Test report **2010-2784-4210-REN**

Date of issue: December 10, 2010
Number of pages: 31

Prepared for: **Barix GmbH**
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Equipment under test:
Name: **IP amplifier (poe)**
Model: **Exstreamer P5**
Manufacturer: Barix GmbH

The test specimen has been modified during compliance testing.

Date of tests: 12/02/2010 - 12/03/2010

Test specifications:
Emission: EN 55022:2006-09+A1:2007-10 (Limit class: B)
Immunity: EN 55024:1998-09+A1:2001-10+A2:2003-10

Test summary:

Emission	**Tested port**	**Limit class**	**Result**
Conducted emissions at signal & telecommunication lines 150 kHz - 30 MHz	LAN	B	Passed
Radiated emissions - electromagnetic fields 30 MHz - 1000 MHz	Enclosure	B	Passed

Immunity to ...	**Tested port**	**Test level**	**Crit.**	**Result**
Electrostatic discharge (ESD)	Enclosure	Air: 8 kV Cont.: 4 kV	B B	Passed
Electromagnetic fields 80 MHz - 1000 MHz (AM)	Enclosure	3 V/m	A	Passed
Electrical fast transients (Burst)	all	1 kV	A	Passed
Surge	LAN	1 kV	A	Passed
Conducted RF disturbances 150 kHz - 80 MHz (AM)	See inside test report	3 V	A	Passed

Testing location:
ELMAC GmbH
Boschstraße 2
D-71149 Bondorf

Phone: ++49(0)7457-9441-0
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WWW: http://www.elmac.de/
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Deutscher Akkreditierungs Rat
Reg.-Nr.: DGA-PL-206/05-00

Tested by: December 10, 2010
C. Eisen Date

Verified by: December 10, 2010
J. Bühne Date

Content

2. Test specifications

Emission

Document No.	Title	Limit class
EN 55022:2006-09+A1:2007-10 IEC/CISPR 22:2005 DIN EN 55022:2008-05	Information technology equipment; Radio disturbance characteristics; Limits and methods of measurement	B

Immunity

Document No.	Title	Severity level
EN 55024:1998-09+A1:2001-10+A2:2003-10 IEC/CISPR 24:1997, modifiziert+A1:2001+A2:2002 DIN EN 55024:2003-10	Information technology equipment - Immunity characteristics - Limits and methods of measurement	

emvID: 3435

3. Equipment Under Test (EUT)

Name	**IP amplifier (poe)**			
Model	**Exstreamer P5**			
S/N	MAC 00-08-E1-01-07-01			
Manufacturer	Barix GmbH			
Kind/Type of EUT	IP amplifier for loudspeaker			
Day of receipt	12/03/2010			
Kind of EUT handling	Plug-in	During the tests: As table top equipment		
Base unit covering the EUT	-			
Accessories (Part of the EUT)	-			
Support equipment (Not part of the EUT)	-			
Connected cables and lines	Ethernet (with poe) RS485 (RJ45) loud speaker	8-wire 2-wire	shielded shielded unshielded	 <10m <10m
Power supply	Other (see remarks)			
Class of protection against electrical shock	III (SELV)			
Modification:	4.7µH common mode choke			
Remarks	poe			

eutID: 4210

Tested operation modes

Emission	**Immunity**	**Test criteria**
streaming 5W	SNR reference 1kHz, 5W	A: SNR max. -50dB
	zero stream	A: no tone audible
	1kHz stream	A: no change of loudness
Remarks:		

4. General Test Conditions

4.1. Environment conditions

If not stated otherwise in this test report the tests have been carried out under the following environment conditions:

Temperature:	15 ... 35 °C
Relative Humidity:	30 ... 60 %
Atmospheric pressure:	860 ... 1060 hPa

4.2. Calibration of test equipment

All test equipment having an important influence on the certainty of the test results is incorporated into a system of regular calibration and maintenance. The calibration system is a part of ELMAC's quality management system.

4.3. Measurement uncertainty

All EMC tests have a measurement uncertainty. The measurement uncertainty is a parameter related to a quantitative testing characterizing the range of values that with a certain probability still can be assigned to the result. Commonly the measurement uncertainty is given so, that the named probability is 95 %.

In this Test Report, the measurement uncertainties are stated at each Emission test.

The measurement uncertainties for Immunity tests are available on request.

4.4. Perfomance criteria

If no other performance criteria specified in the standards listed in section 2. The performance criteria of EN 61326:1997 + A1:1998+A2:2001 section 6.5 are applied.

5. Test Results

See next pages.

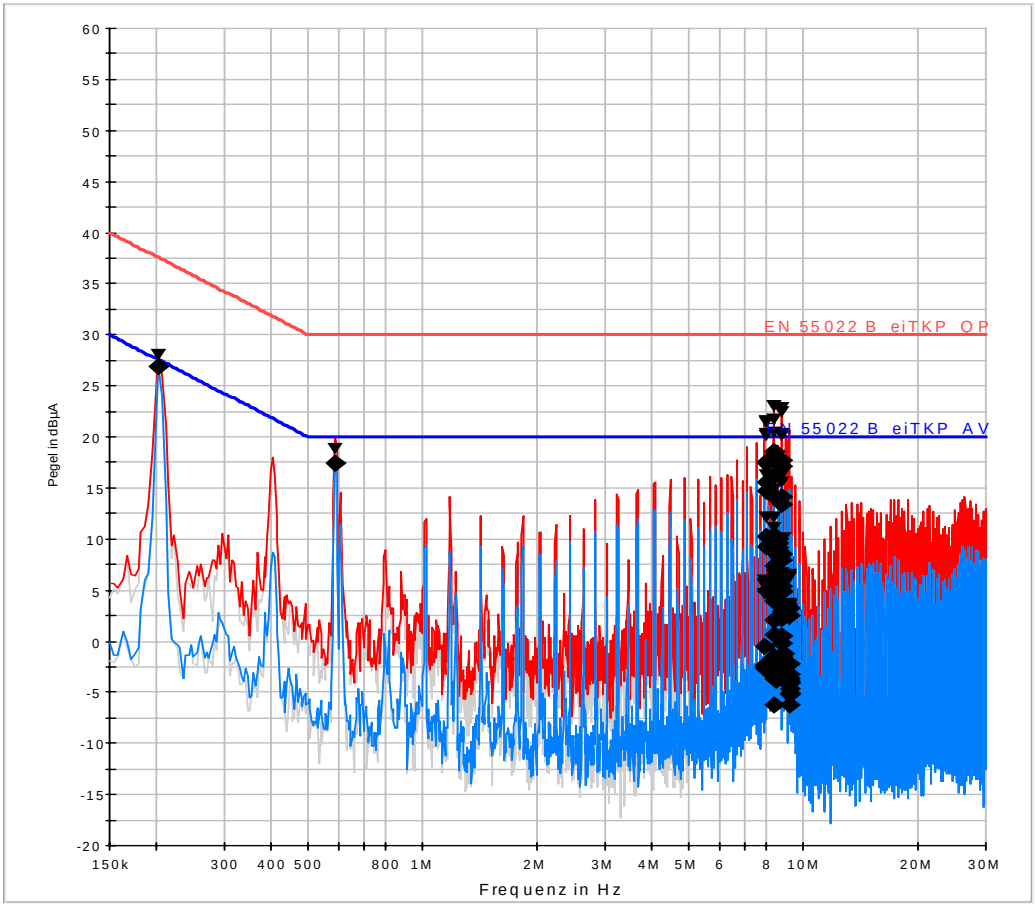
5.1. Conducted emissions at signal & telecommunication lines 150 kHz - 30 MHz

euSigID: 423

EUT:	IP amplifier (poe) Exstreamer P5	Kind of test:	Emission
		Basic standard:	EN 55022:2006-09+A1:2007-10
Operation mode:	streaming 5W	Measurement uncer-tainty:	2.3 dB
Port:	LAN	Environment:	Temp. 24 °C
			Humidity 18 %
Date of test:	12/03/2010		Atm. press. 956 hPa
Tested by:	CE	EUT modified:	Yes
Measured quantity:	Interference current	**Result:**	**Passed**
Limit class:	B		
Remarks:			

PEAK Detection - Interference current

ESCI3 eiSig PCL25 EN55022 B



Test equipment used					
Name	Model	Manufacturer	S/N	INV	Remarks
Current Clamp	PCL-25	Fairchild	215	310	
EMI TEST RECEIVER	ESCI3	R&S	101070	450	

ad 5.1. Conducted emissions at signal & telecommunication lines 150 kHz - 30 MHz

- Continuation -

euSigID: 423

EUT:	IP amplifier (poe) Exstreamer P5		
Operation mode:	streaming 5W		

QUASI-PEAK Detection - Interference current

Frequency(MHz)	QuasiPeak(dBµA)	Time(ms)	Margin(dB)	Limit(dBµA)
0.202000	28.1	1000.0	9.4	37.5
0.586000	18.9	1000.0	11.1	30.0
7.894000	5.5	1000.0	24.5	30.0
7.898000	6.0	1000.0	24.0	30.0
7.902000	4.7	1000.0	25.3	30.0
7.906000	5.7	1000.0	24.3	30.0
7.910000	12.1	1000.0	17.9	30.0
7.914000	16.9	1000.0	13.1	30.0
7.918000	20.3	1000.0	9.7	30.0
7.922000	21.4	1000.0	8.6	30.0
7.926000	21.5	1000.0	8.5	30.0
7.930000	20.2	1000.0	9.8	30.0
7.934000	16.3	1000.0	13.7	30.0
8.294000	5.2	1000.0	24.8	30.0
8.298000	5.2	1000.0	24.8	30.0
8.302000	5.7	1000.0	24.3	30.0
8.306000	6.4	1000.0	23.6	30.0
8.310000	6.4	1000.0	23.6	30.0
8.314000	5.1	1000.0	24.9	30.0
8.318000	6.6	1000.0	23.4	30.0
8.322000	9.0	1000.0	21.0	30.0
8.326000	6.6	1000.0	23.4	30.0
8.330000	6.1	1000.0	23.9	30.0
8.334000	12.1	1000.0	17.9	30.0
8.338000	17.5	1000.0	12.5	30.0
8.342000	21.7	1000.0	8.3	30.0
8.346000	23.0	1000.0	7.0	30.0
8.350000	23.0	1000.0	7.0	30.0
8.354000	20.5	1000.0	9.5	30.0
8.358000	14.9	1000.0	15.1	30.0
8.362000	11.2	1000.0	18.8	30.0
8.366000	5.6	1000.0	24.4	30.0
8.370000	5.9	1000.0	24.1	30.0
8.374000	6.3	1000.0	23.7	30.0
8.378000	8.1	1000.0	21.9	30.0
8.382000	9.8	1000.0	20.2	30.0
8.386000	6.0	1000.0	24.0	30.0
8.390000	4.8	1000.0	25.2	30.0
8.394000	5.2	1000.0	24.8	30.0
8.398000	5.3	1000.0	24.7	30.0
8.402000	5.3	1000.0	24.7	30.0
8.698000	6.1	1000.0	23.9	30.0
8.702000	5.3	1000.0	24.7	30.0
8.706000	5.2	1000.0	24.8	30.0
8.710000	5.7	1000.0	24.3	30.0
8.714000	6.7	1000.0	23.3	30.0
8.718000	9.6	1000.0	20.4	30.0
8.722000	7.7	1000.0	22.3	30.0
8.726000	5.6	1000.0	24.4	30.0
8.730000	5.5	1000.0	24.5	30.0
8.734000	5.1	1000.0	24.9	30.0
8.738000	5.1	1000.0	24.9	30.0
8.742000	5.4	1000.0	24.6	30.0
8.746000	5.5	1000.0	24.5	30.0
8.750000	8.6	1000.0	21.4	30.0
8.754000	9.1	1000.0	20.9	30.0
8.758000	5.5	1000.0	24.5	30.0
8.762000	8.4	1000.0	21.6	30.0
8.766000	15.6	1000.0	14.4	30.0
8.770000	20.3	1000.0	9.7	30.0
8.774000	22.4	1000.0	7.6	30.0
8.778000	22.9	1000.0	7.1	30.0
8.782000	20.1	1000.0	9.9	30.0
8.786000	16.3	1000.0	13.7	30.0
8.790000	10.1	1000.0	19.9	30.0
8.794000	6.1	1000.0	23.9	30.0
8.798000	6.6	1000.0	23.4	30.0
9.106000	3.7	1000.0	26.3	30.0
9.110000	3.5	1000.0	26.5	30.0
9.114000	3.1	1000.0	26.9	30.0
9.118000	3.5	1000.0	26.5	30.0

ad 5.1. Conducted emissions at signal & telecommunication lines 150 kHz - 30 MHz

- Continuation -

euSigID: 423

EUT:	IP amplifier (poe) Exstreamer P5		
Operation mode:	streaming 5W		

QUASI-PEAK Detection - Interference current

Frequency(MHz)	QuasiPeak(dBµA)	Time(ms)	Margin(dB)	Limit(dBµA)
9.122000	6.6	1000.0	23.4	30.0
9.126000	6.2	1000.0	23.8	30.0
9.130000	3.5	1000.0	26.5	30.0
9.134000	2.9	1000.0	27.1	30.0
9.138000	2.6	1000.0	27.4	30.0
9.142000	3.1	1000.0	26.9	30.0
9.146000	3.3	1000.0	26.7	30.0
9.150000	2.5	1000.0	27.5	30.0
9.154000	2.1	1000.0	27.9	30.0

AVERAGE Detection - Interference current

Frequency(MHz)	CAverage(dBµA)	Time(ms)	Margin(dB)	Limit(dBµA)
0.202000	26.9	1000.0	0.6	27.5
0.586000	17.5	1000.0	2.5	20.0
7.894000	-2.6	1000.0	22.6	20.0
7.898000	-2.4	1000.0	22.4	20.0
7.902000	-2.7	1000.0	22.7	20.0
7.906000	-0.5	1000.0	20.5	20.0
7.910000	4.9	1000.0	15.1	20.0
7.914000	10.2	1000.0	9.8	20.0
7.918000	15.5	1000.0	4.5	20.0
7.922000	17.4	1000.0	2.6	20.0
7.926000	17.5	1000.0	2.5	20.0
7.930000	14.7	1000.0	5.3	20.0
7.934000	9.3	1000.0	10.7	20.0
8.294000	-3.6	1000.0	23.6	20.0
8.298000	-3.6	1000.0	23.6	20.0
8.302000	-3.2	1000.0	23.2	20.0
8.306000	-2.6	1000.0	22.6	20.0
8.310000	-2.7	1000.0	22.7	20.0
8.314000	-2.7	1000.0	22.7	20.0
8.318000	2.0	1000.0	18.0	20.0
8.322000	4.6	1000.0	15.4	20.0
8.326000	0.7	1000.0	19.3	20.0
8.330000	-6.3	1000.0	26.3	20.0
8.334000	5.2	1000.0	14.8	20.0
8.338000	10.3	1000.0	9.7	20.0
8.342000	16.3	1000.0	3.7	20.0
8.346000	18.6	1000.0	1.4	20.0
8.350000	18.5	1000.0	1.5	20.0
8.354000	14.1	1000.0	5.9	20.0
8.358000	7.4	1000.0	12.6	20.0
8.362000	4.0	1000.0	16.0	20.0
8.366000	-1.5	1000.0	21.5	20.0
8.370000	-2.2	1000.0	22.2	20.0
8.374000	-1.5	1000.0	21.5	20.0
8.378000	3.9	1000.0	16.1	20.0
8.382000	6.2	1000.0	13.8	20.0
8.386000	2.3	1000.0	17.7	20.0
8.390000	-3.8	1000.0	23.8	20.0
8.394000	-3.8	1000.0	23.8	20.0
8.398000	-3.7	1000.0	23.7	20.0
8.402000	-3.7	1000.0	23.7	20.0
8.698000	0.5	1000.0	19.5	20.0
8.702000	-3.0	1000.0	23.0	20.0
8.706000	-3.1	1000.0	23.1	20.0
8.710000	-2.7	1000.0	22.7	20.0
8.714000	0.6	1000.0	19.4	20.0
8.718000	5.0	1000.0	15.0	20.0
8.722000	2.9	1000.0	17.1	20.0
8.726000	-2.1	1000.0	22.1	20.0
8.730000	-3.0	1000.0	23.0	20.0
8.734000	-3.6	1000.0	23.6	20.0
8.738000	-3.6	1000.0	23.6	20.0
8.742000	-3.5	1000.0	23.5	20.0

ad 5.1. Conducted emissions at signal & telecommunication lines 150 kHz - 30 MHz

- Continuation -

euSigID: 423

EUT:	IP amplifier (poe) Exstreamer P5		
Operation mode:	streaming 5W		

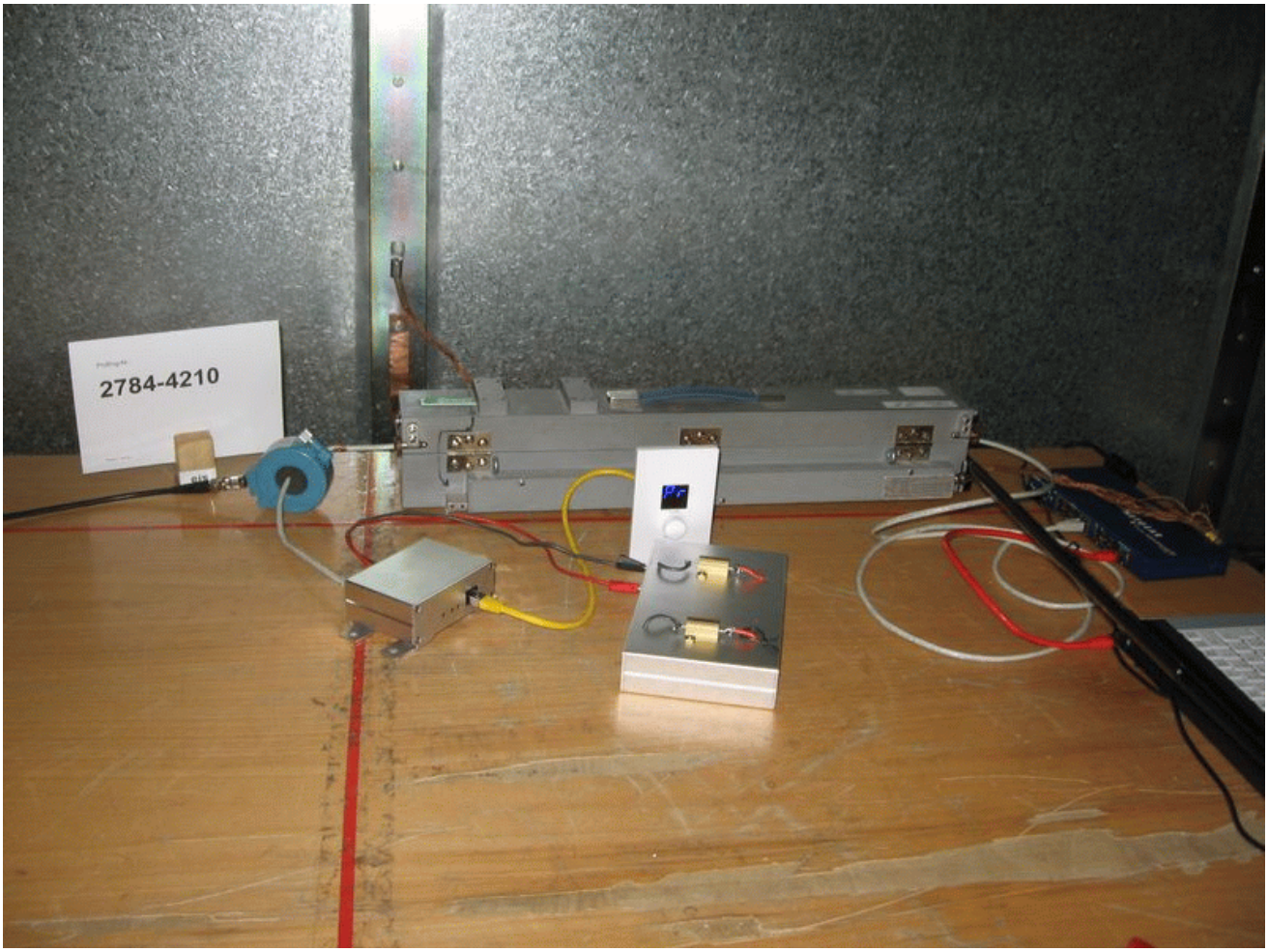
AVERAGE Detection - Interference current

Frequency(MHz)	CAverage(dBµA)	Time(ms)	Margin(dB)	Limit(dBµA)
8.746000	-1.6	1000.0	21.6	20.0
8.750000	4.8	1000.0	15.2	20.0
8.754000	5.3	1000.0	14.7	20.0
8.758000	-0.3	1000.0	20.3	20.0
8.762000	2.3	1000.0	17.7	20.0
8.766000	8.0	1000.0	12.0	20.0
8.770000	14.1	1000.0	5.9	20.0
8.774000	17.2	1000.0	2.8	20.0
8.778000	17.8	1000.0	2.2	20.0
8.782000	13.3	1000.0	6.7	20.0
8.786000	8.5	1000.0	11.5	20.0
8.790000	2.8	1000.0	17.2	20.0
8.794000	-1.2	1000.0	21.2	20.0
8.798000	-2.0	1000.0	22.0	20.0
9.106000	-3.9	1000.0	23.9	20.0
9.110000	-4.0	1000.0	24.0	20.0
9.114000	-4.1	1000.0	24.1	20.0
9.118000	-2.2	1000.0	22.2	20.0
9.122000	3.2	1000.0	16.8	20.0
9.126000	2.4	1000.0	17.6	20.0
9.130000	-3.2	1000.0	23.2	20.0
9.134000	-5.1	1000.0	25.1	20.0
9.138000	-5.2	1000.0	25.2	20.0
9.142000	-4.7	1000.0	24.7	20.0
9.146000	-3.7	1000.0	23.7	20.0
9.150000	-5.1	1000.0	25.1	20.0
9.154000	-6.2	1000.0	26.2	20.0

ad 5.1. Conducted emissions at signal & telecommunication lines 150 kHz - 30 MHz

euSigID: 423

EUT:	IP amplifier (poe) Exstreamer P5		



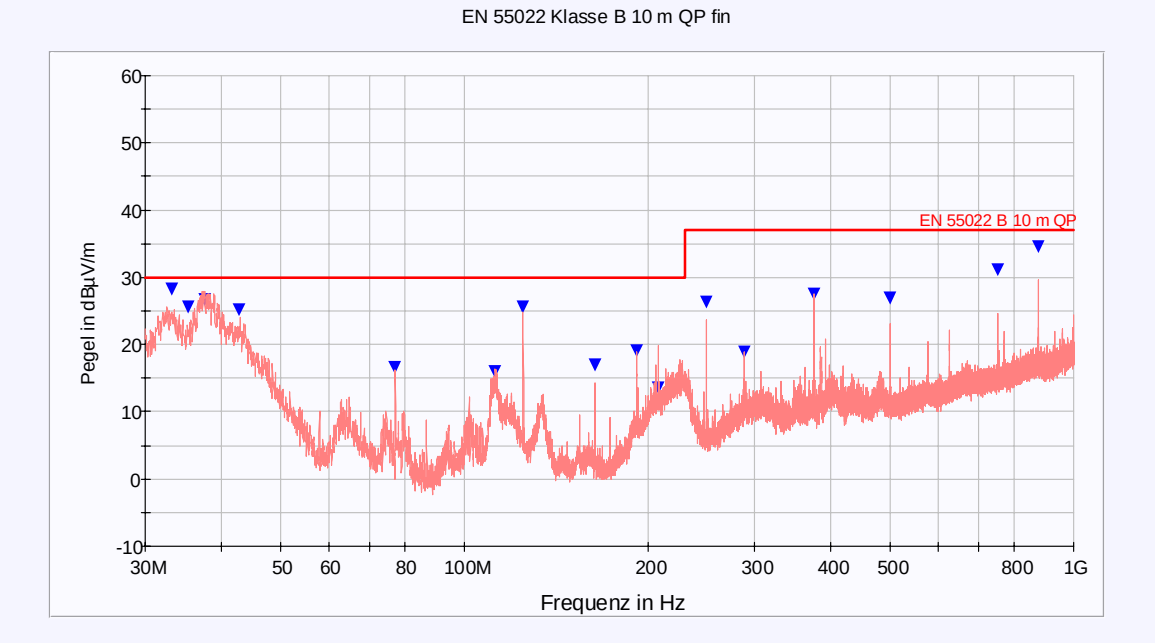
EuSig-1.jpg

5.2. Radiated emissions - electromagn. fields 30 MHz - 1000 MHz

eeID: 4435

EUT:	IP amplifier (poe) Exstreamer P5	Kind of test:	Emission
		Generic standard:	EN 55022:2006-09+A1:2007-10
Operation mode:	streaming 5W	Measurement uncer-tainty:	4.5 dB
Port:	Enclosure	Environment:	Temp. 24 °C
			Humidity 18 %
Date of test:	12/03/2010		Atm. press. 956 hPa
Tested by:	CE		
Prescan:	Done		
Final test:	Done		
Test site (final):	Open Area Test Site (OATS)	EUT modified:	No
Antenna distance:	10 m	**Result:**	**Passed**
Limit class:	B		
Remarks:			

QUASI-PEAK Detection



Test equipment used					
Name	Model	Manufacturer	S/N	INV	Remarks
BiConiLog Antenna	3141	EMCO	9806-1102	357	
EMI TEST RECEIVER	ESCI3	R&S	100901	422	

ad 5.2. Radiated emissions - electromagn. fields 30 MHz - 1000 MHz

- Continuation -

eeID: 4435

EUT:	IP amplifier (poe) Exstreamer P5		
Operation mode:			

QUASI-PEAK Detection

Frequency(MHz)	QuasiPeak(dBµV/m)	Antenna(cm)	Polarisation	Table(deg)	Margin(dB)	Limit(dBµV/m)
33.120000	28.3	98.0	V	90.0	1.7	30.0
35.320000	25.7	98.0	V	90.0	4.3	30.0
37.520000	26.7	98.0	V	90.0	3.3	30.0
42.760000	25.2	98.0	V	90.0	4.8	30.0
77.160000	16.6	98.0	V	90.0	13.4	30.0
112.600000	15.9	98.0	V	90.0	14.1	30.0
125.040000	25.6	98.0	V	90.0	4.4	30.0
164.160000	16.9	98.0	V	90.0	13.1	30.0
192.000000	19.1	398.0	V	90.0	10.9	30.0
208.040000	13.4	398.0	V	90.0	16.6	30.0
250.080000	26.3	377.0	H	90.0	10.7	37.0
288.040000	18.8	373.0	H	90.0	18.2	37.0
375.000000	27.5	138.0	H	90.0	9.5	37.0
500.000000	26.9	102.0	H	90.0	10.1	37.0
750.000000	31.1	102.0	H	90.0	5.9	37.0
875.000000	34.6	102.0	H	90.0	2.4	37.0

ad 5.2. Radiated emissions - electromagn. fields 30 MHz - 1000 MHz

eeID: 4435

EUT:	IP amplifier (poe) Exstreamer P5		

Ee-1.jpg

5.3. Electrostatic discharge (ESD)

idID: 2248

EUT:	IP amplifier (poe) Exstreamer P5	Kind of test: Basic standard:	Immunity EN 61000-4-2:2009
Operation mode:	SNR reference 1kHz, 5W		
Tested Port:	Enclosure	Environment:	Temp. 22 °C Humidity 30 %
			Atm. press. 956 hPa
Date of test:	12/03/2010		
Tested by:	CE	EUT modified:	No
Required performance criterion	B	**Result:**	**Passed**
Remarks:			

Kind of discharge	Kind of coupling	Done	Test points of EUT	Max. test voltage (kV)	Passed Performance criterion	Remarks
Air	Direct	✔	see fotos	8	B	Reset, original operation mode recovered
Contact	Direct	✔	see fotos	4	B	Reset, original operation mode recovered
	Indirect	✔	HKP: ✔ VKP: ✔	4	A	

Notes:

HKP = Horizontal coupling plate
VKP = Vertical coupling plate

At each test voltage at least 50 positive test pulses with a time interval of 1 s and 50 negative test pulses with a time interval of 1 s were carried out.

Test equipment used

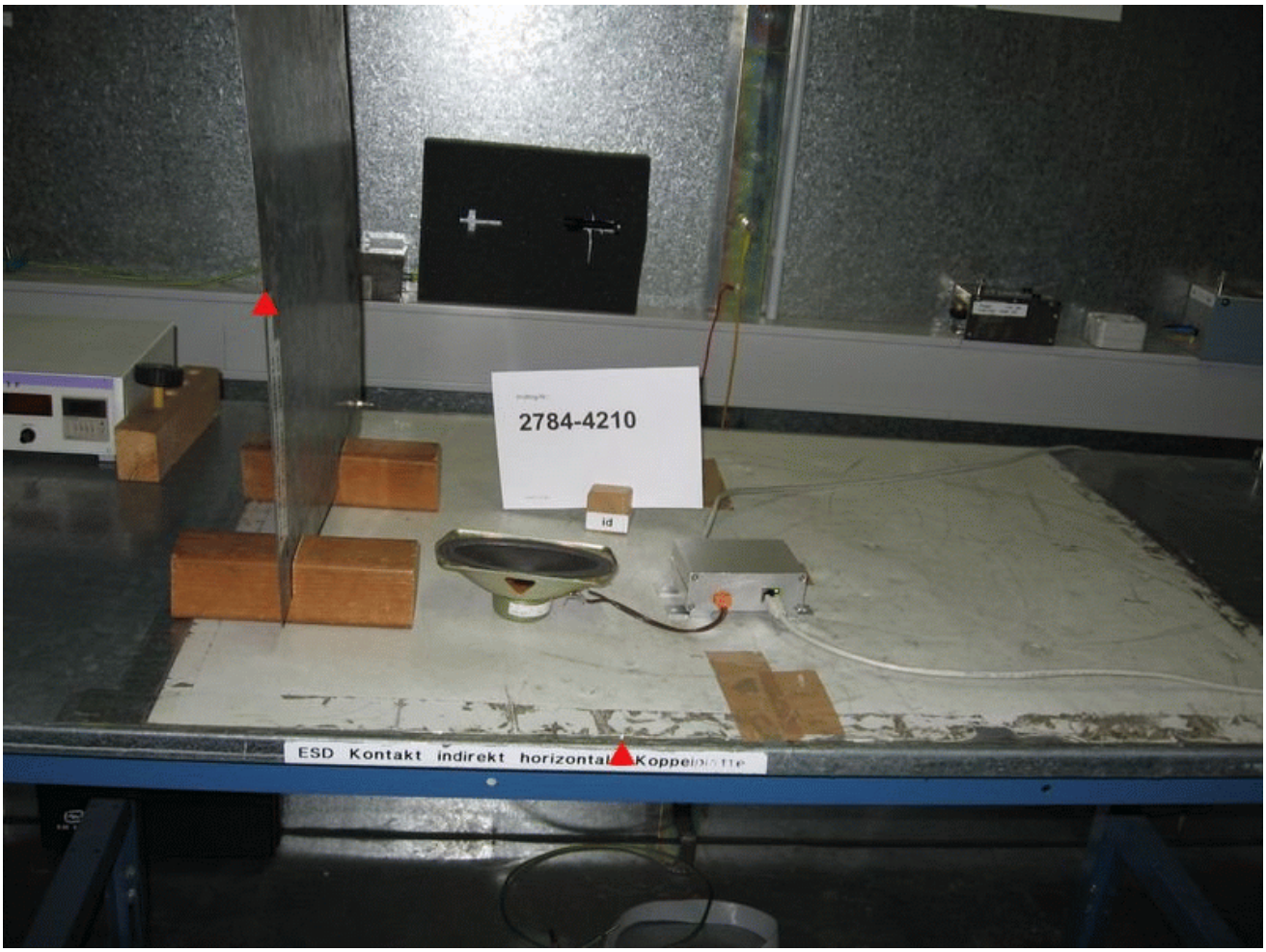
Name	Model	Manufacturer	S/N	INV	Remarks
ESD Generator	NSG 435	Schaffner	222	182	

ad 5.3. Electrostatic discharge (ESD)

idID: 2248

EUT:	IP amplifier (poe) Exstreamer P5		

● Air discharge ▲ Contact discharge



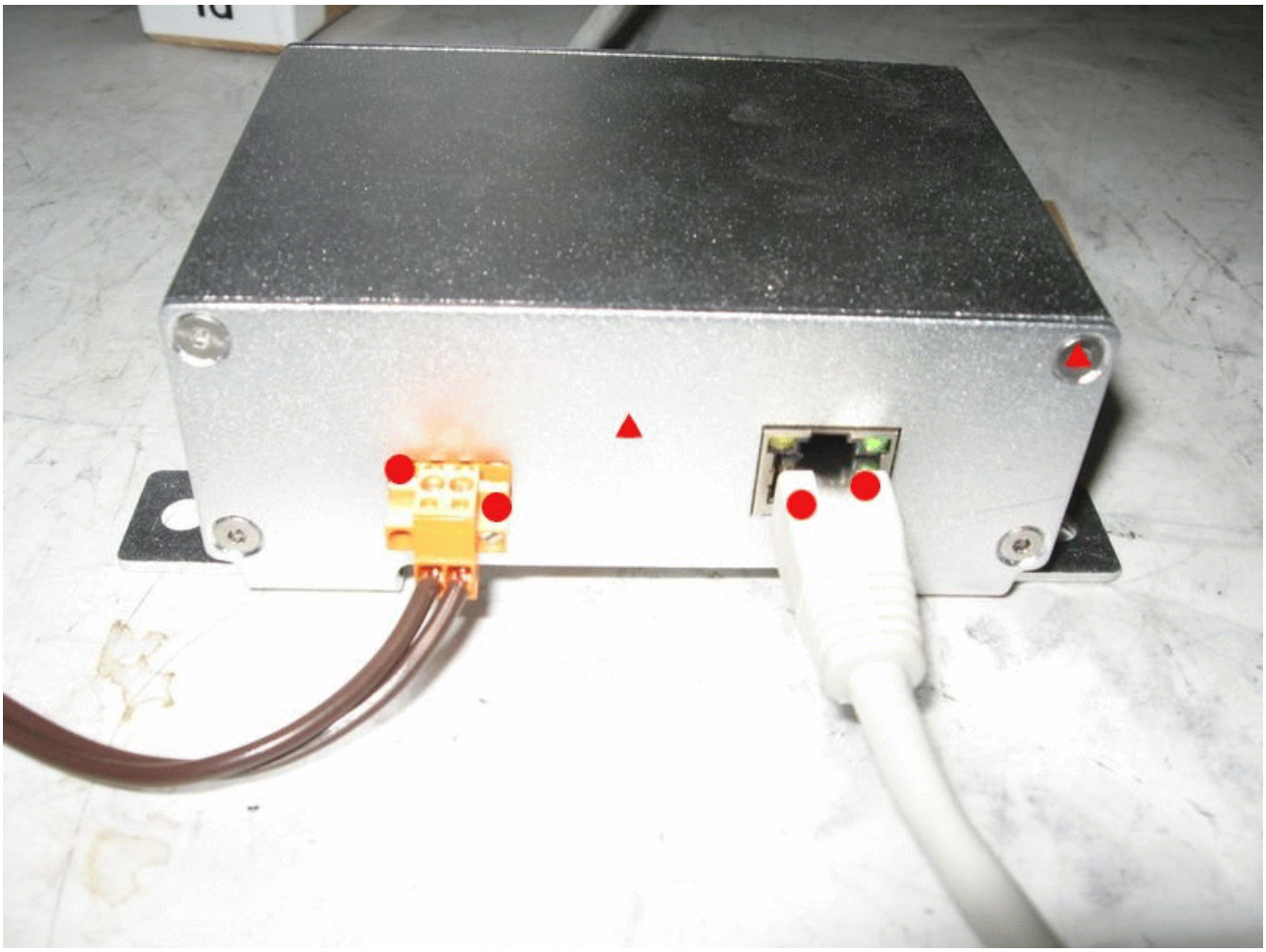
Id-1.jpg

ad 5.3. Electrostatic discharge (ESD)

idID: 2248

EUT:	IP amplifier (poe) Exstreamer P5		

● Air discharge ▲ Contact discharge



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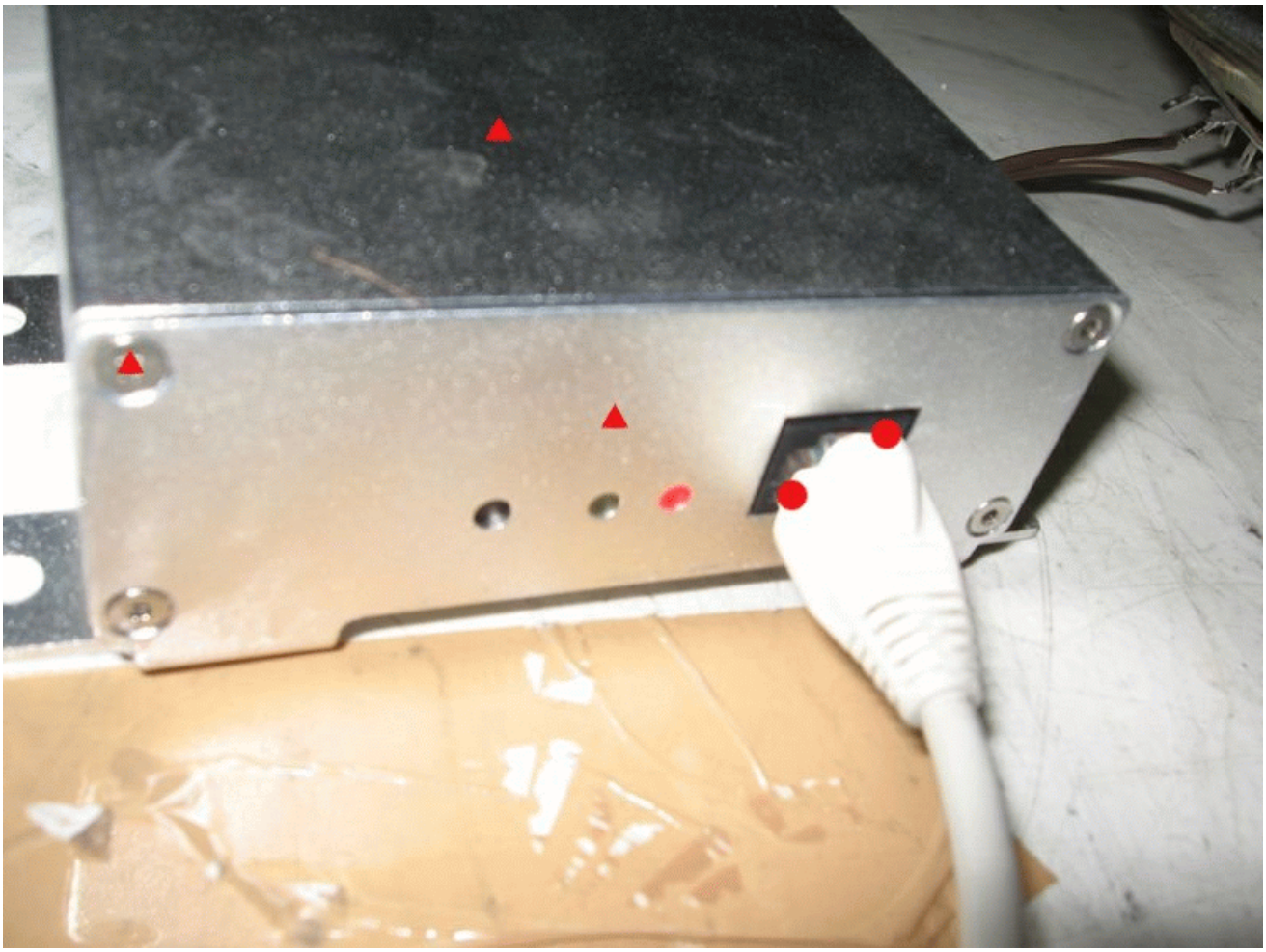
ad 5.3. Electrostatic discharge (ESD)

idID: 2248

EUT:	IP amplifier (poe) Exstreamer P5		

● Air discharge ▲ Contact discharge



Id-3.jpg

5.4. Radio-frequency electromagnetic fields 80 MHz - 1000 MHz

ifID: 3690

EUT:	IP amplifier (poe) Exstreamer P5	Kind of test:	Immunity
		Basic standard:	EN 61000-4-3:2006+A1:2008
Operation mode:	SNR reference 1kHz, 5W		
Port:	Enclosure	Environment:	Temp. 24 °C
Test site:	Fully Anechoic Chamber		Humidity 18 %
Date of test:	12/03/2010		Atm. press. 956 hPa
Tested by:	CE	EUT modified:	No
Required performance criterion:	A	**Result:**	**Passed**
Remarks:			

Test parameters	**Settings**	
	Amplitude-modulated Field	**Puls-modulated Field**
Frequency range	80 MHz - 1000 MHz	
Frequency step Dwell time	1 % 1 s	
Modulation	1 kHz/AM 80%	
Test level (field strength)	3 V/m	
Polarization	horizontal + vertical	
Distance transmitting antenna - EUT	3 m (> 1GHz 1m)	
Tested sides of the EUT	front, rear	
Result		
Passed Performance criterion	A	
Remarks		

Test equipment used					
Name	Model	Manufacturer	S/N	INV	Remarks
Signal Generator	SML03	R&S	100935	353	
Power Amplifier	100W1000M1	Ampl. Res.	12812	45	
Power Amplifier	5101F	OPHIR	1006 "N/C"	296	
BiLog Antenna	CBL6140A	Schaffner	1118	219	
Double Ridged Guide Antenna	3115	EMCO	9607-4883	156	

ad 5.4. Radio-frequency electromagnetic fields 80 MHz - 1000 MHz

ifID: 3690

EUT:	IP amplifier (poe) Exstreamer P5		

If-1.jpg

ad 5.4. Radio-frequency electromagnetic fields 80 MHz - 1000 MHz

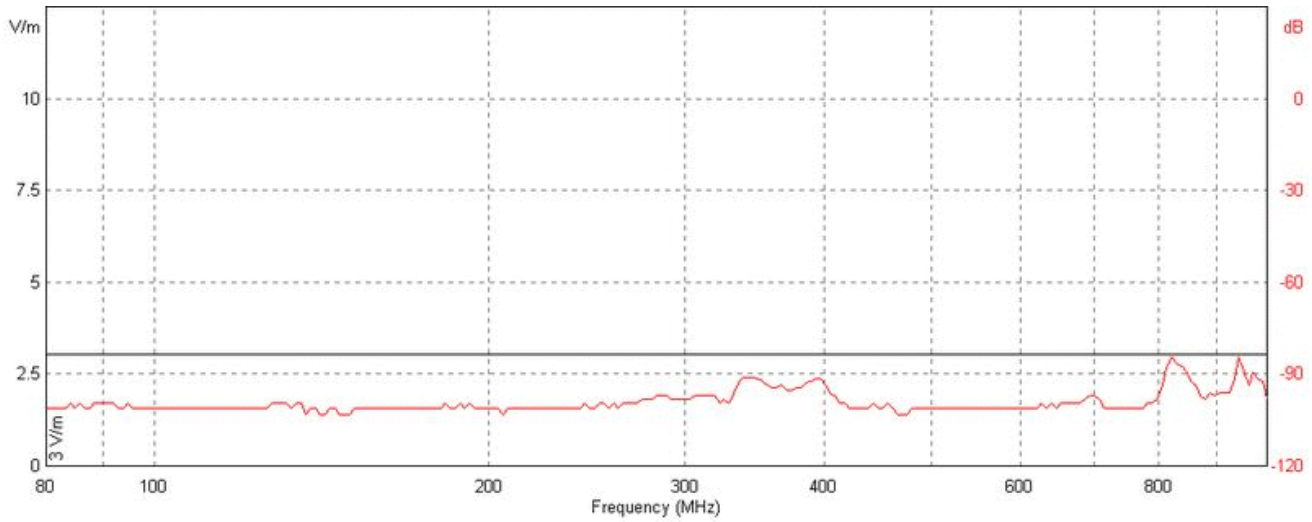
ifID: 3690

EUT:	IP amplifier (poe) Exstreamer P5		

If-2.jpg

ad 5.4. Radio-frequency electromagnetic fields 80 MHz - 1000 MHz			ifID: 3690
EUT:	IP amplifier (poe) Exstreamer P5		

rear horizontal



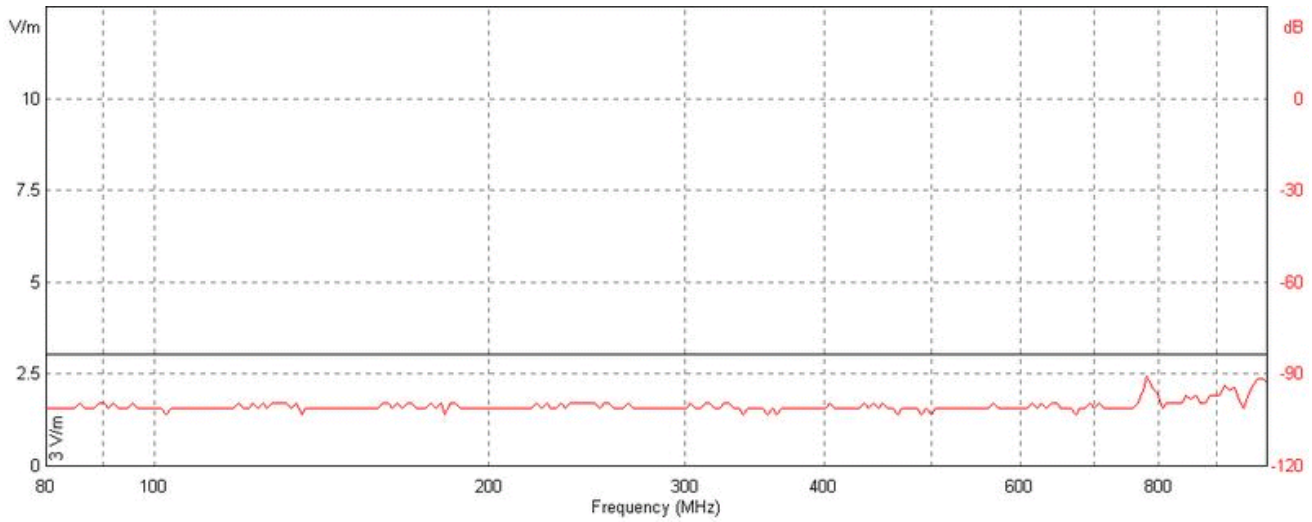
If-3.jpg

ad 5.4. Radio-frequency electromagnetic fields 80 MHz - 1000 MHz

ifID: 3690

EUT:	IP amplifier (poe) Exstreamer P5		

rear vertical



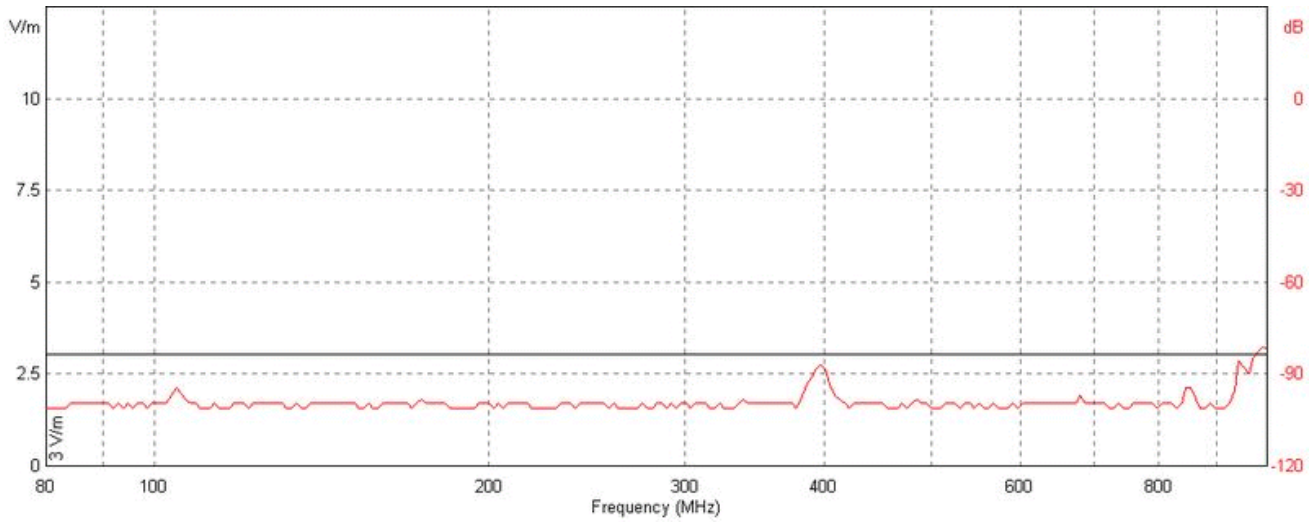
If-4.jpg

ad 5.4. Radio-frequency electromagnetic fields 80 MHz - 1000 MHz

ifID: 3690

EUT:	IP amplifier (poe) Exstreamer P5		

front horizontal



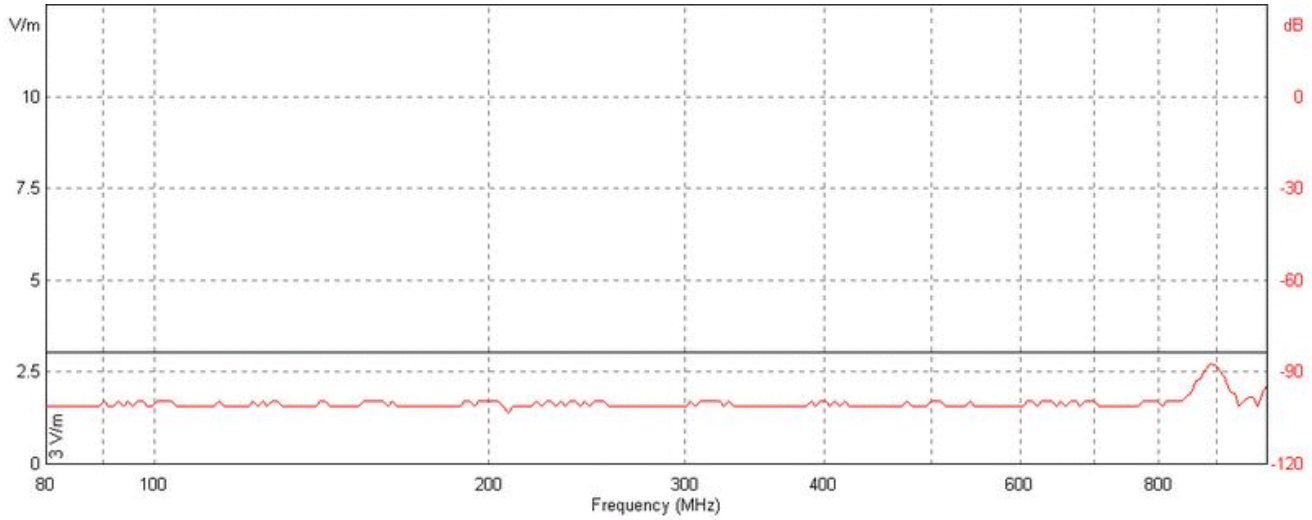
If-5.jpg

ad 5.4. Radio-frequency electromagnetic fields 80 MHz - 1000 MHz

ifID: 3690

EUT:	IP amplifier (poe) Exstreamer P5		

front vertical



If-6.jpg

5.5. Electrical fast transients (Burst)

ibID: 2268

EUT:	IP amplifier (poe) Exstreamer P5	Kind of test: Basic standard:	Immunity EN 61000-4-4:2004
Operation mode:	1kHz stream		
		Environment:	Temp. 22 °C
			Humidity 30 %
Date of test:	12/02/2010		Atm. press. 956 hPa
Tested by:	CE	EUT modified:	No
Required performance criterion:	B	**Result:**	**Passed**
Remarks:			

Coupling devices and Kind of coupling	Tested cables/lines	Test voltage (kV)	Passed Performance criterion	Remarks
Coupling device network (in each case unsymmetrically and asymmetrically)				
Capacitive coupling clamp (asymmetrically)	all	1	A	

Notes:

Tested polarization: Positive + Negative (at each kind of coupling)
Duration of test: 60 s at each polarity and kind of coupling
Test puls: 5/50 ns; Z_i = 50 Ohm
Repetition frequency: 5 kHz; at test level ≥ 4 kV: 2.5 kHz

Test equipment used

Name	Model	Manufacturer	S/N	INV	Remarks
Burst Generator	NSG 2025	Schaffner	1188	237	
Capacitive Coupling Clamp	CDN 125	Schaffner	647	239	

ad 5.5. Electrical fast transients (Burst)

ibID: 2268

EUT:	IP amplifier (poe) Exstreamer P5		

Ib-1.jpg

5.6. Surge

isID: 2049

EUT:	IP amplifier (poe) Exstreamer P5	Kind of test: Basic standard:	Immunity EN 61000-4-5:2006
Operation mode:	SNR reference 1kHz, 5W		
		Environment:	Temp. 22 °C Humidity 30 %
			Atm. press. 956 hPa
Date of test:	12/03/2010		
Tested by:	CE	EUT modified:	No
Required performance criterion:	B	**Result:**	**Passed**
Remarks:			

Tested port	Lines	Kind of coupling	Coupling impedance	Max. test voltage (kV)	Passed Performance criterion	Remarks
LAN	shield	s	18 µF	1	A	

Notes:

Kind of coupling: s = symmetrically
u = unsymmetrically

Test puls: 1.2/50µs; Z_i = 2 Ohm
Polarity: positive and negative at each test voltage
Number of test pulses: ≥ 6 at each test voltage
Time interval between pulses: ≥10 s
Tested voltage steps: 0,5 / 1 kV, if max. test voltage = 1 kV
0,5 / 1 / 1,5 / 2 kV, if max. test voltage = 2 kV
1 / 2 / 3 / 4 kV, if max. test voltage = 4 kV
Tested phase angels (at AC): 90°/180°/270°

Test equipment used

Name	Model	Manufacturer	S/N	INV	Remarks
Kombigenerator	NSG 3040	TESEQ	097	446	

5.7. Conducted disturbances, induced by radio-frequency fields 150 kHz - 80 MHz

icsID: 2371

EUT:	IP amplifier (poe) Exstreamer P5	Kind of test: Basic standard:	Immunity EN 61000-4-6:12009
Operation mode:	zero stream		
		Environment:	Temp. 24 °C Humidity 18 %
			Atm. press. 956 hPa
Date of test:	12/03/2010		
Tested by:	CE	EUT modified:	No
Required performance criterion:	A	**Result:**	**Passed**
Remarks:			

Test parameter	**Settings**
Frequency range	150 kHz - 80 MHz
Frequency step Dwell time	1 % 1 s
Modulation	1 kHz/AM 80%
Test voltage	3 V

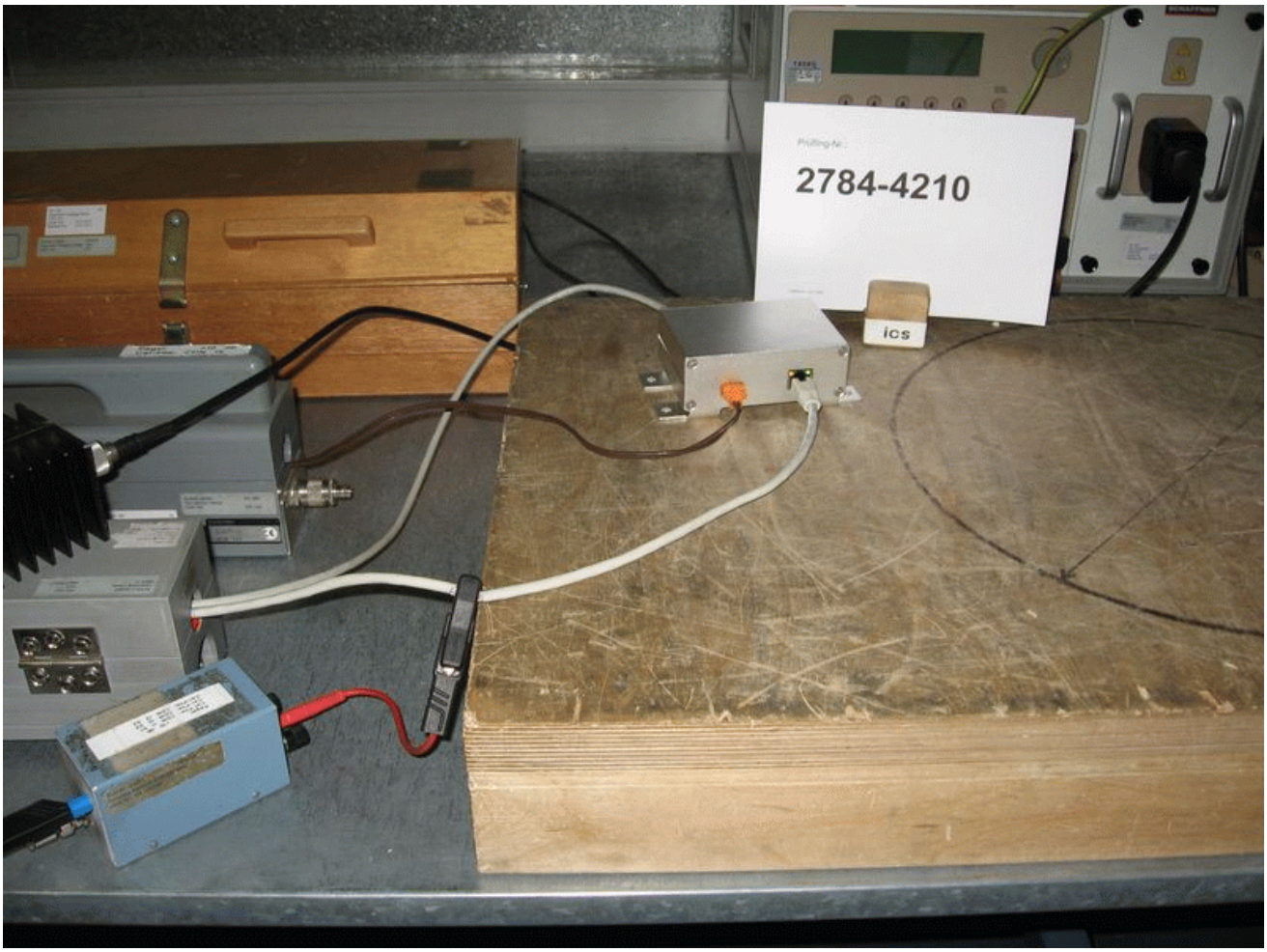
Tested cables/lines	**Cable/line/port of the EUT**	**Coupling device used**	
	Ethernet	CDN 801 S	INV 198
	RS485	CDN 801 S	INV 198
	loudspeaker	CDN 725	INV 280

Result	
Passed Performance criterion	A
Remarks	

Test equipment used

Name	Model	Manufacturer	S/N	INV	Remarks
RF Generator	NSG 2070-1	Schaffner	135	222	
Coupling Network	CDN 801 S	ELMAC		198	
Coupling Network	CDN 801 S	ELMAC		198	
EM Injection Clamp	CDN 725	Schaffner	146	280	

ad 5.7. Conducted disturbances, induced by radio-frequency fields 150 kHz - 80 MHz			icsID: 2371
EUT:	IP amplifier (poe) Exstreamer P5		



Ics-1.jpg

ad 5.7. Conducted disturbances, induced by radio-frequency fields 150 kHz - 80 MHz			icsID: 2371
EUT:	IP amplifier (poe) Exstreamer P5		

Ics-2.jpg