



Test report no. : 275367-5

Item tested : KX-TGF370

Type of equipment : BT Transceiver in UPCS Base

FCC ID : ACJ96NKX-TGF370

Client : Panasonic System Networks Co., Ltd.

FCC Part 15.247

Frequency Hopping Transmitters /
Digital Transmission System

RSS-210, Issue 8

Low Power Licence-Exempt
Radiocommunication Devices

5 February 2015

Authorized by : 

G. Suhanthakumar
Technical Vericator

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1 GENERAL INFORMATION

1.1 Testhouse Info

Name : Nemko AS
Address : Nemko Kjeller
Instituttveien 6, Box 96
NO-2027 Kjeller, NORWAY
Telephone : +47 64 84 57 00
Fax : +47 64 84 57 05
E-mail: comlab@nemko.com
FCC test firm : 994405
IC OATS : 2040D-1
Total Number of Pages: 48

1.2 Client Information

Name : Panasonic System Networks Co., Ltd.
Address : 1-62, 4-chome Minoshima, Hakata-ku, Fukuoka, 812-8531, Japan
Telephone : +81-92-477-1405

Contact:

Name : Mr. Hirai Keisuke
Telephone : +81-92-477-1405
E-mail : hirai.keisuke@jp.panasonic.com

1.3 Responsible Manufacturer (if other than client)

Same as client.

2 Test Information

2.1 Test Item

Name :	Panasonic
FCC ID :	ACJ96NKX-TGF370
Industry Canada ID :	216A-KXTGF370
Model name :	KX-TGF370
Serial number :	/
Hardware identity and/or version:	PNLB2156xx
Software identity and/or version :	SW401
Tested to IC Radio Standard (RSS) :	RSS-210 Issue 8, RSS-GEN Issue 3
Test Site IC Reg. Number :	IC 2040D-1
Frequency Range :	2402 – 2480 MHz
Number of Channels :	79 RF Channels
Operating Modes :	FHSS
Type of Modulation :	Digital (GFSK)
User Frequency Adjustment :	None
Conducted Output Power :	0.0042 Watts (Peak)
Type of Power Supply :	AC Adaptor: PNLV226
Antenna Connector :	None
Antenna Diversity Supported :	No
Number of Antennas :	1

Description of Test Item

The EUT is a Bluetooth transceiver integrated into a DECT Base.

This test report covers only the Bluetooth part, the DECT part is covered by a separate test report.

This model is identical to the previously certified model KX-TG7871 (FCC ID: ACJ96NKX-TG7871) except it does not have a USB connector, have a different AC adaptor and some cosmetic changes. The model KX-TGF370 is identical to the model KX-TG7841 except for cosmetic changes.

All tests detailed in this reports were performed on a KX-TG7871 except AC Power Line Conducted Emissions. AC Power Line Conducted Emissions have been retested on a KX-TGF370 with a PNLV226 AC Adaptor.

Exposure Evaluation

The EUT is designed to be mounted on a table or fixed to a wall, and the user manual contains text that it shall be mounted with a separation distance of at least 20cm from any persons. For the purposes of exposure evaluation this EUT is a fixed or mobile device.

The EUT is exempted from RF Exposure Evaluation to Industry Canada requirements since the output power complies with the power levels of section 2.5.2 of RSS-102 Issue 4.

2.2 Test Environment

2.2.1 Normal test condition

Temperature:	19.1 – 23.3 °C
Relative humidity:	20.1 – 43.9 %
Normal test voltage:	120 V AC

The values are the limit registered during the test period.

2.3 Test Period

Item received date: 2012-11-02 and 2015-02-04

Test period : from 2012-12-04 to 2012-12-21 and 2015-02-04

All tests except Power Line Conducted Emissions were performed in 2012. Power Line Conducted Emissions was tested 4th February 2015.

2.4 Test Engineer(s)

Frode Sveinsen / Thomas Dangle

2.5 Test Equipment

See list of test equipment in clause 6.

3 TEST REPORT SUMMARY

3.1 General

All measurements are traceable to national standards.

The tests were conducted for the purpose of demonstrating compliance with FCC CFR 47 Part 15, paragraph 15.247 and Industry Canada RSS-210 Issue 8.

Tests were performed in accordance with ANSI C63.4-2003, C63.10-2013 and DA 00-705 Filing and Guidelines for Frequency Hopping Spread Spectrum Systems.

The radiated tests were made in a semi-anechoic chamber at measuring distances of 3m and 10m.

A description of the test facility is on file with the FCC and Industry Canada.

- | | |
|---|---|
| <input checked="" type="checkbox"/> New Submission | <input checked="" type="checkbox"/> Production Unit |
| <input type="checkbox"/> Class II Permissive Change | <input type="checkbox"/> Pre-production Unit |
| DSS Equipment Code | <input type="checkbox"/> Family Listing |

THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".



TEST REPORT #: 275367-5

TESTED BY: Frode Sveinsen
Frode Sveinsen, Test engineer

DATE: 4 February 2015

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3.2 Test Summary

Name of test	FCC Part 15 reference	RSS-210 Issue 8 reference	Result
Supply Voltage Variations	15.31(e)	N/A	Complies
Number of Operating Frequencies	15.31(m)	A8.1	Complies
Antenna Requirement	15.203	6.7 (RSS-GEN)	Complies ¹
Power Line Conducted Emission	15.107(a) 15.207(a)	8.8 (RSS-GEN)	Complies
Channel Separation and 20 dB Bandwidth	15.247(a)(1)	A8.1	Complies
Pseudorandom Hopping Algorithm	15.247(a)(1)	A8.1	Complies
Time of Occupancy	15.247(a)(1)(iii)	A8.1	Complies
Occupied Bandwidth	15.247(a)(1)	A8.1	Complies
Minimum 6 dB Bandwidth	15.247(a)(2)	A8.2	N/A
Peak Power Output	15.247(b)	A8.4	Complies
Power Spectral Density	15.247(d)	A8.2	N/A
Spurious Emissions (Antenna Conducted)	15.247(c)	A8.5	Complies
Spurious Emissions (Radiated)	15.247(c) 15.109(a) 15.209(a)	A8.5	Complies

¹ The tested equipment has integrated antennas only.

3.3 Description of modification for Modification Filing

Not applicable.

3.4 Comments

All ports were populated during spurious emission measurements.

3.5 Family List Rational

Not Applicable.

4 TEST RESULTS

4.1 Power Line Conducted Emissions

Para. No.: 15.207 (a)

Test Performed By: Thomas Dangle	Date of Test: 4-Feb-2015
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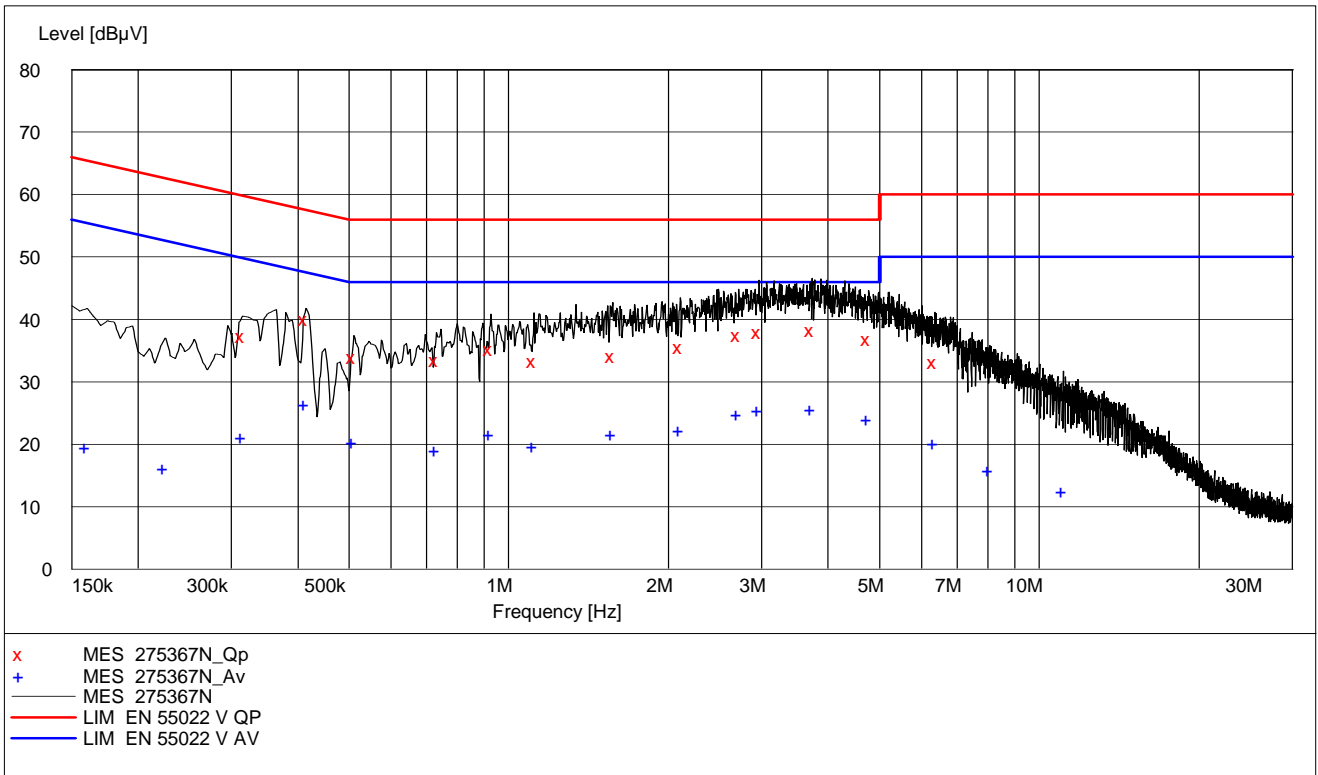
Measurement procedure: ANSI C63.4-2003 using 50 μ H/50 ohms LISN.

Test Results: Complies

Measurement Data: See attached graph, (Peak detector).

Highest measured value (L1 and N):

Frequency [MHz]	Level [dBuV]	Af [dB]	Limit [dBuV]	Margin [dB]	Det	Position	Verdict [Pass/Fail]
0.315000	37.40	10.50	59.80	22.40	QP	N	Pass
0.415000	40.10	10.30	57.50	17.40	QP	N	Pass
0.510000	33.90	10.20	56.00	22.10	QP	N	Pass
0.730000	33.50	10.20	56.00	22.50	QP	N	Pass
0.925000	35.20	10.30	56.00	20.80	QP	N	Pass
1.115000	33.30	10.40	56.00	22.70	QP	L1	Pass
1.570000	34.20	10.40	56.00	21.80	QP	N	Pass
2.105000	35.60	10.40	56.00	20.40	QP	L1	Pass
2.715000	37.50	10.40	56.00	18.50	QP	N	Pass
2.965000	38.00	10.40	56.00	18.00	QP	L1	Pass
3.730000	38.30	10.40	56.00	17.70	QP	N	Pass
4.775000	36.80	10.50	56.00	19.20	QP	L1	Pass
6.350000	33.10	10.60	60.00	26.90	QP	L1	Pass
0.160000	19.60	10.70	55.50	35.90	AV	N	Pass
0.225000	16.20	10.70	52.60	36.40	AV	L1	Pass
0.315000	21.10	10.50	49.80	28.70	AV	N	Pass
0.415000	26.40	10.30	47.50	21.10	AV	N	Pass
0.510000	20.40	10.20	46.00	25.60	AV	N	Pass
0.730000	19.00	10.20	46.00	27.00	AV	N	Pass
0.925000	21.60	10.30	46.00	24.40	AV	N	Pass
1.115000	19.80	10.40	46.00	26.20	AV	L1	Pass
1.570000	21.60	10.40	46.00	24.40	AV	N	Pass
2.105000	22.30	10.40	46.00	23.70	AV	L1	Pass
2.715000	24.90	10.40	46.00	21.10	AV	N	Pass
2.965000	25.40	10.40	46.00	20.60	AV	L1	Pass
3.730000	25.70	10.40	46.00	20.30	AV	N	Pass
4.775000	24.10	10.50	46.00	21.90	AV	L1	Pass
6.350000	20.10	10.60	50.00	29.90	AV	L1	Pass
8.080000	15.90	10.60	50.00	34.10	AV	N	Pass
11.115000	12.50	10.70	50.00	37.50	AV	L1	Pass



Plot shows worst case of Phase L1 and N

4.2 Channel Separation and Occupied Bandwidth

Para. No.: 15.247 (a)(1)

Test Performed By: Frode Sveinsen	Date of Test: 11 Dec 2012
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Test Results: **Complies**

Measurement Data: Channel Separation: 1.000 MHz

Occupied Bandwidth (kHz)			
	2402 MHz	2441 MHz	2480 MHz
Measured Value	863.1	866.1	866.1

See attached plots

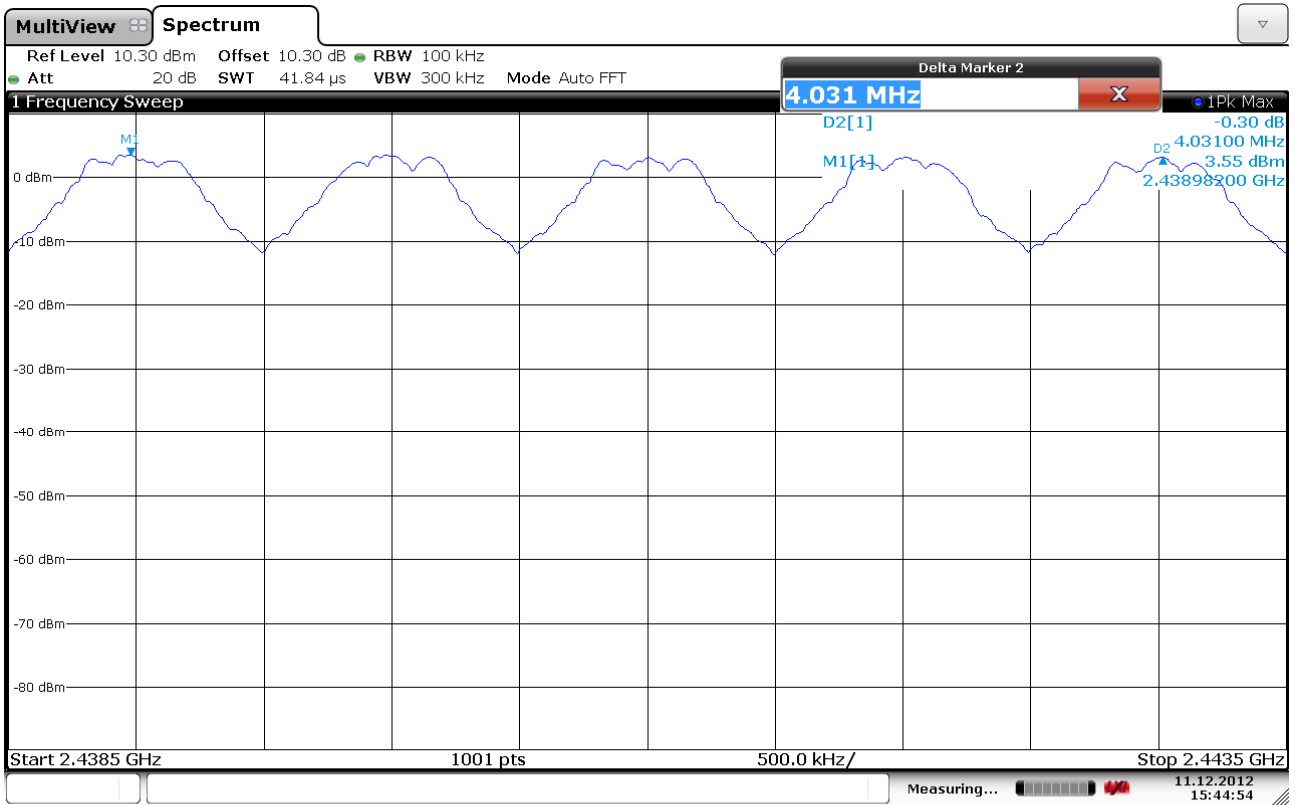
Channel Separation nominal value: 1.000 MHz.

Requirement:

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.

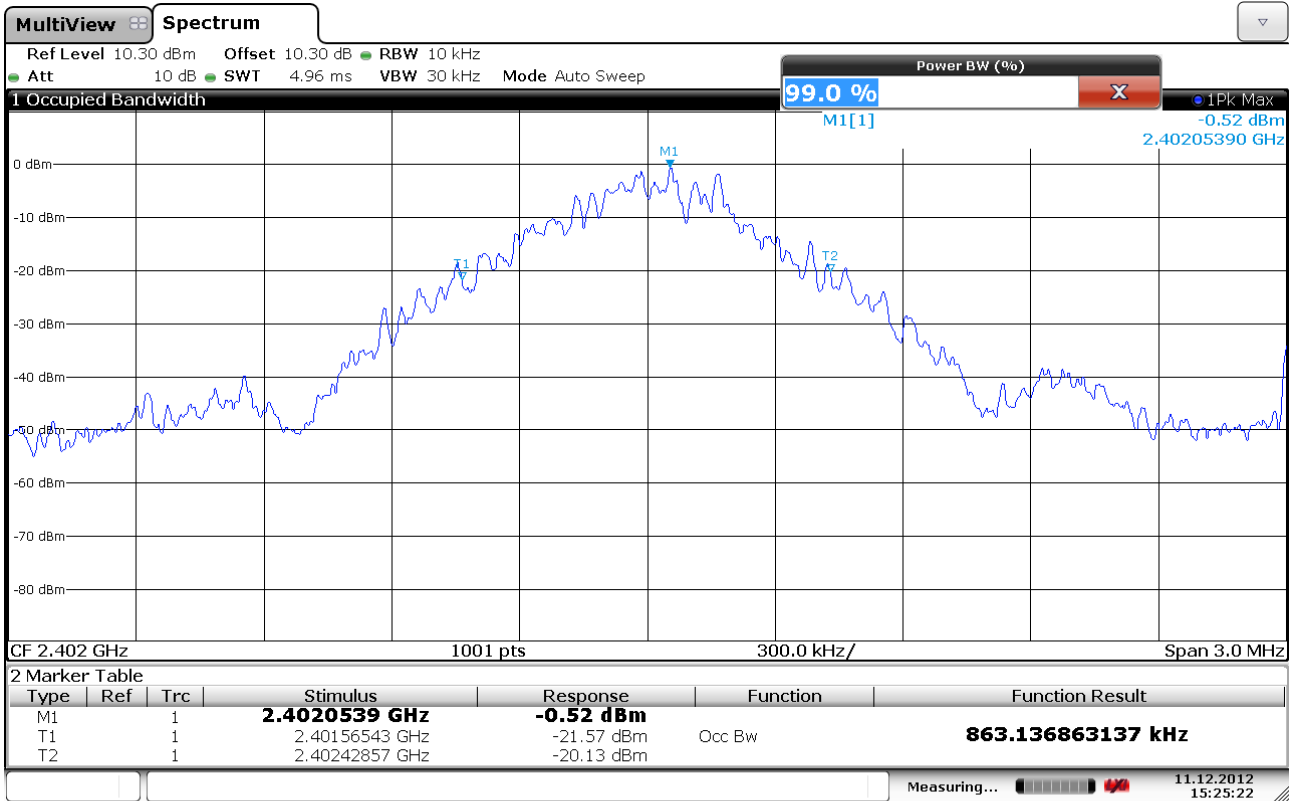
or:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the system operates with an output power no greater than 125 mW.



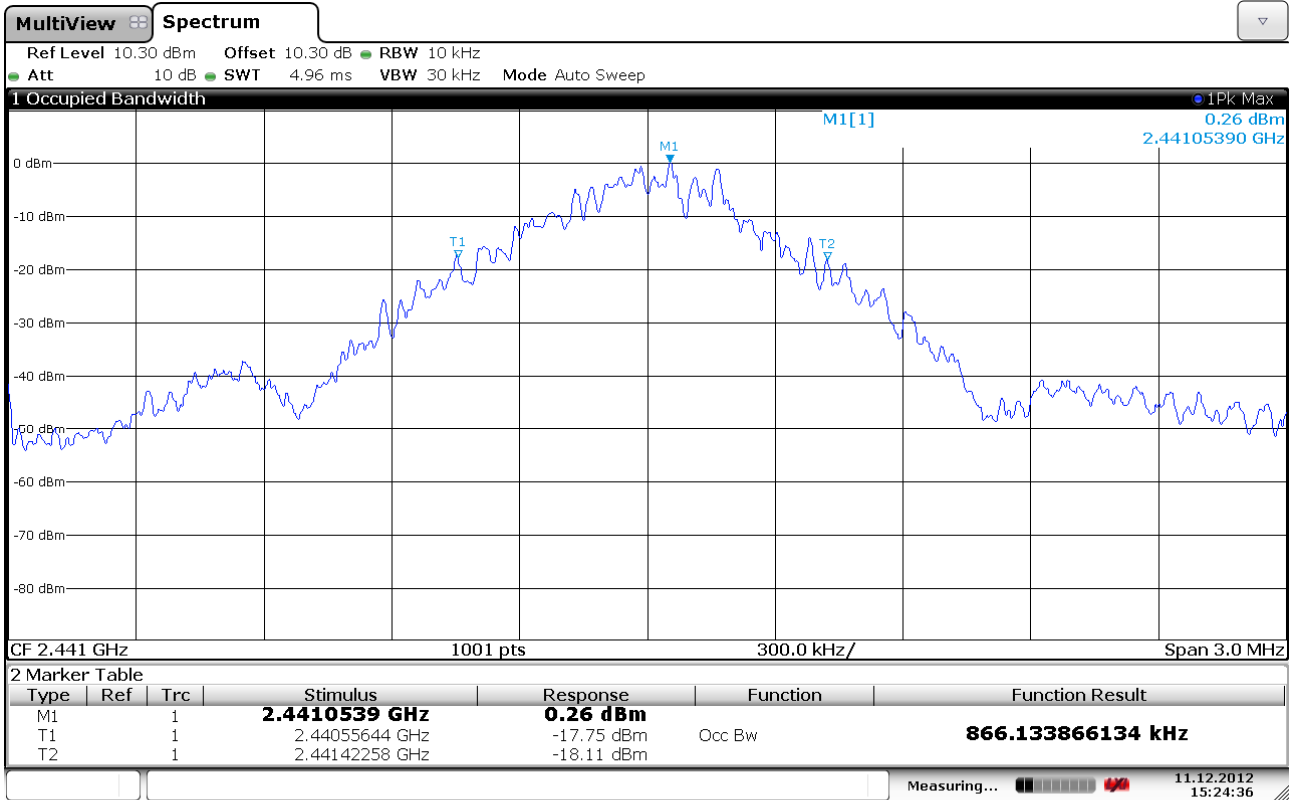
Date: 11.DEC.2012 15:44:54

Channel Separation



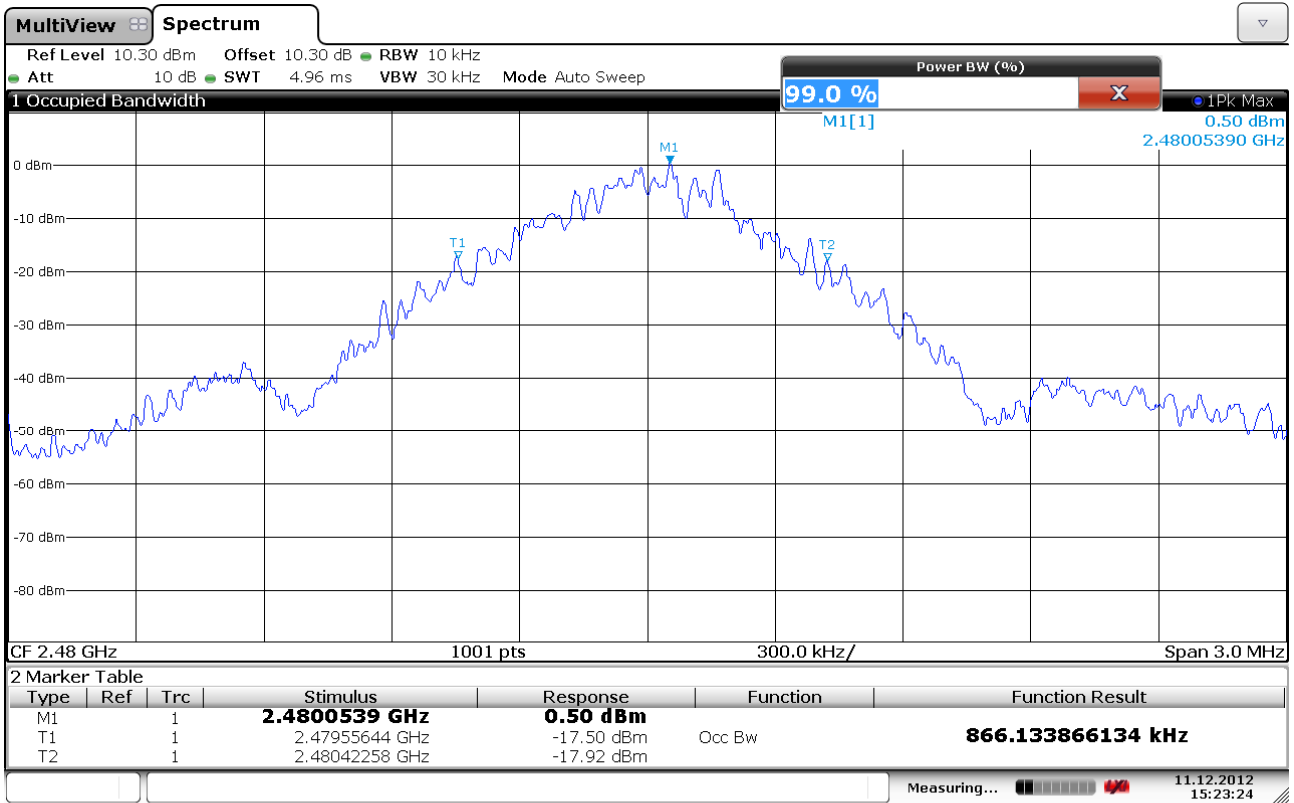
Date: 11.DEC.2012 15:25:22

99% Bandwidth, 2402 MHz



Date: 11.DEC.2012 15:24:36

99% Bandwidth, 2441 MHz



Date: 11.DEC.2012 15:23:24

99% Bandwidth, 2480 MHz

4.3 Pseudorandom Hopping Algorithm

Para. No.: 15.247 (a)(1)

Test Results: **Complies**

Measurement Data: /

Requirements:

The channel frequencies shall be selected from a pseudorandom ordered list of hopping frequencies. Each frequency must be used equally by the transmitter.

Base Table Hopping Sequence

To be described in manufacturer documentation.

4.4 Occupancy Time

Para. No.: 15.247 (a)(1)(iii)

Test Performed By: Frode Sveinsen	Date of Test: 11 Dec 2012
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Test Results: **Complies**

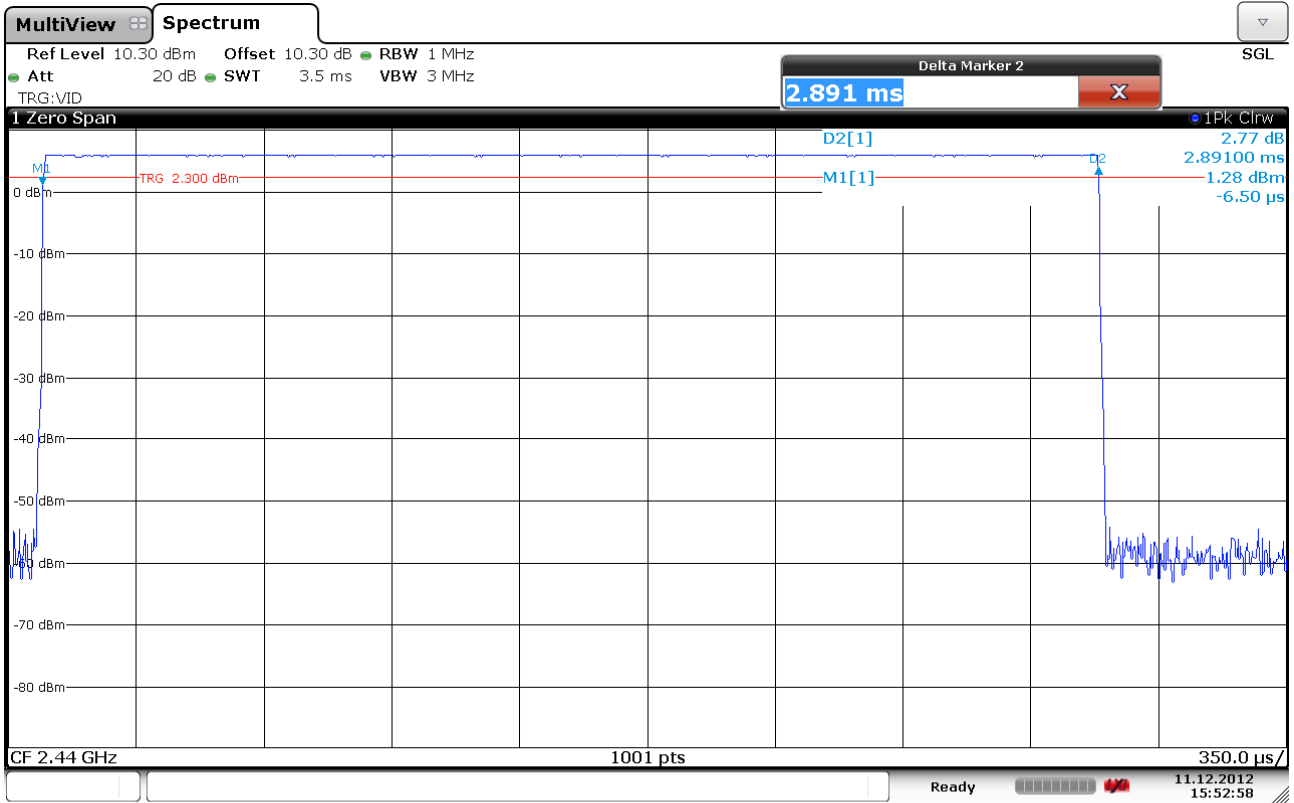
Measurement Data:

Number of RF channel: 79
RF burst pr channel: 2.89 ms
Time between each RF burst on same RF channel: $3.725 \times 79 = 294.275$ ms
Time of occupancy: $(2.89 \times 400 \times 79) / 294.275 = 0.3103$ s

See plot.

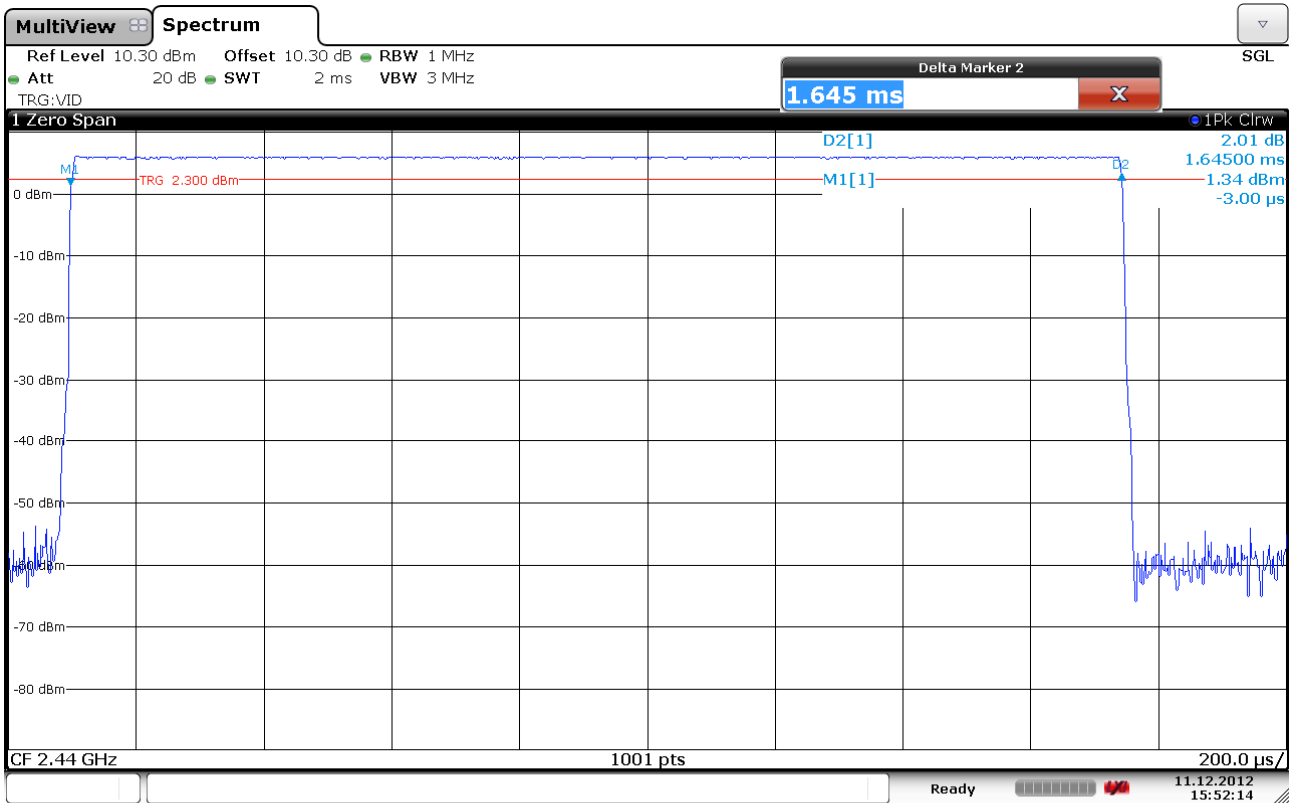
Requirements:

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.



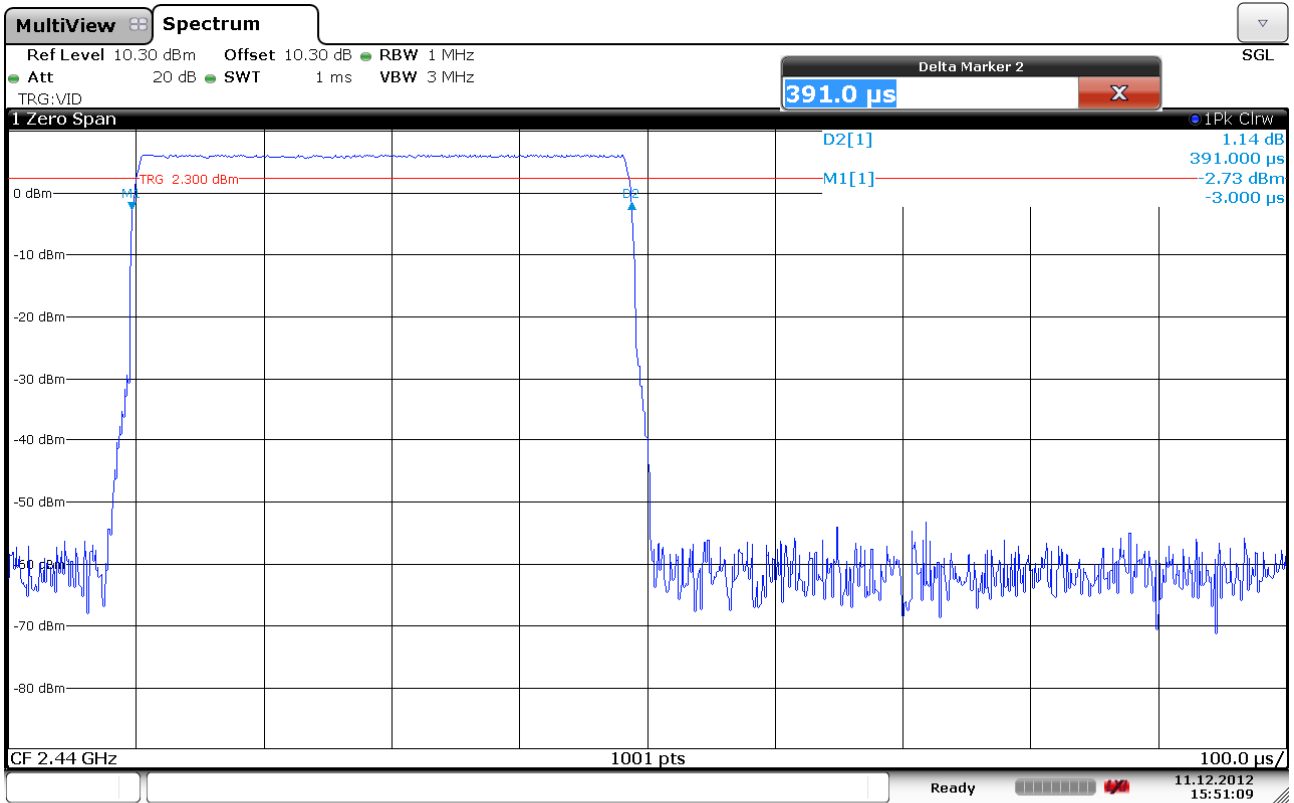
Date: 11.DEC.2012 15:52:58

Occupancy Time, DH5



Date: 11.DEC.2012 15:52:14

Occupancy Time, DH3



Date: 11.DEC.2012 15:51:09

Occupancy Time, DH1

4.5 Occupied Bandwidth

Para. No.: 15.247 (a)(1)(iii)

Test Performed By: Frode Sveinsen	Date of Test: 11 Dec 2012
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Test Results: Complies

Measurement Data: 20 or 79 RF channels in use

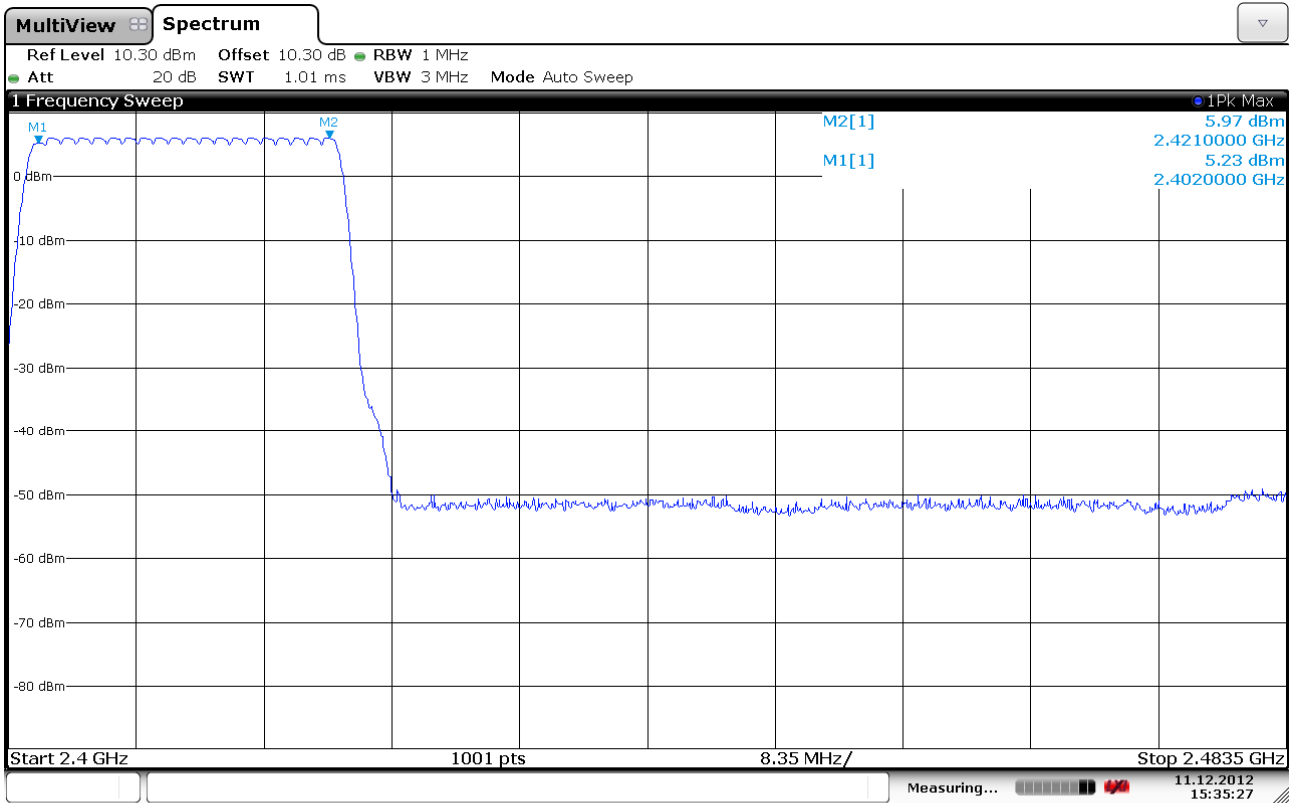
Channel Centre Frequencies:

The channels are centered at each full MHz from 2402 to 2480 MHz.

See plots.

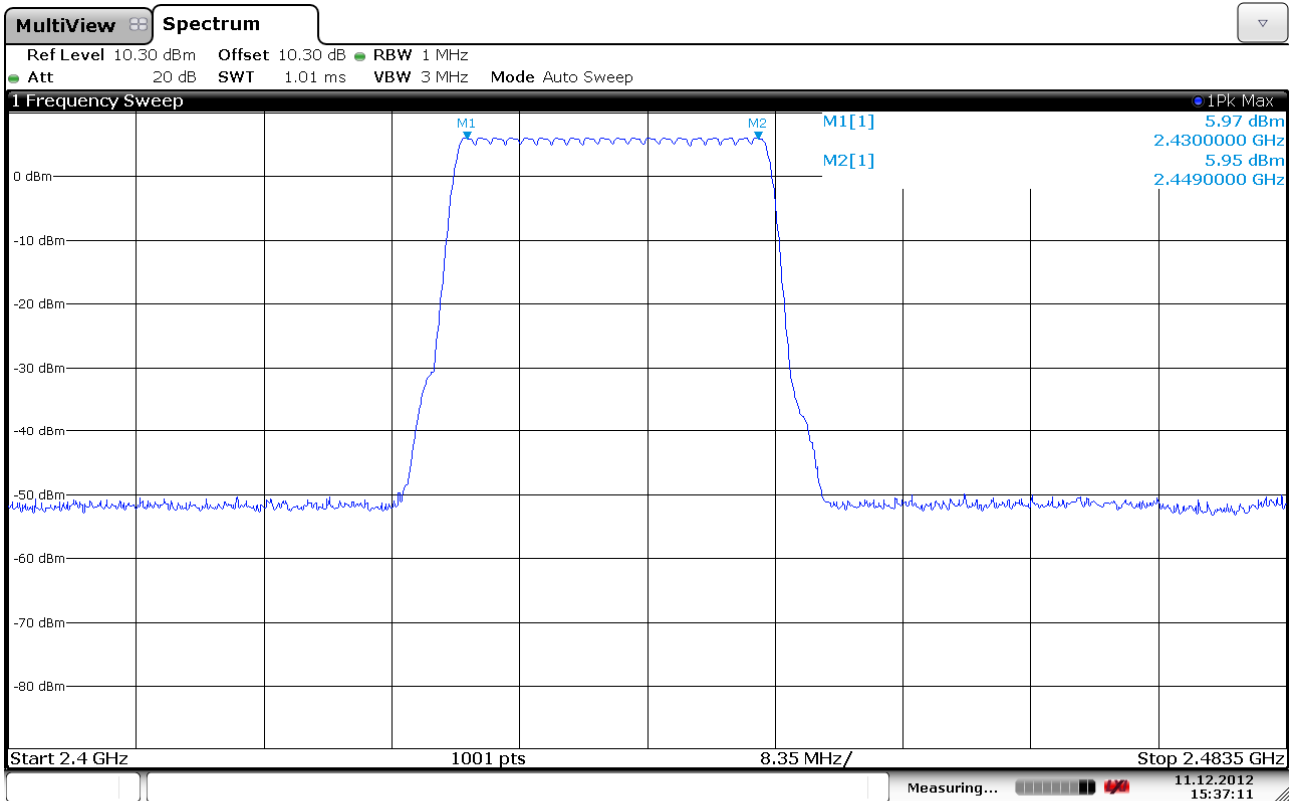
Requirements:

Frequency hopping systems in the 2400 - 2483.5 MHz band shall use at least 15 non-overlapping channels. No requirements for bandwidth for this frequency band.



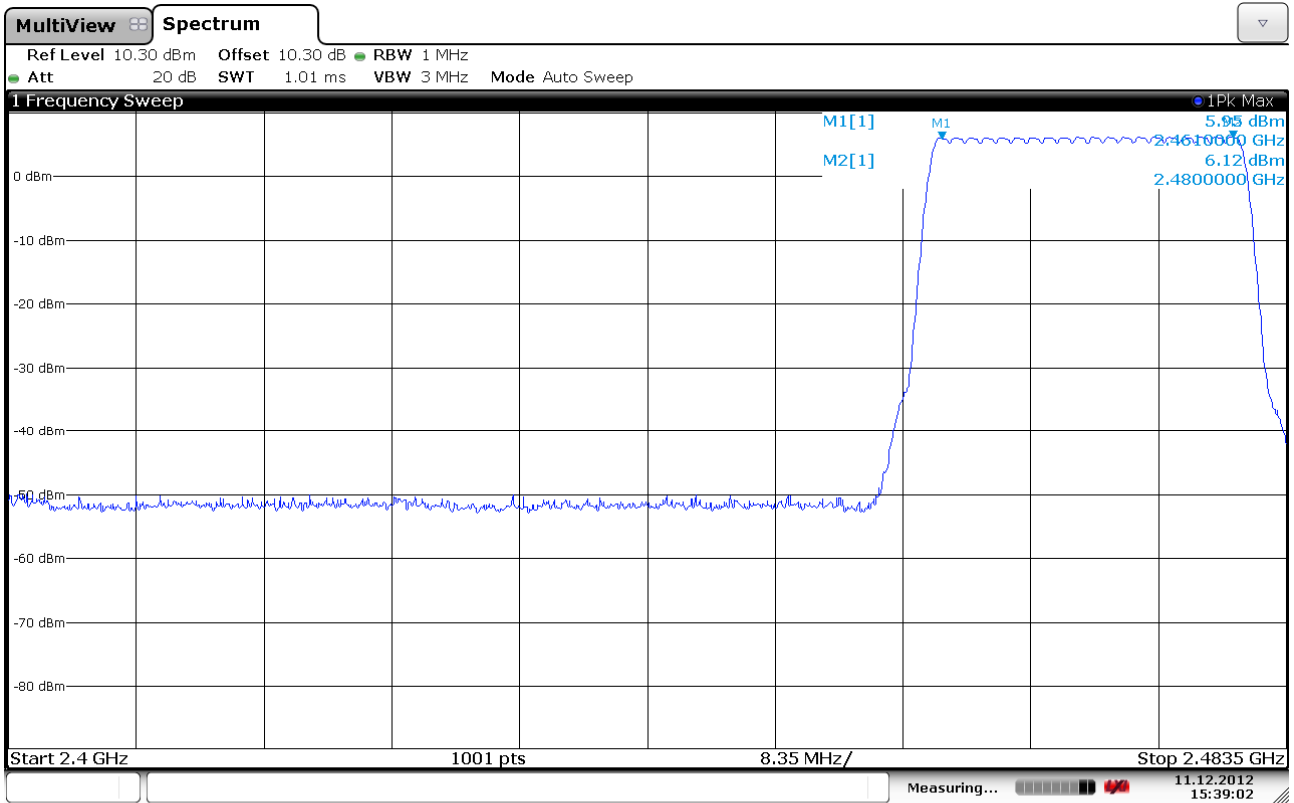
Date: 11.DEC.2012 15:35:27

RF Channels in use, Lower 20



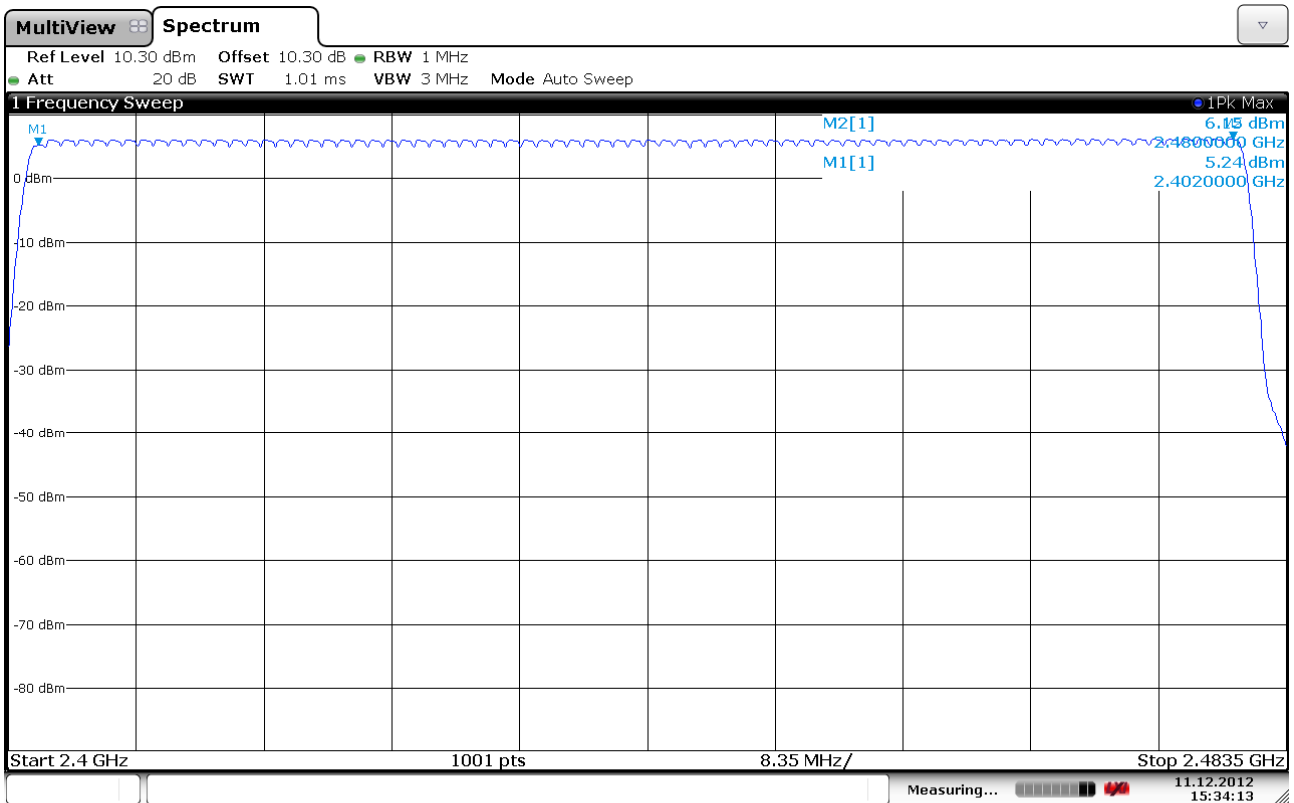
Date: 11.DEC.2012 15:37:12

RF Channels in use, Middle 20



Date: 11.DEC.2012 15:39:02

RF Channels in use, Upper 20



Date: 11.DEC.2012 15:34:13

RF Channels in use, Full Band

4.6 Peak Power Output

Para. No.: 15.247 (b)

Test Performed By: Frode Sveinsen	Date of Test: 11-12 Dec 2012
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Test Results: Complies

Measurement Data:

	2402 MHz	2441 MHz	2480 MHz
Peak Power (dBm)	5.5	6.0	6.2
Peak Power (Watts)	0.0035	0.0040	0.0042
Field Strength (dBµV/m)	101.3	102.4	103.0
EIRP, Calculated (Watts)	0.0041	0.0052	0.0059
Antenna gain (dBi)	0.6	1.2	1.5

Antenna gain = $10 \cdot \log(\text{EIRP} / \text{Conducted power})$ dBi

EIRP is calculated from measured field strength by the Free-Field Formula (See 558074 D01 Meas Guidance).

See attached graph.

Detachable antenna?

Yes No

If detachable, is the antenna connector non-standard?

Yes No

Type of antenna connector: N/A

Requirements:

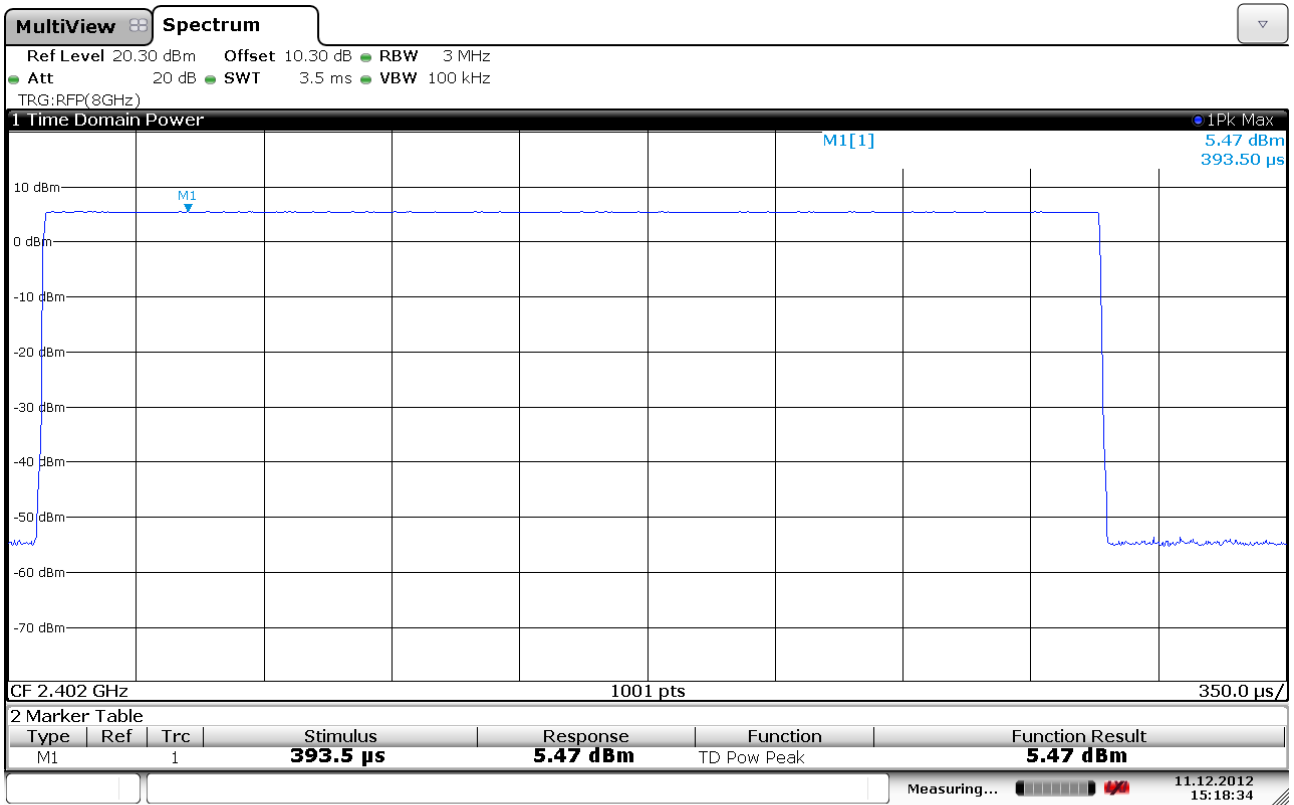
The maximum peak output power shall not exceed the following limits:

For frequency hopping systems employing at least 75 hopping channels: 1 Watt

For all other frequency hopping systems in the 2400 - 2483.5 MHz band: 0.125 Watts

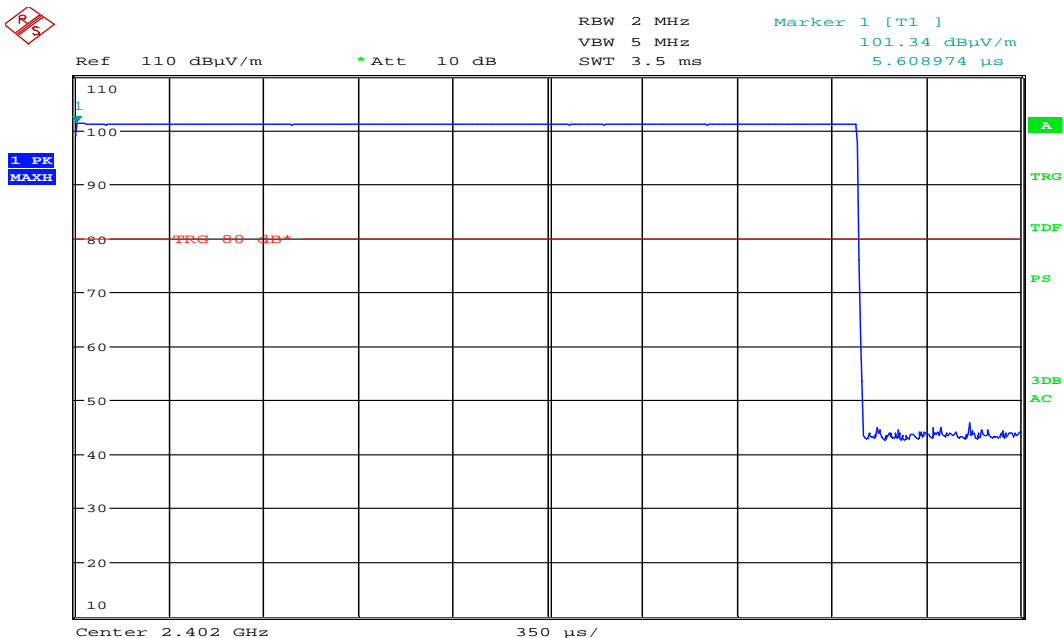
For Digital Transmission Systems in the 2400 - 2483.5 MHz band: 1 Watt

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced below the stated value above by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



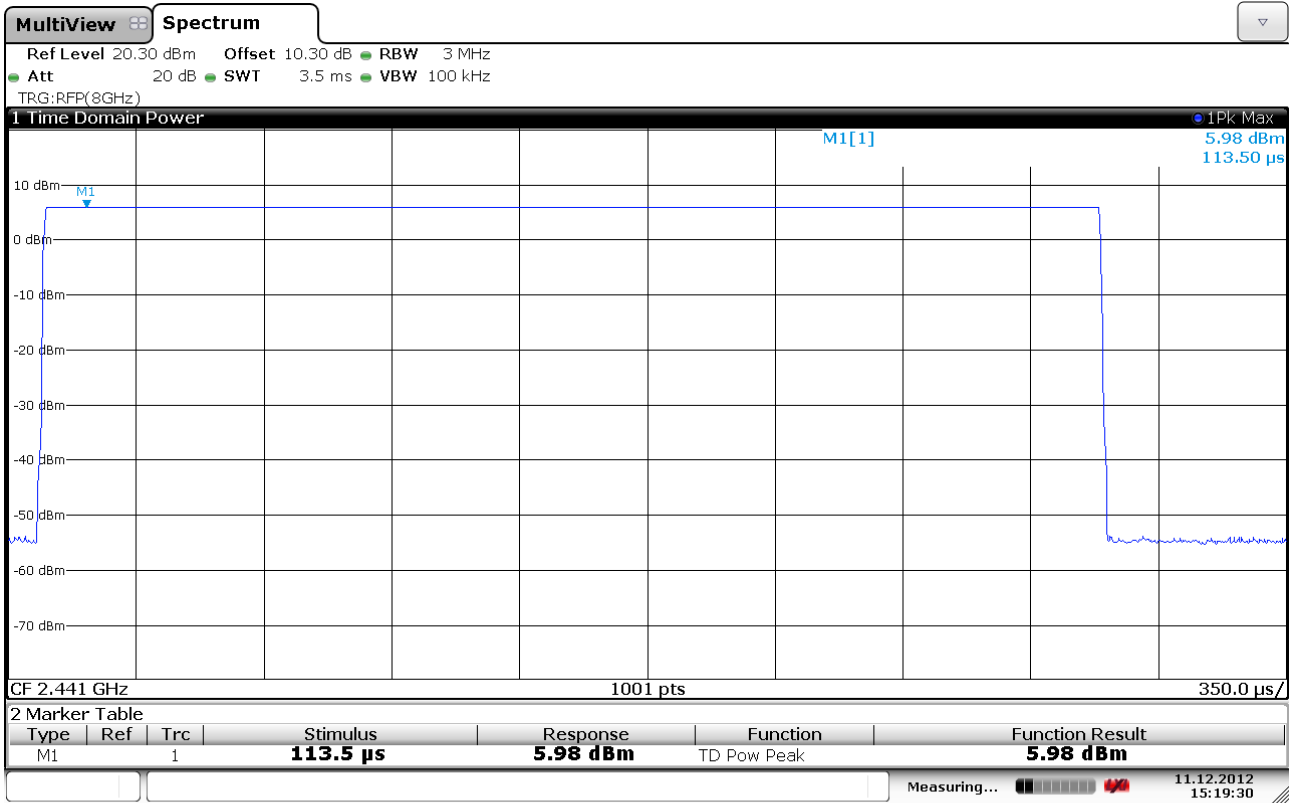
Date: 11.DEC.2012 15:18:34

Conducted Output Power, 2402MHz



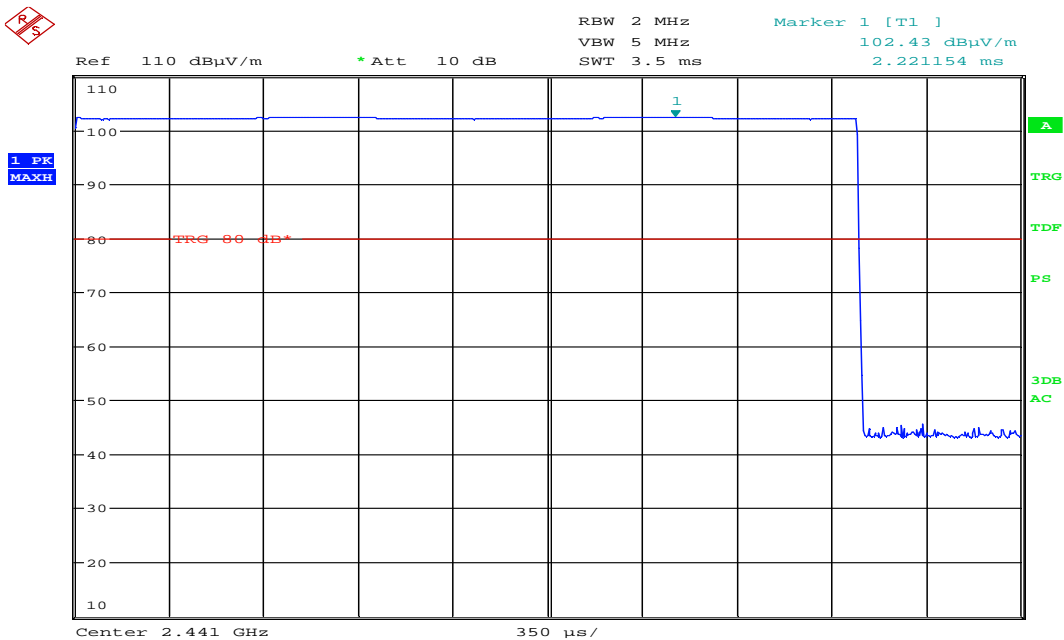
Date: 12.DEC.2012 11:11:12

Maximum Field Strength, 2402MHz (Max: EUT V, VP)



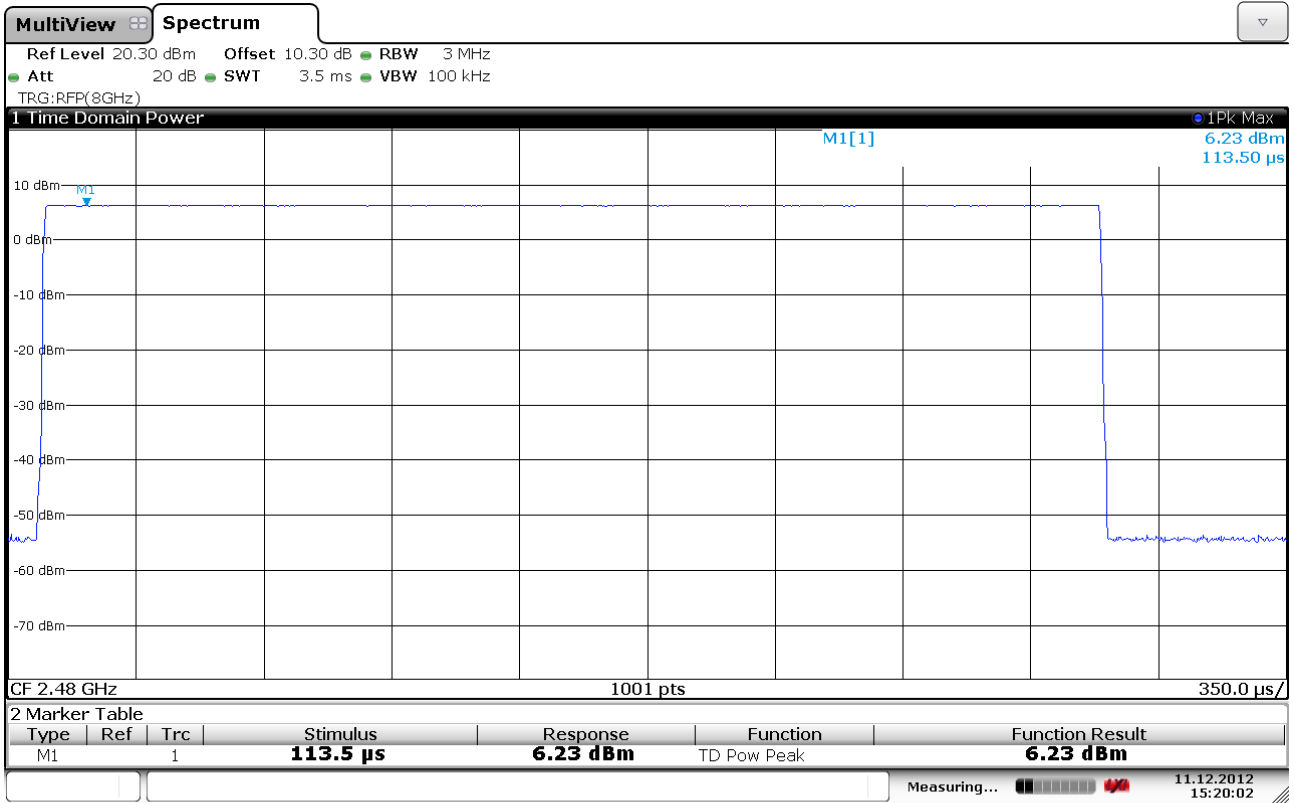
Date: 11.DEC.2012 15:19:30

Conducted Output Power, 2441MHz



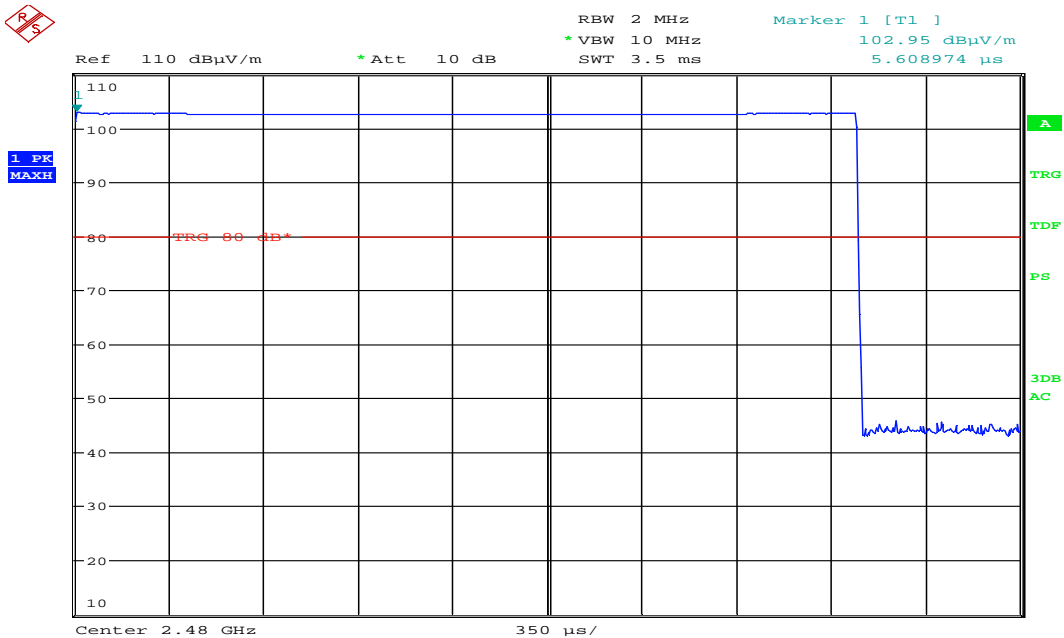
Date: 12.DEC.2012 11:03:59

Maximum Field Strength, 2441MHz (Max: EUT V, VP)



Date: 11.DEC.2012 15:20:02

Conducted Output Power, 2480MHz



Date: 12.DEC.2012 12:45:28

Maximum Field Strength, 2480MHz (Max: EUT V, VP)

4.7 Spurious Emissions (Radiated)

Para. No.: 15.247 (c)

Test Performed By: Frode Sveinsen	Date of Test: 11-12 Dec 2012
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Test Results: Complies

Measurement Data:

Band-edge, Peak Detector

Frequency GHz	Field Strength, dB μ V/m		Limit dB	Margin dB
	Hopping Off	Hopping On		
2.39	43.9	44.4	74	29.6
2.4835	61.1	60.2	74	12.9

Band-edge, Average Detector

Frequency GHz	Field Strength, dB μ V/m		Limit dB	Margin dB
	Hopping Off	Hopping On		
2.39	23.9	24.4	54	29.6
2.4835	41.1	40.2	54	12.9

Average Detector values are measured with Peak Detector and corrected for Duty Cycle.

All field strength values above are at 3m.

See plots.

Duty Cycle Correction Factor Calculation:

Burst Type	DH1	DH3	DH5
Maximum Burst Length (ms)	0.4	1.7	3.0
Maximum Frame Length (ms)	1.25	2.5	3.75
Duty Cycle Factor, 20ch (dB)	35.9	29.4	28.0
Duty Cycle Factor, 79ch (dB)	47.8	41.3	39.9

Duty Cycle Factor = $-20 * \log(\text{Max Burst Length} / (\text{Number of Channels} * \text{Max Frame Length}))$

Maximum Duty Cycle Correction Factor according to Para 15.35 (b): 20 dB

RF conducted power to 25 GHz see plots.

Maximum RF level outside operating band:

2402MHz: >40 dB/C, margin >20 dB

2441MHz: >40 dB/C, margin >20 dB

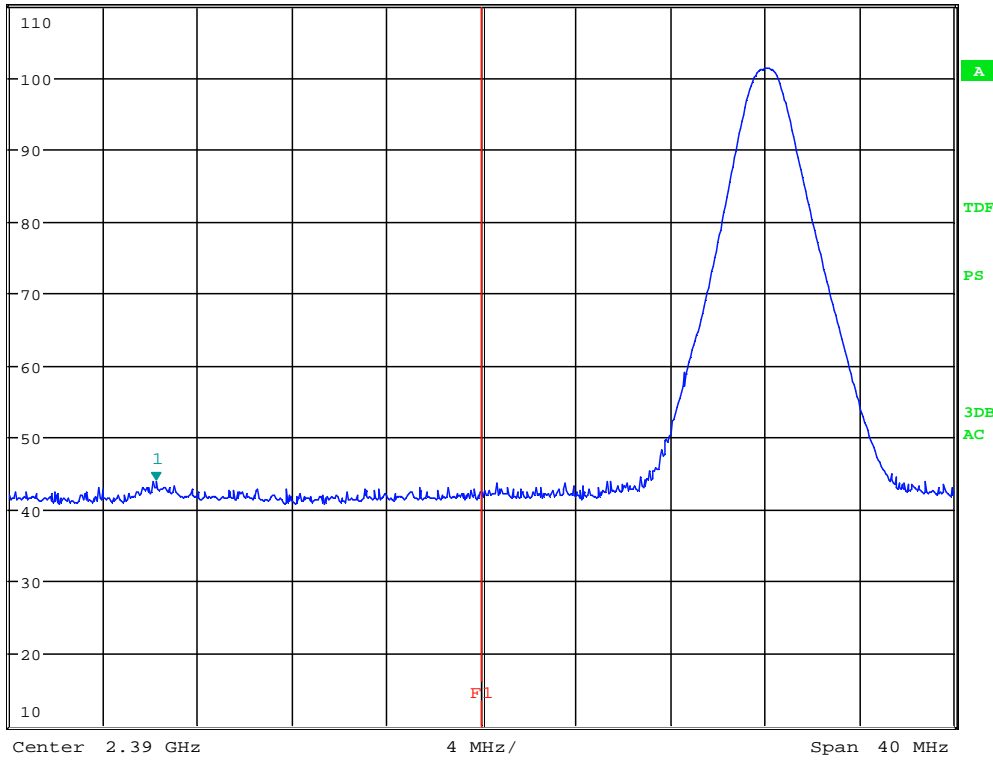
2480MHz: >40 dB/C, margin >20 dB



*RBW 1 MHz Marker 1 [T1]
 VBW 3 MHz 43.89 dBμV/m
 SWT 2.5 ms 2.376217949 GHz

Ref 110 dBμV/m *Att 10 dB

1 PK
 MAXH

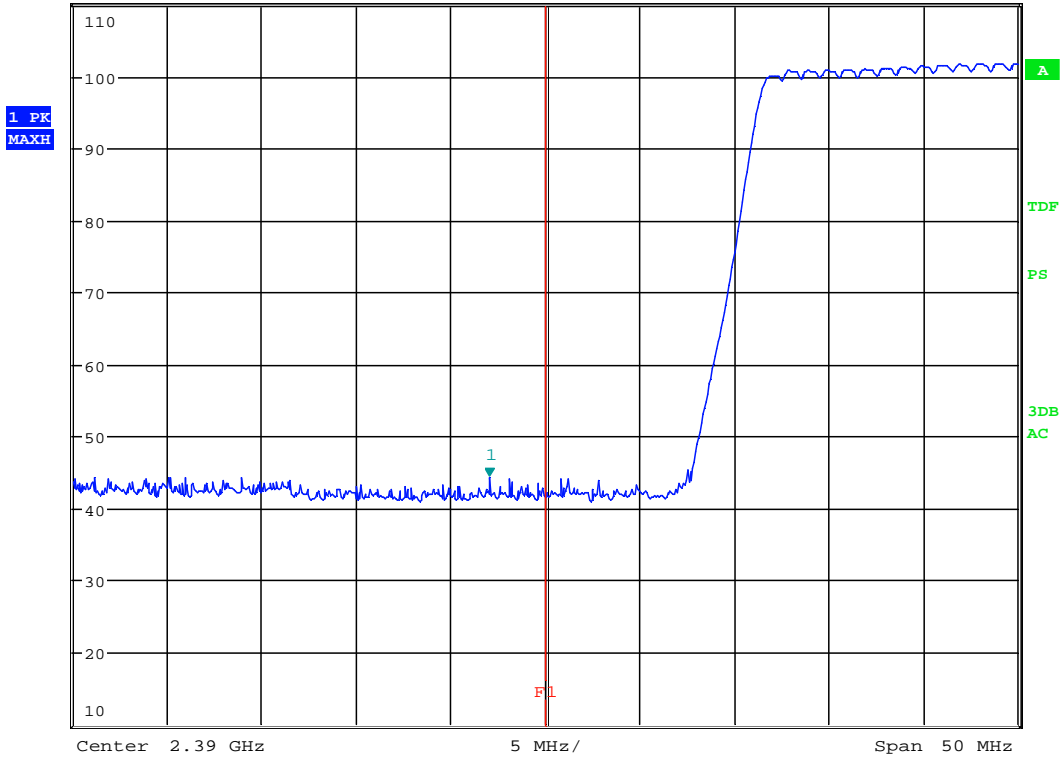


Date: 12.DEC.2012 11:13:01

Band Edge, Lower Channel, Hopping OFF



* RBW 1 MHz Marker 1 [T1]
 VBW 3 MHz 44.40 dBμV/m
 Ref 110 dBμV/m * Att 10 dB SWT 2.5 ms 2.387035256 GHz



Date: 12.DEC.2012 14:18:31

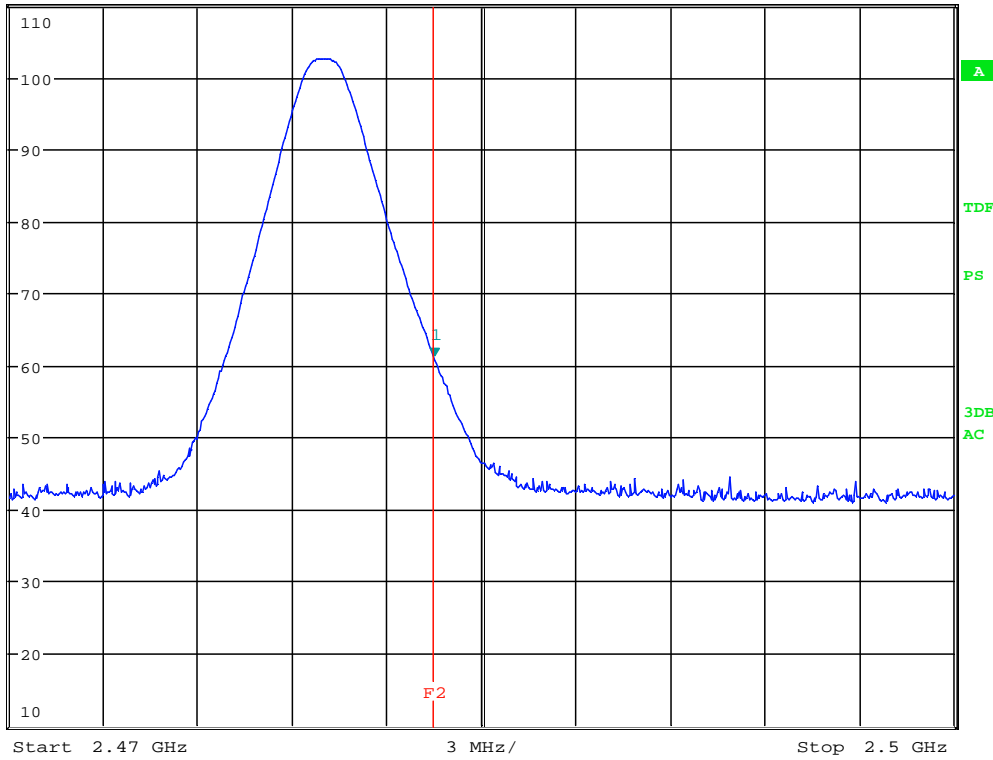
Band Edge, Lower Channel, Hopping ON



*RBW 1 MHz Marker 1 [T1]
 VBW 3 MHz 61.11 dBμV/m
 SWT 2.5 ms 2.483525641 GHz

Ref 110 dBμV/m *Att 10 dB

1 PK
 MAXH

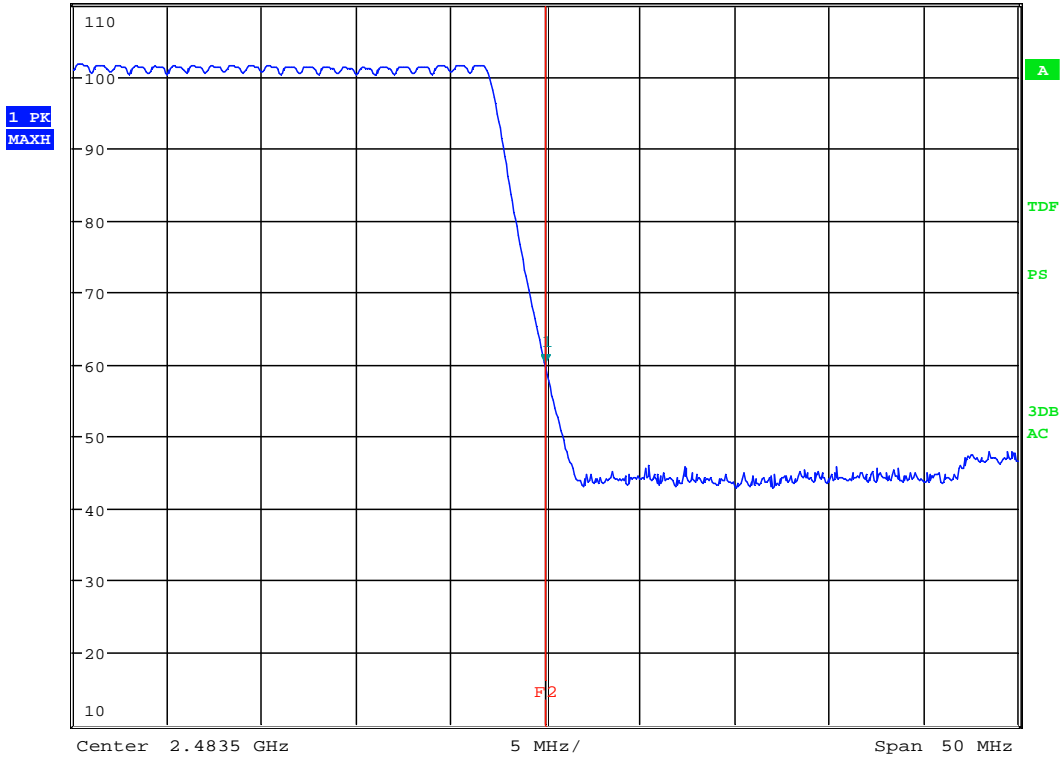


Date: 12.DEC.2012 12:54:30

Band Edge, Upper Channel, Hopping OFF

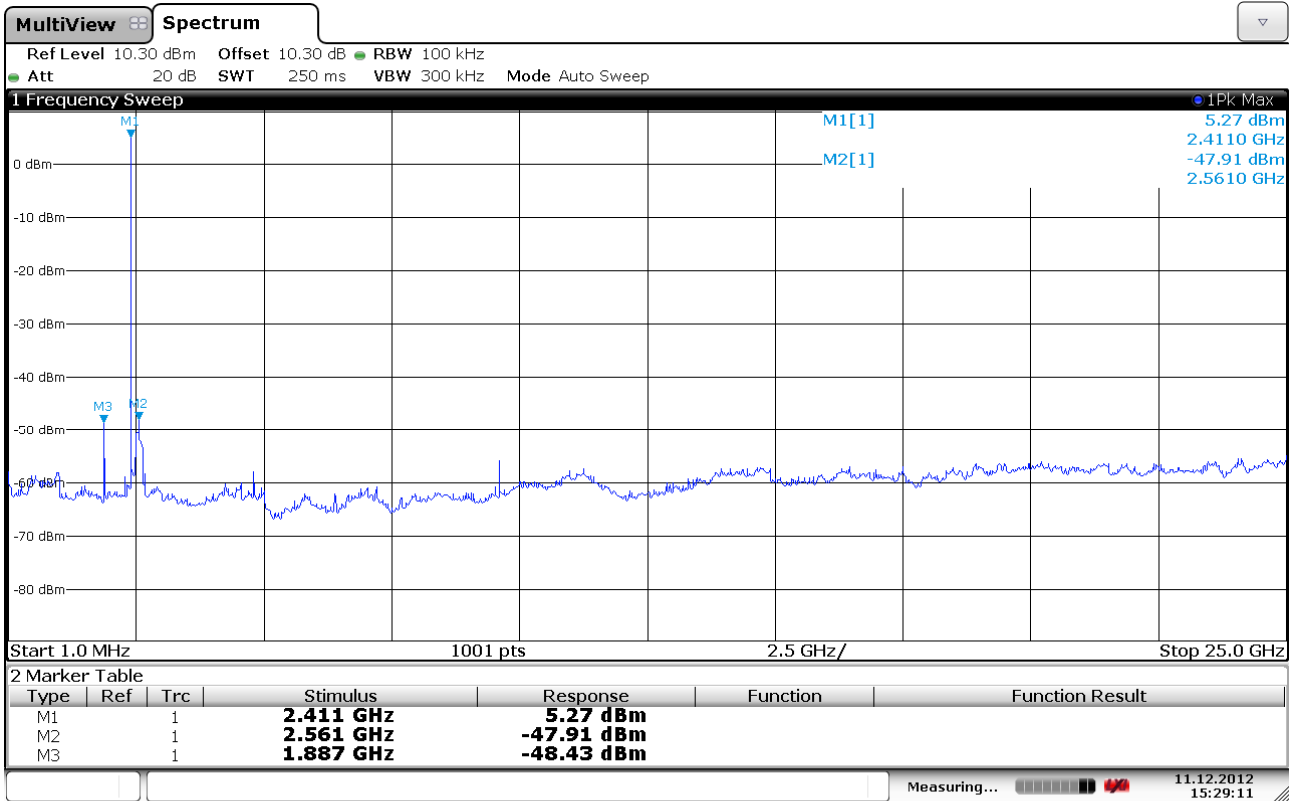


* RBW 1 MHz Marker 1 [T1]
 VBW 3 MHz 60.15 dBμV/m
 Ref 110 dBμV/m * Att 10 dB SWT 2.5 ms 2.483500000 GHz



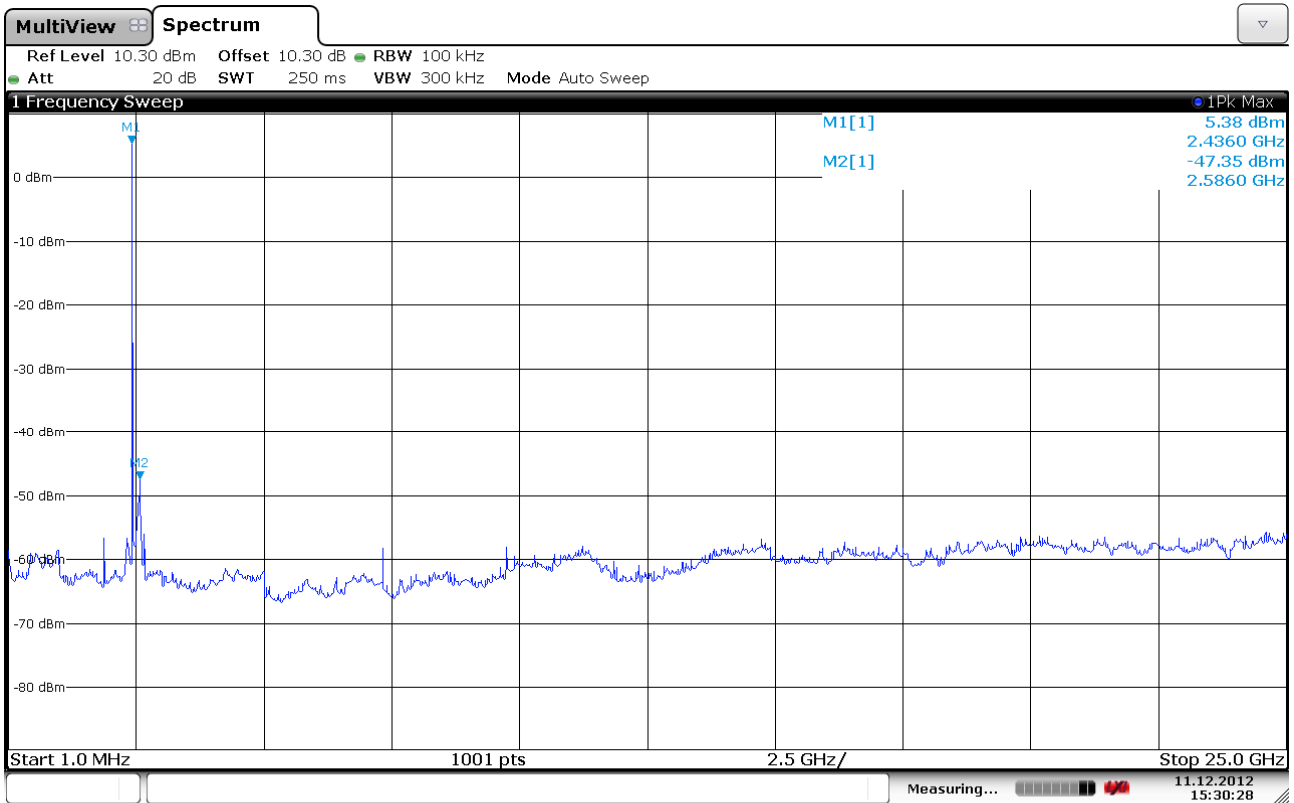
Date: 12.DEC.2012 14:19:51

Band Edge, Upper Channel, Hopping ON



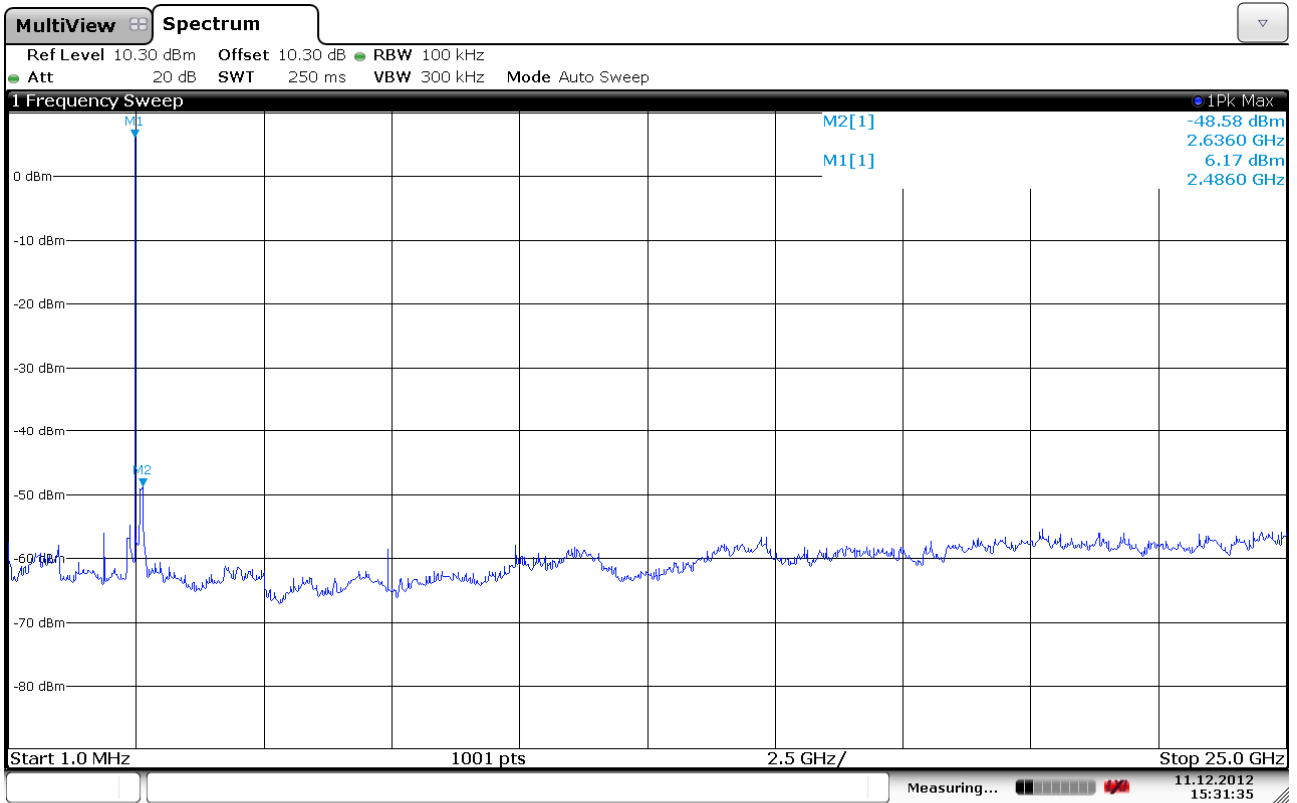
Date: 11.DEC.2012 15:29:11

Conducted Emissions, 2402 MHz, 1 - 25000 MHz



Date: 11.DEC.2012 15:30:28

Conducted Emissions, 2441 MHz, 1 - 25000 MHz



Date: 11.DEC.2012 15:31:35

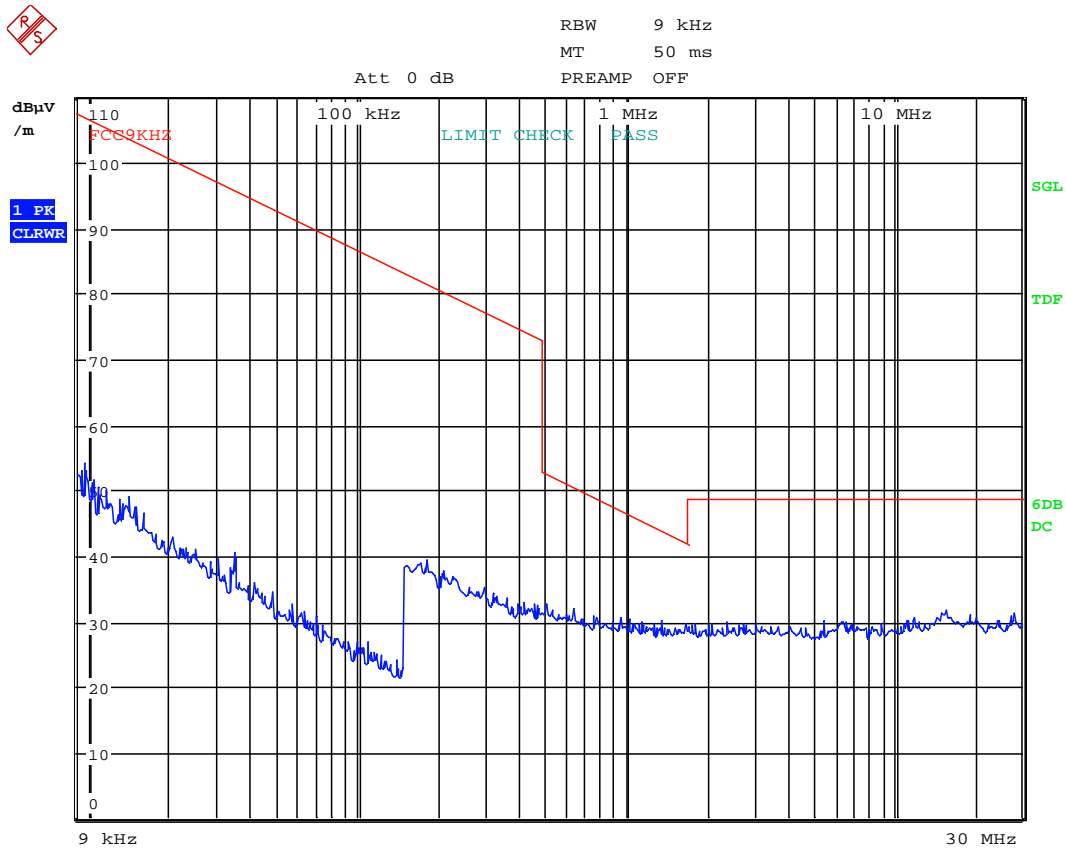
Conducted Emissions, 2480 MHz, 1 - 25000 MHz

Radiated emissions 9 kHz-30 MHz.

Measuring distance 10 m, measured with Peak detector.

No component detected, see plot.

Limit is converted to 10 m using 40 dB/decade according to 15.31 (f) (2).



Date: 12.DEC.2012 16:36:23

Radiated Emissions, 0.009 -30MHz

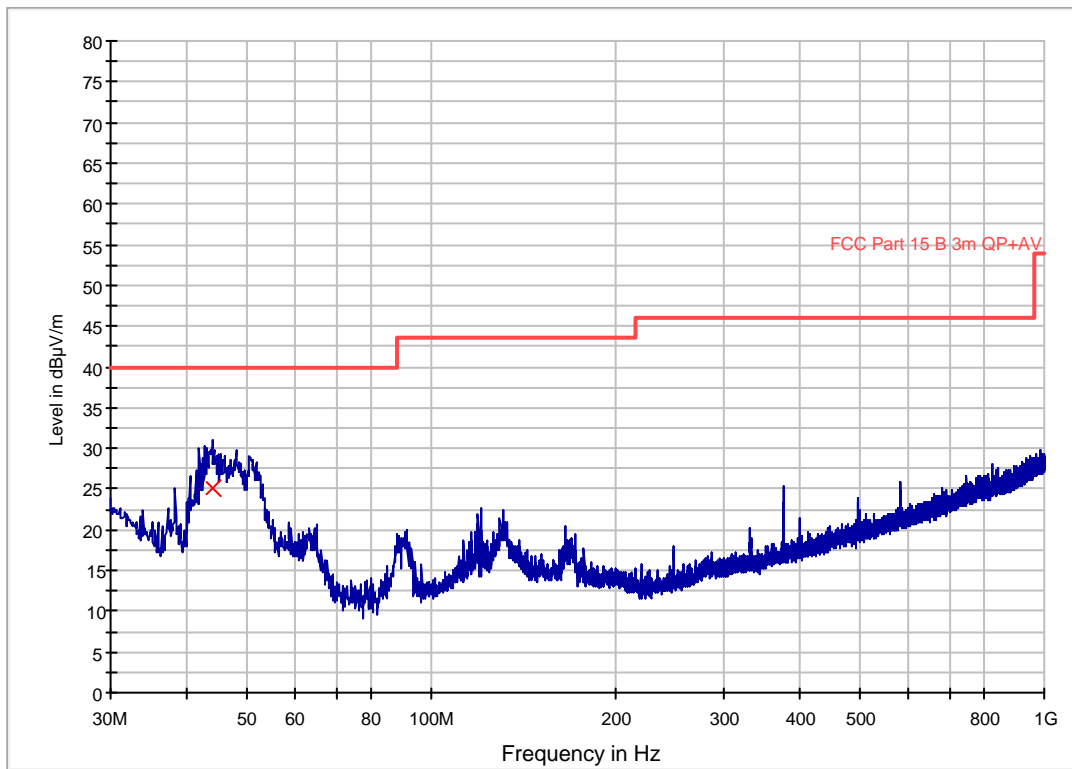
Radiated emission 30 – 1000 MHz.

Detector: Peak

Measuring distance: 3m

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Polarization	Margin (dB)	Limit (dBµV/m)	Comment
43.972662	25.1	120.000	V	14.9	40.0	

FCC Pt15 Class B 30-1000M 3m



Radiated Emissions, 30 -1000MHz

Radiated Emissions, 1-25 GHz

Measuring distance: 3m (1 – 8.5 GHz)
 1m (8.5 – 18 GHz)

A pre-scan was performed above 18 GHz and no spurious emissions were detected.

Peak Detector:

Frequency	RF channel	Field strength, Peak Detector, 3m	Limit	Margin
GHz	L,M,H	dB μ V/m	dB μ V/m	dB
all freqs	L,M,H	None detected	74	>20

Average Detector:

Frequency	RF channel	Field strength, Average Detector, 3m	Limit	Margin
GHz	L,M,H	dB μ V/m	dB μ V/m	dB
all freqs	L,M,H	None detected	54	>20

Average Detector values are calculated from Peak values by Duty Cycle Correction Factor (20 dB).
 Antenna factor, amplifier gain and cable loss are included in spectrum analyzer “Transducer factor”.
 Distance correction factor is included in the plots at 1m.
 See plots.

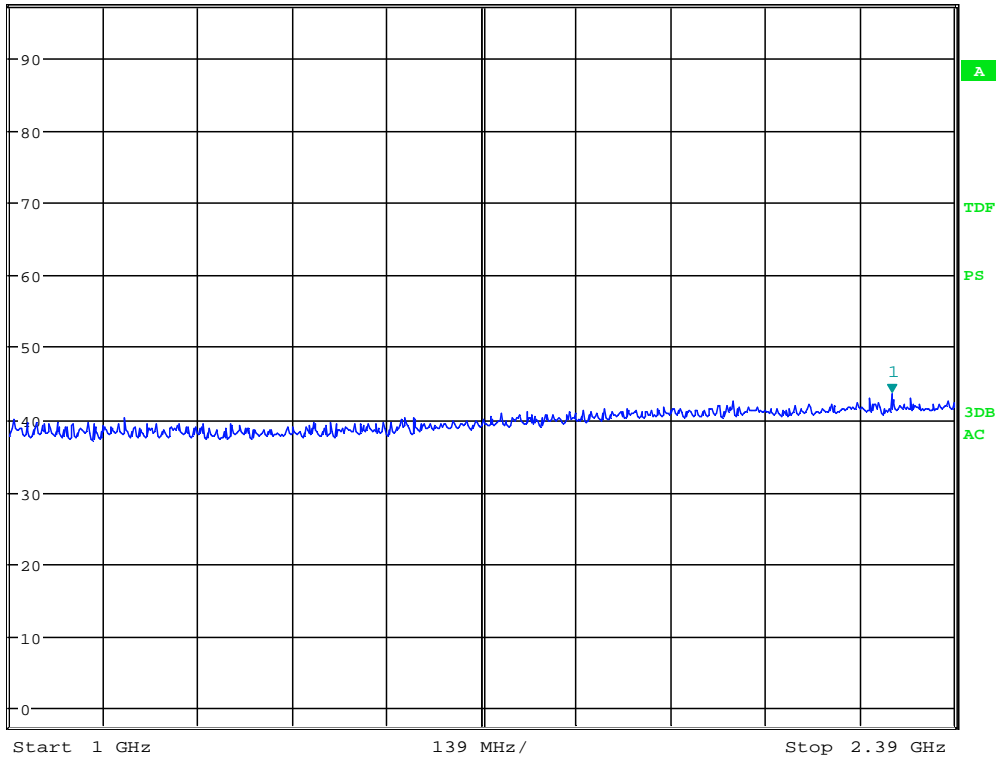


*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz 43.65 dBµV/m
 SWT 5 ms 2.298669872 GHz

Ref 97.5 dBµV/m

*Att 10 dB

1 PK
MAXH



Date: 12.DEC.2012 11:16:10

Radiated Emissions, 1000 -2390MHz, VP

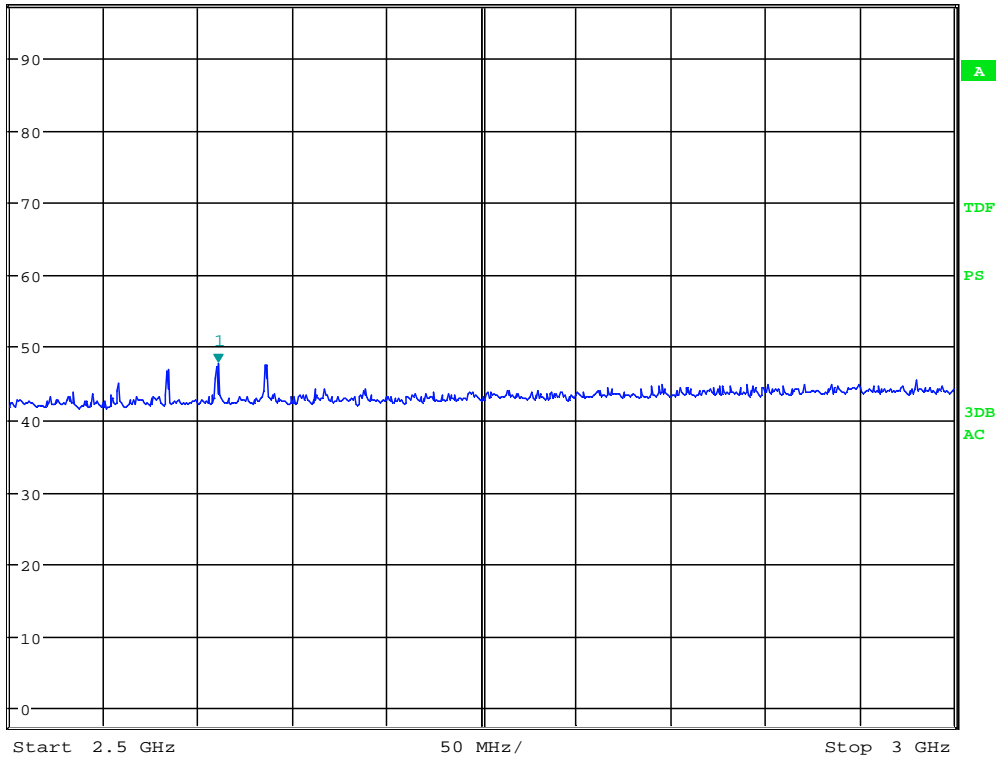


*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 47.83 dB μ V/m
SWT 2.5 ms 2.610576923 GHz

Ref 97.5 dB μ V/m

*Att 10 dB

1 PK
MAXH



Date: 12.DEC.2012 12:57:52

Radiated Emissions, 2483.5 -3000MHz, VP

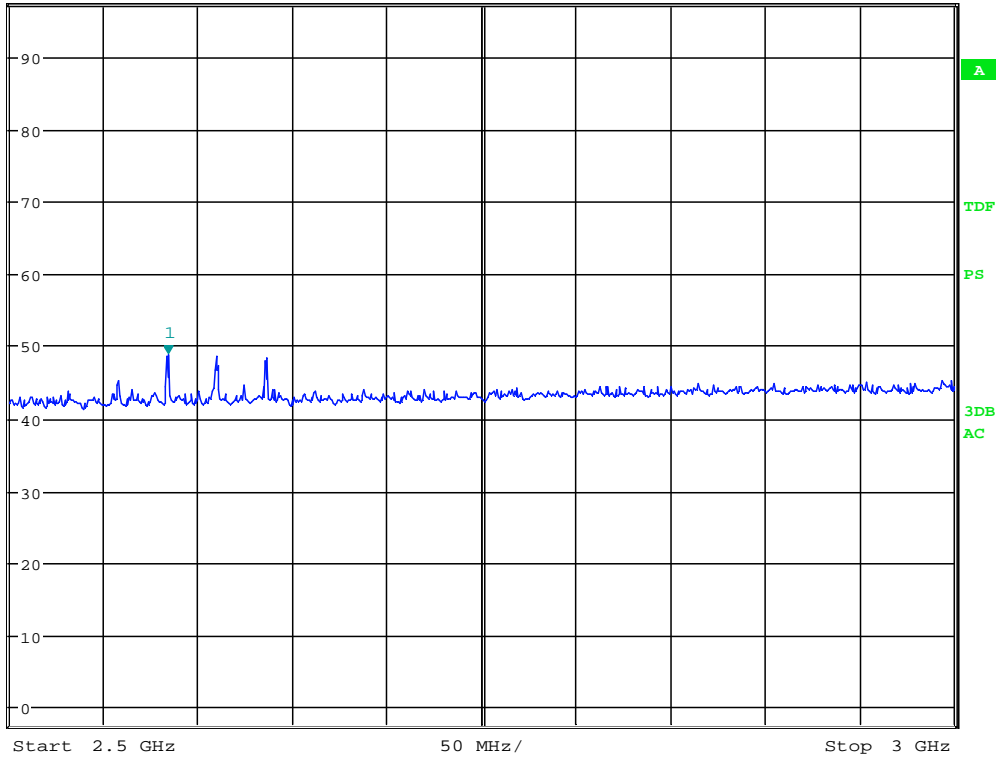


*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz 48.78 dBμV/m
 SWT 2.5 ms 2.584134615 GHz

Ref 97.5 dBμV/m

*Att 10 dB

1 PK
MAXH

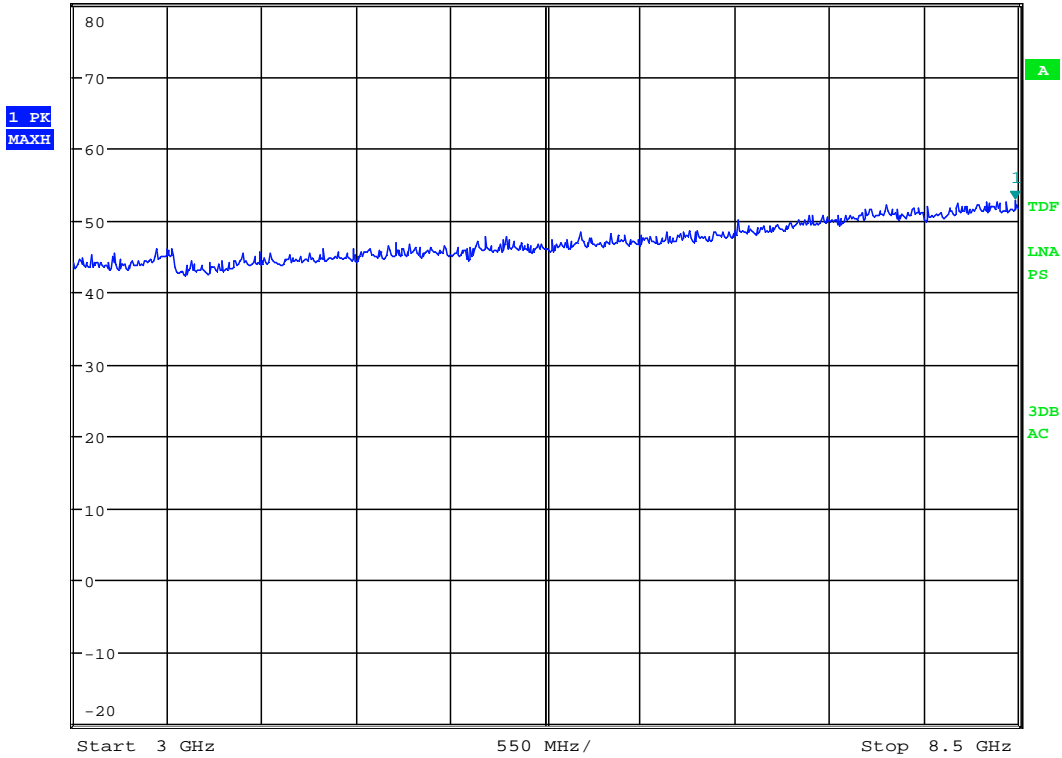


Date: 12.DEC.2012 12:59:42

Radiated Emissions, 2483.5 -3000MHz, HP



* RBW 1 MHz Marker 1 [T1]
 * VBW 3 MHz 52.77 dBμV/m
 Ref 80 dBμV/m * Att 10 dB SWT 35 ms 8.482371795 GHz

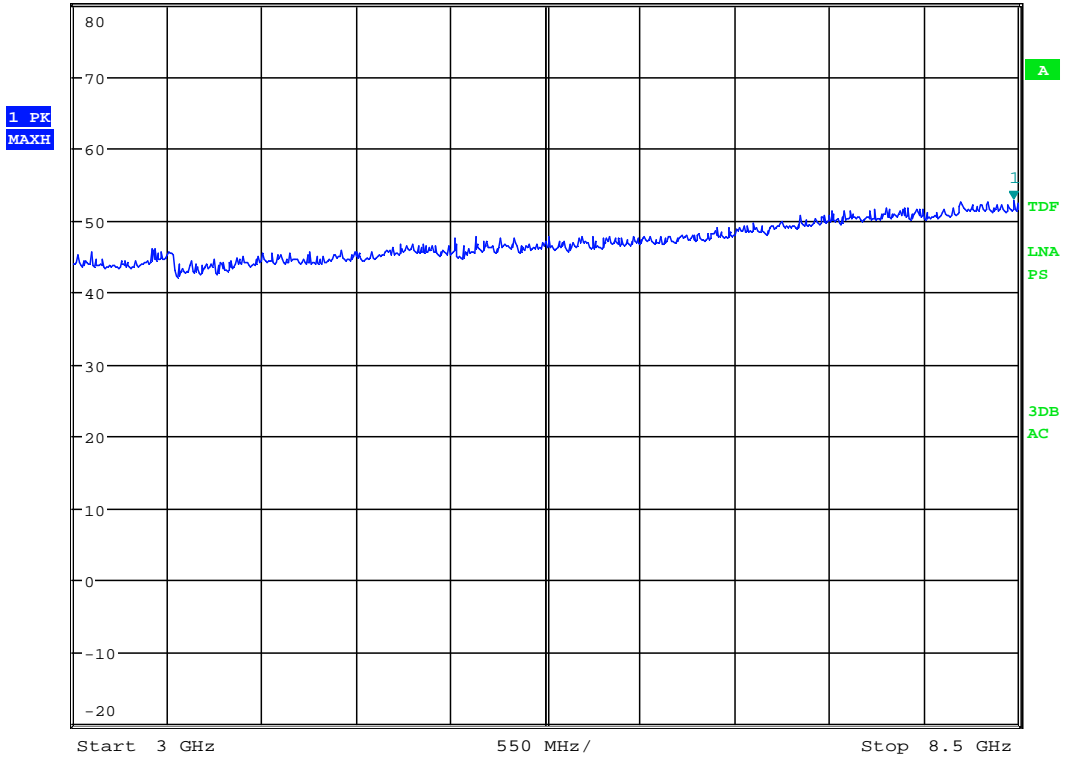


Date: 12.DEC.2012 14:44:15

Radiated Emissions, 3000 -8500MHz, VP



* RBW 1 MHz Marker 1 [T1]
 * VBW 3 MHz 52.69 dBμV/m
 Ref 80 dBμV/m * Att 10 dB SWT 35 ms 8.473557692 GHz

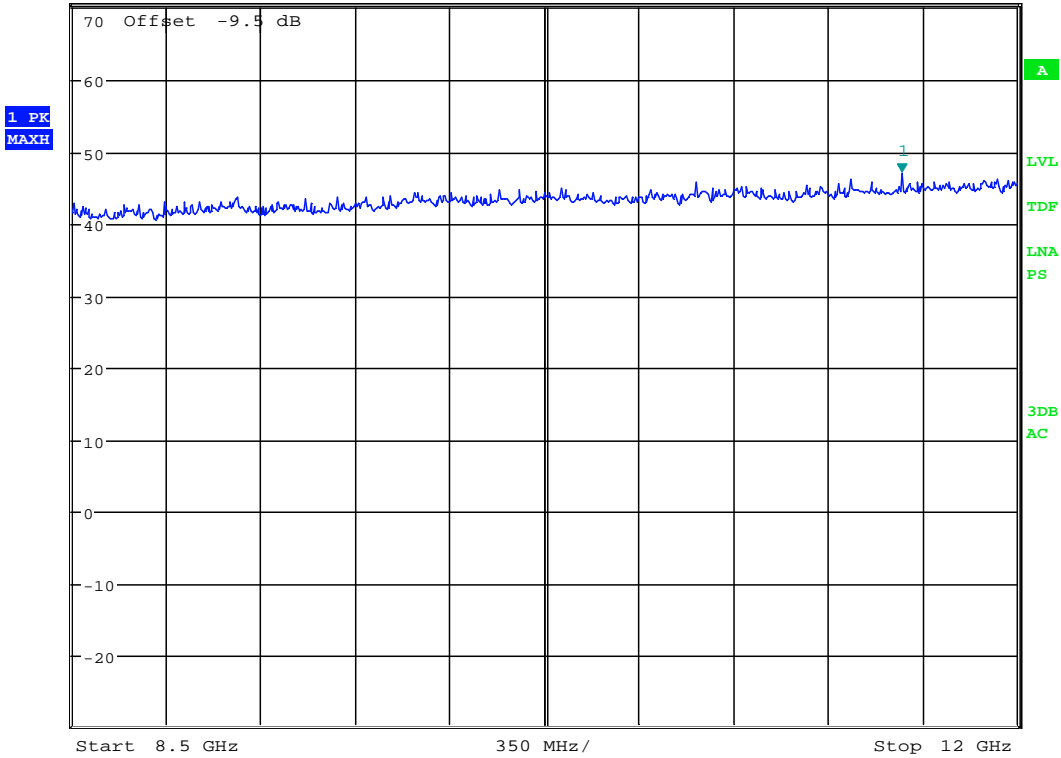


Date: 12.DEC.2012 14:45:57

Radiated Emissions, 3000 -8500MHz, HP



Ref 70.5 dBµV/m *Att 10 dB *RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz 47.17 dBµV/m
 SWT 25 ms 11.573717949 GHz

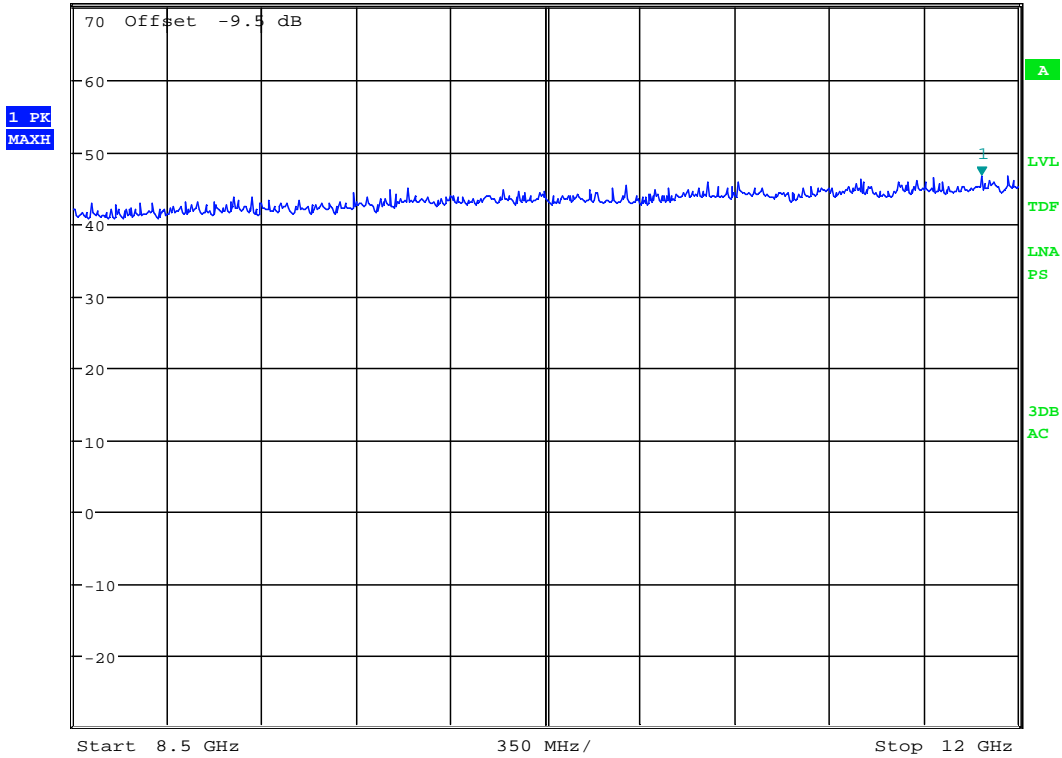


Date: 12.DEC.2012 15:25:37

Radiated Emissions, 8500 -12000MHz, VP, @1m



Ref 70.5 dB μ V/m *Att 10 dB *RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz 46.72 dB μ V/m
 SWT 25 ms 11.865384615 GHz

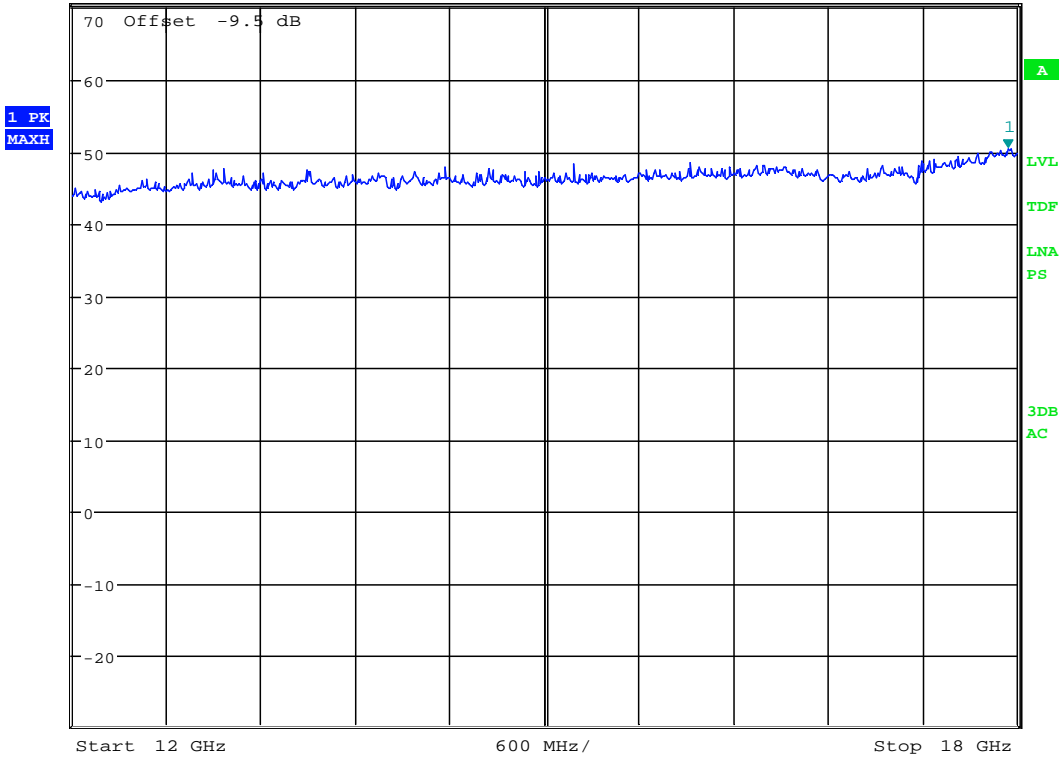


Date: 12.DEC.2012 15:27:18

Radiated Emissions, 8500 -12000MHz, HP, @1m



Ref 70.5 dB μ V/m *Att 10 dB *RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz 50.49 dB μ V/m
 SWT 35 ms 17.942307692 GHz

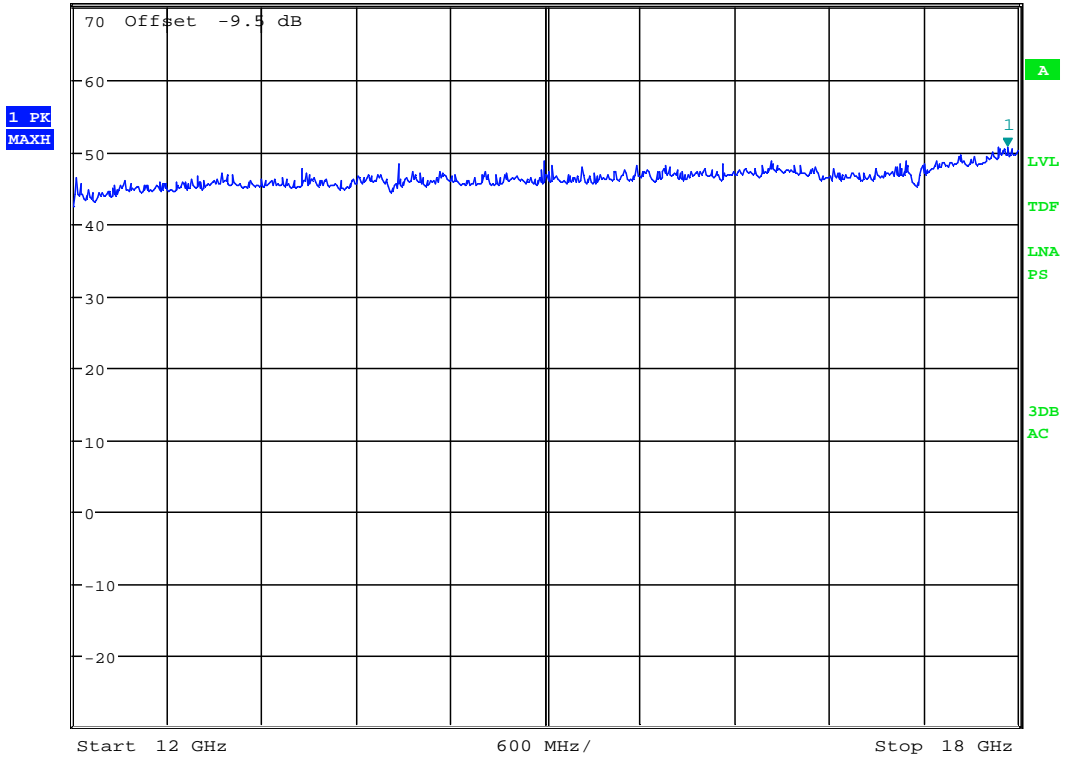


Date: 12.DEC.2012 15:31:39

Radiated Emissions, 12000 -18000MHz, VP, @1m



*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz 50.74 dBμV/m
 Ref 70.5 dBμV/m *Att 10 dB SWT 35 ms 17.932692308 GHz

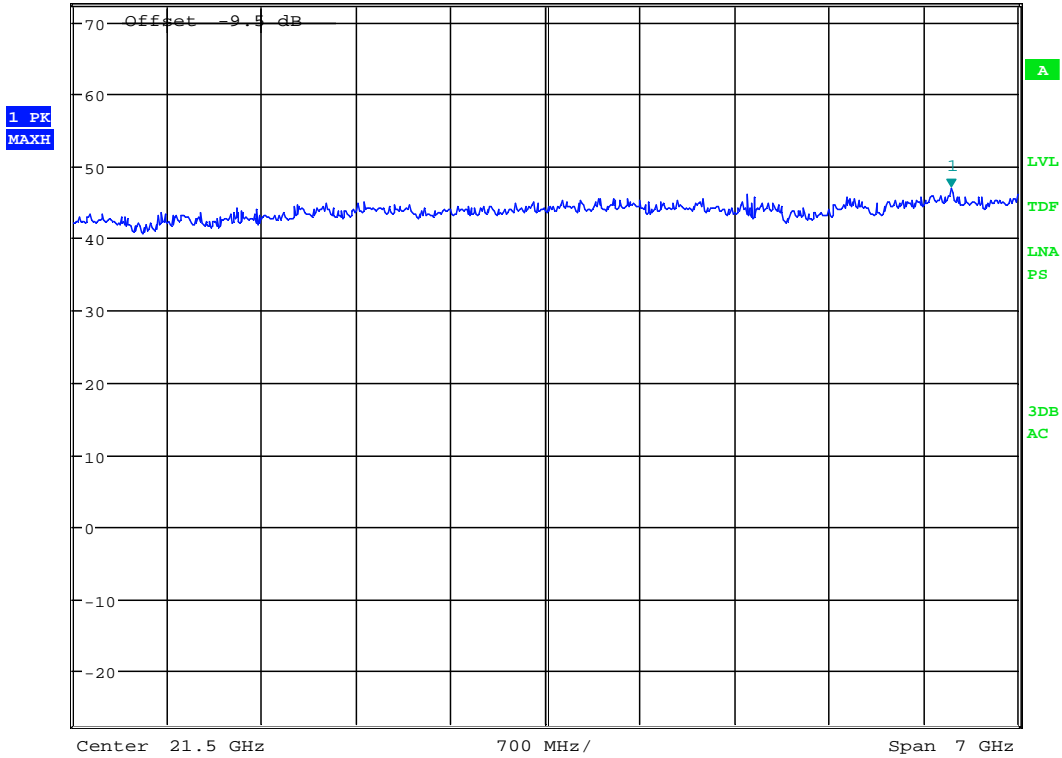


Date: 12.DEC.2012 15:33:20

Radiated Emissions, 12000 -18000MHz, HP, @1m



* RBW 1 MHz Marker 1 [T1]
 VBW 3 MHz 47.02 dBμV/m
 Ref 72.5 dBμV/m * Att 10 dB SWT 45 ms 24.506410256 GHz



Date: 12.DEC.2012 16:47:21

Pre-scan, 18000 -25000MHz, @ approx. 10cm

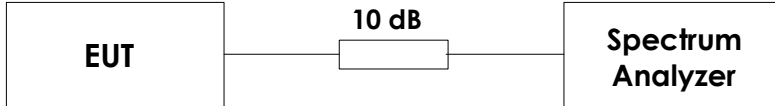
5 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW26	Spectrum Analyzer	Rohde & Schwarz	LR 1504	2012.06	2013.06
2	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2012.06	2013.06
3	4768-10	Attenuator	Narda	LR 1356	Cal b4 use	
4	ESH3-Z5	Two Line V-Network	Rohde & Schwarz	LR 1076	Cal b4 use	
6	6812B	AC Power Source	Agilent	LR 1515	2013.10.28	2015.10.28
7	ESH3-Z2	Pulse Limiter	Rohde & Schwarz	N- 3932	Cal b4 use	
8	ESHS10	Measuring Receiver	Rohde & Schwarz	N- 3528	2014.09.15	2015.09.15
9	JB3	BiLog Antenna	Sunol Sciences	N-4525	2012.10.11	2015.10.11
10	LNA6900	Preamplifier	Teseq	LR 1593	Cal b4 use	
11	3115	Horn Antenna	EMCO	LR 1330	2010.08.05	2013.08.05
12	8449B	Pre-amplifier	Hewlett Packard	LR 1322	2012-09	2013-09
14	HFH2-Z2	Loop Antenna	Rohde & Schwarz	LR 285	2010-10-08	2013-10-08
15	PM7320X	Antenna horn	Siverts lab	LR 103	2009.01.26	2014.01.26
16	DBF-520-20	Antenna horn	Systron Donner	LR 101	2009.01.26	2014.01.26
17	638	Antenna horn	Narda	LR 1480	2010.06.17	2015.06.17
18	Model 87 V	Multimeter	Fluke	N-4669	2012.09.05	2013.09.05

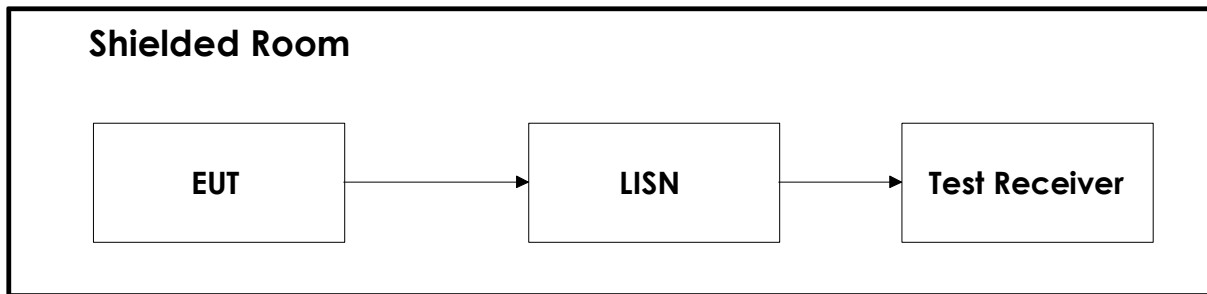
6 BLOCK DIAGRAM

6.1 Conducted Tests

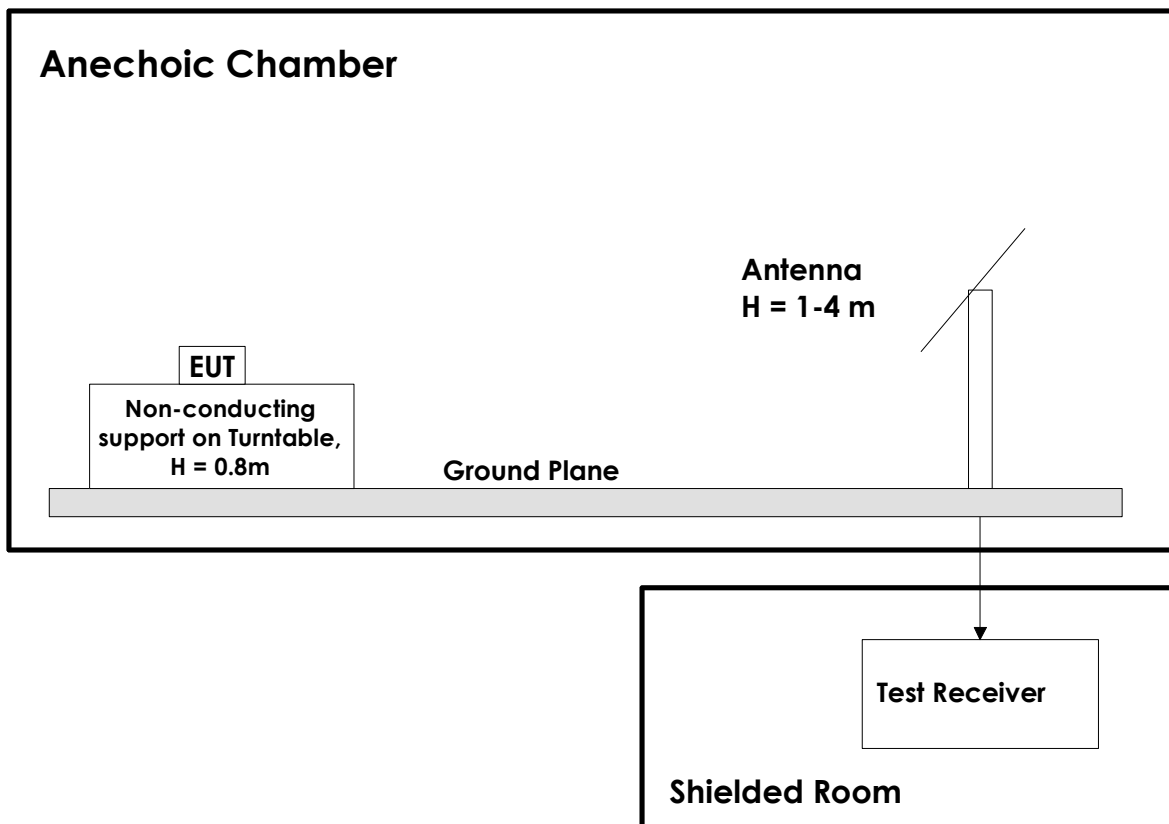


This setup is used for all measurements on 50 ohm antenna connector.

6.2 Power Line Conducted Emission



6.3 Test Site Radiated Emission



This test setup is used for all radiated emissions tests. For frequencies below 30 MHz the measuring distance is 10 m, for all other frequencies it is 3m or 1m. Emissions above 1 GHz were measured with a Spectrum Analyzer and Horn Antenna and with the preamplifier after the antenna. For measurements above 18 GHz the test receiver is moved inside the anechoic chamber and located next to the antenna to minimize the cable loss.