Radiall™

*Our Most Important Connection is with You.™*

CABLE ASSEMBLIES

# TestPro

*Full Line Catalog*

Connectivity has a profound and dramatic impact on the lives of people throughout the world. Because of advancements in technology, **our** lives are more convenient, more secure, more enjoyable and richer than ever. The speed of data enables communication in the **most** remote areas so people can reach all corners of the globe, allows for **important** defense and security, and facilitates space exploration. But technology doesn't just happen. It starts in the mind with ideas, making **connection**s never considered in ways that nobody dreamed possible. Seeing the future in ways previously unimagined **is** the act of innovation and it begins with people –the inventors, the dreamers, the pioneers and the engineers– enriching the lives of billions. At Radiall, we have one single, solitary mission; Empower the people that enrich our lives. Enable their innovation by providing reliability and durability. Give them useful information and provide them with valuable guidance when determining the best course for success. We don't invent the future, we enable it. We inspire innovation, we embrace challenges, we challenge the conventional and we collaborate **with** you to succeed. At Radiall, we're proud to say – Our most important connection is with **you.**

# Table of Contents


Company Profile ..... 1

Introduction ..... 5

Bench Test Cable ..... 7

Bench Test Cable Range ..... 8

Bench Test Cable Connectors ..... 9

Bench Test Cable Assemblies ..... 10

Ultra Low Loss Test Cable ..... 13

Ultra Low Loss Test Cable Range ..... 14

Ultra Low Loss Test Cable Assemblies ..... 15

Option ..... 16

How to Order ..... 18

Accessories ..... 19

Part Number Index ..... 22

# Company Profile

## *Our Most Important Connection is with You.™*

**Radiall is a global leader in the design, development and manufacturing of leading edge interconnect solutions. Dedicated to understanding its customers' needs since 1952, Radiall has earned the reputation of being "the best of the best" in engineering ingenuity by providing a constant flow of creative system solutions serving the defense, telecom, aerospace, instrumentation, automotive, industrial, medical and broadcast markets.**

## *Best Value-added Services*

**Collaboration:** We work closely with your engineers to understand your business, your technical needs and your budgetary issues.

**Wide Product Range:** We manage our product lines through the entire lifecycle in order to offer you a wide selection of standard products at an affordable cost.

**Custom Products:** We can tailor products to specific equipment and application needs.

**Global Presence:** We're everywhere you need us, with worldwide sales, engineering support, R&D in North America, Europe and Asia and manufacturing facilities strategically located in the United States, Mexico, France, India and China.

**Responsive Support and Service:** From the design stage, planning to post-installation support, we're with you at every step, whether you need sales support or engineering expertise.

**On-time Delivery:** We support your logistical needs so you get the products when and where you need them.

**Warranty:** We proudly stand behind our products.

## *The Best End-to-End Interconnect Solutions*

We offer an extensive range of solutions that supports the most demanding signal transmission applications. 4G wireless infrastructure, active array radars, IED detection, electrical wiring in aircrafts, soldier tactical radios, in-vehicle communications networks and magnetic resonance imaging systems are just a few of the complex applications that we support.

- *RF coaxial connectors*
- *Fiber optic connectors and transceivers*
- *Coaxial and fiber optic cable assemblies and harnesses*
- *High frequency microwave components*
- *Coaxial switches, including the smallest and most reliable SPDT relay*
- *Multipin rectangular connectors*
- *Rack and panel connectors*
- *Antennas for tactical networks, aerospace and instrumentation*

## *Certifications and Environmental*

Radiall is ISO 9001: 2008 certified and dedicated to continuous improvement programs that have resulted in also being AS9100, TS16949 and ISO 14001 certified. In addition, Radiall is committed to investing in its people, future technologies and the environment, such as being RoHS (Restriction of Hazardous Substances) and REACH (Registration, Evaluation, Authorization and Restriction of Chemical substances) compliant.

ISO 9001 Certified
AS/EN/JISQ9100-ISOTS 16949-ISO-14001

*Technical information and sales contacts are available at* ***www.radiall.com***

# Radiall at a Glance

## *Worldwide Presence*

Radiall has a global manufacturing presence. Our International sales network and qualified distributors cover every region around the world. The result is quick and insightful answers to all your requests.

- *International Sales Network*
- *Low cost facilities*
- *Local manufacturing, logistics and technical support*

### North America

### Asia

### Europe

## *Market Focus*

Aerospace | Defense | Industrial | Space | Telecom | Instrumentation | Medical

## *Radiall Technologies*

- *Milling*
- *Plating & plastic metallization*
- *Molding*
- *Characterization*
- *Polishing*
- *Laser, ultrasonic, vapor, soldering*
- *Stamping*
- *Thin & thick film processes*
- *Etching on Si*
- *Thick film on AlN*
- *Test & measurement*
- *Simulation*
- *Cable & PTFE wrapping*
- *Automatic assembly*
- *Micro-machining*

# A Global Range to Meet Your Needs

### RF Coaxial Connectors

Radiall proudly offers the widest range of RF Coaxial Connectors in the Industry with over 12,000 part numbers and 72 product series including **AEP®** Mil QPL connectors. These precision-made components are a significant part of our heritage and essential to who we are.

### RF & Microwave Switches

All Radiall switches provide exceptional reliability and performance. A unique modular and patented design of the actuator and transmission link enables Radiall to guarantee operation up to 10 million cycles with excellent repeatability, while reducing delivery times.

### Microwave Components

Radiall has a wide range of coaxial devices, including terminations, attenuators and couplers using standard interfaces from low to high power. Our state of the art techniques enable us to produce microwave components for use in commercial, military and space applications.

### Antennas

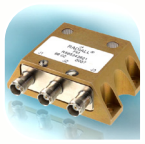
Radiall provides highly reliable antenna solutions for industrial and military applications. Our solutions include Line-Of-Sight tactical communications, vehicular mounts, GPS, telemetry and mesh networks. For optimum performance requirements, Radiall offers custom antenna solutions and support.

### Multipin Connectors

Radiall has an unmatched range of rack and panel connectors and the most innovative modular and tool-less connectors used in harnesses and equipment connections. Our modern designs combine light weight, high performance levels and user friendly features to simplify even the most complex connections.

### RF Cable Assemblies

Radiall has an extensive range of cable assemblies with outstanding electrical performance, low loss and high frequency. Our range includes flexible, semi rigid and handformable cable assemblies. Our **TestPro™** range meets the stringent requirements needed for test and lab applications.



### Space Qualified

Industry leaders across the globe recognize the Radiall brand for quality, reliability, and performance. Our Space Qualified passive product offering includes a wide range of coaxial connectors, cable assemblies, microwave components, and switches with a frequency range up to Ka band.

### D-Lightsys®

Active Optical Solutions Optimized by D-Lightsys® for harsh environments. From optical transceivers to the world's smallest parallel optics, D-Lightsys® technologies support the most challenging applications, including harsh environments and avionics applications.

### Harnesses

The combination of design and manufacturing of RF and microwave cables as well as multipin connectors (EPX, ARINC 404 and 600) allows Radiall to be a specialist of harnesses for onboard or land equipment or communications systems. All types of contacts can be used and mixed such as signal, power, RF, quadrax, fiber optic...

### Fiber Optics

Radiall designs and supports high performance end-to-end Optical Interconnect solutions. Our offer includes standard interfaces, termini, connectors, harnesses and custom design optical links and subsystems. The flexibility and high quality of our product range supports harsh environments and demanding applications.

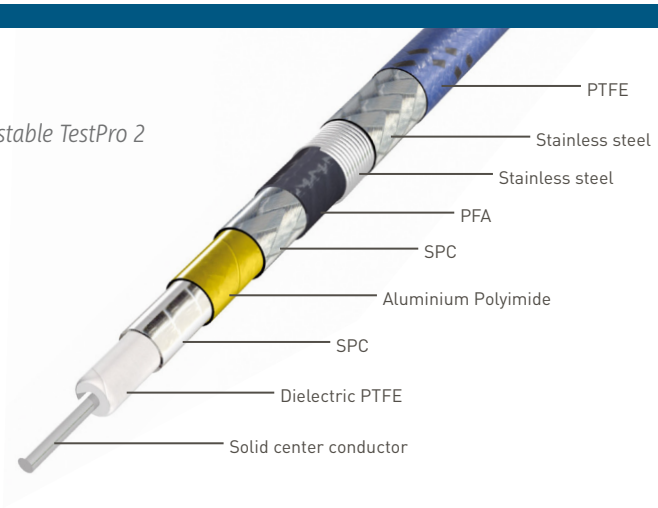
## *TestPro for Test & Measurement*

### Ruggedization - Phase & Amplitude Stability - Flexibility

At Radiall we build a unique connection with our customers. We share the same passion and desire to strive for excellence. This distinctive connection gives our teams the opportunity to understand your needs.

Our priority is understanding customer concerns in order to provide cable assemblies for RF measurements. Rather than proposing standard cables with reinforced boots and cosmetic changes, engineers at Radiall fully design end-to-end TestPro cables and connector solutions to reach performance requirements.

TestPro features high precision quality with flexibility and offers loss stability with bending over an extended life cycle. TestPro is the ideal solution for Test and Measurement applications.




*Phase stable TestPro 2*

## *Bench Test Cable*

Test and Measurement applications require excellent electrical performance and high mechanical endurance. To answer these specific needs Radiall has created TestPro, a high performance product range dedicated to Test and Measurement applications.

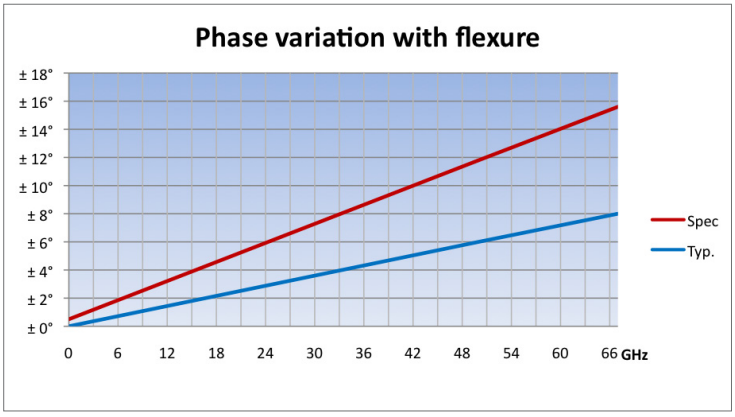
TestPro cables are designed specifically for Test and Measurement and combine outstanding electrical performance with a specially designed protection system. These ruggedized assemblies offer excellent durability while remaining exceptionally flexible. The unique connector attachment system and strong cable structure provide high tensile stress resistance to the entire assembly.

Test cable assemblies are intended for daily use in components and assembly shops, test labs and automatic test equipment applications.

They differ from standard cable assemblies in the fact that they are designed for applications that require repeated connection / disconnection procedures, strenuous flexing situations and applications where phase, loss and VSWR stability becomes an issue.

Typical applications include: Test labs, production floor testing, anechoic chambers, thermal vacuum chambers and nearfield scanners.

TestPro offers the **Phase Stable** product range:
- "**Phase stable TestPro**" cables are suitable for test benches in production or labs due to their long life and stability in dynamic use (includes: TestPro 2, TestPro 3 and TestPro 4.2)




*TestPro 2 according to IEC966-1*

**Benefits:**

- *Phase and loss stable with flexure*
- *Crush torque and tensile resistant*
- *Flexible design*
- *Long service life*
- *Longer calibration intervals*
- *Easy to configure to DUT*

Standard assembly lengths available are 24", 36", 48" and 72". Custom cable lengths are available with short lead times.

# Bench Test Cable Range

## *TestPro 2 (67 GHz) & TestPro 3 (40 / 26.5 GHz)*

The TestPro series goes up to 67 GHz. TestPro 2 - 67 GHz and TestPro 3 - 40 GHz are measurement cables. They combine electrical advantages and an integrated protection system. These ruggedized assemblies offer excellent durability while remaining exceptionally flexible. The unique connector attachment system and strong cable structure provides high tensile stress resistance to the whole assembly.

| Properties | TestPro 2 | TestPro 3 |
|---|---|---|
| Frequency range | DC - 67 GHz | DC- 40 GHz |
| Impedance | 50 Ω ± 1 Ω | 50 Ω ± 1 Ω |
| IL Typ. (dB/m) | 4.99 @ 50 GHz - 5.92 @ 67 GHz | 3.11 @ 40 GHz |
| IL Typ. (dB/ft) | 1.52 @ 50 GHz - 1.80 @ 67 GHz | 0.94 @ 40 GHz |
| Phase with flexure stability typ. | 6° @ 50 GHz - 8° @ 67 GHz | 4.8° @ 40 GHz |
| Phase with flexure stability max. | 11.8 @ 50 GHz - 15.6° @ 67 GHz | 9.5° @ 40 GHz |
| Amplitude stability typ. (dB) | 0.04 @ 50 GHz - 0.05 @ 67 GHz | 0.05 @ 40 GHz |
| Amplitude stability max. (dB) | 0.08 @ 50 GHz - 0.10 @ 67 GHz | 0.1 @ 40 GHz |
| Shielding effectiveness | -100 dB min @ 1 GHz | -100 dB min @ 1 GHz |
| Crush resistance | 260 lb/linear in.* | 260 lb/linear in. |
| Minimum bend radius | 25 mm (1 in.) | 25 mm (1 in.) |
| Temperature (°C) | -55 / +125°C | -55 / +125°C |
| Connectors | SMA 2.9 - 2.4 mm - 1.85 mm | N Type - SMA 3.5 - SMA 2.9 - 2.4 mm |
| Flexure life cycle | 20,000 | 20,000 |
| Mating cycles durability | 5,000 | 5,000 |
| Armor | Integrated | Integrated |
| ROHS / REACH | Yes | Yes |

**1 lb/linear in. = 17.5 N/100 mm*

## *TestPro 4.2 (18 GHz)*

TestPro 4.2 is a high frequency microwave cable that delivers good attenuation characteristics. This low loss triple-shielded cable provides the best combination of low attenuation and VSWR/loss/phase stability, compared to similar size flexible cables. The rugged structure of TestPro 4.2 is perfectly adapted for dynamic applications such as laboratory measurements when assembled with TestPro connectors.

| Properties | TestPro 4.2 |
|---|---|
| Frequency range | DC - 20 GHz |
| Impedance | 50 Ω ± 2 Ω |
| IL Typ. (dB/m) | 1.90 @ 18 GHz |
| IL Typ. (dB/ft) | 0.58 @ 18 GHz |
| Phase with flexure stability typ. | 2.2° @ 18 GHz |
| Phase with flexure stability max. | 4.6° @ 18 GHz |
| Amplitude stability typ. (dB) | 0.08 @ 18 GHz |
| Amplitude stability max. (dB) | 0.15 @ 18 GHz |
| Shielding effectiveness | -110 dB min @ 1 GHz |
| Crush resistance | 135 lb/linear in.* |
| Minimum bend radius | 25 mm (1 in.) |
| Temperature (°C) | -55 / +105°C |
| Connectors | SMA - N - TNC - PC7 |
| Flexure life cycle | 10,000 |
| Mating cycles durability | 5,000 |
| Armor | Available |
| ROHS / REACH | Yes |

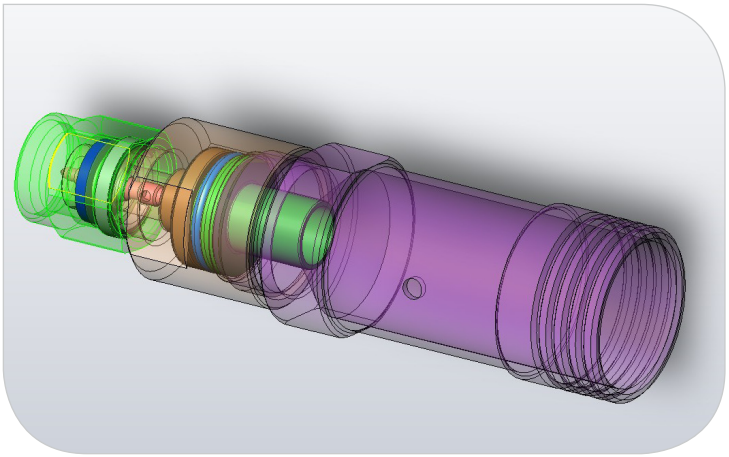
**1 lb/linear in. = 17.5 N/100 mm*

## *Connector Attachment*

The connector attachment is the main weakness when using standard cable assemblies in Test and Measurement applications.

Radiall's TestPro connectors are designed with a unique attachment process which makes the assembly more rugged and provides a long life cycle and high electrical stability.

*All components are designed and manufactured by Radiall in facilities operated under ISO9001-V2000/ASN9100 quality standards.*



## *5,000 Mating Cycles Guaranteed*

TestPro cable assemblies for test applications are extremely robust and are developed using highly rugged stainless steel connectors. The combination of higher grade stainless steel and the unique attachment method provide a very reliable product over multiple matings. TestPro connectors acheive 5,000 Mating Cycles which is 10 times greater than the industry standard.

## CONNECTOR OPTIONS FOR TESTPRO 2 / 3 / 4.2

| Connector type | Description | Torque Wrench | Fmax (GHz) | TestPro 2 | TestPro 3 | TestPro 4.2 |
|---|---|---|---|---|---|---|
| SMA series | Straight Plug | 110 | 20 | | | M125 064 C00 (ID 001) |
| SMA series | Straight Jack | - | 20 | | | M125 207 C00 (ID 088) |
| PC7 series | Straight Plug | - | 18 | | | M151 064 C00 (ID 027) |
| N 18 series | Straight Plug | 170 | 18 | | R163 063 101 (ID 121) | M163 064 C00 (ID 029) |
| TNC 18 series | Straight Plug | 265 | 18 | | | M143 064 C00 (ID 090) |
| SMA 3.5 series | Straight Plug | 110 | 26.5 | | R127 900 001 (ID 117) | |
| SMA 3.5 series | Straight Jack | - | 26.5 | | R127 920 001 (ID 118) | |
| SMA 3.5 series | Vented Straight Plug | 110 | 26.5 | | R127 900 021 (ID 143) | |
| SMA 2.9 series | Straight Plug | 110 | 40 | R127 801 341 (ID 152) | R127 801 321 (ID 092) | |
| SMA 2.9 series | Straight Jack | - | 40 | | R127 822 111 (ID 093) | |
| SMA 2.9 series | NMD 2.9 port female | - | 40 | | R299 776 101 (ID 094) | |
| SMA 2.9 series | Vented Straight Plug | 110 | 40 | | R127 801 311 (ID 097) | |
| SMA 2.9 series | Vented Straight Jack | - | 40 | | R127 822 101 (ID 098) | |
| 2.4 mm series | Straight Plug | 90 | 50* | R327 062 101 (ID 144) | R327 063 101 (ID 141) | |
| 2.4 mm series | Straight Jack | - | 50* | R327 232 101 (ID 145) | R327 233 101 (ID 142) | |
| 2.4 mm series | Vented Straight Plug | 90 | 50 | R327 062 111 (ID 146) | | |
| 2.4 mm series | Vented Straight Jack | - | 50 | R327 232 111 (ID 147) | | |
| 1.85 mm series | Straight Plug | 90 | 67 | R327 900 021 (ID 148) | | |
| 1.85 mm series | Straight Jack | - | 67 | R327 920 001 (ID 149) | | |
| 1.85 mm series | Vented Straight Plug | 90 | 67 | R327 900 031 (ID 150) | | |
| 1.85 mm series | Vented Straight Jack | - | 67 | R327 920 011 (ID 151) | | |

**Fmax 40 GHz with TestPro 3 cable*

# Bench Test Cable Assemblies

## TESTPRO 2

| Part number | F (GHz) | Connector | | Length (in./cm) | IL typ. (dB) | IL max. (dB) | VSWR max. | Phase stability typ. (°) | Phase stability max. (°) | Amplitude stability typ. (dB) | Amplitude stability max. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2001441440610TF | 50 GHz | 2.4 mm male | 2.4 mm male | 24 / 61 | 3.5 | 4.16 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001441450610TF | 50 GHz | 2.4 mm male | 2.4 mm female | 24 / 61 | 3.5 | 4.16 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001441440914TF | 50 GHz | 2.4 mm male | 2.4 mm male | 36 / 91 | 5.03 | 5.98 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001441450914TF | 50 GHz | 2.4 mm male | 2.4 mm female | 36 / 91 | 5.03 | 5.98 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001441441219TF | 50 GHz | 2.4 mm male | 2.4 mm male | 48 / 122 | 6.55 | 7.80 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001441451219TF | 50 GHz | 2.4 mm male | 2.4 mm female | 48 / 122 | 6.55 | 7.80 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001441441524TF | 50 GHz | 2.4 mm male | 2.4 mm male | 60 / 153 | 8.07 | 9.63 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001441451524TF | 50 GHz | 2.4 mm male | 2.4 mm female | 60 / 153 | 8.07 | 9.63 | 1.43 | 6.0 | 11.8 | 0.04 | 0.08 |
| 2001481480610ZT | 67 GHz | 1.85 mm male | 1.85 mm male | 24 / 61 | 4.15 | 4.92 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |
| 2001481490610ZT | 67 GHz | 1.85 mm male | 1.85 mm female | 24 / 61 | 4.15 | 4.92 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |
| 2001481480914ZT | 67 GHz | 1.85 mm male | 1.85 mm male | 36 / 91 | 5.96 | 7.09 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |
| 2001481490914ZT | 67 GHz | 1.85 mm male | 1.85 mm female | 36 / 91 | 5.96 | 7.09 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |
| 2001481481219ZT | 67 GHz | 1.85 mm male | 1.85 mm male | 48 / 122 | 7.76 | 9.25 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |
| 2001481491219ZT | 67 GHz | 1.85 mm male | 1.85 mm female | 48 / 122 | 7.76 | 9.25 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |
| 2001481481524ZT | 67 GHz | 1.85 mm male | 1.85 mm male | 60 / 153 | 9.56 | 11.41 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |
| 2001481491524ZT | 67 GHz | 1.85 mm male | 1.85 mm female | 60 / 153 | 9.56 | 11.41 | 1.50 | 8.0 | 15.6 | 0.05 | 0.10 |

*For custom configurations, see page 18 "How to Order" to determine your own part number.*

## TESTPRO 3

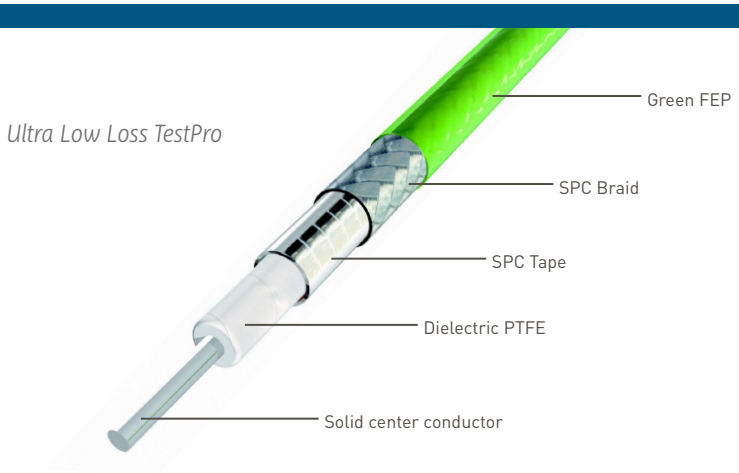
| Part number | F (GHz) | Connector | | Length (in./cm) | IL typ. (dB) | IL max. (dB) | VSWR max. | Phase stability typ. (°) | Phase stability max. (°) | Amplitude stability typ. (dB) | Amplitude stability max. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1801171170610KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 male | 24 / 61 | 1.69 | 1.89 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1801171180610KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 female | 24 / 61 | 1.69 | 1.89 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1801171170914KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 male | 36 / 91 | 2.36 | 2.64 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1801171180914KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 female | 36 / 91 | 2.36 | 2.64 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1801171171219KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 male | 48 / 122 | 3.03 | 3.40 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1801171181219KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 female | 48 / 122 | 3.03 | 3.40 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1801171171829KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 male | 72 / 183 | 4.37 | 4.91 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1801171181829KE | 26.5 GHz | SMA 3.5 male | SMA 3.5 female | 72 / 183 | 4.37 | 4.91 | 1.35 | 3.2 | 6.6 | 0.04 | 0.08 |
| 1800920920610PJ | 40 GHz | SMA 2.92 male | SMA 2.92 male | 24 / 61 | 2.12 | 2.37 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800920930610PJ | 40 GHz | SMA 2.92 male | SMA 2.92 female | 24 / 61 | 2.12 | 2.37 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800920920914PJ | 40 GHz | SMA 2.92 male | SMA 2.92 male | 36 / 91 | 2.96 | 3.33 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800920930914PJ | 40 GHz | SMA 2.92 male | SMA 2.92 female | 36 / 91 | 2.96 | 3.33 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800920921219PJ | 40 GHz | SMA 2.92 male | SMA 2.92 male | 48 / 122 | 3.8 | 4.28 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800920931219PJ | 40 GHz | SMA 2.92 male | SMA 2.92 female | 48 / 122 | 3.8 | 4.28 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800920921829PJ | 40 GHz | SMA 2.92 male | SMA 2.92 male | 72 / 183 | 5.49 | 6.19 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800920931829PJ | 40 GHz | SMA 2.92 male | SMA 2.92 female | 72 / 183 | 5.49 | 6.19 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800940920914PJ | 40 GHz | NMD 2.9 | SMA 2.92 male | 36 / 91 | 2.96 | 3.33 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800940930914PJ | 40 GHz | NMD 2.9 | SMA 2.92 female | 36 / 91 | 2.96 | 3.33 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800940921219PJ | 40 GHz | NMD 2.9 | SMA 2.92 male | 48 / 122 | 3.8 | 4.28 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800940931219PJ | 40 GHz | NMD 2.9 | SMA 2.92 female | 48 / 122 | 3.8 | 4.28 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800940921829PJ | 40 GHz | NMD 2.9 | SMA 2.92 male | 72 / 183 | 5.49 | 6.19 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |
| 1800940931829PJ | 40 GHz | NMD 2.9 | SMA 2.92 female | 72 / 183 | 5.49 | 6.19 | 1.40 | 4.8 | 9.5 | 0.05 | 0.10 |

## TESTPRO 4.2

| Part number | F (GHz) | Connector | | Length (in./cm) | IL typ. (dB) | IL max. (dB) | VSWR max. | Phase stability typ. (°) | Phase stability max. (°) | Amplitude stability typ. (dB) | Amplitude stability max. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0100290290610GX | 18 GHz | N Type male | N Type male | 24 / 61 | 1.57 | 1.75 | 1.30 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100290290914GX | 18 GHz | N Type male | N Type male | 36 / 91 | 2.21 | 2.47 | 1.30 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100290291219GX | 18 GHz | N Type male | N Type male | 48 / 122 | 2.85 | 3.18 | 1.30 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100290291829GX | 18 GHz | N Type male | N Type male | 72 / 183 | 4.13 | 4.62 | 1.30 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100290010610GX | 18 GHz | N Type male | SMA male | 24 / 61 | 1.57 | 1.75 | 1.30 | 2.2 | 4.6 | 0.08 | 0.16 |
| 0100290010914GX | 18 GHz | N Type male | SMA male | 36 / 91 | 2.21 | 2.47 | 1.30 | 2.2 | 4.6 | 0.08 | 0.16 |
| 0100290011219GX | 18 GHz | N Type male | SMA male | 48 / 122 | 2.85 | 3.18 | 1.30 | 2.2 | 4.6 | 0.08 | 0.16 |
| 0100290011829GX | 18 GHz | N Type male | SMA male | 72 / 183 | 4.13 | 4.62 | 1.30 | 2.2 | 4.6 | 0.08 | 0.16 |
| 0100290270610GX | 18 GHz | N Type male | PC7 | 24 / 61 | 1.59 | 1.77 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100290270914GX | 18 GHz | N Type male | PC7 | 36 / 91 | 2.23 | 2.49 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100290271219GX | 18 GHz | N Type male | PC7 | 48 / 122 | 2.87 | 3.21 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100290271829GX | 18 GHz | N Type male | PC7 | 72 / 183 | 4.15 | 4.64 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270270610GX | 18 GHz | PC7 | PC7 | 24 / 61 | 1.59 | 1.77 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270270914GX | 18 GHz | PC7 | PC7 | 36 / 91 | 2.23 | 2.49 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270271219GX | 18 GHz | PC7 | PC7 | 48 / 122 | 2.87 | 3.21 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270271829GX | 18 GHz | PC7 | PC7 | 72 / 183 | 4.15 | 4.64 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270010610GX | 18 GHz | PC7 | SMA male | 24 / 61 | 1.59 | 1.77 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270010914GX | 18 GHz | PC7 | SMA male | 36 / 91 | 2.23 | 2.49 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270011219GX | 18 GHz | PC7 | SMA male | 48 / 122 | 2.87 | 3.21 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100270011829GX | 18 GHz | PC7 | SMA male | 72 / 183 | 4.15 | 4.64 | 1.35 | 2.2 | 4.6 | 0.08 | 0.15 |
| 0100010010610HR | 20 GHz | SMA male | SMA male | 24 / 61 | 1.66 | 1.84 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |
| 0100010880610HR | 20 GHz | SMA male | SMA female | 24 / 61 | 1.66 | 1.84 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |
| 0100010010914HR | 20 GHz | SMA male | SMA male | 36 / 91 | 2.34 | 2.61 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |
| 0100010880914HR | 20 GHz | SMA male | SMA female | 36 / 91 | 2.34 | 2.61 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |
| 0100010011219HR | 20 GHz | SMA male | SMA male | 48 / 122 | 3.02 | 3.37 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |
| 0100010881219HR | 20 GHz | SMA male | SMA female | 48 / 122 | 3.02 | 3.37 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |
| 0100010011829HR | 20 GHz | SMA male | SMA male | 72 / 183 | 4.38 | 4.90 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |
| 0100010881829HR | 20 GHz | SMA male | SMA female | 72 / 183 | 4.38 | 4.90 | 1.27 | 2.4 | 5.0 | 0.08 | 0.16 |

*For custom configurations, see page 18 "How to Order" to determine your own part number.*

# Ultra Low Loss Test Cable




## *Ultra Low Loss Test Cable*

Test and Measurement applications require cables for long step connections where loss is the major criteria.

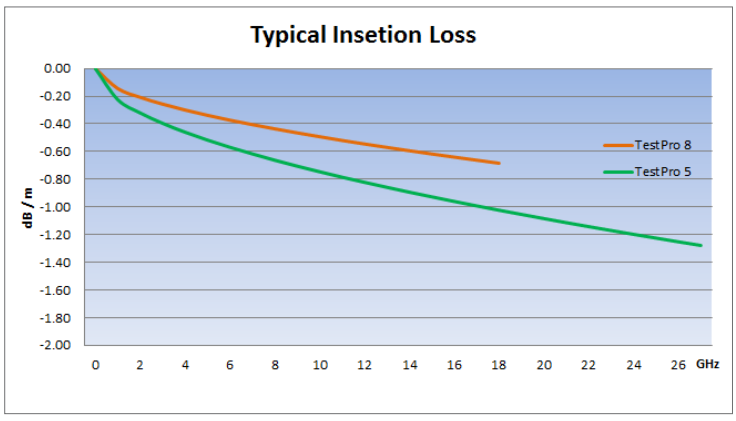
At Radiall, our first objective is to understand our customers' needs and design solutions to match. As a result, Radiall offers a range of products specifically for Ultra Low Loss long step connections.

With over 30 years of experience in manufacturing low loss cable assemblies, Radiall now offers two high performance Ultra Low Loss cables specially designed for Test and Measurement applications.

TestPro contains the **Ultra Low Loss** product range:

- "**Ultra Low Loss TestPro**" allows the use of long length cables with remote test stations and anechoic chambers. Their high stability with temperature makes them easy to use in temperature chambers. They are also suitable for high power applications.

Our TestPro Ultra Low Loss range is designed to operate in the DC - 26.5 GHz frequency range depending on connector and cable choice.




To meet Test and Measurement requirements, these cables are reinforced. They are terminated with high rugged TestPro connectors. The combination of the unique center contact captivation system and attachment method offers reliable products over multiple matings. An optional protective jacket offers a different armor level.

Key features & benefits:

- *Ultra low loss*
- *High phase stability with temperature*
- *Strain relief*
- *Crush resistance*
- *Long length available*

Typical applications include: test labs, production floor testing and anechoic chambers.

Standard assembly length available is 39 inches. Custom lengths available with short lead times.

# Ultra Low Loss Test Cable Range

## *Ultra Low Loss Test Cable Assembly*

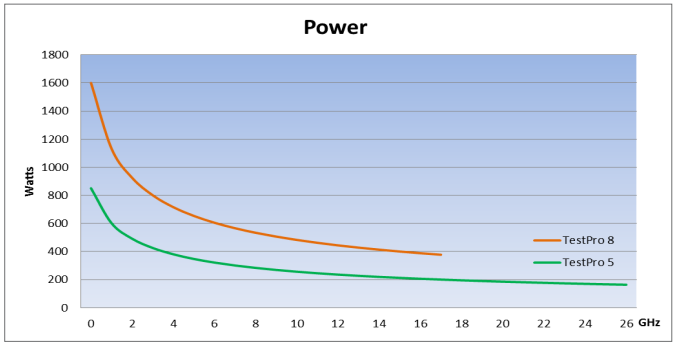
TestPro 5 and TestPro 8 benefit from Radiall's 30 years of expertise in manufacturing Ultra Low Loss microwave cables. The low density PTFE tape wrapping elevates TestPro 5 and TestPro 8 to be top performers in the market.

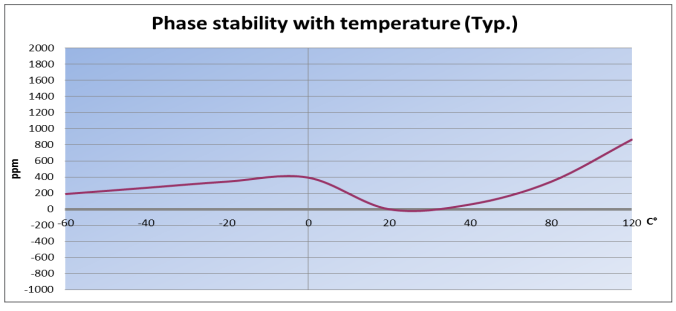
Radiall's cable assemblies are reinforced to meet Test and Measurement requirements and are terminated with ruggedized TestPro connectors. The combination of the unique center contact captivation system and attachment method ensures reliability throughout the product life cycle and multiple matings.

TestPro Ultra Low Loss Test and Measurement cables are designed for when loss becomes an issue and are suitable for high power applications. They offer phase stability with temperature which allows them to be used in temperature chambers.

| Properties | TestPro 5 | TestPro 8 |
|---|---|---|
| Frequency range | DC - 26.5 GHz | DC - 18 GHz |
| Impedance | 50 Ω ± 1 Ω | 50 Ω ± 1 Ω |
| IL (dB/m) | 1.02 @ 18 GHz - 1.27 @ 26.5 GHz | 0.68 @ 18 GHz |
| IL (dB/ft) | 0.31 @ 18 GHz - 0.39 @ 26.5 GHz | 0.21 @ 18 GHz |
| Phase with flexure stability typ. | 4.3° @ 18 GHz | 4.3° @ 18 GHz |
| Phase with flexure stability max. | 0.09° @ 18 GHz | 0.09° @ 18 GHz |
| Amplitude stability (dB) typ. | 0.09 @ 18 GHz | 0.09 @ 18 GHz |
| Amplitude stability (dB) max. | 0.18 @ 18 GHz | 0.18 @ 18 GHz |
| Shielding effectiveness | -110 dB min @ 1 GHz | -110 dB min @ 1 GHz |
| Crush resistance | 40 lb/linear in.* | 60 lb/linear in.* |
| Minimum bend radius | 25 mm (1 in.) | 40 mm (1.6 in.) |
| Temperature (°C) | -55 / +125°C | -55 / +125°C |
| Connectors | SMA - N - TNC | SMA - N - TNC |
| Flexure life cycle | 5,000 | 5,000 |
| Mating cycles durability | 5,000 | 5,000 |
| Armor | Available | Available |
| ROHS / REACH | Yes | Yes |

**1 lb/linear in. = 17.5 N/100 mm*



## CONNECTOR OPTIONS FOR TESTPRO 5 & 8

| Connector type | Description | Torque Wrench | Fmax (GHz) | TestPro 5 | TestPro 8 |
|---|---|---|---|---|---|
| SMA series | Straight Plug | 110 | 26.5 | M125 065 C00 (ID 099) | M125 068 C00 (ID 108) |
| SMA series | Right Angle Plug | 110 | 18 | M125 195 L02 (ID 007) | M125 199 L04 (ID 009) |
| SMA series | Straight Bulk Head Jack | - | 26.5 | M125 330 L02 (ID 011) | M125 338 L04 (ID 013) |
| TNC 18 series | Straight Plug | 265 | 18 | M143 065 C00 (ID 102) | M143 068 C00 (ID 111) |
| TNC 18 series | Right Angle Plug | 265 | 18 | M143 195 L02 (ID 119) | M143 198 L04 (ID 021) |
| TNC 18 series | Straight Bulk Head Jack | - | 18 | M143 330 L02 (ID 023) | M143 338 L04 (ID 025) |
| N 18 series | Straight Plug | 170 | 18 | M163 065 C00 (ID 105) | M163 068 C00 (ID 114) |
| N 18 series | Straight Bulk Head Jack | - | 18 | M163 195 L02 (ID 035) | M163 198 L04 (ID 037) |
| N 18 series | Right Angle Plug | 170 | 18 | M163 325 L02 (ID 039) | M163 328 L04 (ID 041) |

## *Cable Assemblies*

### TESTPRO 5

| Part number | F (GHz) | Connector | | Length (in./cm) | IL typ. (dB) | IL max. (dB) | VSWR max. | Phase stability typ. (°) | Phase stability max. (°) | Amplitude stability typ. (dB) | Amplitude stability max. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0501051051000GX | 18 GHz | N male | N male | 39.4 / 100 | 1.32 | 1.45 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0501050391000GX | 18 GHz | N male | N female | 39.4 / 100 | 1.32 | 1.45 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0501051052000GX | 18 GHz | N male | N male | 78.8 / 200 | 2.34 | 2.58 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0501050392000GX | 18 GHz | N male | N female | 78.8 / 200 | 2.34 | 2.58 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0501051053000GX | 18 GHz | N male | N male | 118.1 / 300 | 3.36 | 3.70 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0501050393000GX | 18 GHz | N male | N female | 118.1 / 300 | 3.36 | 3.70 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0500990991000KE | 26.5 GHz | SMA male | SMA male | 39.4 / 100 | 1.59 | 1.74 | 1.27 | 6.5 | 13 | 0.10 | 0.20 |
| 0500990111000KE | 26.5 GHz | SMA male | SMA female | 39.4 / 100 | 1.59 | 1.74 | 1.27 | 6.5 | 13 | 0.10 | 0.20 |
| 0500990992000KE | 26.5 GHz | SMA male | SMA male | 78.8 / 200 | 2.86 | 3.14 | 1.27 | 6.5 | 13 | 0.10 | 0.20 |
| 0500990112000KE | 26.5 GHz | SMA male | SMA female | 78.8 / 200 | 2.86 | 3.14 | 1.27 | 6.5 | 13 | 0.10 | 0.20 |
| 0500990993000KE | 26.5 GHz | SMA male | SMA male | 118.1 / 300 | 4.12 | 4.53 | 1.27 | 6.5 | 13 | 0.10 | 0.20 |
| 0500990113000KE | 26.5 GHz | SMA male | SMA female | 118.1 / 300 | 4.12 | 4.53 | 1.27 | 6.5 | 13 | 0.10 | 0.20 |

### TESTPRO 8

| Part number | F (GHz) | Connector | | Length (in./cm) | IL typ. (dB) | IL max. (dB) | VSWR max. | Phase stability typ. (°) | Phase stability max. (°) | Amplitude stability typ. (dB) | Amplitude stability max. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0801141141000GX | 18 GHz | N male | N male | 39.4 / 100 | 0.98 | 1.08 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801140411000GX | 18 GHz | N male | N female | 39.4 / 100 | 0.98 | 1.08 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801081081000GX | 18 GHz | SMA male | SMA male | 39.4 / 100 | 0.96 | 1.06 | 1.25 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801080131000GX | 18 GHz | SMA male | SMA female | 39.4 / 100 | 0.96 | 1.06 | 1.25 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801141143000GX | 18 GHz | N male | N male | 118.1 / 300 | 2.35 | 2.60 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801140413000GX | 18 GHz | N male | N female | 118.1 / 300 | 2.35 | 2.60 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801081083000GX | 18 GHz | SMA male | SMA male | 118.1 / 300 | 2.33 | 2.58 | 1.25 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801080133000GX | 18 GHz | SMA male | SMA female | 118.1 / 300 | 2.33 | 2.58 | 1.25 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801141145000GX | 18 GHz | N male | N male | 196.9 / 500 | 3.71 | 4.13 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801140415000GX | 18 GHz | N male | N female | 196.9 / 500 | 3.71 | 4.13 | 1.30 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801081085000GX | 18 GHz | SMA male | SMA male | 196.9 / 500 | 3.70 | 4.11 | 1.25 | 4.3 | 8.8 | 0.09 | 0.18 |
| 0801080135000GX | 18 GHz | SMA male | SMA female | 196.9 / 500 | 3.70 | 4.11 | 1.25 | 4.3 | 8.8 | 0.09 | 0.18 |

*For custom configurations, see page 18 "How to Order" to determine your own part number.*

# Option

## *Armor Options for TestPro 4.2 / 5 / 8*

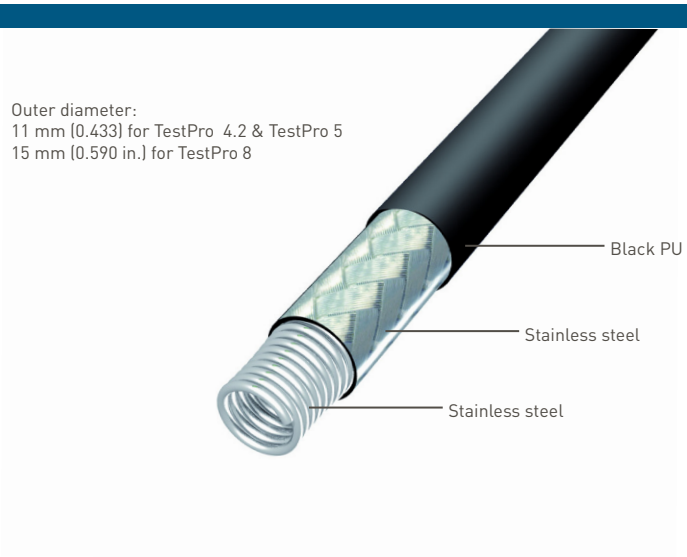
The black PU jacket, stainless steel braid and stainless steel spring make ProJack suitable for harsh environments.

Main benefits:

- *High mechanical protection:*
  *Crush resistance: 2500 N / 100 mm**
  *Tensile strength: 900 N*
- *High flexibility (Equal to cable)*
- *Anti-torque*
- *Strain relief*
- *Anti-kinking action*
- *Secured watertightness*
- *Temperature from -55 to +100°C (-67 to +212°F)*
- *Fire resistance (FAR 25853)*

**100 N/10 mm = 5.7 lb/linear in.*

Outer diameter:
11 mm (0.433) for TestPro 4.2 & TestPro 5
15 mm (0.590 in.) for TestPro 8




## CONNECTOR OPTIONS FOR ARMORED CABLES

| Connector type | Description | Torque Wrench | Fmax (GHz) | TestPro 4.2 Armored | TestPro 5 Armored | TestPro 8 Armored |
|---|---|---|---|---|---|---|
| SMA series | Straight Plug | 110 | 26.5 | M125 064 C01 (ID 002) | M125 065 C03 (ID 101) | M125 068 C05 (ID 110) |
| SMA series | | 110 | 18 | | M125 195 L03 (ID 008) | M125 199 L05 (ID 010) |
| SMA series | Straight Jack | - | 26.5 | M125 207 C01 (ID 089) | M125 330 L03 (ID 012) | M125 338 L05 (ID 014) |
| PC7 series | Straight Plug | - | 18 | M151 064 C01 (ID 028) | | |
| TNC 18 series | Straight Plug | 265 | 18 | M143 064 C01 (ID 091) | M143 065 C03 (ID 104) | M143 068 C05 (ID 113) |
| TNC 18 series | Right Angle Plug | 265 | 18 | | M143 195 L03 (ID 020) | M143 198 L05 (ID 022) |
| TNC 18 series | Straight Jack | - | 18 | | M143 330 L03 (ID 024) | M143 338 L05 (ID 026) |
| N 18 series | Straight Plug | 170 | 18 | M163 064 C01 (ID 030) | M163 065 C03 (ID 107) | M163 068 C05 (ID 116) |
| N 18 series | Right Angle Plug | 170 | 18 | | M163 195 L03 (ID 036) | M163 198 L05 (ID 038) |
| N 18 series | Straight Jack | - | 18 | | M163 325 L03 (ID 040) | M163 328 L05 (ID 042) |

## *TestPro 3 Low Profile*

TestPro 3 Low Profile offers the same performance and electrical characteristics as TestPro 3.

The slim form factor offers a high density connection without compromising performance.

Main benefits:

- *Max diameter is 9.5 mm*
- *High phase stability with bending: 9.5° at 40 GHz*
- *High flexibility endurance: 20,000 cycles*

## CONNECTOR OPTIONS FOR TESTPRO 3 LOW PROFILE

| Connector type | Description | Torque Wrench | Fmax (GHz) | TestPro 3 Low Profile |
|---|---|---|---|---|
| SMA 3.5 series | Straight Plug | 110 | 26.5 | R127 900 011 (ID 119) |
| SMA 3.5 series | Straight Jack | - | 26.5 | R127 920 011 (ID 120) |
| SMA 2.9 series | Straight Plug | 110 | 40 | R127 801 331 (ID 095) |
| SMA 2.9 series | Straight Jack | - | 40 | R127 822 121 (ID 096) |

## *TVAC Application*

The Space industry requires measurement under thermal vacuum (TVAC) conditions.

To comply with TVAC requirements TestPro 2 and TestPro 3 offer the option of vented connectors.

TestPro versions with TVAC are equipped with vented connectors to withstand ESA outgassing specs for such applications.
Outgassing ACC. ESA-PSS-01-702: TML < 1%, CVCM < 0.1%

## CONNECTOR OPTIONS FOR TVAC

*See the table on page 9 for vented connectors.*

# How to Order

## *How to Order*

Assembly Identification Code (ASIC) allows customers to quickly quote and directly build a cable assembly. An ASIC is composed of 15 characters and describes the cable, the connectors, the length and the frequency.

Place component ID into the Assembly Identification Code (ASIC) formula below to create a part number.

| | Cable | Connector 1 | Connector 2 | Length | Frequency |
|---|---|---|---|---|---|
| ASIC = | ☐☐☐ | ☐☐☐ | ☐☐☐ | ☐☐☐☐ | ☐☐ |
| | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 |

Below you can find the ID corresponding to each part of your cable assembly:

**Group 1:** Find your cable ID

| | |
|---|---|
| TestPro 4.2 | 010 |
| TestPro 4.2 Armored | 01P |
| TestPro 3 | 180 |
| TestPro 3 Low Profile | 190 |
| TestPro 2 | 200 |
| TestPro 5 | 050 |
| TestPro 5 Armored | 05P |
| TestPro 8 | 080 |
| TestPro 8 Armored | 08P |

**Group 2:** Find your connector 1 ID on page 9 or 15

**Group 3:** Find your connector 2 ID on page 9 or 15

**Group 4:** Lengh ID is the actual length you require, stated in millimeters

Example:
For a 1 meter cable assembly, you would enter in group 4: 1000
For a 50 centimeter cable assembly, you would enter in group 4: 0500
For a 36 inch (91.4 cm) cable assembly (1 inch is 2.54 cm), you would enter in group 4: 0914

**Group 5:** Find your frequency ID

| | |
|---|---|
| 18 GHz | GX |
| 26.5 GHz | KE |
| 40 GHz | PJ |
| 50 GHz | TF |
| 67 GHz | ZT |

## Accessories

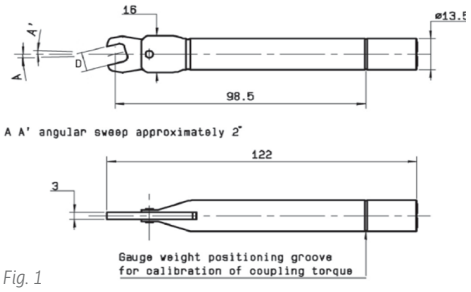



Fig. 1

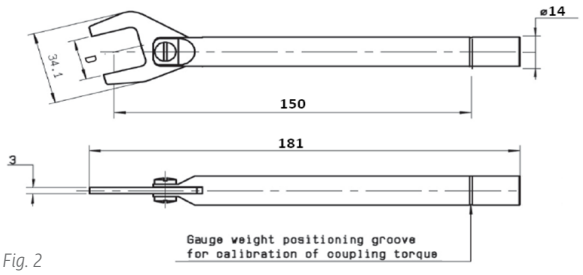



Fig. 2

## TORQUE WRENCH

| Part Number | Series | Coupling Torque | D (mm) | Fig. |
|---|---|---|---|---|
| R282320000 | SMA, SMA3.5, SMA2.9, 2.4 mm, 1.85 mm | 80 N.cm to 120 N.cm | 8 | 1 |
| R282300000 | TNC 18 | 240 N.cm to 290 N.cm | 14 | 2 |
| R282303000 | N 18 | 160 N.cm to 180 N.cm | 19 | 2 |

## INSERIES ADAPTORS

| Part Number | Connector 1 | Connector 2 | Frequency (GHz) | VSWR max |
|---|---|---|---|---|
| R125 703 000 | SMA male | SMA male | 18 | 1.05 |
| R125 704 000 | SMA male | SMA female | 18 | 1.14 |
| R125 705 000 | SMA female | SMA female | 18 | 1.14 |
| R125 703 001 | SMA male | SMA male | 18 | 1.14 |
| R125 704 001 | SMA male | SMA female | 18 | 1.12 |
| R125 705 001 | SMA female | SMA female | 18 | 1.14 |
| R143 703 700 | TNC 18 male | TNC 18 male | 18 | 1.3 |
| R143 705 700 | TNC 18 male | TNC 18 female | 18 | 1.3 |
| R143 704 700 | TNC 18 female | TNC 18 female | 18 | 1.3 |
| R143 710 700 | TNC 18 female | TNC 18 female | 18 | 1.3 |
| R143 730 700 | TNC 18 female | TNC 18 female | 18 | 1.3 |
| R163 703 701 | N 18 male | N 18 male | 18 | 1.14 |
| R163 708 701 | N 18 male | N 18 female | 18 | 1.14 |
| R163 705 701 | N 18 female | N 18 female | 18 | 1.14 |
| R163 703 001 | N 18 male | N 18 male | 18 | 1.14 |
| R163 708 001 | N 18 male | N 18 female | 18 | 1.14 |
| R163 705 001 | N 18 female | N 18 female | 18 | 1.14 |
| R127 973 001 | 3.5 mm male | 3.5 mm male | 26.5 | 1.20 |
| R127 974 001 | 3.5 mm male | 3.5 mm female | 26.5 | 1.20 |
| R127 975 001 | 3.5 mm female | 3.5 mm female | 26.5 | 1.20 |
| R127 871 001 | 2.92 mm male | 2.92 mm male | 40 | 1.15 |
| R127 872 001 | 2.92 mm male | 2.92 mm female | 40 | 1.15 |
| R127 870 001 | 2.92 mm female | 2.92 mm female | 40 | 1.15 |
| R327 703 000 | 2.4 mm male | 2.4 mm male | 50 | 1.15 |
| R327 704 000 | 2.4 mm male | 2.4 mm female | 50 | 1.15 |
| R327 771 000* | 2.4 mm male | 2.4 mm female | 50 | 1.45 |
| R327 705 000 | 2.4 mm female | 2.4 mm female | 50 | 1.15 |

*(*) Right angle*

# Accessories

## BETWEEN SERIES ADAPTORS

| Part Number | Connector 1 | Connector 2 | Frequency (GHz) | VSWR max |
|---|---|---|---|---|
| R191 009 000 | SMA male | PC7 | 18 | 1.23 |
| R191 011 000 | SMA female | PC7 | 18 | 1.23 |
| R191 010 000 | SMA3.5 male | PC7 | 18 | 1.23 |
| R191 012 000 | SMA3.5 female | PC7 | 18 | 1.23 |
| R191 324 000 | SMA3.5 male | N 18 male | 18 | 1.21 |
| R191 326 000 | SMA3.5 male | N 18 female | 18 | 1.21 |
| R191 328 000 | SMA3.5 female | N 18 male | 18 | 1.21 |
| R191 330 000 | SMA3.5 female | N 18 female | 18 | 1.21 |
| R191 017 700 | TNC 18 male | PC7 | 18 | 1.23 |
| R191 019 700 | TNC 18 female | PC7 | 18 | 1.23 |

## TEST & MEASUREMENT ATTENUATORS (DC-40 GHZ)

| Part Number | Interface | Gender | Attenuation (dB) | Power (W) | VSWR max |
|---|---|---|---|---|---|
| R4144xx150 | BNC (4 GHz) | Male to Female | 0 to 30 dB | 2 | 1.15 |
| R4145xx150 | TNC (12.4 GHz) | Male to Female | 0 to 30 dB | 2 | 1.22 |
| R4147xx150 | N (18 GHz) | Male to Female | 0 to 30 dB | 2 | 1.25 |
| R4138xx150 | SMA (18 GHz) | Male to Female | 0 to 30 dB | 2 | 1.25 |
| R4132xx150 | SMA3.5 (26.5 GHz) | Male to Female | 0 to 30 dB | 2 | 1.35 |
| R4133xx150 | SMA2.9 (40 GHz) | Male to Female | 0 to 30 dB | 2 | 1.45 |

*xx = attenuation value*

## TEST & MEASUREMENT TERMINATIONS (DC-50 GHZ)

| Part Number | Interface | Gender | Power (W) | VSWR max |
|---|---|---|---|---|
| R404110150 | BNC (4 GHz) | Male | 2 | 1.12 |
| R404115150 | BNC (4 GHz) | Female | 2 | 1.12 |
| R404370150 | TNC (12.4 GHz) | Male | 2 | 1.15 |
| R404375150 | TNC (12.4 GHz) | Female | 2 | 1.15 |
| R404752000 | TNC (6 GHz) | Male | 30 | 1.3 |
| R404762000 | TNC (6 GHz) | Male | 50 | 1.3 |
| R404772000 | TNC (6 GHz) | Male | 100 | 1.3 |
| R404782000 | TNC (6 GHz) | Male | 150 | 1.3 |
| R404782020 | TNC (6 GHz) | Male | 200 | 1.3 |
| R404753000 | TNC (6 GHz) | Female | 30 | 1.3 |
| R404763000 | TNC (6 GHz) | Female | 50 | 1.3 |
| R404773000 | TNC (6 GHz) | Female | 100 | 1.3 |
| R404783000 | TNC (6 GHz) | Female | 150 | 1.3 |
| R404783020 | TNC (6 GHz) | Female | 200 | 1.3 |
| R404350150 | N v (18 GHz) | Male | 2 | 1.1 |
| R404355150 | N (18 GHz) | Female | 2 | 1.12 |
| R404750000 | N (6 GHz) | Male | 30 | 1.3 |
| R404760000 | N (6 GHz) | Male | 50 | 1.3 |
| R404770000 | N (6 GHz) | Male | 100 | 1.3 |
| R404780000 | N (6 GHz) | Male | 150 | 1.3 |
| R404780020 | N (6 GHz) | Male | 200 | 1.3 |
| R404751000 | N (6 GHz) | Female | 30 | 1.3 |
| R404761000 | N (6 GHz) | Female | 50 | 1.3 |
| R404771000 | N (6 GHz) | Female | 100 | 1.3 |
| R404781000 | N (6 GHz) | Female | 150 | 1.3 |
| R404781020 | N (6 GHz) | Female | 200 | 1.3 |
| R404210150 | SMA (18 GHz) | Male | 2 | 1.1 |
| R404215150 | SMA (18 GHz) | Female | 2 | 1.1 |
| R404754000 | SMA (6 GHz) | Male | 30 | 1.3 |
| R404764000 | SMA (6 GHz) | Male | 50 | 1.3 |
| R404774000 | SMA (6 GHz) | Male | 100 | 1.3 |
| R404755000 | SMA (6 GHz) | Female | 30 | 1.3 |
| R404765000 | SMA (6 GHz) | Female | 50 | 1.3 |
| R404775000 | SMA (6 GHz) | Female | 100 | 1.3 |
| R404211150 | SMA3.5 (26.5 GHz) | Male | 2 | 1.1 |
| R404216150 | SMA3.5 (26.5 GHz) | Female | 2 | 1.12 |
| R404280150 | SMA2.9 (40 GHz) | Male | 2 | 1.18 |
| R404285150 | SMA2.9 (40 GHz) | Female | 2 | 1.22 |
| R4042N0000 | SMA2.4 (50 GHz) | Male | 2 | 1.3 |
| R4042N5000 | SMA2.4 (50 GHz) | Female | 2 | 1.3 |

# Radiall Part Numbers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0100010010914HR .....10
0100010011219HR .....10
0100010011829HR .....10
0100010880610HR .....10
0100010880914HR .....10
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2001481491524ZT .....11
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M125065C00.....15
M125065C03.....16
M125068C05.....16
M125195L02.....15
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M125207C00..... 9
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M125330L02.....15
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M125338L04.....15
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M143064C00..... 9
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M143195L02.....15
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R127801321..... 9
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R127822101..... 9
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R4145xx150.....20
R4147xx150.....20

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