RFS –Fiber and Power Solutions 2020.

WE SIMPLIFY 5G
THE EVOLUTION TO

5G IS A REALITY

▪ We simplify the evolution from 4G to 5G, with a **complete 5G-ready portfolio** of **cables**, base station antennas and microwave solutions.
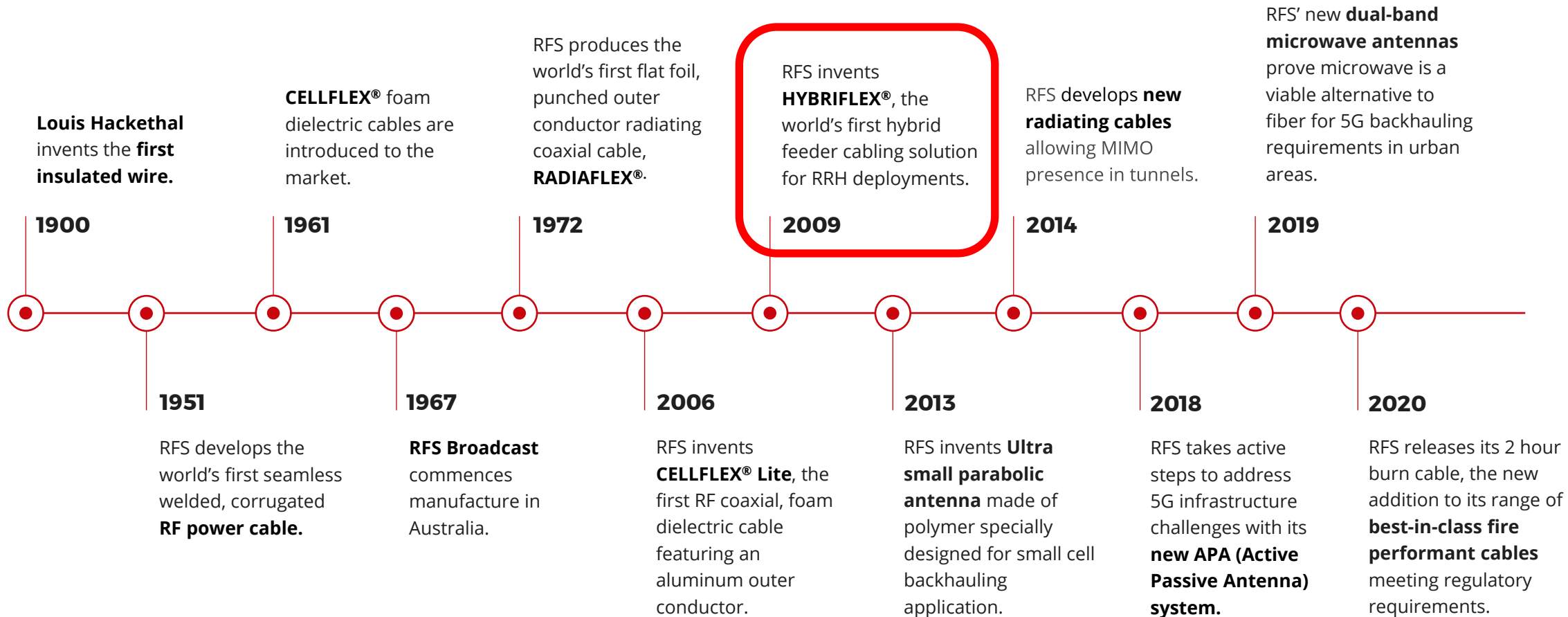
SITE SIMPLIFICATION

▪ We enable the **site simplification** in both macro and small cell sites with low visual impact antennas and 5G high capacity microwave links.

EASE OF INSTALLATION

▪ We **ease the installation**, through multiband base station antennas with optimized weight and reliability.

120 YEARS OF INVENTIONS.

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Louis Hackethal invents the **first insulated wire.**

1900

CELLFLEX® foam dielectric cables are introduced to the market.

1961

RFS produces the world's first flat foil, punched outer conductor radiating coaxial cable, **RADIAFLEX®.**

1972

RFS invents **HYBRIFLEX®**, the world's first hybrid feeder cabling solution for RRH deployments.

2009

RFS develops **new radiating cables** allowing MIMO presence in tunnels.

2014

RFS' new **dual-band microwave antennas** prove microwave is a viable alternative to fiber for 5G backhauling requirements in urban areas.

2019

1951

RFS develops the world's first seamless welded, corrugated **RF power cable.**

1967

RFS Broadcast commences manufacture in Australia.

2006

RFS invents **CELLFLEX® Lite**, the first RF coaxial, foam dielectric cable featuring an aluminum outer conductor.

2013

RFS invents **Ultra small parabolic antenna** made of polymer specially designed for small cell backhauling application.

2018

RFS takes active steps to address 5G infrastructure challenges with its **new APA (Active Passive Antenna) system.**

2020

RFS releases its 2 hour burn cable, the new addition to its range of **best-in-class fire performant cables** meeting regulatory requirements.

VISIT OUR WEBSITE FOR MORE: www.rfsworld.com/about/history

Military's Reliance on Commercial Wireless Technologies Growing:

Top 4 Defence Electronics ...
electricalcomponentsblog.wordpress.com

Universal Communications Platform ...
lockheedmartin.com

It's time for military SATCOM to adapt
c4isrnet.com

Communications without intelligence is noise. Intelligence without communications is irrelevant.
— Alfred M. Gray —
AZ QUOTES

Microwaves & RF
mwrf.com

The next frontier of military communications
Integrating 5G into the defence infrastructure
ref: https://www.army-technology.com/features/future-military-communications/

Tactical radio communications | Rohde ...
rohde-schwarz.com

Revolution in the key of 5G - Fifth-gen ...
raytheon.com

Link 16: A Major Contributor to Network ...
baesystems.com

Selex develops lightweight antenna for...
army-technology.com

Mission critical military ...
reintegratesolutions.com

Why RFS for Fiber and Power.

RFS Fiber and Power provides a comprehensive solution set to help you reduce CAPEX yet expand network capacity :

- HYBRIFLEX Riser and Jumper cables – robust design
- Optical Fiber Only Jumpers
- DC Wire
- CPRI Portfolio
- Junction/Distribution Boxes with or without surge protection
- Accessory Portfolio

RFS **simplifies** the evolution of your **5G** wireless network!

Since 2009, RFS manufactured WW:
- *+65 million ft of HYBRIFLEX – more than 3 times earth radius*

- *+11,500,000 fiber terminations*

Army Scrambles to Make Command Posts ...
nationaldefensemagazine.org

FTTA Infrastructure Solutions.

	HYBRIFLEX®	Power Cables	Enclosure	Fiber Optic Assemblies
Main characteristics	⮕ Hybrid: Customer tailored solution combining DC & fiber optic wires ⮕ Separate: Mix of customer tailored and off-the-shelf separate DC and F/O cables ⮕ DC (Cu) makes up to 70% of cost ⮕ Various F/O connectors provided: LC, MPO, ODC, ODVA	⮕ Multi-conductor power cable assemblies for powering the RRH ⮕ High conductor strand count options for flexible cables ⮕ Standard 19 strand options available ⮕ 4AWG up to 20 AWG	⮕ Optional devices used as interface between main DC and/or F/O cables and jumpers ⮕ Provides a clean, futureproof FTTA design ⮕ Can be integrated with Surge Protection ⮕ Varies from simple interconnect boxes to complex devices	⮕ Bundled, multi-fiber count assemblies for FTTA solutions ⮕ Single pair assemblies for racks, interconnects ⮕ Numerous connector styles ⮕ Rugged construction ⮕ Various F/O connectors provided: LC, MPO, ODC, ODVA
illustrations				

What is HYBRIFLEX.

- Any bundle and/or combination of individual components
  - Optical fiber
  - Power wire (DC or AC applications)
  - Ethernet, twisted pair
  - Coaxial cable

- RFS Factory Terminated

- Armored or unarmored
  - Aluminum corrugated
  - Copper wrap
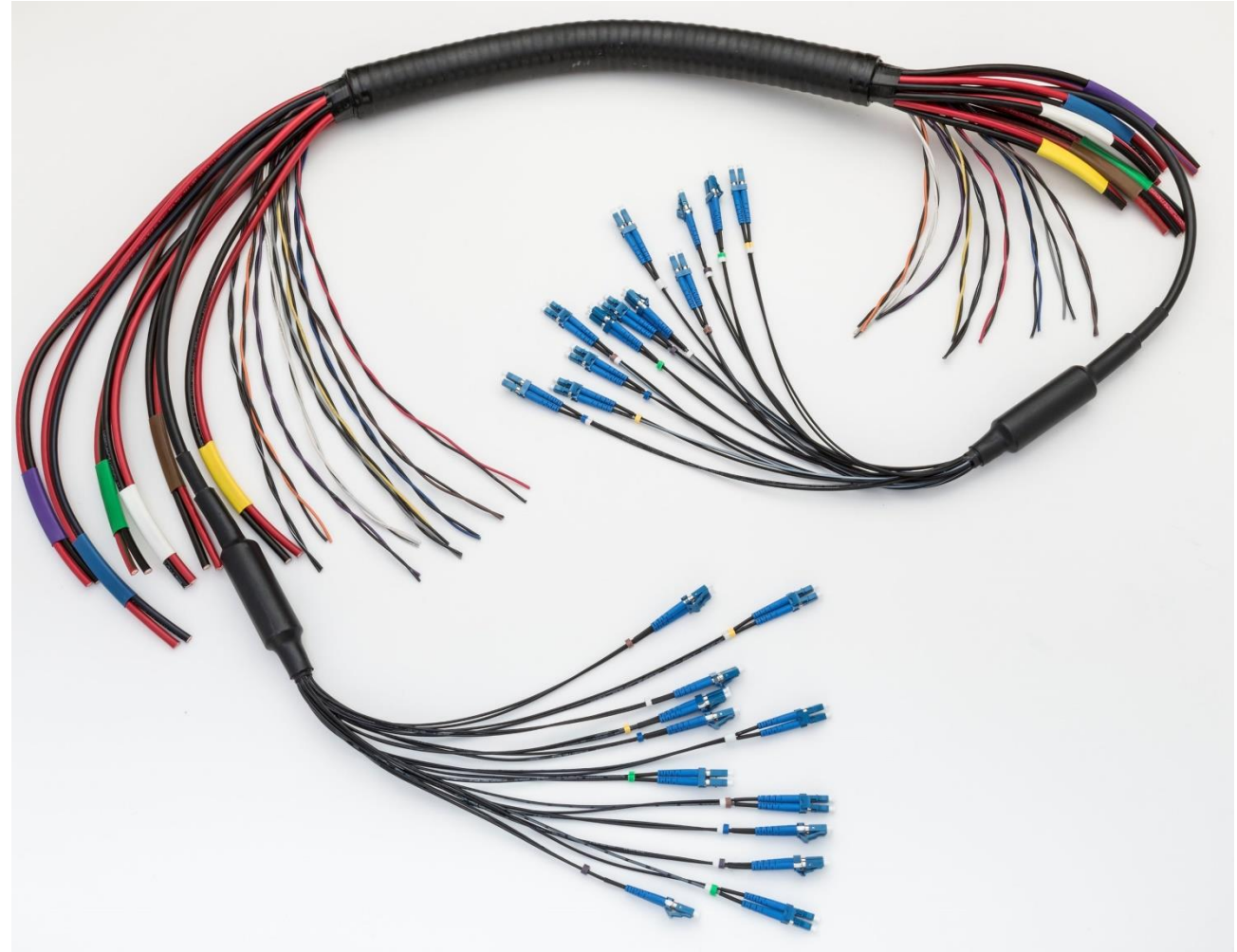
First To Market & Current Industry-Leading Design.

Why HYBRIFLEX® from RFS

- Excellent Reliability – Field Proven Fiber/DC Power Designs
- Robust aluminum corrugated or copper wrapped armor protections available
- Riser rated, UL Listed, CPR options for assemblies (indoor/outdoor)
- Designed to customer requirements

Minimize Installation Time And Costs

- Easy armor removal process (Kevlar Ripcord)
- Same accessories as coax cables
- Same installation procedures as coax cables
- Color-coded wires for easy site identification

RFS is a **total solution provider** offering a complete turn-key solution including fiber jumpers, fiber management, accessories, CPRI and much more

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# First To Market & Current Industry-Leading Design.

Best in class bend radius & robust armor

- Continuous robust armor design protects DC + fiber all over the run
- Min bend radius 12cm for 7/8", 15cm for 1-1/4", enables use in tight spaces
- 80% better bend radius than alternative construction methods (foil, etc.)

Durable, Easy-To-Install <u>Accessory</u> Line

- Field proven over decades
- RFS uses weather and corrosion resistant materials
- Avoids use of non-standard clamps using rubber inserts, which leads to possible installation issues
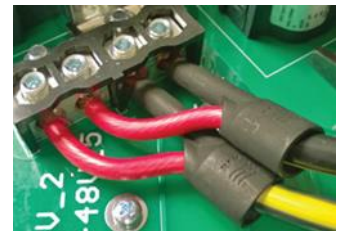
RFS offers the **most robust and reliable solution** with its corrugated armor and rugged outdoor fiber in addition to the **lowest market inductance** for the coaxial power wire design

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RRU Cabling Applications - Overview.
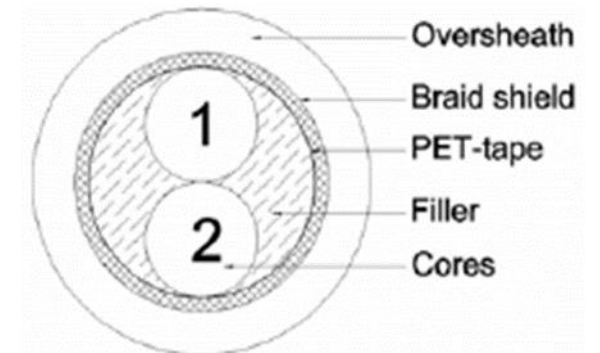
RFS Fiber & Power Solutions
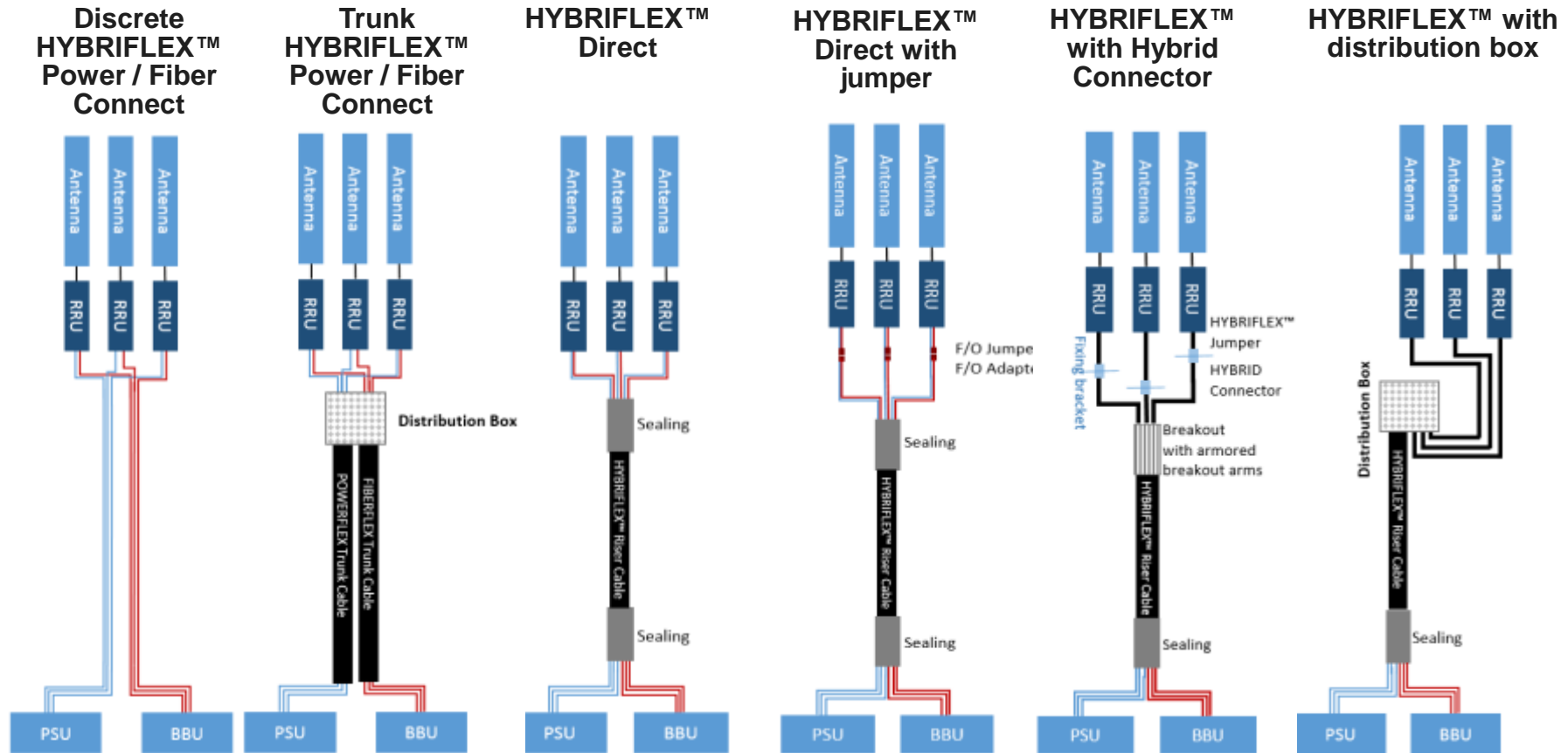
Fiber Only Jumpers.

- Factory Terminated - LC, MPO, ODC, ODVA and others on request
- Armored or unarmored
- Single pair to multi-pair
- Bi-Directional (BiDi) Simplex Optical fiber options
- 100% factory tested

DC Power Wire.

- Single or multi-conductor
- Shielded or unshielded
- UL or non-UL

HCS - Hybrid Connectivity System.

- Hybrid Connector System: Two pairs F/O, one pair DC

- Easy to handle and fast to install: Field interconnection within 2 sec with high sealing class (IP 67)

- High quality: Factory assembled to HYBRIFLEX Jumper and to Riser Cable Breakout and factory tested

- High reliability: Connector designed close to MIL

- Excellent protection: mechanical and lightning- due to continuous corrugated aluminum armor of HYBRIFLEX Jumpers and Riser Cable breakouts.

- Future proof for multiple RRU's

- Eliminate the need for junction boxes

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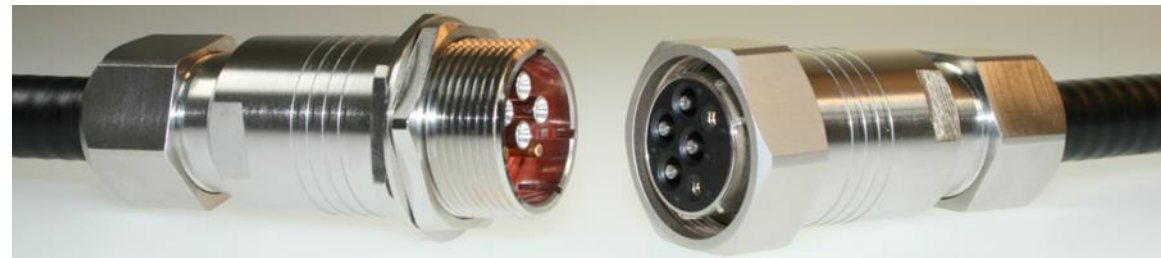
Enclosures - Junction Boxes.

- Designed to customer request
- Optical Fiber interconnect and fiber slack management
- DC Power termination with optional overvoltage surge protection
- IP67/IP68

RFS Fiber & Power Solutions

CPRI Portfolio.

- Used for Interference Mitigation testing

- Recommended on every site

- Do not need to take the site down, nor climb tower in order to test

- 1RUCM-RFS-18CPRI-3M – Standard rear access CPRI Ports – Fully Loaded with (3) CPRI-6RRH-MOD-RFS modules

- 1RUCM-18CPRI-0MR1 - Reversed CPRI Ports - Fully loaded with (3) CPRI-6RRH-MOD-R1 modules

RFS Model Number
1RUCM-RFS-18CPRI-0M
1RUCM-RFS-18CPRI-1M
1RUCM-RFS-18CPRI-2M
1RUCM-RFS-18CPRI-3M
1RUCM-RFS-18CPRI-4M
1RUCM-RFS-18CPRI-5M
1RUCM-RFS-06CPRI-0M
1RUCM-RFS-06CPRI-1M
1RUCM-RFS-06CPRI-2M
1RUCM-RFS-06CPRI-3M
1RUCM-RFS-06CPRI-4M
1RUCM-RFS-06CPRI-5M
1MTR-JUMPER-CPRI-RFS
2MTR-JUMPER-CPRI-RFS
3MTR-JUMPER-CPRI-RFS
4MTR-JUMPER-CPRI-RFS
5MTR-JUMPER-CPRI-RFS
CPRI-2RU19-FMB-RFS
CPRI-6RRH-MOD-RFS
CPRI-1RU19-CHS-RFS
1MTR-JPER-CPRI-RFS-KIT-6
2MTR-JPER-CPRI-RFS-KIT-6
3MTR-JPER-CPRI-RFS-KIT-6
4MTR-JPER-CPRI-RFS-KIT-6
5MTR-JPER-CPRI-RFS-KIT-6
1RUCM-18CPRI-0MR1
CPRI-6RRH-MOD-R1

1RUCM-RFS-18CPRI-0M
Fully Loaded Standard CPRI Unit
with 3 modules

CPRI-6RRH-MOD-RFS
1 module

CPRI-2RU19-FMB-RFS
Fiber Management Box

Who Chose RFS.

Now it's time for RFS to help you!

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