	310 mm	710 mm	1350 mm	1990 mm	2634 mm
C	350 mm	750 mm	1390 mm	2030 mm	2674 mm

A Corresponds with the antenna height mentioned in the technical data.



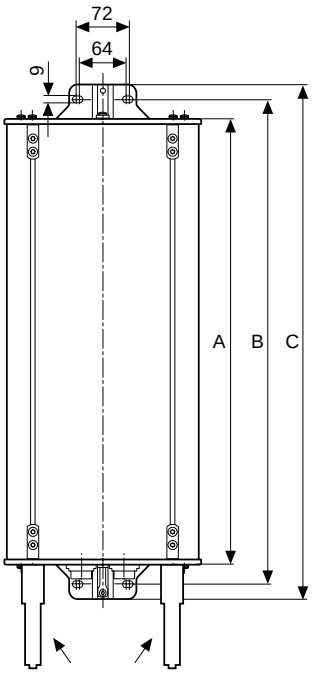
Bottom view



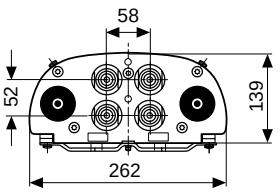
Dual-band A-Panels
with 65° Half-power Beam Width

A	770 mm	1316 mm	1916 mm	2516 mm
B	824 mm	1367 mm	1967 mm	2567 mm
C	864 mm	1407 mm	2007 mm	2607 mm

A Corresponds with the antenna height mentioned in the technical data.



Adjustment mechanism
with integrated scale



Bottom view

A-Panels / C-Panels / Eurocell Panels
Antenna Dimensions

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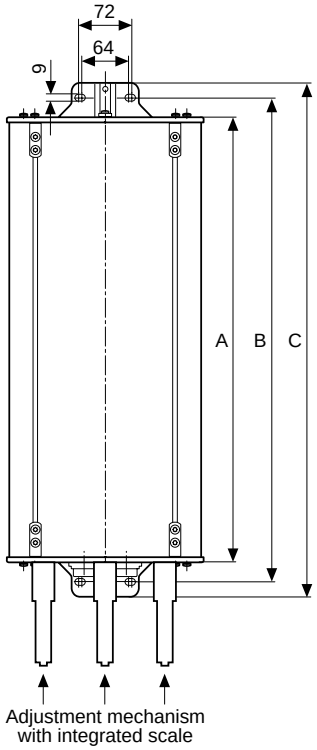
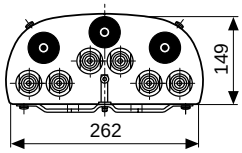
Triple-band A-Panel
with 65° Half-power Beam Width

A	1498 mm	2058 mm	2628 mm
B	1541 mm	2101 mm	2671 mm
C	1581 mm	2141 mm	2711 mm

A Corresponds with the antenna height mentioned in the technical data.



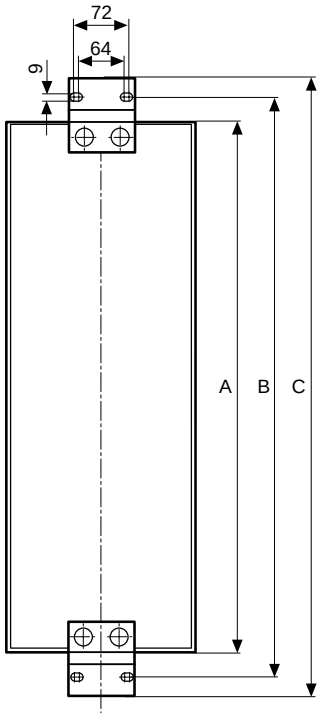


Bottom view

C-Panels

A	1294 mm	1934 mm	2254 mm
B	1340 mm	1980 mm	2300 mm
C	1382 mm	2022 mm	2342 mm

A Corresponds with the antenna height mentioned in the technical data.

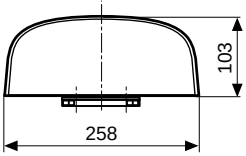


Top view

Eurocell Panels

A	264 mm	654 mm	974 mm	1294 mm	1934 mm	2254 mm	2574 mm
B	—	710 mm	1030 mm	1350 mm	1990 mm	2310 mm	2630 mm
C	—	750 mm	1070 mm	1390 mm	2030 mm	2350 mm	2670 mm

A Corresponds with the antenna height mentioned in the technical data.



A-Panels
30° Half-power Beam Width
Mounting Hardware

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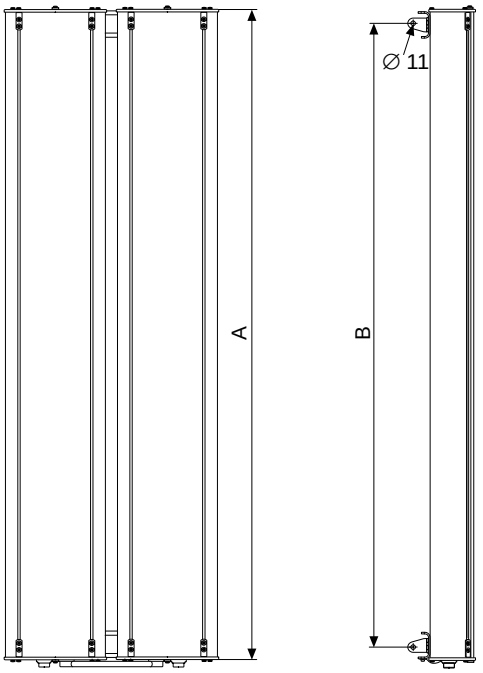
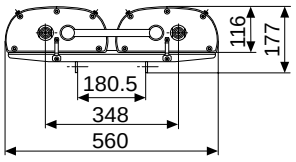
A-Panels
with 30° Half-power Beam Width

A	656 mm	1296 mm	2580 mm
B	584 mm	1224 mm	2504 mm

A Corresponds with the antenna height mentioned in the technical data.



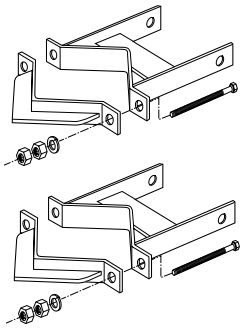
Side view



Bottom view

Clamps

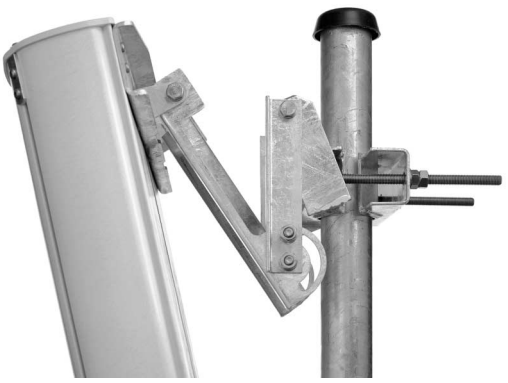
Type No.	Description	Remarks	Weight approx.	Units per antenna
733 736	2 clamps	Mast: 50 – 125 mm diameter	5.9 kg	1
K 61 14 03	2 clamps	Mast: 116 – 210 mm diameter	4.6 kg	1
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter	6.5 kg	1
K 61 14 05	2 clamps	Mast: 380 – 521 mm diameter	9.4 kg	1



Pair of clamps K 61 14 03

Downtilt kits

Antenna height	Downtilt angle	Type No.	Weight
656 mm	0 – 33°	733 695	3.4 kg
1296 mm	0 – 16°		
2580 mm	0 – 8°		



Downtilt kit 733 695

A-Panels 65° and 90° / C-Panels / Eurocell Panels
Mounting Hardware
Clamps

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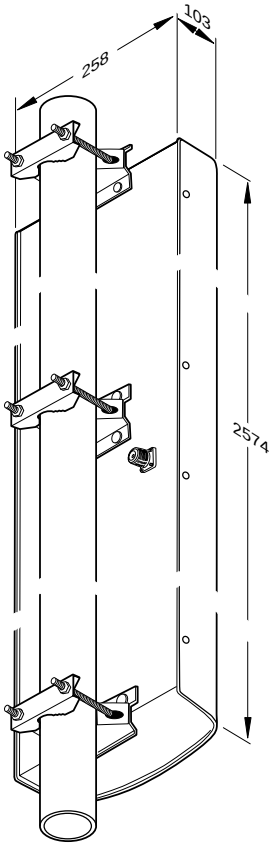
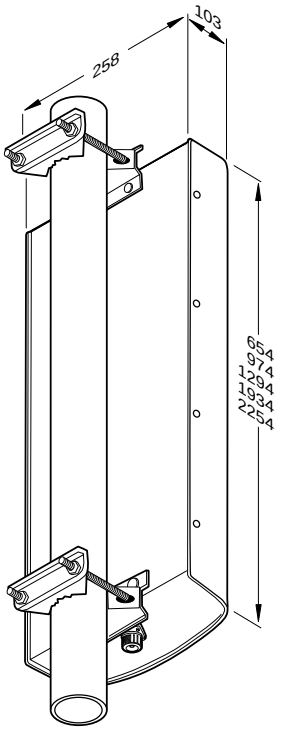
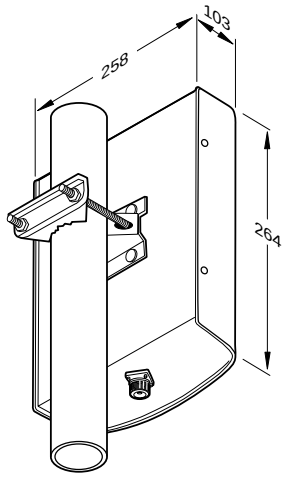
C-Panels / Eurocell Panels
Antenna height: 2574 mm

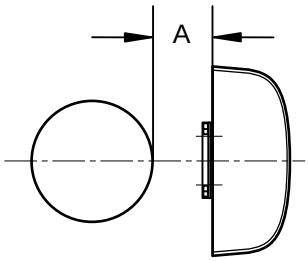


C-Panels / Eurocell Panels
Antenna height: 654 mm
to
2254 mm
and <u>all</u> A-Panels 65° and 90°



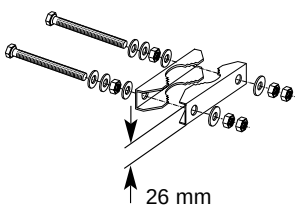
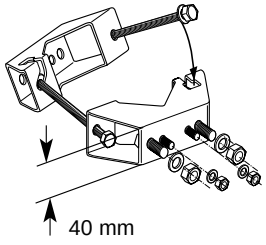
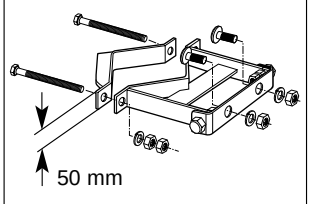
C-Panels / Eurocell Panels
Antenna height: 264 mm





Description	Mast diameter	Type No.	Distance A mm	Weight approx.	Units per antenna
Small Pipe	28 – 64 mm	731 651*	22 – 30	330 g	see sketch
Large Pipe	50 – 115 mm	738 546	18 – 26	1.0 kg	see sketch
new	110 – 220 mm	**850 10002**	47 – 56	2.7 kg	see sketch
new	210 – 380 mm	**850 10003**	48 – 69	4.8 kg	see sketch
Off-set	60 – 115 mm	733 677	117 – 124	2.0 kg	see sketch
	115 – 210 mm	733 678	146 – 160	2.6 kg	see sketch
	210 – 380 mm	733 679	148 – 168	4.0 kg	see sketch
	380 – 521 mm	733 680	150 – 175	5.3 kg	see sketch

*** Not allowed for panels 742 241, 742 264, 742 265, 742 266**

731 651	738 546	733 678
		

A-Panels / C-Panels / Eurocell Panels
3 Sector Panel Arrangement – Mounting Hardware
3 Sector Clamp Kit / Pipe Mast with Flange Base

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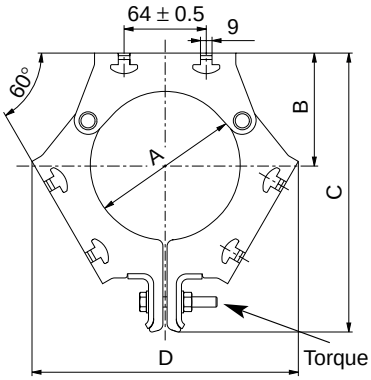
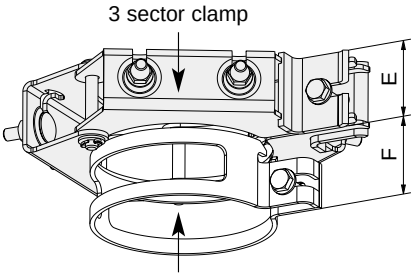
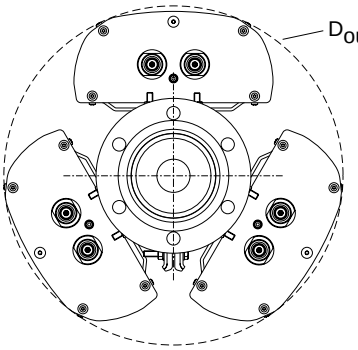
- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all A-Panels 65° and 90° (Single-band, Dual-band) with weight less than 30 kg including downtilt kit
- Mounting of F-Panels possible but not optimized

3 Sector Clamp Kit

Type No.	742 033	742 034
Angle between antennas	120°	120°
Suitable for mast diameter	114.3 mm	139.7 mm
Type No. of pipe mast (please order separately)	742 035	742 036
Number of pieces	2 x 3 sector clamp 2 x mounting support clamp	2 x 3 sector clamp 2 x mounting support clamp
Material – 3 sector clamp – Mounting support clamp – Screws	Hot-dip galvanized steel Aluminum Stainless steel	Hot-dip galvanized steel Aluminum Stainless steel
Outer diameter (D_{out}) of the 3 A-Panel Arrangement	460 mm	482 mm
Weight – Clamp kit – 3 sector clamp	3.0 kg 1.4 kg	3.2 kg 1.5 kg



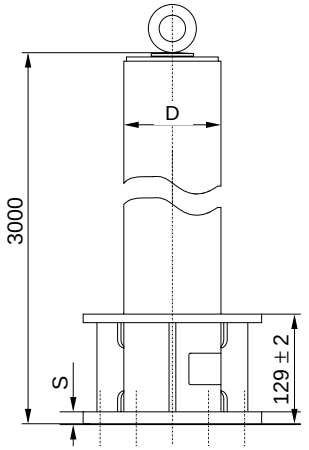




Bottom view without downtilt kit

Type No.	A	B	C	D	E	F
742 033	114.3	88	217	207	49	45
742 034	139.7	100	236	228	49	45

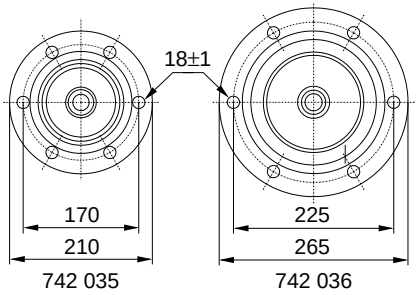
all dimensions in mm



Pipe Mast with Flange Base

Type No.		742 035	742 036
Pipe diameter according DIN 2448	D	114.3 mm	139.7 mm
Wall thickness pipe		6.3 mm	4 mm
Pipe length		3000 mm	3000 mm
Flange diameter		210 mm	265 mm
Flange thickness	S	14 ± 1 mm	19 ± 1 mm
Hole circle diameter		170 mm	225 mm
Number of holes		6	6
Hole diameter		18 ± 1 mm	18 ± 1 mm
Enclosed bolts thread x length Hot-dip galvanized steel		M16 x 100 mm Quality min. 8.8	M16 x 100 mm Quality min. 8.8
Weight		60 kg	55 kg
Material pipe mast		S355 J2H (St 52-3N) DIN EN 10210-1	
Material flange base		S235 JR G2 (RSt 37-2) DIN EN 10025	

Maximum permissible load: According DIN 4131 and DIN 4132
Fatigue class K2



A-Panels / C-Panels / Eurocell Panels
Mounting Hardware
2 x A-/C-Panel Mounting Kit

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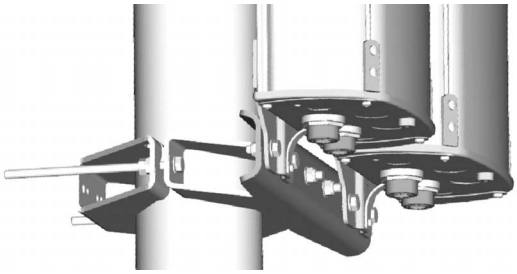
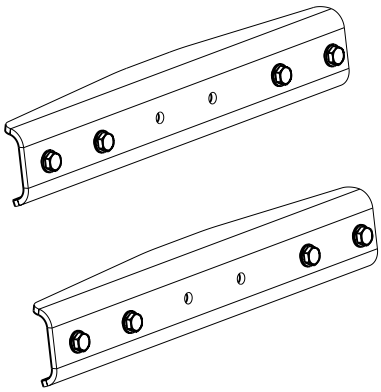
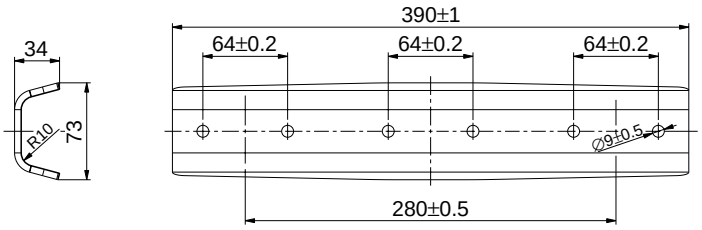
Use this mounting kit only for antennas less than 25 kg each.

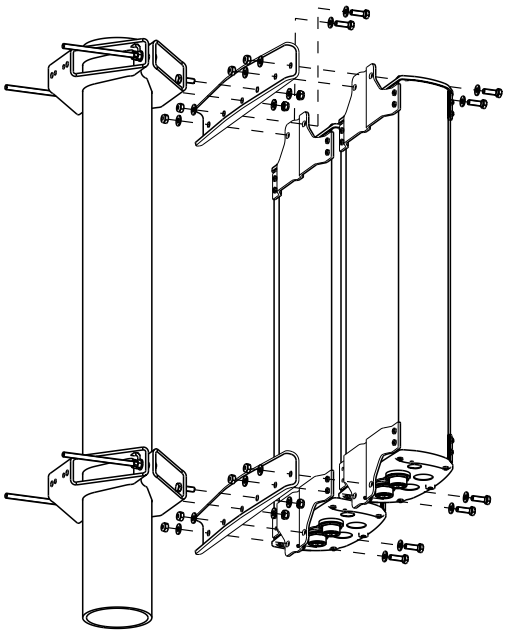


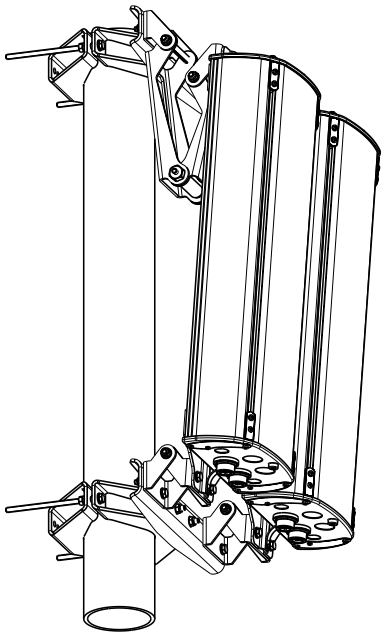
Type No.	850 10006
No. of pieces	2 x brackets
Suitable for A-/C-Panels 65°, 90° with a max. height	2.6 m
Material: – Clamp – Screws	Hot-dip galvanized steel Stainless steel
Weight	Approx. 3.3 kg
Mounting	Screws are supplied

Recommended torque for M8 bolted connections: 12 Nm









Mounting Accessories (order separately)

Clamps (only the listed clamps are allowed!)

Type No.	Description	Remarks	Weight approx.	Units per antenna
850 10002	1 clamp	Mast: 110 – 220 mm diameter	2.7 kg	2
850 10003	1 clamp	Mast: 210 – 380 mm diameter	4.8 kg	2

Please chose the fitting downtilt kit that you need, from the antenna datasheet.

A-Panels / C-Panels / Eurocell Panels
Mounting Hardware
Downtilt kit

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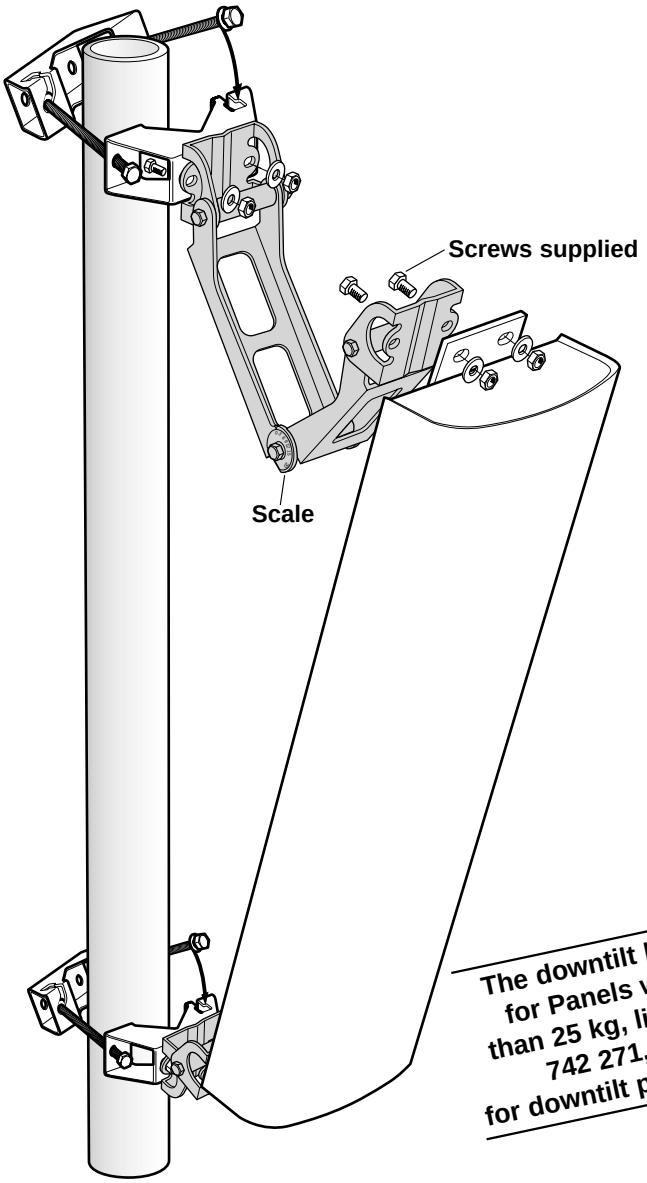
Antenna height: 654 / 656 mm
974 mm
1294 / 1296 mm
1934 / 1936 mm
2254 / 2256 mm

Use the downtilt kit together with the clamps (see page 185 and 186)



The downtilt kits are not allowed for Panels with a weight more than 25 kg, like: 742 266, 742 270, 742 271, 742 272, 742 241 for downtilt possibility see page 191

Downtilt angle

Antenna height	Downtilt angle	Downtilt kit with scale Type No.	Downtilt kit without scale* Type No.	Weight
654 / 656 mm	0° – 30°	737 972		
974 mm	0° – 21°	737 973		
1294 / 1296 mm	0° – 16°	737 974	737 978	approx. 2.8 kg
1934 / 1936 mm	0° – 11°	737 975		
2254 / 2256 mm	0° – 9°	–		

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

A-Panels / C-Panels / Eurocell Panels
Mounting Hardware
Downtilt kits

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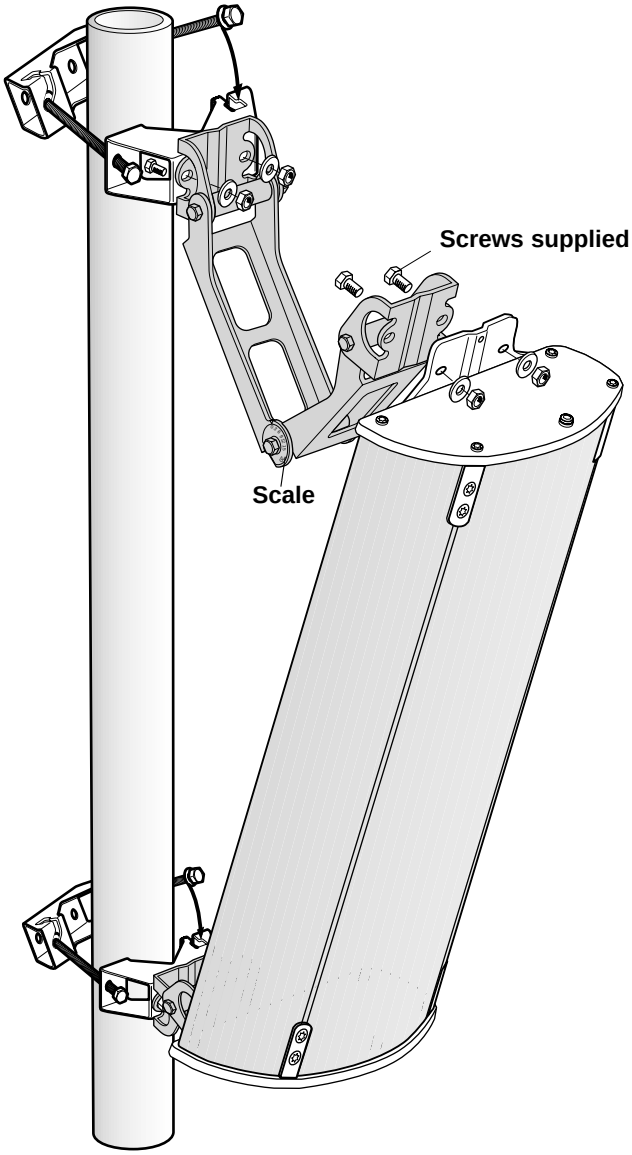
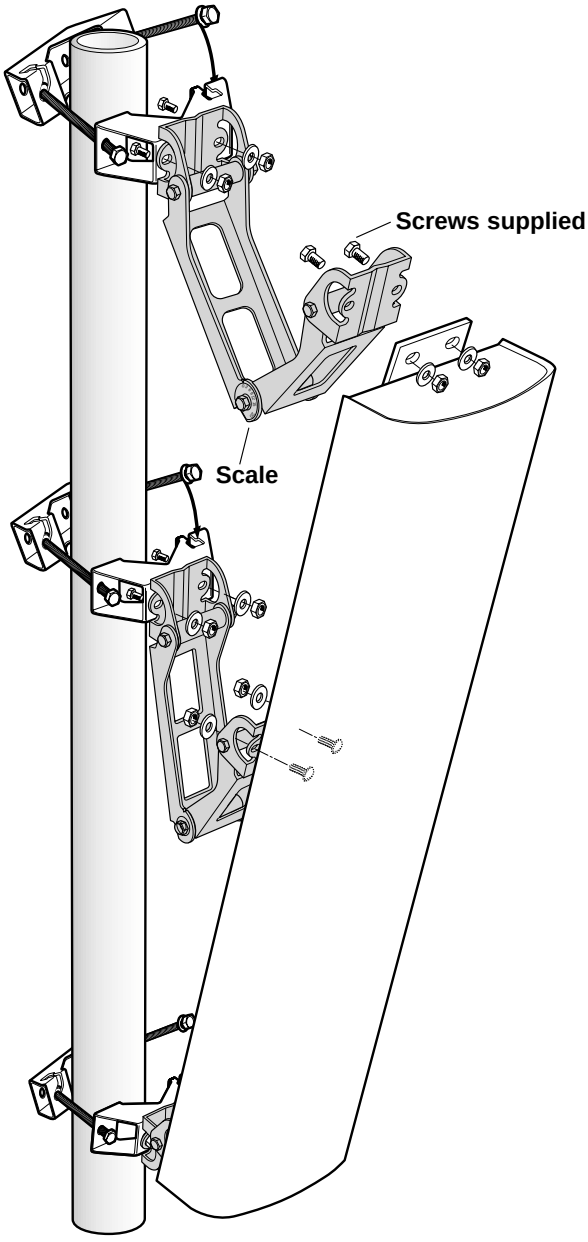
Suitable for:

A-Panels
with an antenna height of 2580 mm



Type No. 737 971
Downtilt angle: 0° – 8°

C-Panels / Eurocell Panels
with an antenna height of 2574 mm



Type No. 737 976
Downtilt angle: 0° – 8°

The downtilt kit is not allowed for Panels with a weight more than 25 kg, like: 742 266, 742 270, 742 271, 742 272, 742 241
for downtilt possibility see page 191

The downtilt kits should only be mounted with clamps 738 546, 850 10002, 850 10003

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

A-Panels / C-Panels / Eurocell Panels
Mounting Hardware
Downtilt Kit

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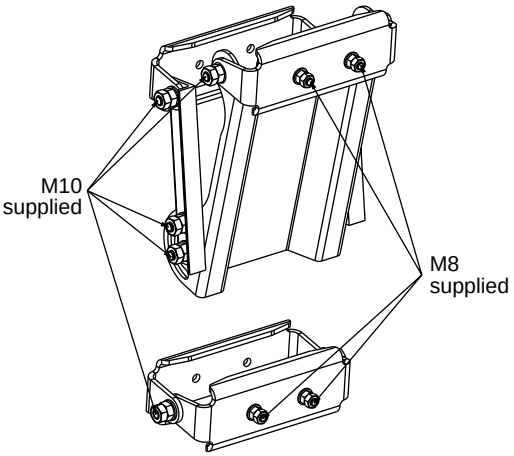
Special downtilt kit for Panel antennas with a weight greater than 25 kg.

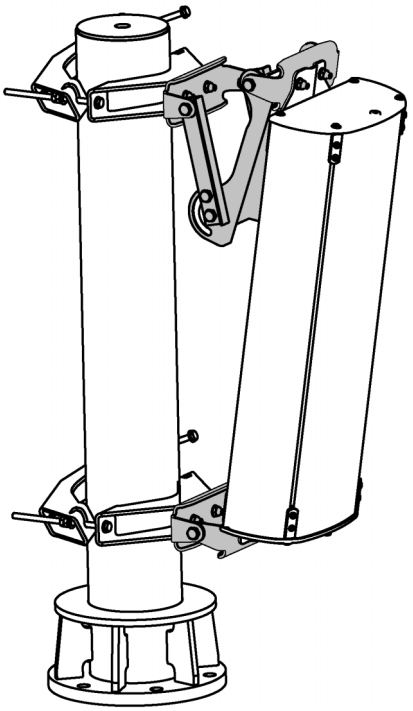


Downtilt kit

Type No.	850 10007
Preferred range of use	– Panel antennas with a weight of ≥ 25 kg – Panel antennas with attached mounting plates – **Downtilt kit without scale for universal use**
Weight	5.9 kg
Material	Hot-dip galvanized steel
All screws and nuts	Stainless steel

Recommended mast clamps:

Type No.	Description	Mast diameter	Weight approx.	Units per antenna
738 546	1 clamp	50 – 115 mm	1.0 kg	2
850 10002	1 clamp	110 – 220 mm	2.7 kg	2
850 10003	1 clamp	210 – 380 mm	4.8 kg	2



Recommended torque for all bolted connections:

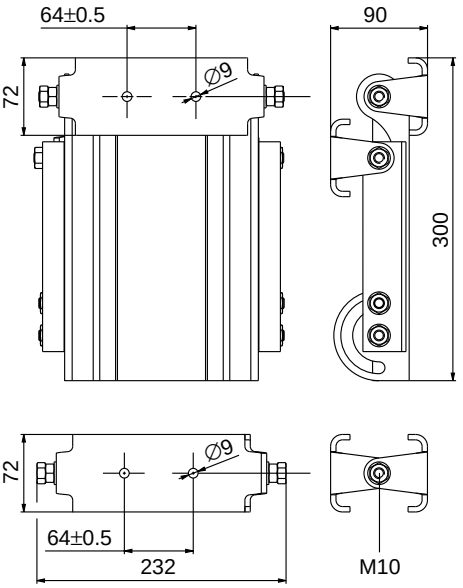
Screw size	Torque
M8	12 Nm
M10	26 Nm

Maximum acceptable load:

Frontal wind load	< 2500 N
Lateral wind load	< 830 N
Antenna weight	≤ 50 kg

Downtilt angle

Antenna height	Downtilt angle
1498 mm	0° – 15°
2058 mm	0° – 11°
2516 mm	0° – 8°
2628 mm	0° – 8°



F-Panel Accessories
Dimensions of F-Panels with 33° – 105° Half-power Beam Width

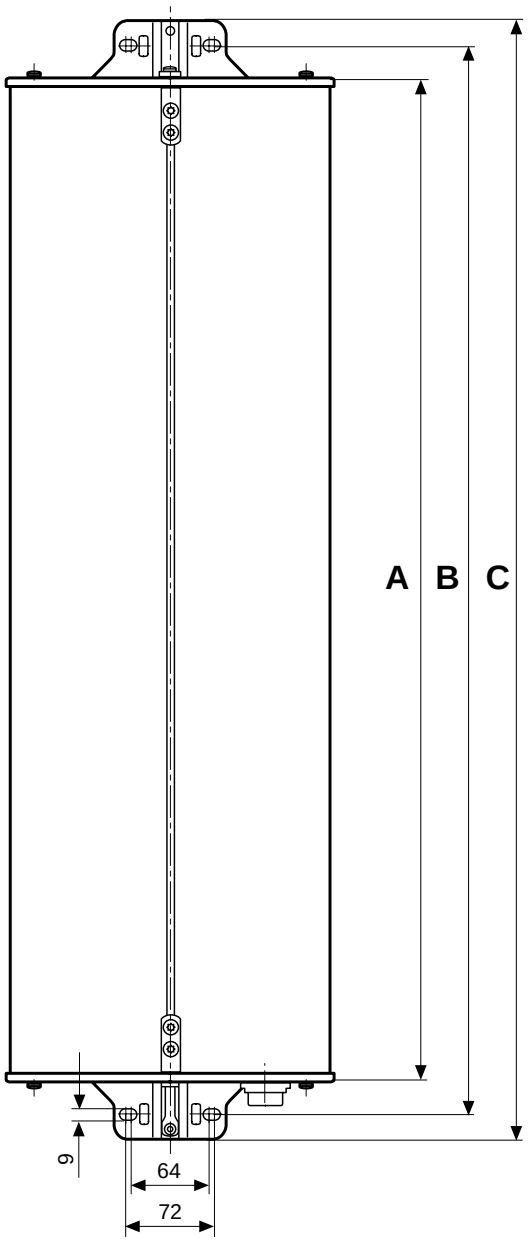
KATHREIN
Antennen · Electronic

Dimensions [mm]
('A' corresponds to the antenna height given on the data sheet)

33° Half-power Beam Width

A	B	C
209	263	303
342	396	436
662	716	756
982	1036	1076
1302	1356	1396
1942	1996	2036

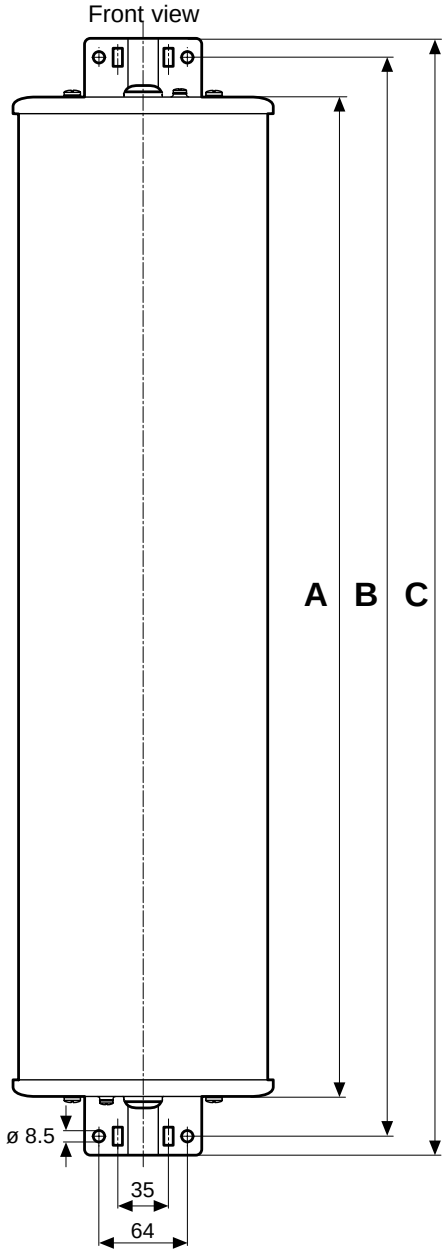
Front view



60° – 105 °Half-power Beam Width

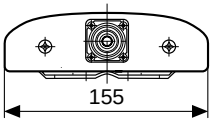
A	B	C
182	236	266
342	396	426
502	556	586
662	716	746
702	756	786
982	1036	1066
1302	1356	1386
1622	1676	1706
1942	1996	2026
2582	2636	2666

Front view

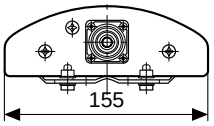


F-Panel Accessories
Dimensions of F-Panels
Detailed Connector Position

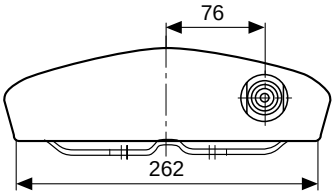
Vertical Polarization



60° – 65° Half-power Beam Width

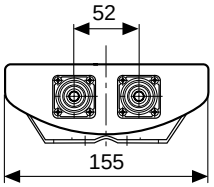


90° Half-power Beam Width

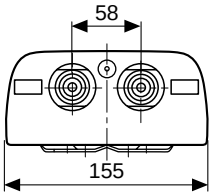


33° Half-power Beam Width

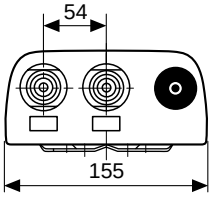
+45°/–45° Polarization



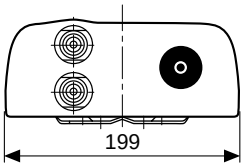
65° Half-power Beam Width



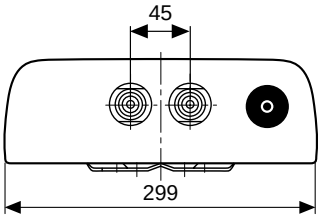
90° Half-power Beam Width



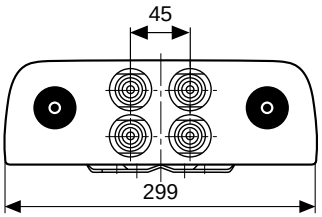
65° and 90° Half-power Beam Width
adjustable electrical downtilt



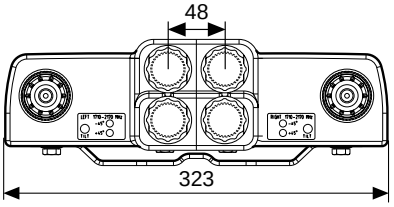
45° Half-power Beam Width
Multi-band
adjustable electrical downtilt



30° Half-power Beam Width
Multi-band
adjustable electrical downtilt



65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt

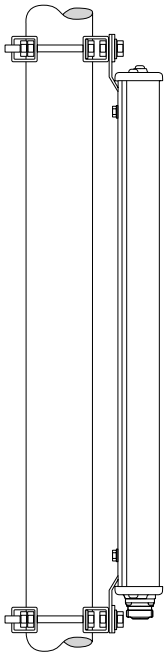


65° Half-power Beam Width
2-Multi-band
adjustable electrical downtilt

F-Panel Accessories
Clamps for F-Panels

KATHREIN
Antennen · Electronic

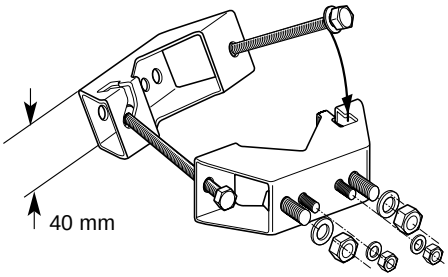
Clamps suitable for all F-Panels



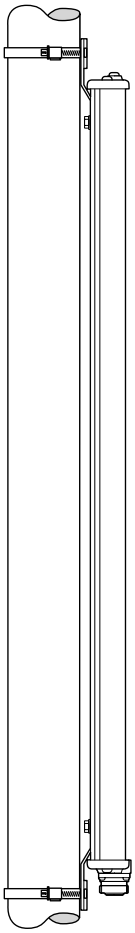
Type No.	Mast diameter	Weight approx.	Units per antenna
738 546	50 – 115 mm	1 kg	2
850 10002	110 – 220 mm	2.7 kg	2
850 10003	210 – 380 mm	4.8 kg	2

For more information see data sheets

Type No. 738 546



Clamps suitable for all F-Panels with a width of 155 mm until an antenna height of 1302 mm



Type No.	Mast diameter	Antenna height	Weight approx.	Units per antenna
734 360	34 – 60 mm	182 … 1942 mm	60 g	1
734 361	60 – 80 mm	182 … 1942 mm	70 g	1
734 362	80 – 100 mm	182 … 1942 mm	80 g	1
734 363	100 – 120 mm	182 … 1942 mm	90 g	1
734 364	120 – 140 mm	182 … 1942 mm	110 g	1
734 365	45 – 125 mm	182 … 1942 mm	80 g	1
738 546	50 – 115 mm	182 ... 2582 mm	1 kg	2
850 10002	110 – 220 mm	182 ... 2582 mm	2.7 kg	2
850 10003	210 – 380 mm	182 ... 2582 mm	4.8 kg	2

For more information see data sheets

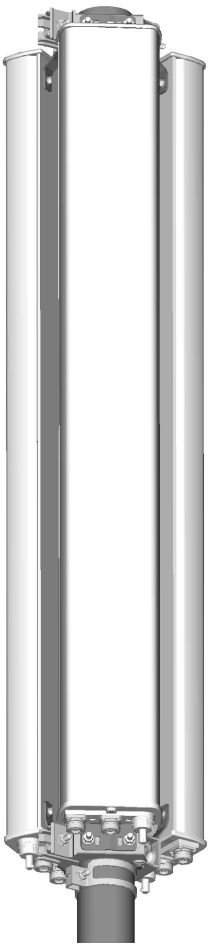
Clamps are not allowed for 2-Multi-band F-Panels like 742 233, 742 234, 742 235

Type No. 734 362

F-Panels – 3 Sector Panel Arrangement
Mounting Hardware
3 Sector Clamp Kit

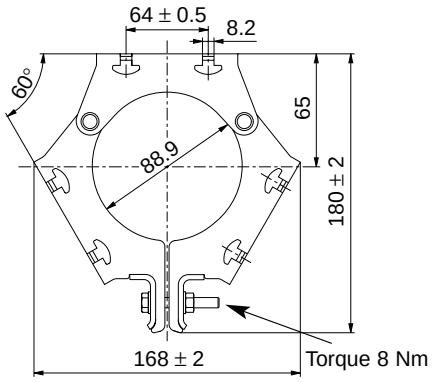
KATHREIN
Antennen · Electronic

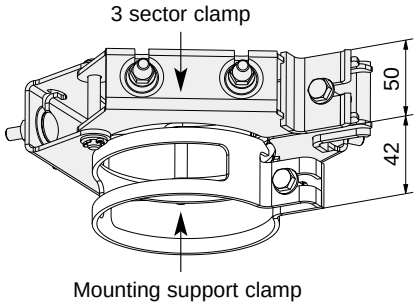
- Slim and unobstrusive design
- Nearly cylindrical optical appearance with small outer diameter
- Suitable for all F-Panels with an antenna housing width of 155 mm

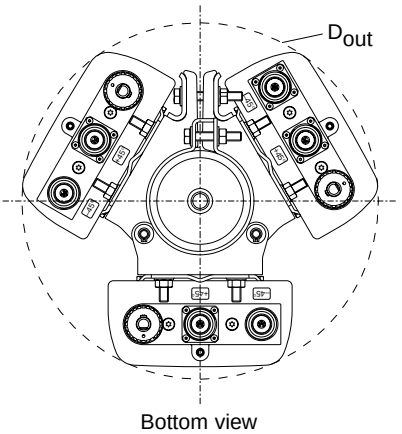


3 Sector Clamp Kit

Type No.	**742 263**
Angle between antennas	120°
Suitable for mast diameter	88.9 mm
Number of pieces	2 x 3 sector clamp 2 x mounting support clamp
Material – 3 sector clamp – Mounting support clamp – Screws	Hot-dip galvanized steel Aluminum Stainless steel
Outer diameter (D_{out}) of the 3 F-Panel Arrangement	315 mm
Weight – Clamp kit – 3 sector clamp	3.0 kg 1.4 kg
Remark	This clamp kit is not suitable for use with additional mechanical downtilt kits







F-Panel Accessories
Mounting Hardware
2 x F-Panel Mounting Kit

KATHREIN
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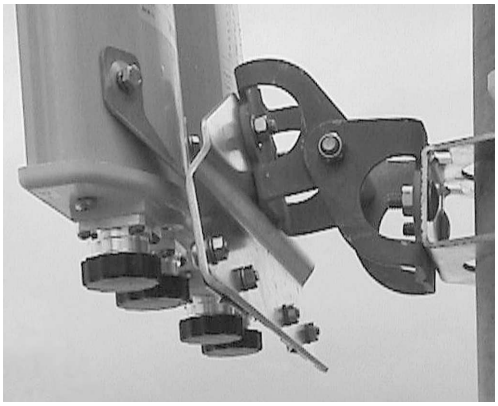
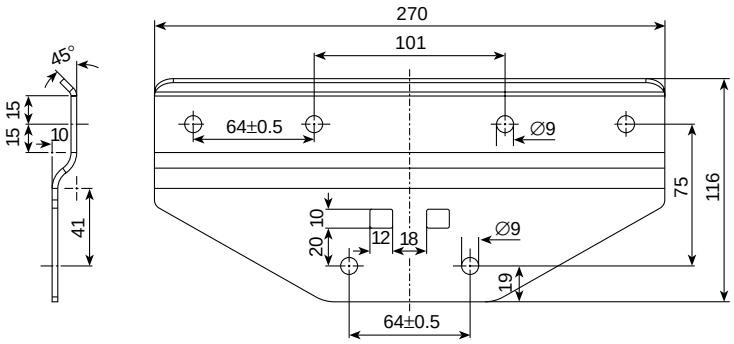
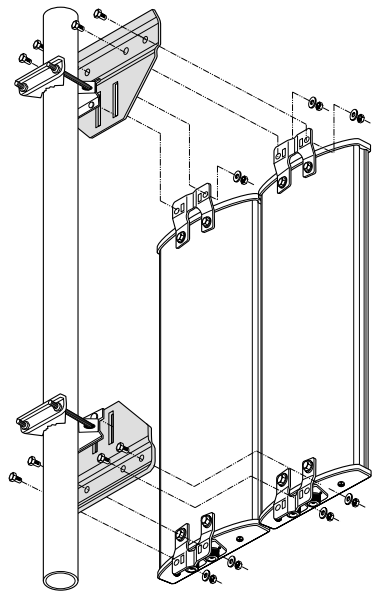
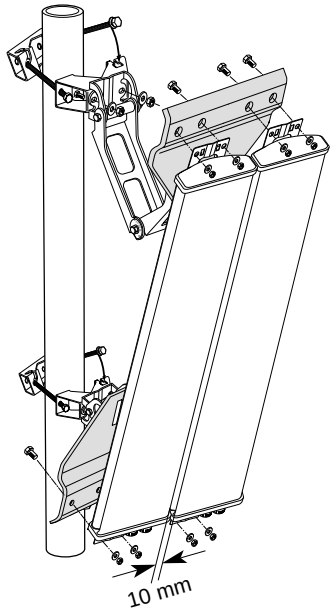
- For arranging two F-Panels 65°, 90° side by side (on air combining).
- The mounting kit consists of two mounting plates.



2 x F-Panel Mounting Kit

Type No.	742 113
No of units	2
Suitable for F-Panels 65°, 90° with max. height of	2 m
Material	Hot-dip galvanized steel
Weight	approx. 1.6 kg
Mounting	Screws are supplied



Configuration without mechanical downtilt	Configuration with mechanical downtilt
	

Use the 2 x F-Panel Mounting Kit together with the following mounting accessories

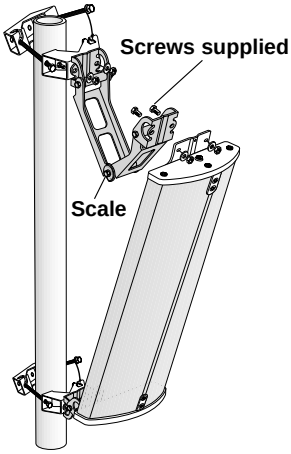
Type No.	Description	Remarks	Weight approx.	Units per antenna
738 546	1 clamp	Mast: 50 – 115 mm diameter	1.0 kg	2
733 677	1 offset clamp	Mast: 60 – 115 mm diameter	2.0 kg	2
733 678	1 offset clamp	Mast: 115 – 210 mm diameter	2.6 kg	2
733 679	1 offset clamp	Mast: 210 – 380 mm diameter	4.0 kg	2
733 680	1 offset clamp	Mast: 380 – 521 mm diameter	5.3 kg	2
737 978	1 downtilt kit	Downtilt angle: depending on antenna height	2.8 kg	1

For a three sector panel arrangement, use the mounting kit type no. 742 113 together with the three sector clamp (see page 195).

F-Panel Accessories
Downtilt Kits and Slant Compensation Kit for F-Panels

KATHREIN
Antennen · Electronic

Downtilt Kits with Type No. 737 ... are suitable for all F-Panels



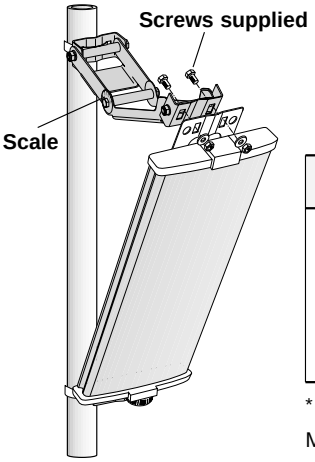
Use the downtilt kit together with the clamps (see page 194).

		Downtilt kit with scale	Downtilt kit without scale*	
Antenna height	**Downtilt angle**	**Type No.**	**Type No.**	**Weight**
342 mm	0° – 54°	–		
662 mm	0 °– 30°	737 972		
982 mm	0° – 21°	737 973		
1302 mm	0° – 16°	737 974	737 978	approx. 2.8 kg
1622 mm	0° – 13°	–		
1942 mm	0° – 11°	737 975		
2582 mm	0° – 8°	737 971		

* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

Mounting a downtilt kit enlarges the spacing between mast and antenna by 84 mm.

Downtilt Kits with Type No. 732 ... are suitable for F-Panels until 1302 mm



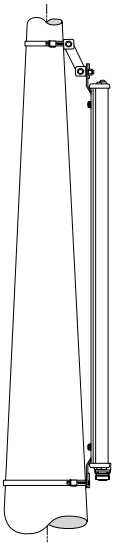
Use the downtilt kit together with the clamps (see page 194).

		Downtilt kit with scale	Downtilt kit without scale*	
Antenna height	**Downtilt angle**	**Type No.**	**Type No.**	**Weight**
342 mm	0° – 40°	–		
502 mm	0° – 25°	732 322		
662 mm	0° – 20°	732 321	732 327	approx. 1.0 kg
982 mm	0° – 14°	732 318		
1302 mm	0° – 10°	732 317		

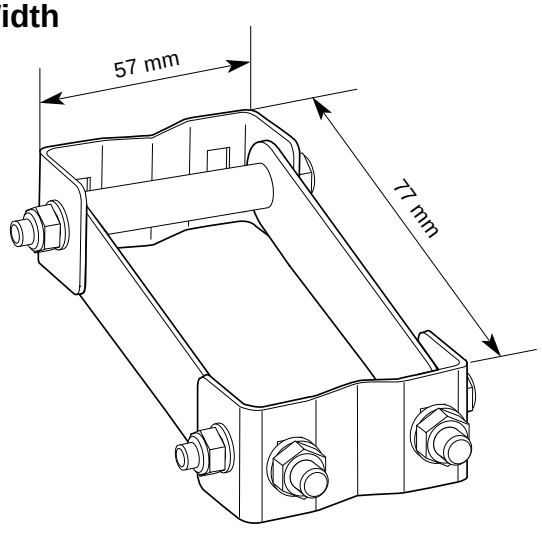
* Instructions to adjust the required downtilt angle are given in the datasheet or on the rearside of the antenna.

Mounting a downtilt kit enlarges the spacing between mast and antenna by 42 mm.

Slant Compensation Kit Type No. 732 319 for F-Panels with 60° – 160° Half-power Beam Width



Use the slant compensation kit type no. 732 319 together with the clamps (see page 194).



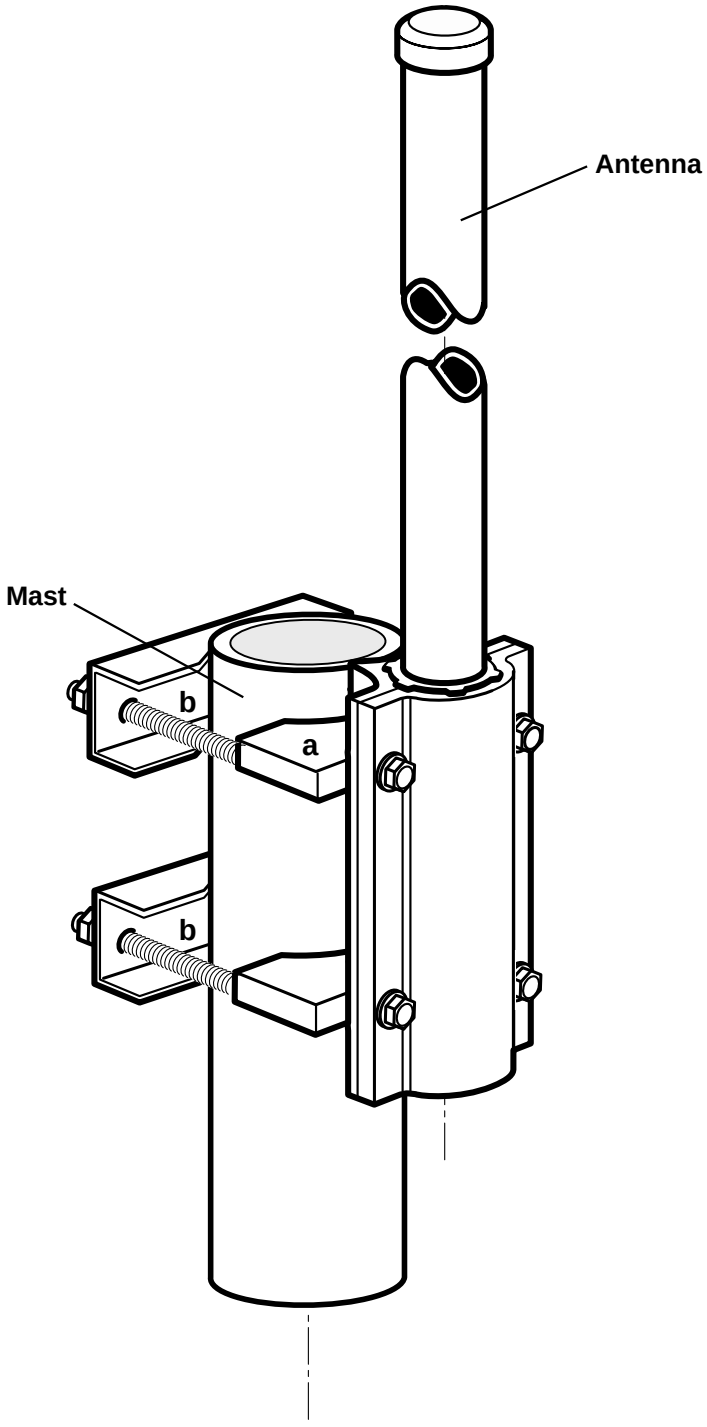
Weight: appr. 200 g

Side-mounting Clamp
Omnidirectional Antennas
Large Pipe

KATHREIN
Antennen · Electronic

Type No. 738 908

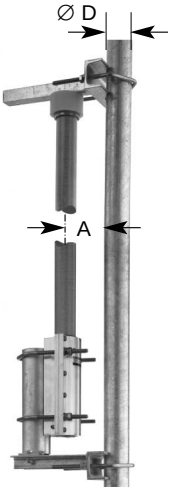
For mast diameters of 94 – 125 mm



Side-mounting Bracket
Omnidirectional Antennas

KATHREIN
Antennen · Electronic

Type No. 737 398



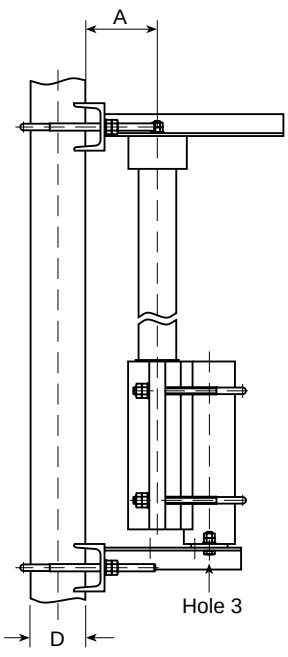
Side-mounting bracket
(for mast diameters of 40 – 105 mm)

Type No.	737 398	
Bracket	At the top and at the bottom	
Fits for antenna type no:	**900 MHz**	**1800 MHz**
	736 347	739 785
	736 348	738 187
	736 349	739 404
	736 350	737 190
	736 351	
	738 664	

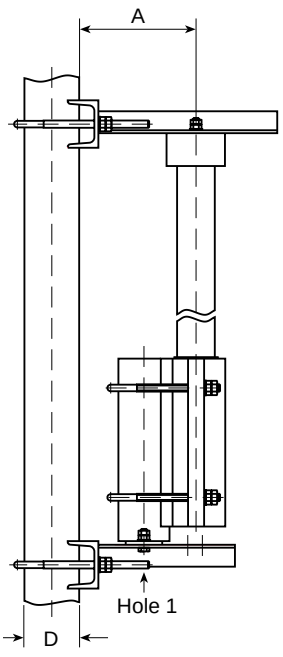
Side-mounting is possible for four fixed distances between the tubular mast and the antenna:

900 MHz (holes 1 and 3)

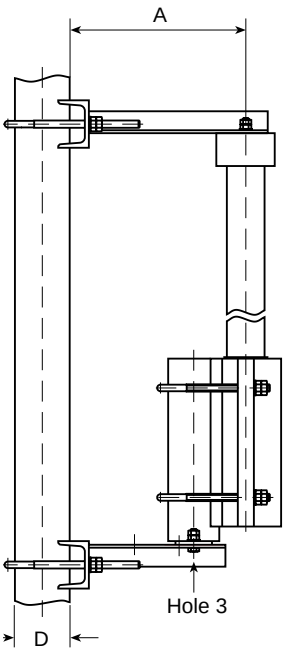
A = 100 mm = 0.3 λ

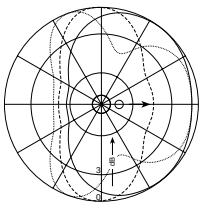


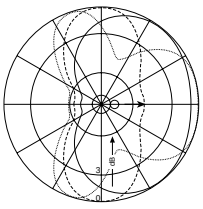
A = 160 mm = 0.5 λ



A = 240 mm = 0.75 λ

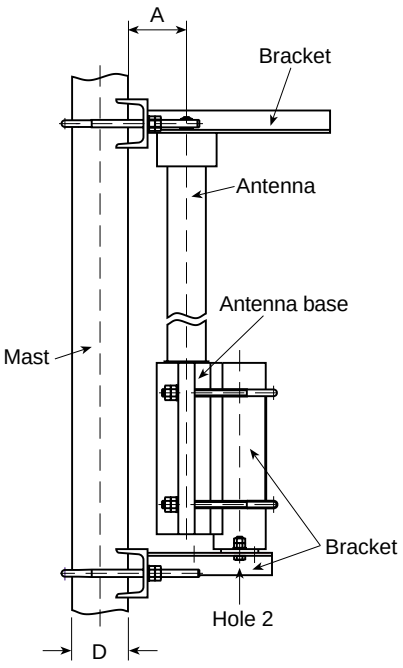


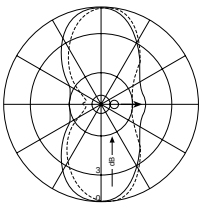
Pipe D	Horizontal Radiation Pattern	Spacing A / Curve
40 mm	 direction from mast to antenna →	100 mm 160 mm 240 mm

Pipe D	Horizontal Radiation Pattern	Spacing A / Curve
100 mm	 direction from mast to antenna →	100 mm 160 mm 240 mm

1800 MHz (hole 2)

A = 80 mm = 0.5 λ



Pipe D / Curve	Horizontal Radiation Pattern	Spacing A
40 mm 100 mm	 direction from mast to antenna →	80 mm

Side-mounting Brackets Omnidirectional Antennas 900

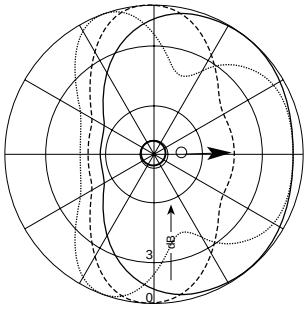
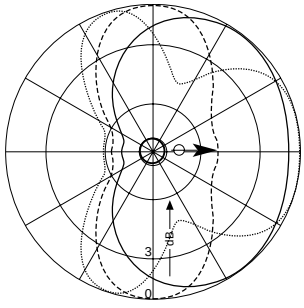
KATHREIN
Antennen · Electronic

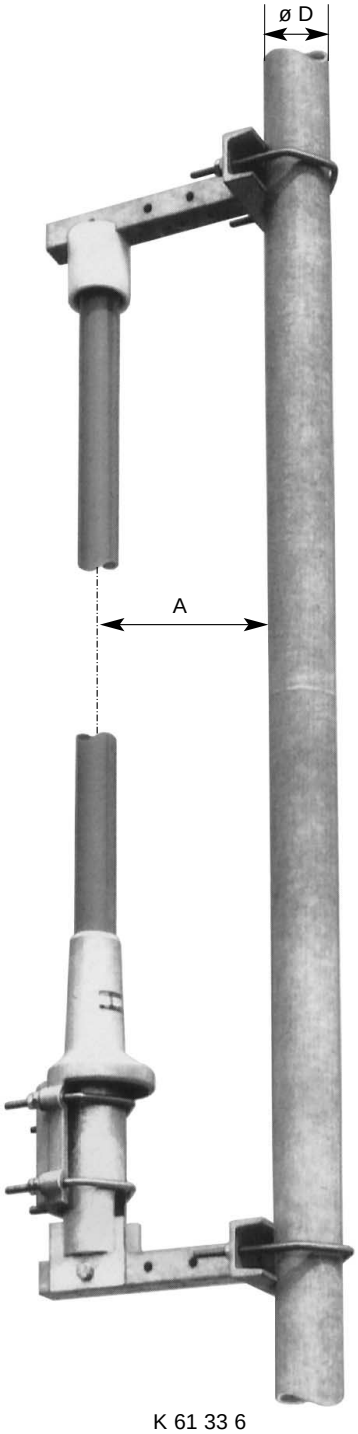
For mast diameters of 40 – 105 mm

Type No.	**K 61 33 5**	**K 61 33 6**
Bracket	at the bottom only	at both the top and the bottom
Fits for antenna type no.	K 75 11 6 .. K 75 15 6 ..	738 779 741 558

Side mounting is possible for three fixed distances between the tubular mast and the antenna:

100 mm = 0.3 λ
160 mm = 0.5 λ
240 mm = 0.75 λ

Pipe D	Horizontal Radiation Pattern	Spacing A / Curve	Additional gain to the nominal value of the antenna gain
40 mm	 direction from mast to antenna	100 mm	2 dB
		160 mm	3 dB
		240 mm	2 dB
100 mm	 direction from mast to antenna	100 mm	2.5 dB
		160 mm	3.5 dB
		240 mm	2.5 dB



K 61 33 6

A-Panel / C-Panel / F-Panel / Eurocell Panel Accessories
Azimuth Adjustment Tool

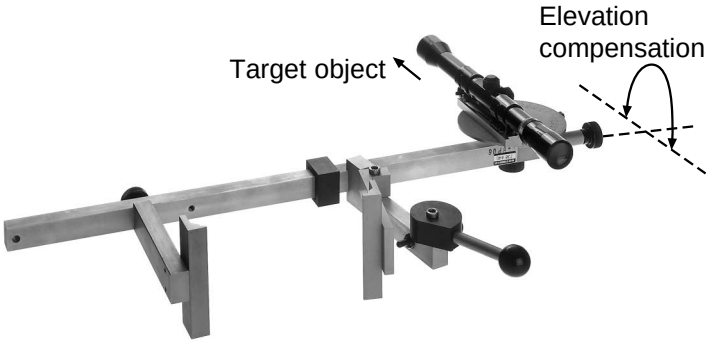
KATHREIN
Antennen · Electronic

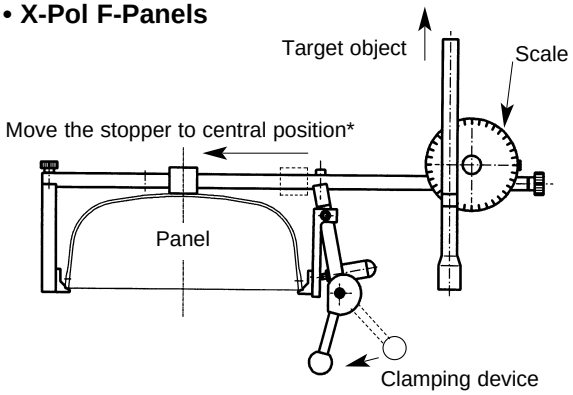
Type No. 738 440

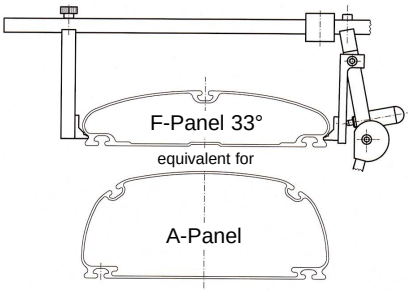
Precise azimuth adjustment for mast mounted antennas can easily be achieved by using the azimuth adjustment tool.

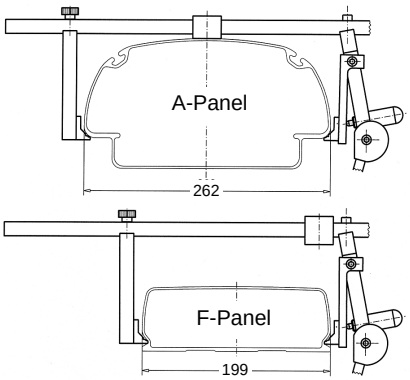
This tool is suitable to all types of Eurocell Panels

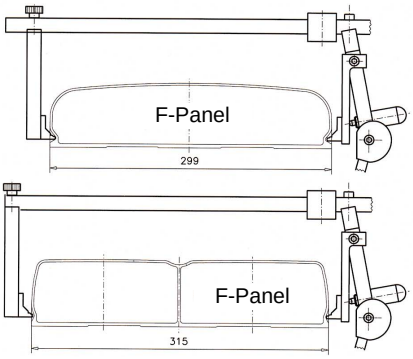
- **Panels**
- **A-Panels**
- **C-Panels**
- **F-Panels**
- **X-Pol F-Panels**

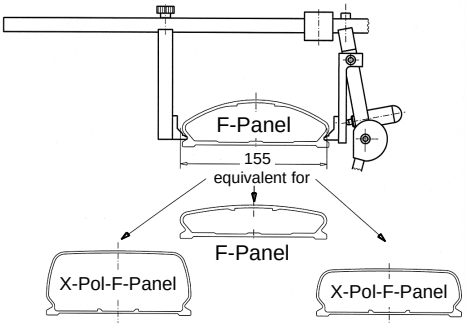












Instruction:

– Use a map to work out the angle between the designed antenna azimuth and target (church, building, mountain peak).

– Set this angle on the scale of the adjustment tool.

– Place the adjustment tool onto the antenna and tighten the clamping device.

– Use the telescope to aim at the target object, if necessary, use elevation compensation.

– Then rotate the antenna until the target object appears in the telescope.

* Observe the position of the stopper when fitting the azimuth adjustment tool.

Please contact for:

Sales queries, orders, catalogues or CD-ROM:

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