Connector Reference list

Juerg Ruefenacht

Co author: Johannes Hoffmann

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Abstract

Connector reference list

Metas provides this reference list for metrology people working in the RF & Microwave business, who are interested in any topic linked with coaxial connectors.

The motivation for this list is based on some planned research work dealing with the characterisation and modelling of connector imperfections.

Any feedback and information about additional coaxial connector papers and documents would be appreciated very much and will be added to this list.

For any request or feedback please contact Juerg Ruefenacht:
Email: juerg.ruefenacht@metas.ch
Phone: +41 31 32 33 493
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1 Reference documents

1.1 Standard documents (specifications)


[3] IEC 169-16, “Radio-frequency connectors - Part 16: R.F. coaxial connectors with inner diameter of outer conductor 7 mm (0.276 in) with screw coupling – Characteristic impedance 50 ohms (75 ohms) (Type-N)”, First edition 1982


[6] IEC 169-23, “Radio-frequency connectors - Part 23: Pin and socket connector for use with 3.5 mm rigid precision coaxial lines with inner diameter of outer conductor 3.5 mm (0.1378 in)”, First edition 1991-11

[7] IEC 169-23, “Radio-frequency connectors - Part 23: Pin and socket connector for use with 3.5 mm rigid precision coaxial lines with inner diameter of outer conductor 3.5 mm (0.1378 in)”, First edition 1991-11


[10] IEC 61169-31, “Radio frequency connectors - Part 31: RF coaxial with inner diameter of outer conductor 1,0 mm (0,039 in) with screw coupling - Characteristic impedance 50 ohms (type 1,0)”, Ed. 1.0 b:1999

[11] IEC 61169-32, “Radio-frequency connectors - Part 32: RF coaxial connectors with inner diameter of outer conductor 1,85 mm (0,072 in) with screw coupling - Characteristic impedance 50 ohms (type 1,85)”, Ed. 1.0 b:1999
Many more standard publications for different connector families available.
(-> new reference number IEC 61169-xx)

1.2 Standardization documents


[19] IEEE P287/D2, “Draft Standard for Precision Coaxial Connectors (DC to 110 GHz), August 2001, see next document:

-> With an interesting Bibliography list!


1.3 Guideline documents


1.4 Reference documents


[28] Ridler, N., “Connectors, air lines and RF impedance”, IEE Microwave Measurements training course notes, e-peopleserve Training Centre, Milton Keynes, 13-17 May 2002. (Copies of these notes are available from Nick Ridler, NPL.)

1.5 Connector maintenance


2 Specific connector families

2.1 Overview documents


2.2 7 mm precision


2.3 **Type-N (50 ohm)**

2.4 **Type-N (75 ohm)**

2.5 **7/16**


2.6 **3.5 mm**


2.7 **SMA**


2.8  2.92 mm (K connector)


2.9  2.4 mm


2.10  1.85 mm (V connector)

2.11  1.1 mm

2.12  1.0 mm (W connector)


2.13  Special connectors

[55] Rohde & Schwarz, “Interchangeable Port Connector Systems, Test Port Adapter System”, Application Note, 1MA100_1e, 04.2006
3  Connector imperfections

3.1  General papers


[60] Botka, J., “A rugged slotless female contact for pin-socket type connectors, such as type N and 3.5 mm”, IEEE MTT-S symposium, connector workshop, May 1984

[61] Botka, J., “Critical considerations and recommended connection techniques of precision RF connectors”, HP Palo Alto (now Agilent), Calibration laboratory and metrology seminar, July 1984


[67] Juroshek, J., “RF connectors and transmission lines“, ARFTG-NIST short course on RF measurements for a wire less world, November 2001, San Diego


3.2 Electrical influences


[73] Engen, G., “In Search of a More Realistic Accuracy Statement for Microwave Metrology”, 27th ARFTG conference digest, June 1986, pp 181-183


[76] Oldfield, W., “Characterizing Blind Mate Connectors”, 40th ARFTG conference digest, December 1992, pp 144-156


[78] Juroshek, J., “Measurements of Type-N, slotted and slotless center contacts for IEEE P287 connector committee”, P 287 03-1993

3.3 Passive Intermodulation

3.4 Connector repeatability


[85] Young, P.R., “Analysing connector repeatability or microwave vector measurements”, IEE Colloq. Dig., 1999, 019, 8/1-5

4 Test Ports and Adaptors

4.1 Imperfect test ports


4.2 Adaptors

[98] “Measuring noninsertable devices”, HP product note 8510-13 (now Agilent)


5  TDR and connector

5.1  TDR measurements and connectors


6 Web site connector links

[107] AGILENT PNA – Millimeter – Wave Connector Care :


7 ANAMET Publications

UNDER CONSTRUCTION!

7.1 ANAMET Presentations

7.2 ANAMET Reports

7.3 ANAlyse Notes

7.4 ANAMET News articles

(on the Agilent site at http://metrologyforum.tm.agilent.com/recess.shtml)

Ridler, N. and Woolliams, P. D.,
Tips on using coaxial connector torque spanners.
ANA Tips No 2, January 2000,

Ridler, N. and Smith, A. J.,
Gauge compatibility for the smaller coaxial line sizes.
ANA Tips No 1, October 1999,

Ridler, N. and Medley, J.,
Live dial gauge comparison exercise: ANAMET-963.
ANAMET Report 007, May 1997,

Medley, J. and Ridler, N.,
ANAMET 962 dial gauge comparison exercise.
ANAMET Report 001, July 1996,

Ridler, N.,
How much variation should we expect from coaxial connector dial gauge measurements.
ANAlyse Note No 14, February 1996,
Furrer, J., “Type-N and APC-7 connector reproducibility: experiences during power sensor calibrations”, 17th ANAMET meeting, January 2002

J Miall, K Lees, “Modelling the repeatability of type-N connectors using Microwave Studio”, 19th meeting of ANAMET, Presentation, January 2003

Ruefenacht, J., “Connector problems and their mechanical and electrical characterisation”, 24th ANAMET meeting, September 2005
8 Divers papers

UNDER CONSTRUCTION!

Ide, J P
International comparison GT-RF/83-4: measurements of scattering coefficients over the band 2-18GHz.
CEM 15, July 1999


Young, P. R., “Analysing connector repeatability on microwave vector measurements”, IEE Colloq. Dig., 1999, 019, 8/1-5