

TEST REPORT

of the accredited test laboratory

TÜV Nr.:M/FG-13/108

Deutschstraße 10
A-1230 Vienna
Tel.:
+43(0)1 610 91-0
pzw@tuv.at

Division:
Medical Technology/
Communication
Technology/ EMC

Department:
Testing Body for
Communication
Technology/ EMC

TÜV®

Applicant: Automated Control Technology Partners, Inc
2400 Sandlake Rd Suite 600
32839 Orlando - Florida
USA

Tested Product: Streaming audio device (Bluetooth part)

FCC-ID: 2AAO8-AZSS1

IC-ID: 11338A-AZSS1

Manufacturer: See above

Output power / 1,32 mW eirp **power supply:** 24 VDC
field strength:

Frequency range: 2402 - 2480 MHz **Channel separation:** 1 MHz

Standard: FCC: 47 CFR Part 15 (October 1, 2012 edition)
RSS-210 Issue 8, December 2010



Testing Laboratory,
Inspection Body,
Certification Body,
Calibration Laboratory

Notified Body 0408
IC 2932K-1

Chairman of the
Supervisory Board:
KR Dipl.-Ing. Johann
MARIHART

Management:
Dipl.-Ing. Dr. Stefan
HAAS
Mag. Christoph
WENNINGER

Registered Office:
Krugerstrasse 16
1015 Vienna/Austria

Branch Office:
Dornbirn, Graz,
Innsbruck, Klagenfurt,
Linz, Salzburg, St. Pölten,
Wels, Wien 1, Wien 2,
Wien 23, Brixen (I) und
Filderstadt (D)

Company Register
Court / - Number:
Vienna / FN 288476 f

Banking Connections
BA CA 52949 001 066
IBAN
AT1312000529490010
BIC BKAUATWW
RBI 001-04.093.282
IBAN
AT1531000001040932
BIC RZBAATWW

UID ATU63240488
DVR 3002476

TUV Austria Services GmbH
Test laboratory for EMC

Supervisor of EMC-laboratory:


Ing. Wilhelm Seier



16.09.2013

Copy Nbr.: 01

checked by:


Ing. Michael Emminger

A publication of this test report is only permitted literally.
Copying or reproduction of partial sections needs a written permission of
TUV Austria Services GmbH.

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-210 is given below.

SUBCLAUSE	PARAMETER TO BE MEASURED	PAGE
	Intentional Radiators	
	Test object data	3
15.247(a)(1) A8.1 (b) (d)	Number of channels and channel spacing	4
15.247(a)(1) A8.1 (a)	20 dB Bandwidth	5-7
15.247(b)(1) A8.4 (2)	Maximum Peak RF Power Output (eirp)	8
15.247(a)(1)(iii) A8.1 (d)	Average time of occupancy	9-14
15.247(d) A8.5	Out-of-band Emissions	15-19
15.209(a)	Emissions in restricted bands	20
15.247(i)	Maximum permissible exposure	20

TEST OBJECT DATA

General EUT Description

This streaming audio device uses either Ethernet, Bluetooth or WIFI as network/datalink connection. The device contains audio amplifier, so that it can play audio files via loudspeakers that are not part of the device.

This test report refers only to the Bluetooth capability of this device.

2.1033 (c) Technical description

2.1033 (4) Type of emission: 866KF1D – Channel bandwidth < 1MHz – Channel spacing 1 MHz.

2.1033 (5) Frequency range: 2402 to 2480 MHz (channel center frequencies).

2.1033 (6) Power range and Controls: The maximum peak output power is 1,32 mW and there is no power regulation.

2.1033 (7) Maximum output power rating: 1,32 mW eirp.

2.1033 (8) DC Voltage and Current: 24 V via external power supply
maximum current consumption: 2,04 A)

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

Tests were performed on 29th till 31st July 2013.

Number of channels and channel spacing

§ 15.247 (a) (1)
A 8.1 (b) (d)

Radiated Measurement

Rated output power: 1,32 mW

There are 79 Channels used starting at 2402 till 2480 MHz each spaced by 1 MHz channel spacing.

LIMIT **SUBCLAUSE 15.247(a) (1) – A8.1(a)**

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.

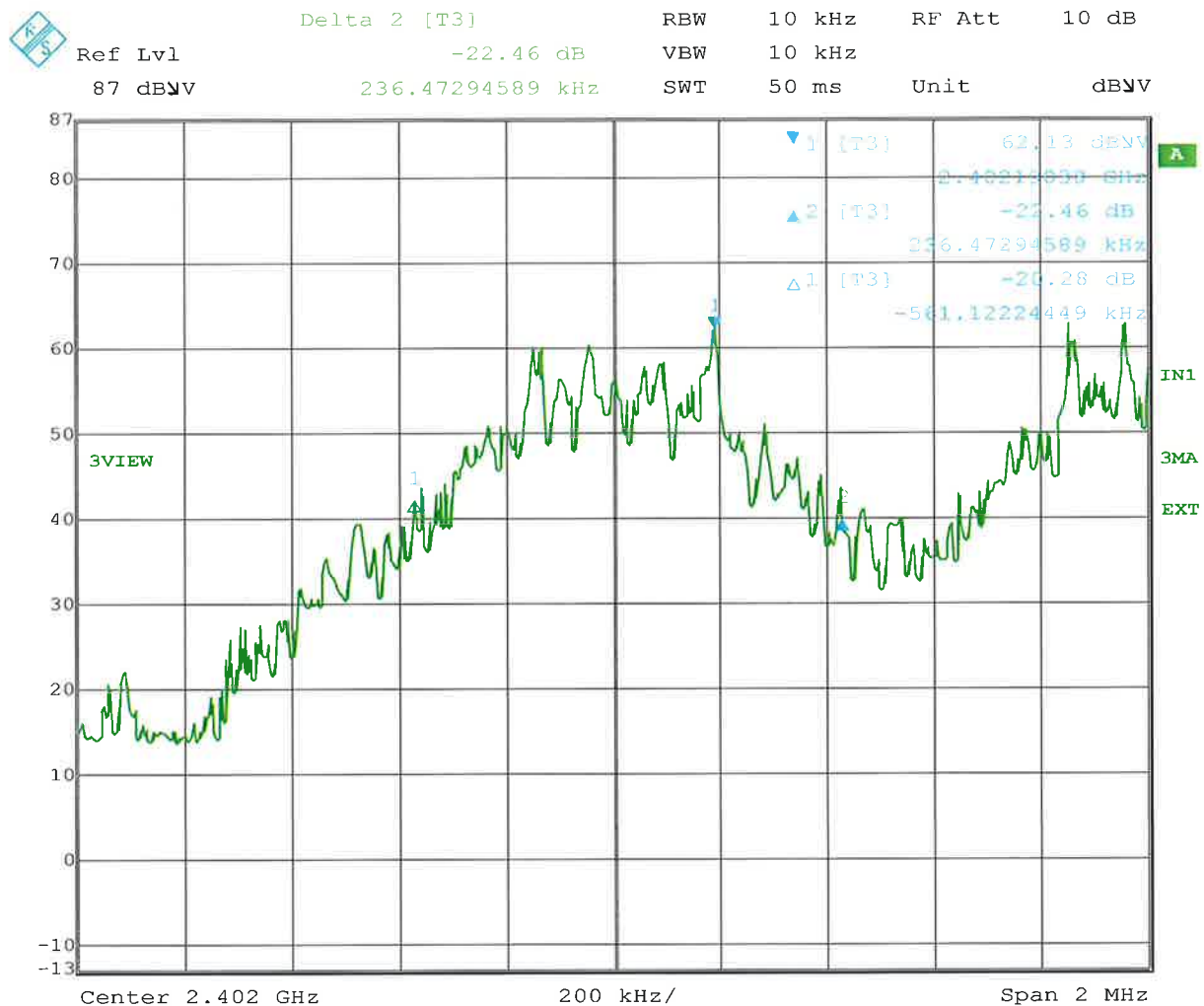
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520;
NT-550

20dB Bandwidth

§ 15.247 (a) (1)
A8.1 (a)

Radiated Measurement

Rated output power: 1,32 mW 2402 MHz



Date: 30.JUL.2013 13:23:33

20dB Bandwidth: 798 kHz

LIMIT SUBCLAUSE 15.247(a) (1) – A8.1(a)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.

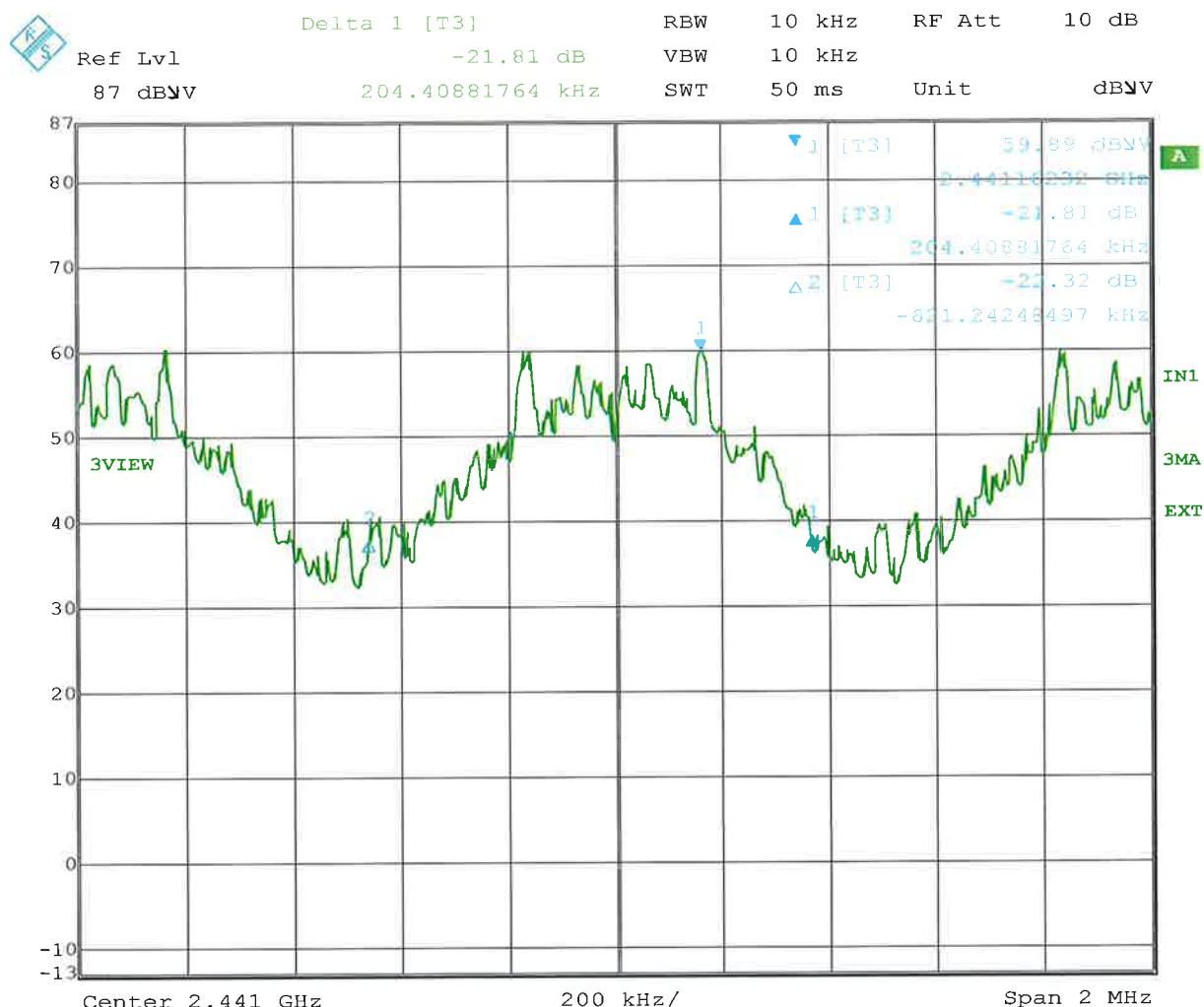
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

20dB Bandwidth

§ 15.247 (a) (1)
A8.1 (a)

Radiated Measurement

Rated output power: 1,32 mW 2441 MHz



Date: 30.JUL.2013 12:40:02

20dB Bandwidth: 826 kHz

LIMIT SUBCLAUSE 15.247(a) (1) – A8.1(a)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.

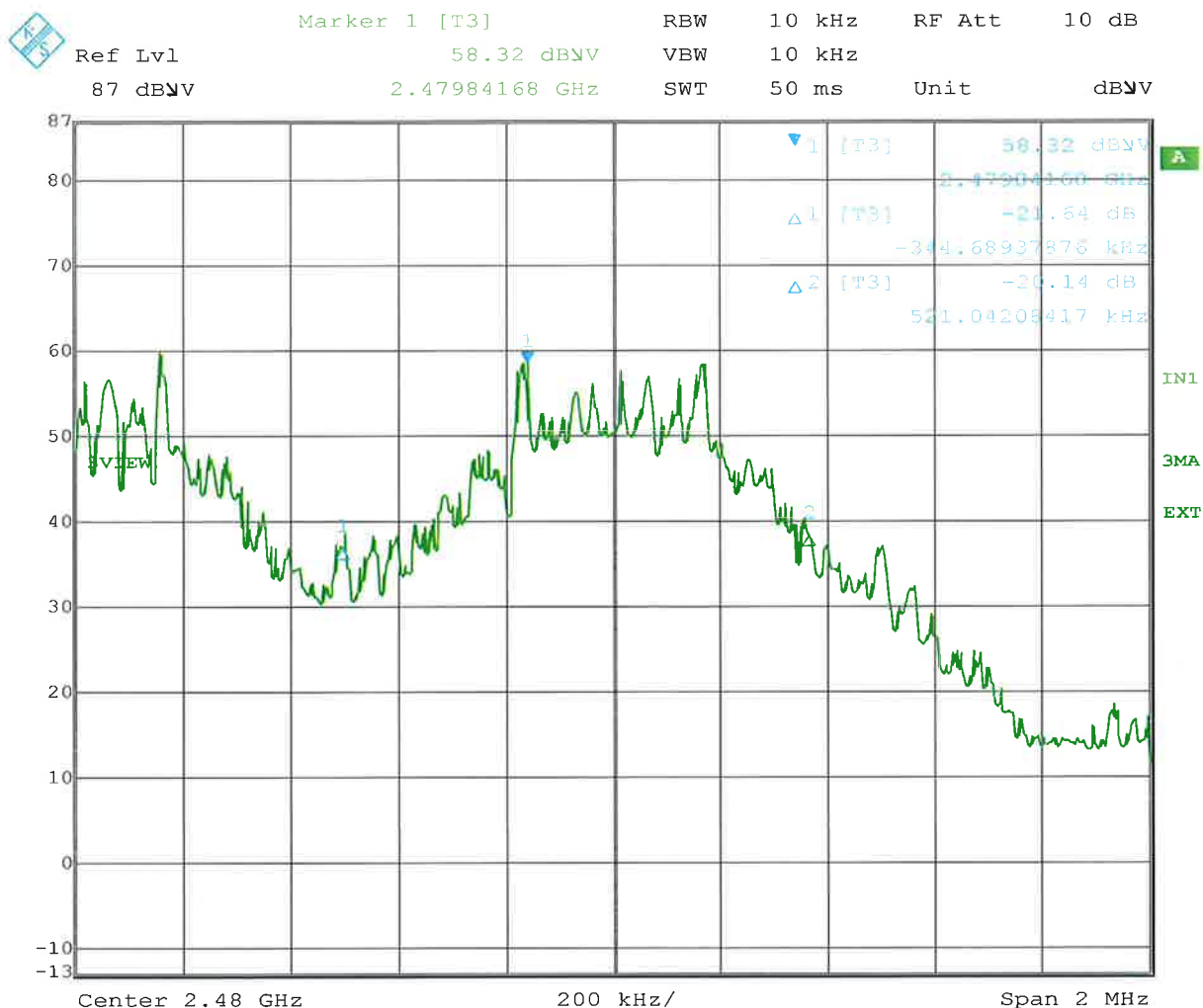
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

20dB Bandwidth

§ 15.247 (a) (1)
A8.1 (a)

Radiated Measurement

Rated output power: 1,32 mW 2480 MHz



Date: 30.JUL.2013 12:30:19

20dB Bandwidth: 866 kHz

LIMIT SUBCLAUSE 15.247(a) (1) – A8.1(a)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Maximum Peak RF Power Output (EIRP)

**§ 15.247(b)(1)
A8.4(2)**

Radiated Measurement

Rated output power: 1,32 mW

Test conditions		Transmitter power (mW) (eirp)		
		2402 MHz	2441 MHz	2480 MHz
T_{nom} (25)°C	V_{nom} (3,7) V	1,32	1,29	1,17
Maximum deviation from rated output power under normal test conditions (dB)		0	-0,1	-0,5
Measurement uncertainty		$\pm 0,75$ dB		

LIMIT

SUBCLAUSE 15.247(b)(1) – A8.4(2)

Under normal test conditons	1W conducted (4W eirp)
-----------------------------	------------------------

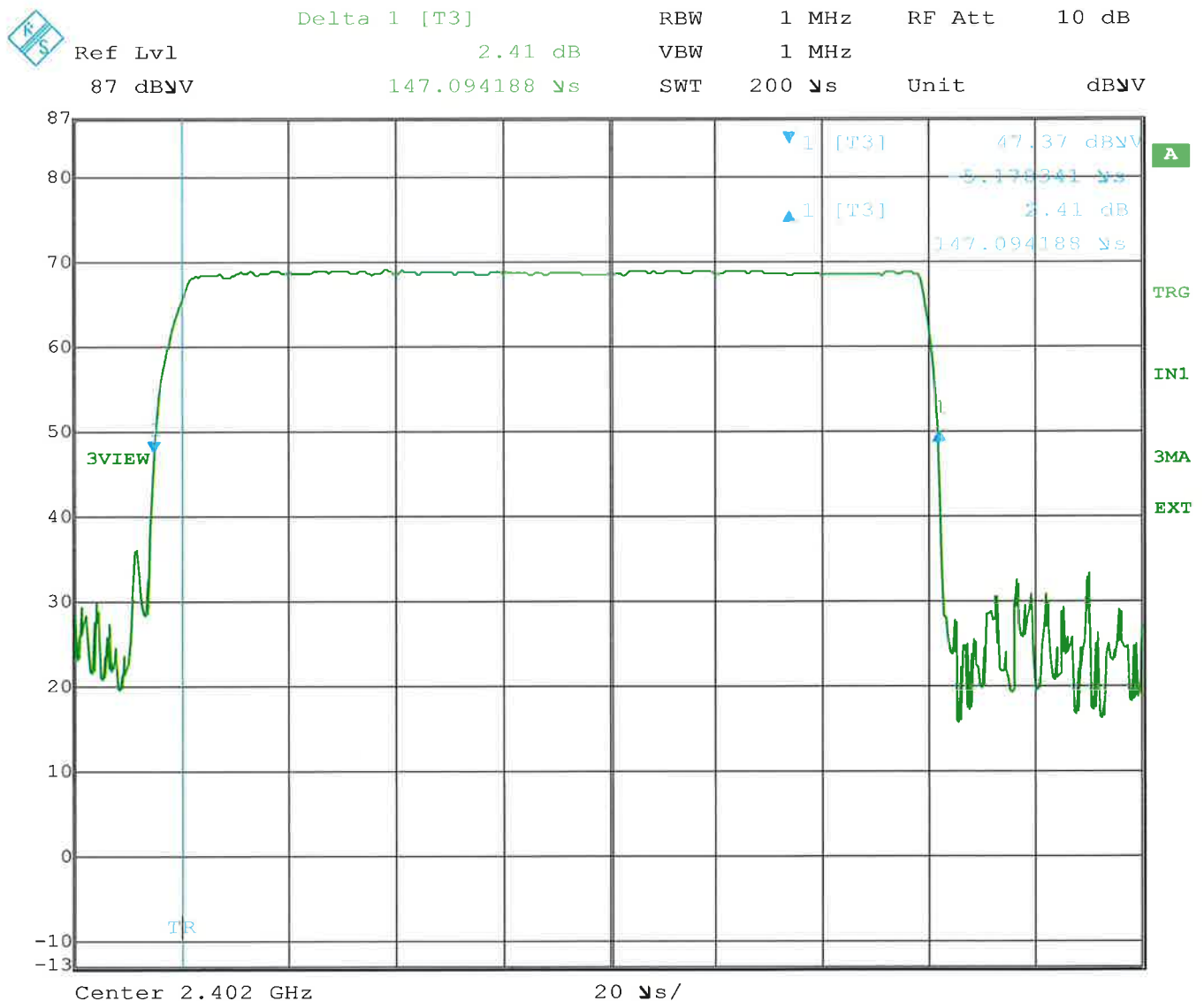
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Average Time of Occupancy

§ 15.247(a)(1)(iii)
A8.1(d)

Radiated Measurement

Rated output power: 1,32 mW 2402 MHz



Date: 30.JUL.2013 13:26:53

The dwell time is constant 147,1 μs.

LIMIT

SUBCLAUSE 15.247(a)(1)(iii) – A8.1(d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

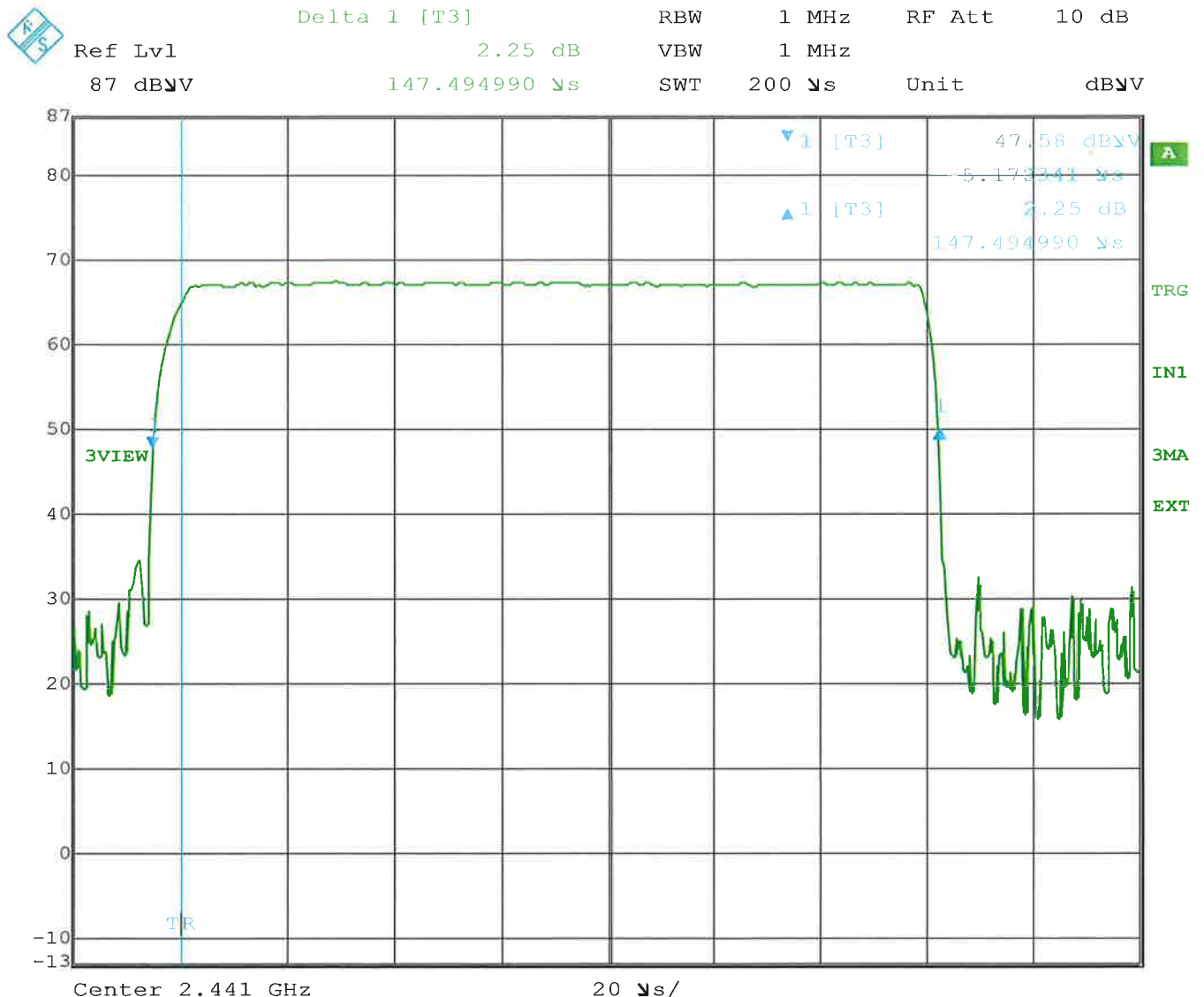
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Average Time of Occupancy

§ 15.247(a)(1)(iii)
A8.1(d)

Radiated Measurement

Rated output power: 1,32 mW 2441 MHz



Date: 30.JUL.2013 13:38:26

The dwell time is constant 147,5 μs.

LIMIT SUBCLAUSE 15.247(a)(1)(iii) – A8.1(d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

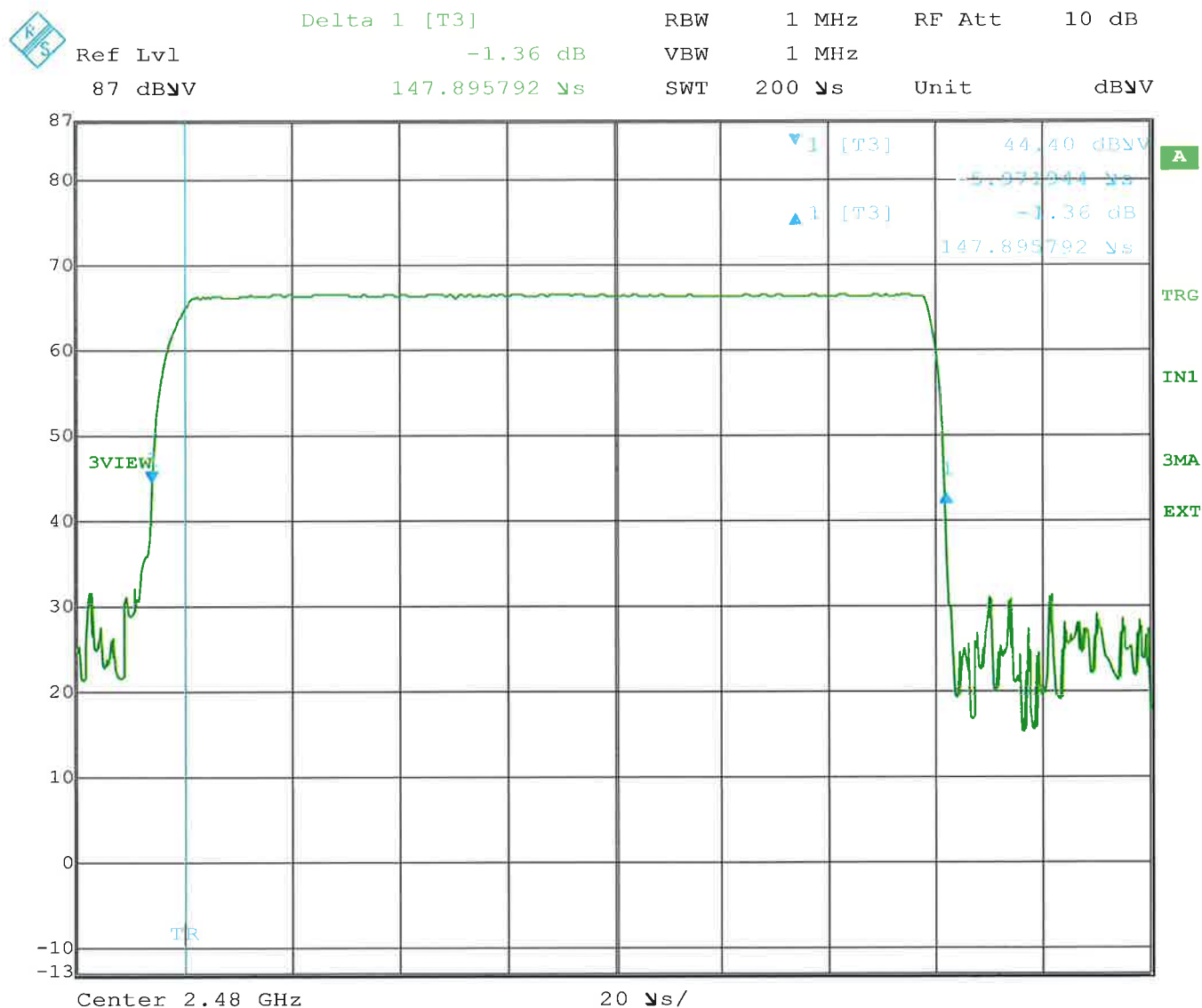
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Average Time of Occupancy

§ 15.247(a)(1)(iii)
A8.1(d)

Radiated Measurement

Rated output power: 1,32 mW 2480 MHz



Date: 30.JUL.2013 13:39:13

The dwell time is constant 147,9 μ s.

LIMIT

SUBCLAUSE 15.247(a)(1)(iii) – A8.1(d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

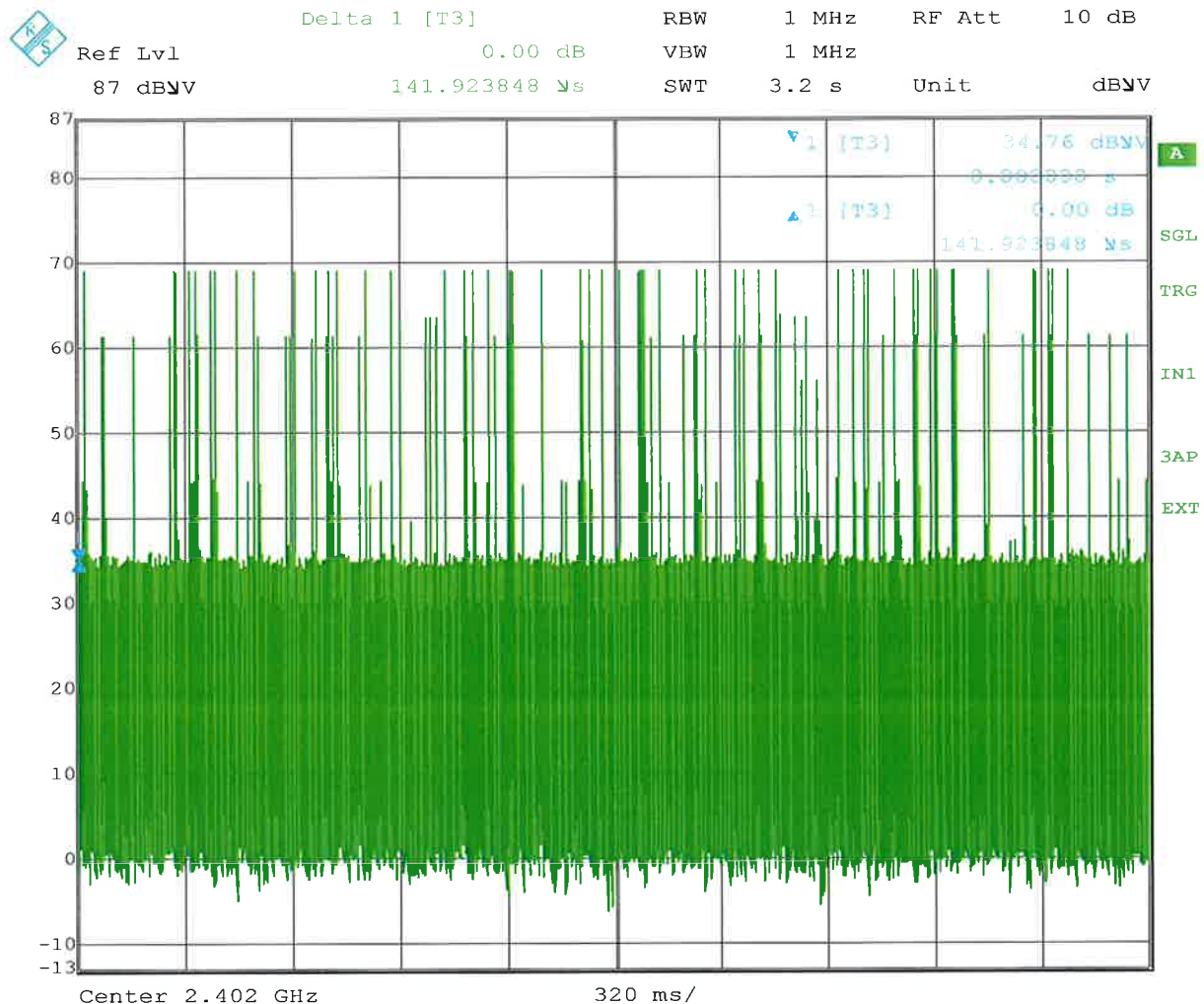
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Average Time of Occupancy

§ 15.247(a)(1)(iii)
A8.1(d)

Radiated Measurement

Rated output power: 1,32 mW 2402 MHz



Date: 30.JUL.2013 13:29:18

Given 79 hopping channels the period of the channel number multiplied with 0,4 seconds results in 31,6. For the high number of transmissions, only a tenth of this time period was recorded (3,2 seconds). The number of transmissions in 3,2 seconds was 54. This number is multiplied by 10 to achieve the number of transmissions in 31,6 (32) seconds. Each transmission has a dwell time of 147,1 μs, multiplied by 540 transmissions resulting in an average occupancy of 79,434 ms which is far below 0,4 seconds.

LIMIT SUBCLAUSE 15.247(a)(1)(iii) – A8.1(d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

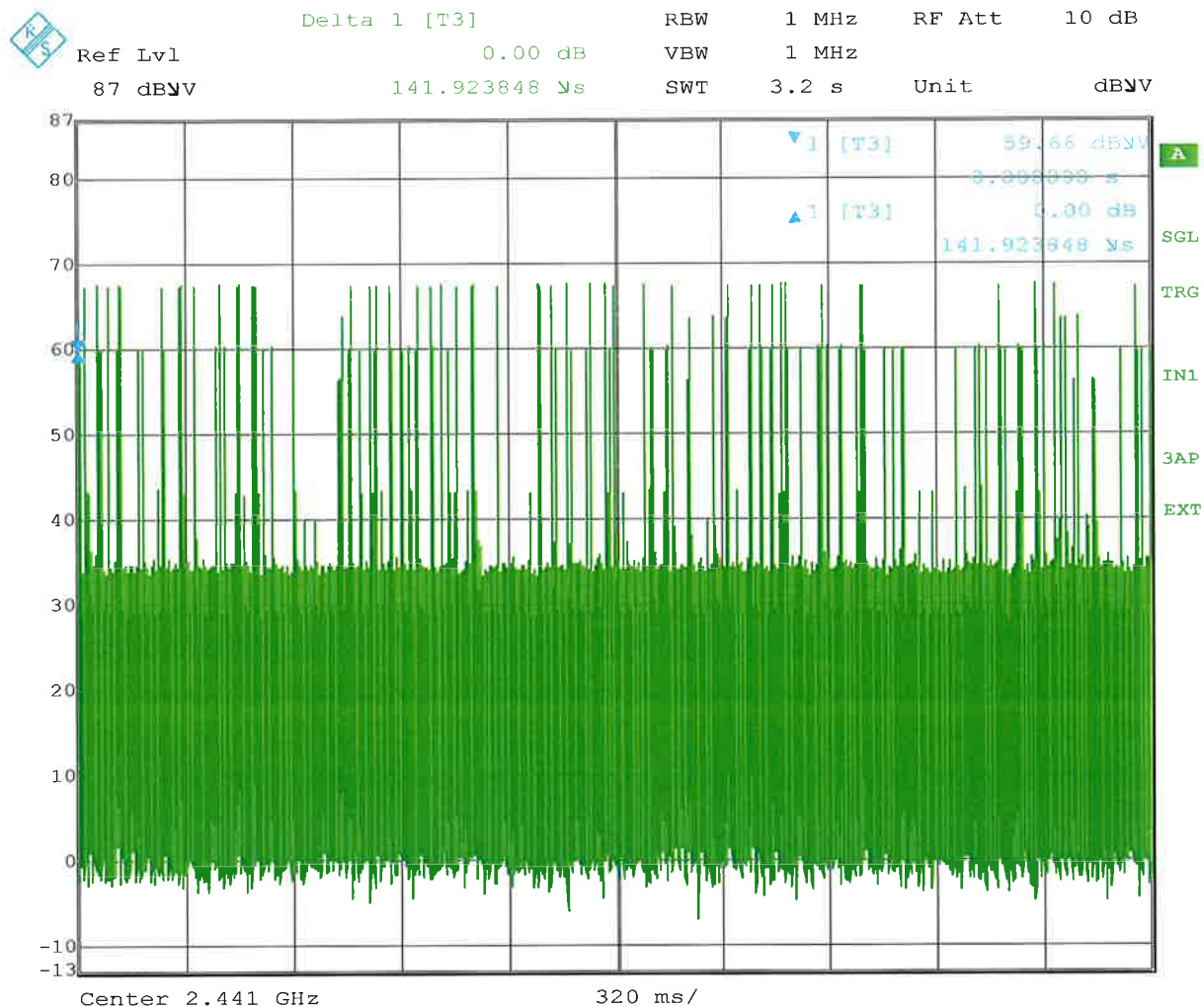
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Average Time of Occupancy

§ 15.247(a)(1)(iii)
A8.1(d)

Radiated Measurement

Rated output power: 1,32 mW 2441 MHz



Date: 30.JUL.2013 13:36:45

Given 79 hopping channels the period of the channel number multiplied with 0,4 seconds results in 31,6. For the high number of transmissions, only a tenth of this time period was recorded (3,2 seconds). The number of transmissions in 3,2 seconds was 48. This number is multiplied by 10 to achieve the number of transmissions in 31,6 (32) seconds. Each transmission has a dwell time of 147,5µs, multiplied by 480 transmissions resulting in an average occupancy of 70,8 ms which is far below 0,4 seconds.

LIMIT SUBCLAUSE 15.247(a)(1)(iii) – A8.1(d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

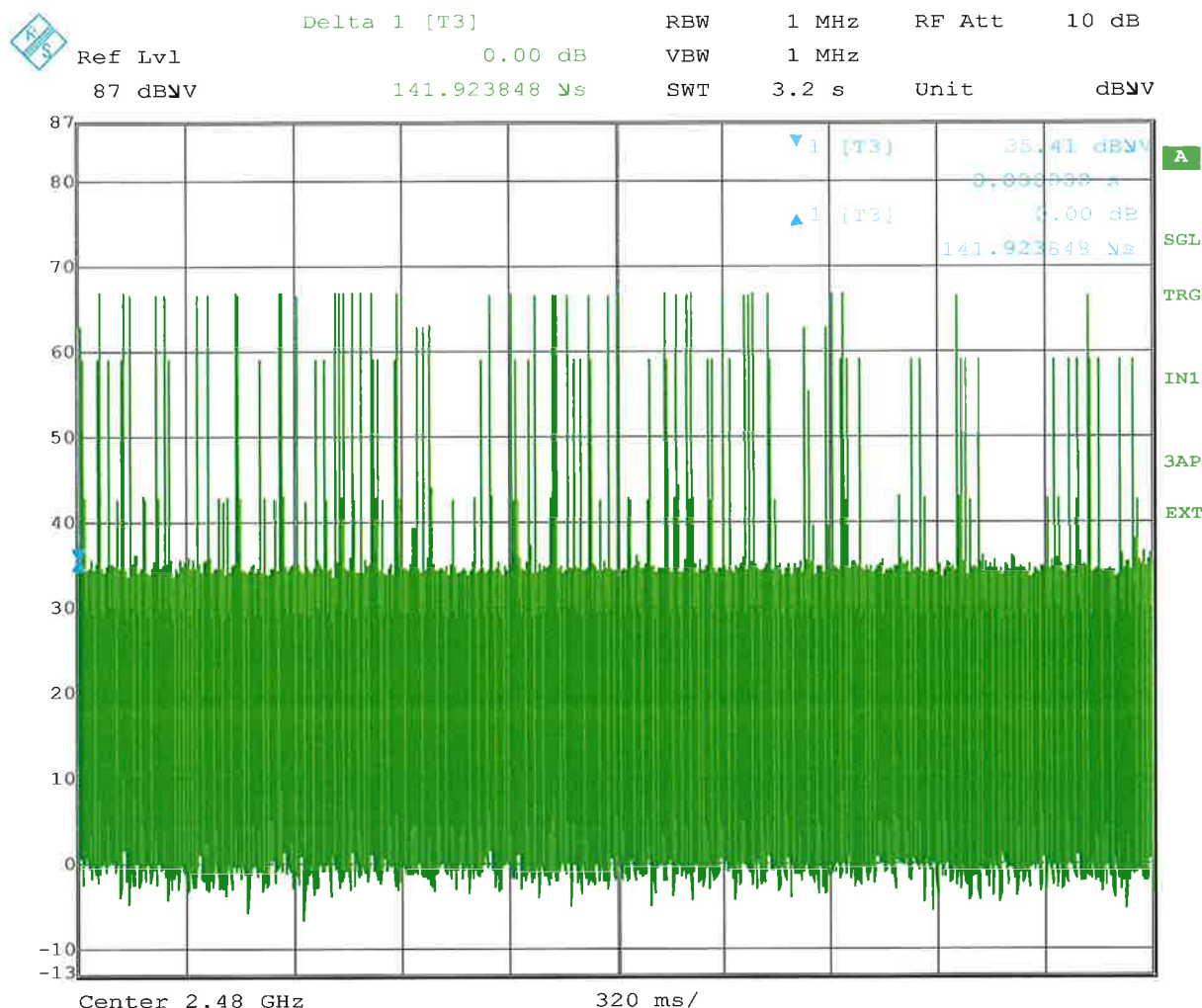
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Average Time of Occupancy

§ 15.247(a)(1)(iii)
A8.1(d)

Radiated Measurement

Rated output power: 1,32 mW 2480 MHz



Date: 30.JUL.2013 13:35:32

Given 79 hopping channels the period of the channel number multiplied with 0,4 seconds results in 31,6. For the high number of transmissions, only a tenth of this time period was recorded (3,2 seconds). The number of transmissions in 3,2 seconds was 42. This number is multiplied by 10 to achieve the number of transmissions in 31,6 (32) seconds. Each transmission has a dwell time of 147,9μs, multiplied by 420 transmissions resulting in an average occupancy of 62,118 ms which is far below 0,4 seconds.

LIMIT SUBCLAUSE 15.247(a)(1)(iii) – A8.1(d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

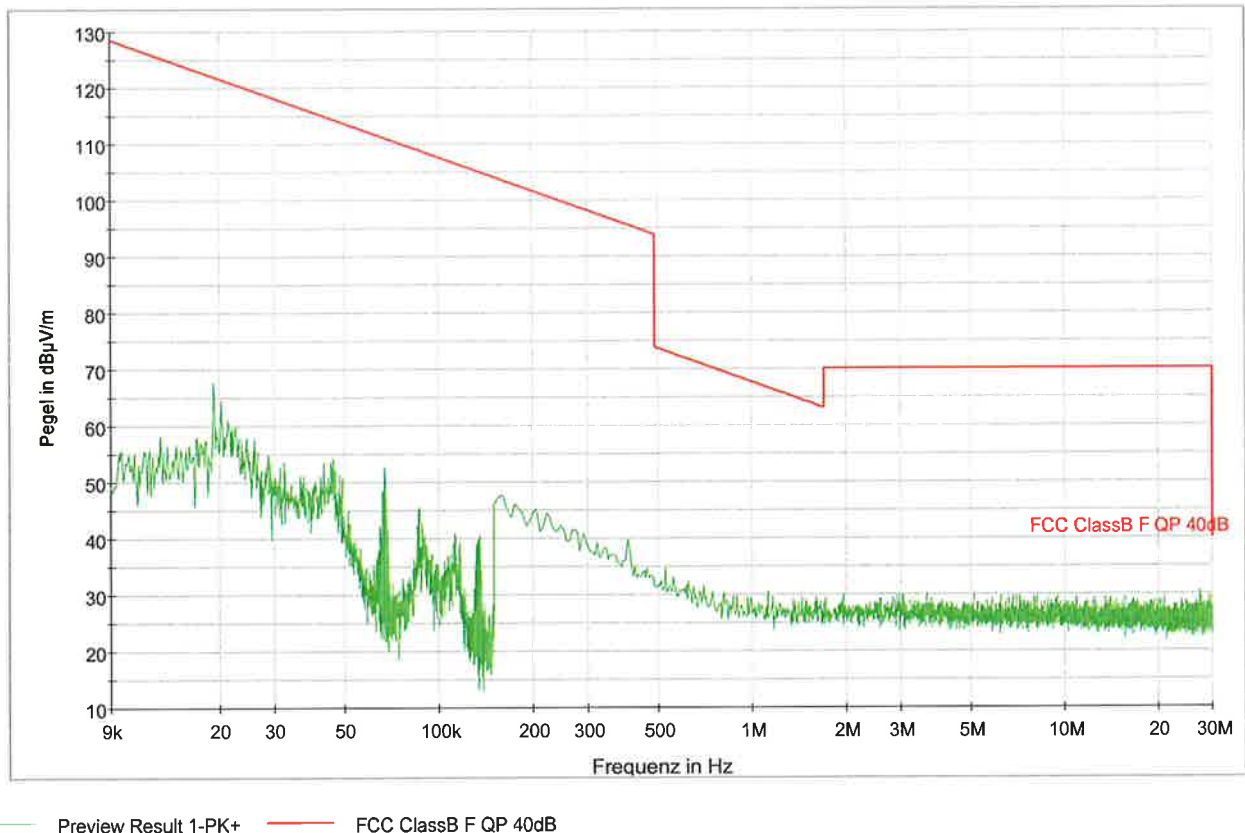
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-126; NT-150; NT-207; NT-500; NT-520; NT-550

Out-of-band Emission

§ 15.247(d)
A8.5

Measurement with Peak-Detector:

Frequency hopping active



Worst case emission: 67,7 dBµV/m @ 19,2 kHz

LIMIT

SUBCLAUSE 15.247(d) – A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

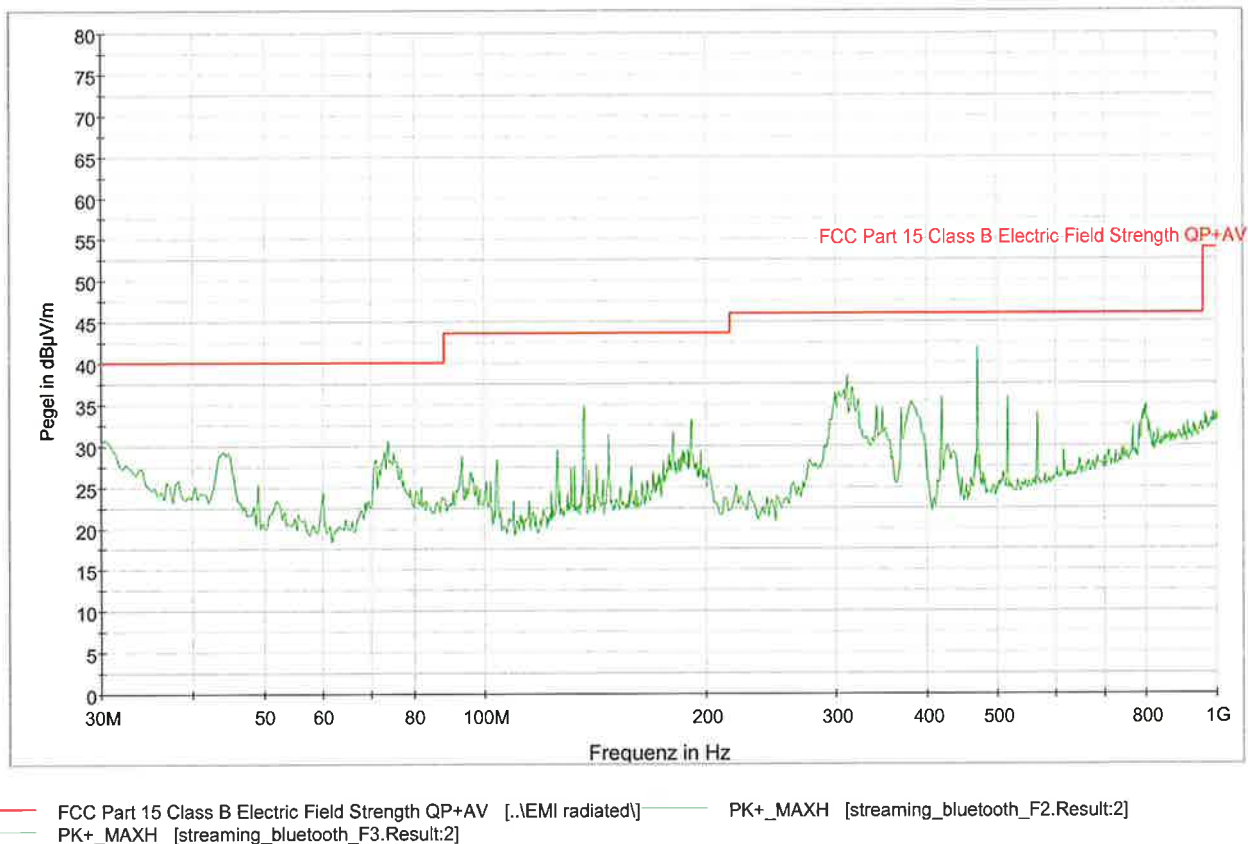
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-122; NT-207

Out-of-band Emission

§ 15.247(d)
A8.5

Measurement with Peak-Detector:

Frequency hopping active



Worst case emission: 41,8 dBµV/m @ 466,95 MHz

LIMIT

SUBCLAUSE 15.247(d) – A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

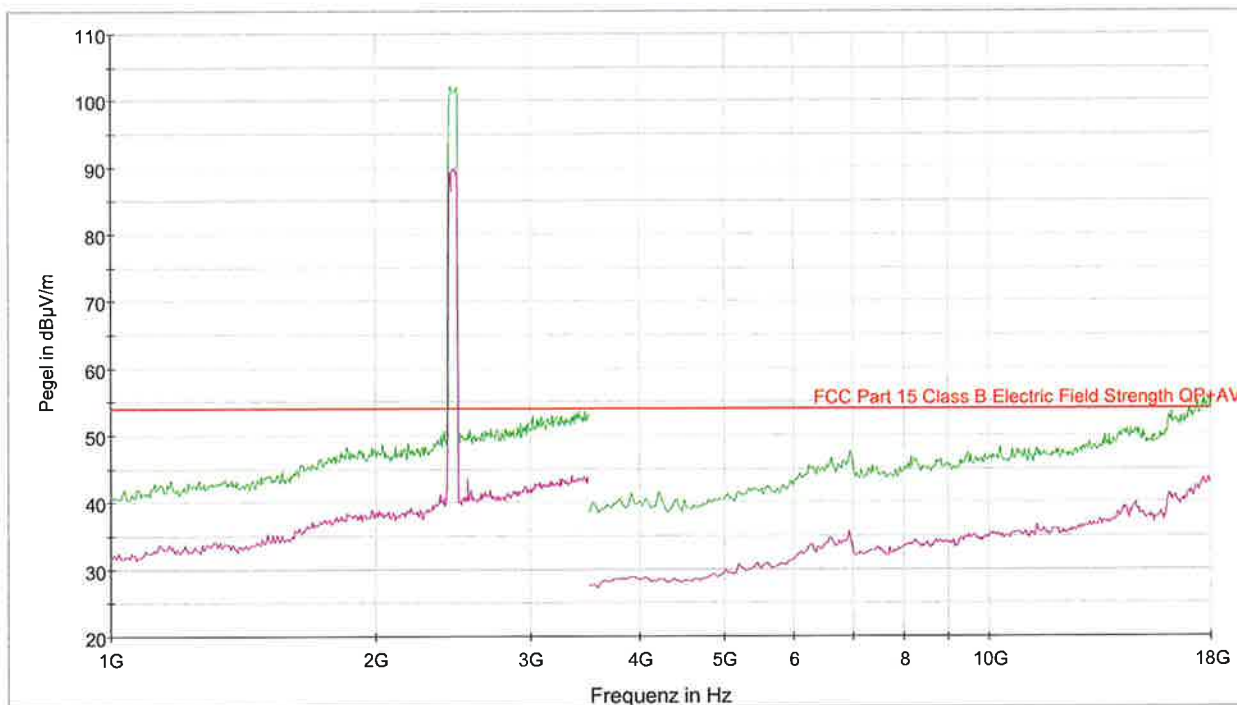
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-129; NT-131; NT-207

Out-of-band Emission

§ 15.247(d)
A8.5

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

Frequency hopping active



- FCC Part 15 Class B Electric Field Strength QP+AV [FCC Part 15 Class B Electric Field Strength QP+AV.LimitLine:1]
- PK+_MAXH [streaming_bluetooth_F4.Result:2]
- AVG_MAXH [streaming_bluetooth_F4.Result:4]
- PK+_MAXH [streaming_bluetooth_F5.Result:2]
- AVG_MAXH [streaming_bluetooth_F5.Result:4]

LIMIT

SUBCLAUSE 15.247(d) – A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.	At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.
---	--

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-139; NT-207; NT-337; NT-416

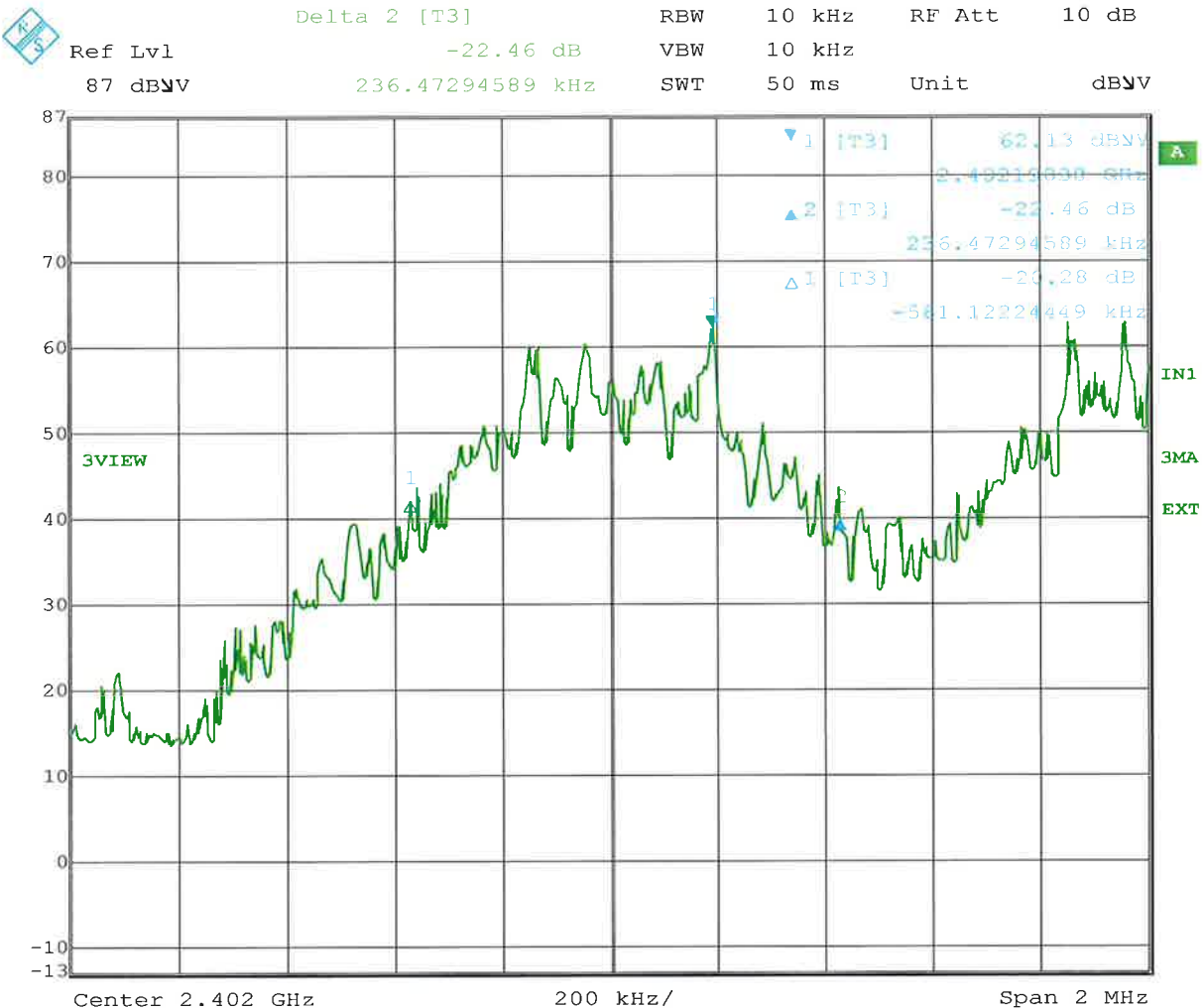
Although the measurements were made up to the tenth harmonic, the curve above is ending at 18 GHz. The tests above 18 GHz are not automatized and therefore we were not able to plot the spectrum analyzer display. Above 18 GHz no emissions above noise level were found.

Out-of-band Emission

**§ 15.247(d)
A8.5**

Measurement with Peak-Detector:

Frequency: 2402 MHz – Band Edge measurement



Date: 30.JUL.2013 13:23:33

LIMIT

SUBCLAUSE 15.247(d) – A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

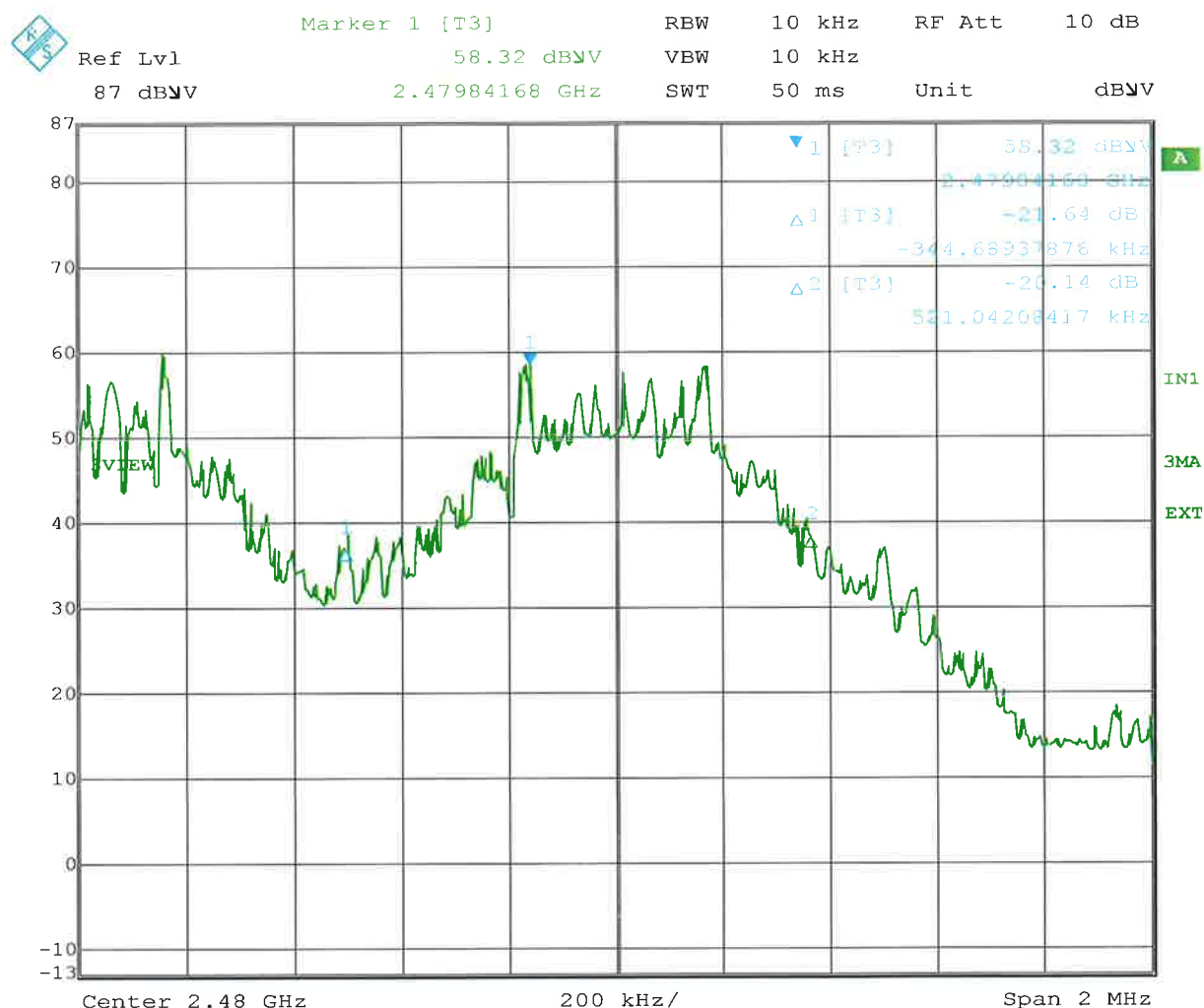
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Out-of-band Emission

§ 15.247(d)
A8.5

Measurement with Peak-Detector:

Frequency: 2480 MHz – Band Edge measurement



Date: 30.JUL.2013 12:30:19

LIMIT

SUBCLAUSE 15.247(d) – A8.5

In any 100 kHz bandwidth outside the frequency band in which the radio device is operating.

At least 20dB below the power in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Emissions in restricted bands

§ 15.209(a)

As the limit 15.209 was checked during "Out-of-band Emission" measurements, no additional measurements were performed.

Maximum permissible Exposure

§ 15.247(i)

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

Appendix 1

Test equipment used

<input type="checkbox"/> Anechoic Chamber with 3m measurement distance	NT-100	<input type="checkbox"/> Spectrumanalyzer – FSP7 9 kHz – 7 GHz	NT-200
<input type="checkbox"/> Stripline according to ISO 11452-5	NT-108	<input type="checkbox"/> ESCI - Test receiver 9 kHz - 7 GHz	NT-203/1
<input type="checkbox"/> MA4000 - Antenna mast 1 - 4 m height	NT-110/1	<input type="checkbox"/> ESI26 – Test receiver 20 Hz – 26,5 GHz	NT-207
<input type="checkbox"/> DS - Turntable 0 - 400 ° Azimuth	NT-111/1	<input type="checkbox"/> Digital Radio Tester CTS55	NT-208
<input type="checkbox"/> CO3000 Controller Mast+Turntable	NT-112/1	<input type="checkbox"/> Noise-gen., ITU-R 559-2 20 Hz – 20 kHz	NT-209
<input type="checkbox"/> HUF-Z3 - Log. Per. Antenna 200 - 1000 MHz	NT-121	<input type="checkbox"/> CMTA - Radiocommunication analyzer ; 0,1 - 1000 MHz	NT-210
<input type="checkbox"/> HFH-Z2 - Loop Antenna 9 kHz - 30 MHz	NT-122	<input type="checkbox"/> 3271 - Spectrum analyzer 100 Hz - 26,5 GHz	NT-211
<input type="checkbox"/> HFH-Z6 - Rod Antenna 9 kHz - 30 MHz	NT-123	<input type="checkbox"/> Digital Radio Tester Aeroflex 3920	NT-212/1
<input type="checkbox"/> 3121C - Dipole Antenna 28 - 1000 MHz	NT-124	<input type="checkbox"/> Mixer M28HW 26,5 GHz - 40 GHz	NT-214
<input type="checkbox"/> 3115 - Horn Antenna 1 - 18 GHz (immunity)	NT-125	<input type="checkbox"/> RubiSource T&M Timing reference	NT-216
<input type="checkbox"/> 3116 - Horn Antenna 18 - 40 GHz	NT-126	<input type="checkbox"/> Radiocommunicationanalyzer SWR 1180 MD	NT-217
<input type="checkbox"/> SAS-200/543 - Bicon. Antenna 20 MHz - 300 MHz	NT-127	<input type="checkbox"/> Mixer M19HWD 40 GHz – 60 GHz	NT-218
<input type="checkbox"/> AT-1080 - Log. Per. Antenna 80 - 1000 MHz	NT-128	<input type="checkbox"/> Mixer M12HWD 60 GHz – 90 GHz	NT-219
<input type="checkbox"/> HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-129	<input type="checkbox"/> DSO9104 Digital scope	NT-220/1
<input type="checkbox"/> HK-116 - bicon. Antenna 20 MHz - 300 MHz	NT-130	<input type="checkbox"/> TPS 2014 Digital scope	NT-222
<input type="checkbox"/> 3146 - Log. Per. Antenna 200 – 1000 MHz	NT-131	<input type="checkbox"/> Artificial Ear according to IEC 60318	NT-224
<input type="checkbox"/> Loop Antenna H-Field	NT-132	<input type="checkbox"/> 1 kHz Sound calibrator	NT-225
<input type="checkbox"/> Horn Antenna 500 MHz - 2900 MHz	NT-133	<input type="checkbox"/> B10 - Harmonics and flicker analyzer	NT-232
<input type="checkbox"/> Horn Antenna 500 MHz - 6000 MHz	NT-133/1	<input type="checkbox"/> ARS 16/3 – Harmonics- flicker analyzer	NT-232/1
<input type="checkbox"/> Log. per. Antenna 800 MHz - 2500 MHz	NT-134	<input type="checkbox"/> SRM-3000 Spectrumanalyzer	NT-233
<input type="checkbox"/> Log. per. Antenna 800 MHz - 2500 MHz	NT-135	<input type="checkbox"/> SRM-3006 Spectrumanalyzer	NT-233/1a
<input type="checkbox"/> BiConiLog Antenna 26 MHz – 2000 MHz	NT-137	<input type="checkbox"/> E-field probe SRM 75 MHz – 3 GHz	NT-234
<input type="checkbox"/> Conical Dipol Antenna PCD8250	NT-138	<input type="checkbox"/> Field Meter NBM-500 incl. E- and H-Field probes	NT-240a-d
<input type="checkbox"/> HF 906 - Horn Antenna 1 - 18 GHz (emission)	NT-139	<input type="checkbox"/> Hall-Teslameter ETM-1	NT-241
<input type="checkbox"/> HZ-1 Antenna tripod	NT-150	<input type="checkbox"/> EFA-3 H-field- / E-field probe	NT-243
<input type="checkbox"/> BN 1500 Antenna tripod	NT-151	<input type="checkbox"/> Field Meter EMR-200 100 kHz – 3 GHz	NT-244
<input type="checkbox"/> Ant. tripod for EN61000-4-3 Model TP1000A	NT-156	<input type="checkbox"/> E-field probe 100 kHz – 3 GHz	NT-245
<input type="checkbox"/> Power quality analyzer Fluke 1760 (complete set)	NT-160 - NT-173	<input type="checkbox"/> H-field probe 300 kHz – 30 MHz	NT-246


Division Medical
Technology/
Communication
Technology/ EMC

Department: FG

Test report number:
M/FG-13/108

Page: 1 of 3

Date: 16.09.2013

Checked by: 

Appendix 1 (continued)

Test equipment used

<input type="checkbox"/>	E-field probe 3 MHz – 18 GHz	NT-247	<input type="checkbox"/>	VCS 500-M6 Surge-Generator	NT-326
<input type="checkbox"/>	H-field probe 27 MHz – 1 GHz	NT-248	<input type="checkbox"/>	Oscillatory Wave Simulator incl. Coupling networks	NT-328a+b+c
<input type="checkbox"/>	ELT-400 1 Hz – 400 kHz	NT-249	<input type="checkbox"/>	BTA-250 - RF-Amplifier 9 kHz - 220 MHz / 250 W	NT-330
<input type="checkbox"/>	MDS 21 - Absorbing clamp 30 - 1000 MHz	NT-250	<input type="checkbox"/>	T82-50 RF-Amplifier 2 GHz – 8 GHz	NT-331
<input type="checkbox"/>	FCC-203I EM Injection clamp	NT-251	<input type="checkbox"/>	500W1000M7 - RF-Amplifier 80 - 1000 MHz / 500 W	NT-332
<input type="checkbox"/>	FCC-203I-DCN Ferrite decoupling network	NT-252	<input type="checkbox"/>	AS0102-65R - RF-Amplifier 1 GHz - 2 GHz	NT-333
<input type="checkbox"/>	PR50 Current Probe	NT-253	<input type="checkbox"/>	APA01 – RF-Amplifier 0,5 GHz – 2,5 GHz	NT-334
<input type="checkbox"/>	PR630 Current Probe	NT-254	<input type="checkbox"/>	Preamplifier 1 GHz - 4 GHz	NT-335
<input type="checkbox"/>	Fluke 87 V True RMS Multimeter	NT-260	<input type="checkbox"/>	Preamplifier for GPS MKU 152 A	NT-336
<input type="checkbox"/>	Model 2000 Digital Multimeter	NT-261	<input type="checkbox"/>	Preamplifier 100 MHz – 23 GHz	NT-337
<input type="checkbox"/>	Fluke 87 V Digital Multimeter	NT-262/1	<input type="checkbox"/>	DC Block 10 MHz – 18 GHz Model 8048	NT-338
<input type="checkbox"/>	ESH2-Z5-U1 Artificial mains network 4x25A	NT-300	<input type="checkbox"/>	2-97201 Electronic load	NT-341
<input type="checkbox"/>	ESH3-Z5-U1 Artificial mains network 2x10A	NT-301	<input type="checkbox"/>	TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-344
<input type="checkbox"/>	ESH3-Z6-U1 Artificial mains network 1x100A	NT-302	<input type="checkbox"/>	TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-345
<input type="checkbox"/>	ESH3-Z6-U1 Artificial mains network 1x100A	NT-302a	<input type="checkbox"/>	VDS 200 Mobil-impuls-generator	NT-350
<input type="checkbox"/>	PHE 4500/B Power amplifier	NT-304	<input type="checkbox"/>	LD 200 Mobil-impuls-generator	NT-351
<input type="checkbox"/>	PAS 5000 Power amplifier	NT-304/1a	<input type="checkbox"/>	MPG 200 Mobil-Impuls-Generators	NT-352
<input type="checkbox"/>	EZ10 T-Artificial Network	NT-305	<input type="checkbox"/>	EFT 200 Mobil-impuls-generator	NT-353
<input type="checkbox"/>	SMG - Signal generator 0,1 - 1000 MHz	NT-310	<input type="checkbox"/>	AN 200 S1 Artificial Network	NT-354
<input type="checkbox"/>	SMA100A - Signal generator 9 kHz - 6 GHz	NT-310/1	<input type="checkbox"/>	FP-EFT 32M 3 ph. Coupling filter (Burst)	NT-400/1
<input type="checkbox"/>	RefRad Reference generator	NT-312	<input type="checkbox"/>	PHE 4500 - Mains impedance network	NT-401
<input type="checkbox"/>	SMP 02 Signal generator 10 MHz - 20 GHz	NT-313	<input type="checkbox"/>	IP 6.2 Coupling filter for data lines (Surge)	NT-403
<input type="checkbox"/>	40 MHz Arbitrary Generator TGA1241	NT-315	<input type="checkbox"/>	TK 9421 High Power Volt. Probe 150 kHz - 30 MHz	NT-409
<input type="checkbox"/>	Artificial mains network NSLK 8127-PLC	NT-316	<input type="checkbox"/>	ESH2-Z3 - Probe 9 kHz - 30 MHz	NT-410
<input type="checkbox"/>	Inrush Current Source for PAS 5000	NT-317a	<input type="checkbox"/>	IP 4 - Capacitive clamp (Burst)	NT-411
<input type="checkbox"/>	Control and measurement device Sycore	NT-318	<input type="checkbox"/>	Highpass-Filter 100 MHz – 3 GHz	NT-412
<input type="checkbox"/>	PEFT - Burst generator up to 4 kV	NT-320	<input type="checkbox"/>	Highpass-Filter 600 MHz – 4 GHz	NT-413
<input type="checkbox"/>	ESD 30 System up to 25 kV	NT-321	<input type="checkbox"/>	Highpass-Filter 1250 MHz – 4 GHz	NT-414
<input type="checkbox"/>	PSURGE 4.1 Surge generator	NT-324	<input type="checkbox"/>	Highpass-Filter 1800 MHz – 16 GHz	NT-415
<input type="checkbox"/>	TRANSIENT 1000 Immunity test system	NT-325			


Division Medical
Technology/
Communication
Technology/ EMC

Department: FG

Test report number:
M/FG-13/108

Page: 2 of 3

Date: 16.09.2013

Checked by: 

Appendix 1 (continued)

Test equipment used

<input type="checkbox"/> Highpass-Filter 3500 MHz – 18 GHz	NT-416	<input type="checkbox"/> FCC-801-S25 Coupling decoupling network	NT-462
<input type="checkbox"/> RF-Attenuator 10 dB DC – 18 GHz / 50 W	NT-417	<input type="checkbox"/> FCC-801-T4 Coupling decoupling network	NT-463
<input type="checkbox"/> RF-Attenuator 6 dB DC – 18 GHz / 50 W	NT-418	<input type="checkbox"/> FCC-801-C1 Coupling decoupling network	NT-464
<input type="checkbox"/> RF-Attenuator 3 dB DC – 18 GHz / 50 W	NT-419	<input type="checkbox"/> F-16A - Current probe 1kHz - 70MHz	NT-465
<input type="checkbox"/> RF-Attenuator 20 dB DC - 1000 MHz / 25 W	NT-421	<input type="checkbox"/> 95242-1 – Current probe 1 MHz – 400 MHz	NT-468
<input type="checkbox"/> RF-Attenuator 30 dB DC - 1000 MHz / 1 W	NT-423	<input type="checkbox"/> 94106-1L-1 – Current probe 100 kHz – 450 MHz	NT-471
<input type="checkbox"/> RF-Attenuator 30 dB	NT-424	<input type="checkbox"/> GA 1240 Power amplifier according to EN 61000-4-16	NT-480
<input type="checkbox"/> RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-425	<input type="checkbox"/> Coupling networks according to EN 61000-4-16	NT-481 - NT-483
<input type="checkbox"/> RF-Attenuator 6 dB DC - 1000 MHz / 1 W	NT-426	<input type="checkbox"/> Van der Hoofden Test Head	NT-484
<input type="checkbox"/> RF-Attenuator 6 dB	NT-428	<input type="checkbox"/> PC P4 3 GHz Test computer	NT-500
<input type="checkbox"/> RF-Attenuator 0 dB - 81 dB	NT-429	<input type="checkbox"/> PC P4 1700 MHz Notebook	NT-505
<input type="checkbox"/> WRU 27 - Band blocking 27 MHz	NT-430	<input type="checkbox"/> Monitoring camera with Monitor	NT-511
<input type="checkbox"/> WHJ450C9 AA - High pass 450 MHz	NT-431	<input type="checkbox"/> ES-K1 Version 1.71 SP2 Test software	NT-520
<input type="checkbox"/> WHJ250C9 AA - High pass 250 MHz	NT-432	<input type="checkbox"/> EMC32 Version 9.01 Test software	NT-520/1
<input type="checkbox"/> RF-Load 150 W	NT-433	<input type="checkbox"/> SRM-TS Version 1.3 software for SRM-3000	NT-522
<input type="checkbox"/> Impedance transducer 1:4 ; 1:9 ; 1:16	NT-435	<input type="checkbox"/> SRM-TS Version 1.3.1 software for SRM-3006	NT-522/1
<input type="checkbox"/> RF-Attenuator DC – 18 GHz 6 dB	NT-436	<input type="checkbox"/> Spitzenberger und Spies Test software V3.4	NT-525
<input type="checkbox"/> RF-Attenuator DC – 18 GHz 6 dB	NT-437	<input type="checkbox"/> Noise power test apparatus according to EN 55014	NT-530
<input type="checkbox"/> RF-Attenuator DC – 18 GHz 10 dB	NT-438	<input type="checkbox"/> Vertical coupling plane (ESD)	NT-531
<input type="checkbox"/> RF-Attenuator DC – 18 GHz 20 dB	NT-439	<input type="checkbox"/> Test cable #4 for EN 61000-4-6	NT-553
<input type="checkbox"/> I+P 7780 Directional coupler 100 - 2000 MHz	NT-440	<input type="checkbox"/> Test cable #3 for conducted emission	NT-554
<input type="checkbox"/> ESH3-Z2 - Pulse limiter 9 kHz - 30 MHz	NT-441	<input type="checkbox"/> Test cable #5+#6 ESD-cable (2x470k)	NT-555 + NT-556
<input type="checkbox"/> Power Divider 6 dB/1 W/50 Ohm	NT-443	<input type="checkbox"/> Test cable #8 Sucoflex 104EA	NT-559
<input type="checkbox"/> Directional coupler 0,1 MHz – 70 MHz	NT-444	<input type="checkbox"/> Test cable #9 (for outdoor measurements)	NT-580
<input type="checkbox"/> Directional coupler 0,1 MHz – 70 MHz	NT-445	<input type="checkbox"/> Test cable #10 (for outdoor measurements)	NT-581
<input type="checkbox"/> Tube imitations according to EN 55015	NT-450	<input type="checkbox"/> Test cable #13 Sucoflex 104PE	NT-584
<input type="checkbox"/> FCC-801-M3-16A Coupling decoupling network	NT-458	<input type="checkbox"/> Test cable #21 for SRM-3000	NT-592
<input type="checkbox"/> FCC-801-M2-50A Coupling decoupling network	NT-459	<input type="checkbox"/> Shield chamber	NT-600
<input type="checkbox"/> FCC-801-M5-25 Coupling decoupling network	NT-460	<input type="checkbox"/> Climatic chamber	M-1200
<input type="checkbox"/> FCC-801-AF10 Coupling decoupling network	NT-461		

Division Medical
Technology/
Communication
Technology/ EMC

Department: FG

Test report number:
M/FG-13/108

Page: 3 of 3

Date: 16.09.2013

Checked by: 