



NASDAQ: RFL



# DAS & Wireless

## Infrastructure Passive Components

Interconnect Solutions for a Connected World™



## Interconnect Solutions for a Connected World

We manufacture a broad selection of interconnect products delivered across diverse markets via our multiple facilities. Standard and custom engineered interconnect solutions are available through our distribution network.

We have the resources of a large company with the agility of a small company. We work closely with customers to identify their product/logistic requirements, and then react quickly to design, manufacture and deliver finished products or services.

### Design – Production – Inventory

We have production and warehouse facilities on both coasts of the United States along with a network of distributors throughout North America and Europe to deliver finished products quickly.

### Quality Policy Statement

We are committed to maintaining excellent product quality. It is our goal to continuously improve the quality of our products to better satisfy the needs and expectations of our customers. We are also committed to delivering products that completely suit customer requirements on time, every time, and defect-free.

### Certifications / Registrations

Corning Gold House

ISO 9001:2015

Underwriters Laboratory Recognized

Telcordia GR-326 Issue 4

### Corning Gold

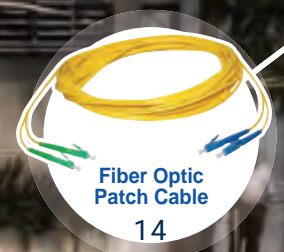
Cables Unlimited is part of an elite group of cable assembly houses (CAHs) that meet the high standards for eligibility in the Corning Cable Systems CAH Connections<sup>SM</sup> Gold Program for optical patch cord manufacturers.

### Corning Extended Warranty Program

As members of the CAH Connections Gold Program, Cables Unlimited a divisions of RF Industries, can offer a Corning Cable Systems 25-year Extended Warranty<sup>SM</sup> coverage for single and 2 fiber patch cords manufactured by Cables Unlimited or Comnet Telecom Supply and installed by a certified NPI member.



*\*CAH Connections and Extended Warranty are service marks of Corning Cable Systems Brands, Inc*



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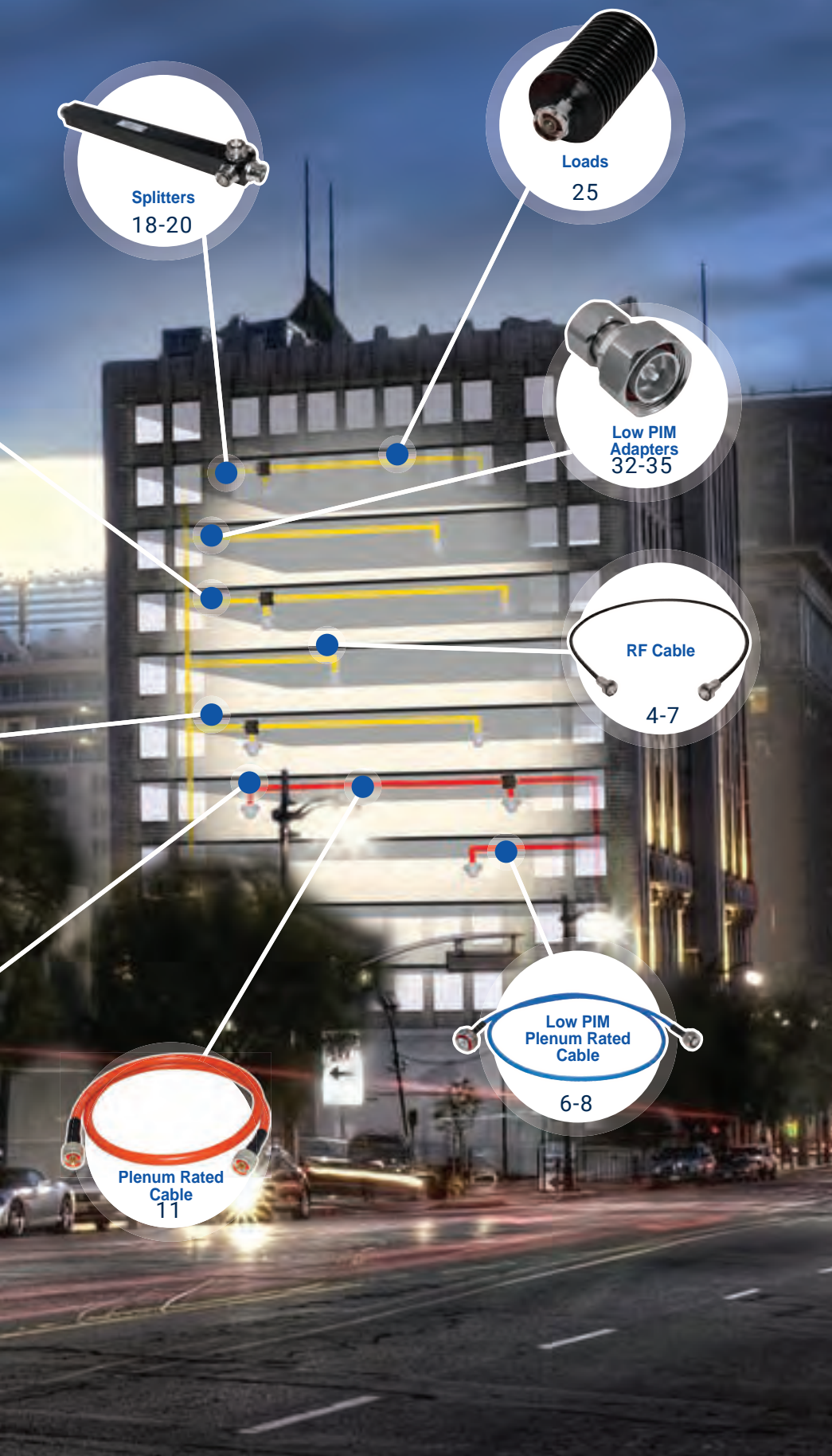
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# Website Applications RF Cable Configurator

## Identify part number, descriptions of coax cable assemblies

### Request a quote

With over 500,000 possible combinations of RF coax cables, connectors and lengths, identifying the RF Coax assembly you need can be difficult and time consuming. We have simplified the process with an on-line application called the RF Cable Configurator.

An easy to use drop down menu provides a selection of cables, lengths, connectors, genders and styles. With a minimum of key strokes the configurator provides part numbers, descriptions and connector images. Additional information is available such as assembly spec sheets, connector drawings, component images or iBwave .vex file information for low PIM assemblies.

The configurator has provisions to send a notification to one of our sales staff to respond with an accurate and quick quotation of price and lead times.

We maintain a large inventory of bulk cable and connectors in the United States for quick fabrication. Additional services include electrical testing, custom labeling and packaging.

We are an ISO 9001:2015 certified manufacturer.



## Search by Configuration

The 'Create with Configurator' section includes several dropdown menus for selecting components: Cable Type, Cable Length, Connector 1 (Interface 1, Gender 1, Style 1), and Connector 2 (Interface 2, Gender 2, Style 2). There is also a 'Save as Connector' button and a 'Search' button.

To find a configuration without a part number, use the Create with Configurator section

The "Cable" and "Connector 1" Sections are Required

## Search by Part Number

The 'Search With Known Part Number' section has two input fields: 'part number' and 'length'. Below the 'part number' field, an example 'P2RFC-2217' is shown with a bracket indicating it is the 'Assembly Part Number'. Below the 'length' field, an example '.48' is shown with a bracket indicating it is the 'Length in inches'. Both fields have a 'Search' button next to them.

Enter the part number into the first box then the assembly length of cable

## Search Results

The 'Search Results' section displays two search results. Each result includes a small image of the cable assembly, a description (e.g., '4.3/10 MALE TO SMA MALE, TYP-402LF, SWEEP AND PIN TESTED'), and a list of part numbers and connector details. There are 'More Info' and 'Add to Quote' buttons for each result.

View results of search  
Click "More Info" to see the product page

## Product Information

The 'Product Information' section provides detailed specifications for a selected cable assembly. It includes a list of part numbers, connector details, and a 'Download PDF' button. There are also 'Previous' and 'Next' buttons for navigating through the product information.

View product details including; specifications, more images and drawings

## PIM Tracker™



### 3 Easy Steps

1. Go to [www.rfindustries.com](http://www.rfindustries.com) and select PIM Tracker from the drop down menu.
2. Enter the serial number from your cable assembly.
3. View or print a copy of the test results of your cable.



### Download PIM text documents for 100% low PIM coax cable assemblies.

All low PIM cable assemblies that are manufactured are tested to certify they meet or exceed the advertised specifications. The PIM value is printed on the cable assembly along with a serial number. For verification, a complete PIM performance chart is available for download by entering the cable serial number in **PIMtracker™** Verification System on our website.



## iBwave



### Download .vex files for over 1,000 passive components.

iBwave, the software standard for in-building wireless network design, now lists over 1,500 of RF Industries' low PIM products for Distributed Antenna Systems (DAS). The products include low PIM, plenum rated cables assemblies, splitters, couplers, tappers, loads and coaxial adapters, 7-16 DIN, 4.1-9.5 (Mini) DIN, 4.3-10 and QMA.



# Cable Assemblies Low PIM Plenum Rated

## Times Microwave TFT™-401-LF, TFT™-401 Plenum Cable

Low Loss, Low PIM Plenum Rated Coaxial Cables

### FEATURES

Low Passive Intermodulation Distortion (PIM)

Cable assemblies are 100% PIM tested

Available in any required connector configuration and length

UL910 plenum rated, satisfying building code requirements

Cost effective alternative to .141 inch size semi-flexible solder braid cables

Highly flexible for ease of installation

Highly flexible flat braided outer conductor

### GENERAL SPECIFICATIONS

Operating frequency

TFT™-401-LF ..... up to 3GHz

TFT™-401 ..... up to 6GHz

Impedance ..... 50Ω

3rd Intermodulation Test ..... 2X +43dBm Tones

IM3 4.3-10 (only) ≤-160dBc@700MHz & 1900Mhz

IM3 (all others) ... ≤-155dBc@700MHz & 1900Mhz

Operating Temperature Range ..... -55 to + 150°C

### CABLE CONSTRUCTION

Center Conductor ..... Bare Copper

Dielectric ..... Taped PTFE

Shield ..... Tin Plated Copper Flat Braid

Outer Braid ..... Tin Plated Copper Braid

Jacket ..... Blue FEP

### CABLE ASSEMBLIES

Assemblies use connectors designed and manufactured by RF Industries.

Use **RF Cable Configurator** to create assemblies on-line at [www.rfindustries.com](http://www.rfindustries.com). Create your own assembly—length, connector and cable.

Use PIM Tracker™ to see your test results

Assembled in the USA for fast delivery
















**PIMtracker™** Verification System  
100% PIM Tested to Assure Performance

### CONNECTOR

RF Industries can create any combination of connectors at any length.

See pages 28-31 for more information on Connectors

Cable Images for illustration purposes

4.1-9.5 (Mini) DIN Female RFD-4195F-HPL	
4.1-9.5 (Mini) DIN Male RFD-4195-HPL	
4.3-10 Female RFD-43F-HPL	
4.3-10 Male RFD-43MS-HPL	
4.3-10 Male Right Angle RFD-43MRA-HPL	
7-16 DIN Female RFD-1625-HPL	
7-16 DIN Male RFD-1601-HPL	
7-16 DIN Male Right Angle RFD-1610-HPL	
N Female RFN-1027-HPL	
N Male RFN-1002-HPL	
N Male Right Angle RFN-1009-HPL	
NEX10 Male R180060017	
QMA Male RQA-5000-HPL	
QMA Male Right Angle RQA-5010-HPL	
SMA Male RSA-3500-HPL	

NEX10 is a trademark of HUBER + SUHNER, Radiall & ROSENBERGER.









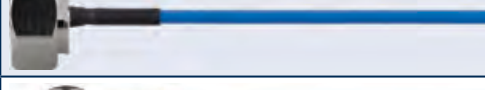







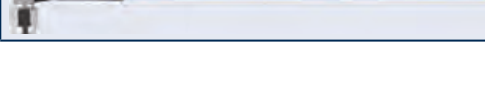


TFT is a trademark of Times Microwave Systems.

PIM Tracker is a trademark of RF Industries.

# Cable Assemblies Low PIM Plenum Rated

## Times Microwave TFT™-402-LF, TFT™-402 Plenum Cable

Low Loss, Low PIM Plenum Rated Coaxial Cables

<b>CONNECTOR</b>	
RF Industries can create any combination of connectors at any length. See pages 28-31 for more information on Connectors	
	Cable Images for illustration purposes
1.0/2.3 Male RF123-7003-4SR2	
4.1-9.5 (Mini) DIN Female RFD-4195F-SR2	
4.1-9.5 (Mini) DIN Male RFD-4195-SR2FL	
4.1-9.5 (Mini) DIN Male Right Angle RFD-4195MRA-SR2	
4.3-10 Female RFD-43F-SR2	
4.3-10 Male RFD-43MS-SR2	
4.3-10 Male Right Angle RFD-43MRA-SR2	
7-16 DIN Female RFD-1625-SR2	
7-16 DIN Male RFD-1601-SR2	
7-16 DIN Male Right Angle RFD-1610-SR2	
N Female RFN-1027-SR2	
N Male RFN-1002-SR2FL	
N Male Right Angle RFN-1009-SR2LP	
NEX10 Male R180052007	
QMA Male RQA-5000-SR2LP	
QMA Male Right Angle RQA-5010-SR2LP	
QN Male RQN-1300-SR2	
SMA Male RSA-3500-SR2LP	
SMA Male Right Angle RSA-3510-SR2LP	

### FEATURES

- Low Passive Intermodulation Distortion (PIM)
- Cable assemblies are 100% PIM tested
- Available in any required connector configuration and length
- UL910 plenum rated, satisfying building code requirements
- Highly flexible for ease of installation
- Highly flexible flat braided outer conductor
- Cost effective alternative to .141 inch size semi-flexible solder braid cables

### GENERAL SPECIFICATIONS

- Operating frequency
  - TFT™-402-LF..... up to 3GHz
  - TFT™-402..... up to 6GHz
- Impedance..... 50Ω
- 3rd Intermodulation Test..... 2X +43dBm Tones
- IM3 4.3-10 (only) ≤-160dBc@700MHz &1900Mhz
- IM3 (all others).... ≤-155dBc@700MHz &1900Mhz
- Operating Temperature Range ..... -55 to + 150°C

### CABLE CONSTRUCTION

- Center Conductor..... Bare Copper
- Dielectric..... Taped PTFE
- Shield ..... Tin Plated Copper Flat Braid
- Outer Braid..... Tin Plated Copper Braid
- Jacket ..... Blue FEP

### CABLE ASSEMBLIES

- Assemblies use connectors designed and manufactured by RF Industries.
- Use **RF Cable Configurator** to create assemblies on-line at [www.rfindustries.com](http://www.rfindustries.com). Create your own assembly—length, connector and cable.
- Use PIM Tracker™ to see your test results
- Assembled in the USA for fast delivery
- PIMtracker™** Verification System  
100% PIM Tested to Assure Performance

NEX10 is a trademark of HUBER + SUHNER, Radiall & ROSENBERGER.  
TFT is a trademark of Times Microwave Systems.  
PIM Tracker is a trademark of RF Industries.



# Cable Assemblies Low PIM Plenum Rated

## 1/4 inch Super Flexible Times Microwave SPP™-250-LLPL Plenum Cable

Low Loss, Low PIM Plenum Rated Coaxial Cables

### FEATURES

Low Passive Intermodulation Distortion (PIM)

Cable assemblies are 100% PIM tested

Available in any required connector configuration and length

UL910 plenum rated, satisfying building code requirements

Corrugated copper outer conductor providing greater than 100dB RF Shielding

Highly flexible for ease of installation

### GENERAL SPECIFICATIONS

Operating frequency ..... up to 6GHz

Impedance..... 50Ω

3rd Intermodulation Test ..... 2X +43dBm Tones

IM3 4.3-10 (only) ≤-160dBc@700MHz & 1900MHz

IM3 (all others) ... ≤-155dBc@700MHz & 1900MHz

Operating Temperature Range ..... -55 to + 200°C

### CABLE CONSTRUCTION

Center Conductor ..... Bare Copper

Dielectric..... PTFE

Outer Braid..... Corrugated copper tube

Jacket ..... Blue FEP

### CABLE ASSEMBLIES

Assemblies use connectors designed and manufactured by RF Industries.

Use **RF Cable Configurator** to create assemblies on-line at [www.rfindustries.com](http://www.rfindustries.com). Create your own assembly—length, connector and cable.

Use PIM Tracker™ to see your test results

Assembled in the USA for fast delivery

**PIMtracker™** Verification System  
100% PIM Tested to Assure Performance

### CONNECTOR

RF Industries can create any combination of connectors at any length.

See pages 28-31 for more information on Connectors

Cable Images for illustration purposes

4.1-9.5 (Mini) DIN Female  
RFD-4195F-HPL



4.1-9.5 (Mini) DIN Male  
RFD-4195-HPL



4.3-10 Female  
RFD-43F-HPL



4.3-10 Male  
RFD-43MS-HPL



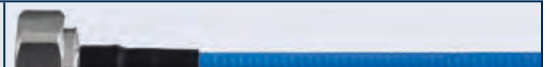
4.3-10 Male Right Angle  
RFD-43MRA-HPL



7-16 DIN Female  
RFD-1625-HPL



7-16 DIN Male  
RFD-1601-HPL



7-16 DIN Male Right Angle  
RFD-1610-HPL



N Female  
RFN-1027-HPL



N Male  
RFN-1002-HPL



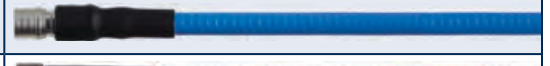
N Male Right Angle  
RFN-1009-HPL



NEX10 Male  
R180060017



QMA Male  
RQA-5000-HPL



QMA Male Right Angle  
RQA-5010-HPL



SMA Male  
RSA-3500-HPL



NEX10 is a trademark of HUBER + SUHNER, Radiall & ROSENBERGER.

SPP is a trademark of Times Microwave Systems.

PIM Tracker is a trademark of RF Industries.



# Cable Assemblies Low PIM RF Coax

## 1/4 inch Super Flexible Times Microwave SP0™-250 Cable

Low Loss, Low PIM Coaxial Cables

<b>CONNECTOR</b>	
RF Industries can create any combination of connectors at any length. See pages 28-31 for more information on Connectors	
	Cable Images for illustration purposes
4.1-9.5 (Mini) DIN Female RFD-4195F-HPL	
4.1-9.5 (Mini) DIN Male RFD-4195-HPL	
4.3-10 Female RFD-43F-HPL	
4.3-10 Male RFD-43MS-HPL	
4.3-10 Male Right Angle RFD-43MRA-HPL	
7-16 DIN Female RFD-1625-HPL	
7-16 DIN Male RFD-1601-HPL	
7-16 DIN Male Right Angle RFD-1610-HPL	
N Female RFN-1027-HPL	
N Male RFN-1002-HPL	
N Male Right Angle RFN-1009-HPL	
NEX10 Male R180060017	
QMA Male RQA-5000-HPL	
QMA Male Right Angle RQA-5010-HPL	
SMA Male RSA-3500-HPL	

### FEATURES

- Low Passive Intermodulation Distortion (PIM)
- Cable assemblies are 100% PIM tested
- Available in any required connector configuration and length
- Super flexible for ease of installation
- Corrugated copper outer conductor providing greater than 100dB shielding

### GENERAL SPECIFICATIONS

- Impedance..... 50Ω
- 3rd Intermodulation Test..... 2X +43dBm Tones
- IM3 4.3-10 (only) ≤-160dBc@700MHz &1900Mhz
- IM3 (all others)... ≤-155dBc@700MHz &1900Mhz

### CABLE CONSTRUCTION

- Center Conductor..... Bare Copper
- Dielectric..... Foam Polyethylene
- Outer Conductor..... Corrugated Copper Tube
- Jacket ..... UV and sunlight resistant black polyethylene

### CABLE ASSEMBLIES

- Assemblies use connectors designed and manufactured by RF Industries.
- Use **RF Cable Configurator** to create assemblies on-line at [www.rfindustries.com](http://www.rfindustries.com). Create your own assembly—length, connector and cable.
- Use PIM Tracker™ to see your test results
- Assembled in the USA for fast delivery

**PIMtracker™** Verification System  
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SPO is a trademark of Times Microwave Systems.  
PIM Tracker is a trademark of RF Industries.

# Cable Assemblies

## Low PIM RF Coax

**PIMtracker™** Verification System  
100% PIM Tested to Assure Performance

### Low PIM 1/2 inch Standard Flex Corrugated Cable Assemblies

4.1-9.5 (Mini) DIN, 7-16 DIN and N

- 3rd Intermodulation:  $\leq -155\text{dBc}@1900\text{MHz}$
- 3rd Intermodulation test: 2X +43dBm Tones
- Operating frequency: up to 3GHz
- VSWR:  $\leq 1.10:1$  up to 2.4 GHz  
 $\leq 1.15:1$  up to 3 GHz
- Corrugated copper tube

Custom Lengths Available

XX = custom length in inches

Contact sales about custom lengths

#### See Cable Configurator for Full list of Cable Assemblies

Part Number	Connector 1	Connector 2	Cable Length
P2RFC-2009-36	7-16 DIN Male	7-16 DIN Male	3 foot
P2RFC-2009-72	7-16 DIN Male	7-16 DIN Male	6 foot
P2RFC-2009-108	7-16 DIN Male	7-16 DIN Male	9 foot
P2RFC-2281-36	7-16 DIN Male	4.1-9.5 (Mini) DIN Male	3 foot
P2RFC-2281-72	7-16 DIN Male	4.1-9.5 (Mini) DIN Male	6 foot
P2RFC-2281-108	7-16 DIN Male	4.1-9.5 (Mini) DIN Male	9 foot
P2RFC-2010-36	N Male	N Male	3 foot
P2RFC-2010-72	N Male	N Male	6 foot
P2RFC-2010-108	N Male	N Male	9 foot

4.1-9.5 (Mini) DIN Male

7-16 DIN Male

N Male

See pages 28-31 for more information on Connectors

### Low PIM 1/2 inch Super Flex Corrugated Cable Assemblies

7-16 DIN and N Connectors

- 3rd Intermodulation:  $\leq -155\text{dBc}@1900\text{MHz}$
- 3rd Intermodulation test: 2X +43dBm Tones
- Operating frequency: up to 3GHz
- Helical copper tube construction
- VSWR:  $\leq 1.10:1$  up to 2.4 GHz  
 $\leq 1.15:1$  up to 3 GHz
- Corrugated copper tube construction

Custom Lengths Available

XX = custom length in inches

Contact sales about custom lengths

See pages 28-31 for more information on Connectors

Part Number	Connector 1	Connector 2	Cable Length
P2RFC-2007-36	7-16 DIN Male	7-16 DIN Male	3 foot
P2RFC-2007-72	7-16 DIN Male	7-16 DIN Male	6 foot
P2RFC-2007-108	7-16 DIN Male	7-16 DIN Male	9 foot
P2RFC-2008-36	N Male	N Male	3 foot
P2RFC-2008-72	N Male	N Male	6 foot
P2RFC-2008-108	N Male	N Male	9 foot

7-16 DIN Male

N Male

### Low PIM .141 inch Conformable Semi-Rigid Cable Assemblies

N and QMA Connectors

- 3rd Intermodulation:  $\leq -155\text{dBc}@1900\text{MHz}$   
 $\leq -140\text{dBc}@1900\text{MHz}(QMA)$
- 3rd Intermodulation test: 2X +43dBm Tones
- Operating frequency: up to 6GHz
- VSWR:  $\leq 1.20:1$  up to 2.4 GHz
- LSZH (low smoke zero halogen)

Custom Lengths Available

XX = custom length in inches

Contact sales about custom lengths

#### Connectors

Low PIM connectors are available with an interface of 4.3-10, 4.1-9.5 (Mini) DIN, 7-16 DIN, QN and SMA.

See pages 28-31 for more information on Connectors

Part Number	Connector 1	Connector 2	Cable Length
P2RFC-2000-36	N Male	N Male	3 foot
P2RFC-2000-72	N Male	N Male	6 foot
P2RFC-2000-108	N Male	N Male	9 foot
P2RFC-2102-XX	N Male	QMA Male	Custom length

N Male

QMA Male

All product specifications are subject to change without notice. Website information will always be most current and complete.



# Cable Assemblies Plenum Rated

## Times Microwave LMR® LLPL Plenum Cable

SMA, N, QN and 7-16 DIN Connectors

- Low loss
- UL/NEC/CSA rated CMP/FT6
- Highly flexible and bendable

### CABLE ASSEMBLIES

Assemblies use connectors designed and manufactured by RF Industries.

Use [RF Cable Configurator](#) to create assemblies on-line at [www.rfindustries.com](http://www.rfindustries.com). Create your own assembly—length, connector and cable.

### CABLES

LMR®-195LLPL, LMR®-200LLPL, LMR®-240LLPL, LMR®-400LLPL and LMR®-600LLPL

### CONNECTORS

N, QMA, SMA, Reverse Polarity TNC, 7-16 DIN, 4.1-9.5 Mini DIN and 4.3-10.



7-16 DIN Male  
LMR®-400-LLPL cable

N Female  
LMR®-400-LLPL cable

N Male  
LMR®-400-LLPL cable

N Male Compression  
Fit  
LMR®-400-LLPL cable

N Male Hex  
LMR®-400-LLPL cable

N Male Right Angle  
LMR®-400-LLPL cable

QN Male  
LMR®-400-LLPL cable

SMA Male  
LMR®-400-LLPL cable

### See Cable Configurator for Full List of Cable Assemblies

Part Number	Connector 1	Connector 2	Cable
RFW-12495-XX	N Male (Nickel)	N Male (Nickel)	LMR®-200-LLPL
RFW-12864-XX	N Male (Silver)	N Male (Silver)	LMR®-200-LLPL
RFW-12543-XX	N Male	N Female	LMR®-200-LLPL
RFW-12304-XX	N Male	SMA Male	LMR®-200-LLPL
RFW-10553-XX	TNC Male Reverse Polarity	SMA Male	LMR®-200-LLPL
RFW-12336-XX	SMA Male	SMA Male	LMR®-200-LLPL
RFW-12916-XX	N Male	SMA Male Reverse Polarity	LMR®-200-LLPL
RFW-11800-XX	N Male	N Male	LMR®-240-LLPL
RFW-12582-XX	N Male	N Male Right Angle	LMR®-240-LLPL
RFW-12774-XX	7-16 DIN Male	7-16 DIN Male	LMR®-240-LLPL
RFW-12928-XX	N Male	N Female	LMR®-240-LLPL
RFW-12962-XX	N Male	QN Male	LMR®-240-LLPL
RFW-12963-XX	N Female	QN Male	LMR®-240-LLPL
RFW-12964-XX	QN Male	QN Male	LMR®-240-LLPL
RFW-11472-XX	SMA Male	SMA Male	LMR®-240-LLPL
RFW-12733-XX	N Male	N Male	LMR®-400-LLPL
RFW-12934-XX	N Male Compression Fit	N Male Compression Fit	LMR®-400-LLPL
RFW-12449-XX	N Male Hex	N Male Hex	LMR®-400-LLPL
RFW-12580-XX	N Male	N Male Right Angle	LMR®-400-LLPL
RFW-12217-XX	N Male Right Angle	N Male Right Angle	LMR®-400-LLPL
RFW-12497-XX	N Male	N Female	LMR®-400-LLPL
RFW-10884-XX	N Male	SMA Female	LMR®-400-LLPL
RFW-11660-XX	SMA Male	N Female	LMR®-400-LLPL

## Belden RG-142P Plenum Cable

SMA, QMA and N

- UL/NEC rated CMP/FT6
- MIL-DTL-17, M17/158-00001
- Brown-tinted FEP jacket

- Flexible
- High temperature

### Custom Lengths Available

*XX = custom length in inches  
Contact sales about custom lengths  
and configurations*



N Female

N Male

N Male Right Angle

QMA Male

QMA Male Right Angle

SMA Male Right Angle

SMA Male

Part Number	Connector 1	Connector 2	Cable
RFW-12130-XX	SMA Male Right Angle	SMA Male Right Angle	RG-142P
RFW-12131-XX	SMA Male Right Angle	SMA Male	RG-142P
RFW-12519-XX	N Male	SMA Male	RG-142P
RFW-12756-XX	N Male (Silver)	N Male (Silver)	RG-142P
RFW-12535-XX	N Male (Nickel)	N Male (Nickel)	RG-142P
RFW-12780-XX	N Female	N Male	RG-142P
RFW-12846-XX	QMA Male Right Angle	QMA Male Right Angle	RG-142P
RFW-12847-XX	QMA Male	QMA Male Right Angle	RG-142P
RFW-12848-XX	QMA Male	QMA Male	RG-142P
RFW-12849-XX	QMA Male Right Angle	SMA Male Right Angle	RG-142P
RFW-12850-XX	QMA Male Right Angle	SMA Male	RG-142P
RFW-12851-XX	QMA Male Right Angle	N Male Right Angle	RG-142P
RFW-12852-XX	QMA Male	N Male	RG-142P
RFW-12853-XX	QMA Male	SMA Male	RG-142P
RFW-12854-XX	N Male	N Male Right Angle	RG-142P
RFW-12855-XX	SMA Male	SMA Male	RG-142P

All product specifications are subject to change without notice. Website information will always be most current and complete.  
LMR is a registered trademark of Times Microwave Systems.

# Cable Assemblies

## Low Loss Coax

### Low Loss RF Coax Assemblies

BNC, SMA, N, QMA and TNC Connectors

- Factory terminated and tested
- Dual-wall adhesive heat shrink on all connectors
- Labeling available for part numbers, logos, instructions, etc.
- Cables packaged to your specifications
- Colored heat shrink available
- All cables tested for continuity; sweeping available upon request
- Available with Times Microwave LMR®, equivalent cable manufactured by RF Industries or customer specified cable and/or connectors
- Plenum and fire retardant versions available

#### Custom Lengths Available

XX = custom length in inches

Contact sales about custom lengths and configurations

Part Number	Connector 1	Connector 2	Cable
RFW-5586-XX	N Male	N Male	LMR®-240
RFW-5182-XX	SMA Right Angle Male	N Female	LMR®-240
RFW-5785-XX	SMA Male	SMA Male	LMR®-240
RFW-12367-XX	QMA Male	SMA Male	LMR®-240
RFW-11688-XX	QMA Right Angle Male	SMA Male	LMR®-240
RFW-12474-XX	QMA Male	QMA Male	LMR®-240
RFW-5580-XX	N Male	N Male	LMR®-400
RFW-5012-XX	SMA Male	SMA Male	LMR®-400
RFW-12696-XX	N Male	N Male	CBL-CU240
RFW-12602-XX	N Male	N Male	CBL-CU400
RFW-12647-XX	SMA Male	SMA Male	CBL-CU240
RFW-12718-XX	SMA Male	SMA Male	CBL-CU400
RFW-12719-XX	QMA Right Angle Male	SMA Male	CBL-CU240
RFW-12645-XX	QMA Right Angle Male	QMA Right Angle Male	CBL-CU240
RFW-12894-XX	N Male Crimp	BNC Clamp Male	RG-142B/C
RFW-12863-XX	N Male	SMA Male Right Angle	RG-142B/C
RFW-5546-XX	N Male	BNC Male	RG-142B/C
RFW-5573-XX	N Male	N Male	RG-142B/C
RFW-5018-XX	N Male	SMA Male	RG-142B/C
RFW-5147-XX	N Male	N Female	RG-142B/C
RFW-5033-XX	N Male	TNC Male	RG-142B/C

BNC Male  
RG-142B/C Cable



N Female  
LMR®-240 Cable



N Male  
CBL-CU240



SMA Male  
LMR®-240 Cable



SMA Male Right Angle  
RG-142B/C Cable



QMA Male Right Angle  
LMR®-240 Cable



TNC Male  
RG-142B/C Cable



### Ruggedized Comp Pro® Assemblies

N, and 7-16 DIN Connectors

- 360° center conductor contact
- Integrated airtight weather seal
- Pull strength >200lbs
- Plenum and fire retardant versions available
- Ideal for harsh environment assemblies
- IP68 rated to 12 inches immersion

#### Custom Lengths Available

XX = custom length in inches

Contact sales about custom lengths and configurations

Part Number	Connector 1	Connector 2	Cable
RFW-12913-XX	N Male	N Male	LMR®-400
RFW-12936-XX	N Male	N Female	LMR®-400
RFW-12938-XX	7-16 DIN Male	7-16 DIN Male	LMR®-400
RFW-12934-XX	N Male	N Male	LMR®-400LLPL Plenum and fire retardant cable
RFW-12970-XX	N Male	N Male	LMR®-600
RFW-12935-XX	N Male	N Male	LMR®-400-DB Direct burial cable
RFW-12937-XX	N Male	N Female	LMR®-400-DB Direct burial cable
RFW-12939-XX	7-16 DIN Male	7-16 DIN Male	LMR®-400-DB Direct burial cable
RFW-12969-XX	N Male	N Male	LMR®-600-DB Direct burial cable

See pages 28-31 for more information on Connectors

7-16 DIN Male  
LMR®-400 cable



N Male  
LMR®-400 cable



N Male  
LMR®-600 cable



All product specifications are subject to change without notice. Website information will always be most current and complete.  
Comp Pro is a registered trademark of RF Industries. LMR is a registered trademark of Times Microwave Systems.



# Cable Assemblies Test Cables

## General Test Cables

Armor Cable

### FEATURES

Highly Flexible  
Rugged SST Armor  
Mesh Outer Jacket  
Phase & Loss Stable  
Robust Strain Relief  
SST Connectors, High Mating Cycles  
RoHS Compliant  
Affordable



### GENERAL SPECIFICATIONS

#### Cable Material

Inner Conductor ..... Silver Plated Copper  
Dielectric ..... PTFE  
Outer Conductor ..... Double Silver Plated Copper Braid

#### Electrical Characteristics

Impedance ..... 50Ω  
Frequency Range ..... 0-12GHz  
Velocity of Propagation ..... 70%  
Insertion Loss ..... <1.15dB @ 6GHz  
Shielding Effectiveness ..... > 100%

#### Environmental Characteristics

Temperature Range ..... -55 degrees C to + 85 degrees C

Model Number	Connector	Connector	Cable Length
P2RFC-2746-39	N Male	N Male	1 meter

## Low PIM Test Cables

Armor Cable

### FEATURES

Highly Flexible  
Rugged SST Armor  
Mesh Outer Jacket  
Phase & Loss Stable  
Robust Strain Relief  
RoHS Compliant  
Affordable



### GENERAL SPECIFICATIONS

#### Cable Material

Inner Conductor ..... Silver Plated Copper  
Dielectric ..... PTFE  
Outer Conductor ..... Double Silver Plated Copper Braid

#### Electrical Characteristics

Impedance ..... 50Ω  
Frequency Range ..... DC-6GHz  
3rd PIM (dBc) ..... ≤-165dBc @ 2 X +43dBm tones  
VSWR ..... <1.2@ DC-6GHz  
Velocity of Propagation ..... 70%  
Insertion Loss ..... <2.5dB  
Shielding Effectiveness ..... > 100%

#### Environmental Characteristics

Temperature Range ..... -55 degrees C to + 80 degrees C

Model Number	Connector	Connector	Cable Length
P2RFC-2559-60	N Male	4.3-10 female	1.5 meters
P2RFC-2560-60	N Male	4.3-10 male	1.5 meters
P2RFC-2638-39	N Male	N Male	1 meter

All product specifications are subject to change without notice. Website information will always be most current and complete.

# Cable Assemblies Fiber Optic

## Fiber Optic Patch Cables

Corning Gold House

- Manufactured with Corning FREEDM® One cable
- Cables Unlimited is a divisions of RF Industries and a members of the Corning Cable Systems Cable Assembly House (CAH) Connections<sup>SM</sup> Gold Program.
- Patch cables manufactured by Cables Unlimited qualify for the Corning Cable Systems LANscape™ Extended Warranty Program<sup>SM</sup>, which provides a 25-year project warranty.

Custom Lengths available

XX = custom length in inches

Contact Sales about Custom Lengths



Part Number	Description	Cable Length
FSOD2A4CCS-003M	Single-Mode Fiber Assembly, 2 Strand Duplex LC/LC	3 Meter
FSOD2A4CCS-015M	Single-Mode Fiber Assembly 2 Strand Duplex LC/LC	15 Meter
FMODA7CCS-001M	Multi-Mode Fiber Assembly, 2 Strand Duplex LC/LC	1 Meter
FMODA7CES-05	Multi-Mode Fiber Assembly, 2 Strand, SC/LC, 50UM	50 Feet
FMODA7CFS-001M	Multi-Mode Fiber Assembly, 2 Strand Duplex, 50UM PVC LC /ST	1 Meter
FSOD2A4KKS-002M	Single-Mode Fiber Assembly, 2 Strand Duplex PVC APC, SC/SC	2 Meter
FSOD2A4KKS-010M	Single-Mode Fiber Assembly, 2 Strand Duplex PVC APC, SC/SC	10 Meter
FMOD2A4FFS-001M	Multi-Mode Fiber Assembly, 2 Strand Duplex, ST/ST, 62.5UM	1 Meter
FMOD2A4FFS-003M	Multi-Mode Fiber Assembly, 2 Strand Duplex, ST/ST, 62.5UM	3 Meter
FMOD2A4FFS-005M	Multi-Mode Fiber Assembly, 2 Strand Duplex, ST/ST, 62.5UM	5 Meter

## Ruggedized Fiber Optic Cables (LC-LC Duplex)

Fiber to the Antenna

- IP66/67 rated harsh environment
- OM1 62.5/125
- -40 to +70 degrees Celsius operation
- Strain relief with 56 pound pull strength
- Manufactured with Corning FREEDM® One cable
- Factory terminated by Corning certified technicians to ensure maximum system performance

Custom Lengths available

XXX = custom length in inches

Contact Sales about Custom Lengths



Length	Part Number
5 meter	FTTA-LCDLCD-005M
10 meter	FTTA-LCDLCD-010M
50 meter	FTTA-LCDLCD-050M
100 meter	FTTA-LCDLCD-100M
150 meter	FTTA-LCDLCD-150M
200 meter	FTTA-LCDLCD-200M
Custom Length	FTTA-LCDLCD-xxxM

All product specifications are subject to change without notice. Website information will always be most current and complete.  
CAH Connections is a service mark of Corning Cable Systems LLC.



# Cable Assemblies Fiber Optic

## Fiber Optic Trunk Cables

Fiber to the Antenna

- Available with 6-strand through 36-strand fibers
- Manufactured with Corning FREEDM® One cable
- Available with LC or SC connectors
- UL1666 certified OFNR and FT-4 cable
- IP67 rated connectors
- 5.5mm to 16mm OD
- Indoor / outdoor temperature and water-resistant performance
- 2 meter fanouts
- Factory terminated by Corning certified technicians to ensure maximum system performance

Custom Lengths available

XXX= custom length in inches

Contact Sales about Custom Lengths



6 Strand: Single-Mode	
Length	Part Number
10 feet	22M06201SM010X
50 feet	22M06201SM050X
75 feet	22M06201SM075X
100 feet	22M06201SM100X
150 feet	22M06201SM150X
Custom Length	22M06201SMxxxX

6 Strand: Multi-Mode	
Length	Part Number
10 feet	22D02101MM010X
50 feet	22D02101MM050X
75 feet	22D02101MM075X
100 feet	22D02101MM100X
150 feet	22D02101MM150X
Custom Length	22D02101MMxxxX

12 Strand: Single-Mode	
Length	Part Number
15 meter	RRH-12-SM-015M
50 meter	RRH-12-SM-050M
100 meter	RRH-12-SM-100M
150 meter	RRH-12-SM-150M
200 meter	RRH-12-SM-200M
Custom Length	RRH-12-SM-xxxM

24 Strand: Single-Mode	
Length	Part Number
15 meter	RRH-24-SM-015M
50 meter	RRH-24-SM-050M
100 meter	RRH-24-SM-100M
150 meter	RRH-24-SM-150M
200 meter	RRH-24-SM-200M
Custom Length	RRH-24-SM-xxxM

36 Strand: Single-Mode	
Length	Part Number
15 meter	RRH-36-SM-015M
50 meter	RRH-36-SM-050M
100 meter	RRH-36-SM-100M
150 meter	RRH-36-SM-150M
200 meter	RRH-36-SM-200M
Custom Length	RRH-36-SM-xxxM

All product specifications are subject to change without notice. Website information will always be most current and complete.  
FREEDM is a registered mark of Corning.

# Cable Assemblies RET & Power Cables

## RET Control Cables

Remote Electrical Tilt (RET) Applications

- Male to female
- AISG compliant (Antenna Interface Standards Group)
- Weatherproof
- Compatible with Andrew, Kathrein, Huawei, RFS and other brands
- RoHS compliant

Custom Lengths available

XX = custom length in inches

Contact Sales about Custom Lengths



Female



Male



### Pin Assignment

1. +12V DC
2. not used
3. RS485 B
4. not used
5. RS485 A
6. +24V DC
7. DC return
8. not used

### Technical Specifications

Connectors	1 x 8 pin IEC 60130-9 male 1 x 8 pin IEC 60130-9 female
Construction	Shielded 3 x 20 AWG 2 X 24 AWG (twisted pair, RS-485-A and -B)
Protection Class	IP67 (mated)
Rated Current	5 A
Temperature Range	-40°C / 80°C
Materials	RoHS compliant

Length: Meters	Length: Feet	Part Number
0.5	1.5	RF-RET-.5M
1	3.3	RF-RET-1M
2	6.5	RF-RET-2M
3	9.8	RF-RET-3M
5	16.4	RF-RET-5M
6	20.0	RF-RET-6M
10	32.8	RF-RET-10M
15	49.0	RF-RET-15M
20	65.6	RF-RET-20M
30	98.4	RF-RET-30M
40	131.2	RF-RET-40M
50	164.0	RF-RET-50M
60	196.9	RF-RET-60M
70	229.7	RF-RET-70M
80	262.0	RF-RET-80M
90	295.0	RF-RET-90M
100	328.0	RF-RET-100M

## Outdoor DC Power Cables

- UL approved for direct burial or sunlight applications
- Tinned copper braid and aluminum tape with drain wire
- 600 volts power tray cable
- Available per foot or bulk
- Labeled per ICEA standards
- Other wire colors available
- RoHS compliant

Custom Lengths available

XX = custom length in inches

Contact Sales about Custom Lengths



Cable Type	Comp A	Comp B	Overall Cable	Nominal OD (inches)	Description	Part Number
3/C Composite	2/C 12 65/30 TC, .016 PVC, .005 Nylon	1/C 12 65/30 BC Ground Wire - Uninsulated	M/A Foil, 14 41/30 TC DW, 36 TC BS - 85%, .050 PVC JKT	.395	12-AWG, 2-conductor shielded, #12 AWG 65 strands tinned copper with #12 bare ground wire	122CS-12RB-12

All product specifications are subject to change without notice. Website information will always be most current and complete.



# Cable Assemblies Hybrid/Composite

## OptiFlex™ Hybrid Connector System (OHCS)

Fiber optic (MPO/MU) and copper connectors

- All in one Power and Optical Solutions
- Quick locking
- Secure Mating—High strength cable retention system
- Designed for all standard MPO or MU contacts
- High power and voltage drop management
- Designed for copper conductors from AWG16 to AWG8
- Long Outdoor Life—UV-resistant—Corrosion free
- IP68/69
- Factory Terminated cable assemblies available

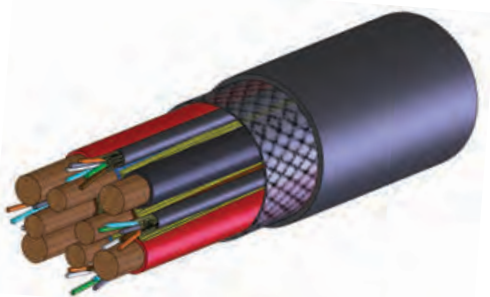


Contact type	Connector type	Backshell	Connector Part number	
			Male insert with male crimp contact	Female insert with female crimp contact
OHCS Hybrid MPO Series	Free hanging receptacle	Cable gland	OHCS1JC20HYBMPN	-
	Jam nut receptacle	Without	OHCS720HYBMPN	-
	Plug	Cable gland	-	OHCS6JC20HYBMPN
OHCS Hybrid MU Series	Free hanging receptacle	Cable gland	OHCS1JC20HYBMUN	-
	Jam nut receptacle	Without	OHCS720HYBMUN	-
	Plug	Cable gland	-	OHCS6JC20HYBMUN

## OptiFlex™

Hybrid Custom Cable Solutions

- Fiber optic and DC power cables
- Factory terminated fiber by Corning certified technicians maximizes system performance
- Flexible copper tape shield serves as grounding function
- Can be deployed in lengths up to 550' with less than 10% voltage drop, based on 950 watt radios. (May vary with custom configurations.)
- Heat, moisture and UV resistant PVC outer jacket with direct burial capability
- Weatherized from end to end, insuring optimal performance in rugged environments

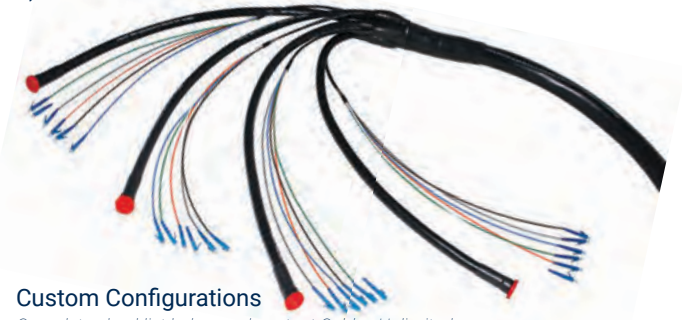


### Standard Configurations

For reference only. Contact Cables Unlimited for breakout and termination options.

Description	Part Number
6 conductor 10 AWG, 2 conductor 8 AWG, 18 strand single-mode (SM) fiber with LC connectors.	6A2B18SMLCXXXFT
2 conductor 10 AWG, 2 conductor 8 AWG, 2 conductor 6 AWG, 6 strand multi-mode (MM) fiber with LC connectors.	2A2B2C6MMSCXXXFT
4 conductor 10 AWG, 4 conductor 8 AWG, 12 strand single-mode (SM) fiber with LC connectors.	4A4B12SMLCXXXFT
2 conductor 8 AWG, 2 conductor 6 AWG, 6 strand multi-mode (MM) fiber with LC connectors.	2A4C06MMLCXXXFT

Note: XXX indicates length in feet



### Custom Configurations

Complete checklist below and contact Cables Unlimited.

Variable	Options
Number of fibers	6 to 48
Single-mode or Multi-mode	SM or MM
AWG of wire conductors (power cables)	2, 4, 6, 8, 10, 12
Number of conductors (power cables)	2, 3, 4, 6, 8
Total length in feet	
Breakout and Terminations – Side A (Tower Top)	
Number of Remote Radio Heads	
Length in feet	
Fiber connector terminations	LC or SC
Power conductor terminations	
Breakout and Terminations – Side B (Bottom/Equipment)	
Length in feet	
Fiber connector terminations	LC or SC
Power conductor terminations	

All product specifications are subject to change without notice. Website information will always be most current and complete.  
OptiFlex is a trademark of RF Industries

# Components

## Low PIM Power Splitters

### Low PIM Power Splitter (Frequency Range 380-2700 MHz)

4.3-10 Female, 7-16 DIN Female N Female

- Low PIM
- 3rd Intermodulation:  $\leq -155\text{dBc}$
- 3rd Intermodulation test:  $+43\text{dBm} \times 2$  tones
- Low VSWR
- Multiple configurations
- 50 Ohm input
- Peak power: 1.5Kw
- Reactive Type
- IP67 Rating
- RoHS compliant

#### Low PIM 7-16 DIN Female Splitter



RFPS-2A-DF	2 Way Power Splitter 7-16 DIN Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.22\text{dB}$
Split Loss: 3dB	Peak Power: 1.5Kw
Average Power: 500w	IP67 Rated



RFPS-3A-DF	3 Way Power Splitter 7-16 DIN Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.3\text{dB}$
Split Loss: 4.8dB	Peak Power: 1.5Kw
Average Power: 500w	IP67 Rated



RFPS-4A-DF	4 Way Power Splitter 7-16 DIN Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.1\text{dB}$
Split Loss: 6dB	Peak Power: 1.5Kw
Average Power: 500w	IP67 Rated

#### Low PIM N Female Splitter



RFPS-2A-NF	2 Way Power Splitter N Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.22\text{dB}$
Split Loss: 3dB	Peak Power: 1.5Kw
Average Power: 350w	IP67 Rated



RFPS-3A-NF	3 Way Power Splitter N Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.3\text{dB}$
Split Loss: 4.8dB	Peak Power: 1.5Kw
Average Power: 350w	IP67 Rated



RFPS-4A-NF	4 Way Power Splitter N Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.4\text{dB}$
Split Loss: 6dB	Peak Power: 1.5Kw
Average Power: 350w	IP67 Rated

#### Low PIM 4.3-10 Female Splitter



RFPS-2A-43F	2 Way Power Splitter 4.3-10 Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.25\text{dB}$
Split Loss: 3dB	Peak Power: 1.5Kw
Average Power: 500w	IP67 Rated



RFPS-3A-43F	3 Way Power Splitter 4.3-10 Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.3\text{dB}$
Split Loss: 4.8dB	Peak Power: 1.5Kw
Average Power: 500w	IP67 Rated



RFPS-4A-43F	4 Way Power Splitter 4.3-10 Female
VSWR: $\leq 1.25$	Insertion Loss: $\leq 4\text{dB}$
Split Loss: 6dB	Peak Power: 1.5Kw
Average Power: 500w	IP67 Rated

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# Components

## Low PIM Power Splitters

### Low PIM Power Splitter (Frequency Range 698-2700 MHz)

4.3-10 Female, 7-16 DIN Female N Female

- 3rd Intermodulation:  $\leq -155\text{dBc}$
- 3rd Intermodulation test:  $+43\text{dBm} \times 2$  tones
- Low VSWR
- Multiple configurations
- 50 Ohm input
- Reactive Type
- IP67 Rating
- RoHS compliant

#### Low PIM 7-16 DIN Female Splitter



RFPS-2C-DF 2 Way Power Splitter 7-16 DIN Female	
VSWR: $\leq 1.20$	Insertion Loss: $\leq 0.1\text{dB}$
Split Loss: 3dB	Peak Power: 3Kw
Average Power: 500w	IP67 Rated



RFPS-3C-DF 3 Way Power Splitter 7-16 DIN Female	
VSWR: $\leq 1.20$	Insertion Loss: $\leq 0.15\text{dB}$
Split Loss: 4.8dB	Peak Power: 3Kw
Average Power: 500w	IP67 Rated



RFPS-4C-DF 4 Way Power Splitter 7-16 DIN Female	
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.25\text{dB}$
Split Loss: 6dB	Peak Power: 3Kw
Average Power: 500w	IP67 Rated

#### Low PIM N Female Splitter



RFPS-2C-NF 2 Way Power Splitter N Female	
VSWR: $\leq 1.20$	Insertion Loss: $\leq 0.1\text{dB}$
Split Loss: 3dB	Peak Power: 1.5Kw
Average Power: 350w	IP67 Rated



RFPS-3C-NF 3 Way Power Splitter N Female	
VSWR: $\leq 1.20$	Insertion Loss: $\leq 0.15\text{dB}$
Split Loss: 4.8dB	Peak Power: 1.5Kw
Average Power: 350w	IP67 Rated



RFPS-4C-NF 4 Way Power Splitter N Female	
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.2\text{dB}$
Split Loss: 6dB	Peak Power: 1.5Kw
Average Power: 350w	IP67 Rated

#### Low PIM 4.3-10 Female Splitter



RFPS-2C-43F 2 Way Power Splitter 4.3-10 Female	
VSWR: $\leq 1.20$	Insertion Loss: $\leq 0.2\text{dB}$
Split Loss: 3dB	Peak Power: 1.3Kw
Average Power: 500w	IP67 Rated



RFPS-3C-43F 3 Way Power Splitter 4.3-10 Female	
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.3\text{dB}$
Split Loss: 4.8dB	Peak Power: 1.3Kw
Average Power: 500w	IP67 Rated



RFPS-4C-43F 4 Way Power Splitter 4.3-10 Female	
VSWR: $\leq 1.3$	Insertion Loss: $\leq 0.4\text{dB}$
Split Loss: 6.4dB	Peak Power: 1.3Kw
Average Power: 500w	IP67 Rated

### Power Splitter (Frequency Range 698-2700 MHz)

N Female

- 3rd Intermodulation:  $\leq -155\text{dBc}$
- 3rd Intermodulation test:  $+43\text{dBm} \times 2$  tones
- Low VSWR
- Multiple configurations
- 50 Ohm impedance
- IP65 Rating
- RoHS compliant

#### Low PIM N Female Splitter



RFPS-2-NF 2 Way Power Splitter N Female	
VSWR: $\leq 1.20$	Insertion Loss: $\leq 0.1\text{dB}$
Split Loss: 3dB	Peak Power: 1Kw
Average Power: 300w	IP65 Rated



RFPS-3-NF 3 Way Power Splitter N Female	
VSWR: $\leq 1.25$	Insertion Loss: $\leq 0.2\text{dB}$
Split Loss: 4.8dB	Peak Power: 1Kw
Average Power: 300w	IP65 Rated



RFPS-4-NF 4 Way Power Splitter N Female	
VSWR: $\leq 1.3$	Insertion Loss: $\leq 0.3\text{dB}$
Split Loss: 6dB	Peak Power: 1Kw
Average Power: 300w	IP65 Rated

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# Components

## Low PIM Power Splitters Wilkinson Model

### Low PIM Power Splitter (Frequency Range 698-2700 MHz)

4.3-10 Female

#### FEATURES

Wide Frequency Band  
2G/3G/4G/LTE Coverage  
Low PIM  
Low VSWR & Insertion Loss  
Indoor & Outdoor Application IP65  
Widely used for In-building Solutions

#### GENERAL SPECIFICATIONS

Frequency Range ..... 698-2700MHz  
Impedance Output ..... 50Ω  
Input Power ..... 50W  
3rd PIM (dBc) ..... ≤-153dBc@2X +43dBm Tones  
VSWR ..... ≤1.3  
Temperature Range..... -30° C to +70° C  
Connector Type ..... 4.3-10 female  
Color..... Black



Model Number	Input Port Number	Output Port Number	Split Loss(dB)	IL(dB)	Weight (kg)
RFPSW-2-43F	1	2	3.0	≤0.5	0.30 kg
RFPSW-3-43F	1	3	4.8	≤0.7	0.35 kg
RFPSW-4-43F	1	4	6.0	≤0.7	0.40 kg

### Low PIM Power Splitter (Frequency Range 698-2700 MHz)

N Female

#### FEATURES

Wide Frequency Band  
2G/3G/4G/LTE Coverage  
Low PIM  
Low VSWR & Insertion Loss  
Indoor & Outdoor Application IP65  
Widely used for In-building Solutions

#### GENERAL SPECIFICATIONS

Frequency Range ..... 698-2700MHz  
Impedance Output ..... 50Ω  
Input Power ..... 50W  
3rd PIM (dBc) ..... ≤-153dBc@2X +43dBm tones  
VSWR ..... ≤1.3  
Temperature Range..... -30° C to +70° C  
Connector Type ..... N female  
Color..... Black



Model Number	Input Port Number	Output Port Number	Split Loss(dB)	IL(dB)	Weight (kg)
RFPSW-2-NF	1	2	3.0	≤0.5	0.30 kg
RFPSW-3-NF	1	3	4.8	≤0.7	0.35 kg
RFPSW-4-NF	1	4	6.0	≤0.7	0.40 kg

Images for reference only and subject to change. Most current product specifications are always available through our website. All product specifications are subject to change without notice. Website information will always be most current and complete.

## 5W RF Attenuator

N male to N female

### FEATURES

Wide Frequency Band DC-3GHz

2G/3G/4G/LTE Coverage

Low VSWR

Widely used for In-building Solutions



### GENERAL SPECIFICATIONS

Frequency Range .....	DC-3GHz
Impedance.....	50Ω
Power Rating .....	5W (average)
VSWR .....	≤1.20
Temperature Range.....	-30° C to +65° C
Connector Type .....	N male to N female
Plating.....	White Bronze
Color.....	Silver
Weight.....	0.15 (kg)

Model Number	Attenuation (dB)	Accuracy (dB)
RF-ATN-NMF-5W2	2dB	±0.8
RF-ATN-NMF-5W3	3dB	±0.8
RF-ATN-NMF-5W6	6dB	±0.8
RF-ATN-NMF-5W10	10dB	±1.0
RF-ATN-NMF-5W20	20dB	±1.5

## 5W RF Attenuator

SMA male to SMA female

### FEATURES

Wide Frequency Band DC-3GHz

2G/3G/4G/LTE Coverage

Low VSWR

Widely used for In-building Solutions



### GENERAL SPECIFICATIONS

Frequency Range .....	DC-3GHz
Impedance.....	50Ω
Power Rating .....	5W(average)
VSWR .....	≤1.20
Temperature Range.....	-30° C to +65° C
Connector Type .....	SMA male to SMA female
Plating.....	White Bronze
Color.....	Silver
Weight.....	0.1 (kg)

Model Number	Attenuation (dB)	Accuracy (dB)
RF-ATN-SMF-5W3	3dB	±0.8
RF-ATN-SMF-5W10	10dB	±1.0
RF-ATN-SMF-5W20	20dB	±1.5

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# Components

## Low PIM Power Tappers

### Low PIM Power Tappers (Frequency Range 350-2700 MHz)

N Female

#### FEATURES

Low Insertion Loss  
Low VSWR  
Low PIM -155dBc  
200 Watt Average Power  
Indoor/Outdoor Use  
RoHS Compliant  
Installation Bracket Included

#### GENERAL SPECIFICATIONS

Frequency Range ..... 350-2700MHz  
Impedance..... 50Ω  
Power Rating ..... 200W avg  
3rd PIM (dBc) ..... ≤-155dBc@2X +43dBm tones  
IP Grade ..... IP65  
Temperature Range..... -35° C to +85° C  
Connector Type ..... N Female  
Housing Material..... Aluminum  
Color..... Black

#### ELECTRICAL SPECIFICATIONS

Model Number	Coupling	Branch Flatness ref. to Input Level, incl Loss, dB		Input VSWR max	
		340-960	1710-2700	340-960	1710-2700
RFPT-NF-A3	3.0dB	±1.2	±0.5	1.30:1	1.25:1
RFPT-NF-A48	4.8dB	±1.2	±0.5	1.30:1	1.25:1
RFPT-NF-A6	6.0dB	±1.2	±0.5	1.30:1	1.25:1
RFPT-NF-A7	7.0dB	±1.0	±0.5	1.30:1	1.25:1
RFPT-NF-A10	10.0dB	±1.0	±0.5	1.25:1	1.25:1
RFPT-NF-A20	20dB	±1.2	±0.6	1.25:1	1.25:1



### Low PIM Power Tappers (Frequency Range 350-2700 MHz)

4.3-10 Female

#### FEATURES

Low Insertion Loss  
Low VSWR  
Low PIM -155dBc  
200 Watt Average Power  
Indoor/Outdoor Use  
RoHS Compliant  
Installation Bracket Included

#### GENERAL SPECIFICATIONS

Frequency Range ..... 350-2700MHz  
Impedance..... 50Ω  
Power Rating ..... 200W avg  
3rd PIM (dBc) ..... ≤-155dBc@2X +43dBm tones  
IP Grade ..... IP65  
Temperature Range..... -35° C to +85° C  
Connector Type ..... 4.3-10 Female  
Housing Material..... Aluminum  
Color..... Black

#### ELECTRICAL SPECIFICATIONS

Model Number	Coupling	Branch Flatness ref. to Input Level, incl Loss, dB		Input VSWR max	
		340-960	1710-2700	340-960	1710-2700
RFPT-43F-A3	3.0dB	±1.2	±0.5	1.30:1	1.25:1
RFPT-43F-A48	4.8dB	±1.2	±0.5	1.30:1	1.25:1
RFPT-43F-A6	6.0dB	±1.2	±0.5	1.30:1	1.25:1
RFPT-43F-A7	7.0dB	±1.0	±0.5	1.30:1	1.25:1
RFPT-43F-A10	10.0dB	±1.0	±0.5	1.25:1	1.25:1
RFPT-43F-A20	20dB	±1.2	±0.6	1.25:1	1.25:1



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# Components

## Low PIM Power Tappers

### Low PIM Power Tappers (Frequency Range 698-2700MHz)

N Female

#### FEATURES

Low Insertion Loss  
Low VSWR  
Low PIM -155dBc  
200 Watt Average Power  
Indoor/Outdoor Use  
RoHS Compliant  
Install Bracket Included



#### GENERAL SPECIFICATIONS

Frequency Range ..... 698-2700MHz  
Impedance..... 50Ω  
Power Rating ..... 200W avg  
3rd PIM (dBc) ..... ≤-155dBc@2X +43dBm tones  
IP Grade ..... IP65  
Temperature Range..... -35° C to +85° C  
Connector Type ..... N Female  
Housing Material..... Aluminum  
Color..... Black

#### ELECTRICAL SPECIFICATIONS

Model Number	Coupling	VSWR	Branch Flatness ref. to Input Level, incl Loss, dB		Insertion Loss	
			698-960	1710-2700	698-960	1710-2700
RFPT-NF-C48	4.8dB	≤1.35:1	±1.0	±1.0	1.7±0.5	1.7±0.5
RFPT-NF-C7	7.0dB	≤1.35:1	±1.0	±1.0	1.0±0.3	1.0±0.3
RFPT-NF-C10	10.0dB	≤1.35:1	±1.0	±1.0	0.5±0.2	0.5±0.2
RFPT-NF-C20	20dB	≤1.15:1	±1.5	±1.5	0.1±0.1	0.1±0.1

### Low PIM Power Tappers (Frequency Range 698-2700MHz)

4.3-10 Female

#### FEATURES

Low Insertion Loss  
Low VSWR  
Low PIM -160dBc  
200 Watt Average Power  
Indoor/Outdoor Use  
RoHS Compliant  
Install Bracket Included



#### GENERAL SPECIFICATIONS

Frequency Range ..... 698-2700MHz  
Impedance..... 50Ω  
Power Rating ..... 200W avg  
3rd PIM (dBc) ..... ≤-160dBc@2X +43dBm tones  
IP Grade ..... IP65  
Temperature Range..... -35° C to +85° C  
Connector Type ..... 4.3-10 Female  
Housing Material..... Aluminum  
Color..... Black

#### ELECTRICAL SPECIFICATIONS

Model Number	Coupling	VSWR	Branch Flatness ref. to Input Level, incl Loss, dB		Insertion Loss dB	
			698-960	1710-2700	698-960	1710-2700
RFPT-43F-C48	4.8dB	≤1.35:1	±1.0	±1.0	1.75±0.5	1.75±0.5
RFPT-43F-C7	7.0dB	≤1.35:1	±1.0	±1.0	1.0±0.3	1.0±0.3
RFPT-43F-C10	10.0dB	≤1.35:1	±1.0	±1.0	0.5±0.2	0.5±0.2
RFPT-43F-C20	20dB	≤1.15:1	±1.5	±1.5	0.1±0.1	0.1±0.1

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# Components

## Low PIM Couplers

### Low PIM Directional Couplers

N, and 7-16 DIN Connectors

- 3rd Intermodulation:  $\leq -155\text{dBc}$
- 3rd Intermodulation test:  $+43\text{dBm} \times 2$  tones
- 50 Ohm impedance
- Low VSWR
- Multiple configurations
- IP67 Rating
- RoHS compliant



Part Number	dB	Connector	Frequency
RFDC-4.8DBA-43F	4.8 dB Directional Coupler	4.3-10 Female	380-2700 MHz
RFDC-4.8DBA-DF	4.8 dB Directional Coupler	7-16 DIN Female	380-2700 MHz
RFDC-4.8DBA-NF	4.8 dB Directional Coupler	N Female	380-2700 MHz
RFDC-4.8DBC-43F	4.8 dB Directional Coupler	4.3-10 Female	698-2700 MHz
RFDC-4.8DBC-DF	4.8 dB Directional Coupler	7-16 DIN Female	698-2700 MHz
RFDC-4.8DBC-NF	4.8 dB Directional Coupler	N Female	698-2700 MHz
RFDC-6DBA-43F	6 dB Directional Coupler	4.3-10 Female	380-2700 MHz
RFDC-6DBA-DF	6 dB Directional Coupler	7-16 DIN Female	380-2700 MHz
RFDC-6DBA-NF	6 dB Directional Coupler	N Female	380-2700 MHz
RFDC-6DBC-43F	6 dB Directional Coupler	4.3-10 Female	698-2700 MHz
RFDC-6DBC-DF	6 dB Directional Coupler	7-16 DIN Female	698-2700 MHz
RFDC-6DBC-NF	6 dB Directional Coupler	N Female	698-2700 MHz
RFDC-7DBC-43F	7 dB Directional Coupler	4.3-10 Female	698-2700 MHz
RFDC-7DBC-NF	7 dB Directional Coupler	N Female	698-2700 MHz
RFDC-8DBA-43F	8 dB Directional Coupler	4.3-10 Female	380-2700 MHz
RFDC-8DBA-DF	8 dB Directional Coupler	7-16 DIN Female	380-2700 MHz
RFDC-8DBA-NF	8 dB Directional Coupler	N Female	380-2700 MHz
RFDC-8DBC-43F	8 dB Directional Coupler	4.3-10 Female	698-2700 MHz
RFDC-8DBC-DF	8 dB Directional Coupler	7-16 DIN Female	698-2700 MHz
RFDC-8DBC-NF	8 dB Directional Coupler	N Female	698-2700 MHz
RFDC-10DBA-43F	10 dB Directional Coupler	4.3-10 Female	380-2700 MHz
RFDC-10DBA-DF	10 dB Directional Coupler	7-16 DIN Female	380-2700 MHz
RFDC-10DBA-NF	10 dB Directional Coupler	N Female	380-2700 MHz
RFDC-10DBC-43F	10 dB Directional Coupler	4.3-10 Female	698-2700 MHz
RFDC-10DBC-DF	10 dB Directional Coupler	7-16 DIN Female	698-2700 MHz
RFDC-10DBC-NF	10 dB Directional Coupler	N Female	698-2700 MHz
RFDC-13DBA-43F	13 dB Directional Coupler	4.3-10 Female	380-2700 MHz
RFDC-13DBA-DF	13 dB Directional Coupler	7-16 DIN Female	380-2700 MHz
RFDC-13DBA-NF	13 dB Directional Coupler	N Female	380-2700 MHz
RFDC-13DBC-43F	13 dB Directional Coupler	4.3-10 Female	698-2700 MHz
RFDC-13DBC-DF	13 dB Directional Coupler	7-16 DIN Female	698-2700 MHz
RFDC-13DBC-NF	13 dB Directional Coupler	N Female	698-2700 MHz
RFDC-15DBA-43F	15 dB Directional Coupler	4.3-10 Female	380-2700 MHz
RFDC-15DBA-DF	15 dB Directional Coupler	7-16 DIN Female	380-2700 MHz
RFDC-15DBA-NF	15 dB Directional Coupler	N Female	380-2700 MHz
RFDC-15DBC-43F	15 dB Directional Coupler	4.3-10 Female	698-2700 MHz
RFDC-15DBC-DF	15 dB Directional Coupler	7-16 DIN Female	698-2700 MHz
RFDC-15DBC-NF	15 dB Directional Coupler	N Female	698-2700 MHz

### Low PIM Hybrid Couplers

N Connector

- Low PIM  $\leq -150\text{dBc}$
- 50 Ohm impedance
- Low VSWR  $\leq 1.20:1$  up to 3 GHz
- Multiple configurations
- IP65 rating
- RoHS compliant



Part Number	dB	Connector	Frequency
RFHC-3-NF	3 dB Hybrid Coupler	N Female	698-2700 MHz
RFHC-3DBA-DF	3 dB Hybrid Coupler	7-16 DIN Female	380-2700 MHz
RFHC-3DBA-NF	3 DB Hybrid Coupler	N Female	380-2700 MHz

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## Low PIM Termination Load

4.3-10 Connector



Images not to scale

### 4.3-10 Female

Part Number	Connector	Watts Average Power	PIM	Frequency
RFLOAD-43F2	4.3-10 Female	2 watts	< - 160dBc	698-2700MHz
RFLOAD-43F5	4.3-10 Female	5 watts	< - 160dBc	698-2700MHz
RFLOAD-43F10	4.3-10 Female	10 watts	< - 160dBc	698-2700MHz
RFLOAD-43F30	4.3-10 Female	30 watts	< - 160dBc	698-2700MHz
RFLOAD-43F50	4.3-10 Female	50 watts	< - 160dBc	698-2700MHz
RFLOAD-43F100	4.3-10 Female	100 watts	< - 160dBc	698-2700MHz

### 4.3-10 Male

Part Number	Connector	Watts Average Power	PIM	Frequency
RFLOAD-43M2	4.3-10 Male	2 watts	< - 160dBc	698-2700MHz
RFLOAD-43M3	4.3-10 Male	3 watts	< - 160dBc	698-2700MHz
RFLOAD-43M5	4.3-10 Male	5 watts	< - 160dBc	698-2700MHz
RFLOAD-43M10	4.3-10 Male	10 watts	< - 160dBc	698-2700MHz
RFLOAD-43M20	4.3-10 Male	20 watts	< - 160dBc	698-2700MHz
RFLOAD-43M50	4.3-10 Male	50 watts	< - 160dBc	698-2700MHz
RFLOAD-43M100	4.3-10 Male	100 watts	< - 160dBc	698-2700MHz

### 7-16 DIN

Part Number	Connector	Watts Average Power	PIM	Frequency
RFLOAD-DM50	4.3-10 Male	50 watts	< - 160dBc	698-2700MHz
RFLOAD-DF50	4.3-10 Female	50 watts	< - 160dBc	698-2700MHz
RFLOAD-DF200	4.3-10 Female	200 watts	< - 160dBc	698-2700MHz

### N Male

Part Number	Connector	Watts Average Power	PIM	Frequency
RFLOAD-NM50	N Male	50 watts	< - 110dBc	698-2700MHz

## Termination Load

N, 4.3-10, and 7-16 DIN Connectors



Part Number	Connector	Watts Average Power	PIM	Frequency
RFDL-2W-43M	4.3-10 Male	2 watts	n/a	DC-6 GHz
RFDL-5W-43M	4.3-10 Male	5 watts	n/a	DC-6 GHz
RFDL-2W-DM	7-16 DIN Male	2 watts	n/a	DC-6 GHz
RFDL-2W-NM	N Male	2 watts	n/a	DC-6 GHz
RFDL-5W-NM	N Male	5 watts	n/a	DC-6 GHz
RFDL-30W-NM	N Male	30 watts	n/a	DC-3 GHz

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# Components Comp Pro® Compression Connectors

## Comp Pro® Compression Connectors

for LMR®-400, LMR®-600 and Equivalent Braided Cables

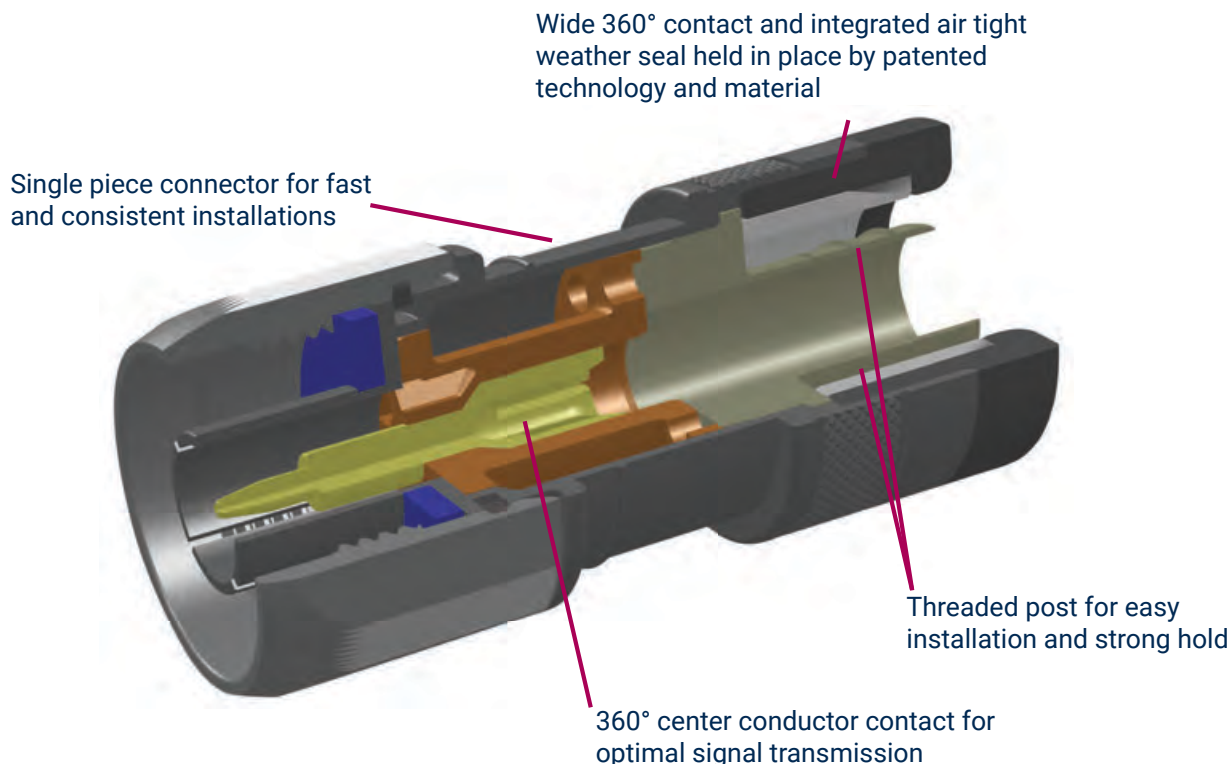
### Advantages

- Designed to excel in harsh environments
- Foolproof Field Installation—One minute installation process
- Waterproof Design—external sealing not required
- Patented Compression Technology
- Rugged Design
- RoHS compliant

### Specifications

- Impedance: 50 Ohm
- Operating Temperature: -67°F to +185°F / -55°C to +85°C
- Moisture Resistance Test: MIL-STD-202F, Method 106°F
- Mechanical Shock Test: MIL-STD-202F, Method 213, Test Condition C
- Corrosion Test: MIL-STD-1344A, Method 1001.1, Test Condition A
- Thermal Shock Test: MIL-STD-202F, Method 107G, Test Condition A-1, Low Temp -55°C
- Vibration Test: IEC 68, PART 2-6
- Minimum Connector Retention Tensile Force: 200lbs.
- Immersion Test: IEC 529: 1989, IP68
- Immersion Depth: 12" / 0.31 m
- Water Jetting Test: IEC 529: 1989, IP66

See page 12 for Comp Pro® Cable Assemblies



# Components Comp Pro® Compression Connectors

## Comp Pro® Compression Connectors

for LMR®-400, LMR®-600 and Equivalent Braided Cables

	Part Number	Connector	Cable
	COMP-DM-400	7-16 DIN Male	LMR®-400
	COMP-NF-400	N Female	LMR®-400
	COMP-NM-400	N Male	LMR®-400
	COMP-NM-400PL	N Male	LMR®-400-LLPL
	COMP-NRA-400	N Male Right Angle	LMR®-400

	Part Number	Connector	Cable
	COMP-TM-400	TNC Male	LMR®-400
	COMP-TM-400PL	TNC Male	LMR®-400-LLPL
	COMP-TRA-400	TNC Male Right Angle	LMR®-400
	COMP-NM-600	N Male	LMR®-600

## Kits and Tools



**Pouch-50**  
Toolbag for 400  
& 600 Cable



**SDT400-50**  
Stripping  
Prep Tool for  
400 Cable



**RC400-50**  
Replacement  
Blades (2 pack)  
for 400 Cable



**SDT600-50**  
Stripping  
Prep Tool for  
600 Cable



**RC600-50**  
Replacement  
Blades (2 pack)  
for 600 Cable



**RFA-4206-04**  
Cable Cutter  
for 400 & 600  
Cable



**MCAP400**  
Marking Cap  
(2 pack) for  
400 Cable



**MCAP600**  
Marking Cap  
(2 pack) for  
600 Cable



**PEN-50**  
Marking Pen  
for 400 &  
600 Cable



**RFA-4420**  
Center Conductor  
Prep Tool or 400  
& 600 Cable



**IT50NM**  
Insertion  
Tool for N  
Connector  
for 400 &  
600 Cable



**IT50TA**  
Adapter,  
Insertion Tool  
for TNC  
Connector  
for 400 & 600  
Cable



**TW1412**  
Torque Wrench for  
N Connector for  
400 & 600 Cable



**TW10X14MM**  
Torque Wrench for  
TNC Connector  
for 400 & 600 Cable



**TQ-114-F18**  
Torque Wrench for  
7-16 DIN Connector  
for 400 & 600 Cable



**NW-BTS-JMA**  
N Male Installation  
Tool 3/4 inch for  
400 & 600 Cable



**VT500**  
Compression Tool  
for 400 Cable



**VT600**  
Compression  
Tool  
for 600 Cable

**KIT400** for N connectors with LMR®-400 cable type

**KIT400NT** for N and TNC connectors with LMR®-400 cable type

**KIT600** for N connectors with LMR®-600 cable type

TOOLS	KIT400	KIT400NT	KIT600
Pouch-50	X	X	X
RFA-4206-04	X	X	X
SDT400-50	X	X	
RC400-50	X	X	
SDT600-50			X
RC600-50			X
RFA-4420	X	X	X
MCAP400	X	X	
MCAP600			X
PEN-50	X	X	X
IT50NM	X	X	X
IT50TA		X	
NW-BTS-JMA			
TW1412	X	X	X
TW10X14MM		X	
TQ-114-F18			
VT500	X	X	
VT600			X

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# Components

## Low PIM Connectors

### Low PIM Connectors for Low PIM, Low PIM Plenum, Plenum and Low Loss Cables

Cable Group	Cable Type
H1	LDF4-50A, LCF12-50J
H4	FSJ4-50B
HPL	SPP™-250-LLPL, SPO™-250, TFT™-401-LF, TFT™-401
SR2	TFT™-402-LF, TFT™-402, .141 Semi-Rigid, RG-402/U, Belden 1673A

#### 1.0-2.3

	Part Number	Gender	Description	Cable
	RF123-7003-4SR2	Male	Frequency Range: DC-3GHz	TFT™-402-LF, TFT™-402
			3rd Order IM: ≤-160dBc	Low PIM Plenum
			Impedance: 50 Ohms	.141 Semi-Rigid
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Low PIM

#### 4.1-9.5 Mini DIN

	Part Number	Gender	Description	Cable
	RFD-4195F-HPL	Female	Frequency Range: DC-6GHz	TFT™-401-LF, TFT™-401
			3rd Order IM: ≤-155dBc	Low PIM Plenum
			Impedance: 50 Ohms	SPP™-250-LLPL
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Low PIM

	Part Number	Gender	Description	Cable
	RFD-4195F-SR2	Female	Frequency Range: DC-6GHz	TFT™-402-LF, TFT™-402
			3rd Order IM: ≤-155dBc	Low PIM Plenum
			Impedance: 50 Ohms	.141 Semi-Rigid
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Low PIM

	Part Number	Gender	Description	Cable
	RFD-4195-HPL	Male	Frequency Range: DC-6GHz	TFT™-401-LF, TFT™-401
			3rd Order IM: ≤-155dBc	Low PIM Plenum
			Impedance: 50 Ohms	SPP™-250-LLPL
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Low PIM

	Part Number	Gender	Description	Cable
	RFD-4195-SR2FL	Male	Frequency Range: DC-6GHz	TFT™-402-LF, TFT™-402
			3rd Order IM: ≤-155dBc	Low PIM Plenum
			Impedance: 50 Ohms	.141 Semi-Rigid
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Low PIM

	Part Number	Gender	Description	Cable
	RFD-4195MC-H1	Male	Frequency Range: DC-6GHz	1/2 inch standard
			3rd Order IM: ≤-155dBc	Corrugated
			Impedance: 50 Ohms	LDF4-50A
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Corrugated

	Part Number	Gender	Description	Cable
	RFD-4195MC-H4	Male	Frequency Range: DC-6GHz	1/2 inch super flex
			3rd Order IM: ≤-155dBc	Flex Corrugated
			Impedance: 50 Ohms	FSJ4-50B
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Flex Corrugated

	Part Number	Gender	Description	Cable
	RFD-4195MRA-SR2	Male Right Angle	Frequency Range: DC-6GHz	TFT™-402-LF, TFT™-402
			3rd Order IM: ≤-155dBc	Low PIM Plenum
			Impedance: 50 Ohms	.141 Semi-Rigid
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Low PIM

	Part Number	Gender	Description	Cable
	RFD-4195-SR2FL	Male	Frequency Range: DC-6GHz	TFT™-402-LF, TFT™-402
			3rd Order IM: ≤-155dBc	Low PIM Plenum
			Impedance: 50 Ohms	.141 Semi-Rigid
			Body-White Bronze, PIN -Silver, Insulator - PTFE	Low PIM

NOTE: Due to the precise nature of the soldering of the inner and outer conductors to achieve low PIM specifications, we cannot guarantee PIM performance on the finished assemblies when connectors are field installed. If you need guaranteed PIM performance, we strongly recommend factory installed assemblies made to your specifications.


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# Components Low PIM Connectors

## Low PIM Connectors for Low PIM, Low PIM Plenum, Plenum and Low Loss Cables

### 4.3-10

	Part Number	Gender	Description		Cable	
			Frequency Range: DC-6GHz	3rd Order IM: $\leq -160$ dBc	TFT™401-LF, TFT™401	Low PIM Plenum
	RFD-43F-HPL	Female	Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, Contact -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	RFD-43F-SR2	Female	Frequency Range: DC-6GHz	3rd Order IM: $\leq -160$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	.141 Semi-Rigid	Low PIM
			Body-White Bronze, Contact -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	RFD-43MS-HPL	Male	Frequency Range: DC-6GHz	3rd Order IM: $\leq -160$ dBc	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	RFD-43MS-SR2	Male	Frequency Range: DC-6GHz	3rd Order IM: $\leq -160$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	.141 Semi Rigid	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	RFD-43MRA-HPL	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -160$ dBc	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	RFD-43MRA-SR2	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -160$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.18:1$ DC thru 3GHz	.141 Semi Rigid	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	

### 7-16 DIN

	Part Number	Gender	Description		Cable	
			Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	1/2 inch standard	Corrugated
	RFD-1601C-H1	Male	Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	LDF4-50A	Corrugated
			Body-White Bronze, PIN -Silver, Insulator - PTFE		LCF12-50J	Low Loss
			Clamp Connector, RoHS Compliant		Cable Group H1	
	RFD-1601-HPL	Male	Frequency Range: DC-7.5GHz	3rd Order IM: $\leq -155$ dBc	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-Silver-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	RFD-1601-SR2	Male	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.5:1$ DC thru 3GHz	.141 Semi Rigid	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	RFD-1610-HPL	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	

NOTE: Due to the precise nature of the soldering of the inner and outer conductors to achieve low PIM specifications, we cannot guarantee PIM performance on the finished assemblies when connectors are field installed. If you need guaranteed PIM performance, we strongly recommend factory installed assemblies made to your specifications.




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# Components

## Low PIM Connectors

### Low PIM Connectors for Low PIM, Low PIM Plenum, Plenum and Low Loss Cables

#### 7-16 DIN

	<b>RFD-1610-SR2</b>	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -160\text{dBc}$	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	.141 Semi Rigid	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	<b>RFD--1625-HPL</b>	Female	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	<b>RFD-1625-SR2</b>	Female	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	.141 Semi Rigid	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	

#### N-Type

	Part Number	Gender	Description		Cable	
	<b>RFN-1027-HPL</b>	Female	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.1:1$ DC thru 3 GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	<b>RFN-1027-SR2</b>	Female	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.1:1.5:1$ DC thru 3GHz	.141 Semi Rigid	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	<b>RFN-1002-HPL</b>	Male	Frequency Range: DC-11GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.3:1$ DC thru 9GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	<b>RFN-1002C-H1</b>	Male	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	1/2 inch standard	Corrugated
			Impedance: 50 Ohms	VSWR: $<1.1:1.15$ DC thru 3GHz	LDF4-50A	Corrugated
			Body-White Bronze, PIN -Silver, Insulator - PTFE		LCF12-50J	Low Loss
			Clamp Connector, RoHS Compliant		Cable Group H1	
	<b>RFN-1002C-H3</b>	Male	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms		SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Clamp Connector, RoHS Compliant		Cable Group HPL	
	<b>RFN-1002-SR2FL</b>	Male	Frequency Range: DC-6GHz	3rd Order IM: $\leq -160\text{dBc}$	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.1:1$ DC thru 3GHz	.141 inch	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	<b>RFN-1009-HPL</b>	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	<b>RFN-1009-SR2LP</b>	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155\text{dBc}$	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.2:1$ DC thru 3GHz	.141 inch	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	




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# Components


## Low PIM Connectors

### Low PIM Connectors for Low PIM, Low PIM Plenum, Plenum and Low Loss Cables




#### QMA

	Part Number	Gender	Description		Cable	
			Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™401-LF, TFT™401	Low PIM Plenum
	RQA-5000-HPL	Male	Impedance: 50 Ohms	VSWR: $<1.15$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Gold, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	RQA-5010-HPL	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™401-LF, TFT™401	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	SPP™-250-LLPL	Low PIM Plenum
			Body-White Bronze, PIN -Silver, Insulator - PTFE		SPO™-250	Low PIM
			Direct Solder Connector, RoHS Compliant		Cable Group HPL	
	RQA-5010-SR2LP	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15$ DC thru 3GHz	.141 inch	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	

#### QN

	Part Number	Gender	Description		Cable	
			Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
	RQN-1300-SR2	Male	Impedance: 50 Ohms	VSWR: $<1.15$ DC thru 3GHz	.141 inch	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	

#### SMA

	Part Number	Gender	Description		Cable	
			Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
	RSA-3500-HPL	Male	Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	.141 inch	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	RSA-3500-SR2LP	Male	Frequency Range: 0-12.4GHz	3rd Order IM: $\leq -155$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: 1.3 max	.141 inch	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	
	RSA-3510-SR2LP	Male Right Angle	Frequency Range: DC-6GHz	3rd Order IM: $\leq -155$ dBc	TFT™402-LF, TFT™402	Low PIM Plenum
			Impedance: 50 Ohms	VSWR: $<1.15:1$ DC thru 3GHz	.141 inch	Low PIM
			Body-White Bronze, PIN -Silver, Insulator - PTFE		RG-402/U	Semi-Rigid
			Direct Solder Connector, RoHS Compliant		Cable Group SR2	

NOTE: Due to the precise nature of the soldering of the inner and outer conductors to achieve low PIM specifications, we cannot guarantee PIM performance on the finished assemblies when connectors are field installed. If you need guaranteed PIM performance, we strongly recommend factory installed assemblies made to your specifications.

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# Components

## Low PIM Adapters

### 4.1-9.5 (Mini) DIN Adapters

- Low PIM:  $\leq -155\text{dBc}$
- Operating frequency: up to 7.5GHz
- Low VSWR:  $\leq 1.10:1$  up to 3GHz
- Non-magnetic, Non-tarnish white bronze (tri-metal) plating
- RoHS Compliant

#### 4.1-9.5 to 4.1-9.5 Adapters

	Part Number	Adapter End	Plating
	RFD-4195-1950	4.1-9.5 Male to 4.1-9.5 Female	White Bronze
	RFD-4195-1951	4.1-9.5 Male to 4.1-9.5 Male	White Bronze
	RFD-4195-1952	4.1-9.5 Female to 4.1-9.5 Male	White Bronze
	RFD-4195-1953	4.1-9.5 Female to 4.1-9.5 Female	White Bronze
	RFD-4195-1954	4.1-9.5 Female to 4.1-9.5 Female	White Bronze

#### 4.1-9.5 to 7-16 DIN Adapter

	Part Number	Adapter End	Plating
	RFD-1681-4	4.1-9.5 Male to 7-16 Female	White Bronze
	RFD-1682-4	4.1-9.5 Male to 7-16 Male	White Bronze
	RFD-1683-4	4.1-9.5 Female to 7-16 Female	White Bronze
	RFD-1684-4	4.1-9.5 Female to 7-16 Male	White Bronze

#### 4.1-9.5 to N Adapter

	Part Number	Adapter End	Plating
	RFD-4195-1954	4.1-9.5 Female to 4.1-9.5 Female	White Bronze
	RFN-1045-4	4.1-9.5 Male to N Male	White Bronze
	RFN-1046-4	4.1-9.5 Male to N Female	White Bronze
	RFN-1047-4	4.1-9.5 Female to N Female	White Bronze
	RFN-1048-4	4.1-9.5 Female to N Male	White Bronze

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# Components

## Low PIM Adapters

### 4.3-10 Adapters

- Low PIM:  $\leq -160\text{dBc}$
- Operating frequency: up to 7.5GHz
- VSWR:  $\leq 1.10:1$  up to 3GHz
- Non-tarnish white bronze (tri-metal) plating
- RoHS compliant

#### 4.3-10 to 4.3-10 Adapters

	Part Number	Adapter End	Plating
	<b>RFD-43F-F</b>	4.3-10 Female to 4.3-10 Female	White Bronze
	<b>RFD-43M-FRA</b>	4.3-10 Male to 4.3-10 Female Right Angle Adapter	White Bronze
	<b>RFD-43F-FBH</b>	4.3-10 Female to 4.3-10 Female Bulkhead	White Bronze
	<b>RFD-43M-M</b>	4.3-10 Male to 4.3-10 Male	White Bronze

#### 4.3-10 to 7-16 DIN Adapters

	Part Number	Adapter End	Plating
	<b>RFD-1685-4</b>	4.3-10 Female to 7-16 DIN Female	White Bronze
	<b>RFD-1686-4</b>	4.3-10 Male to 7-16 DIN Male	White Bronze
	<b>RFD-1687-4</b>	4.3-10 Female to 7-16 DIN Male	White Bronze
	<b>RFD-1688-4</b>	4.3-10 Male to 7-16 DIN Female	White Bronze

#### 4.3-10 to N Adapters

	Part Number	Adapter End	Plating
	<b>RFD-43F-NF</b>	4.3-10 Female to N Female	White Bronze
	<b>RFD-43F-NM</b>	4.3-10 Female to N Male	White Bronze
	<b>RFD-43M-NF</b>	4.3-10 Male to N Female	White Bronze
	<b>RFD-43M-NM</b>	4.3-10 Male to N Male	White Bronze

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# Components

## Low PIM Adapters

### 7-16 DIN Adapters

- Low PIM:  $\leq -155\text{dBc}$
- Operating frequency: up to 7.5GHz
- Low VSWR:  $\leq 1.10:1$  up to 4GHz
- Available in silver or white bronze (tri-metal) plating
- Non-magnetic
- Stainless steel (SS) hex nuts on certain adapters
- RoHS Compliant

#### 7-16 DIN to 7-16 DIN Adapters

	Part Number	Adapter End	Plating
	P2RFD-1650-SS	7-16 DIN Male to 7-16 DIN Male Barrel Adapter	White Bronze Stainless Steel Coupling Nut
	RFD-1650-2	7-16 DIN Male to 7-16 DIN Male Barrel Adapter	Silver
	P2RFD-1652-SS	7-16 DIN Male to 7-16 DIN Female Right Angle Adapter	White Bronze Stainless Steel Coupling Nut
	P2RFD-1652-4	7-16 DIN Male to 7-16 DIN Female Right Angle Adapter	White Bronze
	RFD-1652-2	7-16 DIN Male to 7-16 DIN Female Right Angle Adapter	Silver
	P2RFD-1653-4	7-16 DIN Female to 7-16 DIN Female Barrel Adapter	White Bronze
	RFD-1653-2	7-16 DIN Female to 7-16 DIN Female Barrel Adapter	Silver
	P2RFD-1660-SS	7-16 DIN Male to 7-16 DIN Female Barrel Adapter	White Bronze Stainless Steel Coupling Nut
	RFD-1660-WB	7-16 DIN Male to 7-16 DIN Female Barrel Adapter	Whiter Bronze
	P2RFD-1654-4	7-16 DIN Female to 7-16 DIN Female Bulkhead Adapter	White Bronze

#### 7-16 DIN to N Adapters

	Part Number	Adapter End	Plating
	P2RFD-1670-SS	7-16 DIN Male to N Male Barrel Adapter	White Bronze Stainless Steel Coupling Nut
	RFD-1670-2	7-16 DIN Male to N Male Barrel Adapter	Silver
	P2RFD-1671-SS	7-16 DIN Male to N Female Barrel Adapter	White Bronze Stainless Steel Coupling Nut
	RFD-1671-2	7-16 DIN Male to N Female Barrel Adapter	Silver
	P2RFD-1672-SS	7-16 DIN Female to N Male Barrel Adapter	White Bronze Stainless Steel Coupling Nut
	RFD-1672-2	7-16 DIN Female to N Male Barrel Adapter	Silver
	P2RFD-1673-4	7-16 DIN Female to N Female Barrel Adapter	White Bronze
	RFD-1673-2	7-16 DIN Female to N Female Barrel Adapter	Silver

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# Components Low PIM Adapters

## 1.0-2.3 Adapter

Low PIM Adapter

- Low PIM:  $\leq -155\text{dBc}$
- Operating frequency: up to 6GHz
- Non-tarnish white bronze (tri-metal) plating

### 1.0-2.3 to SMA Adapter



	Part Number	Adapter End	Plating
	<b>RF123F-SM</b>	1.0-2.3 Female to SMA Male	White Bronze

## QMA Adapter

Low PIM Adapter

- Low PIM:  $\leq -155\text{dBc}$
- Operating frequency: up to 6 GHz
- Non-tarnish white bronze (tri-metal) plating

### QMA to SMA and N Adapter

	Part Number	Adapter End	Plating
	<b>RQA-5405-LP</b>	QMA Male to SMA Female	White Bronze
	<b>RQA-5478</b>	QMA Female to N Male	White Bronze

## Low PIM Unidapt™ Kit

Our Unidapt™ universal adapter system allows you to create the coaxial adapter you need in seconds. By selecting the Unidapt™ connector interfaces and threading them onto the Unidapt™ universal adapter, you can create any inner-series or intra-series male to male, female to female or male to female adapter



### RFA-4024-LP1

	Part Number	Adapter End	
	<b>PT-4000-141LP</b>	QMA Male to Unidapt™	2 pieces
	<b>PT-4000-142LP</b>	QMA Female to Unidapt™	2 pieces
	<b>PT-4000-143LP</b>	4.1-9.5 Male to Unidapt™	2 pieces
	<b>PT-4000-144LP</b>	4.1-9.5 Female to Unidapt™	2 pieces
	<b>PT-4000-145LP</b>	4.3-10 Male to Unidapt™	2 pieces
	<b>PT-4000-146LP</b>	4.3-10 Female to Unidapt™	2 pieces
	<b>PT-4000-013WB</b>	Universal Center to Unidapt™	6 pieces

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# Components

## Low PIM Adapter Kits

### Low PIM Adapter Kits

for 4.1-9.5 (Mini) DIN, 4.3-10, 7-16 DIN and N Adapters

- Adapter protection
- Zippered leatherette case
- RoHS compliant
- Die-cut foam
- Stands upright for compact storage



4.1-9.5 (Mini) DIN Kit  
RFA-4195-03  
shown

### 4.1-9.5 (Mini) DIN Kits

(All adapters sold separately. See previous pages.)	4.1-9.5 (Mini) DIN to N (6 Piece)	4.1-9.5 (Mini) DIN to 7-16 DIN (6 Piece)	4.1-9.5 (Mini) DIN to N (7 Piece)	4.1-9.5 (Mini) DIN to 7-16 DIN (7 Piece)
	White bronze (tri-metal) plating and stainless steel hex nuts			
Part Number	RFA-4195-01	RFA-4195-02	RFA-4195-03	RFA-4195-04
In-Series Adapters	4.1-9.5 Male to 4.1-9.5 Female	4.1-9.5 Male to 4.1-9.5 Female	4.1-9.5 Male to 4.1-9.5 Female	4.1-9.5 Male to 4.1-9.5 Female
	4.1-9.5 Male to 4.1-9.5 Female Right Angle	4.1-9.5 Male to 4.1-9.5 Female Right Angle	4.1-9.5 Male to 4.1-9.5 Female Right Angle	4.1-9.5 Male to 4.1-9.5 Female Right Angle
	n/a	n/a	4.1-9.5 Female to 4.1-9.5 Female	4.1-9.5 Female to 4.1-9.5 Female
Between-Series Adapters	4.1-9.5 Male to N Female	4.1-9.5 Male to 7-16 Female	4.1-9.5 Male to N Female	4.1-9.5 Male to 7-16 Female
	4.1-9.5 Male to N Male	4.1-9.5 Male to 7-16 Male	4.1-9.5 Male to N Male	4.1-9.5 Male to 7-16 Male
	4.1-9.5 Female to N Female	4.1-9.5 Female to 7-16 Female	4.1-9.5 Female to N Female	4.1-9.5 Female to 7-16 Female
	4.1-9.5 Female to N Male	4.1-9.5 Female to 7-16 Male	4.1-9.5 Female to N Male	4.1-9.5 Female to 7-16 Male



7-16 DIN Kit  
P2RFA-4013-SS  
shown

### 4.3-10 Kits

### 7-16 DIN to N Kits

(All adapters sold separately. See previous pages.)	4.3-10 to N and 7-16 DIN (7 Pieces)	4.3-10 to 7-16 DIN (7 Pieces)	7-16 DIN to N (6 Piece)	7-16 DIN to N (6 Piece)
	White bronze (tri-metal) plating and stainless steel hex nuts			Silver Plated with knurling
Part Number	RFA-4310-01	RFA-4310-02	P2RFA-4013-SS	RFA-4013
In-Series Adapters	4.3-10 Female to 4.3-10 Female Barrel Adapter	4.3-10 Female to 4.3-10 Female Barrel Adapter	7-16 Female to 7-16 Female Barrel Adapter	7-16 Female to 7-16 Female Barrel Adapter
	4.3-10 Male to 4.3-10 Female Right Angle Adapter	4.3-10 Male to 4.3-10 Female Right Angle Adapter	7-16 Male to 7-16 Female Right Angle Adapter	7-16 Male to 7-16 Female Right Angle Adapter
Between-Series Adapters	4.3-10 Female to 7-16 DIN Male	4.3-10 Female to 7-16 DIN Male (2 Pieces)	7-16 Male to N Male	7-16 Male to N Female
	4.3-10 Female to N Female	4.3-10 Male to 7-16 DIN Female	7-16 Male to N Female	7-16 Male to N Male
	4.3-10 Female to N Male	4.3-10 Male to 7-16 DIN Male	7-16 Female to N Female	7-16 Female to N Female
	4.3-10 Male to N Female	4.3-10 Female to 7-16 DIN Female	7-16 Female to N Male	7-16 Female to N Male
	4.3-10 Male to N Male	n/a	n/a	n/a

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# Components

## RF Connectors and Kits

### RF Connectors

for 4.1-9.5 (Mini) DIN, 4.3-10, 7-16 DIN and N Adapters

- Brass or stainless steel bodies
- Nickel, gold, silver or white bronze (tri-metal) plating
- PTFE dielectrics
- Designed for a variety of cable sizes
- RoHS compliant



See complete product catalog offering at [www.rfcoaxconnectors.com](http://www.rfcoaxconnectors.com)

Description	Part #
N Male for LMR®-400, silver plating	RFN-1006-3I
N Male for LMR®-400, hex nut, 2 piece design	RFN-1006-49I
N Male for LMR®-400, hex nut, 2 piece design	RFN-1006-4I
N Male for LMR®-240, hex nut, 2 piece design	RFN-1006-9X
N Male for LMR®-400, nickel plating	RFN-1006-I
N Male for LMR®-400, nickel plating, 15u" gold on contact	RFN-1006-I-15
N Male for LMR®-400, hex nut, 3 piece design, white bronze (tri-metal) plating	RFN-1006-I-WB
N Male for LMR®-240	RFN-1007-2SX
N Male, Right Angle for LMR®-400	RFN-1009-I
N Male, Right Angle for LMR®-400	RFN-1009-I-99
N Male, Right Angle for LMR®-240	RFN-1009-X-04
N Female for LMR®-400	RFN-1028-SI
N Female for LMR®-240	RFN-1029-SX
SMA Male for LMR®-400	RSA-3000-I
SMA Male for LMR®-240	RSA-3000-X
SMA Male, Right Angle for LMR®-240	RSA-3010-X
TNC Male for LMR®-400	RFT-1202-I
TNC Male for LMR®-240	RFT-1203-1X
QMA Male for LMR®-240	RQA-5000-X
QMA Male, Right Angle for LMR®-240	RQA-5010-X
QMA Male, Right Angle for LMR®-240	RQA-5010-8X
QN Male for LMR®-240	RQN-1300-X

### Adapters and Tool Kits

- Brass bodies
- Gold, silver and white bronze (tri-metal) plating
- PTFE dielectrics
- Portable carrying cases
- RoHS Compliant



Description	Part #
Heavy-Duty Crimp Handle and Die Kit	RFA-4009
15-Piece Mini-UHF Cellular Radio Coaxial Adapter Kit	RFA-4011
<b>Unidapt™ Adapter Kits</b>	
Unidapt™ Kit, 30 Piece "Build-Your-Own" Adapter Kit, silver plated	RFA-4024
Unidapt™ Kit, 30 Piece "Build-Your-Own" Adapter Kit, white bronze (tri-metal) plated	RFA-4024-WB
Mega Plus Unidapt™ Kit, 74 Piece "Build-Your-Own" Adapter Kit	RFA-4022
Unidapt™ Kit, DAS Kit	RFA-4024-DAS
Unidapt™ Kit, Low PIM Kit	RFA-4024-LP1

All product specifications are subject to change without notice. Website information will always be most current and complete. LMR is a registered trademark of Times Microwave Systems.

# Application Notes

## RF Connectors for DAS

### Application

Throughout any Distributed Antenna System (DAS) there are a variety of RF connectors used to join the cabling to the component interface. While many of the common connector types will work in a DAS environment, some are better suited than others when it comes to reducing interference. PIM is a major cause of signal degradation in DAS and choosing the right connector type to help reduce PIM is imperative.



### Which Connector Type is best for DAS?

For DAS, you will want to use low PIM connectors and depending on the type of DAS some connectors will perform better than others. In some cases, the DAS architecture or the components being installed will require you to use one connector over another. Most common connector types will perform well within the lower frequency bands when properly installed but it is when you have a DAS operating in the higher frequency bands that you begin to discover PIM issues.

The key is to choose a connector that will perform well in both low and high frequency bands. This will allow you to use the same connector type throughout the entire DAS system without fear of having problems later down the road should additional frequencies be used.

### How Connectors Cause PIM

PIM is new frequencies generated by the transmit signals when they encounter non-linear junctions or materials in the RF path. To keep it simple PIM is interference. When this interference (PIM) is generated it falls over into the uplink band which increases the noise floor and interferes with the mobile device signals leading to access failures, slower data rates and dropped calls.

### Connectors can cause PIM in a variety of ways:



- Poor Cable Termination
- Damaged or Poorly made Connector – broken or cracked solder, nickel plating, shipping damage
- Loose Connector – not properly torqued
- Over-torqued or broken connector
- Metal flakes inside connector – flakes appear with each mating cycle. Worse if touching conductors.
- Metal flakes inside cable

Of the common connector types used in DAS, test results have shown that Type N connectors do not perform well when testing PIM at the higher frequency bands.

### PIM Testing - Connector Results\*

Testing results using 700MHz, 850 MHz, 1900 MHz, 2600 MHz - PIM was introduced to see how the connectors performed across a range of frequency bands. The connectors were subject to the same test configuration to compare results.

# Application Notes

## RF Connectors for DAS

Connector Type	700 MHz (dBm)	850 MHz (dBm)	1900 MHz (dBm)	2600 MHz (dBm)	Delta (dBm)
N Type	-100	-95	-80	-72	28
7-16	-118	-112	-107	-97	31
4.1-9.5	-121	-121	-112	-102	19
4.3-10	-129	-124	-127	-120	9



**N Type** - average results - if connector loosens from vibration or incorrect torque the connector will fail PIM miserably - not a great performer in the lower frequency bands but performs worse at higher frequency bands - No middle ground with N Type - PIM was either very good or very bad

**7-16 DIN** - similar results to the Type N connector but did perform slightly better. Like the Type N connector, the 7-16 DIN performed worse at higher frequency bands.

**4.1-9.5** - better PIM results than the N or 7-16 DIN connectors. Very little PIM at lower frequency bands and only performed slightly worse at the 1900 and 2600 bands.

**4.3-10** - (push-pull connector) Very good results - PIM was flat across all frequency bands. This seems to be a great connector for use in DAS systems - using the push pull connector there is no way to create an un-torqued connection and virtually eliminates the metal flakes that are created when mating and un-mating other connectors.

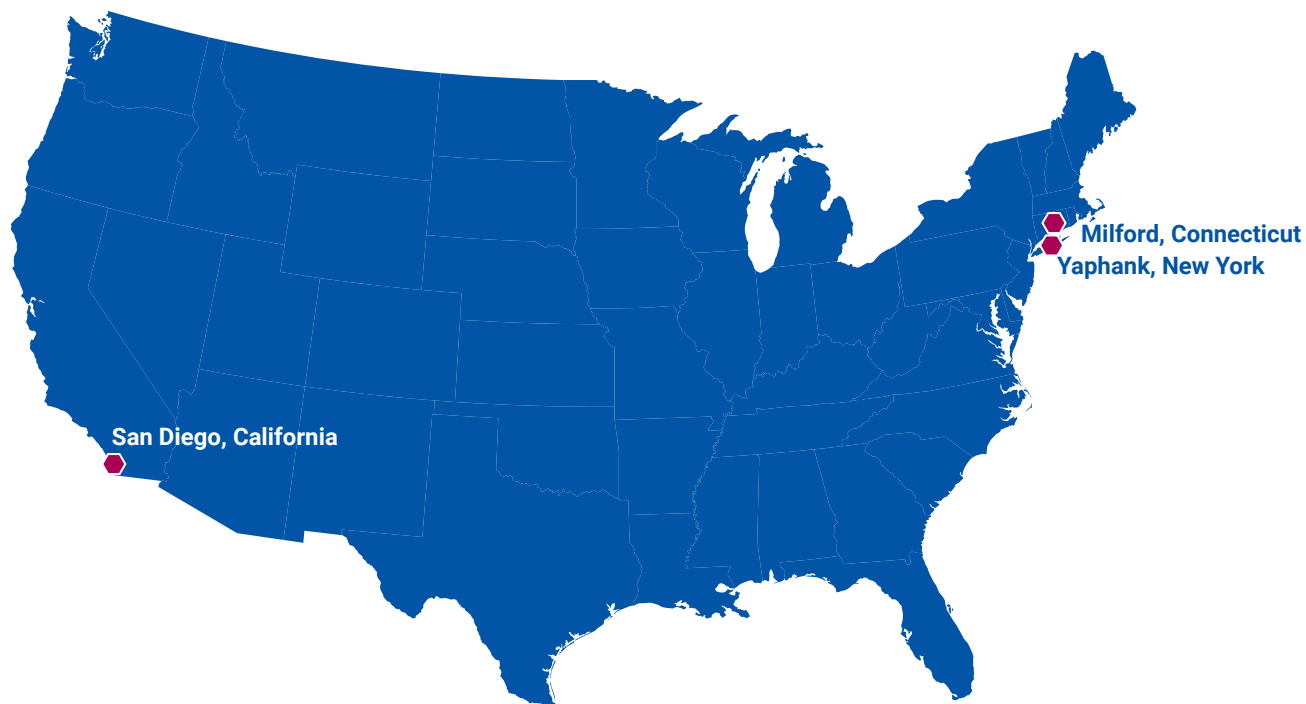
### Connector Summary

Loose connector PIM is worse at higher frequencies - **the 4.3-10 connector performed the most consistently of all connectors across all frequency bands - the 4.3-10 connector appears to be the best choice for use in a DAS environment.**

No matter which connector is chosen it is important to ensure that the connector is properly terminated onto the cable and the connector is properly torqued when installed on the interface. Even a slight loosening of the connector (through vibration) will cause PIM to increase significantly.

For more information visit: [www.rfindustries.com](http://www.rfindustries.com)

\*Anritsu test results 2015



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