Protocol based on DIN EN ISO/IEC 17025

GHMT Informative Measurement
2 Connector Channel (30m), Copper, Class II
according ISO/IEC/TR 11801-9901: 2014

Project-no: JIAHA0216

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-17559-01-00

Document-no.: I875a-16-E

This Test Report with the measurements consists of 21 pages.

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Revision history

Document number	Date	Content/ Changes
I875a-16-E	22.11.2016	initial version

1 General statements

1.1 Test Laboratory

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E–Mail: info@ghmt.de
Internet: www.ghmt.de

1.2 Test Date

Receipt of goods:		27. October 2016
Test number:		16-CS276
Testing	from:	27. October 2016
	during:	(23 ± 3)°C

1.3 Test Site

Accredited Test Laboratory of GHMT AG, Bexbach

1.4 Test Conducted by

Mr. Bernd Jung, GHMT AG

1.5 Persons Present at Test

Mr. Stefan Grüner, GHMT AG (present temporarily)

2 Customer

2.1 Address

Jiaxing Haitang Electronics Co., LTD
YanDong Village XiTang Qiao

Town Haiyan Zhejiang, China

Phone: +86 573 86038856
Fax: +86 573 86038856-8001

Internet: www.htwww.com

2.2 Responsible contact person

Jiaxing Haitang Electronics Co., LTD

Mrs. Doris Bao

YanDong Village XiTang Qiao

Town Haiyan Zhejiang, China

Phone: +86 573 86038856
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E-Mail: doris@htwww.com
Internet: www.htwww.com

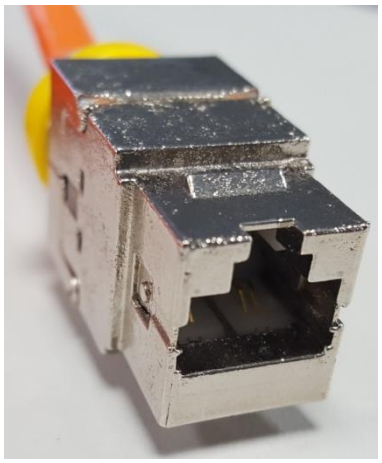
3 Device under test (DUT)

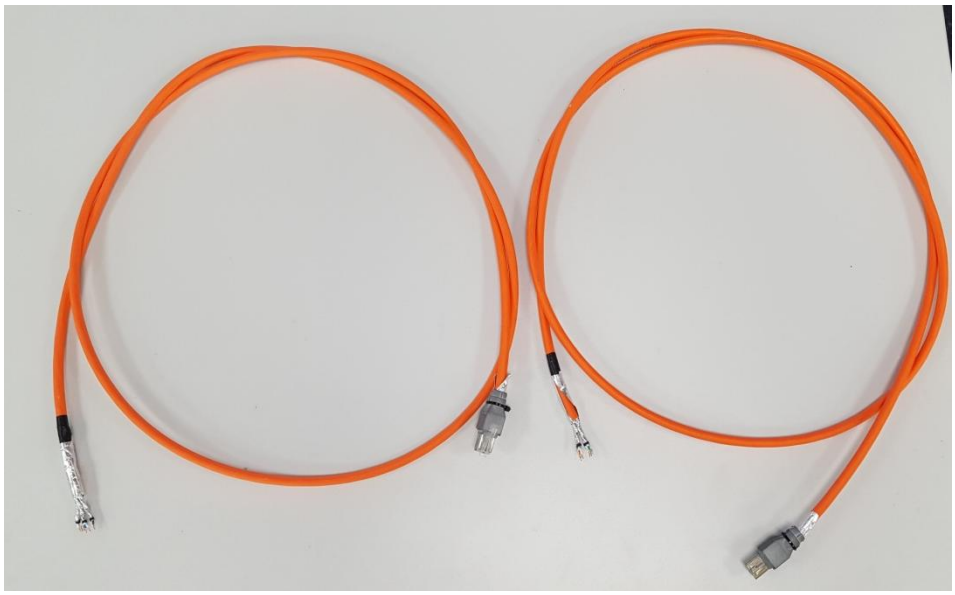
3.1 Description of the Components

The following sample(s) was/were part of the test:

Data Cable:	Data Cable HT Cat.8
Part-no:	*prototype*
Connector:	HT Cat.8.2 Connector (Jack)
Part-no:	*prototype*
Patchcord:	Data Cable HT Cat.8 with Plug
Part-no:	*prototype*
Condition of the sample(s):	The sample(s) had no visible damages

Picture:





3.2 Provision

The DUT was / the specimens were...

☐	... with drawn on site. The selection of the sample / the samples was carried out by GHMT.
☐	... obtained by GHMT through resellers. The sampling procedures was neutral and unaffected by the client.
■	... obtained by GHMT through the client. The selection of the sample / the samples was carried out by client. Hence there was no neutral sampling by GHMT.

3.3 Definition of the Device Under Test (DUT)

According to the specifications laid down in the document ISO/IEC TR 11801-9901: 2014, a Channel was assembled in order to conduct the test:

End A	
Patchcord: 3m	Data Cable HT Cat.8 with Plug
Connector:	HT Cat.8.2 Connector (Jack)
Data Cable: 24m	Data Cable HT Cat.8
Connector:	HT Cat.8.2 Connector (Jack)
Patchcord: 3m	Data Cable HT Cat.8 with Plug
End B	

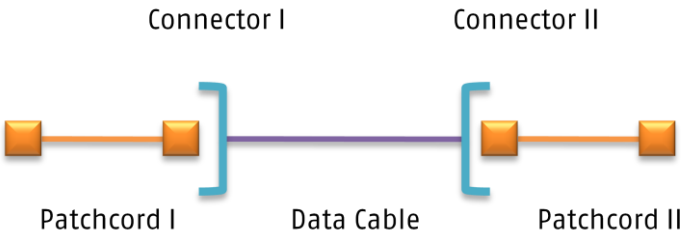


Figure 1: 2-Connector Channel

4 Test Type

4.1 Reference of testing

Test carried out a 2 Connector Channel according to ISO/IEC/TR 11801-9901: 2014. The assessment is based on the Class II specifications according to ISO/IEC/TR 11801-9901: 2014. The test comprised all transmission-related parameters required.

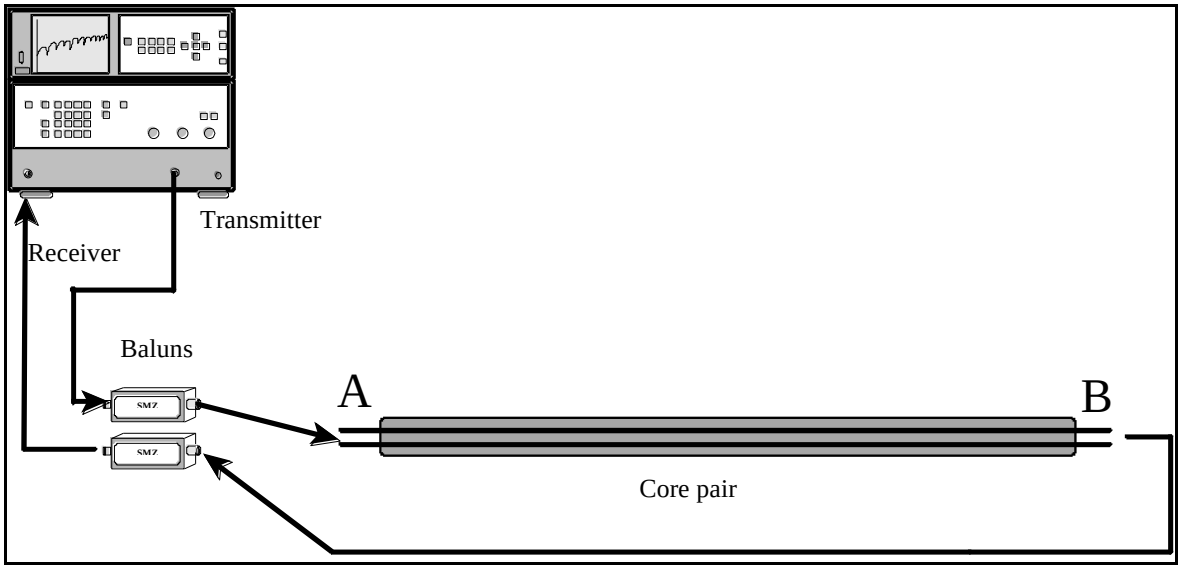
4.2 Test parameters

The following parameters were determined at the specimens in the course of these measurements and refer to the draft proposal mentioned in chapter 4.1:

HF-parameters:

- Insertion loss
- NEXT
- Return loss

4.2.1 Insertion loss



Definition

The attenuation is determined by the ratio of the power supplied to the port A and the measured power at the port B as specified below:

$$a_V\,[\mathrm{dB}] = 10\,\log\left(\frac{P_A}{P_B}\right)$$

Both the input and the output of the two-port network must be terminated with the nominal impedance.

Influencing variables

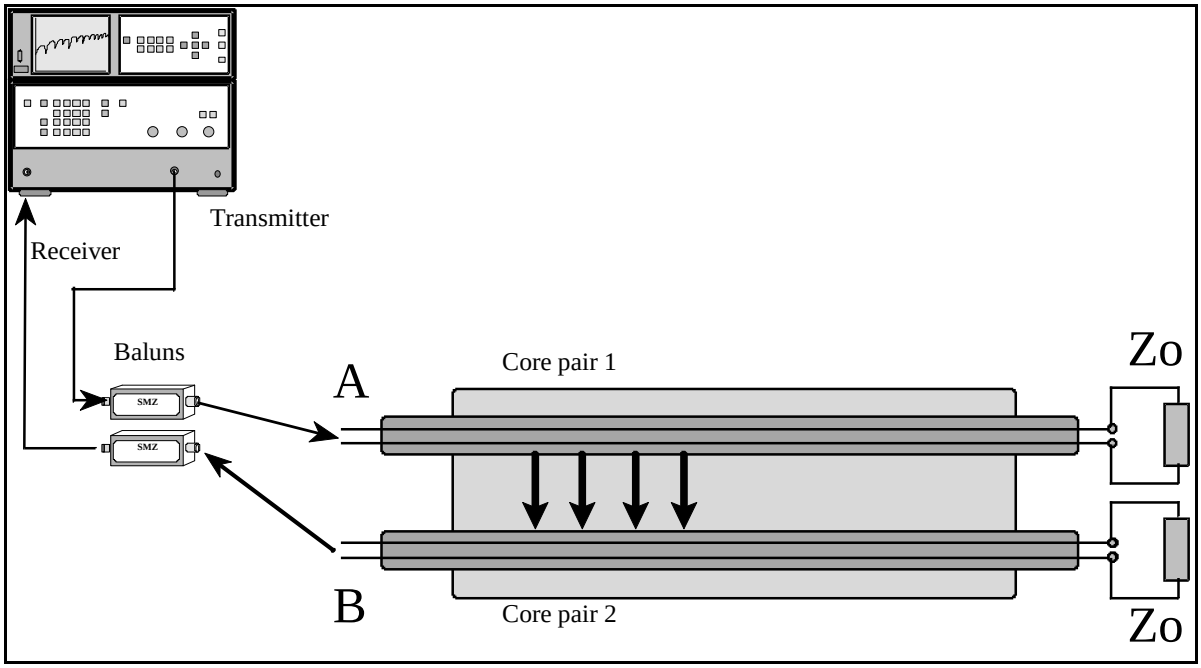
In case of cables, the attenuation is primarily determined by the cross-sectional area and the conductivity of the copper wires. Especially in high frequency ranges, the attenuation is increased by the dielectric losses of the core insulating material.

The attenuation is dependent on the length, the frequency, and the temperature.

Significance

A low attenuation improves the transmission reliability of the cabling system. The attenuations of cables and connecting devices are accumulative although they are largely dominated by those of the cables.

4.2.2 NEXT



Definition

The near-end crosstalk attenuation is determined by the ratio of the power supplied to the port A and the measured power at the port B as specified below:

$$a_{NEXT}\ [\mathrm{dB}] = 10\ \log\left(\frac{P_A}{P_B}\right)$$

Both sides of the specimen must be terminated with the nominal impedance. In the event that the sender and the receiver are located at the same end of the specimen, we are speaking of near-end crosstalk (NEXT) attenuation.

Influencing variables

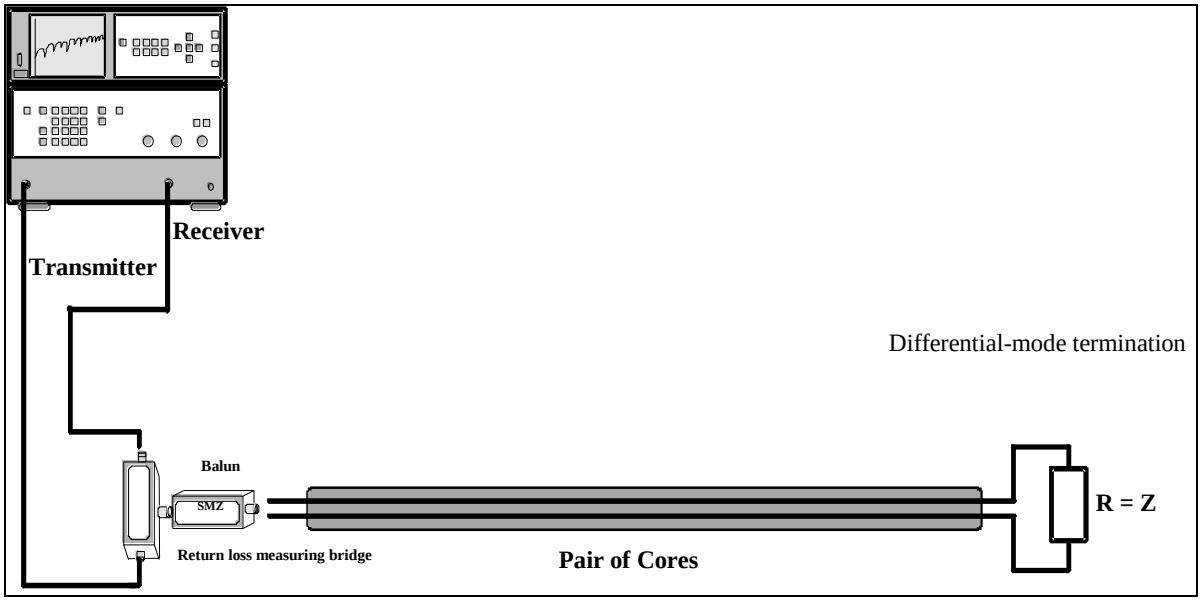
In case of cables, the near-end crosstalk attenuation is primarily determined by the twisting of the cores and (if existing) the paired foil screens.

The near-end crosstalk attenuation is largely dependent on the frequency and – to a minor degree – also on the lengths.

Significance

A high near-end crosstalk attenuation improves the reliability of transmissions. Within the cabling system, the reliability of transmissions is primarily determined by the component having the lowest near-end crosstalk attenuation.

4.2.3 Return loss



Definition

The return loss represents the ratio of the power supplied to the EUT to the power reflected by the EUT.

$$a_R\,[\mathrm{dB}] = 10\,\log\left(\frac{P_{input}}{P_{output}}\right)$$

The EUT end is terminated with the characteristic impedance in order to absorb any non-reflected power. The EUT and the test-value transmitter must have the same rated impedance in the broadband range.

Influencing factors

The return loss value of cables is decisively influenced by the homogeneity of the conductors and the core of the cable. Mechanical load during the manufacturing or installation of the cables may impair the return loss.

The parameters return loss and characteristic impedance correlate.

Meaning

A high degree of return loss improves the transmission reliability. A low degree of return loss may lead to an unwanted overlap of returning signal components.

5 Standards

5.1 Applied Rules and Regulations

- **ISO/IEC TR 11801-9901 Ed. 1.0: 2014**
  Information technology – Generic cabling for customer premises

5.2 Deviations

None.

5.3 None Standardised Test Procedures

None.

6 Testing equipment

The following testing equipment was used for the measurements:

Equipment	Manufacturer	Stock ID
Network Analyzer	Rohde & Schwarz	GHMTA0002
Network Analyzer	Agilent	GHMTA0018
LCR-Meter	Agilent	GHMTA0034
Time-Domain-Reflectometer	Tektronix	GHMTA0004
Reference clamp	GHMT	GHMTA0047
Absorbing Clamp	Lüthi	GHMTA0070
Decoupling Clamp	Lüthi	GHMTA0071
Switch unit	Novotronic	GHMTA0028
Coaxial probe	GHMT	-

Schedule 1: Measurement equipment

7 Summary

Customer: Jiaxing Haitang Electronics Co., LTD
YanDong Village XiTang Qiao
Town Haiyan Zhejiang, China

Description:

Data Cable:

Data Cable HT Cat.8

Part-no: *prototype*

Connector:

HT Cat.8.2 Connector (Jack)

Part-no: *prototype*

Patchcord:

Data Cable HT Cat.8 with Plug

Part-no: *prototype*

Applied standards: ISO/IEC TR 11801-9901: 2014
Information technology – Generic cabling for customer premises

Result: The sample meets the limits of the specified standards and regulations with respect to the parameters indicated above.

The test results which were determined in the course of the measurement refer to the submitted specimen.

Bexbach, 22. November 2016

i.O. Stefan Grüner, engineer
(Head of Accrediteded Test Laboratory)

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8 ANNEX: Documentation of measurements

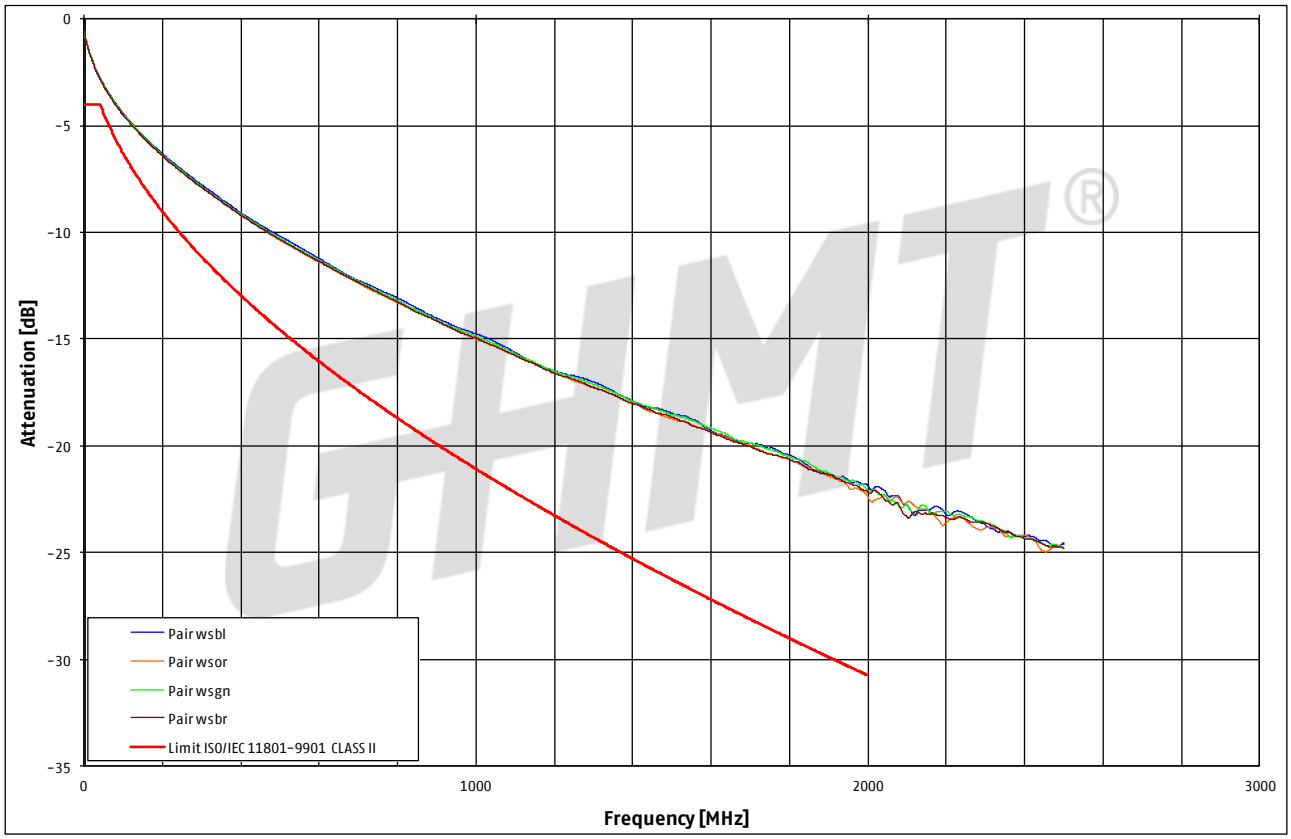
As follows the measurement results of the tested parameters defined in chapter 4.2.

8.1 SETUP

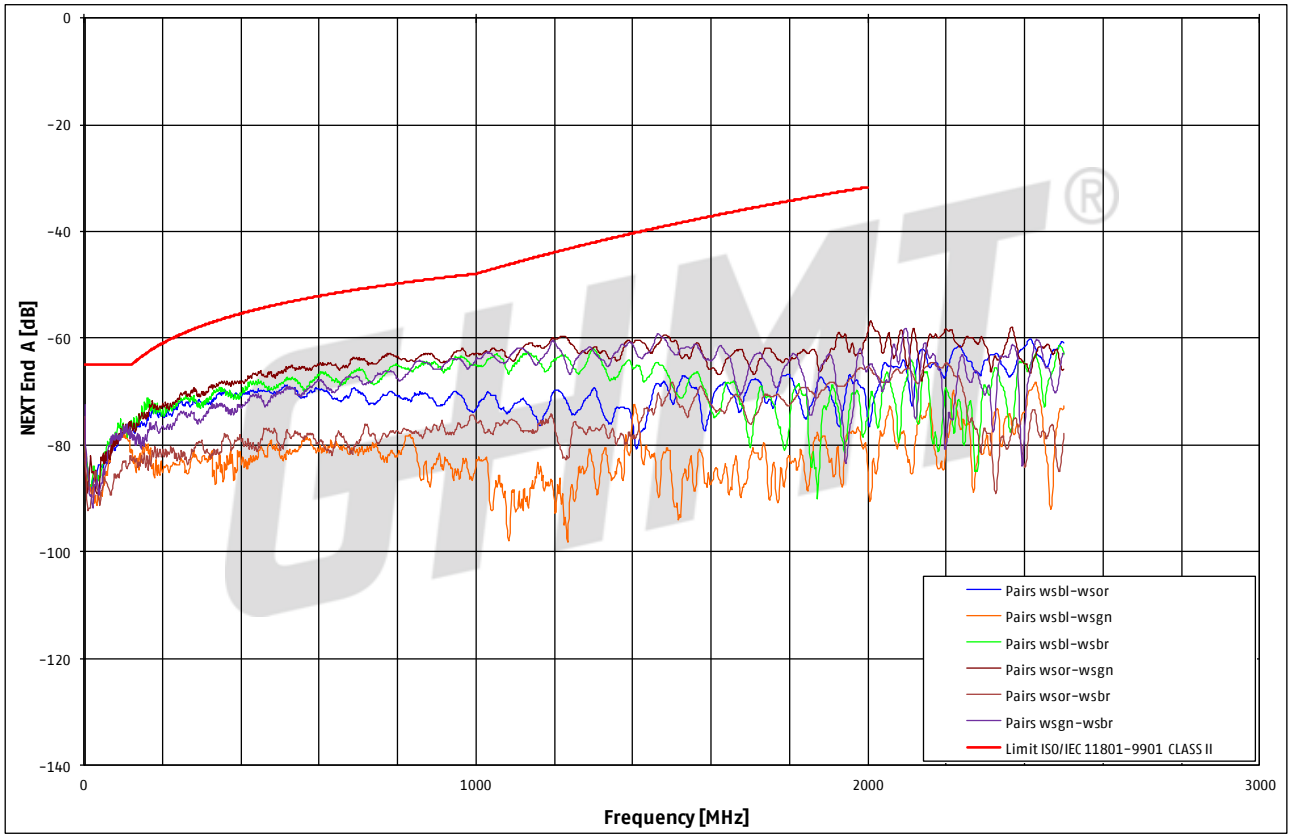
	HF parameters	
	S11	**S21**
Output Power	0 dBm	0 dBm
Frequency Range	1-2500 MHz	1-2500 MHz
IF Filter	100 Hz	100 Hz
NOP	2500	2500
AVG	-	-
Smoothing	0,3%	0,3%

8.2 Measurement results of the HF-parameters

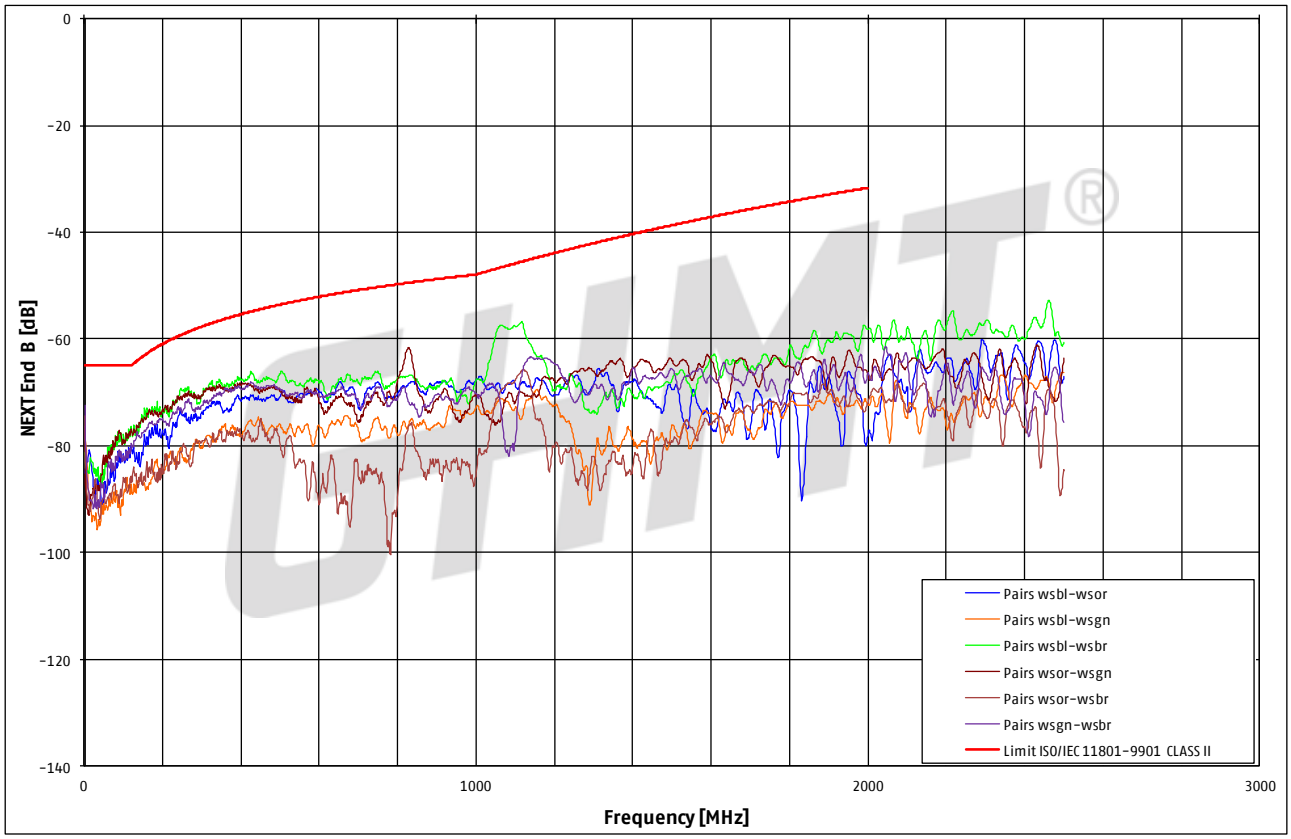
Insertion loss



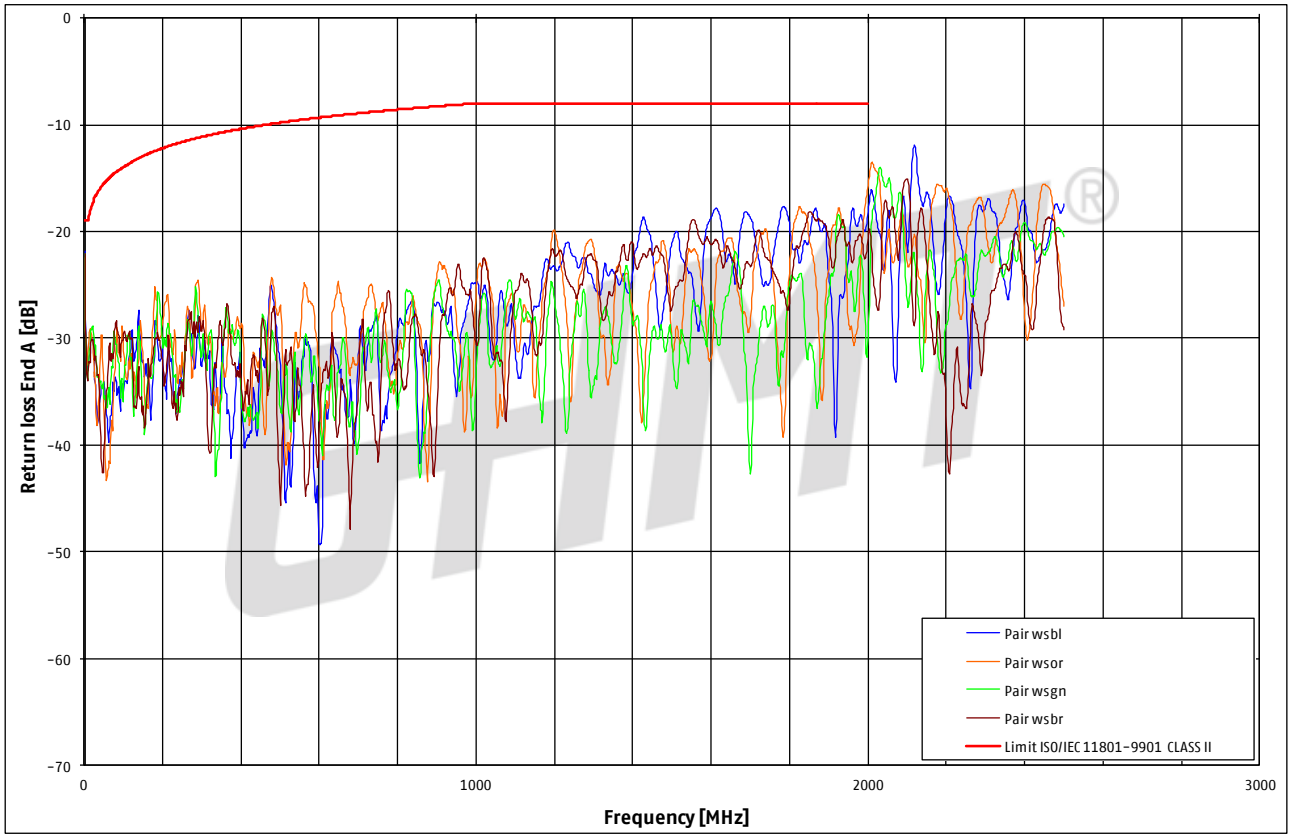
NEXT (End A)



NEXT (End B)



Return loss (End A)



Return loss (End B)