SPINNER mmWave Waveguide-to-Coaxial Adapters

Speed Up Your mmWave Setup!

HIGH FREQUENCY PERFORMANCE WORLDWIDE
spinner-group.com

SPINNER

The SPINNER Group

For almost 80 years, the SPINNER Group has been setting new standards worldwide in high-frequency technology. Based in Munich with production facilities in Germany, Hungary and China, SPINNER currently has over 900 employees. Our international network of subsidiaries and distributors supports customers in over 40 countries.


TEST & MEASUREMENT


COMMUNICATION


BROADCAST


SATCOM/SPACE


WIND ENERGY


INDUSTRY


SUBSEA/OFFSHORE

RF Measurement

These days, up-to-date measurement equipment is essential for all development, production, testing and quality control departments that deal with RF signals on coaxial lines. Particularly for vector network analyzers, high-precision connectors, terminations, and adapters are a must.

The same statement applies to calibration kits and mechanical accessories such as gauges for checking mating face dimensions or torque wrenches for tightening coupling nuts. In all of these cases, SPINNER has established new, extremely high standards of precision which most users would not want to do without.

Precisely measured values are especially important when transmitting high power levels. Other major applications include extensive testing of mobile communication systems, terahertz communication, terabit ethernet high-speed data transmission, quantum research.

SPINNER supplies coaxial measurement equipment of outstanding electrical and mechanical quality for use at frequencies up to 250 GHz.

Coaxial and Waveguide Measurement Devices

Coaxial & waveguide measurement devices made by SPINNER are needed for:

VNA / S-Parameter Measurement

- Calibration and verification standards
- Air lines
- Rotary joints
- Articulated lines
- Adapters
- Connector gauges

PIM Measurement and Test Automation

- EasyDock push-pull adapters
- Low PIM switches
- Low PIM test cables
- Low PIM rotary joints
- Low PIM loads
- Low PIM passive intermodulation standards

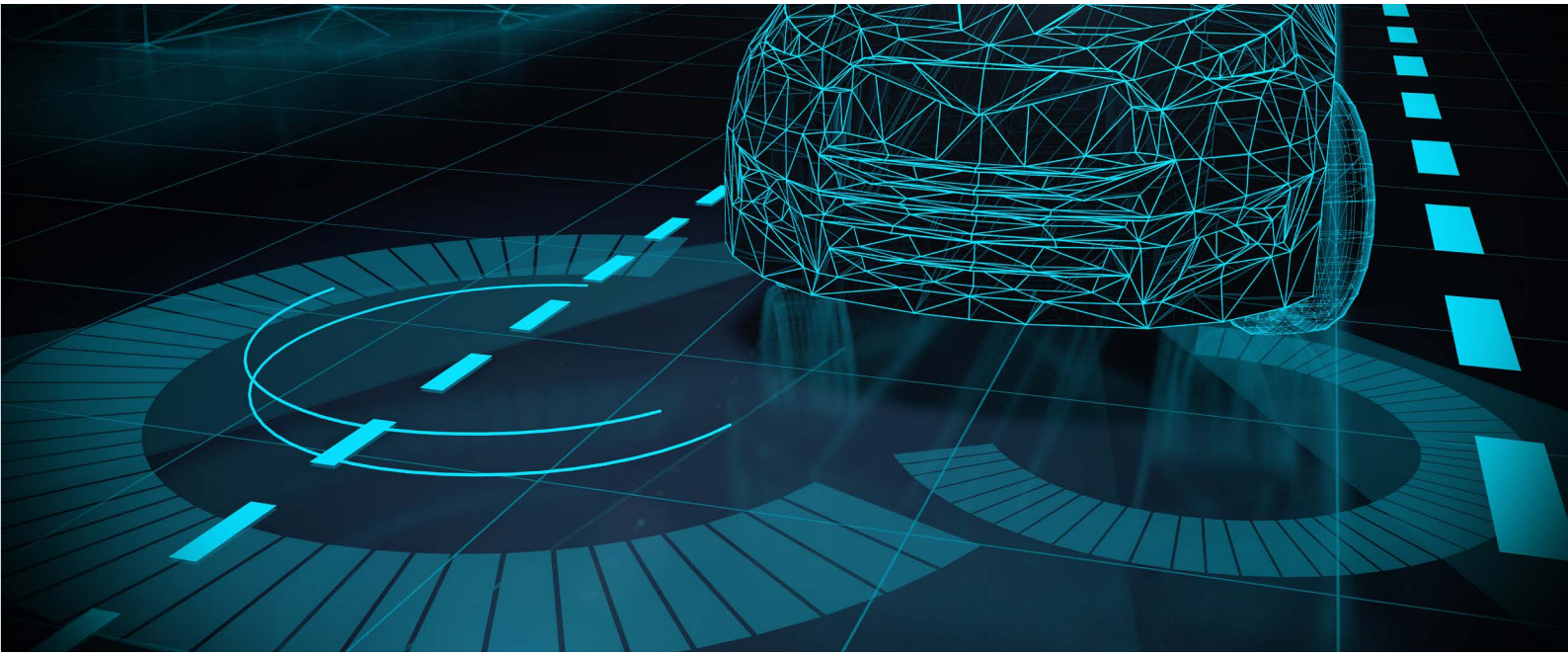
Millimeter Wave Measurement

- Ruggedized test port adapters
- mmWave waveguide-to-coaxial adapters
- 0.5 mm, 0.8 mm & 1.0 mm coaxial connector systems
- 1.35 mm E Connector
- EasyLaunch PCB connectors
- EasySnake flexible dielectric waveguides
- Connectivity solutions for RF anechoic chambers

Connectivity Solutions for RF Anechoic Chambers

- Ruggedized test port adapters
- mmWave waveguide-to-coaxial adapters
- Panel feedthroughs
- Articulated lines
- EasySnake flexible dielectric waveguides
- Rotary joints

mmWave Waveguide-to-Coaxial Adapters: Start Testing Faster!



Get the solution you need! SPINNER extends its millimeter wave waveguide-to-coaxial adapter portfolio up to 220 GHz. The SPINNER mmWave waveguide-to-coaxial adapters for the V, E, W, F, D and Y bands let you directly connect waveguide-based testing network topologies to the coaxial ports of VNA or millimeter-wave-range extender modules.

Start testing faster with these new adapters from SPINNER. They save time with ruggedized coaxial interfaces for directly connecting millimeter waveguides to the coaxial ports of millimeter wave VNAs. Ultralow losses are guaranteed. In lab environments, you need to have the right interfaces handy: for waveguide-to-coaxial and with male or female coaxial connectors as required. These convenient solutions save time and let you focus on your testing work.

Unique versions include the WR 5.1 waveguide to 0.5 mm coaxial adapter as well as the WR 7/WR 6.5 waveguide to 0.8 mm coaxial adapter, covering the D-band from 110 up to 167 GHz.

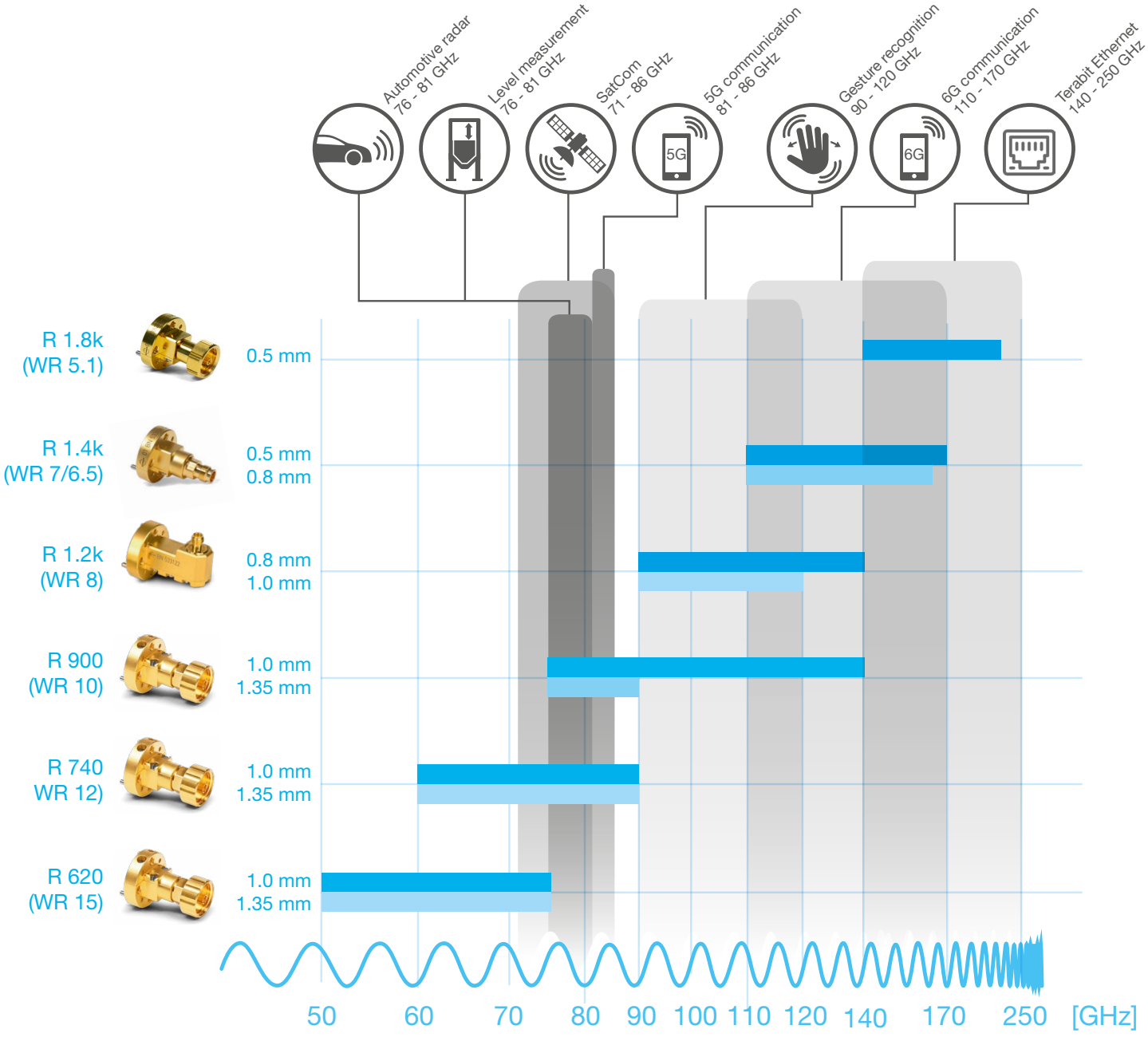
Reliable coaxial connections are crucial for good RF performance. A common frustration in RF laboratories is the unintended loosening of the 1.0 mm coaxial threads after time-consuming calibrations, necessitating their repetition. The “E-connector” – a 1.35 mm interface for DC to 90 GHz, featuring a precise metric thread and an integrated push-pull function – eliminates this annoyance. Beyond the 1.0 mm connector system, the new solid 0.8 mm interface offers an equally much more stable alternative in terms of the quality of the screw connection.

All of these mmWave waveguide adapters are ideal for testing automotive and industrial radar sensors (in the 76 to 81 GHz range), satcom applications (from 71 to 76 GHz and 81 to 86 GHz), and the proposed new mmWave bands for 5G (81 to 86 GHz) and 6G (110 to 170 GHz), as well as for sensors for gesture recognition and material characterization.

Less Fuss, Greater Flexibility!

SPINNER mmWave waveguide-to-coaxial adapters

SPINNER mmWave Waveguide-to-Coaxial Adapters: Typical Applications



Features

- Highly robust mechanical functions
  - Service life of at least 3000 cycles
  - The 1.35 mm connector is locked by a threaded coupling nut that reliably prevents unintended opening.
- The ruggedized coaxial interface includes a large threaded body that is designed to stabilize the advanced coaxial 0.5 mm, 0.8 mm, 1.0 mm or 1.35 mm test port during testing.
- Precision interface with
  - Well-defined reference plane
  - Maximized return losses
  - High connector repeatability (min. 45 dB)
  - Suitability for precise measurement of S parameters
- Standardized interface: compatible with IEC 60154-2
- Ideal design for the frequency bands V, E, W, F, D and Y
- Mode of operation on coax side:
  - In-line transition works as a DC short circuit (DC coupled)
  - Right angle transition works as a DC open circuit (DC decoupled)
- To ensure precise alignment, there are two extra pin holes according to IEC 60154-2.

Two extra pin holes to ensure precise alignment

Special Design Goals

mmWave waveguide-to-coaxial adapters in various versions

mmWave Waveguide-to-Coaxial Adapters
0.5 mm, 0.8 mm, 1.0 mm and 1.35 mm Ruggedized

Features

- Well-defined reference plane
- Maximized return losses
- High connector repeatability (min. 45 dB)
- Suitable for precision measurement of S-parameters
- Ruggedized coaxial ports
- In-line style: DC short circuit

Part Number	Style	Description	Frequency Range	Return Loss, min.
BN 530521	In-line	Precision waveguide-to-coaxial adapter R 1.8k (WR 5.1) to 0.5 mm female RUG	140 to 220 GHz	≥ 12 dB
BN 530507	In-line	Precision waveguide-to-coaxial adapter R 1.8k (WR 5.1) to 0.5 mm male RUG	140 to 220 GHz	≥ 12 dB
BN 530520	In-line	Precision waveguide-to-coaxial adapter R 1.4k (WR 6.5) to 0.5 mm female RUG	110 to 170 GHz	≥ 12 dB
BN 530503	In-line	Precision waveguide-to-coaxial adapter R 1.4k (WR 6.5) to 0.5 mm male RUG	110 to 170 GHz	≥ 12 dB
BN 530829	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 8) to 0.8 mm male RUG	90 to 120 GHz	≥ 12 dB
BN 533140	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 8) to 1.0 mm female RUG	90 to 120 GHz	≥ 10 dB
BN 533141	In-line	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.0 mm female RUG	Full W band	≥ 16 dB
BN 533142	In-line	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.0 mm female RUG	Full E band	≥ 16 dB
BN 533143	In-line	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.0 mm female RUG	Full V band	≥ 16 dB
BN 533161	In-line	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.0 mm male RUG	Full W band	≥ 16 dB
BN 533162	In-line	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.0 mm male RUG	Full E band	≥ 16 dB
BN 533163	In-line	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.0 mm male RUG	Full V band	≥ 16 dB
BN 533151	In-line	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.35 mm female RUG	75 to 90 GHz	≥ 16 dB
BN 533152	In-line	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.35 mm female RUG	Full E band	≥ 16 dB
BN 533153	In-line	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.35 mm female RUG	Full V band	≥ 16 dB

mmWave Waveguide-to-Coaxial Adapters
0.5 mm, 0.8 mm, 1.0 mm and 1.35 mm

Features

- Well-defined reference plane
- Maximized return losses
- High connector repeatability (min. 45 dB)
- Suitable for precision measurement of S-parameters
- In-line style: DC short circuit
- Right-angle style: DC open circuit

Part Number	Style	Description	Frequency Range	Return Loss, min.
BN 530506	In-line	Precision waveguide-to-coaxial adapter R 1.8k (WR 5.1), 0.5 mm female	140 to 220 GHz	≥ 12 dB
BN 530502	In-line	Precision waveguide-to-coaxial adapter R 1.4k (WR 7/WR 6.5), 0.5 mm female	110 to 170 GHz	≥ 12 dB
BN 533192	In-line	Precision waveguide-to-coaxial adapter R 1.4k (WR 7/WR 6.5), 0.8 mm female	110 to 167 GHz	≥ 12 dB
BN 533193	In-line	Precision waveguide-to-coaxial adapter R 1.4k (WR 7/WR 6.5), 0.8 mm male	110 to 167 GHz	≥ 12 dB
BN 533173	Right-angle	Precision waveguide-to-coaxial adapter R 1.4k (WR 7/WR 6.5), 0.8 mm female	110 to 150 GHz	≥ 12 dB
BN 533137	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 8), 0.8 mm female	90 to 140 GHz	≥ 12 dB
BN 533150	Right-angle	Precision waveguide-to-coaxial adapter R 1.2k (WR 8), 0.8 mm female	90 to 140 GHz	≥ 12 dB
BN 533107	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 8) to 1.0 mm female	90 to 120 GHz	≥ 10 dB
BN 533108	In-line	Precision waveguide-to-coaxial adapter R 1.2k (WR 8) to 1.0 mm male	90 to 120 GHz	≥ 10 dB
BN 533110	Right-angle	Precision waveguide-to-coaxial adapter R 1.2k (WR 8) to 1.0 mm female	90 to 120 GHz	≥ 16 dB
BN 533112 **BN 533114**	In-line Right-angle	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.0 mm female	Full W band	≥ 16 dB
BN 533116 **BN 533118**	In-line Right-angle	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.0 mm female	Full E band	≥ 16 dB
BN 533120 **BN 533122**	In-line Right-angle	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.0 mm female	Full V band	≥ 16 dB
BN 533124 **BN 533125**	In-line Right-angle	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.35 mm female	75 to 90 GHz	≥ 16 dB
BN 533126 **BN 533127**	In-line Right-angle	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.35 mm female	Full E band	≥ 16 dB
BN 533128 **BN 533129**	In-line Right-angle	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.35 mm female	Full V band	≥ 16 dB
BN 533134	In-line	Precision waveguide-to-coaxial adapter R 900 (WR 10) to 1.35 mm male	75 to 90 GHz	≥ 16 dB
BN 533135	In-line	Precision waveguide-to-coaxial adapter R 740 (WR 12) to 1.35 mm male	Full E band	≥ 16 dB
BN 533136	In-line	Precision waveguide-to-coaxial adapter R 620 (WR 15) to 1.35 mm male	Full V band	≥ 16 dB
BN 533159	In-line	Panel Connector R 740 (WR 12) to 1.35 female, D-hole mount	Full E band	≥ 16 dB

HIGH FREQUENCY PERFORMANCE WORLDWIDE

SPINNER designs and builds cutting-edge radio frequency systems, setting performance and longevity standards for others to follow. The company's track record of innovation dates back to 1946, and many of today's mainstream products are rooted in SPINNER inventions.

Industry leaders continue to count on SPINNER's engineering excellence to drive down their costs of service and ownership with premium-quality, off-the-shelf products and custom solutions. Headquartered in Munich, Germany, the global frontrunner in RF components remains the first choice in simple-yet-smart RF solutions.

www.spinner-group.com

SPINNER GmbH
Headquarters
Erzgiessereistr. 33
80335 Munich
GERMANY
Phone: +49 89 12601-0
info@spinner-group.com

SPINNER ANZ Pty. Ltd
871 Dandenong Rd.
Montrose VIC 3765
AUSTRALIA
Phone: +61 413 200677
info-anz@spinner-group.com

SPINNER Austria GmbH
Modecenterstraße 22/C38
1030 Vienna
AUSTRIA
Phone: +43 1 66277 51
info-austria@spinner-group.com

SPINNER Electrotécnica S.L.
c/ Perú, 4 – Local n° 15
28230 Las Rozas (Madrid)
SPAIN
Phone: +34 91 6305 842
info-iberia@spinner-group.com

SPINNER France S.A.R.L.
32–34 avenue Kléber
75116 Paris
FRANCE
Phone: +33 6 32505210
info-france@spinner-group.com

SPINNER ICT Inc.
2220 Northmont Parkway, 250
Duluth, GA 30096
USA
Phone: +1 770 2636 326
info@spinner-group.com

SPINNER Nordic AB
Kråketorpsgatan 20
43153 Mölndal
SWEDEN
Phone: +46 31 7061670
info-nordic@spinner-group.com

SPINNER Telecommunication
Devices (Shanghai) Co., Ltd.
351 Lian Yang Road
Songjiang Industrial Zone
Shanghai 201613
P.R. CHINA
Phone: +86 21 577 45377
info-china@spinner-group.com

SPINNER UK Ltd.
Suite 8 Phoenix House
Golborne Enterprise Park,
High Street
Golborne, Warrington
WA3 3DP
UNITED KINGDOM
Phone: +44 1942 275222
info-uk@spinner-group.com

4.0/TM/09.2025