

The new Radiall N series has been developed using the latest advances in connector design. These connectors are easy-to-use, highly reliable, innovative and are designed to meet the needs of the Telecommunications market. The complete series features the following main news :

- extensive range, with optimized piece parts design, including full crimp models
- upgraded cross-knurled coupling nut allowing for better manual tightening
- standard plating finish : BBR (Bright Bronze Radiall) = high performance non magnetic alloy.

• A WIDE STANDARD RANGE

More than 75 new models : receptacles, cable connectors, COAXI-KIT models, and adapters (including Push-on interface)...

A proven technology for one of the most popular connector design in the world.

• MANY FULL CRIMP MODELS

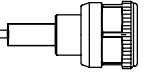
A fast and reliable attachment system that can be easily achieved in a field environment, with minimum easy-to-use tooling (including models for 2 and 2.6 mm dia cables). All our full crimp connectors are single piece body.



• LOW INTERMODULATION CONNECTORS

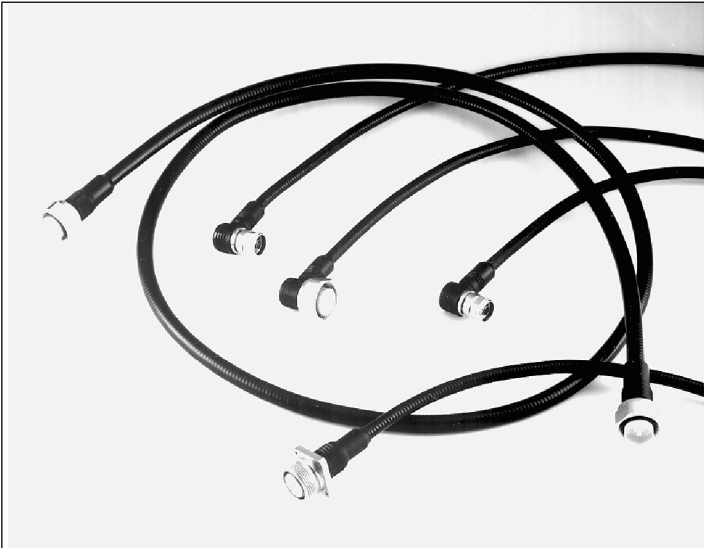
Radiall maintains extensive knowledge in this field and has developed N series connectors that are specially designed for base stations of radiotelephone digital cellular networks where the elimination of intermodulation products is of the utmost importance :

- optimized for 900 - 1800 MHz bands (and able to work up to 11 GHz like the standard models)
- IMP_3 performance = -110 dBm (- 153 dBc).
- new models for corrugated and low loss flexible cables
- high performance non magnetic materials and platings (silver and BBR)
- new 6 flats coupling nut (18 mm), allowing high coupling torque (170 Ncm) thanks to torque wrench.
- non slotted outer contact.



- **VERY LOW INTERMODULATION CABLE ASSEMBLIES**

For severe intermodulation conditions, we propose a range of low intermodulation cable assemblies $IMP_3 \leq -125$ dBm (see p. 40). For IM sensitive applications.

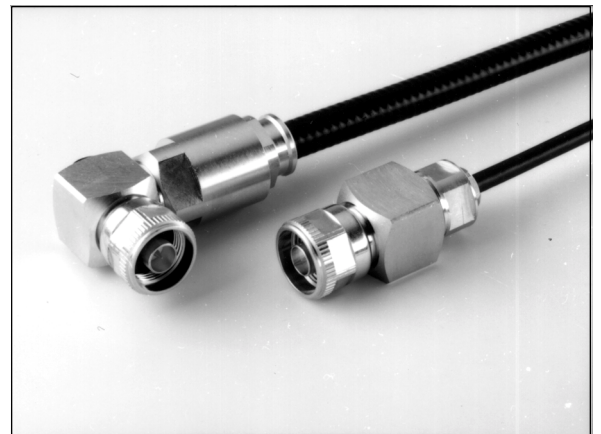


- **COMPLETE COAXI-KIT RANGE**

(see p. 25)

This new product family offers a complete choice of heads and tips. The combination of a reduced number of P/N allows to obtain :

- either straight or right-angle plugs (6 flat nut), flange and bulkhead jacks
- either crimp or clamp attachment types
- For flexible cable 5 S, 5 D, 10 S, 11 D
- For corrugated cable 1/4 " , 3/8 " , 1/2 "



- **CUSTOM MODELS**

Designed to fulfil customer requirements according to the N series standard. Radiall fully masterizes the complete designing of custom connectors (example shown : straight plug flange type).



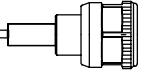
New Radiall N series benefits from a complete line of accessories, such as : adapters (in-series and between series), tees, caps and easy-to-use complete range of tooling.

Radiall also proposes a complete range of **MICROWAVE COMPONENTS** : TERMINATIONS, ATTENUATORS, COUPLERS, etc. – all designed around the N and 7/16 series interface.

For further details, please read our

- INTERMODULATION APPLICATION GUIDE (*D1 032 DE*)
- BBR PLATING APPLICATION GUIDE (*D1 030 DE*)

IMPORTANT : the 50 Ω and the 75 Ω connectors are **NOT INTERMATEABLE**, under pain of interface destruction



50 Ω	DC - 11 GHz
75 Ω	DC - 1.5 GHz

GENERAL

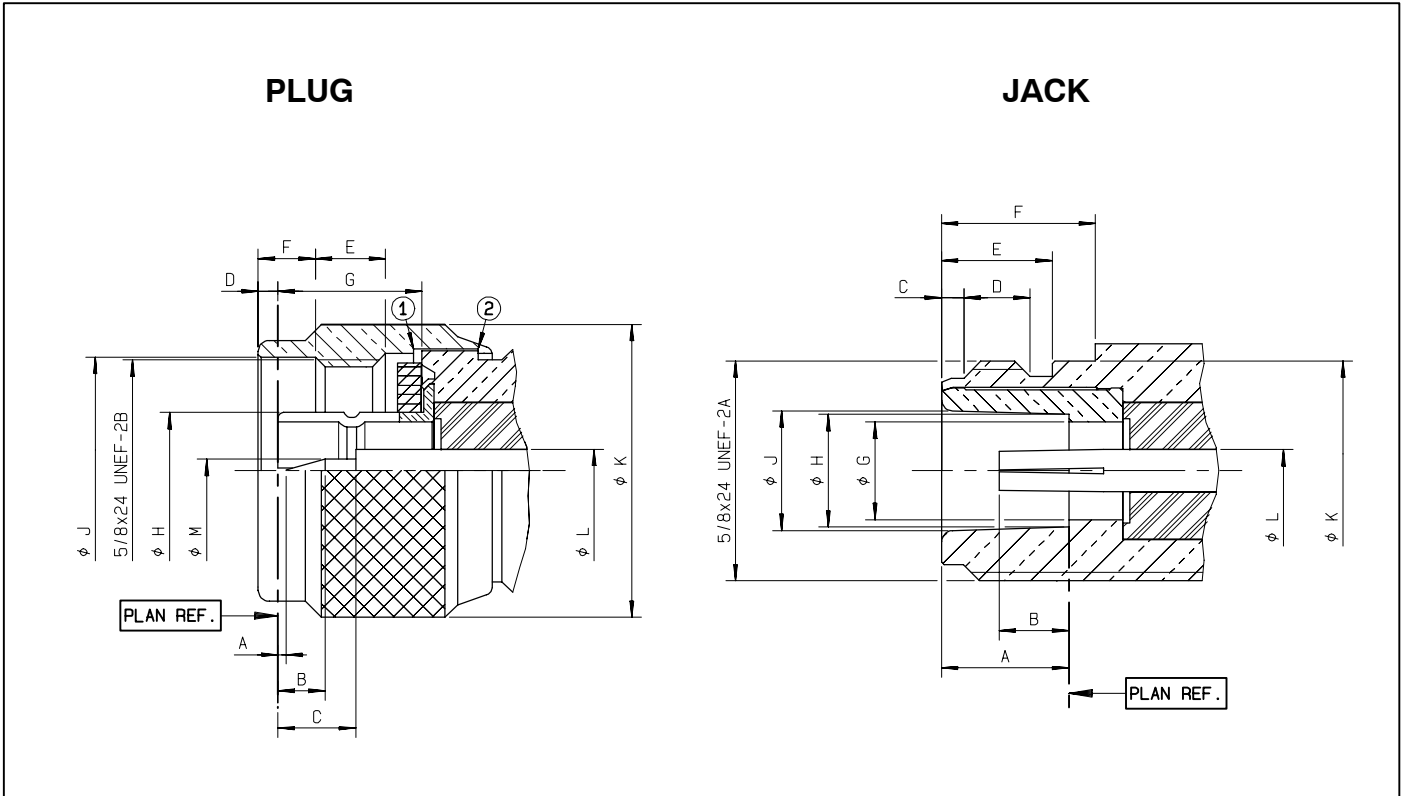
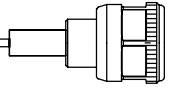
- Standard coaxial connectors
- Screw-on coupling
- High durability and proven strength
- High power rating
- Excellent RF performance
- 2 ranges : N 50 Ω
 N 75 Ω

APPLICABLE STANDARDS

- MIL-C-39012 / MIL STD 348-304
- CEI 169-16
- CECC 22210
- NF-C-93566

APPLICATIONS

- Wireless communications
- Civil and military radio-telecommunication equipment
- Countermeasure
- Navy equipment
- Videocommunication
- Computer network
- Industrial network



REP	MINI	MAXI
A	0.13 (.005)	1.03 (.13)
B	2.80 (.110)	3.56 (.140)
C	5.33 (.2098)	5.83 (.2295)
D	1 (.016)	2 (.066)
E	4.54 (.179)	5.39 (.212)
F	4.05 (.1594)	4.20 (.1653)
G	10.23 (.403)	10.43 (.4106)
ØH	8.27 (.3256)	8.37 (.3295)
ØJ	16.1 (.6339)	16.2 (.6378)
ØK	20.9 (.8228)	21 (.8268)
ØL	3.01 (.1185)	3.05 (.120)
ØM	1.63 (.0642)	1.67 (.0657)

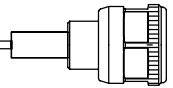
REP	MINI	MAXI
A	9.05 (.356)	9.19 (.362)
B	4.75 (.187)	5.25 (.2067)
C	1.20 (.047)	1.95 (.077)
D	4.4 (.173)	5.1 (.201)
E	6.8 (.268)	9 (.354)
F	10.9 (.429)	11.2 (.441)
ØG	6.98 (.2748)	7.02 (.2764)
ØH	8.03 (.316)	8.13 (.320)
ØJ	8.53 (.336)	8.73 (.3437)
ØK	15.65 (.616)	15.85 (.624)
ØL	3.01 (.1185)	3.05 (.120)

* statistics dimensions : .0539 ± .0055 (.0594 max)/(1.37 ± 0.14)(1.51 max)

- 1) Coupling nut against on datum 1
- 2) Coupling nut against on datum 2

All dimensions are given in mm (inch)

IMPORTANT : the 50 Ω and the 75 Ω connectors are **NOT INTERMATEABLE**, under pain of interface destruction



TEST/CHARACTERISTICS	STANDARD REFERENCE	VALUES/REMARKS
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ELECTRICAL CHARACTERISTICS

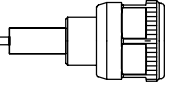
Impedance		50 Ω
Frequency range		DC-11 GHz DC - 2 GHz for COAXI-KITS
V.S.W.R. (typ.)	Frequency	1 GHz 2.5 GHz 5 GHz 11 GHz
Straight models cable group :	.085"	1.03 1.03 1.05 1.08
	.141"	1.03 1.05 1.05 1.08
	.250"	1.03 1.03 1.05 1.07
	5 S + 5 D	1.05 1.06 1.1 1.16
	10 S + 11 D	1.04 1.05 1.09 1.2
Right angle models	5 S + D	1.04 1.05 1.18 -
	10 S + 11 D	1.04 1.1 1.20 -
Intermodulation product (IMP ₃)		
<i>Standard connectors</i>		- 90 dBm typ. (-133 dBc typ. / 20W)
<i>Intermodulation connectors</i>		- 110 dBm typ. (-153 dBc typ / 20 W)
<i>Home made intermodulation cable assemblies</i>		- 125 dBm typ. (-165 dBc typ. / 20W)
Insertion loss	<i>straight connector</i> <i>right-angle connector</i>	MIL < 0.15 dB max at 10 GHz ~ < 0.05√F(GHz) < 0.15 dB max at 10 GHz ~ < 0.1 √F(GHz)
RF Leakage		MIL - 90 dB min from 2 to 3 GHz (interface)
Insulation resistance		MIL 5000 MΩ min
Contact resistance	<i>center contact</i> <i>outer contact</i>	MIL Initial 1 mΩ 0.2 mΩ After tests 1.5 mΩ -
Working voltage in VRMS	<i>at sea level</i> <i>(at 70, 000 feet)</i>	CECC 850 cable 5 / 50 1400 cable 10+11/50 (250 cable 5 / 50) (400 cable 10+11/50) 850 cable LMR200 1400 cable LMR 400/600 (250 cable LMR200) (400 cable LMR 400/600) 350 cable .085" / .141" 1400 cable .250 (250 cable .085" / .141") (400 cable .250)
Dielectric withstanding voltage in VRMS	<i>at sea level</i> <i>(at 70, 000 feet)</i>	CECC 1500 cable 5 / 50 2500 cable 10/50 (350 cable 5 / 50) (600 cable 10/50) 1500 cable LMR200 2500 cable LMR400/600 (350 cable LMR200) (600 cable LMR400/600) 1000 cable .085" / .141" 2500 cable .250 (350 cable .085 / .141") (600 cable .250)
RF testing voltage	<i>sea level</i>	CECC 1500 VRMS (5 MHz sine wave)

MECHANICAL CHARACTERISTICS

Durability		CECC 500 matings
Force to engage and disengage		CECC 6.6 Ncm max (.58 Inch-pounds)
Recommended coupling nut torque		40 to 60 Ncm (manual) 130 Ncm (11.45 inch pounds) (with pliers R 282 202 000) 170 Ncm (14.96 inch pounds) (with torque wrench R 282 303 020)
Proof torque		CECC 170 Ncm (14.96 inch pounds)
Coupling nut retention force		CECC 450 N (101.25 Lbs)
Cable retention force	<i>cable 5/50</i> <i>cable 10/50</i> <i>cable 11/50</i> <i>cable .141"</i>	CECC 150 N (33.75 Lbs) <i>Single braid</i> 200 N (48 Lbs) <i>Double braid</i> 300 N (67.5 Lbs) 400 N (90 Lbs) 270 N (60.75 Lbs)
Center contact retention force	<i>axial</i>	MIL 27 N (6.08 Lbs) <i>cables < Ø 8 mm</i> 68 N (15.30 Lbs) <i>cables > Ø 8 mm</i>

ENVIRONMENTAL CHARACTERISTICS

Temperature range	<i>standard models</i> <i>semi-rigid cables</i>	CECC - 55°C + 155°C - 55°C + 105°C
Thermo cycling test		CECC - 55°C / + 155°C / 21 j.
Thermal shock		CECC - 40°C / + 155°C or - 40°C / + 85 °C - 5 cycles
Hight temperature test		CECC 125°C / 1000 H
Corrosion salt spray		CECC 48 H



ENVIRONMENTAL CHARACTERISTICS

Vibration	CECC	Sinus 10 g / 10 - 500 Hz
Shock	CECC	1/2 Sinus 50g / 11 ms
Moisture resistance	IEC 529	IP 67 IP 65 (with heatshrink sleeve)
Hermetic test	CECC	10-5 bar. cm ³ /s
Leakage	CECC	Differential pressure 100 to 110 KPa : 1 bar cm ³ / H

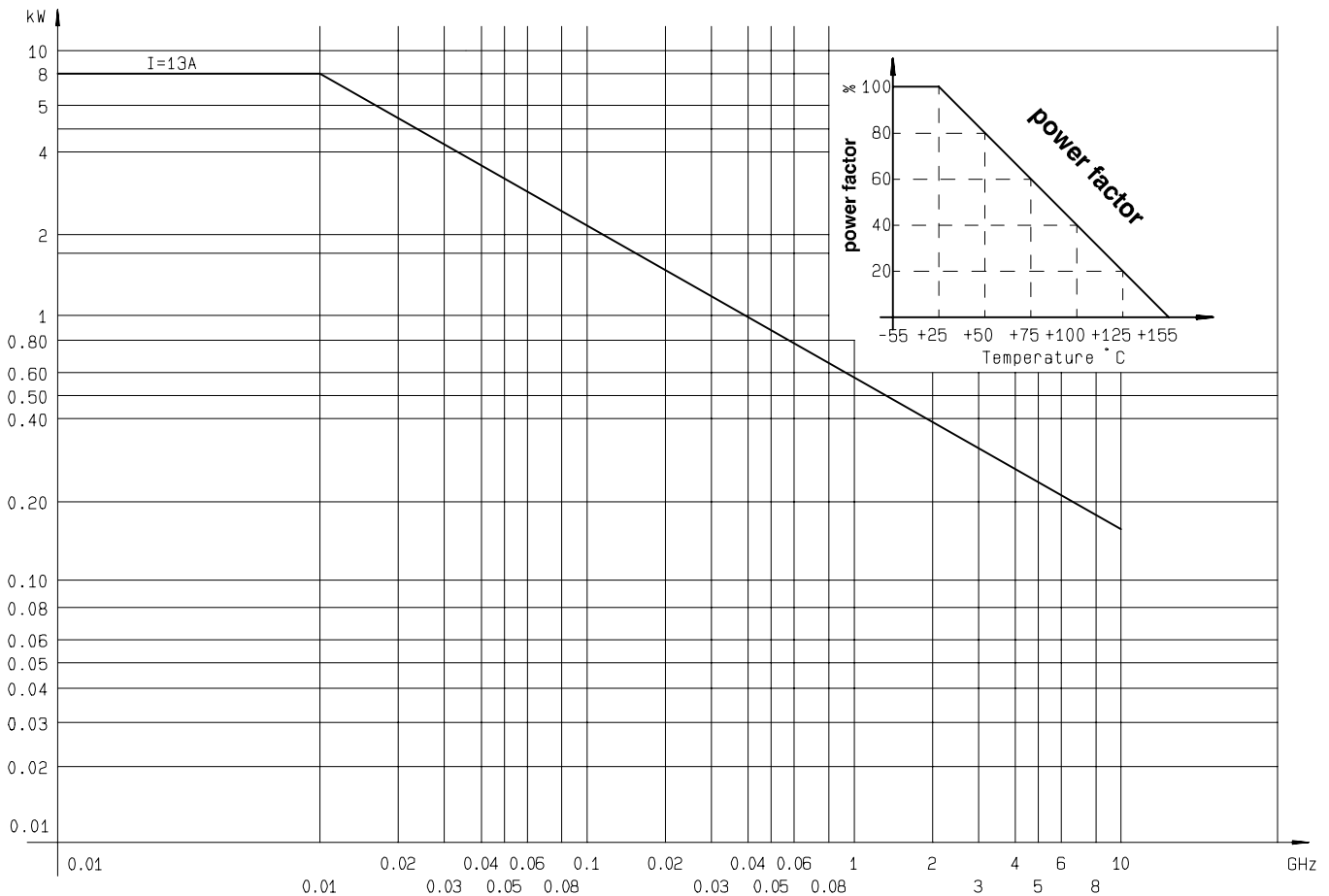
MATERIALS

Body / nut / center male contact / outer contact		brass
Center female contact		Treated beryllium copper
Ferrule		Brass
Insulator		PTFE
Gasket		Silicon elastomer

PLATINGS

		Standard	Intermodulation models + COAXI-KIT
Body	<i>crimp + clamp type solder type</i>	BBR Gold	Silver + BBR Silver
Coupling nut / Design		BBR / cross knurled	BBR / hex.
Center contacts		Gold	Silver
Outer contacts / Design		BBR / slotted	Silver + BBR / non slotted

POWER RANGE



Some connectors may feature different performance depending on the application they have been designed for, or according to the applicable cable.