Test report reference: EN 61326-1:2006
EUT: BKS-4

Date of issue: 2012-09-11

Deutsche Akkreditierungsstelle D-PL-12053-01-02

Test Report acc. to EN 61326-1 relating to D & S Steuerungssysteme Köln GmbH BSK-4

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1 General requirements

m. dudde hochfrequenz-technik Rottland 5a D-51429 Bergisch Gladbach/ Germany Tel: +49 2207-96890 Fax +49 2207-968920

1. Test result summary

Clause	Enclosure	Test result			Report page number
7.1.2	Electrostatic discharge	**Pass**	~~Fail~~	~~N.t.*~~	8
7.1.2	Electromagnetic fields	**Pass**	~~Fail~~	~~N.t.*~~	9
7.1.3	Power frequency magnetic fields	~~Pass~~	~~Fail~~	**N.t.***	10

* Not tested

Clause	AC power input ports	Test result			Report page number
7.2.1	Voltage dips and interruptions	~~Pass~~	~~Fail~~	**N.t.***	11
7.2.2	Fast transients	~~Pass~~	~~Fail~~	**N.t.***	12
7.2.3	Surge voltages	~~Pass~~	~~Fail~~	**N.t.***	12
7.2.4	Conducted RF signals	~~Pass~~	~~Fail~~	**N.t.***	13

* Not tested

Clause	DC power input ports	Test result			Report page number
7.3.1	Fast transients	~~Pass~~	~~Fail~~	**N.t.***	14
7.3.2	Surge voltages	~~Pass~~	~~Fail~~	**N.t.***	14
7.3.2	Conducted RF signals	~~Pass~~	~~Fail~~	**N.t.***	15

* Not tested

Clause	Input / output ports	Test result			Report page number
7.4.1	Fast transients	**Pass**	~~Fail~~	~~N.t.*~~	16
7.4.2	Surge voltages	**Pass**	~~Fail~~	~~N.t.*~~	16
7.4.3	Conducted RF signals	**Pass**	~~Fail~~	~~N.t.*~~	17

* Not tested

Clause	Input / output ports with a direct AC connection	Test result			Report page number
7.5.1	Fast transients	**Pass**	~~Fail~~	~~N.t.*~~	18
7.5.2	Surge voltages	**Pass**	~~Fail~~	~~N.t.*~~	18
7.5.3	Conducted RF signals	**Pass**	~~Fail~~	~~N.t.*~~	19

* Not tested

Clause	Limits for devices of class A	Test result			Report page number
7.6.1	Conducted emissions according to CISPR 11	~~Pass~~	~~Fail~~	**N.t.***	20
7.6.2	Radiated emissions according to CISPR 11	**Pass**	~~Fail~~	~~N.t.*~~	21

* Not tested

Clause	Limits for devices of class B	Test result			Report page number
7.7.1	Conducted emissions according to CISPR 11	~~Pass~~	~~Fail~~	**N.t.***	22
7.7.2	Conducted emissions according to IEC 61000-3-2 and IEC 61000-3-3	~~Pass~~	~~Fail~~	**N.t.***	23
7.7.3	Radiated emissions according to CISPR 11	~~Pass~~	~~Fail~~	**N.t.***	24

* Not tested

The equipment meets the requirements	**Yes**	~~No~~

Signature: ..... (Technician)

Signature: ..... (Manager)

Morsbach
Bergisch
Gladbach
2012.09.11
10:12:19
+02'00'

m. dudde hochfrequenz-technik Rottland 5a D-51429 Bergisch Gladbach/ Germany Tel: +49 2207-96890 Fax +49 2207-968920

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2. Introduction

This test report consists of:

- Test result summary
- List of contents
- Introduction and further information
- Detailed test information
- List of measurement equipment with calibration validity
- Photographs and further test results (plots, graphs, etc.)

All pages have been numbered consecutively and bear the m. dudde hochfrequenz-technik logo, the test report number, the date, the test specification in its current version as well as the type designation of the EUT. The total number of pages in this report is **54**.

The tests were carried out at:

- m. dudde hochfrequenz-technik, D-51429 Bergisch Gladbach
- EMC TestHaus Dr. Schreiber GmbH, Siegen

in a representative assembly and in accordance with the test methods stated in:

EN 61326-1:2006

The sample of the product was received on:

- 2012-02-21
- 2012-08-15

The tests were carried out in the following period of time:

- 2012-08-14 – 2012-09-05
- 2012-03-15 – 2012-04-05

3. Testing laboratory

m. dudde hochfrequenz-technik
Rottland 5a, 51429 Bergisch Gladbach, Germany

Phone: +49 - (0) 22 07 / 96 89-0
Fax: +49 - (0) 22 07 / 96 89-20

Accredited by:

DAkkS Deutsche Akkreditierungsstelle GmbH
DAkkS accreditation number: D-PL-12053-01

4. Applicant

Company name	: D & S Steuerungssysteme Köln GmbH
Address	: Brühler Str. 270
	50968 Köln
Country	: Germany
Telephone	: +49 (0) 221 97 65 57 0
Fax	: +49 (0) 221 97 65 11 16
Email	: info@ds-steuerungssysteme.de
Date of order	: 2012-08-23
References	: Mr. Gerhard Stanzick

5. Product and product documentation

Samples of the following apparatus were submitted for testing:

Manufacturer	: D & S Steuerungssysteme Köln GmbH
Trademark	: D & S
Type designation	: **BSK-4**
Hardware version	: BSK-4
Serial number	: ---
Software release	: ---
Type of equipment	: Equipment for measurement, control and laboratory use

5.1 Test configuration / additionally required equipment

No.	Description
1	---
2	---
3	---

For issuing this report the following product documentation was used:

Description	Date	Identifications
---	---	---

6. Conclusions, observations and comments

The test report will be filed at m. dudde hochfrequenz-technik for a period of 10 years following the issue of this report. It may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of m. dudde hochfrequenz-technik.

The results of the tests as stated in this report are exclusively applicable to the EUT as identified in this report. m. dudde hochfrequenz-technik cannot be held liable for properties of the EUT that have not been observed during these tests.

m. dudde hochfrequenz-technik assumes the sample to comply with the requirements of EN 61326-1 for the respective test sector, if the test results turn out positive.

Comments: The equipment has been tested according to the test requirements for equipment to be used in industrial areas.

Date : 2012-09-11

Name : Roger Witze

Function : Technician

Signature : .....

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7. Conformity assessment

7.1 Enclosure

7.1.1 Electrostatic discharge (ESD)

Environmental conditions during the test:

Temperature: 21 °C Relative humidity: 59 % Air pressure: 989 hPa

Requirements and evaluation for electrostatic discharge

Test specification	Units	Basic standard	Performance criterion
4 (Contact discharge) 8 (Air discharge)	kV (charging voltage) kV (charging voltage)	IEC 61000-4-2	B
Measurement uncertainty: < ± 3 %			

The equipment meets the requirements	**Yes**	~~No~~	~~N.t.~~

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used: 106, 112a

N.t.* See page no. 26

7.1.2 Electromagnetic fields

Environmental conditions during the test:

Temperature: 22 °C Relative humidity: 58 % Air pressure: 1027 hPa

Requirements and evaluation for electromagnetic fields

Test specification	**Units**	**Basic standard**	**Performance criterion**
80 to 1000 10 80	MHz V/m % AM (1 kHz)	IEC 61000-4-3	A

Test specification	**Units**	**Basic standard**	**Performance criterion**
1,4 to 2,0 10 80	GHz V/m % AM (1 kHz)	IEC 61000-4-3	A

Test specification	**Units**	**Basic standard**	**Performance criterion**
2,0 to 2,7 10 80	GHz V/m % AM (1 kHz)	IEC 61000-4-3	A

The equipment meets the requirements	**Yes**	~~No~~	~~N.t.~~

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used: EMC TestHaus Dr. Schreiber, Siegen

*The measurements were performed by our technician with the calibrated test equipment of the accredited test laboratory EMC TestHaus Dr. Schreiber, Siegen. See also page no. 39.

PHOTOS TO THIS TEST: See page no. 48

N.t.* See page no. 26

7.1.3 Power frequency magnetic fields

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for magnetic fields with energy technical frequency

Test specification	Units	Basic standard	Performance criterion
50, 60 30	Hz A/m	IEC 61000-4-8	A

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[4]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

N.t.* See page no. 26

7.2 AC power input port

7.2.1 Voltage dips

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for voltage dips

Test specification	Units	Basic standard	Performance criterion
0 0.5	% residual voltage cycle	IEC 61000-4-11	B
0 1	% residual voltage cycle	IEC 61000-4-11	B
70 25/30 at 50/60 Hz	% residual voltage cycles	IEC 61000-4-11	C
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

7.2.2 Voltage interruptions

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for voltage interruptions

Test specification	Units	Basic standard	Performance criterion
0 250/300 at 50/60 Hz	% residual voltage cycles	IEC 61000-4-11	C
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:
N.t.* See page no. 26

7.2.3 Fast transients

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for fast transients

Test specification	Units	Basic standard	Performance criterion
1 5/50 5	kV (charging voltage) T_r/T_h ns kHz repetition frequency	IEC 61000-4-4	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

7.2.4 Surge voltages

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for surges

Test specification	Units	Basic standard	Performance criterion
Line to line 0.5 Line to earth (ground) 1	kV (open circuit voltage) kV (open circuit voltage)	IEC 61000-4-5	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

N.t.* See page no. 26

7.2.5 Conducted RF signals

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for radio-frequency common mode

Test specification	**Units**	**Basic standard**	**Performance criterion**
0,15 to 80 3 80	MHz V (unmodulated, rms) % AM (1 kHz)	IEC 61000-4-6	A
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

N.t.* See page no. 26

7.3 DC power input port

7.3.1 Fast transients

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for fast transients

Test specification	Units	Basic standard	Performance criterion
1 5/50 5	kV (charging voltage) T_r/T_h ns kHz repetition frequency	IEC 61000-4-4	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[7]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

7.3.2 Surge voltages

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for surges

Test specification	Units	Basic standard	Performance criterion
Line to line 0.5 Line to earth (ground) 1	kV (open circuit voltage) kV (open circuit voltage)	IEC 61000-4-5	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[7]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

N.t.* See page no. 26

7.3.3 Conducted RF signals

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Requirements and evaluation for radio-frequency common mode

Test specification	**Units**	**Basic standard**	**Performance criterion**
0,15 to 80 3 80	MHz V (unmodulated, rms) % AM (1 kHz)	IEC 61000-4-6	A
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[7]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

N.t.* See page no. 26

7.4 Input / output ports

7.4.1 Fast transients

Environmental conditions during the test:

Temperature: 19 °C Relative humidity: 67 % Air pressure: 986 hPa

Requirements and evaluation for fast transients

Test specification	Units	Basic standard	Performance criterion
1 5/50 5	kV (charging voltage) T_r/T_h ns kHz repetition frequency	IEC 61000-4-4	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	**Yes**	~~No~~	~~N.t.~~

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used: KEMV19a, 28, 46a, 47, 106

7.4.2 Surge voltages

Environmental conditions during the test:

Temperature: 21 °C Relative humidity: 59 % Air pressure: 989 hPa

Requirements and evaluation for surges

Test specification	Units	Basic standard	Performance criterion
Line to earth (ground) 1	kV (open circuit voltage)	IEC 61000-4-5	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	**Yes**	~~No~~	~~N.t.~~

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used: KEMV18a, 106, 285, 522

N.t.* See page no. 26

7.4.3 Conducted RF signals

Environmental conditions during the test:

Temperature: 19 °C Relative humidity: 65 % Air pressure: 986 hPa

Requirements and evaluation for radio-frequency common mode

Test specification	**Units**	**Basic standard**	**Performance criterion**
0,15 to 80 3 80	MHz V (unmodulated, rms) % AM (1 kHz)	IEC 61000-4-6	A
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	**Yes**	~~No~~	~~N.t.~~

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used: K27, K35, K112, 106, 123, 136, 156, 162, 177, 307

N.t.* See page no. 26

7.5 Input / output ports with a direct AC connection

7.5.1 Fast transients

Environmental conditions during the test:

Temperature: °C Relative humidity: % Air pressure: hPa

Requirements and evaluation for fast transients

Test specification	Units	Basic standard	Performance criterion
1 5/50 5	kV (charging voltage) T_r/T_h ns kHz repetition frequency	IEC 61000-4-4	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

7.5.2 Surge voltages

Environmental conditions during the test:

Temperature: °C Relative humidity: % Air pressure: hPa

Requirements and evaluation for surges

Test specification	Units	Basic standard	Performance criterion
Line to line 0.5 Line to earth (ground) 1	kV (open circuit voltage) kV (open circuit voltage)	IEC 61000-4-5	B
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

N.t.* See page no. 26

7.5.3 Conducted RF signals

Environmental conditions during the test:

Temperature: °C Relative humidity: % Air pressure: hPa

Requirements and evaluation for radio-frequency common mode

Test specification	**Units**	**Basic standard**	**Performance criterion**
0,15 to 80 3 80	MHz V (unmodulated, rms) % AM (1 kHz)	IEC 61000-4-6	A
Measurement uncertainty: < ± 2 %			

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[1]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used:

N.t.* See page no. 26

7.6 Limits for class A equipment

7.6.1 Conducted emissions according to CISPR 11

Environmental conditions during the test:

Temperature: °C Relative humidity: % Air pressure: hPa

Limits for conducted disturbance at power input/output ports

Frequency range MHz	**Limits** dB(µV)	
	Quasi-peak	**Average**
0,15 to 0,50	79	66
0,50 to 5	73	60
5 to 30	73	60
NOTE: The lower limit shall apply at the transition frequencies		

Test results for conducted disturbance at power input/output ports

Frequency MHz	**Values** dB(µV)	
	Quasi-peak	**Average**
Measurement uncertainty: < ± 2 dB		

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[3]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used with equipment no.:

N.t.* See page no. 26

7.6.2 Radiated emissions according to CISPR 11

Environmental conditions during the test:

Temperature: 12 °C Relative humidity: 56 % Air pressure: 992 hPa

Limits for radiated disturbance at a measuring distance of 10 m

Frequency range MHz	**Quasi-peak limits** dB(µV/m)
30 to 230	40
230 to 1000	47
NOTE: The lower limit shall apply at the transition frequencies.	

Test results for radiated disturbance at a measuring distance of 10 m

Frequency MHz	**Values** dB(µV/m)
56.4	26.6
59.2	20.4
Measurement uncertainty: < ± 4 dB	

The equipment meets the requirements	**Yes***	~~No~~	~~N.t.~~

Further test results are attached	**Yes**	~~No~~	Page no.: 53

Test equipment used with equipment no.: K1, K40, K56, K144, 104, 166a, 171a, 406

*** The device also complies with the limits for Class B equipment!**

N.t.* See page no. 26

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7.7 Limits for class B equipment

7.7.1 Conducted emissions according to CISPR 11

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Limits for conducted disturbance at power input/output ports

Frequency range MHz	**Limits** dB(µV)	
	Quasi-peak	**Average**
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1: The lower limit shall apply at the transition frequencies. NOTE 2: In the frequency range 0.15 MHz to 0.5 MHz the limits decrease linearly with the logarithm of the frequency.		

Test results for conducted disturbance at power input/output ports

Frequency MHz	**Values** dB(µV)	
	Quasi-peak	**Average**
Measurement uncertainty: < ± 2 dB		

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[6]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used with equipment no.:

N.t.* See page no. 26

7.7.2 Conducted emissions according to IEC 61000-3-2 and IEC 61000-3-3

7.7.2.1 Conducted emissions according to IEC 61000-3-2

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Limits for harmonic current emissions

Harmonics order n	**Maximum permissible harmonic current A**
Odd harmonics	
XX	XX
XX	XX
XX	XX
XX	XX
XX	XX
Even harmonics	
XX	XX
XX	XX
XX	XX
XX	XX
XX	XX
Measurement uncertainty	< ± 0.4 %

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[6]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used with equipment no.:

N.t.* See page no. 26

7.7.2.2 Conducted emissions according to IEC 61000-3-3

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Limits for voltage fluctuations and flicker

The short term flicker value P_{st} may not exceed 1,0	
The long term flicker value P_{lt} may not exceed 0,65	
The value $d(t)$ during one voltage fluctuation may not exceed 3,3 % for more than 500 ms	
The relative steady voltage deviation d_c may not exceed 3,3 %	
The maximum relative voltage fluctuation d_{max} may not exceed:	
a) 4 % without further conditions	
b) 6 % for devices and applications that are either - switched manually or - switched automatically more than twice a day having a delayed restart or being activated manually after interruption of voltage supply.	
c) 7 % for devices and applications that are either - controlled during operation or - activated automatically or intended to be switched manually not more than twice a day having a delayed restart or being activated manually after interruption of voltage supply.	
Measurement uncertainty	< ± 0.05

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[6]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used with equipment no.:

N.t.* See page no. 26

7.7.3 Radiated emissions according to CISPR 11

Environmental conditions during the test:

Temperature: xx °C Relative humidity: xx % Air pressure: xxx hPa

Limits for radiated disturbance at a measuring distance of 10 m

Frequency range MHz	**Quasi-peak limits** dB(µV/m)
30 to 230	30
230 to 1000	37
NOTE: The lower limit shall apply at the transition frequencies.	

Test results for radiated disturbance at a measuring distance of 10 m

Frequency MHz	**Values** dB(µV/m)
Measurement uncertainty: < ± 4 dB	

The equipment meets the requirements	~~Yes~~	~~No~~	**N.t.**[6]

Further test results are attached	~~Yes~~	**No**	Page no.:

Test equipment used with equipment no.:

N.t.* See page no. 26

8. Additional information to the test report

Remarks

N.t.[1] Not tested, because the EUT has no corresponding port

N.t.[2] Not tested, because the EUT has no lines inside of a building > 30 m or lines leaving a building

N.t.[3] Not tested, because the EUT has no lines > 3 m

N.t.[4] Not tested, because the EUT is not magnetically sensitive

N.t.[5] Not tested, because the EUT is not Class A equipment

N.t.[6] Not tested, because the EUT is not Class B equipment

N.t.[7] Not tested, because not applicable for this type of device

N.t.[8] Not tested, because not ordered

9. List of test equipment

Name of test equipment	Type	Equipment no/	Manufacturer	Calibration valid until
Vakumeter	VM 2000	2a	ebro	11/14
Generator 1Hz - 1,3 MHz	SPN	4a	Rohde & Schwarz	03/15
Signalgenerator 10 kHz - 5,4 GHz	2042	6	Marconi	01/14
Mess -Transceiver	MES 1000	11	Schomandl	04/14
Power Meter	436 A	12a	Hewlett Packard	06/15
Mess -Transceiver	FD530	13	Schomandl	---
Frequenzzähler Zusatzgerät für Mess-Tranceiver FD530	FZ-1	13a	Schomandl	---
K-Band Abschwächer	PM 7100QA	15b	Philips	---
Power Sensor 26,5 GHz - 40 GHz	HP R8486 A	16a	Hewlett Packard	---
Modulation Meter 50 kHz–2,32 GHz	2305	17	Marconi	08/14
Messempfänger 9 kHz – 30 MHz	ESH 2	22	Rohde & Schwarz	08/14
Feldstärkemesszusatz 9 kHz –30MHz	FMZB 1516	23	Schwarzbeck	05/13
Current Clamp	1P CV 100 A	25a	Chauvin Arnoux	08/14
Weiche 1363	---	26a	Auth Nachritent/	10/12
Stromversorgungsgerät	NGR 20	27	Rohde & Schwarz	---
Stromversorgungsgerät	1108-32	28	Heiden	---
Stromversorgungsgerät	TNs 15-300	29	Heinzinger	---
Stromversorgungsgerät	3206	30	Statron	---
AC Microvoltmeter	3410 A	31	Hewlett Packard	---
HF-Generator	8657 B	32a	Hewlett Packard	01/12
Duchgangskopf Isertion Unit	URY-Z2	34a	Rohde & Schwarz	03/14
Power Sensor 1µW – 100 mW	8481 A	35	Hewlett Packard	06/15
Impedance matching pad	PE7028	36a	Pasternack Ent/	06/15
Impedance matching pad	PE7028	37a	Pasternack Ent/	06/15
AF Transformer	TS8910	38a	Rohde & Schwarz	---
Schallgeber	SG 1	40	Schomandl	---
Near Field Probe Set	7405	41	EMCO	---
HF-Stromwandler 10 kHz – 30 MHz	ESH2-Z1	42	Rohde & Schwarz	02/13
VHF-Stromwandler 20 kHz - 300 MHz	ESV-Z1	43	Rohde & Schwarz	02/13
Aktiver Tastkopf 9 kHz – 30 MHz	ESH2-Z2	44	Rohde & Schwarz	02/13
Passiver Tastkopf 9 kHz – 30 MHz	VDE 0876	45	Dudde	06/15
Burst – Generator	SFT 1400	46a	Schlöder GmbH	09/14
Kapazitive – Koppelstrecke	SFT 410	47	Schlöder GmbH	09/14
Netznachbildung LISN	3810/2 LISN	49b	EMCO	07/14
Attenuator 3 dB – 12.5 GHz	8491 A	54	Hewlett Packard	07/15
Passiver Tastkopf 150 Ω	TK 11	58a	RFT	06/15
Attenuator 30 dB	HFP50/30	59	Texscan	06/15
Attenuator 10 dB (1 W)	FP-50	60	Texscan	10/14
Attenuator 10 dB (2 W)	011-0085-00	61	Tektronix	03/14
Attenuator 20 dB (10 W)	---	62	Radiall	09/14
Attenuator 40 dB (1 W)	CAT-40	63	Mini-Circuits	06/15
Step Attenuator DC-12,4 GHz	Model 710	64	narda	---
Hochfrequenz-Weiche	W 41	66	Schomandl	10/12
Hochfrequenz-Weiche	W 174	67	Schomandl	10/12
Hochfrequenz-Weiche	W 470	68	Schomandl	10/12
Sperrfilter	SF 1	69	Schomandl	---
Sperrfilter	SF 3	70	Schomandl	
Fernmelde-T-Netznachbildung	NTFM 8132	71	Schwarzbeck	07/12
Netznachbildung 1	NNB 11	72	RFT	07/13

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Doppel Netznachbildung	---	73a	Dudde	07/14
Rauschgenerator	03004	74a	Robotron	---
Attenuator 6dB	4780-6	75a	Narda	06/15
VHF-Messdipol-Antenne	VHA 9103	80	Schwarzbeck	03/13
UHF-Messdipol-Antenne	UHA 9105	81	Schwarzbeck	04/13
Hornantenne 0,7 - 4,6 GHz	BBHA 9120	82	Schwarzbeck	08/18
Hornantenne 0.7 – 6.0 GHz	BBHA 9120-B	83	Schwarzbeck	08/18
Stahlkugel für Fallprüfung	50mm, 500g	84a	Dudde	---
Kondensator-Mikrofon	MKH 110	86	Sennheiser	---
Temperaturprüftruhe	TTE 32/40H	87	Brabender	03/13
Turntable	---	89	Dudde	---
DC-Block	HR-D18	90b	Microlab	06/15
Künstliche Antenne	BN 6944-00	91	Spinner	10/14
Künstliche Antenne	BN 2766-B	92	Spinner	---
Verzweigungsstück (T-Section) 50 Ω	BN 42441/50	93	Rohde & Schwarz	07/15
Tunable Bandpass-Filter	5VF500/1000	97	Texscan	---
Tunable Bandpass-Filter	HA 70/1	98	Rohde & Schwarz	---
Tunable Bandpass-Filter	HS 9041	99	Rohde & Schwarz	---
Termaline Wattmeter	Model 6734	101	BIRD	01/14
Klimakammer	VMT 04/35	102a	Heraeus Vötsch	04/13
OATS (CISPR 16) bis 1,0 GHz	---	103	Dudde	05/14
OATS (Substitution)	---	104	Dudde	08/12
Digital-Oszilloskop	LC534AL	105b	LeCroy	---
ESD-Prüftisch	---	106	HAEFELY	---
Step Attenuator DC – 1,0 GHz	1dB-80dB	107	Texscan	---
XY-Schreiber	7035 B	109	Hewlett Packard	---
4 - 8 -16 Ω Messabschlussbox	---	111	Dudde	---
ESD - Generator	SESD 200	112a	Schlöder GmbH	10/14
Sweep Generator	6636a	113a	Wiltron	---
RF-Power Amplifier	Model 603L	114b	EIN	---
Kapazitive – Koppelstrecke	SL 400-071	115	Schaffner	---
Coupling – Clamp	NSG 332	116	Schaffner	09/14
Passiver Tastkopf 150 Ω	TK 11	117a	RFT	06/15
Passiver Tastkopf 150 Ω	TK 11	118a	RFT	06/15
Anpass-Übertrager 50Ω/150Ω 10 – 150 kHz	TG11	119a	RFT	---
OATS (CISPR 16) 1,0 bis 6,0 GHz	---	122	Dudde	09/13
RF-Power Amplifier	Model 3100 A	123	ENI	---
Coupling-Decoupling Network	CDN 801 Rn	124	E/Fiedler	---
Coupling-Decoupling Network	CDN 801 R6 SP	126	E Fiedler	---
Signalgenerator 10 kHz -1 GHz	2022	127	Marconi	---
Dummy Load 30 W 0 – 1000 MHz	---	128b	Radiall	09/14
Verzweigungsstück (T-Section) 600 Ω	---	129	Dudde	---
Digital Sound Level Meter	CDA 830	133	Chauvin Arnoux	---
Laboratory Power Supply	LM 30-6	134a	Sorensen	---
Coupling Network (Mic-input)	---	135	Dudde	---
Signalgenerator 100 kHz- 1 GHz	SMG	136	Rohde & Schwarz	03/13
Attenuator 3 dB (2 W) DC – 12,4 GHz	6803/17/A	137	SUHNER	09/13
RF Power Meter	6960B	139a	Marconi	06/14
Power Sensor	6910	140	Marconi	06/15
Power Sensor	8483A	143b	Hewlett Packard	06/15
Digital Multimeter	GDM-8045G	144	GW	08/14
Attenuator 10 dB (1 W)	FP-50	146	Texscan	10/14
Attenuator 20 dB (10 W)	---	148a	Trilithic	12/13
Attenuator 40 dB (1 W)	CAT-40	149	Mini-Circuits	06/15

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Attenuator 3 dB (60 W)	HFP 560/3	152	Trilithic	03/14
Attenuator 3 dB (150 W)	HFP 5150/3	153	Trilithic	03/14
Stell-Trenn-Transformator	LTS 002	154a	RFT	---
Stell-Transformator	---	155	Schunt/+Ben/	---
RF Current Injectionclamp	EM 101	156	Lüthi GmbH	07/14
HF-Stromwandler 10 kHz – 30 MHz	SMZ 11	157	RFT	---
Unsymetrische 8V-Speisung	MZN 16-x	158	Sennheiser	---
Absorptions-Messwandler-Zange	MDS-21	160	Lüthi GmbH	09/12
LEVEL METER	URV35	161	Rohde & Schwarz	02/13
100-V-Durchgangskopf	URV5-Z4	162	Rohde & Schwarz	02/15
Künstliche Antenne	TWL 35	164	Telewave Inc/	02/13
Künstliche Antenne	TWL 60	165	Telewave Inc/	02/13
Preamplifier 100 kHz – 1/3 GHz	8447 E	166a	Hewlett Packard	01/14
Bilog Antenna 30 - 1000 MHz	CBL611A	167	CHASE	10/13
Hornantenne	BBHA 9120-C	168	Schwarzbeck	03/21
Hornantenne 3 - 14 GHz	BBHA 9120 C	169	Schwarzbeck	08/18
Attenuator 10 dB (10 W)	---	170	Trilithic	12/13
Spektrumanalysator 9 kHz - 18 GHz	FSL 18	171a	Rohde & Schwarz	11/12
RF-Power Amplifier	Model 403L A	172	ENI	---
KFZ- Netznachbildung	NNB-1	173	Reimesch	08/14
Isotropes E-Feld-Messgerät 1,8 MHz – 30 MHz	IEMH 1601	174	Schwarzbeck	01/14
FIELDMETER 100 kHz – 2,5 GHz	C/A 43	175	CHAUVIN-ARNOUX	12/13
Attenuator 6 dB (100 W)	Mod/ 8343-060	177	Bird	03/14
RF-Power Amplifier	Model 3552B	179	EATON	---
Burst – Generator	EFT 200	180	EM – Test AG	09/14
Mikro Puls Generator	MPG 200	181	EM – Test AG	09/14
Step Attenuator 1 - 10 dB	TA – 50	184	Texscan	---
Signalgenerator 0,01 Hz – 20 MHz	148 A	185	Wavetek	---
Schnittstellenanalysator	Pocket VDU	187	GR Electronics	---
Absolutdruck-Messgerät	testo 511	188a	Testo AG	10/13
Attenuator Wave Gate 0 - 20dB	1005A	191b	Waveline	---
Sweep Generator	6640A	192a	Wiltron	---
R-C Meter	815	193	BK PRECISION	---
Voltage Regulator 0,5 kVA	$TDGC_2$	196a	Pro Star	---
Schallgeber	86110	197	Schomandl	---
Künstliche Antenne < 30 MHz	---	198	Schwarzbeck	---
Waveguide Mixer	WM 490-2	199a	Tektronix	---
Messmikrofon	MP NM 550	200a	MB	---
Bias Network	ZPV-Z6	202	Rohde & Schwarz	---
Bias Network	ZPV-Z6	203	Rohde & Schwarz	---
Durchgangs-Adapter	ZPV-Z1	204	Rohde & Schwarz	---
Durchgangs-Adapter	ZPV-Z1	205	Rohde & Schwarz	---
Durchgangs-Adapter	ZPV-Z2	206	Rohde & Schwarz	---
Power Supply	6102A	207	Hewlett Packard	---
Puls 4 Generator	---	208	Dudde	---
Stell-Trenn-Transformator	LSS 010	209	RFT	---
Oszilloscope	54600 A	210	Hewlett Packard	09/12
Signalgenerator 10 kHz - 2,4 GHz	2024	213	Marconi	02/14
DC- und Wechselstromwandler	Z201A	216a	Gossen Metrawatt	04/14
Miteq Amplifier 26,5-40 GHz		223	Miteq	03/14
Attenuator	DG-0018-2051	225	Spectrum	06/15
Power Supply	6034L	226	Hewlett Packard	---
2,4 GHz Notchfilter	---	227	Dudde	---

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Power Sensor + Attenuator	6920	228	Marconi	09/14
Radiocommunication Service Monitor	CMS 54	229	Rohde & Schwarz	05/14
Dummy Load	TWL-X	231a	TWL	02/13
Positioning cotroller	HCC	232	Rohde & Schwarz	---
Antennen Mast	HCM	233	Rohde & Schwarz	---
Attenuator wave gate 0 – 95dB	BN6686	234b	Spinner	---
Immunity test probes	ITP	235	EM TEST	---
Leistungsmesser	Wattavi k	238	H&B	---
Multimeter	Multiscript 25	239	Metrawatt	---
Multimeter	Unigor A43P	240	Metrawatt	---
Voltage Dip Simulator	VIS 1700	241a	Schlöder GmbH	03/15
Künstliche Antenne	RAU	243	Rohde & Schwarz	03/14
ESD – Generator	ESD 30	246	EM – Test AG	10/14
Mess-Nebenwiderstand	HA0512	247	METRIX	---
Dummy Load	T173CS	248	KDI	02/13
Dummy Load	T173CS	249	KDI	02/13
Dummy Load	T173CS	250	KDI	02/13
Dummy Load	T173CS	251	KDI	02/13
Dummy Load	T173CS	252	KDI	02/13
Dummy Load	T173CS	253	KDI	02/13
Attenuator: 5,7 dB; DC – 1 GHz; 50 – 75 Ohm	ZM-57	254	Trilithic	---
Attenuator: 5,7 dB; DC – 1 GHz; 50 – 75 Ohm	ZM-57	255	Trilithic	---
Preamplifier 100 kHz – 0,4 GHz	8447 A	256	Hewlett Packard	01/13
Feuchte- Temperatur - Messgerät	testo 625	259a	TESTO	10/13
Dummy Load	T173CS	260	KDI	02/13
KEN	KEN-M 2 /M 3	262	MEB	---
0 Ω Adapter	13148	263	MEB	03/15
Vertikale Koppelplatte	---	265	Dudde	---
NF-Vorbewertungsfilter	---	266	Ing/ Büro H/W/Schulte	03/15
Power Supply	6632B	268a	Hewlett Packard	---
Anritsu WR22 Q-Band Mixer 33-50 GHz	MA2742A	269a	OM Labs	03/13
Handnachbildung VDE 0876 Teil 1	---	270	Dudde	---
LEVEL METER	URV35	271	Rohde & Schwarz	03/14
Impulsbegrenzer	ESH3-Z2	272	Rohde & Schwarz	09/13
Low Pass Filter 2000 MHz	SLP550	273	Mini-Circuits	06/15
Low Pass Filter 2000 MHz	SLP550	274	Mini-Circuits	06/15
Attenuator 30 dB, 18 GHz	---	276	MTS	09/14
Hornantenne 14 - 40 GHz	BBHA 9170	280	Schwarzbeck	09/18
Hornantenne 14 - 40 GHz	BBHA 9170	281	Schwarzbeck	09/18
Preamplifier 0,9 GHz - 2/8 GHz	SFT 84-2152	282	Avantek	---
Harmonic-Flicker-Analysator	HFA 3000	283	Schlöder GmbH	01/14
Hornantenne 0,7 - 4,8 GHz	BBHA 9120 A	284	Schwarzbeck	08/18
Datenleitungs – Koppelnetzwerk	CNV 504 / 508	285	EM – Test AG	---
Stell-Trenn-Transformator	LTS 002	287	RFT	---
LF-Power Amplifier	A-9211	288	ONKYO	---
Probe-Testfixture	V40/31	291	MERA-TRONIK	---
Meßschaltung für Ableitströme zur Prüfung des Berührungsstroms	---	294b	Dudde	08/14
Anritsu WR15 V-Band Mixer 50-75 GHz	MA2744A	295a	OM Labs	03/13
Anritsu WR10 W-Band Mixer 75-110 GHz	MA2746A	296a	OM Labs	03/13
Dummy-Load 50Ω	---	297	Texscan	---
APC 3,5 Precision Termination 0 – 34 GHz	---	298	Amphenol	---
HF-Abschlusswiderstand 50 Ω	BN5947	300	Spinner	03/14

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HF-Abschlusswiderstand 50 Ω	BN3924c	301	Spinner	03/14
Passiver Tastkopf 9 kHz - 30 MHz	TK 121	302	RFT	02/14
HF-Abschlusswiderstand 50 Ω	---	304	Texscan	03/14
HF-Abschlusswiderstand 50 Ω	---	305	Texscan	03/14
HF-Abschlusswiderstand 50 Ω	9200	306	SAGE LABS	---
Millivoltmeter	URY	307	Rohde & Schwarz	02/13
Dummy Load 50 Ohm	1250-0256	308a	Hewlett Packard	02/13
Dummy-Load 50 Ω (mit Messmittel 258)	404011	309	Radiall	02/13
Kalibrationskabel 32 cm	---	310	Dudde	---
Kalibrationskabel 89 cm	---	311	Dudde	---
DC Block Adapter	MA8601A	312	Anritsu	04/14
Netzspannungsquelle/ 230 V ~ 1000 W	1001B	314	ELGAR	---
Temperaturmesssystem	Netlogg	315a	rbr-ecom	---
Temperaturmesssystem	Funkfühler	315b	rbr-ecom	07/14
Temperaturmesssystem	Funkfühler	315c	rbr-ecom	07/14
Frequenzzähler	5326A	316	Hewlett Packard	09/14
300A Shunt	4 90073	317	AEG	---
Multimeter	HM 8011-3	319	Hameg	---
Verzweigungsstück (4-fach) 50 Ω	892228/20	320	Rohde & Schwarz	10/12
Gewicht 30 N	---	321a	Dudde	---
Gewicht 250 N	---	322a	Dudde	---
Zähler und Funktionsgenerator	HM8030/HM8021	324	Hameg	---
HF-Verstärker: 09 – 2,3 GHz	---	325	Dudde	03/15
Ohmmeter: 0 – 1000M	ZM-144 / PSM-2	326	Holtzer-Cabot	---
Fundament für Fallprüfung	---	328a	---	---
Hornantenne 8,2 – 12,4 GHz	640	329	Narda	08/18
Hornantenne 5,4 – 8,2 GHz	642	330	Narda	08/18
APC 3,5 Precision Termination 0 – 34 GHz	---	334a	Amphenol	---
Hornantenne ca 0,7 – 4.8 GHz	---	335	---	08/18
Hornantenne ca 0,7 – 4.8 GHz	---	336	---	08/18
Hornantenne ca 14.3 – 26.5 GHz	---	337	---	09/18
Coaxial Directional Coupler	519 D	338	MID-Century Microwavegear	---
Spektrumanalysator 9 kHz – 2,9 GHz	8594E	341a	Hewlett Packard	01/13
Dummy-Load 50 Ω; 40 W; 2 – 18 GHz	MODEL 367NF	343	Narda	---
RF-Preamplifiere 1 – 18 GHz	---	345	Narda	01/14
Impedanzwandler: 50 -75 Ohm; DC – 1,4 GHz; 1 Watt	6001/01A	347	Suhner	---
Prüfgerät für BGV A3 und TRBS 2131	Secutest S2/N+	348	Gossen	02/13
Wave Guide Mixer 40 - 60 GHz	WM490U	349	Tektronix	---
Widerstand-Senke 5 x 6,8 Ω 1100 W	---	350a	Dudde	07/14
Wave Guide Mixer 18 - 26,5 GHz	WM 490K	351	Tektronix	---
Wave Guide Mixer 26,5 - 40 GHz	WM 490 A	352	Tektronix	---
Wave Guide Koaxial Adapter 26,5 – 40GHz	SN/15	355	Parzich	---
DC Block Adapter 0,045 -26,5 GHz	11742A	356	Hewlett Packard	06/15
Tastantenne Probe	204/1010/02	357	Rohde & Schwarz	---
Voltage Regulator 1 kVA	$TDGC_2$	358a	Pro Star	---
Spektrumanalysator 9 kHz – 40 GHz	MS2668C	359a	Anritsu	05/14
Coupling Filter	FP 16/3-1	366	Haefly	---
Durchgangskopf 10V	URV 5-Z2	367	Rohde & Schwarz	02/13
HF-Tastkopf	395/2680/02	368	Rohde & Schwarz	02/13
0 bis 10db Attenuator	50A-238	369	JFW Industries inc/	02/13
Koaxial directional/ coupler 2-4GHz	3003-20	370	Narda	03/14
Circular polarited sonde 1-12GHz	---	373	---	---

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150 Watt Dämpfungsglied	49-20-33	374	Weinschel	02/13
10 Watt Dämpfungsglied	23-6-34	375	Weinschel	09/14
10 Watt Dämpfungsglied 60dB	---	376	---	09/14
100 Watt Dämpfungsglied 30 dB 0-18 GHz	6312-30	377	Weinschel	02/13
Oscilloscope	PM3082	380a	Fluke	---
High Power Reactive Probe 50-12/000 MHz	HZ-A22	382	Microlab	---
Gain Horn Antenna	GH-22-25	383	Dorado	04/17
Gain Horn Antenna	GH-15-25	384	Dorado	04/17
Gain Horn Antenna	GH-10-25	385	Dorado	04/17
High power signal generator	470A-500	386	Philco	---
Ruggedised Adapter	34AKNF50	387	Anritsu	
Laboratory Power Supply	PS 3032-10B	388	Elektro Automatik	07/12
Interface	UTA 12	389	Elektro Automatik	07/12
Peak Power Sensor	NRV-Z31	391	Rohde & Schwarz	03/14
Testbildsender	CSG 5	392	Müter	---
Veränderbare Eichleitungen D110, D112 – 0 bis 132 dB - 0 bis 3 (10) MHz	D110	393	Siemens	---
EMF Tester	PCE-G28	394	PCE Group	---
Metra Hit FMA1 – Feldmessadapter	FMA1	395	Gossen Metrawatt	---
Dummy Load 50 Ohm 18 GHz	---	396	Narda	---
Dummy Load 50 Ohm 18 GHz	---	397	Narda	---
Feldstärkemesskoffer 500 kHz – 50 MHz	---	398	SAT-Service Schneider	01/13
Signalgenerator	SME03	399	Rohde & Schwarz	---
IR-Thermometer	62 Mini	403	Fluke	---
Absorbtions-Messwandlerzange 30-300 MHz	MDS 20	404	Lüthi	09/12
Hochpassfilter	NHP-200	405	Mini-Circuits	06/15
Logbicon Tri-Log Breitband-Antennenkombination	VULB 9168	406	Schwarzbeck	04/16
Power Divider	6503	407	Weinschel	---
Regulated Power Supply	AP60-50	408	Farnell	---
10 V Durchgangskopf	URY-Z2	416	Rohde & Schwarz	09/14
50 Ohm Adapter	URY-Z50	419	Rohde & Schwarz	---
BNC Adapter	IN 241/1110/02	420	Rohde & Schwarz	---
Dummy Load bis 42 GHz	---	424	Amphenol	---
Dummy Load bis 42 GHz	---	425	Amphenol	---
EMI Test Receiver 9 kHz – 30 MHz	FMLK 1518	428	Schwarzbeck	08/13
Panorama- Zusatz zu FMLK / VUMA	PAZ 1550	429	Schwarzbeck	---
EMI Test Receiver 20 MHz – 1050 MHz	FCVU 1534	430	Schwarzbeck	08/13
Hornantenne 24 GHz	K-235	431	MBMT	09/18
Miteq Amplifier 18-26 GHz	---	433	Miteq	03/14
High Pass Filter	NHP-700	435	Mini-Circuits	06/15
Störsignalkoppler AC-Netz	---	436	Dudde	---
660 µH Spule	---	437	Dudde	---
660 µH Spule	---	438	Dudde	---
Leistungsmesskopf mit Leistungsmesser	WJ-5201-77A	439	Watkins Johnson	03/14
Microwave Amplifier	BBV 9719	443	Schwarzbeck	03/13
Microwave Amplifier	BBV 9718	444	Schwarzbeck	03/13
Stacked Log/ –Per/ Antenna 1- 18 GHz	STLP 9148	445	Schwarzbeck	09/12
IR Digital CCD Video Camera	SE-906-1	446	Conrad	---
T-Netznachbildung	ESH 3-Z4	447	Rohde & Schwarz	09/12
Laptop-Netzteil	ACHG-07	450	hama	---
High Pass Filter	VHF-3500+	451	Mini-Circuits	06/15
High Pass Filter	VHF-1200+	452	Mini-Circuits	06/15

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High Pass Filter	NHP-25+	455	Mini Circuits	06/15
High Pass Filter	NHP-25+	456	Mini Circuits	06/15
Low Pass Filter	BLP-21/4+	457	Mini Circuits	06/15
Low Pass Filter	BLP-21/4+	458	Mini Circuits	06/15
BNC 100 Ohm Widerstand	---	460	Dudde	---
Oscilloscope	TDS320	461	Tektronix	08/12
Attenuator BNC 3 dB	---	462	---	09/12
Attenuator BNC 6 dB	---	463	Spinner	06/15
Attenuator BNC 10 dB	---	464	Spinner	06/15
Attenuator BNC 20 dB	---	465	Spinner	06/15
Verzweigstück 3 Port Junction Box 50 Ohm 10 bis 500 MHz	---	469	---	07/15
Verzweigstück 4 Port Junction Box 50 Ohm 10 bis 900 MHz	---	470	---	07/15
Adapter	P281B	471	Hewlett Packard	---
Richtkoppler	42468-20	472	Narda	---
Eichschallquelle	BN 4519	473	Rohde & Schwarz	---
Attenuator 20 dB SMA	6500-20	482	Weinschel	06/15
Dummy Load 50 Ohm	---	485	---	02/13
Dummy Load 50 Ohm	TI-30D	486	---	02/13
Dummy Load 50 Ohm	TI-30D	487	---	02/13
Dummy Load 50 Ohm	---	488	---	02/13
Dummy Load 50 Ohm	---	489	---	02/13
Dummy Load 50 Ohm SMA	60I	491	HRM	02/13
Dummy Load 50 Ohm SMA	65SMA50-0-1	492	Suhner	02/13
Dummy Load 50 Ohm SMA	---	493	---	02/13
Dummy Load 50 Ohm SMA	---	494	---	02/13
Dummy Load 50 Ohm SMA	2001 6110/00	495	OSM	02/13
Dummy Load 50 Ohm SMA	2001 6110/00	496	OSM	02/13
Dummy Load 50 Ohm SMA	SC 60-601-0000-31	497	---	02/13
Dummy Load 50 Ohm SMA	SC 60-601-0000-31	498	---	02/13
Dummy Load 50 Ohm BNC	---	499	Texscan	02/13
Dummy Load 50 Ohm BNC	404011	500	Radiall	02/13
Harmonic Mixer (60-90 GHz)	FS-Z90	501	Rohde & Schwarz	03/13
Signal Analyzer 9-30 GHz	FSV-30	502	Rohde & Schwarz	02/13
PLC Prüfbox	---	503	Dudde	---
Broadband Horn – Gain 20 dB, 12,4 – 18 GHz	BH 18-SQB-xxx-C-20	508	Mid-Century Mic/	---
Breitband-Dipol 50 Ohm	HUF-Z1	509	Rohde & Schwarz	---
Bit Error Rate Test Set	4925B	510	Hewlett Packard	---
Standard Gain Horn Antenna 1,7 – 2,6 GHz	Model 645	514	Narda	08/18
Harmonic Mixer (60-90 GHz)	FS-Z60	515	Rohde & Schwarz	08/13
Digital Phosphor Oscilloscope	TDS7254B	516	Textronix	---
Probe 2,5 GHz	P7225	517	Textronix	---
Horn Antenna 20 dB	GH-19	518	Dorado	---
Horn Antenna 20 dB	GH-28-20	519	Dorado	09/18
GaAS FET Amplifier 4/0 – 8/0 GHz	AMT-8006M	520	Avantek	---
15 MHz Function / Arbitrary Waveform Generator	33120A	521	Agilent	---
Surge / Hybrid Generator	CWG 1500	522	Schlöder	01/14
Symmetrical parallel plate line	---	524	Dudde	---
Feldstärke-Messgerät	NFM1	525	RFT	01/14

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Test report reference: EN 61326-1:2006
EUT: BKS-4

Date of issue: 2012-09-11

Name of test equipment	Type	Equipment no/	Manufacturer	Calibration valid until
Electric Dummy Load	DA-75U	526	RA-NAV Laboratories	01/14
Power Splitter/Combiner 10 - 2000 MHz	ZESC-2-11	527	Mini Circuits	04/14
50 Ohm SMA Dummy Load bis 20 GHz	---	528	---	04/14
Power Divider 3 Kanal	ZFSC-3-1	529	Mini Circuits	04/14
Power Divider 3 Kanal	ZFSC-3-1	530	Mini Circuits	04/14
310 MHz Band Pass Filter	DMC-110746-001	531	---	---
Standard Gain Horn Antenne 26,5 -40 GHz	---	532	HTB Elektronik	09/18
Notch Filter 10 MHz – 2 GHz	---	533	Dudde	04/14
Handheld LCR Meter	U1731B	535	Agilent	---
Spannungsteiler-Tastkopf (70 dB)	TK104	536	---	07/14
Multimeter	Metra Hit One	538	Gossen Metrawatt	08/14
Flexibles Thermoelement	---	539	---	---
HF-Attenuator (6 dB)	---	540	Haefely	09/14
HF-Attenuator (12 dB)	---	541	Haefely	10/14
HF-Attenuator (39 dB)	---	542	Haefely	09/14
Abschlusswiderstand Dummy Load 50 Ohm	0 - 12/5 GHz	543	---	09/14
Circulator	428 – 430 MHz	544	Forem	---
Mischer	SAM-140	545	Radiometer Physics	---
Mischer	SAM-220	546	Radiometer Physics	---
Dual Mode Potter Horn Antenna 90 – 140 GHz	FH-PP-140-WR8	547	Radiometer Physics	---
Dual Mode Potter Horn Antenna 140 – 220 GHz	FH-PP-220-WR5/1	548	Radiometer Physics	---
Dual Mode Potter Horn Antenna 60-90 GHZ	FH-PP-90-WR12	549	Radiometer Physics	---
V-LISN 9kHz – 30 MHz, 50 Ω // 50 µH + 5 Ω	NNLA 8120	551	Schwarzbeck	10/14
Impuls Generator	PS1500	554	Schlöder	12/14
Labornetzgerät	EA-PSI 8080-40-DT	560	Elektro-Automation	02/15
Modulartastköpfe für Oszilloskope 100:1, 1500 Vp	TT-HV 150	564	Testec	---
Standard Gain Horn Antenna 2.6 – 3.95 GHz	1024-15	565	Flann	08/18
Standard Gain Horn Antenna 3.42 – 6.0 GHz	1224-15	566	Flann	08/18
GG High Voltage Probe Tastkopf 0 – 40 kV	P6015	567	Tektronix	04/15
Oszilloskope 100 MHz	TDS 2012C	568	Tektronix	03/15

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10. Cable list

Cable number	Connection	Manufacturer
1	N	m.dudde 14.5m
1a	N	m. dudde 18m
1b	N	MegaPase 14 m
2	N	Kabelmetal 12m
3	N	Kabelmetal 5m
4	BNC	RG58 150cm
2a	BNC	Telemeter 50 cm
3a	BNC	Telemeter 50 cm
4a	BNC	Telemeter 50 cm
5a	N	Telemeter 1,5 m
6a	N	Telemeter 1,5 m
7a	N	Telemeter 50 cm
8a	N	Telemeter 50 cm
10a	BNC	Telemeter 1 m
11a	BNC	Telemeter 1 m
12a	N	Sucoflex 6m (blau)
13b	N	RG 213 (Dudde)
14a	BNC	Telemeter 1 m
15a	BNC	Telemeter 1 m
17a	PC 3,5	SUCO FLEX 2,13 m
18a	PC 3,5	SUCO FLEX 2,13 m
19b	SMA	Semi Rigid
20b	SMA	Semi Rigid
21	BNC	3m
22	BNC	RG 58 1,5 m
23	BNC	RG 58 1 m
24	BNC	RG 58 2,8 m
25	BNC	RG 58 1 m
26	BNC	RG 58 0,4 m
27	BNC	RG 58 1 m
28	BNC	CG3625 5 m
30	BNC / N	Suhner 1,8 m
31	BNC / N	Suhner 1,8 m
32	BNC / N	Suhner 1,8 m
33	N	CG3625 2 m
34	N	F&G 0,5 m
35	N	Fujikura 1,1 m
36	N	Filotex 1,8 m
37	N	Filotex 1,8 m
38	N	Dudde 2 m
39	N	F&G 0,8 m
40	BNC	Aircell 0,5 m
41	N	Suhner 1,5 m
42	N	Suhner 1,5 m
43	SMA	Rosenberger 0,5m
44	SMA	Sucoflex Suhner 0,5m
45	SMA	Sucoflex Suhner 0,5m
46	N	Sucoflex Suhner 1,0m
47	SMA	Sucoflex 104 Suhner 0,5m

Cable number	Connection	Manufacturer
48	SMA	Sucoflex 104 Suhner 0,5m
49	N	Sucoflex 104 Suhner 1,0m
50	N	Sucoflex 104 Suhner 1,0m
51	N	Sucoflex 104 Suhner 1,0m
52	N	Sucoflex 104 Suhner 1,0m
53	SMA	FEP 0,34m
54	BNC	Aircell 1 m
55	BNC / N	Aircell 0,5
56	BNC / N	Aircell 1
57	N	Aircell 12 m
57a		H2000 Flex Belder CDT 7m
58	N	Sucoflex 100 Suhner 2,0m
59	N	Sucoflex 100 Suhner 1,0m
60	N	Sucoflex 100 Suhner 2,0m
61	N	Sucoflex 100 Suhner 1,0m
62	SMA	Sucoflex 104 Suhner 0,5m
63	SMA	Sucoflex 104 Suhner 0,5m
64	SMA	Sucoflex 104 Suhner 0,5m
65	APC 3,5	0,6 m
66	APC 3,5	0,6 m
67	APC 3,5	0,6 m
68	APC 3,5	0,6 m
69	SMA/N	Sucoflex 100 Suhner 2,0m
70	SMA	7m
71	SMA	7m
72	BNC	40cm
73	BNC	40cm
74	N	Sucoflex 106 Suhner 6,4m
75	N	Sucoflex 106 Suhner 6,4m
76	APC 3,5	Gore 3 m, 40 GHz
77	SMA	Suhner 12 m 90148402
78	SMA	Suhner 12,19 m S 04272 B
79	BNC/N	5 m (zu Gerät 404)
80	SMA	Sucoflex 100 Suhner 0,25 m
81	---	---
82	N	Aircell 7 13 m
83	N	Sucoflex 8 m
84	N	Sucoflex Suhner 10 m
85a	N	GE Company, 3 m
86	SMA	FLRST 0,8 m
87	SMA	Sucoflex 104 0,15 m
88	SMA	Sucoflex 104 0,15m
89	SMA	Sucoflex 104 0,15 m
90	SMA	Sucoflex 104 0,15 m
91	SMA	bedea 1,5 m
92	APC/SMA	--- 0,2 m
92a	APC/SMA	--- 0,2 m
92b	APC/SMA	--- 0,2 m
92c	APC/SMA	--- 0,2 m
92d	APC/SMA	--- 0,2 m
92e	APC/SMA	--- 0,2 m
92 f	APC/SMA	--- 0,2 m
92 g	APC/SMA	--- 0,2 m

Cable number	Connection	Manufacturer
93		SC/C22 103P2 0,35m
94	BNC	--- 1,10 m
95	BNC	--- 0,8 m
96	BNC	--- 0,8 m
97	BNC	--- 0,25 m
98	SMA	FLRST, 0,9 m
99	N	Gore & Asscoc., 3m
100	N	Rosenberg, 6m
101	N	Gore, 3m
102	SMA	Sucoflex Suhner 2 m
103	N	75 Ohm 1,2 m
104	N	75 Ohm 1,2 m
105	N	75 Ohm 1,2 m
106	N	75 Ohm 1,2 m
107	N	75 Ohm 1,2 m
108	N	75 Ohm 1,2 m
109	N	75 Ohm 1,2 m
110	N	75 Ohm 1,2 m
111	BNC	50 Ohm 0,5 m
112	BNC	50 Ohm 0,5 m
K2,9 Nr. 1	APC	Harbour Ind. 27478 LL-160, 1 m
K2,9 Nr. 2	APC	Harbour Ind. 27478 LL-160, 1 m
K2,9 Nr. 3	APC	Harbour Ind. 27478 LL-160, 1 m
K2,9 Nr. 4	APC	Harbour Ind. 27478 LL-160, 1 m
K2,9 Nr. 5	APC	Harbour Ind. 27478 LL-160, 1 m
113	SMA	--- 0,6 m
114	SMA	Suhner Sucoflex 104 0,25 m
115	SMA	--- 0,6 m
116	SMA	Suhner Sucoflex 104 0,25 m
117	---	75 Ohm Kabel 0,9 m
118	---	75 Ohm Kabel 3 m
119	N	Jyebao N30N30-5006N-8MCP 8 m
120	N	Jyebao N30N30-5006N-14MCP 14 m
121	SMA	Suhner Sucoflex 104 1,5 m
122	SMA	Suhner Sucoflex 104 2 m
123	SMA	Suhner Sucoflex 104 2 m
124	SMA	JyeBao 0.15 m
125	SMA	JyeBao 0.15 m
126	SMA	JyeBao 0.15 m
127	SMA	JyeBao 0.15 m
128	SMA	JyeBao 0.1 m
129	SMA	JyeBao 0.1 m
130	SMA	JyeBao 0.1 m
131	SMA	JyeBao 0.1 m
132	SMA	JyeBao 0.2 m
133	SMA	JyeBao 0.2 m
134	SMA	JyeBao 0.2 m
135	SMA	JyeBao 0.2 m
136	SMA	JyeBao 0.3 m
137	SMA	JyeBao 0.3 m
138	SMA	JyeBao 0.3 m
139	SMA	JyeBao 0.3 m
140	SMA	JyeBao 0.5 m

Cable number	Connection	Manufacturer
141	SMA	JyeBao 0.5 m
142	SMA	JyeBao 0.5 m
143	SMA	JyeBao 0.5 m
144	N	Commscope WBC-400 15 m
145	SMA	Suhner Sucoflex SF 104 PE 8m
146	SMA	Suhner Sucoflex SF 104 PE 8m
147	APC 3.5	JyeBao 1.5 m
148	APC 3.5	JyeBao 3.0m
149	BNC 9 m	---

Cable number	Connection	Manufacturer
EMV 1	BNC	Henn 2,0 m
EMV 2	BNC	Henn 2,0 m
EMV 4	BNC	Henn 9,7 m
EMV 5	BNC	Henn 3,8 m
EMV 6	BNC/N	Lüthi 5 m
EMV 7	BNC	Henn 1,5 m
EMV 8	BNC	Henn 1,7 m
EMV 9	BNC	Henn 1,7 m
EMV 10	BNC	Henn 1,9 m
EMV 11	BNC	HASSELT 5,2 m
EMV 12	BNC	HASSELT 2,4 m
EMV 13	BNC	HASSELT 4,1 m
EMV 14	BNC	HASSELT 2,5 m
EMV 15	BNC	Henn 0,9 m
EMV 16	Fischer	--- 2 m
EMV 18a	Fischer	--- 1 m
EMV 19a	Fischer	--- 1,5 m

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11. List of rented test equipment and auxiliary means

EMC Dr. Schreiber, Siegen, Germany

Inv. – Nr.	Type	Hersteller [manufacturer]	kal. bis [cal. till]
G3	SMY Generator (1082.5502.12)	Rohde & Schwarz	01.10.2013
G4	ESG D3000A - Generator	HP Agilent	24.01.2013
I4.2	714FC Verstärker 30W	Kalmus	---
I4.11	BBM3Q7ECK 15W Verstärker	EM Power	---
E15	URV55 Millivoltmeter (1029.1701.02)	Rohde & Schwarz	---
E14.2	URV Z2 Tastkopf (SN 288.801)	Rohde & Schwarz	02.08.2013
E15.5	NRVZ5 – Tastkopf (SN 100156)	Rohde & Schwarz	06.07.2013
E16.1	MC-PC20T AD-Karte	Schetter	11.01.2013
E22	DC3001M2	Ampl.Res.	31.01.2013
E15.2	30611 - Richtkoppler	Narda	26.04.2013
X2	Absorber Kab. 1	MPE	18.02.2013
X5	Absorber Kab. 2	MPE	14.05.2013
I5.4	VULP 9118E	Schwarzbeck	14.05.2013
E53	BBHA9120E Antenne	Schwarzbeck	24.01.2013
E12.4	VUSLP 9111B (bei > 1 GHz in X2)	Schwarzbeck	07.01.2013

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Photographs of the equipment are to be provided as part of the test report.

1. Assembly of units or parts

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Photographs of the equipment are to be provided as part of the test report.

2. Upper side of unit

Photographs of the equipment are to be provided as part of the test report.

3. Lower side of unit

Photographs of the equipment are to be provided as part of the test report.

4. If the label or identifying mark is affixed on a surface other than at 2. or 3. above, a photograph of this shall be provided.

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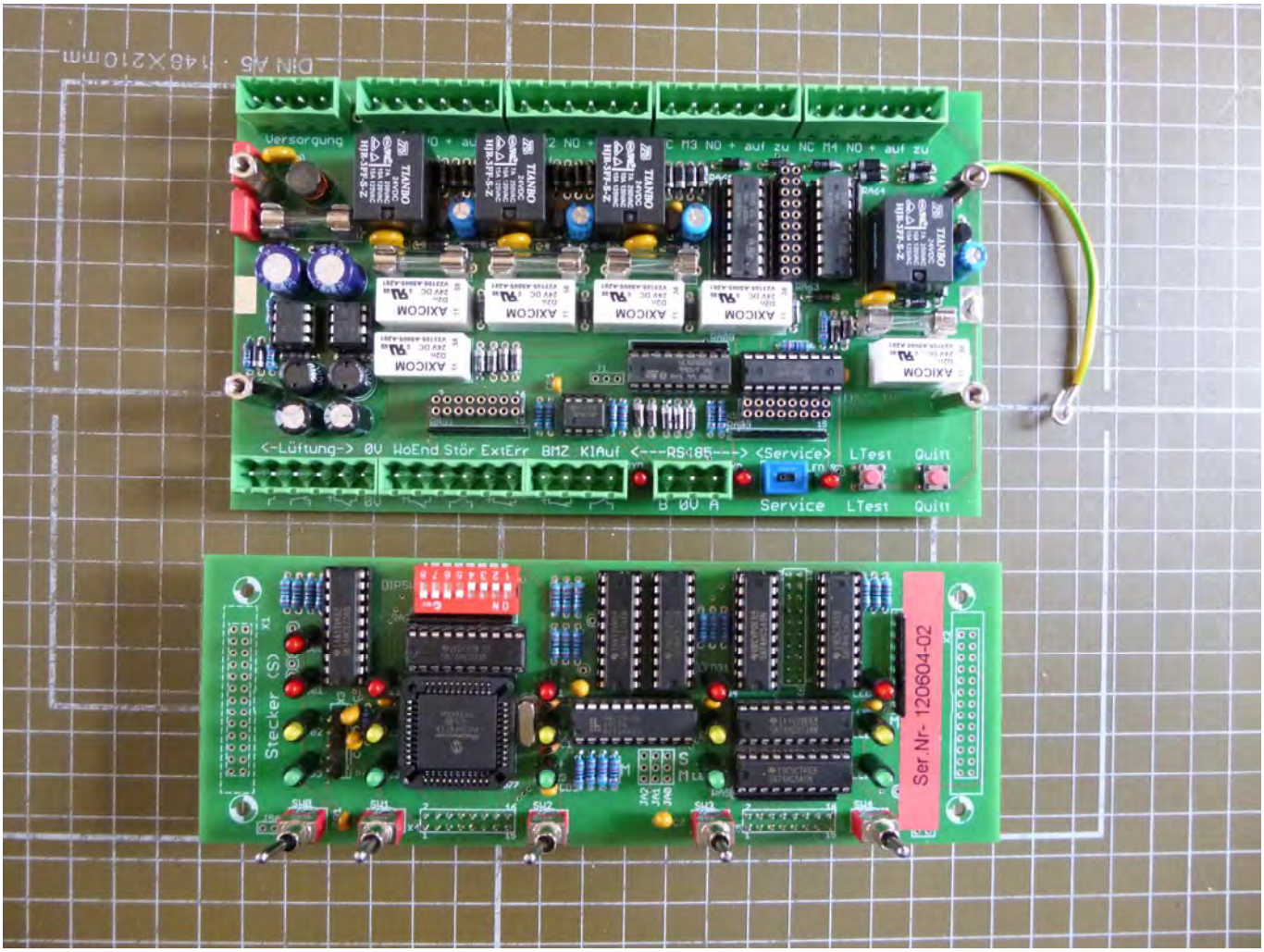
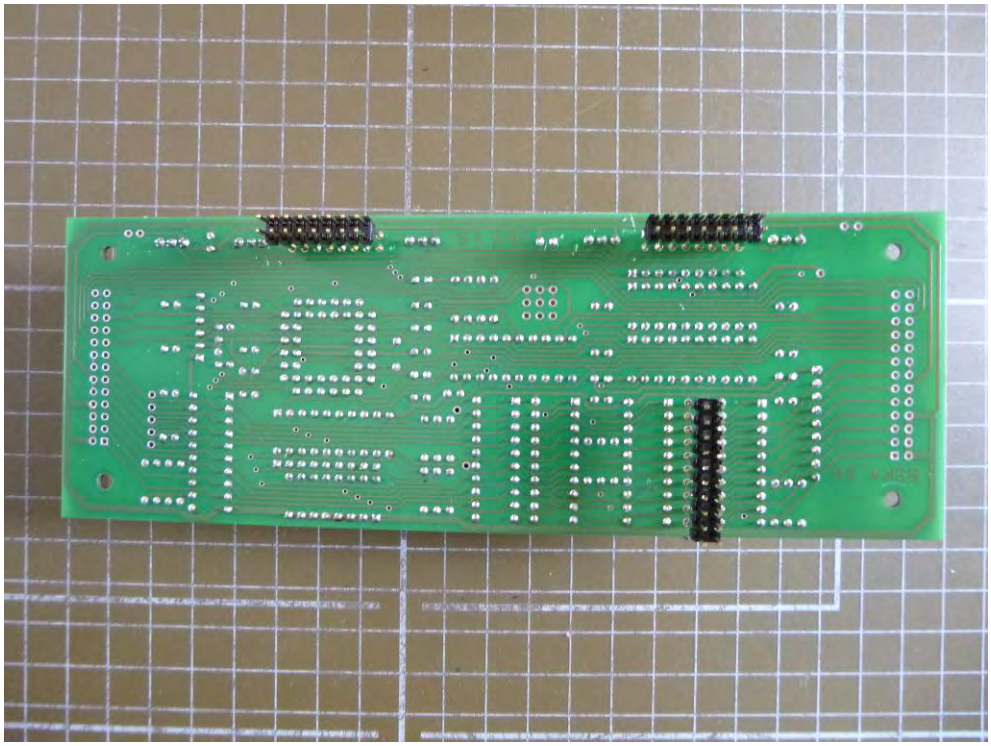
Photographs of the equipment are to be provided as part of the test report.

5. The equipment (ONLY AFTER TYPE TESTING IS COMPLETED) shall be opened and photographs of the internal construction shall be made (upper side).



Photographs of the equipment are to be provided as part of the test report.

6. The equipment (ONLY AFTER TYPE TESTING IS COMPLETED) shall be opened and photographs of the internal construction shall be made (lower side).



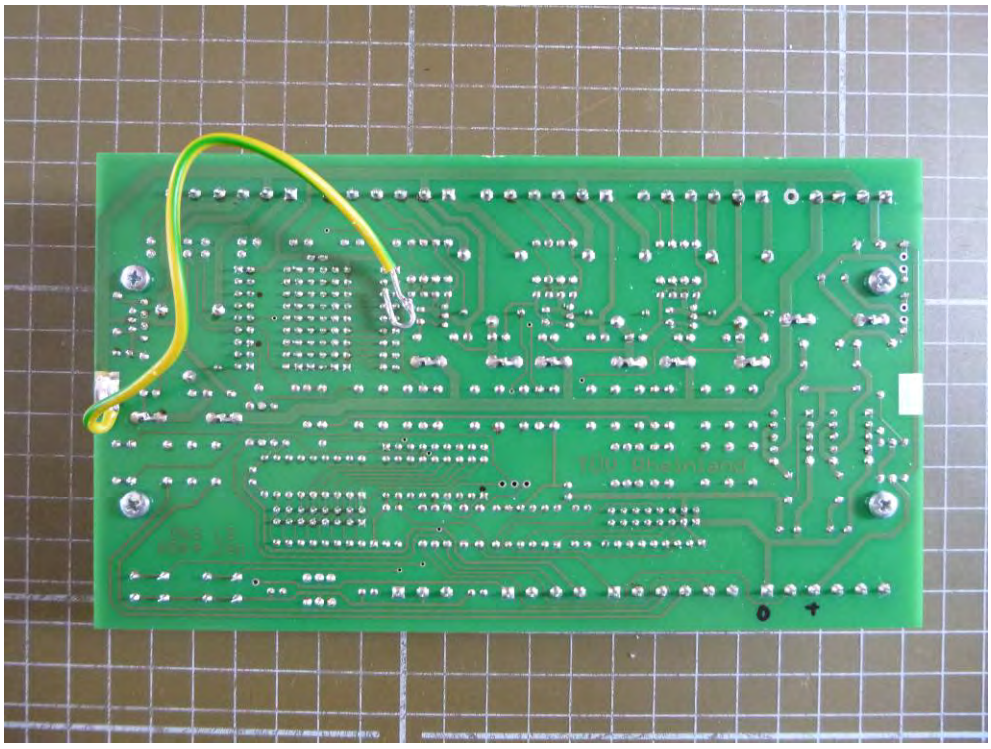


Photo to the test: ESD, air discharge
Discharge points

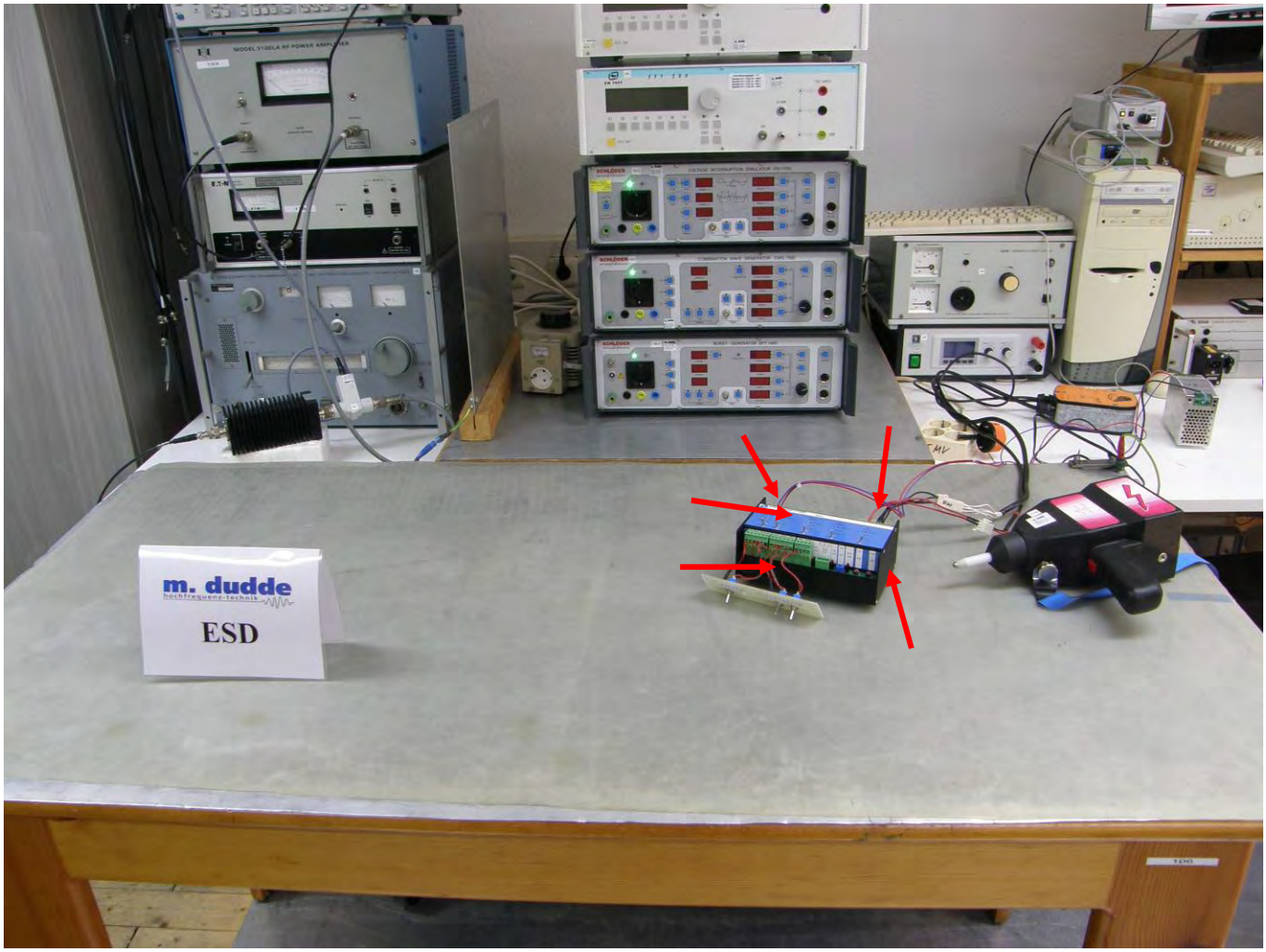
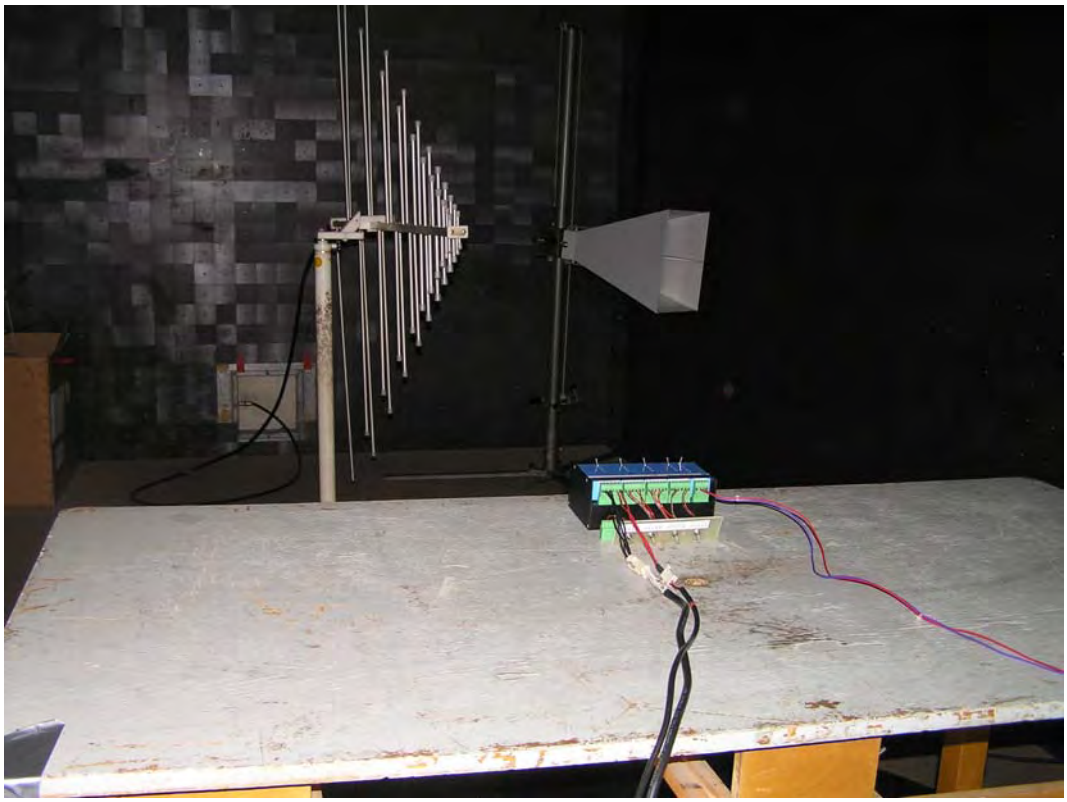
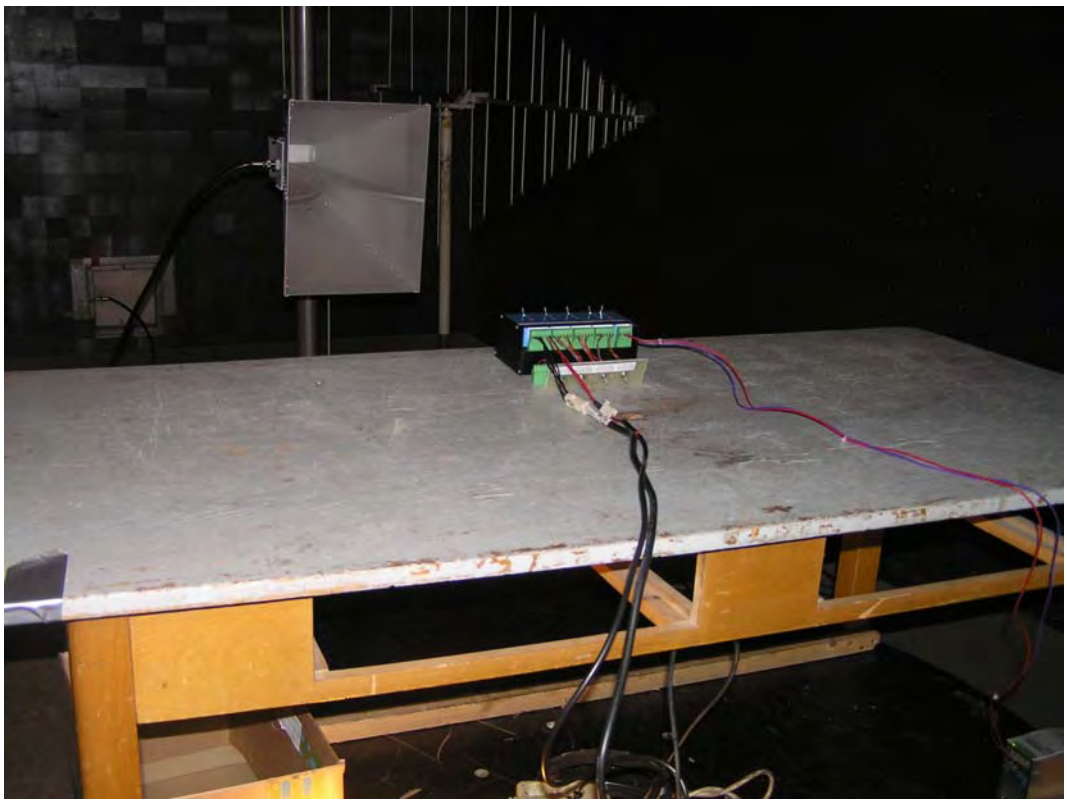


Photo to the test: ESD, contact discharge
→ Discharge points

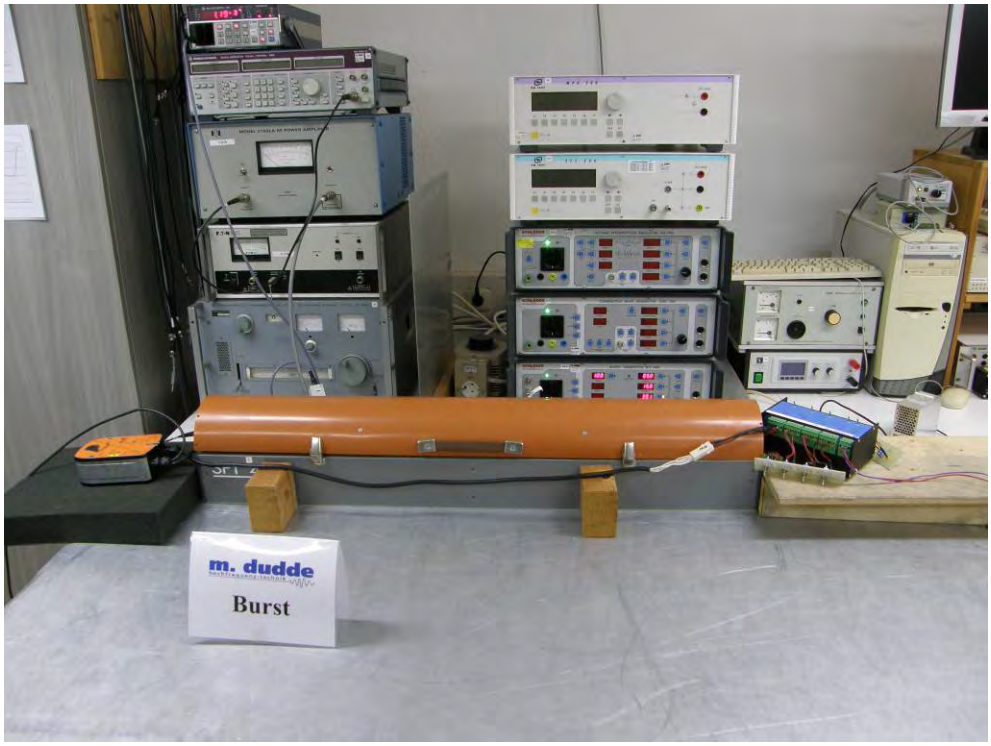
Photos to the test: Electromagnetic fields





Photos to the test: Input/Output Ports - Fast transients

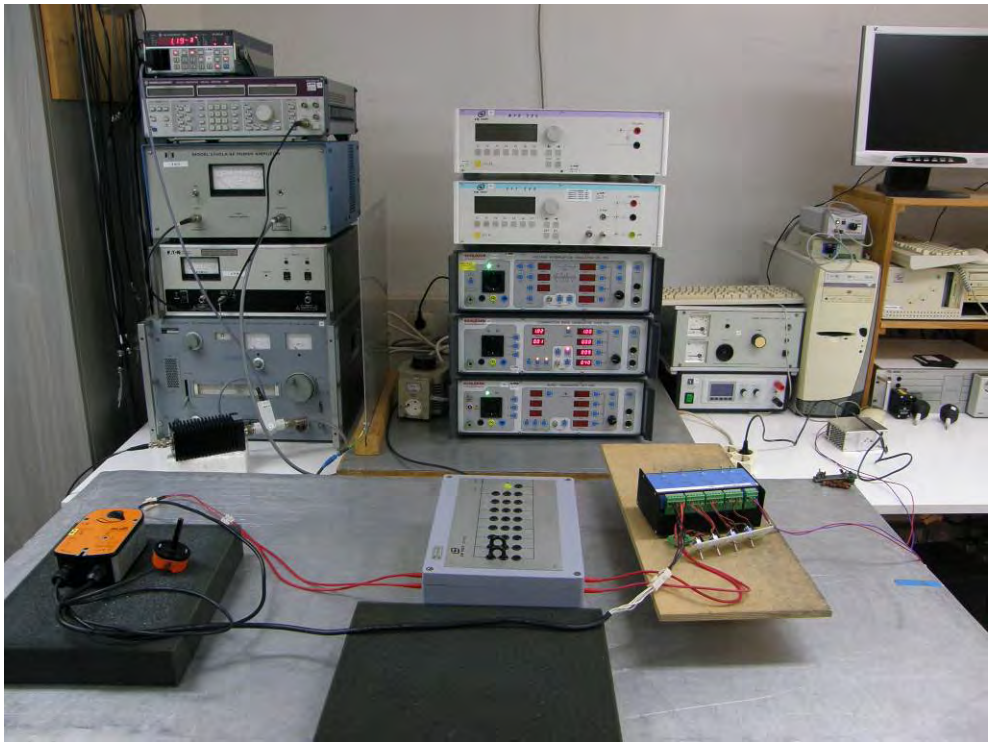
Port 1



Port 2

Photos to the test: Surge voltages

Port 1



Port 2

Photos to the test: Conducted RF signals

Port 1

Port 2

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Photo to the test: Radiated emissions

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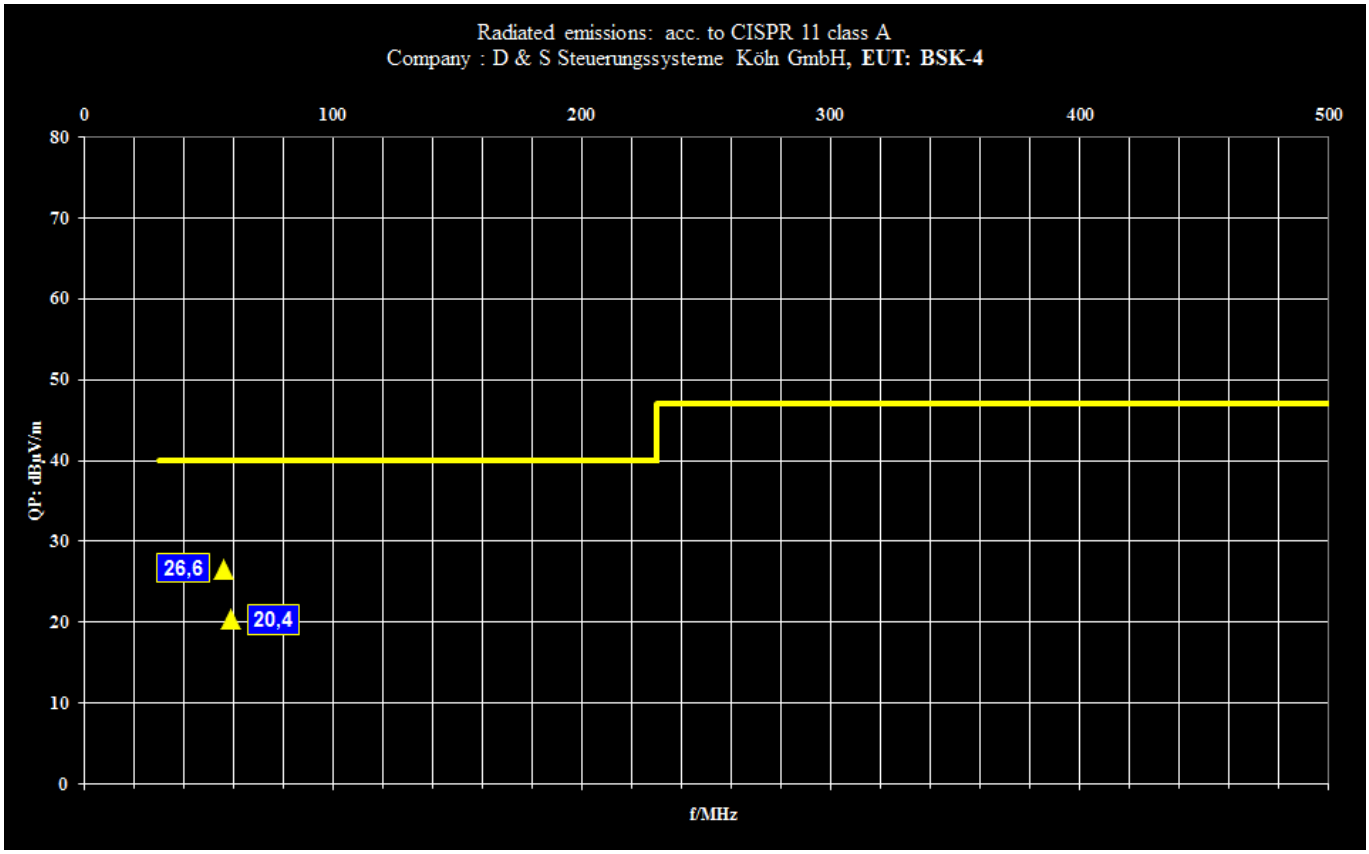
Test report reference: EN 61326-1:2006
EUT: BKS-4

Date of issue: 2012-09-11

Test results: Radiated emissions



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End of test report

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