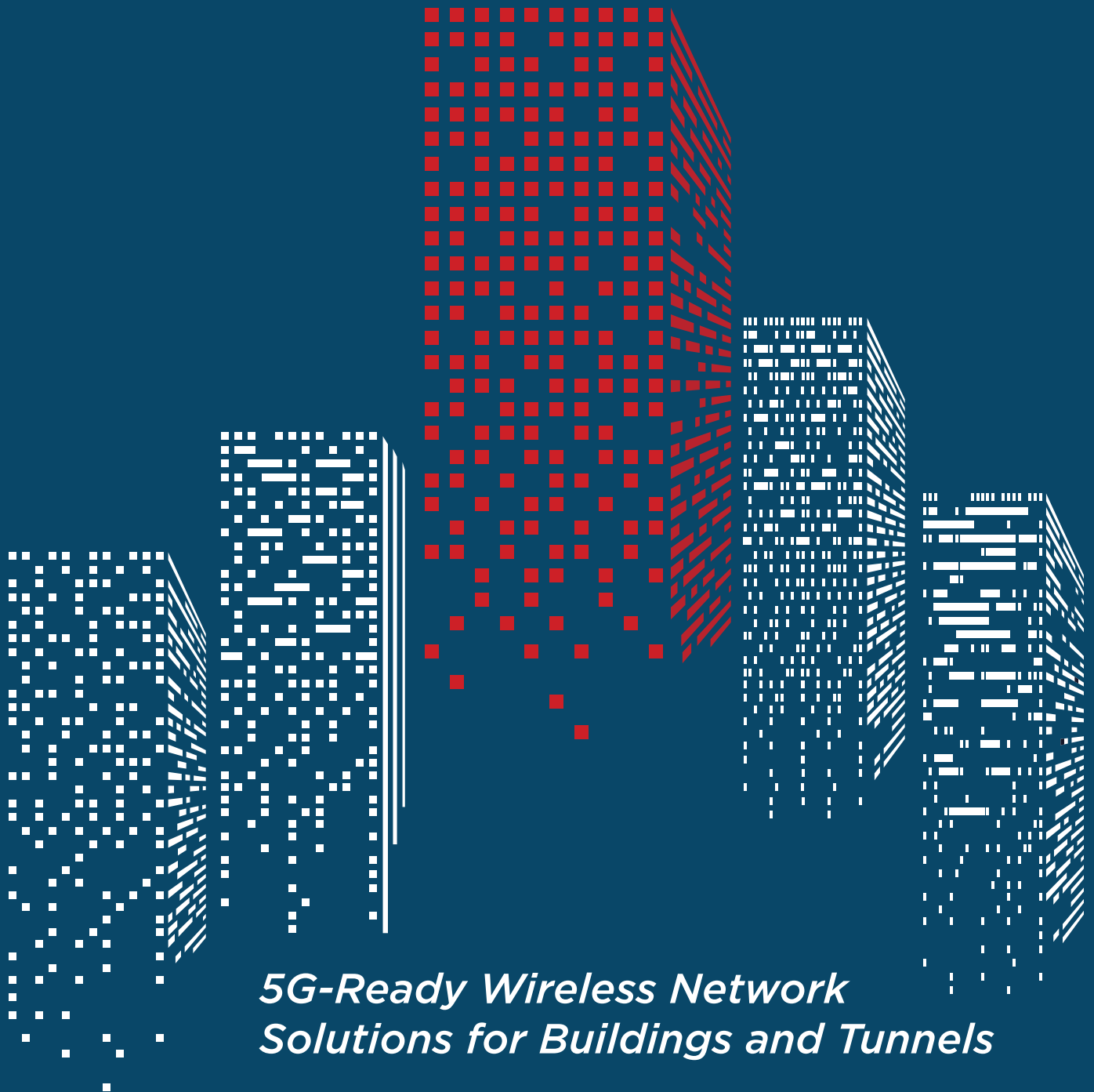# RADIO FREQUENCY SYSTEMS
PASSIVE DAS
Selection Guide

Edition 3 / 8.2021

5G-Ready Wireless Network Solutions for Buildings and Tunnels

RADIO FREQUENCY SYSTEMS

TABLE OF CONTENTS

RFS

KEEP PEOPLE CONNECTED WITH THE
ULTIMATE PASSIVE DAS SOLUTIONS

Keeping people connected with high-quality, uninterrupted wireless communications indoors and underground is essential to protect lives, run businesses and deliver the seamless wireless experience people expect. It's also extremely challenging.

THE FASTEST
MIMO Solutions Available

RFS is the only vendor that can enable MIMO end-to-end, and we have achieved two world firsts:

• The world's first pair of ultra-broadband radiating cables for cross-polarized 2x2, 4x4 and higher MIMO applications.

• A new world record for download speeds in tunnels with a 4x4 MIMO solution for the Follo Line high-speed railway project that reached 560 Mbps.

RFS passive distributed antenna system (DAS) solutions incorporate world-first inventions and innovations to keep people connected at all times, whether they're deep underground, at ground level or many stories above ground.

ULTRA-WIDEBAND, 5G-READY SOLUTIONS
Every component in our end-to-end passive DAS solutions is designed with the future in mind to support 5G wireless services globally and protect your investments. Our solutions include:

• Ultra-wideband RF products from 555 MHz to 6 GHz.

• CELLFLEX® coaxial cables that support all services up to 6 GHz.

• ClearFill®Line plenum-rated cables that support all services up to 6 GHz.

• RADIAFLEX® radiating cables that support all wireless services up to 6 GHz.

THE HIGHEST POSSIBLE LEVELS OF FIRE RESISTANCE
Our indoor communications cables have achieved the world's highest ratings for fire resistance and low-smoke, zero-halogen (LSZH):

• RFS DragonSkin™ is the first and only in-building coaxial cable to receive UL 2196 certification with no metal conduit, extensive wrapping or fire-resistant enclosure. This half-inch cable is thinner, safer, more flexible, and lighter weight than any other in-building coax cable with this level of fire resistance.

• RFS RADIAFLEX radiating cables and CELLFLEX coaxial cables achieved the top Construction Products Regulation (CPR) rating of B2ca with a d0 droplets rating.

In addition, all RFS cables meet major international flame- and fire-retardancy standards, including:

• IEC 60754-1/-2: Halogen-free and non-corrosive jacket tests

• IEC 60332-1: Flame tests

• IEC 60332-3-24: Cable bundle tests

• IEC 61034: Low-smoke emission tests

PROVEN IN HIGH-PROFILE DEPLOYMENTS
RFS passive DAS solutions have been trusted to bring fast and reliable wireless communications to some of the most iconic and challenging indoor environments for more than 40 years. Here are just a few of four recent projects:

• Corcovado Visitor Center, Christ the Redeemer, Rio de Janeiro

• Eurotunnel

• Fréjus Road Tunnel

• Grand Paris Express rapid transit line

• Hong Kong metro

• London Crossrail railway network

• Louvre Abu Dhabi

• Maracanã Stadium, Rio de Janeiro

• Saint Petersburg metro

• Singapore metro

WE ARE YOUR FULL-SERVICE PASSIVE DAS PARTNER
RFS has the end-to-end passive DAS solutions, expertise and experience to support wireless indoor deployments with:

• Any complexity level

• Any business model

• Any frequencies

• Any network technologies

• Any commercial or mission-critical communications services
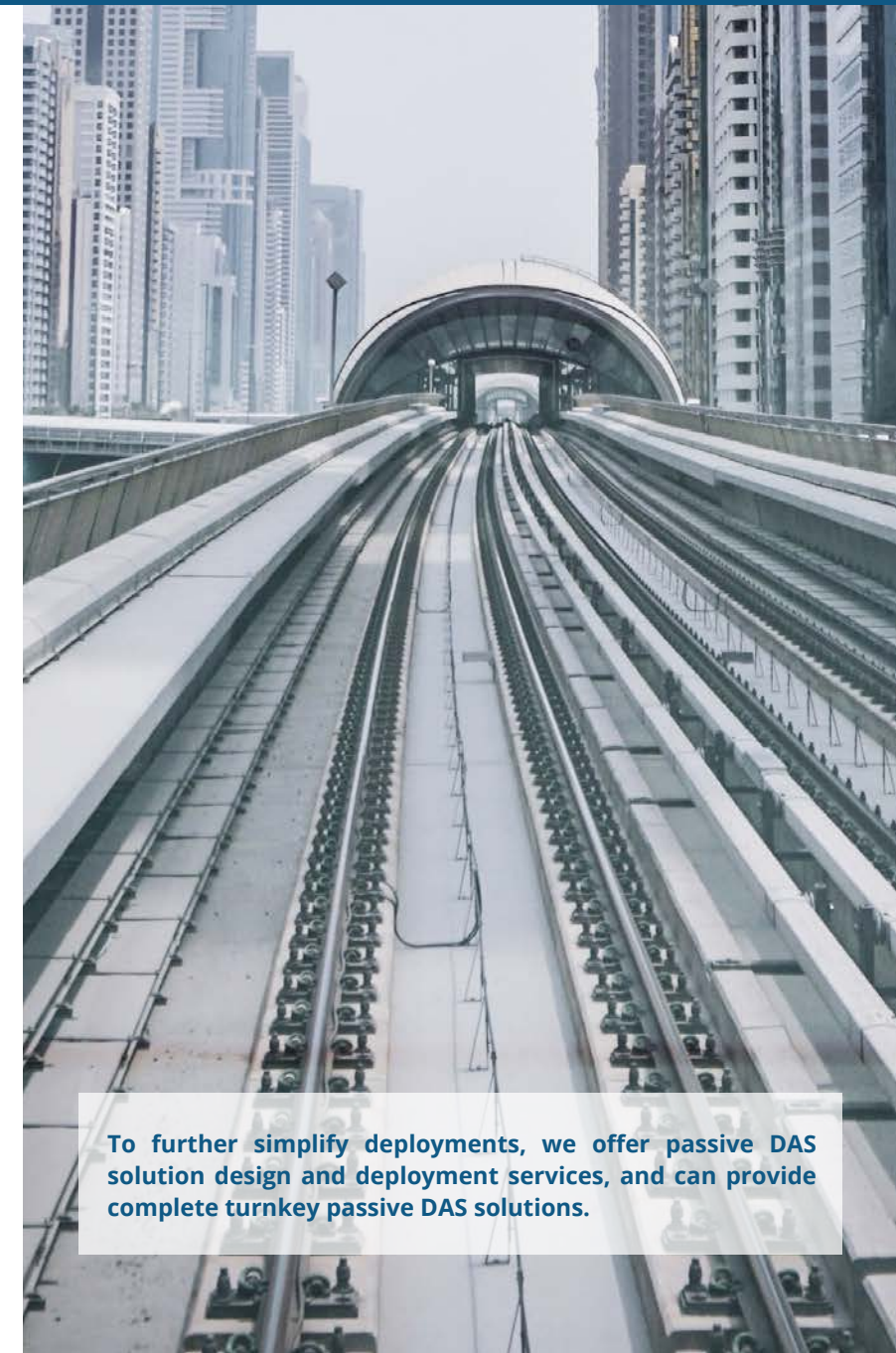
To further simplify deployments, we offer passive DAS solution design and deployment services, and can provide complete turnkey passive DAS solutions.

RFS

BRINGING WIRELESS NETWORKS
CLOSER TO PEOPLE

HIGH PERFORMING SOLUTIONS END-TO-END

In addition to our world-renowned CELLFLEX, ClearFillLine and RADIAFLEX cables, our end-to-end passive DAS solutions include:

- Compact and lightweight broadband and ultra-broadband indoor antennas that deliver high performance and low visual impact
- Combiners and couplers to distribute RF signals in the most efficient and effective way possible
- Diplexers and triplexers to combine and separate signals in different wireless bands
- Power splitters that evenly split input signals with minimal reflections or loss
- Loads that terminate all types of open RF ports

All of our non-cable components are proven to maintain overall system performance and key performance characteristics such as passive intermodulation (PIM) performance.

TAILORED AND SCALABLE FOR ANY INDOOR OR UNDERGROUND ENVIRONMENT

Every RFS passive DAS solution is purpose-built to match business objectives, application requirements and physical environment. We can tailor our solutions for any indoor or underground environment, from the most basic to those with the most difficult and complex RF challenges.

DELIVERING LOW TOTAL COST OF OWNERSHIP

Once installed, RFS passive DAS solutions require no maintenance and consume no electricity. These savings keep costs down and ensures error-free operation and high system availability —key requirements for mission-critical services.

80%
of all mobile data traffic originates in buildings
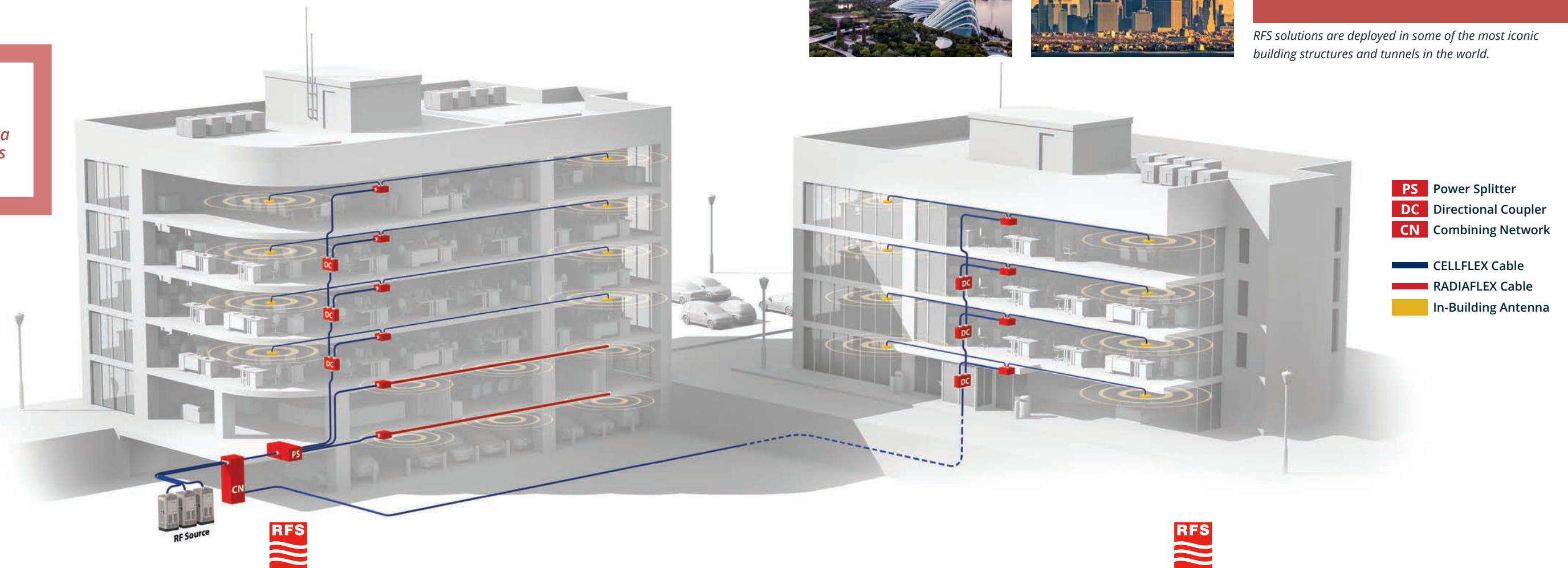
OUR PASSIVE DAS SOLUTIONS BRING CONSISTENT, RELIABLE AND HIGH-PERFORMANCE WIRELESS COMMUNICATIONS TO:

Buildings of all types and sizes:

- Airport terminals and train stations
- Stadiums and arenas
- Shopping malls
- Multi-dwelling units (MDUs)
- Resorts and hotels
- Office and industrial complexes
- Oil platforms
- Hospitals
- School campuses
- Conference centers
- Public buildings such as museums, art galleries, concert halls and libraries
- Tourist centers

Underground environments of all types and depths:

- Metro stations and lines
- Railway tunnels
- Road tunnels
- Mines

RFS solutions are deployed in some of the most iconic building structures and tunnels in the world.

PS	Power Splitter
DC	Directional Coupler
CN	Combining Network

- CELLFLEX Cable
- RADIAFLEX Cable
- In-Building Antenna

RF Source

RFS

CABLES AND CONNECTORS
FOR EVERY DAS APPLICATION

RFS coaxial and radiating cables are designed to meet in-building communications requirements today and tomorrow. Our high-quality connectors maintain signal integrity end-to-end.

CELLFLEX® LOW-LOSS COPPER AND ALUMINUM CABLES

The CELLFLEX and CELLFLEX Lite duo make up the largest corrugated transmission-line portfolio in the wireless infrastructure industry. The foam dielectric cables combine remarkable flexibility with high strength and superior electrical performance to ensure uninterrupted communications throughout buildings. This premium transmission line family is backed by a complete line of accessories, including the renowned OMNI FIT™ connector range.

Twenty unique CELLFLEX types, ranging in size from 1/4" to 1-5/8", provide users with a perfect match for even the most complicated and demanding applications. Every cable comes with a guarantee of reliability, performance and cost-effectiveness.

OMNI FIT™ CONNECTOR FAMILIES

RFS connectors are designed for high performance, easy installation and full compatibility throughout the CELLFLEX family. The entire range of innovative OMNI FIT™ Premium and OMNI FIT™ Standard connectors work with both copper and aluminum cables. A perfect complement to the CELLFLEX® transmission line range, OMNI FIT™ connectors provide users with familiar connection options, premium electrical characteristics and reliable, long-life use.

RFS' OMNI FIT™ Standard connectors are designed to meet and exceed industry standard Voltage Standing Wave Ratio (VSWR) and PIM performance. The connectors offer a cost-effective, high-quality connector-to-cable interface for easy, fast and safe connector attachment.

Low attenuation

Low attenuation enables extremely efficient signal transfers.

CELLFLEX Flame-Retardant Cables

SIZE	CABLE	CHARACTERISTIC	FIRE CLASS
1/2"	SCF12-50 JFN	Superflexible	B2ca s1a d0 a1
1/2"	LCF12-50 JFN	Low Loss	B2ca s1 d0 a1
7/8"	LCF78-50 JFNA	Low Loss	B2ca s1a d0 a1
1-1/4"	LCFS114-50 JFNA	Low Loss	B2ca s1b d0 a1 / B2ca s1b d2 a1
1-5/8"	LCF158-50 JFNA	Low Loss	Cca s1a d0 a1 / Cca s1a d2 a1

Please check the last status of Declaration of Performance (DoP) on rfsworld.com.
http://www.rfsworld.com/declaration-of-performance,677,1.html

COMPLETE SHIELDING
The solid outer conductor on CELLFLEX coaxial cables creates a continuous RFI/EMI shield that minimizes system interference.

OUTSTANDING INTERMODULATION PERFORMANCE
The solid inner and outer conductors virtually eliminate intermodulation.

WIDE RANGE OF APPLICATIONS
CELLFLEX cables support frequency bands up to 6000 MHz to enable a wide range of in-building applications.

LOW VSWR
Special low voltage standing wave ratio (VSWR) CELLFLEX variants help maintain system integrity.

HIGH POWER RATING
Low attenuation, excellent heat transfer properties and temperature stabilized dielectric material ensure safe, long-term operation at high transmit power levels.

dragonskin™

UL 2196
CERTIFIED

Keep communications alive to save lives

RFS DragonSkin is the ultimate fire-resistant coax cable. It is the first and only RF communications cable that's been proven to successfully deliver RF signals after a minimum 2-hour burn time and sudden exposure to water without a metal conduit, extensive wrapping or a fire-resistant enclosure.

DragonSkin is UL 2196-certified and meets NFPA 72 Survivability standards. And it installs like a regular cable to lower total cost of ownership:
- 0.54-inch diameter
- 8-inch bending radius
- Lightweight
- Uses standard RFS connectors

Learn more at DragonSkinCable.com

RADIAFLEX®
RADIATING CABLES

RADIAFLEX is the industry's most advanced portfolio of 5G-ready radiating cables for wireless indoor communications. RADIAFLEX radiating cables:

- Support all services up to 6 GHz with high performance, making them ideal for multiband, multi-operator applications in the most challenging indoor and underground environments
- Can be combined to take advantage of 3.5 GHz spectrum and accelerate to 5G in buildings and tunnels

SUPPORT ANY APPLICATION

RADIAFLEX radiating cables are available in several families with different bending radii, performance levels and outer conductor types to meet any application requirements:

- In-building and in-tunnel applications that require the highest possible radiating cable performance to support throughput-optimized 5G coverage solutions and the highly reliable systems needed for mission-critical wireless communications
- Heavy-duty in-building and mining applications
- In-vehicle applications
- Plenum-rated installations

TAKE 5G INTO TUNNELS

Our newest, patented RADIAFLEX 5G radiating cables are the only radiating cables on the market that support spectrum up to 4.2 GHz. Due to the stopband-free design, the cables operate in all 3GPP standardized frequency bands up to 4.2 GHz. These future-ready cables simultaneously support commercial wireless applications and mission-critical services, making them ideal for the next generations of wireless applications in tunnels as well as spectrum rebanding and refarming projects.

MAXIMIZE CAPACITY WITH MULTIBAND MIMO

Combining RFS' vertically polarized RAY and horizontally polarized RLK product families takes advantage of unique cross-polarization effects to optimize MIMO conditions in tunnels. With two "perfect match" radiating cables, you have new opportunities to create a MIMO solution that takes in-tunnel data rates to higher levels.

INCREASE FIRE SAFETY

RADIAFLEX cables are low-smoke and halogen-free, meet all major international standards for flame and fire retardancy and have a CPR rating of B2ca with a d0 droplets rating.

RADIAFLEX cables deliver highly reliable wireless communications in some of the world's most iconic buildings and tunnels and in **41%** *of the world's metros.*

RADIAFLEX Radiating Cable SELECTION GUIDE

	Mission Critical		4G Commercial Radio				5G Commercial Radio			
	75-450 MHz	600-960 MHz	617-960 MHz	1700-1900 MHz	2200 MHz	2700 MHz	3800 MHz	4200 MHz	4900 MHz	6000 MHz
5G RADIAFLEX Radiating Cable Solution										
RLKX114-50*	+	++	++	++	++	+++	+++			
RLKX114-50B	+	++	++	++	++	+++	+++	+++		
RAYX114-50*	+	++	++	++	++	+++	+++			
RE60										+++
4G RADIAFLEX Radiating Cables										
RLKU158-50*	+	++	++	+++	+++	+++				
RAYA158-50*	+	++	++	+++	+++	+++				
RLKU114-50*	+	++	++	+++	+++	+++				
RAYA114-50*	++	++	++	+++	+++	+++				
RLKU78-50	+	++	++	+++	+++	+++				
RLKU12-50	+	++	++	+++	+++	+++				
Mission Critical Radio Application										
RLK158-50	+++	++	++							
RLK114-50	+++	++	++							
RLK78-50	+++	++	++							
RLK12-50	+++	++	++							
RLKW114-50	++	+++	+++	++						
RLKW78-50	++	+++	+++	++						
RLKW12-50	++	+++	+++	++						
GSM-R Applications										
RAY158-50	++	+++	+++							
RAY114-50	++	+++	+++							
RAY78-50	++	+++	+++							
Diverse Applications										
RCF12-50	+	+	+	+	+	+	+	+	+	+
RCF78-50	+	+	+	+	+	+	+			
RLFU158	++	++	++	++	++					
RLFU114	++	++	++	++	++					
RLFU78	++	++	++	++	++					

* MIMO cables

RADIAFLEX Radiating Cables

CABLE	JACKET OPTION		
	JFNA	JFLA	CPR
RADIAFLEX RLK types 1/2"	C s1a d1 a1	Cca s1a d0 a1	B2ca s1a d0 a1
RADIAFLEX RLK, RLF, RAY types 7/8"	Dca s1b d2 a1	Dca s1b d2 a1	B2ca s1a d0 a1
RADIAFLEX RLK, RLF, RAY types 1-1/4"	Dca s1 d2 a1	Dca s1 d2 a1	B2ca s1b d0 a1
RADIAFLEX RLK, RLF, RAY types 1-5/8"	Dca s2 d2 a1	Cca s1b d1 a1	B2ca s1a d0 a1

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http://www.rfsworld.com/declaration-of-performance,677,1.html

RFS

CLEARFILL®LINE
PLENUM-RATED CABLES

RFS ClearFill®Line plenum-rated wideband cables deliver outstanding electrical and mechanical performance, and operate in frequencies from 380 MHz to 6 GHz to support all in-building wireless technologies and applications. These air dielectric coaxial cables are thoroughly tested for safe use within the "environmental air handling space" in ceilings as well as in more traditional plenum applications. They're available in copper or lighter weight aluminum models to meet any installation requirements.

IMPROVE IN-BUILDING WIRELESS NETWORK PERFORMANCE
ClearFill®Line plenum-rated cables provide low attenuation and excellent return loss.

FREQUENCY RANGE (MHz)	RETURN LOSS (dB)	VSWR
698-960	24	1.13
1395-1432	24	1.13
1700-2155	24	1.13
2300-2700	20	1.22
3550-4200	18	1.29
5150-6000	18	1.29

They also feature robust construction that reduces the risk of performance issues:

- A continuous, star-shaped dielectric provides complete support for the inner conductor to eliminate electrical and mechanical problems in tight bending areas.
- The solid outer conductor creates a continuous RFI/EMI shield that minimizes system interference.

LEVERAGE NEW SPECTRUM
With wideband spectrum support up to 6 GHz, ClearFillLine plenum-rated cables make it easy to take advantage of newly available Citizens Broadband Radio Service (CBRS) spectrum in the 3.5 GHz band and LTE License Assisted Access (LAA) spectrum in the unlicensed 5 GHz band.

Wideband
operation
Support technologies and applications in bands ranging from 380MHz
up to 6GHz

Plenum-Rated Cables

SIZE	MODEL NUMBER	JACKET COLOR	CABLE WEIGHT kg/m (lb/ft)	OUTER CONDUCTOR MATERIAL
1/2"	ICA12-50JPL	Blue	0.37 (0.25)	Corrugated Copper
1/2"	ICA12-50JPLLW	White	0.19 (0.13)	Corrugated Aluminum
1/2"	ICA12-50JPLW	White	0.37 (0.25)	Corrugated Copper
1/2"	ICA12-50JPLR	Red	0.4 (0.27)	Annularly Corrugated Copper

RFS red plenum coaxial cables for public safety applications are best-in-class UHF/VHF cables that enableoutstanding electrical performance for iDAS and oDAS emergency communication applications.

Plenum-Rated Jumper Cables
RFS offers models with white jackets, 1/4" diameter cable, of varying lengths in m (ft) increments.

SIZE	MODEL NUMBER	CHARACTERISTIC	CONNECTOR A	CONNECTOR B	LENGTH m (ft)
1/2"	43M43MI12P-030FFP	Blue, PVC	4.3-10 Male	4.3-10 Male	0.91 (3)
1/2"	43M7MI12P-030FFP	Blue, PVC	4.3-10 Male	7-16 Male	0.91 (3)
1/2"	43MNMI12P-030FFP	Blue, PVC	4.3-10 Male	N Type Male	0.91 (3)
1/2"	7M7MI12P-030FFP	Blue, PVC	7-16 Male	7-16 Male	0.91 (3)
1/2"	7MNMI12P-030FFP	Blue, PVC	7-16 Male	N Type Male	0.91 (3)
1/2"	NMNMI12P-030FFP	Blue, PVC	N Type Male	N Type Male	0.91 (3)

RFS
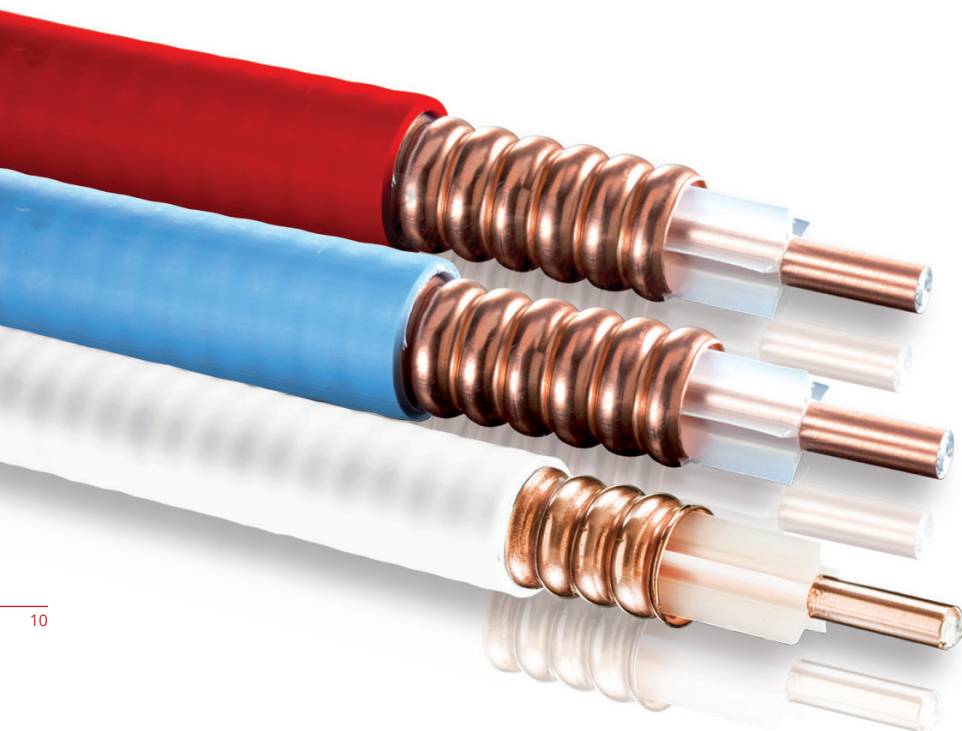
GET HIGH-PERFORMANCE JUMPER CABLES
FOR ANY APPLICATION, ANY SIZE

RFS is a global leader in RF jumper cables and offers a completes portfolio of jumper cables that meet any requirements.

CELLFLEX Factory-Fit Jumpers are ideal for indoor environments and other locations where jumper connectors do not require weatherproofing.

CELLFLEX SecureFit Booted Jumpers are ideal for outdoor environments and other locations where jumper connectors need to be protected from the elements.

All of our CELLFLEX jumper cables support frequencies up to 6 GHz to simplify your network evolution and protect your investment.

CHOOSE FROM SUPER-FLEXIBLE AND LOW-LOSS JUMPER CABLES

CELLFLEX Factory-Fit Jumpers and CELLFLEX SecureFit Booted Jumpers are designed for seamless connection to our renowned CELLFLEX foam dielectric coaxial cables:

RFS CELLFLEX Jumpers

Super-flexible SCF Jumpers
- SCF14
- SCF38
- SCF12

Low-Loss LCF Jumpers
- LCF38
- LCF12
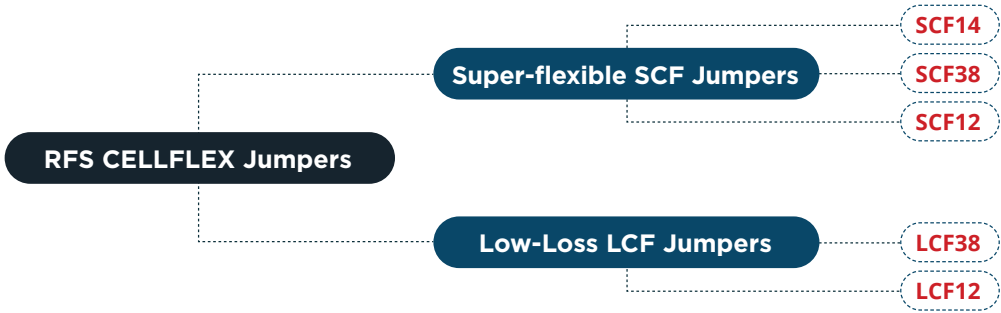
CELLFLEX super-flexible jumper cables combine outstanding bending characteristics and electrical performance to improve quality and efficiency in the most challenging deployment scenarios.

CELLFLEX low-loss jumper cables deliver extremely low attenuation that increases the efficiency of signal transfers in any RF system.

INCREASE FIRE-RESISTANCE

All CELLFLEX jumpers can be delivered with a flame-retardant "JFN" jacket type that meets the stringent fire safety requirements in European standard EN 50575. These flame-retardant jumpers meet the legal and regulatory requirements for fire safety in the European Construction Product Regulation (CPR) 305/2017 and other major fire safety standards.

CONNECTIONS IN THE FIELD JUST GOT EASIER

RFS' new coaxial adapter series provides a fast, easy and cost-effective solution for jumper connections. With a large selection of both straight and right angle adapters, there is a model for every network requirement. Passive intermodulation specifications for all RFS adapters is < -163 dBc.

UNDERSTANDING **JUMPER NAMES**

RFS offers models with outdoor-rated jacket types, of varying lengths in m (ft) increments.

Connector A	Connector B	Cable Type	Jacket Type	Cable Length	Performance Type
7M	**43M**	**S12**	**F**	**0100**	**FFP**

7M & 43M CONNECTORS A & B		S12 CABLE TYPE		F JACKET TYPE		0100 CABLE LENGTH*		FFP JUMPER PERFORMANCE	
7M	7-16 Male	L38	3/8" Low Loss Coax	F	JFN Flame Retardant	0100	1 meter	FFP	Factory-Fit Premium
7F	7-16 Female	L12	1/2" Low Loss Coax	Blank	PE; Indoor Use	0200	2 meter	FFS	Factory-Fit Standard
7MR	7-16 Male Right Angle	S14	1/4" Superflexible Coax			0250	2.5 meter	UPM	Ultra PIM Performance
43M	4.3-10 Male	S38	3/8" Superflexible Coax			1000	10 meter		
43F	4.3-10 Female	S12	1/2" Superflexible Coax			1500	15 meter		
43MH	4.3-10 Male Handscrew					030	3 feet		
43MP	4.3-10 Male Push Pull					060	6 feet		
43MR	4.3-10 Male Right Angle					100	10 feet		
NM	N-Type Male					150	15 feet		
NF	N-Type Female					200	20 feet		
NMR	N-Type Male Right Angle								
NXM	NEX10 Male								
NXMP	NEX10 Male Push Pull								
7MB	7-16 Male with Weatherboots								
43MB	4.3-10 Male with Weatherboots								
NMB	N-Type Male with Weatherboots								

NOTES:
* 4 digits indicate meter length, 3 digits indicate feet length
  Others lengths available on request

CPR

SAFETY
IS KEY

CPR-COMPLIANT CABLES ARE IDEAL
FOR INDOOR APPLICATIONS

A BROAD PORTFOLIO OF CPR-COMPLIANT CABLES FOR INDOOR APPLICATIONS

Since July 1, 2017, all communications cables installed in buildings in the European Union (EU) must meet the fire performance requirements in European standard EN 50575 and include the CE marking to comply with EU Construction Products Regulation (CPR) No. 305/2011.

RFS was the first cable vendor to offer RF communications cables with the highest CPR classifications for fire safety. Today, we offer a wide range of CELLFLEX® coaxial cables and RADIAFLEX® radiating cables that comply with European CPR No. 305/2017. This directive requires that coax and radiating cables meet the fire performance standards in the EN 50575 standard and be classified according to the EN 13501-6 standard.

RFS cables are classified according to the CPR test standards and criteria listed below.

ROBUST JACKET CONSTRUCTION ENABLES THE HIGHEST CPR CLASSIFICATIONS

RFS CPR-compliant coax and radiating cables feature a specially developed jacket that allows them to achieve best-in-class ratings for burning droplets (d0), low smoke emission (s1) and corrosivity (a1), the most important criteria for fire safety in cables that are installed indoors and underground.

All RFS cables are tested and certified by an external notified body according to EN 50575. In addition, RFS' manufacturing facility in Hannover, Germany, has been audited and meets the highest system 1+ requirements for type approvals, regular production audits, as well as regular sampling and testing of products by the notified body.

FIND CPR-COMPLIANT CABLES FOR ANY APPLICATION

All RFS CPR-compliant cables are also designated as low-smoke, zero-halogen (LSZH) and meet International Electrotechnical Commission (IEC) standards for flame spread, smoke acidity and low smoke emission. They are compatible with existing RFS connectors, factory-assembled jumpers, grounding kits and clamps, as well as trimming and preparation tools.

CPR CLASSIFICATION				
		B2ca: +++	Cca: ++	Dca: +	Eca: -
Test Standard and Measurement					
IEC 60332-1-2	Flame spread	≤ 425 mm	≤ 425 mm	≤ 425 mm	≤ 425 mm
EN 50399	Flame spread	≤ 4.5 m	≤2.0 m	-	-
EN 50399	Total heat release	≤ 15 MJ	≤ 30 MJ	≤ 70 MJ	-
EN 50399	Peak heat release	≤ 30 kW	≤ 40 kW	≤ 400 kW	-
EN 50399	Fire grow rate	≤ 150 Ws-1	≤ 3000 Ws-1	≤ 1300 Ws-1	-
ADDITIONAL CLASSIFICATIONS					
EN 50399	Smoke emission	s1, s2, s3	s1, s2, s3	s1, s2, s3	-
EN 61034	Smoke density	s1a, s1b	s1a, s1b	s1a, s1b	-
EN 50399	Burning droplets	d0, d1, d2	d0, d1, d2	d0, d1, d2	-
EN 6754-2	Corrosivity	a1, a2, a3	a1, a2, a3	a1, a2, a3	-

The CPR burning droplets classification is particularly important because burning particles can ignite other cables or infrastructure. Only class d0 cables create no burning particles to deliver the highest levels of fire protection in buildings and tunnels.

European class code labeling example

This table explains the CPR class codes using the rating for our CELLFLEX cables as an example: B2ca s1 d0 a1.

B2	ca	s1	d1	a1
Fire performance class	Application to cable	Smoke ratio	Droplets rating	Acidity rating

Smoke opacity		Droplets		Acidity	
s1		d0	–	a1	
s2		d1		a2	
s3		d2		a3	

SAFETY IS KEY

RFS

PASSIVE ANTENNAS
UP TO 6 GHZ

RFS passive DAS antenna solutions are highly flexible. They support 350 MHz to 6000 MHz applications, all wireless standards and technologies as 2G/3G/4G/5G cellular services, analog and digital mission-critical radio, and WIFI/WLAN networks.

RFS indoor antennas feature:

- Sealed, UV-stable radomes
- Low VSWR, high gain, stable performance
- Compact, lightweight designs

BROADBAND AND ULTRA-BROADBAND DAS ANTENNAS

All RFS indoor antennas are designed for high performance and low visual impact. Antennas can be mounted on walls or ceilings. Antennas and the cables connecting them can also be painted to match surrounding colors and blend into the building aesthetic.

RFS provides four types of indoor antennas to meet every in-building requirement:

- Omnidirectional antennas
- Panel antennas
- Directional antennas
- Bidirectional antennas

RFS SERVICES
SPOTLIGHT

Services 360: From Concept to Construction

Because we design and manufacture end-to-end RF solutions, we know exactly which environments solution components can and cannot withstand, the best techniques to install them and how to optimize their performance over the long term.

No matter how complex the project, we provide a single point of contact and long-range visibility into every phase of the deployment process and the ecosystem of network experts involved.

RFS goes well beyond other services companies to deliver the end-to-end RF solutions,expertise and oversight needed for smooth, efficient deployments in wireless, broadcast and defense networks in any location.

Learn how our turnkey indoor communications solutions extended safety-critical wireless coverage to every area on 30 oil and gas platforms in Brazil.

Read the story now

Indoor Antennas

DIRECTIVITY	SISO MIMO	FREQUENCY, MHz	PIM dBc	DIMENSIONS,HxWxL or HxD, mm (in)	WEIGHT, kg (lb)	CONNECTOR TYPE	MODEL NUMBER
5G In-Building Antennas							
Omni	SISO	350-600	-	5x135x160 (0.2x5.31x6.3)	0.11 (0.24)	N Female	I-ATO1-350/600
Omni	SISO	380-520/698-960/1710-2700	140	18x266 (0.709x10.47)	0.4 (0.88)	N Female	I-ATO5-380/2700
Omni	SISO	380-520/698-960/1710-2700	140	18x266 (0.709x10.47)	0.4 (0.88)	4.3-10 Female	I-ATO5-43-380/2700
Omni	SISO	698-960/1427-3800	153	115x203 (4.53x8)	0.37 (0.82)	N Female	I-ATO5-698/3800
Omni	SISO	698-960/1427-3800	153	115x203 (4.53x8)	0.37 (0.82)	4.3-10 Female	I-ATO5-43-698/3800
Omni	SISO	698-960/1350-2700/3400-4000	153	18x220 (0.709x8.66)	0.3 (0.66)	N Female	I-ATO5-698/4000
Omni	SISO	698-960/1350-2700/3400-4000	153	18x220 (0.709x8.66)	0.3 (0.66)	4.3-10 Female	I-ATO5-43-698/4000
Omni	SISO	617-960/1330-1550 1690-2700/3300-3800/4900-6000	153	18x220 (0.709x8.66)	0.3 (0.66)	4.3-10 Female	I-ATO5-43-617/6000
Omni	SISO	380-6000	153	152x298 (6x11.7)	0.9 (1.98)	N Female	I-ATO5-380/6000
Omni	SISO	380-6000	153	152x298 (6x11.7)	0.9 (1.98)	4.3-10 Female	I-ATO5-43-380/6000
Omni	2x2 MIMO	698-960/1427-2700/3400-3800	153	18x140x290 (0.7x5.5x11.4)	0.4 (0.88)	N Female	I-ATO5-698/3800M
Omni	2x2 MIMO	698-960/1427-2700/3400-3800	153	18x140x290 (0.7x5.5x11.4)	0.4 (0.88)	4.3-10 Female	I-ATO5-43-698/3800M
Omni	2x2 MIMO	698-960/1710-2700/3400-4000	150	40x218 (1.57x8.58)	0.5 (1.1)	N Female	I-ATO5-698/4000M
Omni	2x2 MIMO	698-960/1710-2700/3400-4000	150	40x218 (1.57x8.58)	0.5 (1.1)	4.3-10 Female	I-ATO5-43-698/4000M
Omni	2x2 MIMO	617-960/1330-1550 1690-2700/3300-3800/4900-6000	150	18x266 (0.709x10.47)	0.5 (1.1)	4.3-10 Female	I-ATO5-43-617/6000M
Omni	4x4 MIMO	617-960/1330-1550 1690-2700/3300-3800/4900-6000	153	24x360 (0.945x14.17)	0.95 (2.09)	4.3-10 Female	I-ATO5-43-617/6000M4
Panel	SISO	380-530/698-960/1710-2700	140	65x190x308 (2.56x7.48x12.12)	0.6 (1.32)	N Female	I-ATP5-380/2700
Panel	SISO	380-530/698-960/1710-2700	140	65x190x308 (2.56x7.48x12.12)	0.6 (1.32)	4.3-10 Female	I-ATP5-43-380/2700
Panel	SISO	698-960/1427-3800	153	60x170 x180 (2.36x6.7x7.09)	0.4 (0.88)	N Female	I-ATP5-698/3800
Panel	SISO	698-960/1427-3800	153	60x170 x180 (2.36x6.7x7.09)	0.4 (0.88)	4.3-10 Female	I-ATP5-43-698/3800
Panel	2x2 MIMO	698-960/1427-2700/3400-3800	153	62x180x400 (2.4x7.1x15.75)	1.5 (3.3)	N Female	I-ATP5-698/3800M
Panel	2x2 MIMO	698-960/1427-2700/3400-3800	153	62x180x400 (2.4x7.1x15.75)	1.5 (3.3)	4.3-10 Female	I-ATP5-43-698/3800M
Panel	4x4 MIMO	698-960/1710-2700/3300-4000	153	82x308x420 (3.23x12.13x16.55)	2.8 (6.2)	4.3-10 Female	I-ATP5-43-698/4000M4
Stadium and High Capacity Venue Antennas, 100W							
22x60deg	2x2 MIMO	698-960/1695-2700/3300-3800	153	120x425x970 (4.7x16.7x38.2)	10.5 (23)	4.3-10 Female	I-ATPS6-43-698/3800M-2260
30x30deg	2x2 MIMO	698-960/1695-2700/3300-3800	153	95x695x695 (3.7x27.4x27.4)	11 (24.3)	4.3-10 Female	I-ATPS6-43-698/3800M-3030
60x60deg	2x2 MIMO	698-960/1695-2700/3300-3800	153	125x309x380 (4.9x12.2x15)	4.5 (9.9)	4.3-10 Female	I-ATPS6-43-698/3800M-6060

RFS

PASSIVE COMPONENTS
UP TO 6 GHZ

RFS provides a complete family of passive components that operate in all frequency bands from 555 MHz to 6 GHz:

- **Combiners** that support one service per frequency band, multiple services per band, and multi-band applications. We also offer standardized combiner modules in 19-inch racks.
- **Hybrid combiners and couplers** that combine multiple signals in the same wireless band onto a common feeder cable.
- **Directional couplers** and tappers that uniformly distribute RF signals.
- **Diplexers and triplexers** that combine and separate signals in different wireless bands.
- **Power splitters** that evenly split input signals with minimal reflections or loss.
- **Loads** that terminate all types of open RF ports.
- **Attenuators** that adapt RF power levels to meet different system requirements.

All RFS passive components provide optimal PIM performance to reduce interference and support the highest possible throughput levels end-to-end.

SUPPORT MULTI-OPERATOR REQUIREMENTS ANYWHERE IN THE WORLD

Our passive components are the perfect complement to our CELLFLEX® coax cables, RADIAFLEX® radiating cables, and indoor antennas, which also operate in all frequency bands up to 6 GHz.

Together, our passive DAS solution components provide complete flexibility to support 5G and deliver broadband multi-operator, multi-technology services using a single DAS, anywhere in the world.

NEW PRODUCTS

RFS PORTFOLIO EXPANSION
617 MHZ TO 4.2 GHZ

Watch for new component announcements

We're continually updating our portfolio to include passive components that target specific requirements. Coming soon: Passive DAS components

that enable high-quality and cost-effective operation in all frequency bands from 617 MHz to 4.2 GHz.

Directional Couplers

COUPLING VALUE, dB	INSERTION LOSS VALUE	PIM dBc	IP	CONNECTOR TYPE	MODEL NUMBER
Directional Couplers 555-6000MHz					
5	2.45				CDS5E-555/6000
6	1.9				CDS6E-555/6000
8	1.25				CDS8E-555/6000
10	0.8				CDS10E-555/6000
13	0.6	160		N Female	CDS13E-555/6000
15	0.5				CDS15E-555/6000
20	0.3				CDS20E-555/6000
30	0.3		IP66		CDS30E-555/6000
5	2.45				CDS5-43-555/6000
6	1.9				CDS6-43-555/6000
8	1.25				CDS8-43-555/6000
10	0.8				CDS10-43-555/6000
13	0.6	163		4.3-10 Female	CDS13-43-555/6000
15	0.5				CDS15-43E-555/6000
20	0.3				CDS20-43-555/6000
30	0.3				CDS30-43-555/6000
Directional Couplers 694-3800MHz					
6	1.7				CDS6E-694/3800
10	0.7				CDS10E-694/3800
15	0.4	155		N Female	CDS15E-694/3800
20	0.2				CDS20E-694/3800
30	0.2				CDS30E-694/3800
6	1.7				CDS6DE-694/3800
10	0.7				CDS10DE-694/3800
15	0.4	160	IP65	7-16 Female	CDS15DE-694/3800
20	0.2				CDS20DE-694/3800
30	0.2				CDS30DE-694/3800
6	1.7				CDS6-43-694/3800
10	0.7				CDS10-43-694/3800
15	0.4	160		4.3-10 Female	CDS15-43-694/3800
20	0.2				CDS20-43-694/3800
30	0.2				CDS30-43-694/3800
Directional Couplers 350-2700MHz					
6	1.8				CDS6E-350/2700-01
10	0.8				CDS10E-350/2700-01
15	0.5			N Female	CDS15E-350/2700-01
20	0.25				CDS20E-350/2700-01
30	0.3				CDS30E-350/2700-01
6	1.8				CDS6DE-350/2700-01
10	0.8				CDS10DE-350/2700-01
15	0.5	160	IP65	7-16 Female	CDS15DE-350/2700-01
20	0.25				CDS20DE-350/2700-01
30	0.3				CDS30DE-350/2700-01
6	1.8				CDS6-43-350/2700-01
10	0.8				CDS10-43-350/2700-01
15	0.5			4.3-10 Female	CDS15-43-350/2700-01
20	0.25				CDS20-43-350/2700-01
30	0.3				CDS30-43-350/2700-01

Hybrid Combiners

COMBINER TYPE	COUPLING VALUE, dB	PIM dBc	IP	CONNECTOR TYPE	MODEL NUMBER
Hybrid Combiners 555-6000MHz					
2*2 Hybrid Combiner	3.1 ±0.9	160	IP66	N Female	CDSE2x2-555/6000
4*4 Hybrid Combiner	6.0 ±2.5	160	IP66	N Female	CDSE4x4-555/6000
2*2 Hybrid Combiner	3.1 ±0.9	163	IP66	4.3-10 Female	CDS2x2-43-555/6000
4*4 Hybrid Combiner	6.0 ±2.5	163	IP66	4.3-10 Female	CDS4x4-43-555/6000
Hybrid Combiners 694-3800MHz					
2*2 Hybrid Combiner	3.1 ±0.5	155	IP65	N Female	CDSE2x2-694/3800
4*4 Hybrid Combiner	6.0 ±1.2	155	IP65	N Female	CDSE4x4-694/3800
2*2 Hybrid Combiner	3.1 ±0.5	160	IP65	7-16 Female	CDSDE2x2-694/3800
4*4 Hybrid Combiner	6.0 ±1.2	160	IP65	7-16 Female	CDSDE4x4-694/3800
2*2 Hybrid Combiner	3.1 ±0.5	160	IP65	4.3-10 Female	CDS2x2-43-694/3800
4*4 Hybrid Combiner	6.0 ±1.2	160	IP65	4.3-10 Female	CDS4x4-43-694/3800
Hybrid Combiners 350-2700MHz					
3dB Directional Hybrid Coupler	3.1±1.4@350-380MHz	160	IP65	N Female	CDSE2x2-350/2700-01
3dB Directional Hybrid Coupler	3.1±0.9@380-2700MHz	160	IP65	4.3-10 Female	CDS2x2-43-350/2700-01

Power Splitters

SPLITTER TYPE	SPLIT LOSS VALUE dB	PIM dBc	IP	CONNECTOR TYPE	MODEL NUMBER
Splitters 555-6000MHz					
2-way power splitter	≤3.0	160	IP66	N Female	PDS2E-555/6000
3-way power splitter	≤4.8	160	IP66	N Female	PDS3E-555/6000
4-way power splitter	≤6.0	160	IP66	N Female	PDS4E-555/6000
2-way power splitter	≤3.0	163	IP66	4.3-10 Female	PDS2-43-555/6000
3-way power splitter	≤4.8	163	IP66	4.3-10 Female	PDS3-43-555/6000
4-way power splitter	≤6.0	163	IP66	4.3-10 Female	PDS4-43-555/6000
Splitters Combiners 694-3800MHz					
2-way power splitter	≤3.3	155	IP65	N Female	PDS2E-694/3800
3-way power splitter	≤5.1	155	IP65	N Female	PDS3E-694/3800
4-way power splitter	≤6.4	155	IP65	N Female	PDS4E-694/3800
6-way power splitter	≤8.6	155	IP65	N Female	PDS6E-694/3800
2-way power splitter	≤3.3	160	IP65	7-16 Female	PDS2DE-694/3800
3-way power splitter	≤5.1	160	IP65	7-16 Female	PDS3DE-694/3800
4-way power splitter	≤6.4	160	IP65	7-16 Female	PDS4DE-694/3800
2-way power splitter	≤3.3	160	IP65	4.3-10 Female	PDS2-43-694/3800
3-way power splitter	≤5.1	160	IP65	4.3-10 Female	PDS3-43-694/3800
4-way power splitter	≤6.4	160	IP65	4.3-10 Female	PDS4-43-694/3800
6-way power splitter	≤8.6	160	IP65	4.3-10 Female	PDS6-43-694/3800
Splitters 350-2700MHz					
2-way power splitter	≤3.4	160	IP65	N Female	PDS2E-350/2700-01
3-way power splitter	≤5.2	160	IP65	N Female	PDS3E-350/2700-01
4-way power splitter	≤6.5	160	IP65	N Female	PDS4E-350/2700-01
2-way power splitter	≤3.4	160	IP65	7-16 Female	PDS2DE-350/2700-01
3-way power splitter	≤5.2	160	IP65	7-16 Female	PDS3DE-350/2700-01
4-way power splitter	≤6.5	160	IP65	7-16 Female	PDS4DE-350/2700-01
2-way power splitter	≤3.4	160	IP65	4.3-10 Female	PDS2-43-350/2700-01
3-way power splitter	≤5.2	160	IP65	4.3-10 Female	PDS3-43-350/2700-01
4-way power splitter	≤6.5	160	IP65	4.3-10 Female	PDS4-43-350/2700-01

Dummy Loads

POWER HANDLING, W	IP	CONNECTOR TYPE	MODEL NUMBER
Dummy Loads DC-6000MHz			
2	IP65	N Male	TER-E-6000-2W
5	IP65	N Male	TER-E-6000-5W
10	IP65	N Male	TER-E-6000-10W
20	IP65	N Male	TER-E-6000-20W
50	IP65	N Male	TER-E-6000-50W
100	IP65	N Male	TER-E-6000-100W
200	IP65	N Male	TER-E-6000-200W
2	IP65	4.3-10 Female	TER-43-6000-2W
5	IP65	4.3-10 Female	TER-43-6000-5W
10	IP65	4.3-10 Female	TER-43-6000-10W
20	IP65	4.3-10 Female	TER-43-6000-20W
50	IP65	4.3-10 Female	TER-43-6000-50W
100	IP65	4.3-10 Female	TER-43-6000-100W
200	IP65	4.3-10 Female	TER-43-6000-200W
Dummy Loads DC-3800MHz			
2	Indoor	N Male	TER-E-3800-2W
5	Indoor	N Male	TER-E-3800-5W
10	Indoor	N Male	TER-E-3800-10W
20	Indoor	N Male	TER-E-3800-20W
30	Indoor	N Male	TER-E-3800-30W
50	Indoor	N Male	TER-E-3800-50W
100	Indoor	N Male	TER-E-3800-100W
5	Indoor	7-16 Female	TER-DE-3800-5W
10	Indoor	7-16 Female	TER-DE-3800-10W
20	Indoor	7-16 Female	TER-DE-3800-20W
30	Indoor	7-16 Female	TER-DE-3800-30W
50	Indoor	7-16 Female	TER-DE-3800-50W
2	Indoor	4.3-10 Female	TER-43-3800-2W
5	Indoor	4.3-10 Female	TER-43-3800-5W
10	Indoor	4.3-10 Female	TER-43-3800-10W
20	Indoor	4.3-10 Female	TER-43-3800-20W
30	Indoor	4.3-10 Female	TER-43-3800-30W
50	Indoor	4.3-10 Female	TER-43-3800-50W
100	Indoor	4.3-10 Female	TER-43-3800-100W

Tappers

COUPLING VALUE, dB	INSERTION LOSS VALUE	PIM dBc	IP	CONNECTOR TYPE	MODEL NUMBER
Tappers 350-6000MHz					
3 / 2:1	1.8dB@0.35-0.96GHz 2.1dB@1.695-2.7GHz 2dB@3.5-4.5 & 4.9-6GHz	160	IP66	N Female	TPS3E-350/6000
5 / 3:1	1.65				TPS5E-350/6000
6 / 4:1	1.5				TPS6E-350/6000
8 / 6:1	1.15				TPS8E-350/6000
10 / 10:1	0.75				TPS10E-350/6000
13 / 20:1	0.65				TPS13E-350/6000
15 / 30:1	0.4				TPS15E-350/6000
20 / 100:1	0.2dB@0.35-0.96 & 1.695-2.7GHz 0.3dB@3.5-4.5 & 4.9-6GHz				TPS20E-350/6000
30 / 1000:1	0.2				TPS30E-350/6000
3 / 2:1	1.8dB@0.35-0.96GHz 2.1dB@1.695-2.7GHz 2dB@3.5-4.5 & 4.9-6GHz	163		4.3-10 Female	TPS3-43-350/6000
5 / 3:1	1.65				TPS5-43-350/6000
6 / 4:1	1.5				TPS6-43-350/6000
8 / 6:1	1.15				TPS8-43-350/6000
10 / 10:1	0.75				TPS10-43-350/6000
13 / 20:1	0.65				TPS13-43-350/6000
15 / 30:1	0.4				TPS15-43-350/6000
20 / 100:1	0.2dB@0.35-0.96 & 1.695-2.7GHz 0.3dB@3.5-4.5 & 4.9-6GHz				TPS20-43-350/6000
30 / 1000:1	0.2				TPS30-43-350/6000
Tappers 694-3800MHz					
5 / 3:1	1.3	155	IP65	N Female	TPS5E-694/3800
6 / 4:1	1.1				TPS6E-694/3800
8 / 6:1	0.8				TPS8E-694/3800
10 / 10:1	0.5				TPS10E-694/3800
13 / 20:1	0.3				TPS13E-694/3800
15 / 30:1	0.2				TPS15E-694/3800
20 / 100:1	0.2				TPS20E-694/3800
30 / 1000:1	0.2				TPS30E-694/3800
5 / 3:1	1.3	160		7-16 Female	TPS5DE-694/3800
6 / 4:1	1.1				TPS6DE-694/3800
8 / 6:1	0.8				TPS8DE-694/3800
10 / 10:1	0.5				TPS10DE-694/3800
13 / 20:1	0.3				TPS13DE-694/3800
15 / 30:1	0.2				TPS15DE-694/3800
20 / 100:1	0.2				TPS20DE-694/3800
30 / 1000:1	0.2				TPS30DE-694/3800
5 / 3:1	1.3	160		4.3-10 Female	TPS5-43-694/3800
6 / 4:1	1.1				TPS6-43-694/3800
8 / 6:1	0.8				TPS8-43-694/3800
10 / 10:1	0.5				TPS10-43-694/3800
13 / 20:1	0.3				TPS13-43-694/3800
15 / 30:1	0.2				TPS15-43-694/3800
20 / 100:1	0.2				TPS20-43-694/3800
30 / 1000:1	0.2				TPS30-43-694/3800

Tappers

COUPLING VALUE, dB	INSERTION LOSS VALUE	PIM dBc	IP	CONNECTOR TYPE	MODEL NUMBER
Tappers 350-2700MHz					
5 / 3:1	1.4	155	?	N Female	TPS5E-350/2700-01
6 / 4:1	1				TPS6E-350/2700-01
8 / 6:1	0.8				TPS8E-350/2700-01
10 / 10:1	0.4				TPS10E-350/2700-01
13 / 20:1	0.3				TPS13E-350/2700-01
15 / 30:1	0.3				TPS15E-350/2700-01
5 / 3:1	1.4			7-16 Female	TPS5DE-350/2700-01
6 / 4:1	1				TPS6DE-350/2700-01
8 / 6:1	0.8				TPS8DE-350/2700-01
10 / 10:1	0.4				TPS10DE-350/2700-01
13 / 20:1	0.3				TPS13DE-350/2700-01
15 / 30:1	0.3				TPS15DE-350/2700-01
5 / 3:1	1.4	160		4.3-10 Female	TPS5-43-350/2700-01
6 / 4:1	1.1				TPS6-43-350/2700-01
8 / 6:1	0.8				TPS8-43-350/2700-01
10 / 10:1	0.5				TPS10-43-350/2700-01
13 / 20:1	0.3				TPS13-43-350/2700-01
15 / 30:1	0.3				TPS15-43-350/2700-01
20 / 100:1	0.2				TPS20-43-350/2700-01
30 / 1000:1	0.2				TPS30-43-350/2700-01

Low PIM Cable Loads

POWER HANDLING, W	PIM dBc	IP	CONNECTOR TYPE	MODEL NUMBER
Cable Loads DC-6000MHz				
2	160	IP65	N Male	TERP-E-6000-2W
5				TERP-E-6000-5W
10				TERP-E-6000-10W
20				TERP-E-6000-20W
50				TERP-E-6000-50W
100				TERP-E-6000-100W
200				TERP-E-6000-200W
2	163		4.3-10 Male	TERP-43-6000-2W
5				TERP-43-6000-5W
10				TERP-43-6000-10W
20				TERP-43-6000-20W
50				TERP-43-6000-50W
100				TERP-43-6000-100W
200				TERP-43-6000-200W
Cable Loads DC-3800MHz				
5	155	Indoor	N Female	TERP-E-3800-5W
50				TERP-E-3800-50W
100				TERP-E-3800-100W
50	160		7-16 Female	TERP-DE-3800-50W
100				TERP-DE-3800-100W
50			4.3-10 Female	TERP-43-3800-50W
100				TERP-43-3800-100W

COMBINING SOLUTIONS
MULTIPLEXERS

MAXIMIZE RF SPECTRUM EFFICIENCY

RFS multiplexers combine multiple frequency bands from several base stations into a single feeder cable or antenna. They give operators a fast, easy and efficient way to adapt existing physical infrastructure to support new frequency bands and deliver more capacity to end users. Without multiplexers, operators often augment or replace feeder cables and antennas to support new frequency bands, adding considerable costs, complications and time to roll outs, and extra weight to already loaded towers.

Multiplexers

SERIES	MODEL NUMBER	600	700	750	800	850	900	1500	1600	1800	2100	AWS-UL	PCS	AWS-DL	WCS	BRS	CBRS	LAA	DC/AISG	Config.	Conn.	Application
*Diplexer 1850-1915 MHz / 1930-1995 MHz and 1695-1780 MHz / 2110-2360 MHz*																					
FDPAW3040	FDPAW3040S2-3C											PORT 2	PORT 1	PORT 2	PORT 2				Port 2	Single	2.2-5	Super small/street lamp post
	FDPAW3040S0-3C											PORT 2	PORT 1	PORT 2	PORT 2				Port 2	Single	Nex10	Super small/street lamp post
	FDPAW3040CD2-3C											PORT 2	PORT 1	PORT 2	PORT 2				Port 2	Dual	2.2-5	Super small/street lamp post
	FDPAW3040CD0-3C											PORT 2	PORT 1	PORT 2	PORT 2				Port 2	Dual	Nex10	Super small/street lamp post
*Diplexer PCS/AWS, WCS, BRS*																					
FDPL4020	FDPL4020CQ4-NC											PORT 2	PORT 1	PORT 2	PORT 2	PORT 2			None	Quad	4.3-10	Stacked, small cell
	FDPL4020CQ4-1C											PORT 2	PORT 1	PORT 2	PORT 2	PORT 2			All Ports	Quad	4.3-10	Stacked, small cell
	FDPL4020CD4-NC											PORT 2	PORT 1	PORT 2	PORT 2	PORT 2			None	Dual	4.3-10	Stacked, small cell
	FDPL4020CD4-1C											PORT 2	PORT 1	PORT 2	PORT 2	PORT 2			All Ports	Dual	4.3-10	Stacked, small cell
	FDPL4020AQ4-NC											PORT 2	PORT 1	PORT 2	PORT 2	PORT 2			None	Quad	4.3-10	Side by Side, small cell
	FDPL4020AQ4-1C											PORT 2	PORT 1	PORT 2	PORT 2	PORT 2			All Ports	Quad	4.3-10	Side by Side, small cell
	FDPL4020AD4-NC											PORT 2	PORT 1	PORT 2	PORT 2	PORT 2			None	Dual	4.3-10	Side by Side, small cell
*Triplexer 380-960 MHz / 1695-2200 MHz / 2300-2690 MHz*																					
FTBRM5015	FTBRM5015D4-S1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1					PORT 2	PORT 2	PORT 2	PORT 3	PORT 3			Auto Sense	Dual	4.3-10	General
	FTBRM5015D4-1C	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1					PORT 2	PORT 2	PORT 2	PORT 3	PORT 3			All Ports	Dual	4.3-10	General
*Quadplexer 380-960 MHz / 1427-1880 MHz / 1920-2200 MHz / 2300-2690 MHz*																					
FQBDWM5020	FQBDWM5020D4-S1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2	PORT 3				PORT 4	PORT 4			Auto Sense	Dual	4.3-10	General
	FQBDWM5020D4-1C	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2	PORT 3				PORT 4	PORT 4			All Ports	Dual	4.3-10	General
*Diplexer 380-960 MHz / 1695-2700 MHz*																					
FDBL5003	FDBL5003D4-S2	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2	PORT 2	PORT 2	PORT 2						Auto Sense	Dual	4.3-10	General
	FDBL5003D4-S1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2	PORT 2	PORT 2	PORT 2						Auto Sense	Dual	4.3-10	General
	FDBL5003D4-1C	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2	PORT 2	PORT 2	PORT 2						All Ports	Dual	4.3-10	General
*Diplexer 80-2690 MHz / 3300-5925 MHz*																					
FDFX55020	FDFX55020S4-2C	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	Port 1	Single	4.3-10	CBRS/Street Lamp post
	FDFX55020S2-2C	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	Port 1	Single	2.2-5	CBRS/Street Lamp post
	FDFX55020D4-2C	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	Port 1	Dual	4.3-10	CBRS/Street Lamp post
	FDFX55020D2-2C	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	Port 1	Dual	2.2-5	CBRS/Street Lamp post

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COMBINING SOLUTIONS
MULTIPLEXERS

BUILT TO PERFORM

To ensure optimal performance across the combined frequency bands, all RFS multiplexers have extremely high rejection levels and very low insertion loss. The multiplexer housings are lightweight and compact. They withstand severe weather conditions including rapid temperature changes.

Multiplexers

SERIES	MODEL NUMBER	600	700	750	800	850	900	1500	1600	1800	2100	AWS-UL	PCS	AWS-DL	WCS	BRS	CBRS	LAA	DC/AISG	Config.	Conn.	Application
*Diplexer 1695-2200 MHz / 2300-2690 MHz*																					
FDRM5015	FDRM5015D4-1C							Port 1	Port 1	Port 1	Port 1	Port 1			Port 2	Port 2			All Ports	Dual	4.3-10	General
*Twin Diplexer 555-806 MHz / 824-960 MHz*																					
FDJ85020	FDJ85020D4-S1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2												Auto Sense	Dual	4.3-10	Low band only Diplexer
	FDJ85020Q4-S1	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2												Auto Sense	Quad	4.3-10	Low band only Diplexer
	FDJ85020D4-1C	PORT 1	PORT 1	PORT 1	PORT 2	PORT 2	PORT 2												All Ports	Dual	4.3-10	Low band only Diplexer
*Triplexer 694-862 MHz / 880-960 MHz / 1427-2690 MHz*																					
FTEGL5020	FTEGL5020S4-1C		Port 1	Port 1	Port 1	Port 2	Port 3	Port 3	Port 3	Port 3	Port 3	Port 3	Port 3						All Ports	Single	4.3-10	General
*Triplexer 380-2200 MHz / 2496-2700 MHz / 3300-3800 MHz*																					
FTCMX5020	FTCMX5020S4-1C	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1				Port 2	Port 3		All Ports	Single	4.3-10	General
*Triplexer 380-960 MHz / 1427-1880 MHz / 1920-2690 MHz*																					
FTBDV5015	FTBDV5015S4-1C	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1	Port 2	Port 2	Port 2	Port 3				Port 3	Port 3			All Ports	Single	4.3-10	General
*Quadplexer 380-960 MHz / 1350-1525 MHz / 1710-1880 MHz / 1920-2170 MHz*																					
FQBLDW5020	FQBLDW5020S4-1C	Port 1	Port 1	Port 1	Port 1	Port 1	Port 1	Port 2		Port 3	Port 4								All Ports	Single	4.3-10	General
*Diplexer 694-862 MHz / 880-960 MHz*																					
FDEG5020	FDEG5020S4-1C		Port 1	Port 1	Port 1		Port 1												All Ports	Single	4.3-10	General
	FDEG5020S7-1C		Port 1	Port 1	Port 1		Port 1												All Ports	Single	7/16	General
*Diplexer 1427-1880 MHz / 1920-2690 MHz*																					
FDDV5015	FDDV5015S4-1C							Port 1	Port 1	Port 1	Port 2								All Ports	Single	4.3-10	General
*In-line Wideband Diplexer 698-960 MHz / 1710-2200 MHz*																					
FD9R6004	FD9R6004S4-1C		Port 1	Port 1	Port 1	Port 1	Port 1				Port 2	Port 2	Port 2	Port 2					All Ports	Single	4.3-10	General

RFS

RADIO FREQUENCY SYSTEMS