



TEST REPORT

of the accredited test laboratory

TÜV Nr.:M/FG-16/116

Applicant: Naim Audio Limited
Southampton Road
Salisbury Wiltshire UK
SP1 2LN

Tested Product: Zigbee module

FCC-ID: 2ACURZIGEE

IC-ID: 12217A-ZIGEE

Manufacturer: See applicant

Output power / field strength: 0,60 mW eirp. **power supply:** 5 VDC

Frequency range: 2425 - 2475 MHz **Channel separation:** 5 MHz

Standard: FCC: 47 CFR Part 15 (October 1, 2015 edition)
RSS-247 Issue 1, May 2015; including modifications and
clarifications in CB Notice 2015-07

TUV Austria Services GmbH
Test laboratory for EMC

Supervisor of EMC-laboratory:

Ing. Wilhelm Seier

15.12.2016

Copy Nbr.:

checked by:

Ing. Michael Emminger

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The results of this test report only refer to the provided equipment.

LIST OF MEASUREMENTS

The complete list of measurements called for in 47 CFR 15 and RSS-247 is given below.

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TEST OBJECT DATA

General EUT Description

This ZigBee Module is used only by the applicant.

2.1033 (c) Technical description

2.1033 (4) Type of emission: 1M58F1D –Channel spacing 5 MHz

2.1033 (5) Frequency range: 2425 to 2475 MHz (channel center frequencies).

2.1033 (6) Power range and Controls: The maximum peak output power is 0,60 mW and there is no power regulation.

2.1033 (7) Maximum output power rating: 0,60 mW eirp.

2.1033 (8) DC Voltage and Current: 5 V DC
maximum current consumption: <100 mA)

RSS-135 This standard does not apply to:

- 1.1.(a) a receiver that scans radio frequencies for the purpose of enabling its associated transmitter to avoid transmitting in an occupied frequency but which does not have the capability of decoding the message (e.g. converting it to audio voice) contained in the radio signal

A test sample with temporary antenna connector was provided and used for conducted measurement, where this kind of measurement is representative and easier to perform.

Tests were performed May 23rd till 30th 2016.

Number of channels and channel spacing

§ 2.1033

Conducted Measurement

Rated output power: 0,60 mW

There are 40 Channels used starting at 2425 till 2475 MHz each separated by 5 MHz channel spacing with a maximum bandwidth of 1,583 MHz.

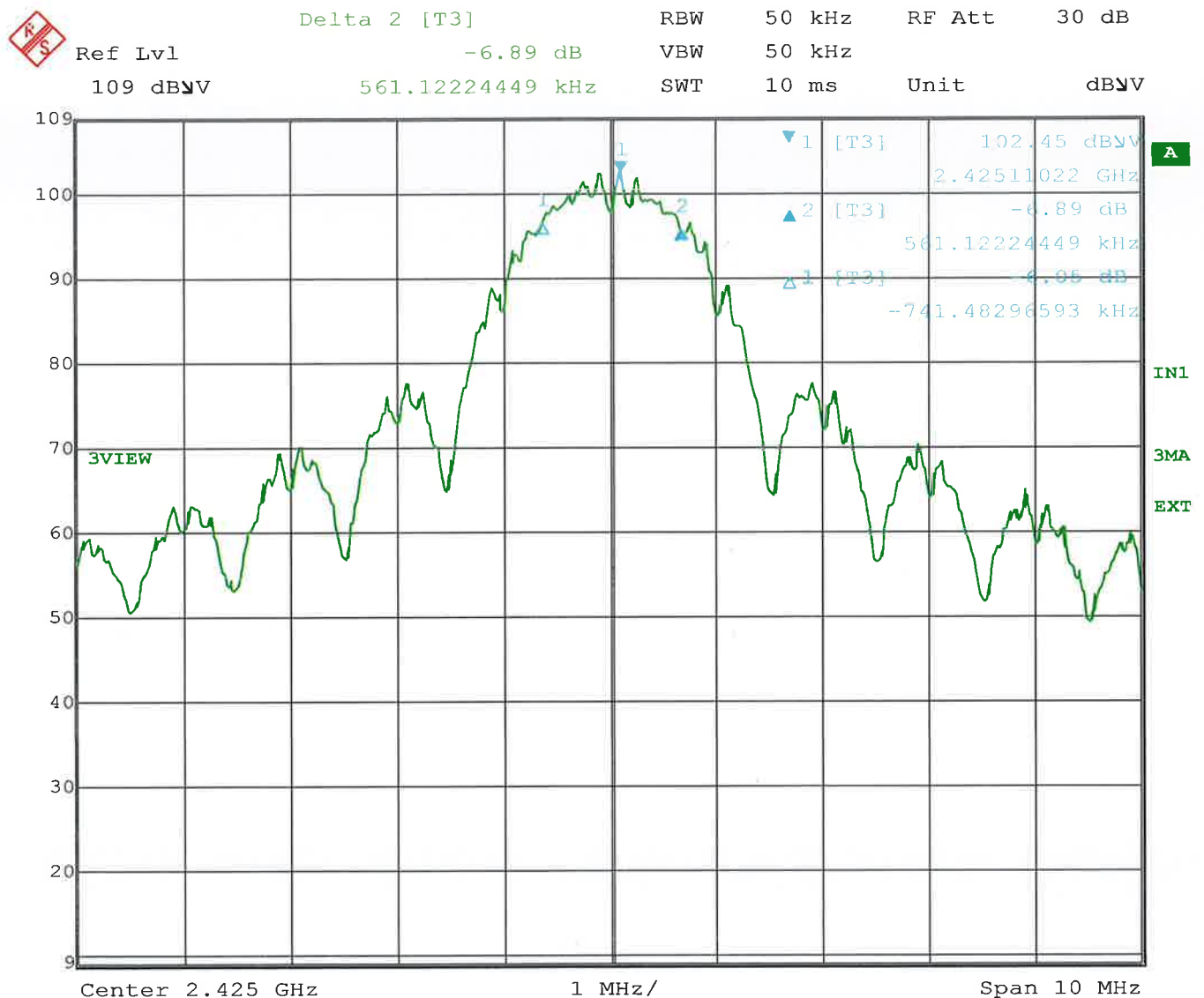
Test Equipment used: N/A

6dB Bandwidth

§ 15.247(a)(2)
5.2(1)

Conducted Measurement

Rated output power: 0,60 mW Channel 15 (2425 MHz center frequency)



Date: 1.JAN.1997 01:56:10

6dB Bandwidth: 1303 kHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(1)

Under normal test conditons	6 dB Bandwidth at least 500 kHz
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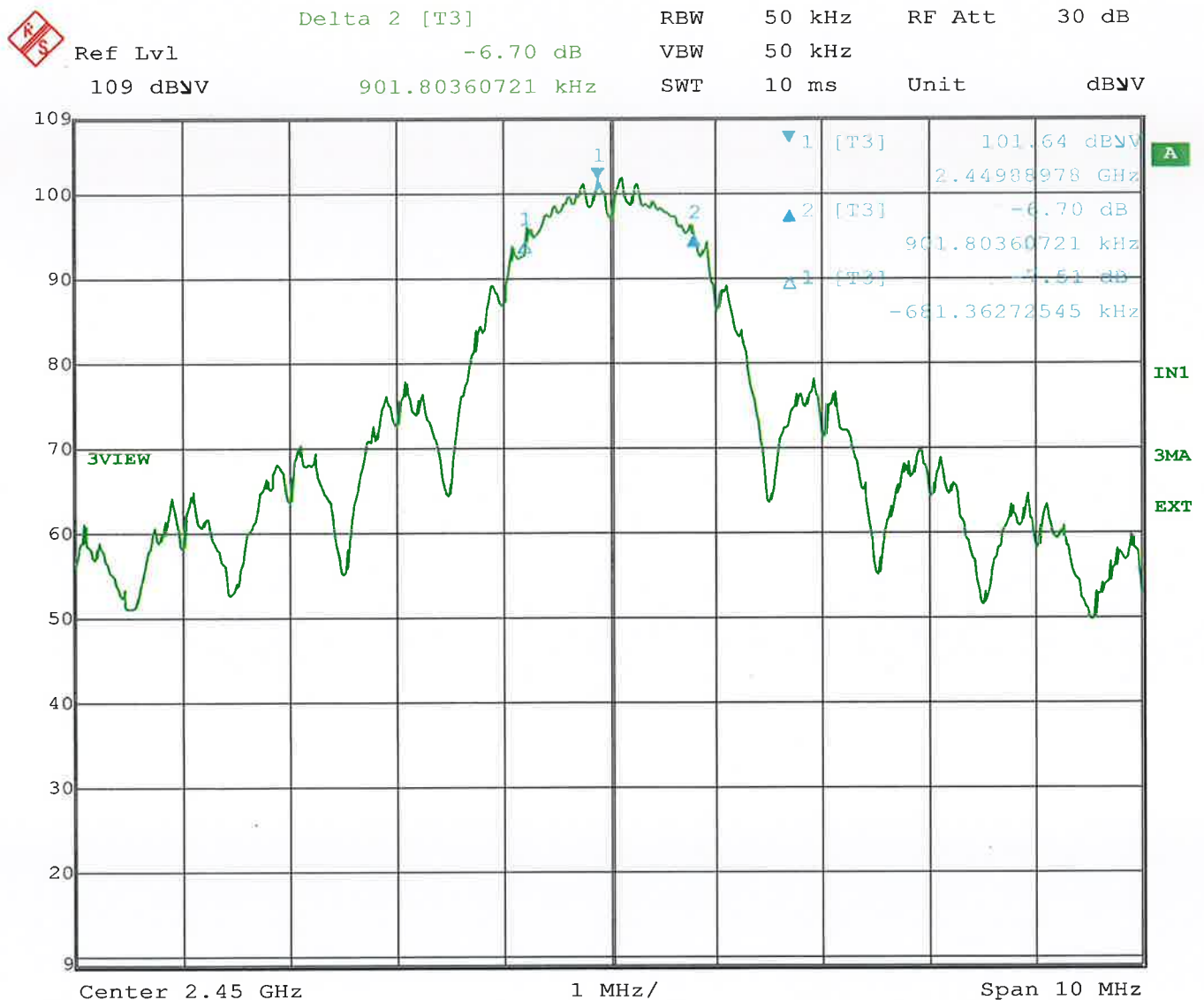
Test Equipment used: NT-207

6dB Bandwidth

§ 15.247(a)(2)
5.2(1)

Conducted Measurement

Rated output power: 0,60 mW Channel 20 (2450 MHz center frequency)



Date: 1.JAN.1997 01:54:47

6dB Bandwidth: 1583 kHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(1)

Under normal test conditons	6 dB Bandwidth at least 500 kHz
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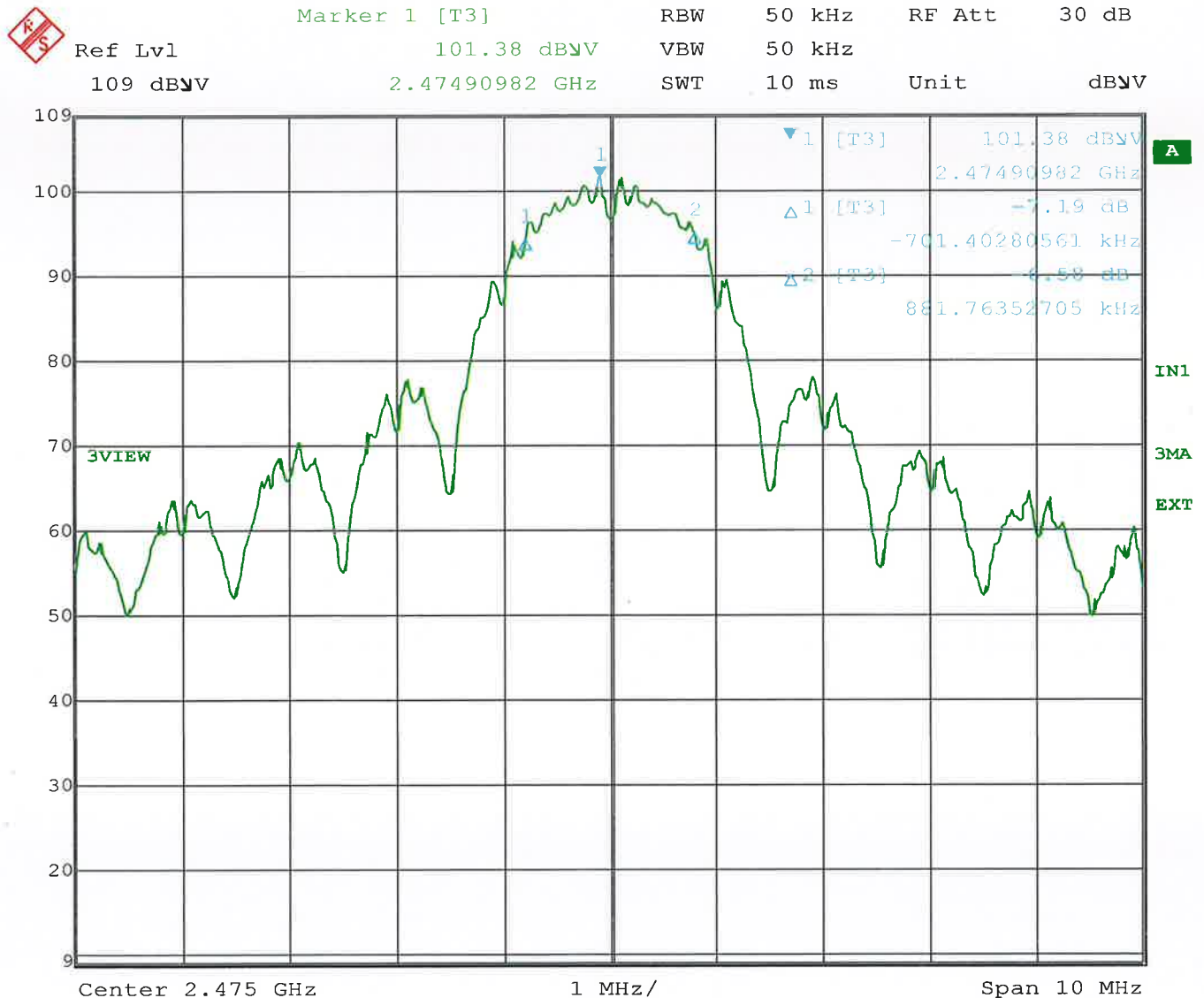
Test Equipment used: NT-207

6dB Bandwidth

§ 15.247(a)(2)
5.2(1)

Conducted Measurement

Rated output power: 0,60 mW Channel 25 (2475 MHz center frequency)



Date: 1.JAN.1997 01:53:19

6dB Bandwidth: 1583 kHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(1)

Under normal test conditons	6 dB Bandwidth at least 500 kHz
-----------------------------	---------------------------------

Test Equipment used: NT-207

Maximum Peak RF Power Output (conducted)

**§ 15.247(b)(3)
5.4(4)**

Conducted Measurement

Rated output power: 0,60 mW

Test conditions		Transmitter power (mW)		
		2402 MHz	2440 MHz	2480 MHz
T_{nom} (27)°C	V_{nom} (5) V			
	Conducted *)	0,891	0,891	0,871
	Radiated	0,603	0,562	0,525
Maximum deviation from rated output power under normal test conditions (dB)				
Measurement uncertainty		$\pm 0,75$ dB		

LIMIT SUBCLAUSE 15.247(b)(3) – 5.4(4)

Under normal test conditons	1W conducted (4W eirp)
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*) conducted measurement is informative only, as there is no permanent antenna connector available.

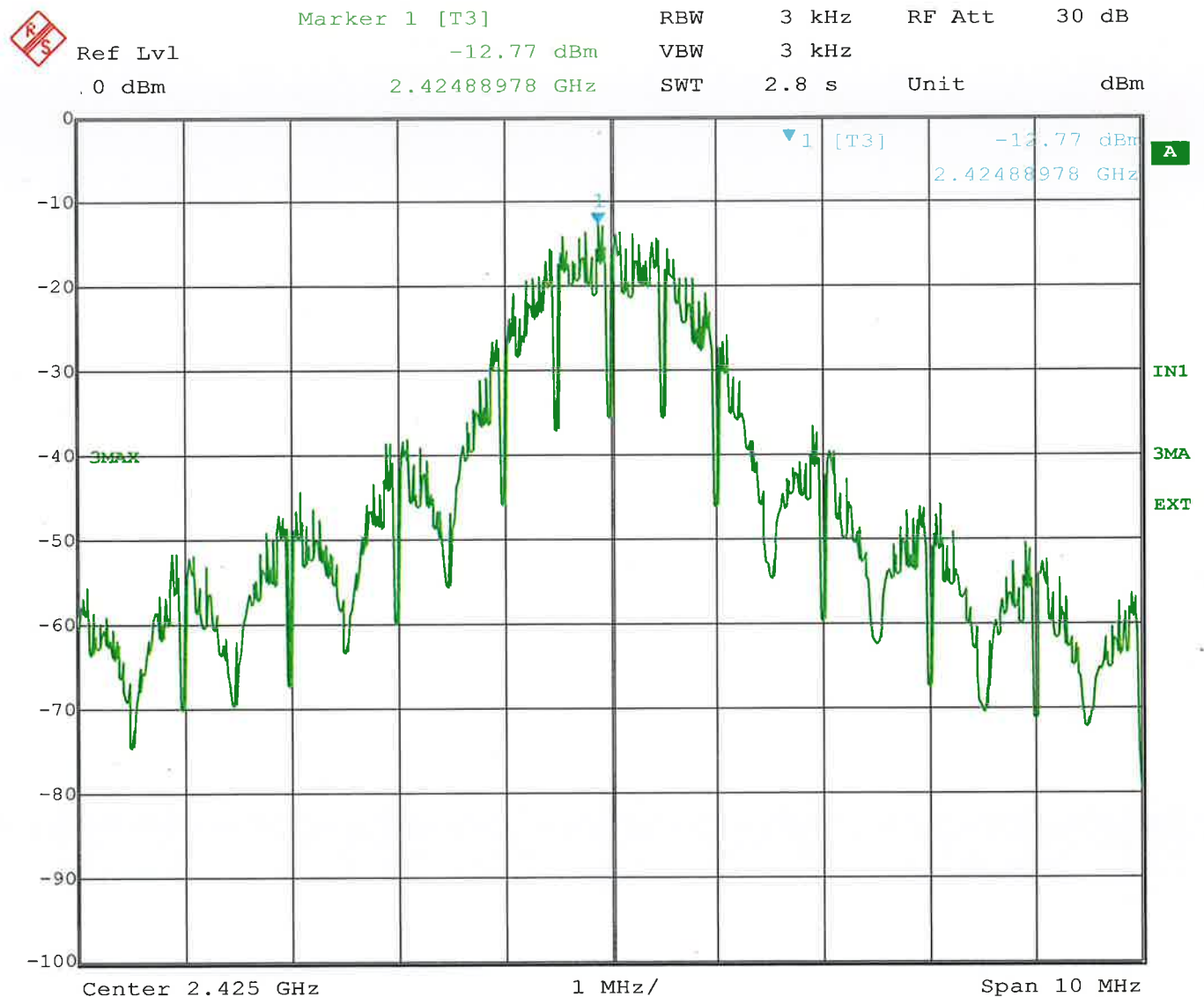
Test Equipment used: NT-204; NT-229; NT233/1a

Power spectral density (conducted)

**§ 15.247(e)
5.2(2)**

Conducted Measurement

Rated output power: 0,60 mW Channel 15 (2425 MHz center frequency)



Date: 1.JAN.1997 01:58:22

Power Spectral density: -12,77 dBm @ 2424,890 MHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

Under normal test conditons	+8dBm in any 3 kHz band
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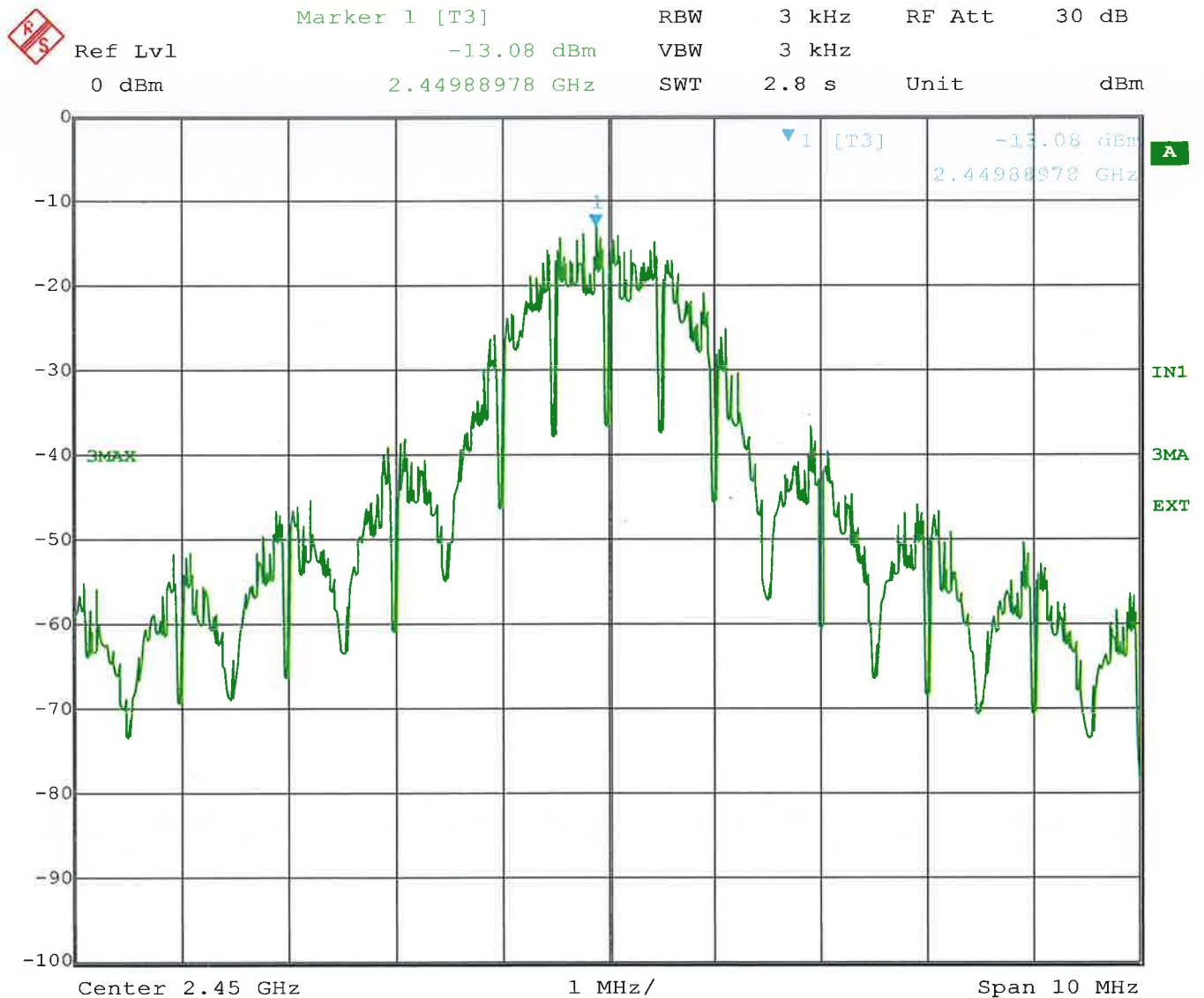
Test Equipment used: NT-207

Power spectral density (conducted)

**§ 15.247(e)
5.2(2)**

Conducted Measurement

Rated output power: 0,60 mW Channel 20 (2450 MHz center frequency)



Date: 1.JAN.1997 01:59:49

Power Spectral density: -13,08 dBm @ 2449,890 MHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

Under normal test conditons	+8dBm in any 3 kHz band
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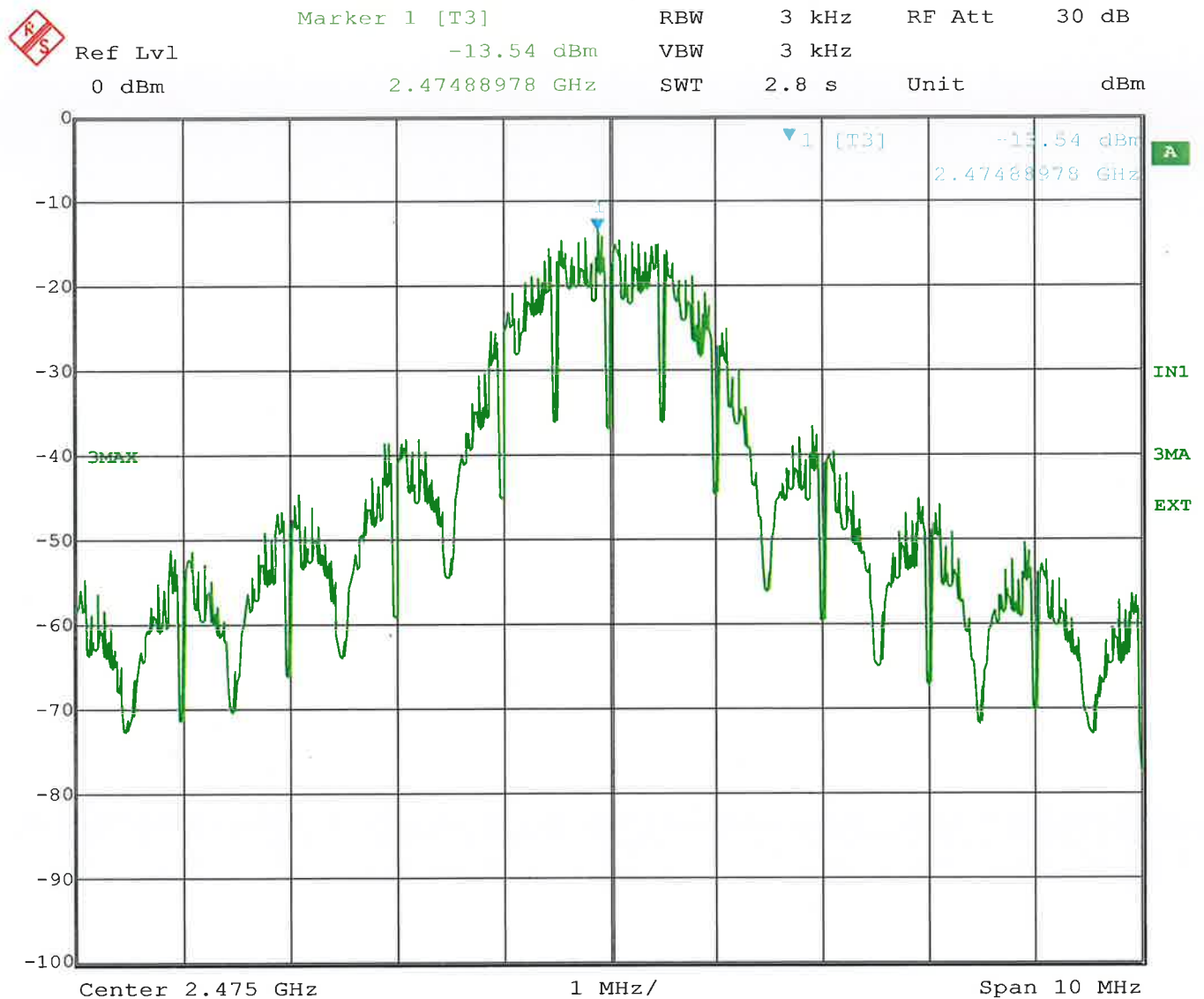
Test Equipment used: NT-207

Power spectral density (conducted)

**§ 15.247(e)
5.2(2)**

Conducted Measurement

Rated output power: 0,60 mW Channel 25 (2475 MHz center frequency)



Date: 1.JAN.1997 02:02:01

Power Spectral density: -13,54 dBm @ 2474,890 MHz

LIMIT SUBCLAUSE 15.247(e) – 5.2(2)

Under normal test conditons	+8dBm in any 3 kHz band
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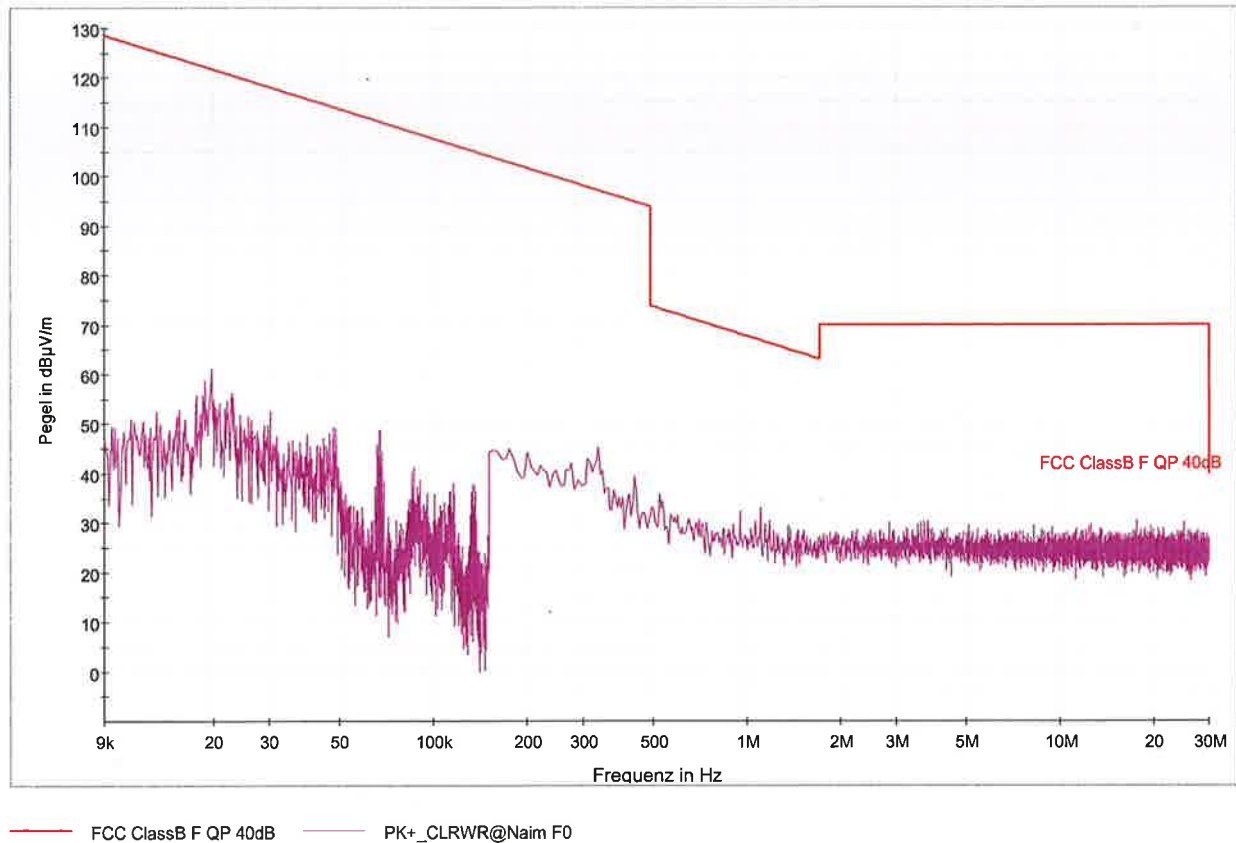
Test Equipment used: NT-207

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector:

Setup: CH 15: 2425 MHz



Worst case emission: 61,6 dBµV/m @ 19,8 kHz

Remark: As the highest spurious conducted emission was measured as to be -55 dB below the fundamental, all radiated measurements (except Band edges) were made with RF connector terminated with 50 ohm load.

LIMIT **SUBCLAUSE 15.209(a) – RSS-Gen**

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

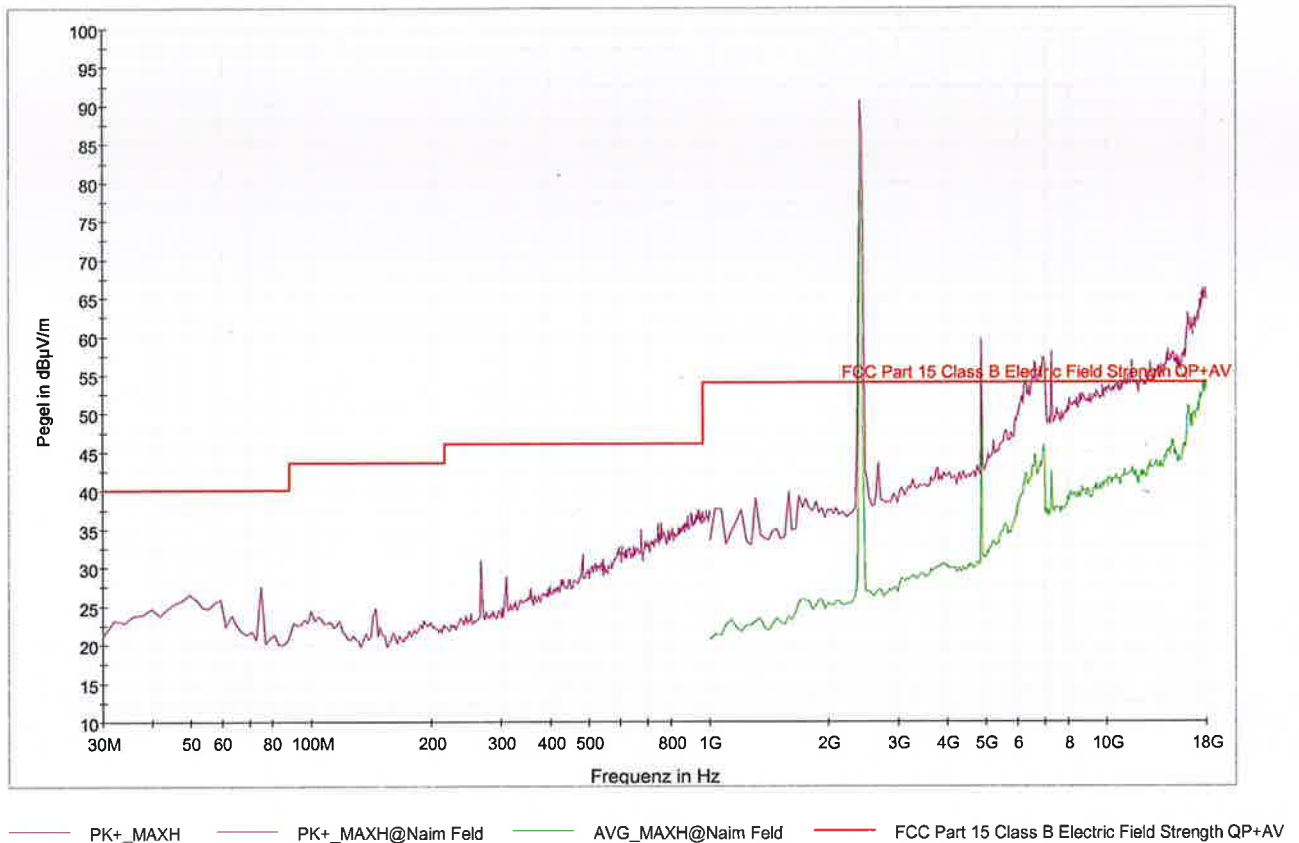
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-122; NT-207

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector (magenta line) and Average detector (green line):

Setup: CH 15: 2425 MHz



Worst case emission: 51,5 dBµV/m @ 4,85 GHz

Remark: As the highest spurious conducted emission was measured as to be -55 dB below the fundamental, all radiated measurements (except Band edges) were made with RF connector terminated with 50 ohm load. Although the measurement above ends at 18 GHz, all measurements were performed up to the thenth harmonics of the transmitter frequency.

LIMIT **SUBCLAUSE 15.209(a) – RSS-Gen**

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

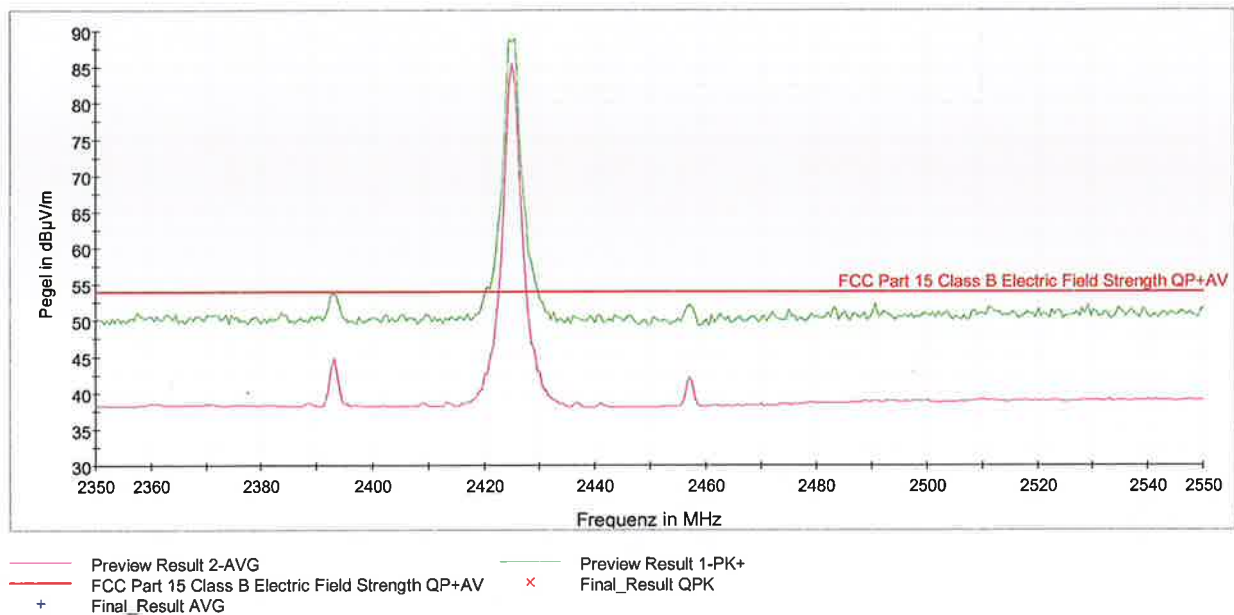
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-126; NT-131/1; NT-139; NT-207; NT-337

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 15: 2425 MHz



LIMIT

SUBCLAUSE 15.209(a) – RSS-Gen

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

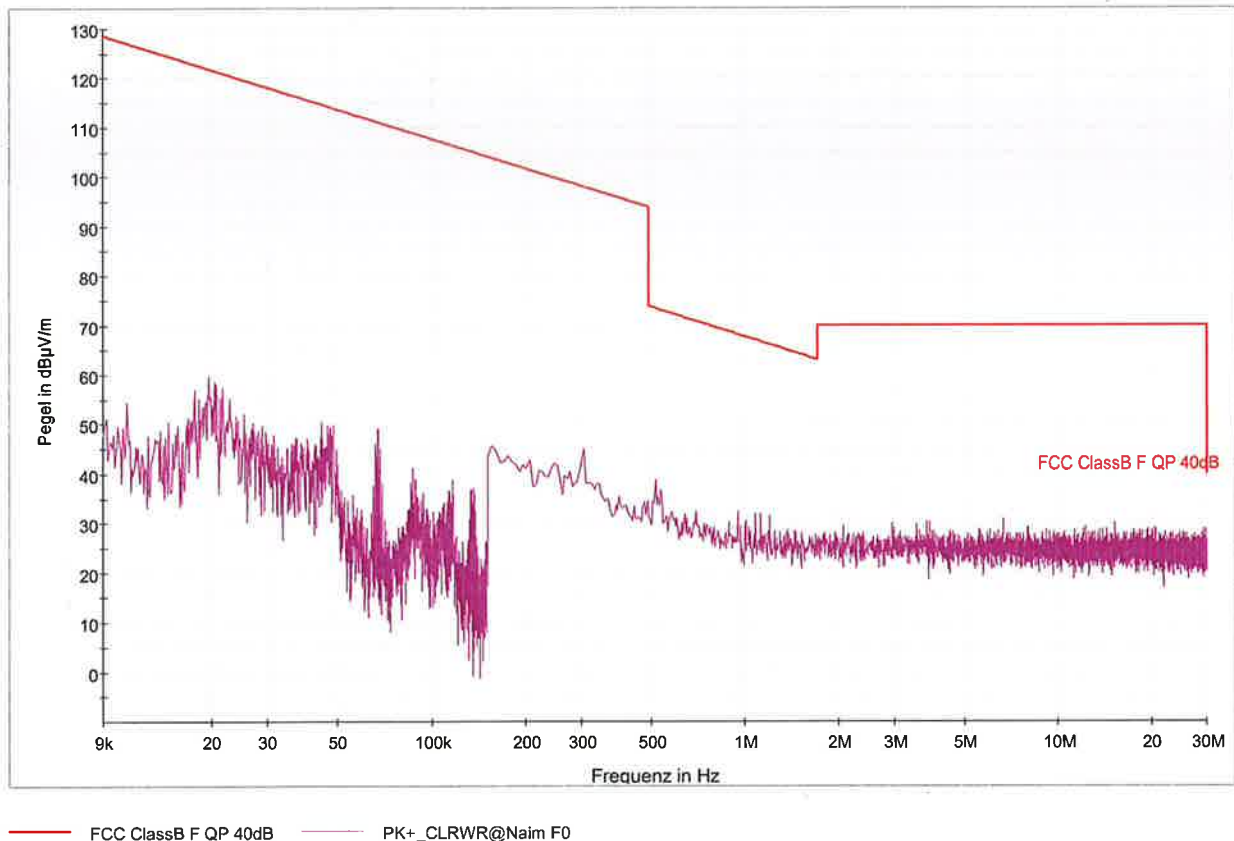
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-139; NT-207

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector:

Setup: CH 20: 2450 MHz



Worst case emission: 59,7 dBµV/m @ 19,6 kHz

Remark: As the highest spurious conducted emission was measured as to be -55 dB below the fundamental, all radiated measurements (except Band edges) were made with RF connector terminated with 50 ohm load.

LIMIT **SUBCLAUSE 15.209(a) – RSS-Gen**

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

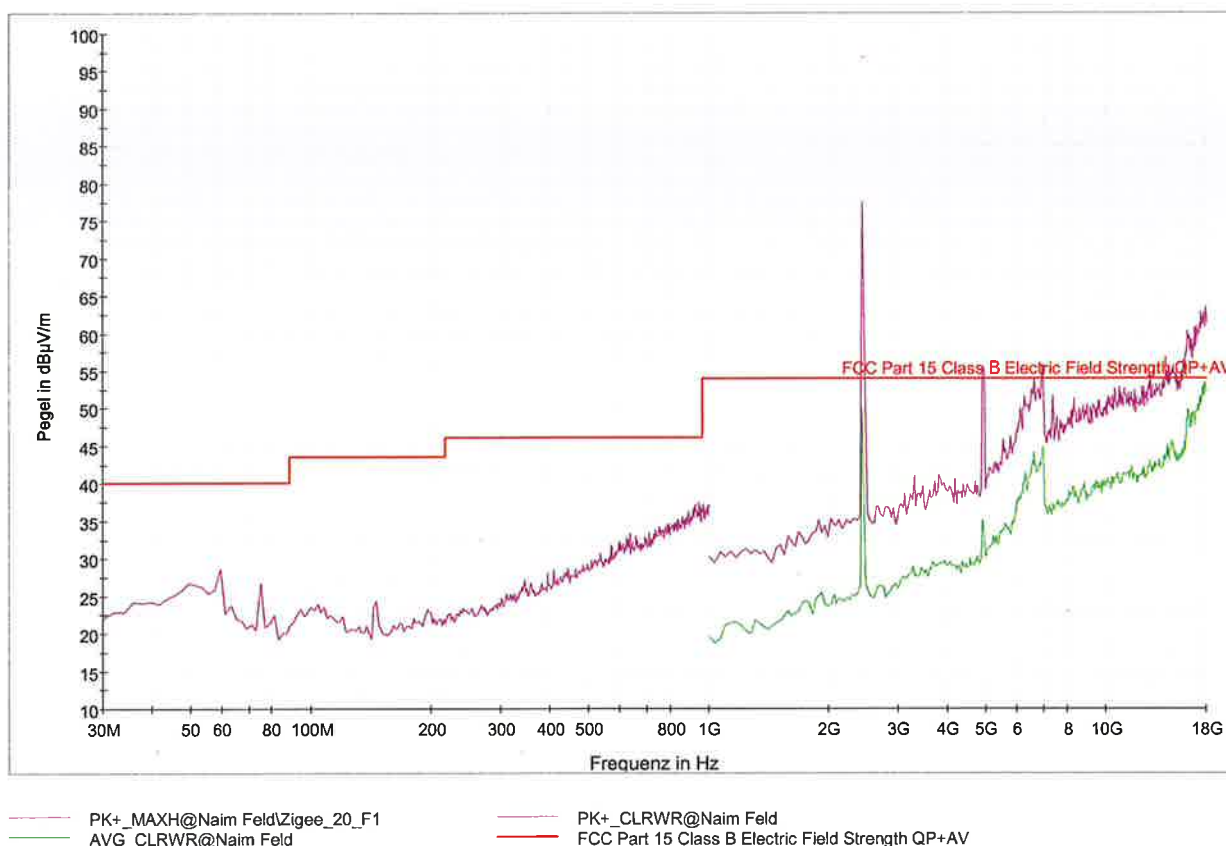
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-122; NT-207

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector (magenta line) and Average detector (green line):

Setup: CH 20: 2450 MHz



Worst case emission: 53,4 dBµV/m @ 4,9 GHz

Remark: As the highest spurious conducted emission was measured as to be -55 dB below the fundamental, all radiated measurements (except Band edges) were made with RF connector terminated with 50 ohm load. Although the measurement above ends at 18 GHz, all measurements were performed up to the thenth harmonics of the transmitter frequency.

LIMIT

SUBCLAUSE 15.209(a) – RSS-Gen

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

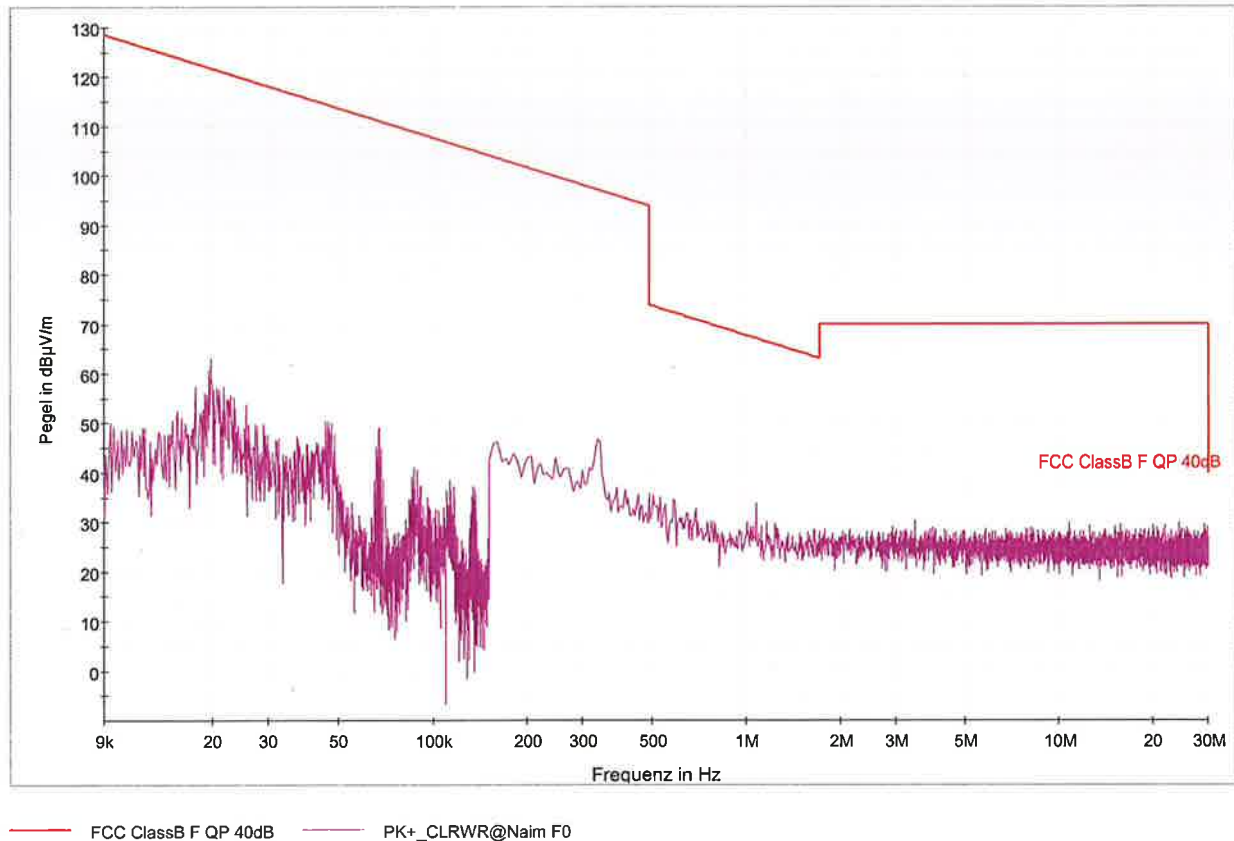
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-126; NT-131/1; NT-139; NT-207; NT-337

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector:

Setup: CH 25: 2475 MHz



Worst case emission: 63,5 dBµV/m @ 19,8 kHz

Remark: As the highest spurious conducted emission was measured as to be -55 dB below the fundamental, all radiated measurements (except Band edges) were made with RF connector terminated with 50 ohm load.

LIMIT **SUBCLAUSE 15.209(a) – RSS-Gen**

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

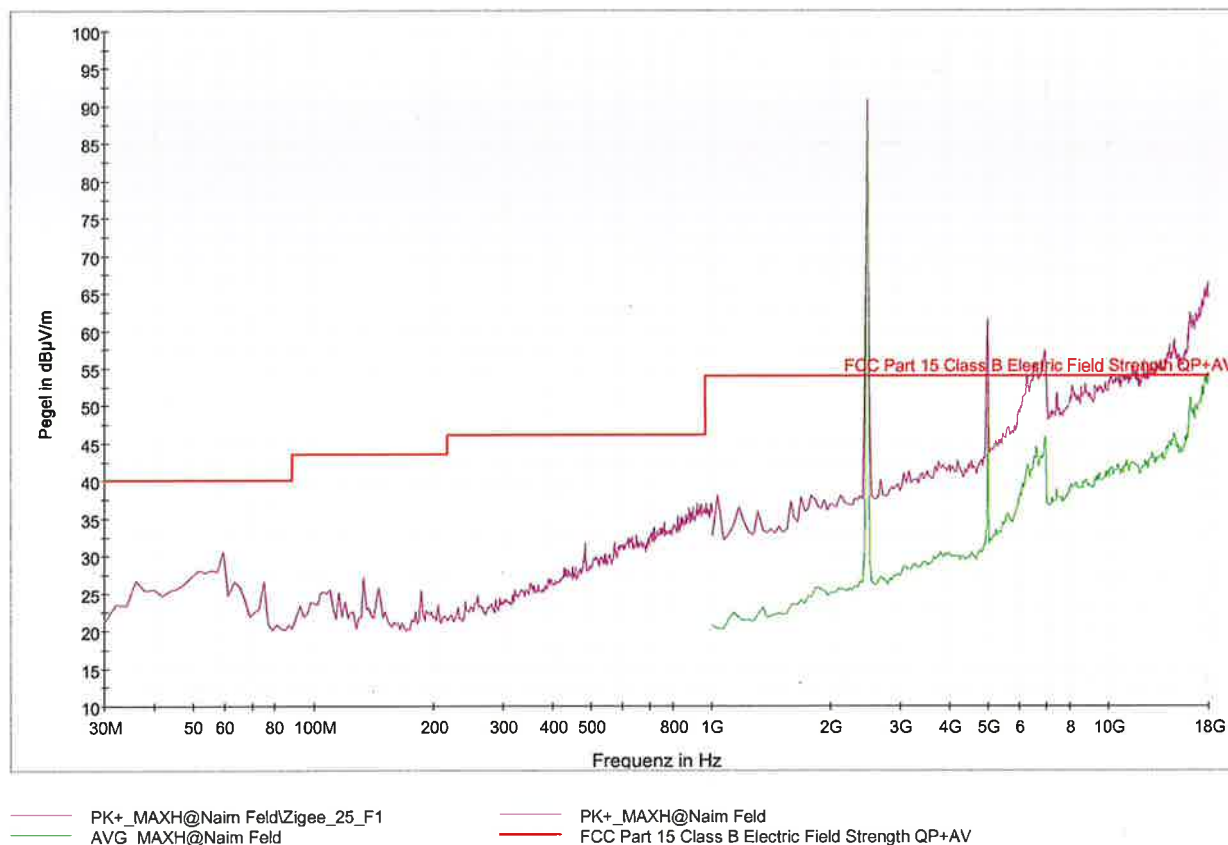
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-122; NT-207

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector (magenta line) and Average detector (green line):

Setup: CH 25: 2475 MHz



Worst case emission: 53,1 dBµV/m @ 4,95 GHz

Remark: As the highest spurious conducted emission was measured as to be -55 dB below the fundamental, all radiated measurements (except Band edges) were made with RF connector terminated with 50 ohm load. Although the measurement above ends at 18 GHz, all measurements were performed up to the thenth harmonics of the transmitter frequency.

LIMIT **SUBCLAUSE 15.209(a) – RSS-Gen**

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

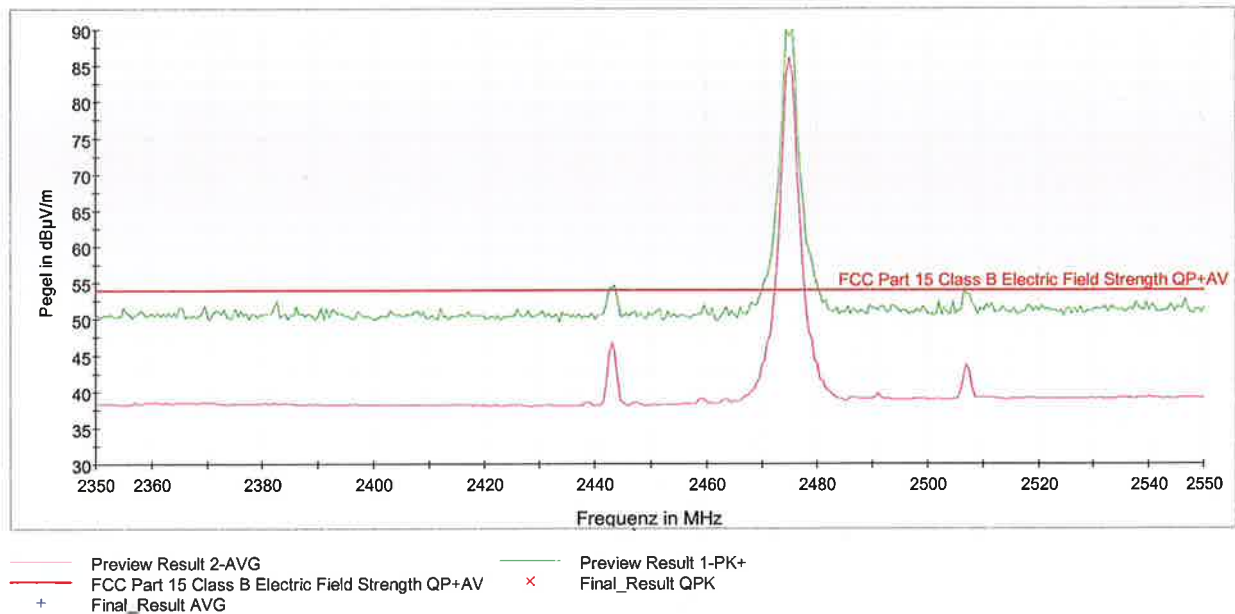
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-126; NT-131/1; NT-139; NT-207; NT-337

Emissions in restricted bands
Emissions falling within restricted frequency bands

§ 15.209(a)
RSS-Gen

Measurement with Peak-Detector (green line) and Average detector (magenta line): Band Edge requirement

Setup: CH 25: 2475 MHz



LIMIT

SUBCLAUSE 15.209(a) – RSS-Gen

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

Band edges of the nearest restricted bands: 2390 MHz and 2483,5 MHz.

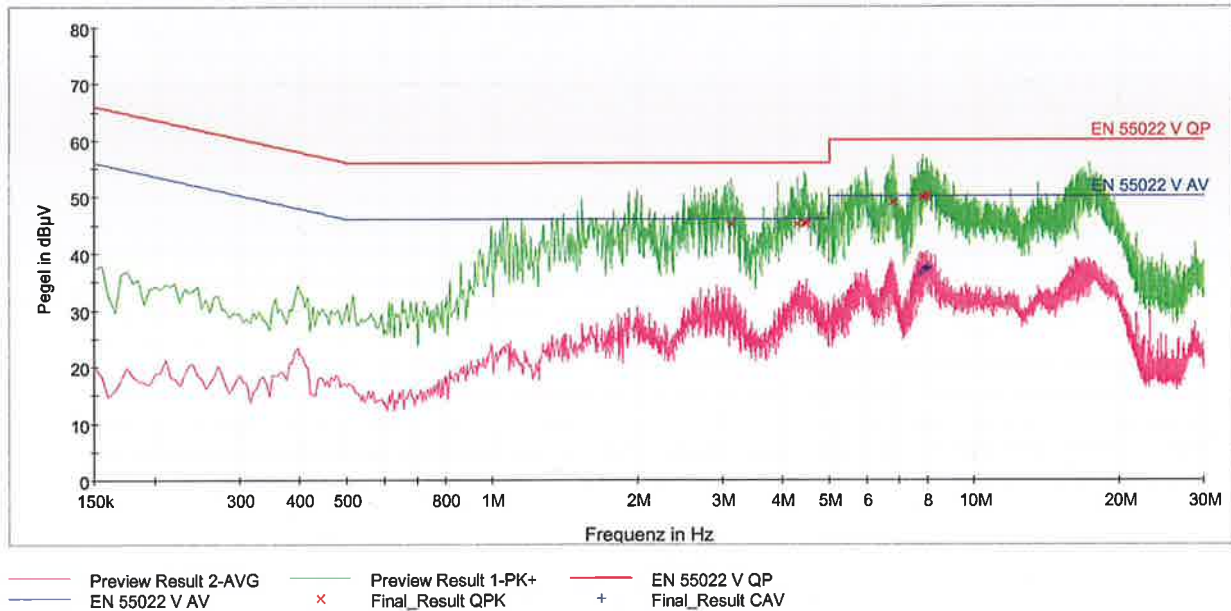
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-139; NT-207

Conducted Limits

§ 15.207
RSS-Gen 8.8

Measurement with Peak-Detector (green line) and Average detector (magenta line):

Setup: CH 20: 2450 MHz



LIMIT

SUBCLAUSE 15.207(a) – RSS-Gen 8.8

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

Test Equipment used: NT-300; NT-554; NT-441; NT-207

Maximum permissible Exposure

§ 15.247(I)

This kind of radio equipment is categorically excluded from routine environmental evaluation.

Appendix 1

Test equipment used

☐ Anechoic Chamber with 3m measurement distance	NT-100	☐ Power quality analyzer Fluke 1760 (complete set)	NT-160 - NT-173
☐ Stripline according to ISO 11452-5	NT-108	☐ Spectrum analyzer – FSP7 9 kHz – 7 GHz	NT-200
☐ MA4000 - Antenna mast 1 - 4 m height	NT-110/1	☐ ESCI - Test receiver 9 kHz - 7 GHz	NT-203/1
☐ DS - Turntable 0 - 400 ° Azimuth	NT-111/1	☐ ESI26 – Test receiver 20 Hz – 26,5 GHz	NT-207
☐ CO3000 Controller Mast+Turntable	NT-112/1	☐ Digital Radio Tester CTS55	NT-208
☐ HUF-Z3 - Log. Per. Antenna 200 - 1000 MHz	NT-121	☐ Noise-gen., ITU-R 559-2 20 Hz – 20 kHz	NT-209
☐ HFH-Z2 - Loop Antenna 9 kHz - 30 MHz	NT-122	☐ CMTA - Radiocommunication analyzer ; 0,1 - 1000 MHz	NT-210
☐ HFH-Z6 - Rod Antenna 9 kHz - 30 MHz	NT-123	☐ 3271 - Spectrum analyzer 100 Hz - 26,5 GHz	NT-211
☐ 3121C - Dipole Antenna 28 - 1000 MHz	NT-124	☐ Digital Radio Tester Aeroflex 3920	NT-212/1
☐ 3115 - Horn Antenna 1 - 18 GHz (immunity)	NT-125	☐ Mixer M28HW 26,5 GHz - 40 GHz	NT-214
☐ 3116 - Horn Antenna 18 - 40 GHz	NT-126	☐ RubiSource T&M Timing reference	NT-216
☐ SAS-200/543 - Bicon. Antenna 20 MHz - 300 MHz	NT-127	☐ Radiocommunication analyzer SWR 1180 MD	NT-217
☐ AT-1080 - Log. Per. Antenna 80 - 1000 MHz	NT-128	☐ Mixer M19HWD 40 GHz – 60 GHz	NT-218
☐ HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-129	☐ Mixer M12HWD 60 GHz – 90 GHz	NT-219
☐ HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-130	☐ DSO9104 Digital scope	NT-220/1
☐ 3146 - Log. Per. Antenna 200 – 1000 MHz	NT-131	☐ TPS 2014 Digital scope	NT-222
☐ VULB 9163 Trilog Antenna 30 – 3000 MHz	NT-131/1	☐ Artificial Ear according to IEC 60318	NT-224
☐ Loop Antenna H-Field	NT-132	☐ 1 kHz Sound calibrator	NT-225
☐ Horn Antenna 500 MHz - 2900 MHz	NT-133	☐ B10 - Harmonics and flicker analyzer	NT-232
☐ Horn Antenna 500 MHz - 6000 MHz	NT-133/1	☐ SRM-3000 Spectrum analyzer	NT-233
☐ Log. per. Antenna 800 MHz - 2500 MHz	NT-134	☐ SRM-3006 Spectrum analyzer	NT-233/1a
☐ Log. per. Antenna 800 MHz - 2500 MHz	NT-135	☐ E-field probe SRM 75 MHz – 3 GHz	NT-234
☐ BiConiLog Antenna 26 MHz – 2000 MHz	NT-137	☐ Field Meter NBM-500 incl. E- and H-Field probes	NT-240a-d
☐ Conical Dipol Antenna PCD8250	NT-138	☐ Hall-Teslameter ETM-1	NT-241
☐ HF 906 - Horn Antenna 1 - 18 GHz (emission)	NT-139	☐ EFA-3 H-field- / E-field probe	NT-243
☐ HZ-1 Antenna tripod	NT-150	☐ Field Meter EMR-200 100 kHz – 3 GHz	NT-244
☐ BN 1500 Antenna tripod	NT-151	☐ E-field probe 100 kHz – 3 GHz	NT-245
☐ Ant. tripod for EN61000-4-3 Model TP1000A	NT-156	☐ H-field probe 300 kHz – 30 MHz	NT-246

Division:
Industry & Energy

Department: FG

Test report number:
M/FG-16/116

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Date: 15.12.2016

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Appendix 1 (continued) Test equipment used

☐ E-field probe 3 MHz – 18 GHz	NT-247	☐ Oscillatory Wave Simulator incl. Coupling networks	NT-328a+b+c
☐ H-field probe 27 MHz – 1 GHz	NT-248	☐ BTA-250 - RF-Amplifier 9 kHz - 220 MHz / 250 W	NT-330
☐ ELT-400 1 Hz – 400 kHz	NT-249	☐ T82-50 RF-Amplifier 2 GHz – 8 GHz	NT-331
☐ MDS 21 - Absorbing clamp 30 - 1000 MHz	NT-250	☐ 500W1000M7 - RF-Amplifier 80 - 1000 MHz / 500 W	NT-332
☐ FCC-203I EM Injection clamp	NT-251	☐ AS0102-65R - RF-Amplifier 1 GHz - 2 GHz	NT-333
☐ FCC-203I-DCN Ferrite decoupling network	NT-252	☐ APA01 – RF-Amplifier 0,5 GHz – 2,5 GHz	NT-334
☐ PR50 Current Probe	NT-253	☐ Preamplifier 1 GHz - 4 GHz	NT-335
☐ i310s Current Probe	NT-254/1	☐ Preamplifier for GPS MKU 152 A	NT-336
☐ Fluke 87 V True RMS Multimeter	NT-260	☐ Preamplifier 100 MHz – 23 GHz	NT-337
☐ Model 2000 Digital Multimeter	NT-261	☐ DC Block 10 MHz – 18 GHz Model 8048	NT-338
☐ Fluke 87 V Digital Multimeter	NT-262/1	☐ 2-97201 Electronic load	NT-341
☐ ESH2-Z5-U1 Artificial mains network 4x25A	NT-300	☐ TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-344
☐ ESH3-Z5-U1 Artificial mains network 2x10A	NT-301	☐ TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-345
☐ ESH3-Z6-U1 Artificial mains network 1x100A	NT-302	☐ VDS 200 Mobil-impuls-generator	NT-350
☐ ESH3-Z6-U1 Artificial mains network 1x100A	NT-302a	☐ LD 200 Mobil-impuls-generator	NT-351
☐ PHE 4500/B Power amplifier	NT-304	☐ MPG 200 Mobil-Impuls-Generators	NT-352
☐ EZ10 T-Artificial Network	NT-305	☐ EFT 200 Mobil-impuls-generator	NT-353
☐ SMG - Signal generator 0,1 - 1000 MHz	NT-310	☐ AN 200 S1 Artificial Network	NT-354
☐ SMA100A - Signal generator 9 kHz - 6 GHz	NT-310/1	☐ FP-EFT 32M 3 ph. Coupling filter (Burst)	NT-400/1
☐ RefRad Reference generator	NT-312	☐ PHE 4500 - Mains impedance network	NT-401
☐ SMP 02 Signal generator 10 MHz - 20 GHz	NT-313	☐ IP 6.2 Coupling filter for data lines (Surge)	NT-403
☐ 40 MHz Arbitrary Generator TGA1241	NT-315	☐ TK 9421 High Power Volt. Probe 150 kHz - 30 MHz	NT-409
☐ Artificial mains network NSLK 8127-PLC	NT-316	☐ ESH2-Z3 - Probe 9 kHz - 30 MHz	NT-410
☐ PEFT - Burst generator up to 4 kV	NT-320	☐ IP 4 - Capacitive clamp (Burst)	NT-411
☐ ESD 30 System up to 25 kV	NT-321	☐ Highpass-Filter 100 MHz – 3 GHz	NT-412
☐ PSURGE 4.1 Surge generator	NT-324	☐ Highpass-Filter 600 MHz – 4 GHz	NT-413
☐ IMU4000 Immunity test system	NT-325/1	☐ Highpass-Filter 1250 MHz – 4 GHz	NT-414
☐ VCS 500-M6 Surge-Generator	NT-326	☐ Highpass-Filter 1800 MHz – 16 GHz	NT-415

Division:
Industry & Energy

Department: FG

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Appendix 1 (continued)

Test equipment used

☐ Highpass-Filter 3500 MHz – 18 GHz	NT-416	☐ FCC-801-S25 Coupling decoupling network	NT-462
☐ RF-Attenuator 10 dB DC – 18 GHz / 50 W	NT-417	☐ FCC-801-T4 Coupling decoupling network	NT-463
☐ RF-Attenuator 6 dB DC – 18 GHz / 50 W	NT-418	☐ FCC-801-C1 Coupling decoupling network	NT-464
☐ RF-Attenuator 3 dB DC – 18 GHz / 50 W	NT-419	☐ SW 9605 - Current probe 150 kHz – 30 MHz	NT-465/1
☐ RF-Attenuator 20 dB DC - 1000 MHz / 25 W	NT-421	☐ 95242-1 – Current probe 1 MHz – 400 MHz	NT-468
☐ RF-Attenuator 30 dB DC - 1000 MHz / 1 W	NT-423	☐ 94106-1L-1 – Current probe 100 kHz – 450 MHz	NT-471
☐ RF-Attenuator 30 dB	NT-424	☐ GA 1240 Power amplifier according to EN 61000-4-16	NT-480
☐ RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-425	☐ Coupling networks according to EN 61000-4-16	NT-481 - NT-483
☐ RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-426	☐ Van der Hoofden Test Head	NT-484
☐ RF-Attenuator 6 dB	NT-428	☐ PC P4 3 GHz Test computer	NT-500
☐ RF-Attenuator 0 dB - 81 dB	NT-429	☐ PC P4 1700 MHz Notebook	NT-505
☐ WRU 27 - Band blocking 27 MHz	NT-430	☐ Monitoring camera with Monitor	NT-511
☐ WHJ450C9 AA - High pass 450 MHz	NT-431	☐ ES-K1 Version 1.71 SP2 Test software	NT-520
☐ WHJ250C9 AA - High pass 250 MHz	NT-432	☐ EMC32 Version 10.01 Test software	NT-520/1
☐ RF-Load 150 W	NT-433	☐ SRM-TS Version 1.3 software for SRM-3000	NT-522
☐ Impedance transducer 1:4 ; 1:9 ; 1:16	NT-435	☐ SRM-TS Version 1.3.1 software for SRM-3006	NT-522/1
☐ RF-Attenuator DC – 18 GHz 6 dB	NT-436	☐ Spitzenberger und Spies Test software V4.1	NT-525
☐ RF-Attenuator DC – 18 GHz 6 dB	NT-437	☐ Noise power test apparatus according to EN 55014	NT-530
☐ RF-Attenuator DC – 18 GHz 10 dB	NT-438	☐ Vertical coupling plane (ESD)	NT-531
☐ RF-Attenuator DC – 18 GHz 20 dB	NT-439	☐ Test cable #4 for EN 61000-4-6	NT-553
☐ I+P 7780 Directional coupler 100 - 2000 MHz	NT-440	☐ Test cable #3 for conducted emission	NT-554
☐ ESH3-Z2 - Pulse limiter 9 kHz - 30 MHz	NT-441	☐ Test cable #5+#6 ESD-cable (2x470k)	NT-555 + NT-556
☐ Power Divider 6 dB/1 W/50 Ohm	NT-443	☐ Test cable #8 Sucoflex 104EA	NT-559
☐ Directional coupler 0,1 MHz – 70 MHz	NT-444	☐ Test cable #9 (for outdoor measurements)	NT-580
☐ Directional coupler 0,1 MHz – 70 MHz	NT-445	☐ Test cable #10 (for outdoor measurements)	NT-581
☐ Tube imitations according to EN 55015	NT-450	☐ Test cable #13 Sucoflex 104PE	NT-584
☐ FCC-801-M3-16A Coupling decoupling network	NT-458	☐ Test cable #21 for SRM-3000	NT-592
☐ FCC-801-M2-50A Coupling decoupling network	NT-459	☐ Shield chamber	NT-600
☐ FCC-801-M5-25 Coupling decoupling network	NT-460	☐ Climatic chamber	M-1200
☐ FCC-801-AF10 Coupling decoupling network	NT-461		

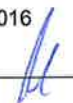
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Appendix 1 (continued) Test equipment used

☐	Anechoic Chamber 3 m / 5 m measuring distance	EMV-100
☐	Turntable 6 m diameter	EMV-101
☐	Antenna mast 1 – 4 m	EMV-102
☐	Mast and Turntable controller FC-06	EMV-103
☐	EMC Video/Audiosystem	EMV-104
☐	EMC Software EMC32 Version 10.01	EMV-105
☐	Hornantenna 1 – 18 GHz HF 907	EMV-110
☐	Antennapre.amp. 1 – 18 GHz ERZ-LNA0200-1800-30-2	EMV-111
☐	Trilog Antenna 30-3000 MHz VULB9163	EMV-112
☐	Monopol 9 kHz – 30 MHz VAMP 9243	EMV-113
☐	Antennapre.amp 18 – 40 GHz BBV 9721	EMV-114
☐	DC Artificial Network PVDC 8300	EMV-150
☐	AC Artificial Network NNLK 8121 RC	EMV-151
☐	EMI Receiver ESR26	EMV-200
☐	Signalgenerator 9 kHz – 40 GHz N5173B	EMV-201
☐	GPS Frequency normal B-88	EMV-202
☐	DC Power supply N5745A	EMV-203
☐	DC Power supply N5745A	EMV-204
☐	Spektrum Analyzator FSV40	EMV-205
☐	Thd Multimeter Model 2015	EMV-206
☐	Poweramplifier PAS15000	EMV-207/abc
☐	Inrush Current Source	EMV-208/abc
☐	Arb.-generator Sycore	EMV-209
☐	Harmonics/Flicker analyzer ARS 16/3	EMV-210
☐	HF- Amplifier 9 kHz-250 MHz BBA150	EMV-300
☐	HF- Amplifier 80 -1000 MHz BBA150	EMV-301
☐	HF- Amplifier 0,8 - 6 GHz BBA150	EMV-302
☐	High Power Ant. 20-200 MHz VHBD 9134	EMV-303

☐	Log.per Antenna 80-2700 MHz STLP 9128 E special	EMV-304
☐	Log.per Antenna 0,7 – 9 GHz STLP9149	EMV-305
☐	Load Dump Generator LD 200N	EMV-350
☐	Ultra Compact Symulator UCS 200N100	EMV-351
☐	Automotive Power fail module PFM 200N100.1	EMV-352
☐	Voltage Drop Symulator VDS 200Q100	EMV-353
☐	Arb. Generator AutoWave	EMV-354
☐	Ultra Compact Symulator UCS 500N7	EMV-355
☐	Coupling decoupling network CNI 503B7 / 32 A	EMV-356
☐	Coupling decoupling network CNI 503B7 / 63 A	EMV-357
☐	Telecom Surge Generator TSurge 7	EMV-358
☐	Coupling decoupling network CNI 508N2	EMV-359
☐	Coupling decoupling network CNV 504N2.2	EMV-360
☐	Immunity generator NSG4060/NSG4060-1	EMV-361
☐	Coupling network CDND M316-2	EMV-362
☐	Coupling network CT419-5	EMV-363
☐	ESD Generator NSG 437	EMV-364
☐	Pulse Limiter VTSD 9561-F BNC	EMV-405
☐	Transient emission BSM200N40+BS200N100	EMV-450+451
☐	Cap. Coupling Clamp HFK	EMV-455
☐	Mag. Field System MS100N+MC26100+MC2630	EMV-456-458
☐	Coupling network CDN M2-100A	EMV-459
☐	Coupling network CDN M3-32A	EMV-460
☐	Coupling network CDN M5-100A	EMV-461
☐	Current Clamp CIP 9136A	EMV-462
☐	DC Artificial Network HV-AN 150	EMV-464+465
☐	Coupling Clamp EM 101	EMV-466
☐	Decoupling Clamp FTC 101	EMV-467
☐	Power attenuator DG 250 W 6 GHz 6 dB	EMV-469

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Appendix 2 Photodocumentation

Description: Front view

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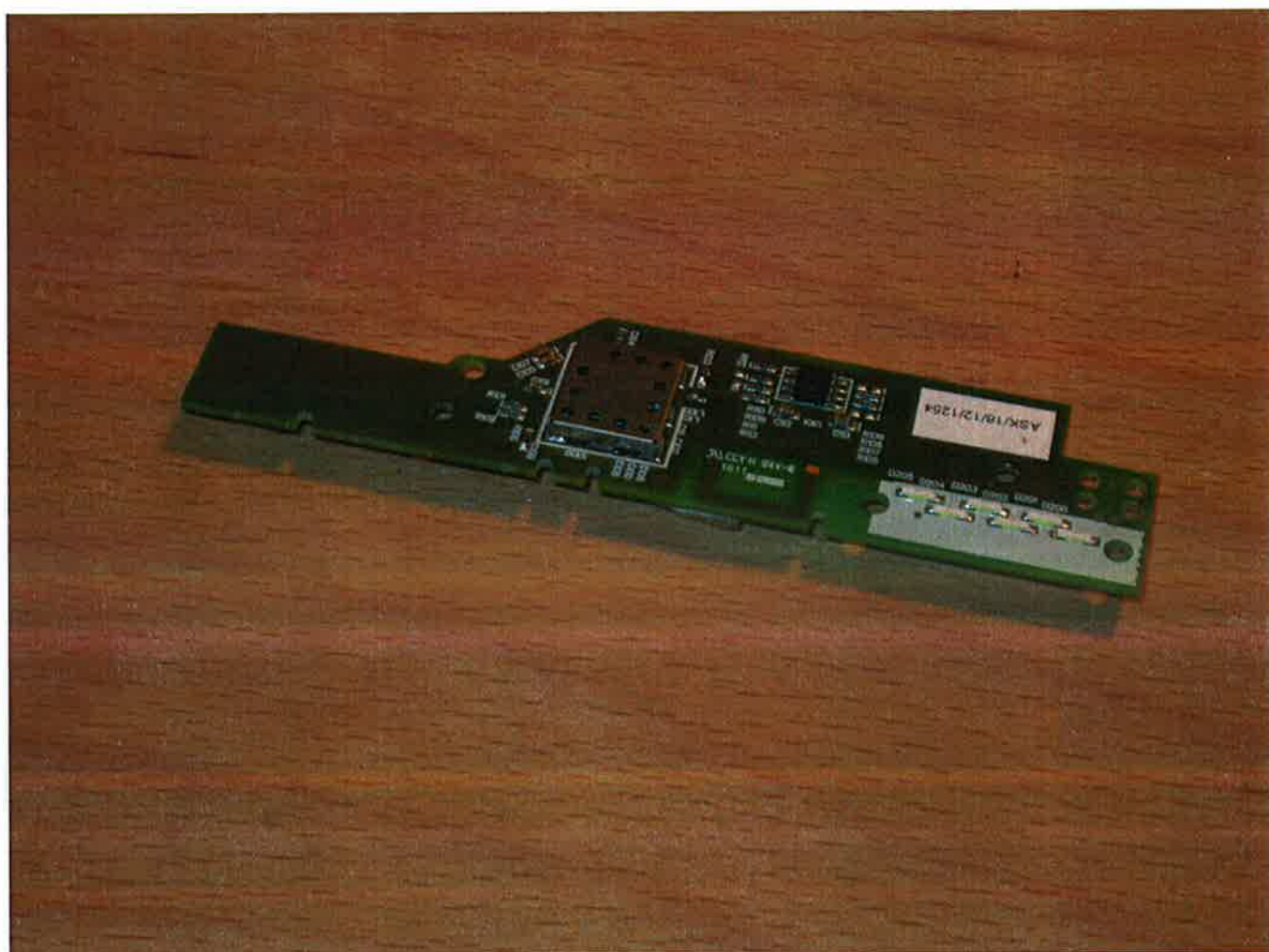
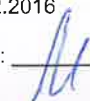
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Appendix 2 Photodocumentation

Description: Backside view

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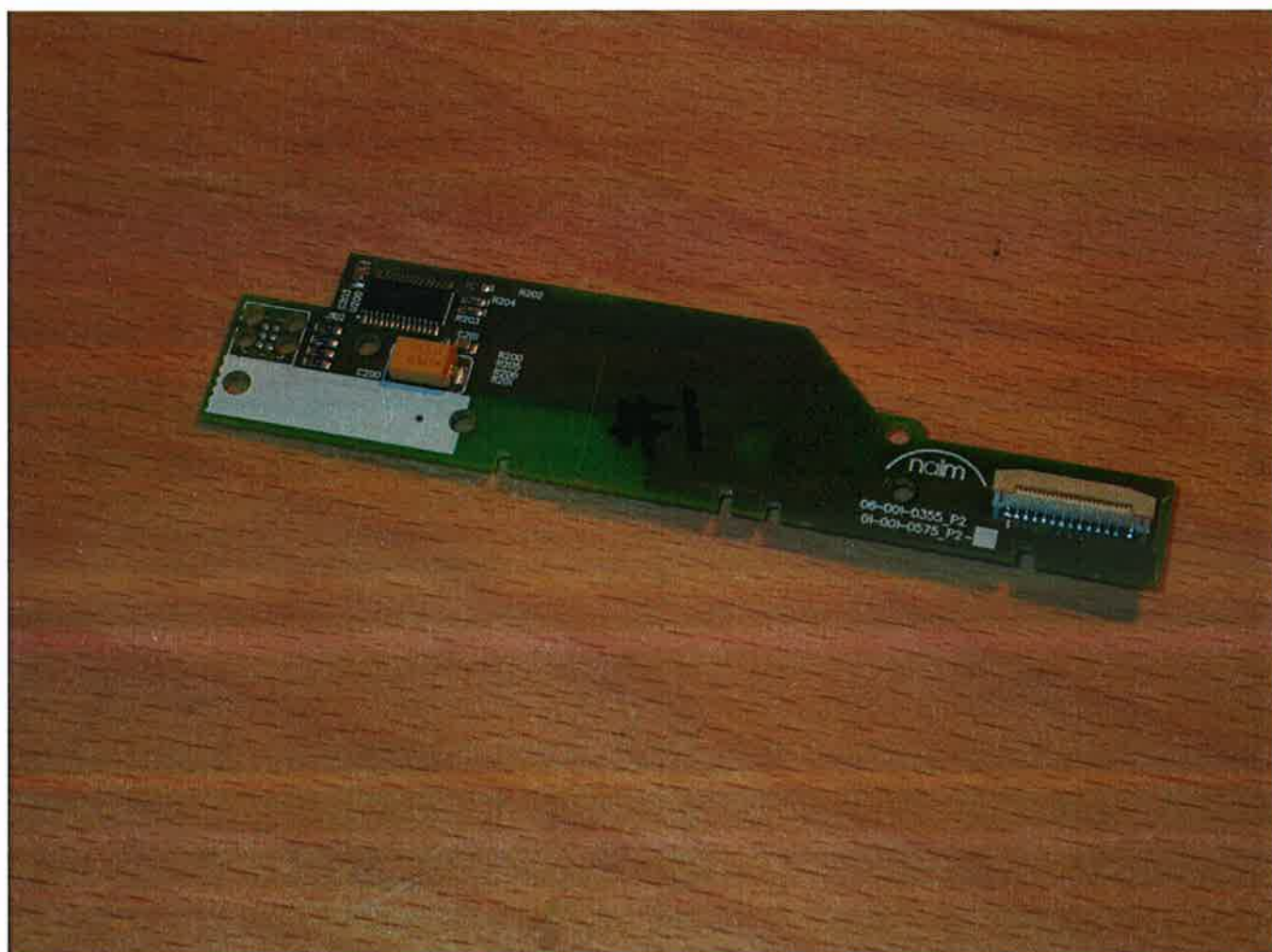
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Appendix 2 Photodocumentation

Description: RF part without shielding an with temporary antenna connector

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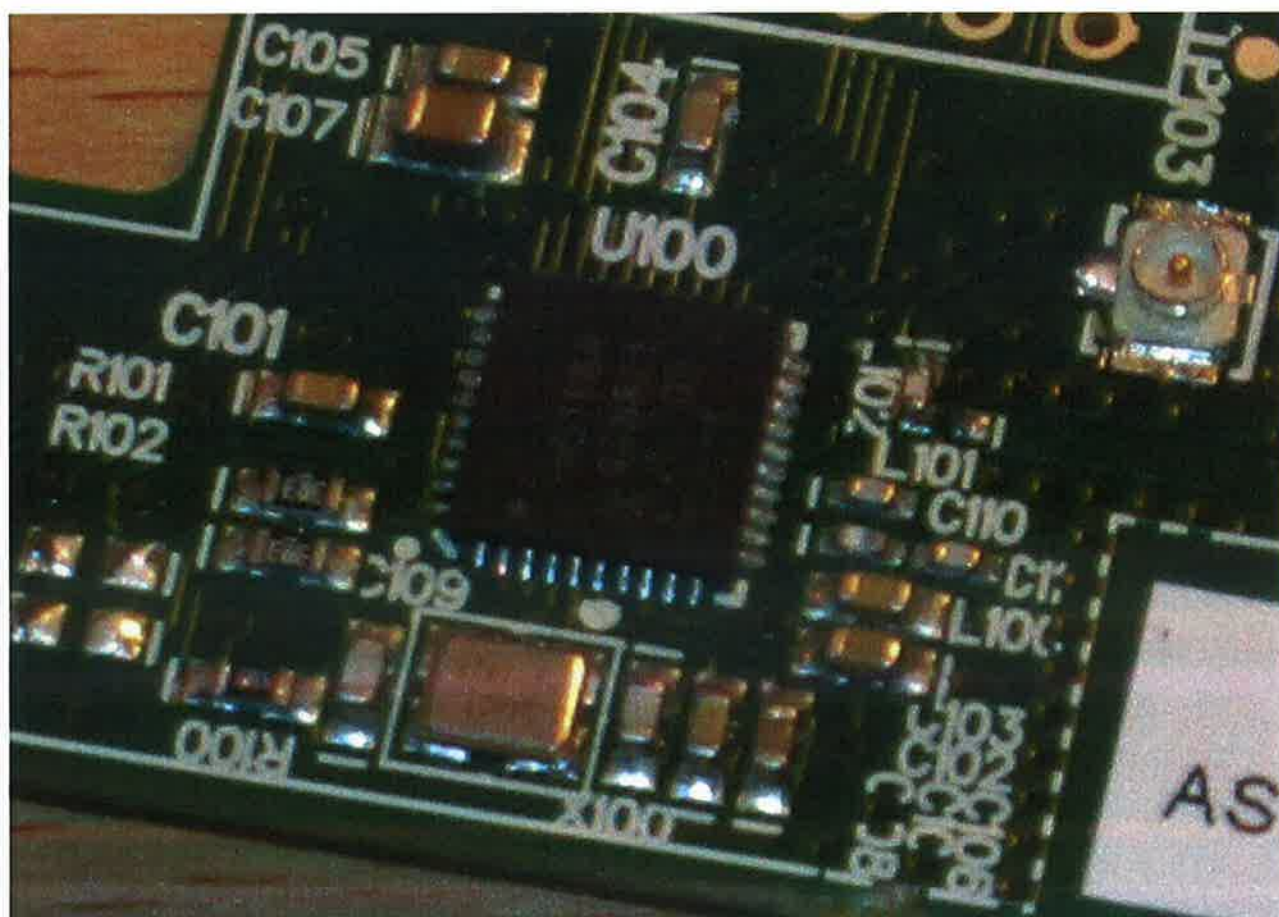
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Appendix 2 Photodocumentation

Description: Test setup radiated measurements

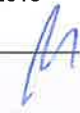
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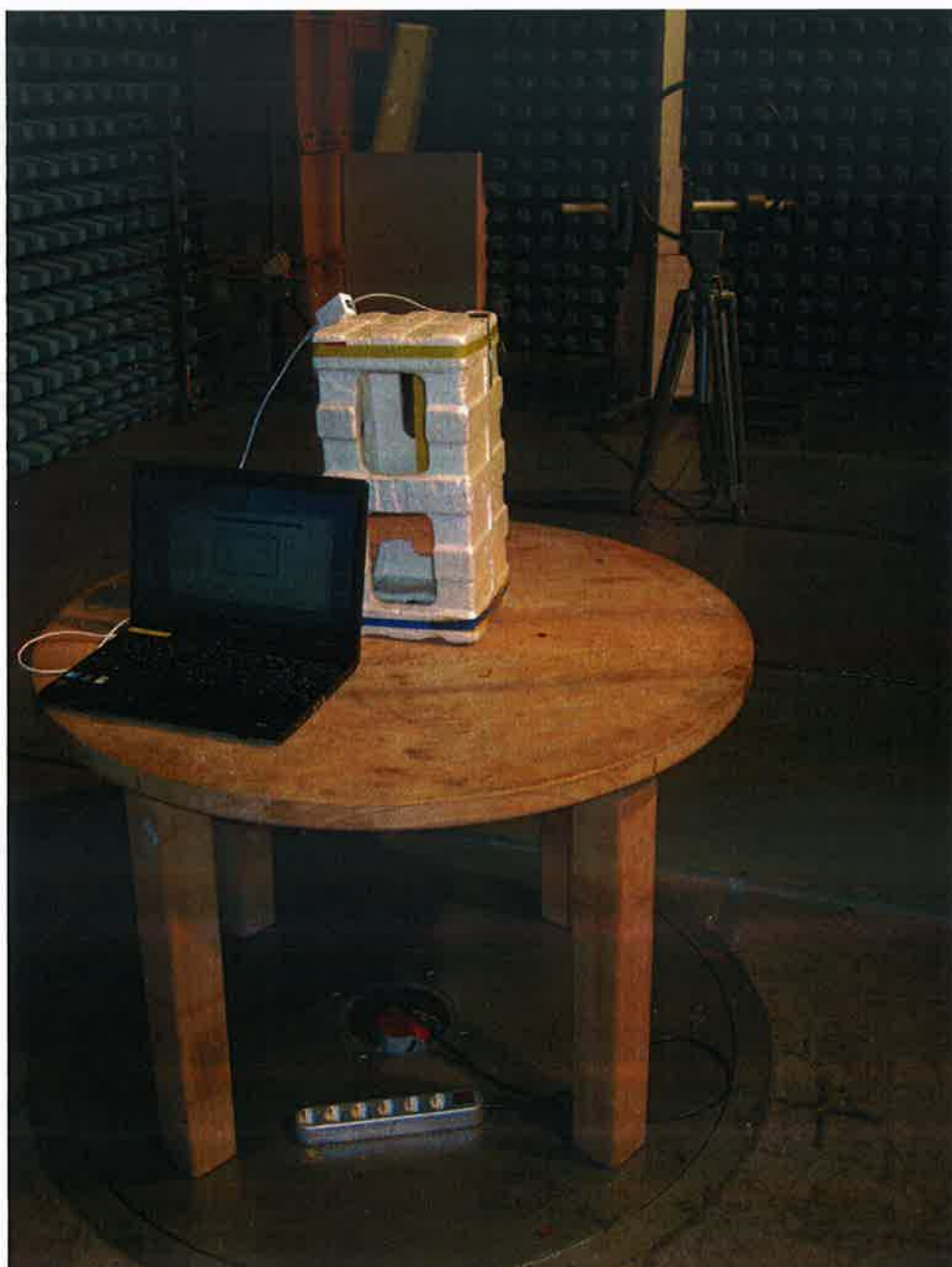
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Appendix 2 Photodocumentation

Description: Test setup radiated measurements
above 1 GHz

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