

Test Certificate

Neutrik RearTwist[®] 75 Ω BNC Connector

Applicant:
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Im alten Riet 143
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Project
Version
Pages
Issued
Revised
Revised
Reviewed
Approved

1.0
6
March, 31st 2005

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FL

Contents

0 Object	Page 3
1 Return Loss	Page 4
1.1 Test specimens	Page 4
1.2 Test setup	Page 4
1.3 Test results	Pages 5 to 7
2 Screening Attenuation	Page 8
2.1 Test specimen	Page 8
2.2 Test setup	Page 8
2.3 Test result	Page 9



0 Object

Measurement of Return Loss and Screening Attenuation of Neutrik Reartwist[®] BNC connectors attached to different types of video coax cables in the frequency range up to 3 GHz.

The Return Loss of the single BNC connector should be isolated from the cable by adequate gating in the time domain.

The Screening Attenuation is determined on one representative cable assembly.

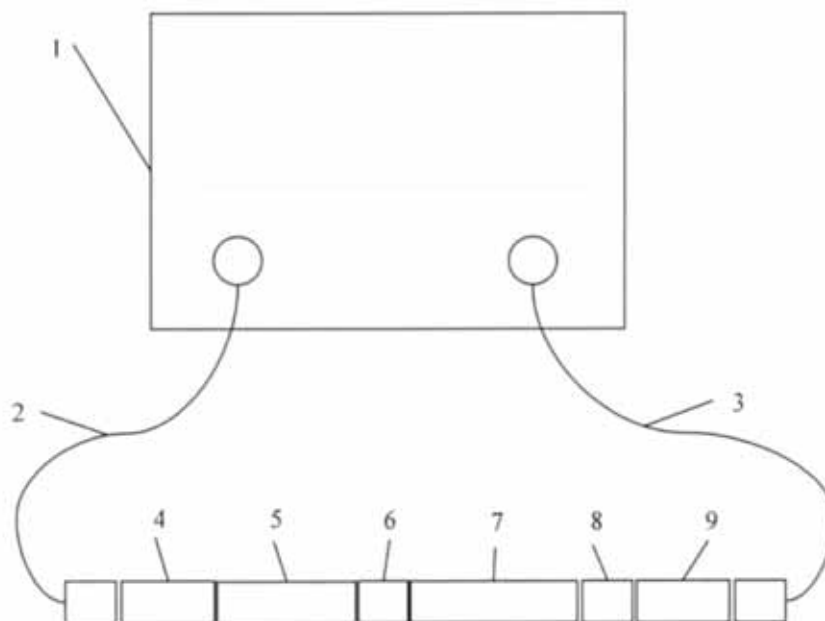
1 Return Loss

1.1 Test Specimens

Neutrik RearTwist® 75 Ω BNC connectors assembled to cables of 1 m length each:

1. NBNC75BFG7 with cable Draka 0.6/2.8 AF
2. NBNC75BLP9 with cable Draka 0.8/3.7 AF
3. NBNC75BUU11 with cable Draka 1.0/4.8 AF
4. NBNC75BTU11 with cable Belden 1694A

1.2 Test Setup



1.2.1 Test equipment:

- 1 NWA HP 8720 D Ser US36140759 Cal. 16.2.2005
- 2 Test cable SUCOFLEX 104PEA Ser 21148/4PEA
- 3 Test cable SUCOFLEX 104PEA Ser 21147/4PEA
- 4 Matching Pad HP 11852B Opt. 004 Ser 01100
- 5 H+S air-filled line 75 Ω 40 cm
- 6 Adapter N 75 Ω to BNC 75 Ω
- 7 DUT (test specimen – cable assembly 75 Ω with 75 Ω BNC connectors)

- 8 Adapter BNC 75 Ω to N 75 Ω
- 9 Matching Pad HP 11852B Ser 09798

1.2.2 Test method:

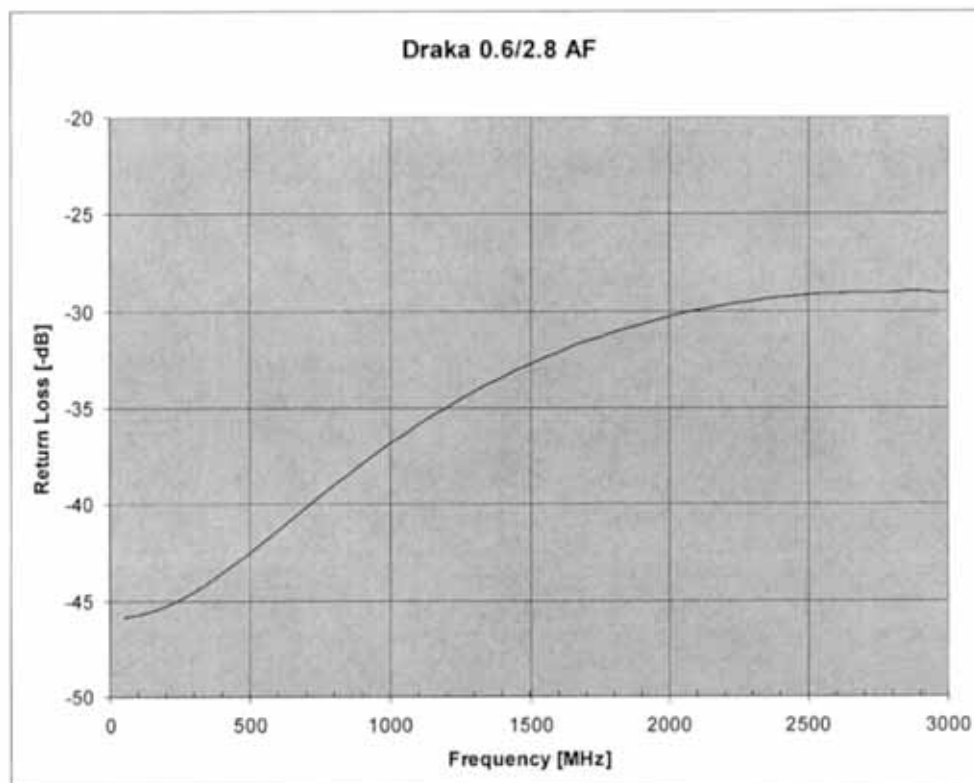
Separate measurement of a single connector of the DUT is established by inverse Fourier transformation and corresponding gating in the time domain to isolate the effect of the attached cable and the mating coupling adapter N-BNC too. The latter is supposed to introduce additional error at the applied high frequencies due to reduced matching of the transition N type to BNC. Finally the measured curves are obtained by transformation back to frequency domain.

1.2.3 Calibration:

Cal Kit: N 75 Ω HP85036B Ser 3103A01321 Cal. 30.8.2004
 Frequency range: 50 MHz – 10.05 GHz
 Type: Full 2-Port Calibration
 No. of points: 201
 IF: 1000 Hz

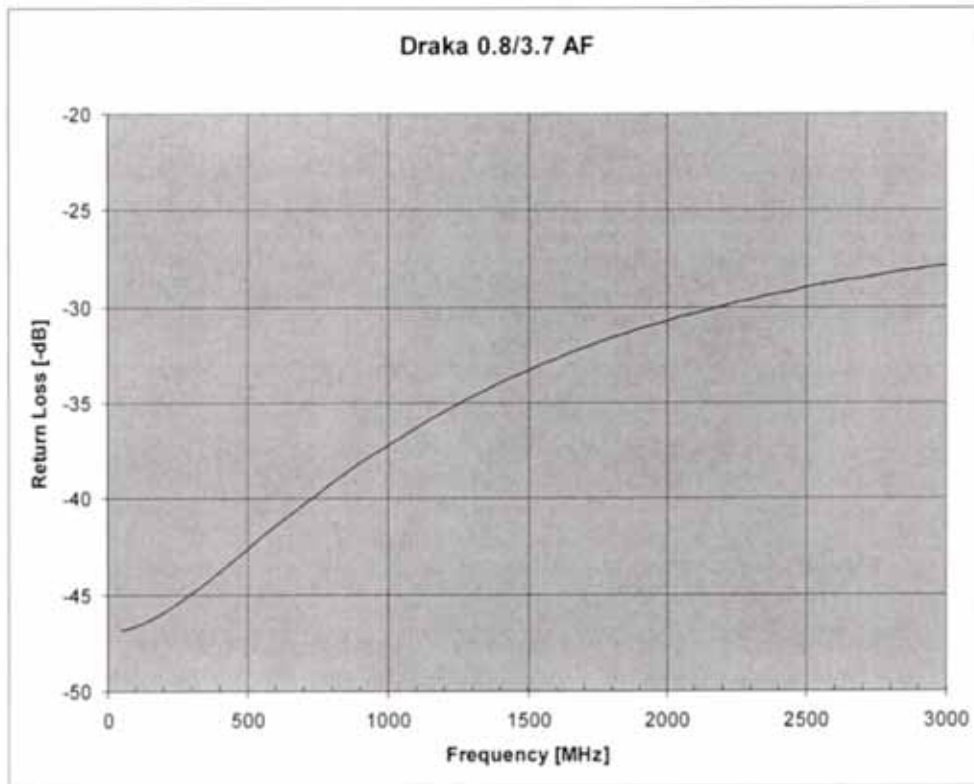
1.3 Test Results

Return Loss – NBNC75BFG7:



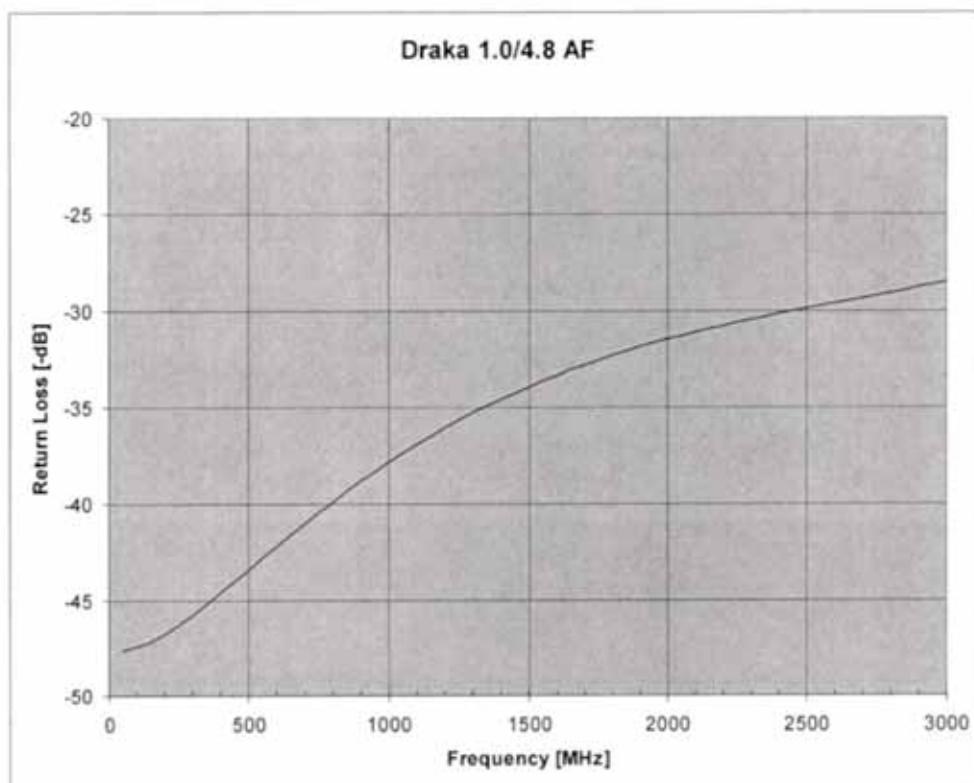
Frequ. [GHz]	RL [dB]
1	36.85
2	30.28
3	29.04

Return Loss – NBNC75BLP9:



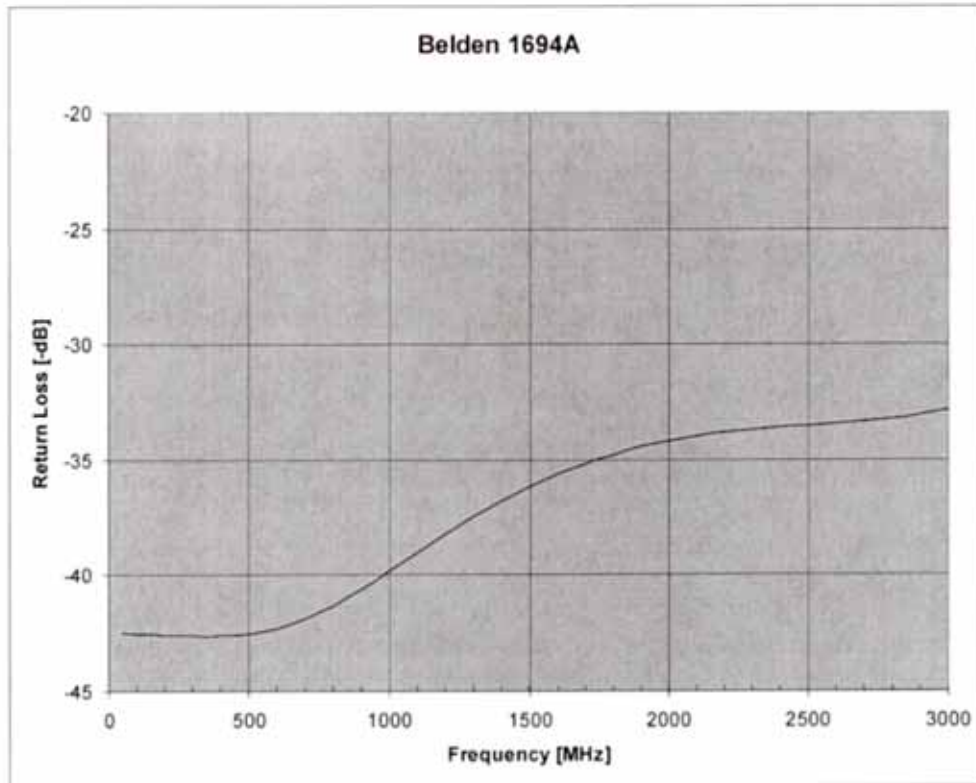
Frequ. [GHz]	RL [dB]
1	37.2
2	30.71
3	27.83

Return Loss – NBNC75BUU11:



Frequ. [GHz]	RL [dB]
1	37.83
2	31.49
3	28.55

Return Loss – NBNC75BTU11



Frequ. [GHz]	RL [dB]
1	39.83
2	34.17
3	32.82

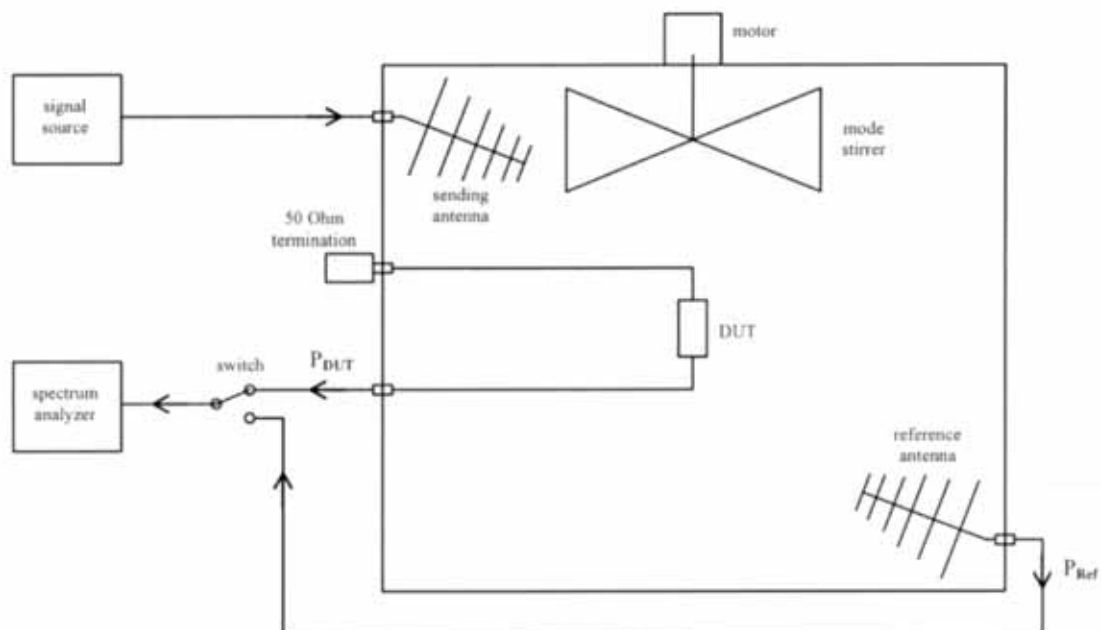
2 Screening Attenuation

2.1 Test Specimen

Cable assembly Draka 0.8/3.7 AF (1 m length) assembled with two NBNC75BLP9 is taken as representative DUT.

2.2 Test Setup

Test method and equipment according to IEC 61726: *Screening attenuation measurement by the reverberation chamber method.*



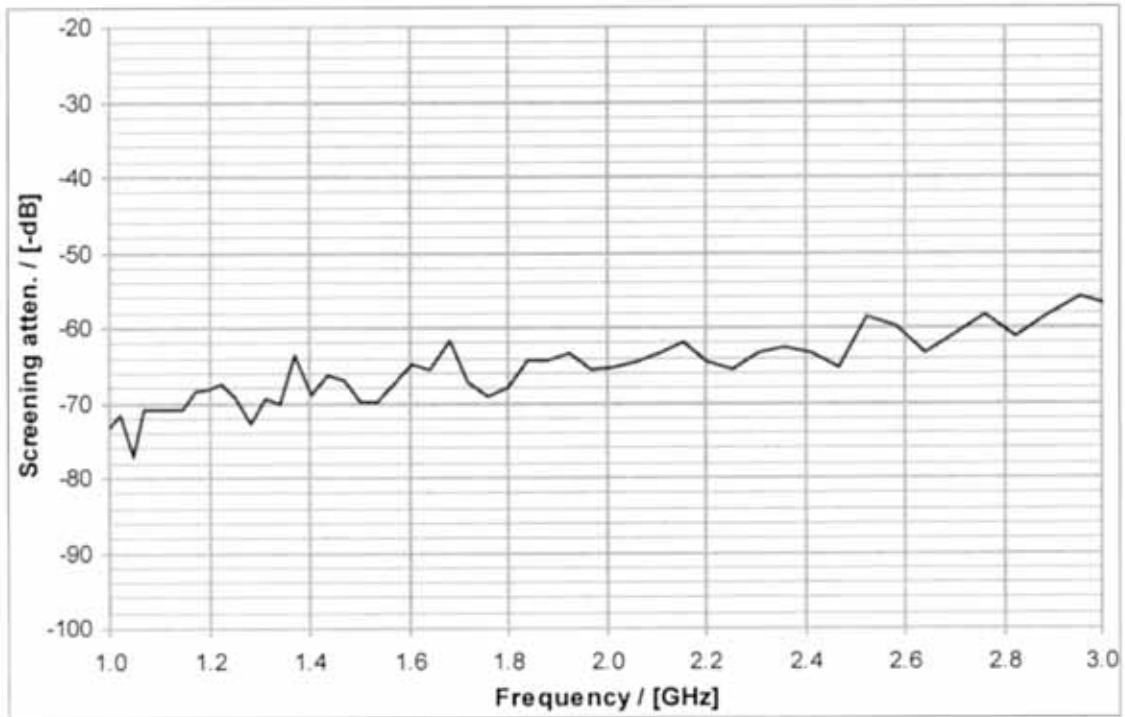
The screening attenuation is defined as:

$$a_s = -10 \log \left(\frac{P_{DUT}}{P_{REF}} \right) \text{ [dB]}$$

The BNC connectors of the DUT are coupled to the test circuit via BNC to SMA adapters of type H+S 33_SMA-BNC-50-1/1 which again are connected via semi-rigid cables to the ports of the reverberation chamber.

As a result the complete assembly including the cable is evaluated.

2.3 Test Result



The shielding factor of the cable is specified to be > 80 dB in the frequency range up to 1 GHz. Thus the effect of the cable should be negligible in comparison to the results obtained.

In case of equal performance of both BNC couplers the result of one single BNC could be estimated to be about 3 dB better.

As a result of the mode stirring used in this test method, the obtained curve is not a smooth one. The measurements are oscillating around a mean curve typically in an order of magnitude of ± 3 dB. These normal oscillations should not be confused with resonances of the DUT.

Therefore the true screening attenuation under free space conditions can be said roughly to be the average curve.