



Passive Devices



Product Selection Guide

Optimize in-building wireless network designs
with Andrew's passive RF products

One Company. A World of Solutions.

The Andrew Corporation Offers Diverse

No matter what the customer challenge, Andrew can build the solution to help you meet it head-on, with innovative technology that delivers a fast return on investment, setting the stage for ongoing revenues.

Front End Capacity Solutions Maximum Flexibility

Whether the need is to make more efficient use of existing capacity or cost-effectively create new capacity, Andrew, with the most complete line in the industry, has a solution for every budget.

RF Enhancers/Repeater Products

Andrew offers a complete line of high quality low, medium and high power repeaters, from 10 mW to 40 W, allowing you to optimize for any in building application.

Our miniRepeater series can be deployed in any scenario where small and medium sized rooms, halls, and parking lots need a boost in coverage and signal quality or data rate for several segments or bands.

The AMR 8/9/19 series is a multiband repeater with up to 3 frequency bands and 2 sub-bands per frequency band. The AMR repeater family improves indoor coverage and allows higher data rate connectivity for indoor coverage areas between 25,000 ft² and 150,000 ft².

RF Enhancers/Node-X Products

Our family of revolutionary Node-X products feature Andrew's proprietary ICE technology which cancels interference and allows you to run the nodes at full power without fear of oscillation. Node-X products include Node-C for CDMA carriers, Node-M for UMTS carriers, and Node-G for GSM carriers. All Node-X products have digital filtering and auto set-up functionality.

Coverage Solutions Scalable and Future-proof

Andrew is the only full line manufacturer of both passive and active distributed antenna systems, ensuring that you can deploy the most effective—and cost-effective—solution possible for any application.

Intelligent Optical Network (ION™)

The Andrew Intelligent Optical Network is an industry-leading optical distribution system that covers a full range of power levels, sending signals loss-free at distances ranging from 100 m to 20 km. ION™-B products are suitable for most indoor structures, while the robust ION™-M solution can handle nearly any indoor or outdoor environment. Our optical networks provide the bandwidth to meet future broadband data rates.

RADIAX® Radiating Cables

Passive RADIAX radiating coaxial cables provide uniform distribution of signal power along the entire cable length, making it ideal for use in tunnels and other confined or highly obstructed spaces. Each cable can distribute multiple services, creating seamless, cost-effective wireless coverage virtually anywhere.



Solutions for Your Diverse Challenges

Andrew now offers a complete Product Selection Guide that incorporates our family of Andrew Passive Devices

Achieve balance between the antenna and the base station with Andrew Corporation's passive devices.

Potentially, the wireless explosion is great news for you, the operator, with rapidly increasing customer use of data and voice services holding the promise of record revenues on an ongoing basis. However, as customers use their handheld wireless devices, wireless laptops, and cell phones more than ever before, the existence of inconsistent coverage areas and dead zones within buildings and across campuses also becomes more apparent than ever before. This inhibits the potential for maximum usage—and limits potential revenue growth.

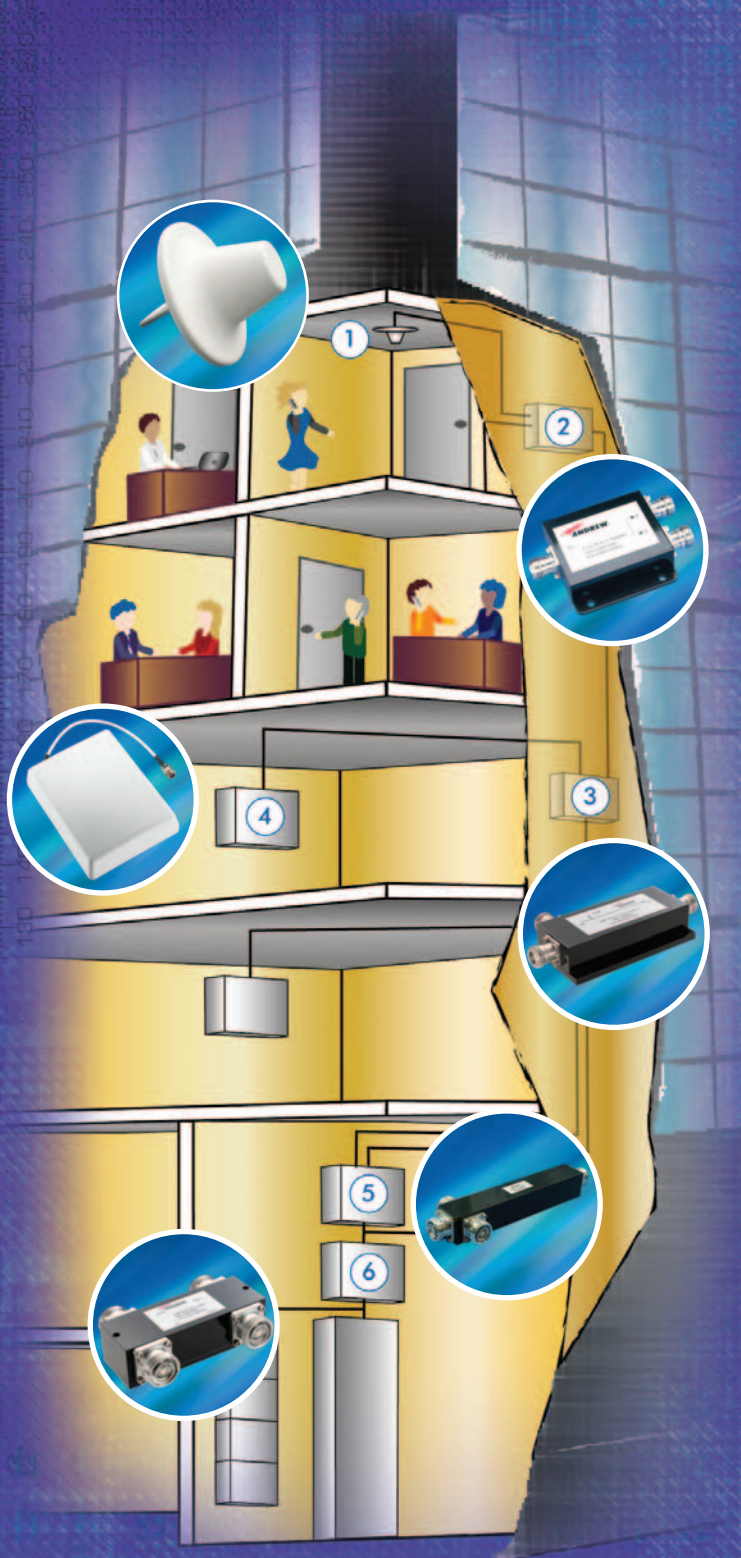
You've seen the results—reduced ROI, customer complaints, and endless churn as customers seek higher quality voice and data services. And now, with accelerating investment in 3G networks delivering an even greater variety of user-based services, the gap between potential and reality is threatening to become even wider still.

Andrew Corporation now offers, with a well-engineered design, a balance between the antenna and the base station with our line of passive devices products.

Andrew can provide you with a wide range of scalable coverage and capacity solutions ensuring consistent quality and one-stop convenience and efficiencies.

We can help you meet the needs of every customer, no matter what their industry, their particular budgetary scenario, or their logistical footprint, from small buildings to giant convention centers to corporate campuses or anything in between. And, we can help you select and deliver a technologically rigorous solution that provides a fast return on your investment, generating maximum revenues going forward.





When it comes to in-building engineering designs, Andrew understands your challenges are numerous. Andrew offers our line of passive devices to improve your in-building coverage issues.

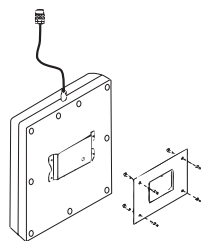
The application example shown offers an indoor footprint solution using Andrew's passive devices.

- ① **Cell-Max™ Omni-directional In-building Antenna**
Unique compact multiband design allows coverage for a wide range of frequencies.
- ② **Low Power Splitter**
This well designed product evenly splits low-power cellular signals with minimal reflections or loss and allows for simple wall mounting.
- ③ **Directional Coupler/Unequal Splitter**
Couples a defined fraction of a high-power cellular signal with minimal reflection or loss and allows for simple wall mounting.
- ④ **Cell-Max™ Directional In-building Antenna**
Compact and visually unobtrusive, this antenna contains an integral low-loss coaxial cable pigtail eliminating connectors, reducing overall costs and losses associated with connector junctions.
- ⑤ **High Power Splitter**
The reactive design of this high-power splitter employs no resistors, eliminating their contribution to passive intermodulation (PIM) and potential damage.
- ⑥ **Hybrid Coupler**
The 3 dB hybrid coupler combines two wireless carriers to a single antenna feed or cable, while maximizing isolation in the wireless bands and minimizing PIM.

Cell-Max™ Omni-directional/Directional In-building Antennas



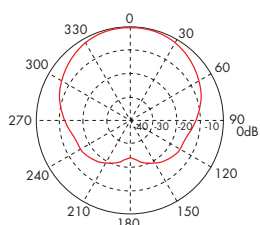
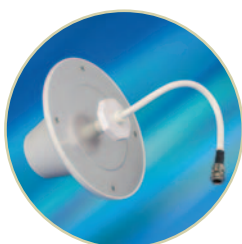
CELLMAX-D-25/CPUS



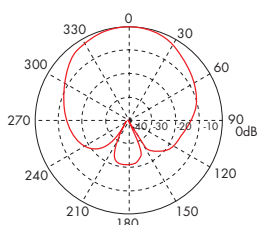
Wall Mounting Configuration



CELLMAX-O-25/WLAN



Azimuth Pattern
CELLMAX-D-CPUS



Azimuth Pattern
CELLMAX-D-25

Andrew's Cell-Max™ series of in-building antennas are a uniquely effective and unobtrusive solution to enhancing your in-building wireless coverage. Cell-Max antennas feature a multiband design that allows a wide range of frequencies to be covered by one small antenna. Created primarily for office environments, Cell-Max antennas are also ideally suited for parking garages, airports, shopping malls, and other difficult coverage areas. Designed for simple installation and minimal visual impact, Cell-Max antennas support both existing and future wireless applications, including 3G, 802.11g, and 802.11b wireless LAN.

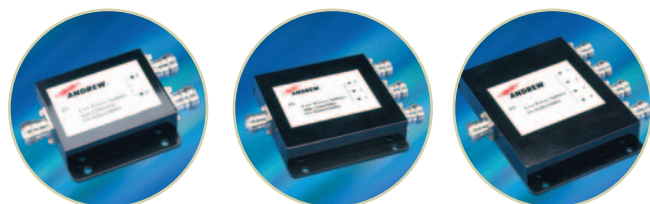
An integral low-loss coaxial cable pigtail eliminates connectors, reducing overall system cost as well as the losses associated with connector junctions. By combining Cell-Max antennas with other in-building products such as the ION™-B fiber optic distributed antenna system, indoor repeaters, RADIAX® radiating cables, coaxial cable taps, power dividers, and couplers, Andrew can provide a complete solution to your internal wireless coverage needs.

Specifications	Part Numbers			
	CELLMAX-O-25	CELLMAX-D-25	CELLMAX-D-CPUS	CELLMAX-O-WLAN
Frequency Range (MHz)	806-960/1710-2500	806-960/1710-2200	824-960/1710-2500	806-960/1710-2500
VSWR	1.6:1	1.8:1	1.5:1	1.7:1
Gain (dBi)	3	7	7	3
Maximum Input Power (watts)	50			
Polarization	Vertical			
Azimuth Beamwidth	360° omni-directional	70° nominal	85° nominal	360° omni-directional
Impedance (ohms)	50			
Temperature Range (C)	-40° to +60°	-40° to +60°	-30° to +70°	-40° to +60°
Humidity (%)	Up to 100			
Connectors	N Female	N Female	N Female	RP TNC Male
Pigtail Cable	RG58, plenum rated			
Pigtail Length, mm (in)	254 (10)	300 (12)	350 (14)	812 (32)
Radome Color	White			
Mounting	Thru-hole ceiling mount (optional)	4-hole wall mounting plate and hardware included	4-hole wall mounting plate and hardware included	Thru-hole ceiling mount (optional)
Bracket Part Number	7543994	included	included	7543994
Dimensions, mm (in)	85 x 165 (3.3 x 6.5)	210 x 180 x 44 (8.3 x 7.1 x 1.7)	203 x 156 x 46 (8.0 x 6.1 x 1.8)	165 x 85 (6.5 x 3.3)
Weight, kg (lb)	0.3 (0.7)	0.6 (1.4)	0.5 (1.1)	0.35 (0.7)

All values are typical values

Multiband Low Power Splitters

800–2500 MHz—N Connectors

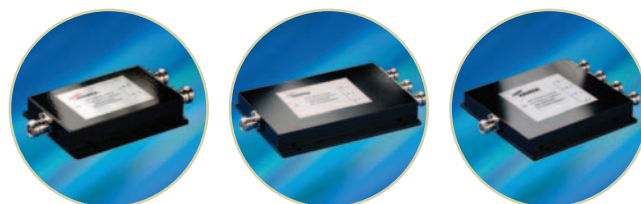


S-2-CPUS-L-N

S-3-CPUS-L-N

S-4-CPUS-L-N

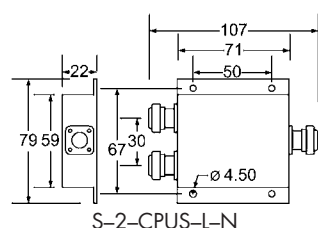
300–960 MHz—N Connectors



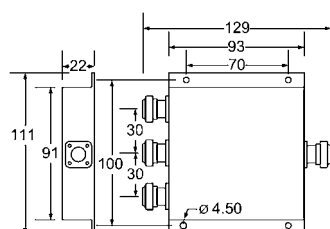
S-2-TC-L-N

S-3-TC-L-N

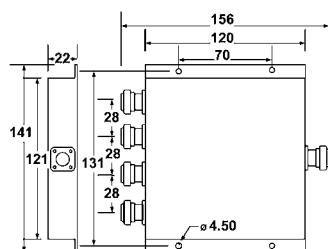
S-4-TC-L-N



S-2-CPUS-L-N



S-3-CPUS-L-N

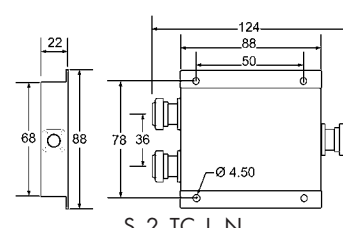


S-4-CPUS-L-N

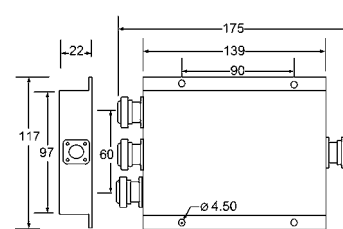
Multiband Low Power Splitters

Andrew's multiband, low-power splitters are designed to evenly split low power RF signals with minimal reflections or loss. The wide frequency range allows use with single or multiband antennas and radiating cable systems. The multiband frequency range includes SMR/Cellular, PCS, and UMTS. The multiband splitters are designed for indoor/outdoor (IP65) use.

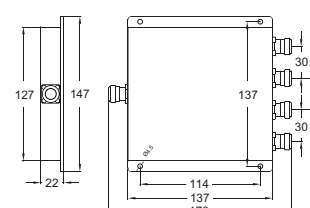
- 50 watt average power rating
- Minimal RF insertion loss
- High reliability
- N Female connectors
- Low cost designs for ease of mounting to pole or wall



S-2-TC-L-N



S-3-TC-L-N



S-4-TC-L-N

illustration measurements are represented in millimeters

Specifications

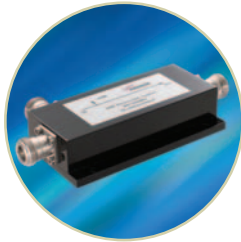
Multiband Part Numbers

	S-2-CPUS-L-N	S-3-CPUS-L-N	S-4-CPUS-L-N	S-2-TC-L-N	S-3-TC-L-N	S-4-TC-L-N
Frequency Range (MHz)	800–2500			300–960		
VSWR	1.2:1			1.35:1		
Split Loss (dB nominal)	3	4.8	6	3	4.8	6
Dissipative Loss (dB nominal)	0.3	0.5	0.4	0.3	0.5	0.5
Power Rating (watts)	Splitting: 50/Combining: 0.5			Splitting: 100/Combining: 0.5		
Isolation (dB minimum)	20			20		
Passive Intermodulation, PIM	–110 dBc @ 2 x 43 dBm inputs			–140 dBc @ 2 x 43 dBm inputs		
Impedance (ohms nominal)	50			50		
Temperature Range (C)	–35° to +75°			–35° to +75°		
Relative Humidity (%)	0 to 95			0 to 95		
Applications	Indoor/Outdoor, IP65 rating			Indoor/Outdoor, IP65 rating		
Connectors	N Female			N Female		
Connector Finish	Inner layer—Silver plate/Outer layer —Cu-Sn-Zn plate			Inner layer—Silver plate/Outer layer —Cu-Sn-Zn plate		
Housing Finish	Black powder paint			Black powder paint		
Bracket Part Number	7543492	7543459	7543459	7543459	7543490	7543963
Weight, g (oz)	260 (9.1)	440 (15.5)	610 (21.5)	320 (11.28)	620 (21.9)	800 (28.2)

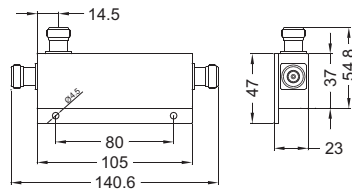
All values are typical values

Directional Coupler/Unequal Splitters

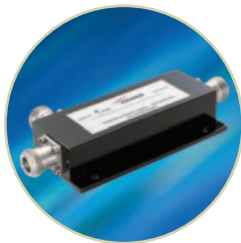
800–2500 MHz—N Connectors



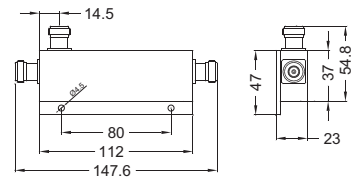
C-x-CPUS-N



C-6,8,10,13,15,20-CPUS-N



C-30-CPUS-N



C-30-CPUS-N

illustration measurements are represented in millimeters

These directional couplers support indoor applications in the 900 MHz cellular/GSM, the PCS/DCS-1800 band, and the 3G band to 2500 MHz. Each unit couples a defined fraction of a high power cellular signal with minimal reflections or loss. The wide frequency range allows use with multiband antennas, radiating cable systems, and in wireless base stations.

The dissipative loss is minimized and reliability enhanced. Each directional coupler is supplied with mounting hardware for simple attachment to a wall or pole.

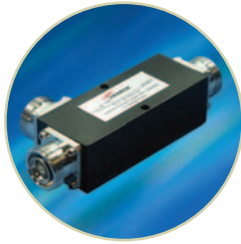
- Multiband frequency coverage
- Minimal RF insertion loss
- Rugged, high reliability
- Low passive intermodulation (PIM)
- 200 watt average main line power

Specifications	Part Numbers						
	C-6-CPUS-N	C-8-CPUS-N	C-10-CPUS-N	C-13-CPUS-N	C-15-CPUS-N	C-20-CPUS-N	C-30-CPUS-N
Frequency Range (MHz)	800–2500						
VSWR	1.2:1						
Insertion Loss (dB)	1.5	1.1	0.7	0.5	0.4	0.2	0.2
Coupling (800–2500 MHz)	6 ± 0.8 dB	8 ± 1.0 dB	10 ± 1.0 dB	13 ± 1.0 dB	15 ± 1.0 dB	20 ± 1.0 dB	30 ± 1.0 dB
Power Handling (watts)	200						
Max. Reflected Power, Through Port (watts)	40	70	100	200	200	200	200
Isolation (Minimal dB)	20						
Passive Intermodulation, PIM	–140 dBc @ 2 × 43 dBm inputs						
Impedance (ohms nominal)	50						
Temperature Range (C)	–35° to +75°						
Relative Humidity (%)	0 to 95						
Applications	Indoor/Outdoor, IP65 rating						
Connectors	N Female						
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate						
Housing Finish	Black powder paint						
Bracket Part Number	7543493						
Weight, g (oz)	315 (11.1)	315 (11.1)	315 (11.1)	315 (11.1)	315 (11.1)	315 (11.1)	350 (12.30)

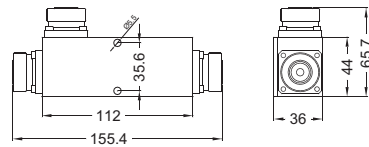
All values are typical values

Directional Coupler/Unequal Splitters

800–2500 MHz—DIN Connectors



C-x-CPUS-D



C-6,10,-CPUS-D

illustration measurements are represented in millimeters

These directional couplers support indoor applications in the 900 MHz cellular/GSM, the PCS/DCS-1800 band, and the 3G band to 2500 MHz. Each unit couples a defined fraction of a high power cellular signal with minimal reflections or loss. The wide frequency range allows use with multiband antennas, radiating cable systems, and in wireless base stations.

The dissipative loss is minimized and reliability enhanced. Each directional coupler is supplied with mounting hardware for simple attachment to a wall or pole.

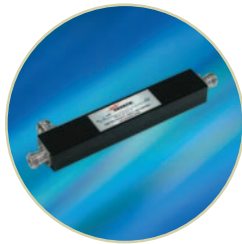
- Multiband frequency coverage
- Minimal RF insertion loss
- Rugged, high reliability
- Low passive intermodulation (PIM)
- 200 watt average main line power

Specifications	Part Number	
	C-6-CPUS-D	C-10-CPUS-D
Frequency Range (MHz)	800–2500	
VSWR	1.2:1	
Insertion Loss (dB)	1.5	0.7
Coupling (800–2500 MHz)	6 ± 0.8 dB	10 ± 1.0 dB
Power Handling (watts)	200	
Max. Reflected Power, Through Port (watts)	40	100
Isolation (Minimal dB)	20	
Passive Intermodulation, PIM	–140 dBc @ 2 x 43 dBm inputs	
Impedance (ohms nominal)	50	
Temperature Range (C)	–35° to +75°	
Relative Humidity (%)	0 to 95	
Applications	Indoor/Outdoor, IP65 rating	
Connectors	7-16 DIN Female	
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate	
Housing Finish	Black powder paint	
Bracket Part Number	7543485	
Weight, g (oz)	315 (11.1)	315 (11.1)

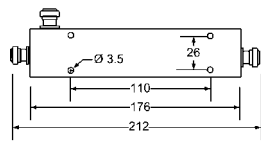
All values are typical values

Directional Coupler/Unequal Splitters

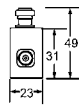
300–960 MHz (UHF Band)—N Connectors



C-x-TC-N

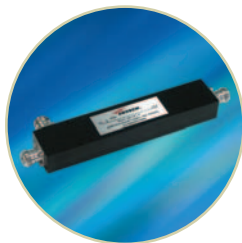


C-6, 10, 15, 20-TC-N

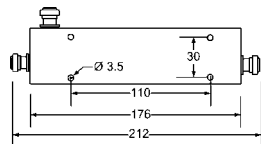


These directional couplers support indoor and outdoor applications in the UHF band. Each unit couples a defined fraction of a high power signal with minimal reflections or loss. The wide frequency range allows use with multiband antennas, radiating cable systems, and in wireless base stations.

The dissipative loss is minimized and reliability enhanced. Each directional coupler is supplied with mounting hardware for simple attachment to a wall or pole.



C-30-TC-N



C-30-TC-N

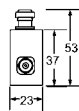


illustration measurements are represented in millimeters

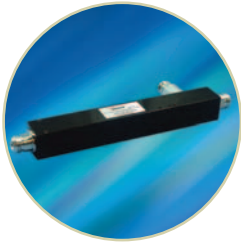
- Multiband frequency coverage
- Minimal RF insertion loss
- Rugged, high reliability
- Low passive intermodulation (PIM)
- 200 watt average main line power
- Indoor and outdoor applications

Specifications	Part Numbers				
	C-6-TC-N	C-10-TC-N	C-15-TC-N	C-20-TC-N	C-30-TC-N
Frequency Range (MHz)	300–960				
VSWR	1.2:1				
Insertion Loss (dB)	1.7	0.8	0.6	0.5	0.4
Coupling 300–960 MHz (dB)	6 ± 1.0	10 ± 1.0	15 ± 1.0	20 ± 1.0	30 ± 1.0
Power Handling (watts)	200				
Max. Reflected Power, Through Port (watts)	40	100	200	200	200
Isolation (dB Typical)	26	30	30	30	30
Passive Intermodulation, PIM	–140 dBc @ 2 x 43 dBm inputs				
Impedance (ohms)	50				
Temperature Range (C)	–35° to +75°				
Relative Humidity (%)	0 to 95				
Applications	Indoor/Outdoor, IP65 compliant				
Connectors	N Female				
Connector Finish	Inner layer—Silver plate/Outer layer —Cu-Sn-Zn plate				
Housing Finish	Black powder paint				
Bracket Part Number	7543458				
Weight, g (oz)	400 (17.6)				

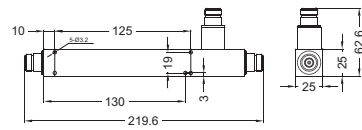
All values are typical values

Tapper

Multiband 800–2500 MHz—N Connectors



CC-x-CPUS-N



CC-6, 10, 15-CPUS-N

illustration measurements are represented in millimeters

The Andrew Tapper supports indoor applications in the 900 MHz cellular/GSM band, the PCS/DCS-1800 band, and the 3G band to 2500 MHz. Each unit couples a defined fraction of high power cellular signal with minimal reflections or loss. The wide frequency range allows use with multiband antenna, radiating cable systems, and in wire base stations. The dissipative loss is minimized and reliability enhanced.

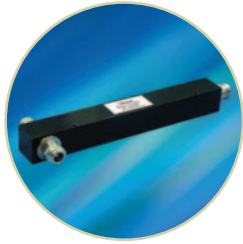
- Multiband frequency coverage
- Minimal RF insertion loss
- Rugged, high reliability
- Low passive intermodulation (PIM)
- 200 watt average main line power

Specifications	Part Numbers		
	CC-6-CPUS-N	CC-10-CPUS-N	C-15-CPUS-N
Frequency Range (MHz)	800–2500		
VSWR	1.35:1		
Insertion Loss (dB)	1.7	1.1	0.7
Coupling (800–2500 MHz)	6 ± 0.8 dB	10 ± 1.0 dB	15 ± 1.0 dB
Power Handling (watts)	200		
Max. Reflected Power, Through Port (watts)	40	100	200
Passive Intermodulation, PIM	–150 dBc @ 2 x 43 dBm inputs		
Impedance (ohms nominal)	50		
Temperature Range (C)	–35° to +75°		
Relative Humidity (%)	0 to 95		
Applications	Indoor/Outdoor, IP65 rating		
Connectors	N Female		
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate		
Housing Finish	Black powder paint		
Bracket Part Number	7543458		
Weight, g (oz)	370 (13)	370 (13)	370 (13)

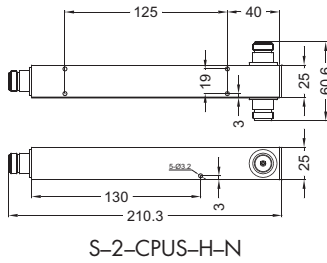
All values are typical values

High Power Splitters

800–2500 MHz—N Female Connectors



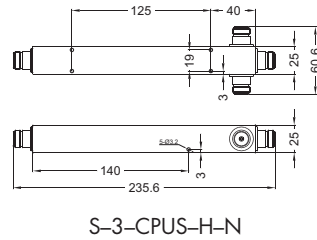
S-2-CPUS-H-N



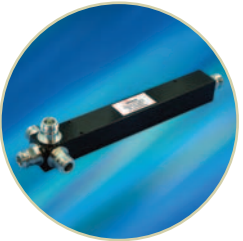
S-2-CPUS-H-N



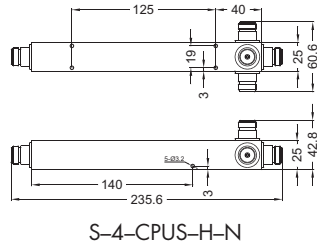
S-3-CPUS-H-N



S-3-CPUS-H-N



S-4-CPUS-H-N



S-4-CPUS-H-N

illustration measurements are represented in millimeters

The Andrew multiband, high-power splitter evenly splits high-power cellular signals with minimal reflections or loss. The reactive design employs no resistors, eliminating their contribution to PIM and potential damage. The wide frequency range allows use with single or multiband antennas and radiating cable systems. With few solder joints and an air dielectric, loss has been minimized and reliability enhanced.

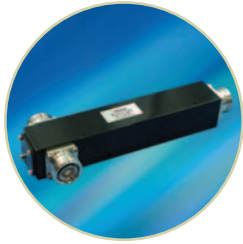
- Multiband frequency range: SMR/cellular, PCS, UMTS
- Designed for indoor and outdoor applications
- Minimal RF insertion loss
- High reliability
- N Female connectors
- Low-cost design for ease of mounting to pole or wall using the provided spring clip accessory

Specifications	Part Numbers		
	S-2-CPUS-H-N	S-3-CPUS-H-N	S-4-CPUS-H-N
Frequency Range (MHz)	800–2500		
Input VSWR	1.2:1 maximum		
Split Loss (dB nominal)	3.0	4.8	6.0
Dissipative Loss (dB nominal)	0.1		
Power Rating (watts)	500	300	300
Passive Intermodulation, PIM	–140 dBc @ 2 x 43 dBm inputs		
Impedance (ohms nominal)	50		
Temperature Range (C)	–35° to +75°		
Relative Humidity (%)	0 to 95		
Applications	Indoor/Outdoor, IP65 rating		
Connectors	N Female		
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate		
Housing Finish	Black powder paint		
Bracket Part Number	7543458		
Weight, g (oz)	430 (15.2)	460 (16.2)	500 (17.6)

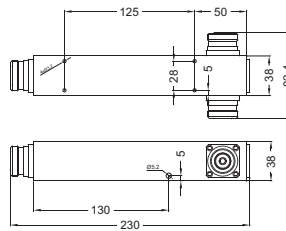
All values are typical values

High Power Splitters

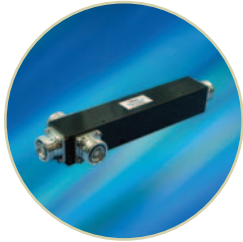
800–2500 MHz—7-16 DIN Female Connectors



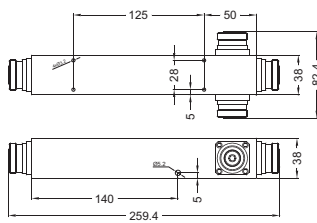
S-2-CPUS-H-D



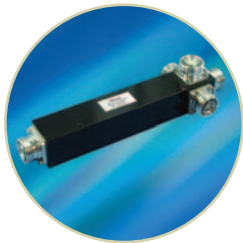
S-2-CPUS-H-D



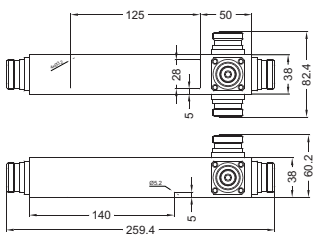
S-3-CPUS-H-D



S-3-CPUS-H-D



S-4-CPUS-H-D



S-4-CPUS-H-D

illustration measurements are represented in millimeters

The Andrew multiband, high-power splitter evenly splits high power cellular signals with minimal reflections or loss. The reactive design employs no resistors, eliminating their contribution to passive intermodulation (PIM) and potential damage. The wide frequency range allows use with single or multiband antennas and radiating cable systems. With few solder joints and an air dielectric, loss has been minimized and reliability enhanced.

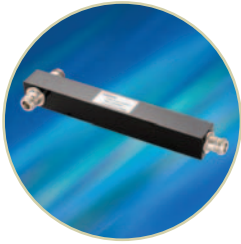
- Multiband frequency range: SMR/cellular, PCS, UMTS
- Designed for indoor and outdoor applications
- Minimal RF insertion loss
- High reliability
- 7-16 DIN Female connectors
- Low-cost design for ease of mounting to pole or wall using the provided spring clip accessory

Specifications	Part Numbers		
	S-2-CPUS-H-D	S-3-CPUS-H-D	S-4-CPUS-H-D
Frequency Range (MHz)	800–2500		
Input VSWR	1.2:1 maximum		
Split Loss (dB nominal)	3.0	4.8	6.0
Dissipative Loss (dB nominal)	0.1		
Power Rating (watts)	700		
Passive Intermodulation, PIM	–140 dBc @ 2 x 43 dBm inputs		
Impedance (ohms nominal)	50		
Temperature Range (C)	–35° to +75°		
Relative Humidity (%)	0 to 95		
Applications	Indoor/Outdoor, IP65 rating		
Connectors	7-16 DIN Female		
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate		
Housing Finish	Black powder paint		
Bracket Part Number	7543458		
Weight, g (oz)	1120 (39.5)	1260 (44.4)	1380 (48.7)

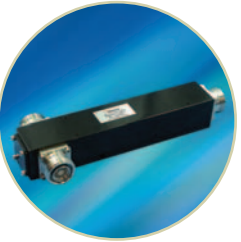
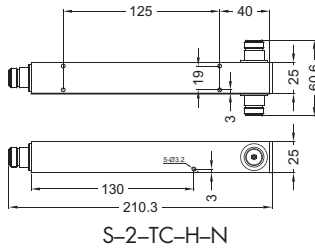
All values are typical values

High Power Splitters

300–960 MHz—N and DIN Female Connectors



S-2-TC-H-N



S-2-TC-H-D

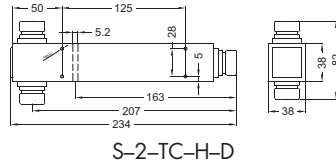


illustration measurements are represented in millimeters

The Andrew multiband, high-power splitter evenly splits high-power cellular signals with minimal reflections or loss. The reactive design employs no resistors, eliminating their contribution to PIM and potential damage. The wide frequency range allows use with single or multiband antennas and radiating cable systems. With few solder joints and an air dielectric, loss has been minimized and reliability enhanced.

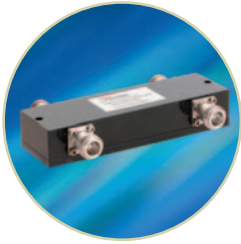
- Multiband frequency range: 300–960 MHz
- Designed for indoor and outdoor applications
- Minimal RF insertion loss
- High reliability
- Low-cost design for ease of mounting to pole or wall using the provided spring clip accessory

Specifications	Part Numbers	
	S-2-TC-H-N	S-2-TC-H-D
Frequency Range (MHz)	300–960	
Input VSWR	1.35:1 maximum	
Split Loss (dB nominal)	3.0	
Dissipative Loss (dB nominal)	0.15	
Power Rating (watts)	350	700
Passive Intermodulation, PIM	–140 dBc @ 2 x 43 dBm inputs	
Impedance (ohms nominal)	50	
Temperature Range (C)	–35° to +75°	
Relative Humidity (%)	0 to 95	
Applications	Indoor/Outdoor, IP65 rating	
Connectors	N Female	7-16 DIN Female
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate	
Housing Finish	Black powder paint	
Bracket Part Number	7543458	
Weight, g (oz)	430 (15.2)	1120 (39.5)

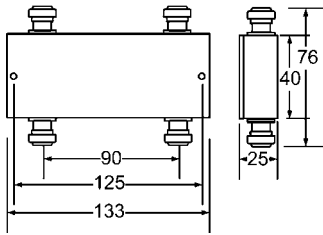
All values are typical values

Hybrid Couplers

N and DIN Female Connectors



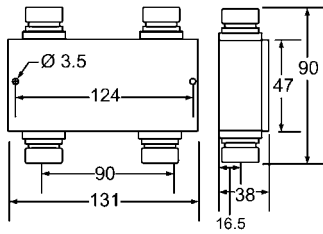
H-3-CPUS-N



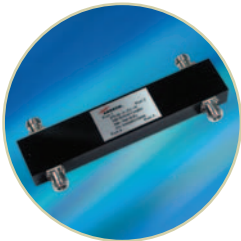
H-3-CPUS-N



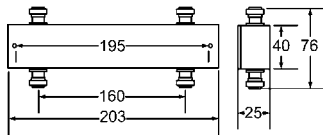
H-3-CPUS-D



H-3-CPUS-D



H-3-TC-N

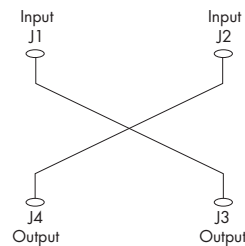


H-3-TC-N

illustration measurements are represented in millimeters

Andrew's hybrid couplers are designed to meet the specific needs of the wireless market. Andrew's hybrid couplers are most commonly used to combine two wireless carriers to a single antenna feed or cable. This requires the termination of one output port in 50 ohms, and results in a 3 dB loss in each signal. In situations where two similar feeds are required—for example in-building applications—both outputs may be used, eliminating the need for a termination and the 3 dB loss.

- Maximize isolation in the wireless bands and minimize passive intermodulation (PIM)
- 23 dB isolation (minimum), low VSWR
- Combines non-coherent signals
- 120 watt average power rating
- N Female connector or 7-16 DIN connector
- High reliability



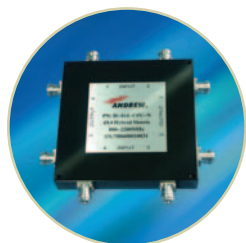
Configuration

Specifications	Part Numbers		
	H-3-CPUS-N	H-3-CPUS-D	H-3-TC-N
Frequency Range (MHz)	800-2500	800-2500	300-960
Input VSWR	1.2:1 maximum		
Coupling	3.1 ± 0.2 dB		
Power Rating	120 watt average, 3 kW peak		
Input Isolation (dB minimum)	23		
Passive Intermodulation, PIM	-140 dBc @ 2 x 43 dBm inputs		
Frequency Sensitivity (dB)	±0.3		
Impedance (ohms nominal)	50		
Temperature Range (C)	-35° to +75°		
Relative Humidity (%)	0 to 95		
Applications	Indoor/Outdoor, IP65 rating		
Connectors	N Female	7-16 DIN Female	N Female
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate		
Housing Finish	Black powder paint		
Bracket Part Number	7543481	7543481	7543491
Weight, g (oz)	430 (15.2)	1020 (35.9)	610 (21.5)

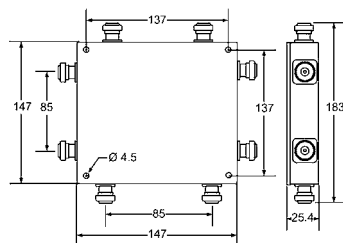
All values are typical values

Hybrid Matrix 4x4

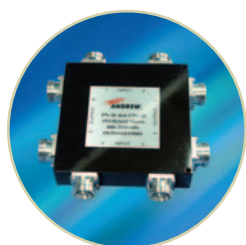
N and DIN Female Connectors



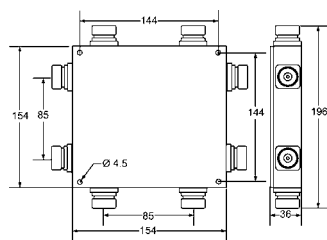
H-4x4-CPU-N



H-4x4-CPU-N



H-4x4-CPU-D



H-4x4-CPU-D

illustration measurements are represented in millimeters

The Andrew multiband 4x4 High Power Hybrid Matrix combines 4 input signals into 4 output signals with minimum dissipative loss. The Hybrid Matrix has a strip line design and can be used for indoor or outdoor applications. A wide frequency range allows for use with single or multiband signal sources. The device is designed to maximize the isolation and minimize intermodulations.

- Connects 4 inputs to 4 outputs
- Multiband frequency range SMR/cellular, PCS, UMTS
- Minimal RF insertion loss
- High reliability

Specifications	Part Numbers	
	H-4x4-CPU-N	H-4x4-CPU-D
Frequency Range (MHz)	800–2200	
Input VSWR	1.2:1 maximum	
Coupling	6.2 ± 0.5 dB	
Power Rating	60 watt average, every port	
Input Isolation (dB minimum)	>25	
Passive Intermodulation, PIM	–140 dBc @ 2 x 43 dBm inputs	
Frequency Sensitivity (dB)	±0.3	
Impedance (ohms nominal)	50	
Temperature Range (C)	–20° to +75°	
Relative Humidity (%)	0 to 95	
Applications	Indoor/Outdoor, IP65 rating	
Connectors	N Female	7-16 DIN Female
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate	
Housing Finish	Black powder paint	
Bracket Part Number	7543490	7543489
Weight, g (oz)	1100 (60)	3100 (109)

All values are typical values

Coaxial Loads/Terminations

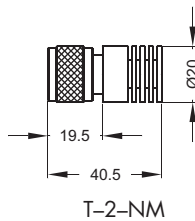
N and DIN Male and Female Connectors

This series of terminations are medium power coaxial loads which operate from dc to 2.5 GHz. Cooling fins minimize temperature rise. The terminating element is enclosed within a carefully matched coaxial housing. Standard connectors are N and 7-16 DIN male or female.

- Resistive film load
- Finned termination
- Ideal for wireless applications
- High reliability



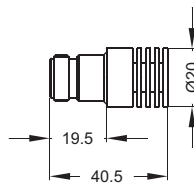
T-2-NM



T-2-NM



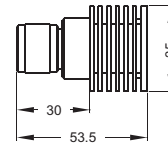
T-2-NF



T-2-NF



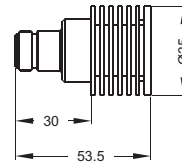
T-10-NM



T-10-NM



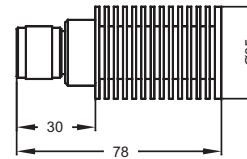
T-10-NF



T-10-NF



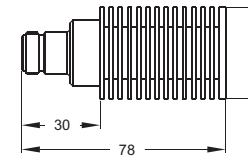
T-25-NM



T-25-NM



T-25-NF



T-25-NF

illustration measurements are represented in millimeters

Specifications	Part Numbers					
	T-2-NM	T-2-NF	T-10-NM	T-10-NF	T-25-NM	T-25-NF
Frequency Range (GHz)	DC-3.0					
VSWR	1.15:1					
Maximum Average Power (watts)	2	2	10	10	25	25
Peak Power (kW)	1.5					
Impedance (ohms)	50					
Temperature Range (C)	-35° to +125°					
Connectors	N Male	N Female	N Male	N Female	N Male	N Female
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate					
Housing Finish	Black oxidization					
Maximum Length, mm (in)	41 (1.61)	41 (1.61)	54 (2.126)	54 (2.126)	78 (3.07)	78 (3.07)
Diameter Maximum mm (in)	20	20	35	35	35	35
Weight, g (oz)	50 (1.8)	50 (1.8)	110 (3.9)	110 (3.9)	160 (5.6)	160 (5.6)

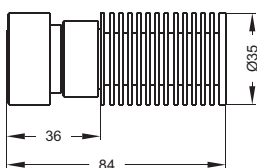
All values are typical values

Coaxial Loads/Terminations

N and DIN Male and Female Connectors



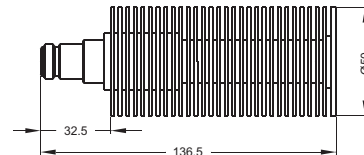
T-25-DM



T-25-DM



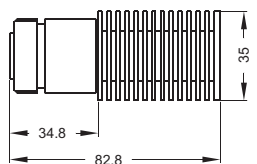
T-50-NF



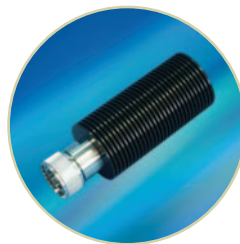
T-50-NF



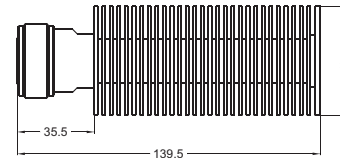
T-25-DF



T-25-DF



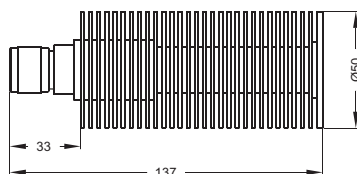
T-50-DM



T-50-DM



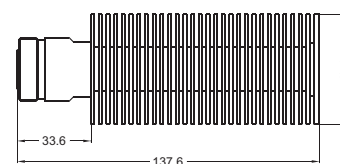
T-50-NM



T-50-NM



T-50-DF



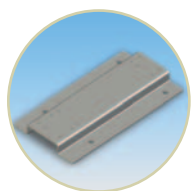
T-50-DF

illustration measurements are represented in millimeters

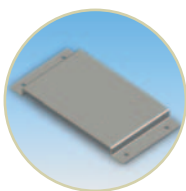
Specifications	Part Numbers					
	T-25-DM	T-25-DF	T-50-NM	T-50-NF	T-50-DM	T-50-DF
Frequency Range (GHz)	DC-3.0					
VSWR	1.15:1					
Maximum Average Power (watts)	25	25	50	50	50	50
Peak Power (kW)	1.5					
Impedance (ohms)	50					
Temperature Range (C)	-35° to +125°					
Connectors	7-16 DIN Male	7-16 DIN Female	N Male	N Female	7-16 DIN Male	7-16 DIN Female
Connector Finish	Inner layer—Silver plate/Outer layer—Cu-Sn-Zn plate					
Housing Finish	Black oxidization					
Maximum Length, mm (in)	83 (3.27)	84 (3.30)	137 (5.39)	137 (5.39)	138 (5.43)	140 (5.51)
Diameter Maximum mm (in)	35 (1.38)	35 (1.38)	50 (1.97)	50 (1.97)	50 (1.97)	50 (1.97)
Weight, g (oz)	210 (7.4)	210 (7.4)	390 (13.7)	390 (13.7)	450 (15.8)	450 (15.8)

All values are typical values

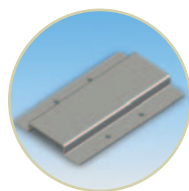
Brackets



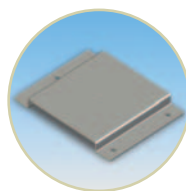
7543458



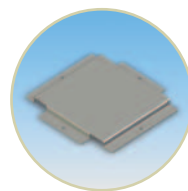
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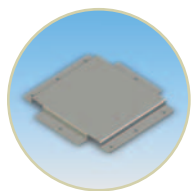
7543481



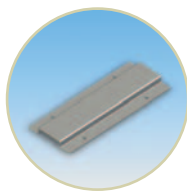
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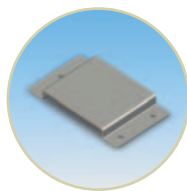
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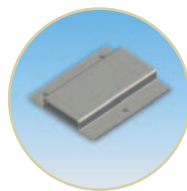
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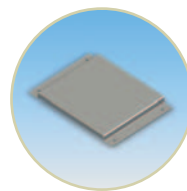
7543491



7543492



7543493



7543963



7543994

Bracket Part Numbers

Part Number	7543458	7543459	7543481	7543485	7543489	7543490	7543491	7543492	7543493	7543963	7543994
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300-960 MHz

C-6-TC-N	X										
C-10-TC-N	X										
C-15-TC-N	X										
C-20-TC-N	X										
C-30-TC-N	X										
H-3-TC-N							X				
S-2-TC-H-N	X										
S-2-TC-H-D	X										
S-2-TC-L-N		X									
S-3-TC-L-N						X					
S-4-TC-L-N										X	

800-2500 MHz

Bracket Part Numbers

C-6-CPUS-D				X							
C-10-CPUS-D				X							
C-6-CPUS-N									X		
C-8-CPUS-N									X		
C-10-CPUS-N									X		
C-13-CPUS-N									X		
C-15-CPUS-N									X		
C-20-CPUS-N									X		
C-30-CPUS-N									X		
CC-6-CPUS-N	X										
CC-10-CPUS-N	X										
CC-15-CPUS-N	X										
H-3-CPUS-D			X								
H-3-CPUS-N			X								
H-4x4-CPU-D					X						
H-4x4-CPU-N						X					
S-2-CPUS-H-D	X										
S-2-CPUS-H-N	X										
S-2-CPUS-L-N								X			
S-3-CPUS-H-D	X										
S-3-CPUS-H-N	X										
S-3-CPUS-L-N		X									
S-4-CPUS-H-D	X										
S-4-CPUS-H-N	X										
S-4-CPUS-L-N		X									

Antenna

Bracket Part Numbers

CELLMAX-O-25											X
CELLMAX-O-WLAN											X

Turnkey Coverage and Distributed Capacity Solutions

Andrew Corporation's **Wireless Innovations Group (WIG)** has more than 20 years of experience in the telecom market providing both products and services.

Wireless networks today are required to provide greater coverage and capacity than ever before in order to enable broadband data and multimedia services. In order to keep up with customer demands we offer the following capabilities:

RF Design

- Site survey
- Planning coverage tools and simulations
- Up front optimization

Site Design

- Construction plans and documentation
- Subcontractor management
- General project management

Project Management

- Management of physical site and power
- Management of equipment installation

Commissioning

- Testing of the system
- Network integration

Training and Documentation

- Providing a complete package
- Updating personnel on network changes and design solutions

We understand that every customer has unique goals and requirements which are taken into account on a project by project basis. We offer our wealth of experience to you. For more information please contact our sales team.

Application Examples

Messe Zentrum—Salzburg, Austria

Exhibition Centre—Hannover/Essen/Berlin/Nürnberg, Germany

Bologna Fiera—Bologna, Italy

Blue Water Shopping Centre—United Kingdom

Ernest Morial Convention Center—New Orleans, USA

Millenium Tower—Vienna, Austria





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Internet: www.andrew.com

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