



Test report no. : 201776-6

Item tested : KX-UDT121

Type of equipment : BT integrated in UPCS Handset

FCC ID : ACJ96NKX-UDT121

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

29 May 2012

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: 57

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. Michihito Miyazaki
Telephone : +81-92-477-1405
E-mail : michihito.miyazaki@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-UDT121
Industry Canada ID :	216A-KXUDT121
Model name :	KX-UDT121
Serial number :	/
Hardware identity and/or version:	PNLB2026ZBxx
Software identity and/or version :	SW045
Tested to IC Radio Standard (RSS) :	RSS-213 Issue 2, 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 :	0.0009 Watts (Peak)
Type of Power Supply :	Secondary Battery (3.7V Li-Ion)
Desktop Charger :	PNLC1032ZA with Power 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 UPCS Handset. The UPCS part is covered by a separate test report.

Exposure Evaluation

FCC stand alone SAR evaluation for Bluetooth transmitter is not required according to KDB 648474 D01 Table 2 when output power $\leq 12\text{mW}$ and antenna is $< 2.5\text{cm}$ from other antenna each with either Output Power $\leq 12\text{mW}$ or 1-g SAR $< 1.2\text{ W/kg}$.

Output of BT device is 0.0009 Watts and highest 1-g SAR of DECT is 0.024 W/kg.

Industry Canada RSS-102 Issue 4, clause 3.1.3 states that FCC procedures KDB 648474 shall be used for devices with multiple transmitters.

2.2 Test Environment

2.2.1 Normal test condition

Temperature:	20 - 21 °C
Relative humidity:	37 - 44 %
Normal test voltage:	3.7 V DC (Secondary Battery)

The values are the limit registered during the test period.

All tests were performed with the EUT powered from a fully charged battery.

2.3 Test Period

Item received date:	2012-03-22
Test period :	2012-04-19 to 2012-04-25

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

Manufacturer: Panasonic
Model No.: KX-UDT121
Serial No.: /

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.

Radiated tests were conducted in accordance with ANSI C63.4-2003 and ANSI C63.10-2009. 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 #: 201776-6

TESTED BY: Frode Svein
Frode Svein, Test engineer

DATE: 29 May 2012

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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)	8 (RSS-GEN)	Complies
Number of Operating Frequencies	15.31(m)	A8.1	Complies
Antenna Requirement	15.203	7.1.4 (RSS-GEN)	Complies
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2.2 (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 ²

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: 23 Apr 2012
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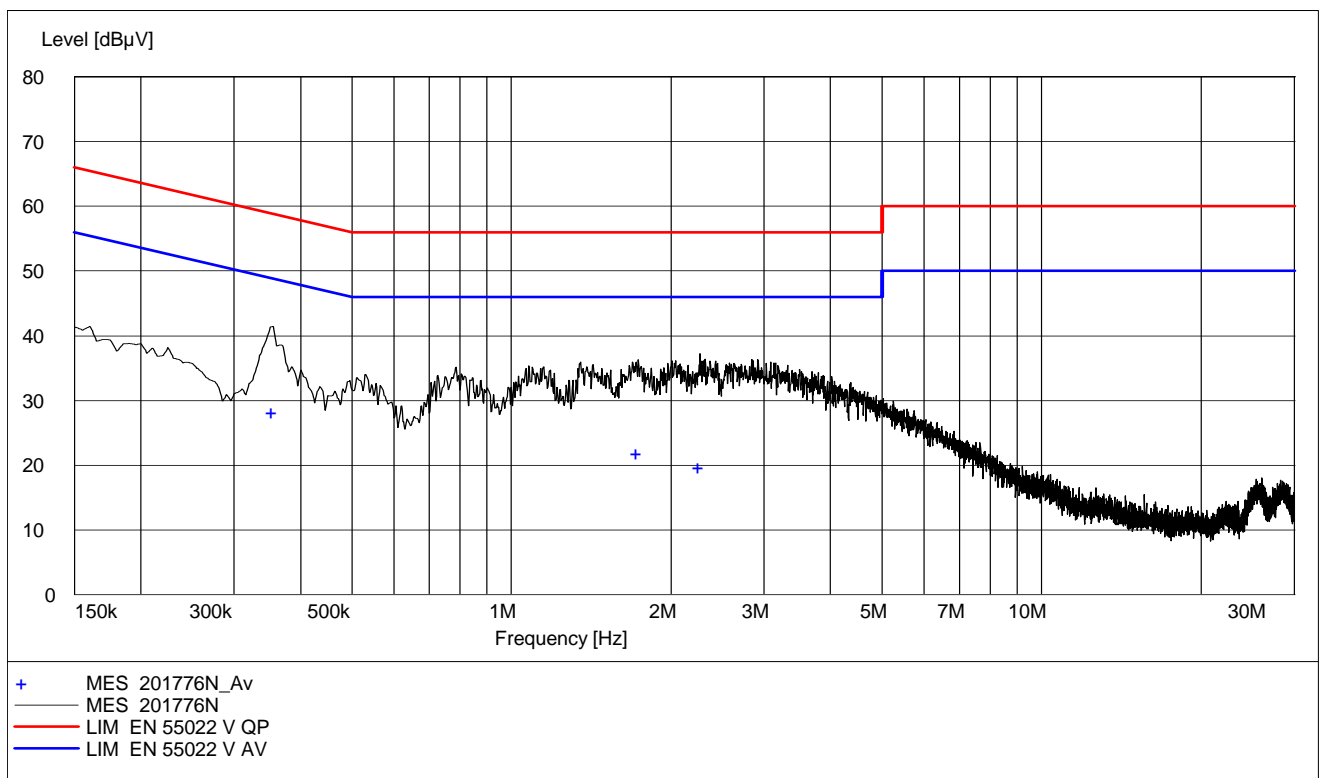
Measurement procedure: ANSI C63.4-2003 using 50 μ H/50 ohms LISN.

Test Results: Complies.

Measurement Data: See plot, (Peak detector).

Highest measured value (L1 and N):

Frequency [MHz]	Level [dB μ V]	Af [dB]	Limit [dB μ V]	Margin [dB]	Det	Position	Verdict [Pass/Fail]
0.355000	28.20	10.20	48.80	20.60	AV	N	Pass
1.735000	22.00	10.20	46.00	24.00	AV	L1	Pass
2.270000	19.80	10.30	46.00	26.20	AV	N	Pass



Phase L1 and N, 120V 60Hz (Plot shows maximum of Phase L1 and N)

4.2 Channel Separation and 20dB Bandwidth

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

Test Performed By: Frode Sveinsen	Date of Test: 19 Apr 2012
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Test Results: **Complies**

Measurement Data: Channel Separation: 1.000 MHz

20 dB Bandwidth (kHz)			
	2402 MHz	2441 MHz	2480 MHz
Measured Value	932.7	919.9	923.1

See attached plots

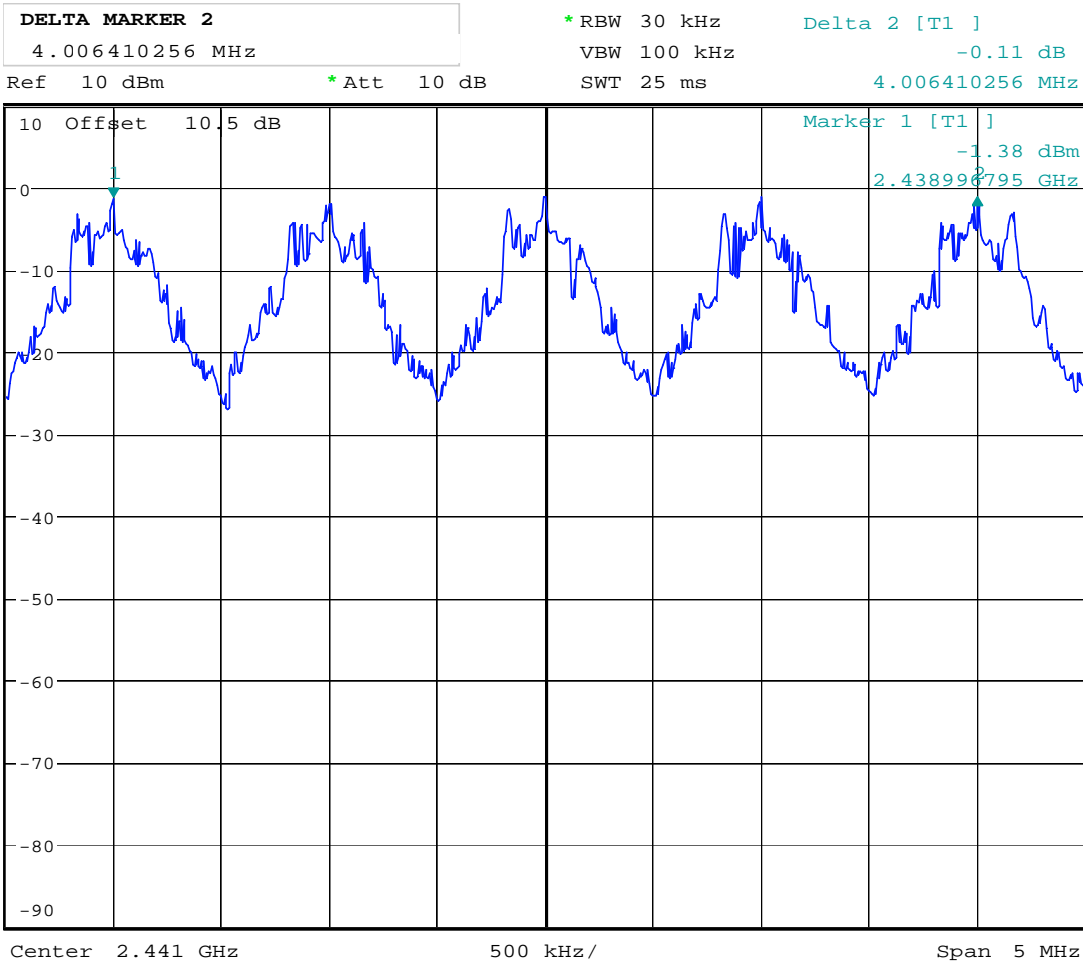
Channel Separation nominal value: 1.000 MHz.

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.

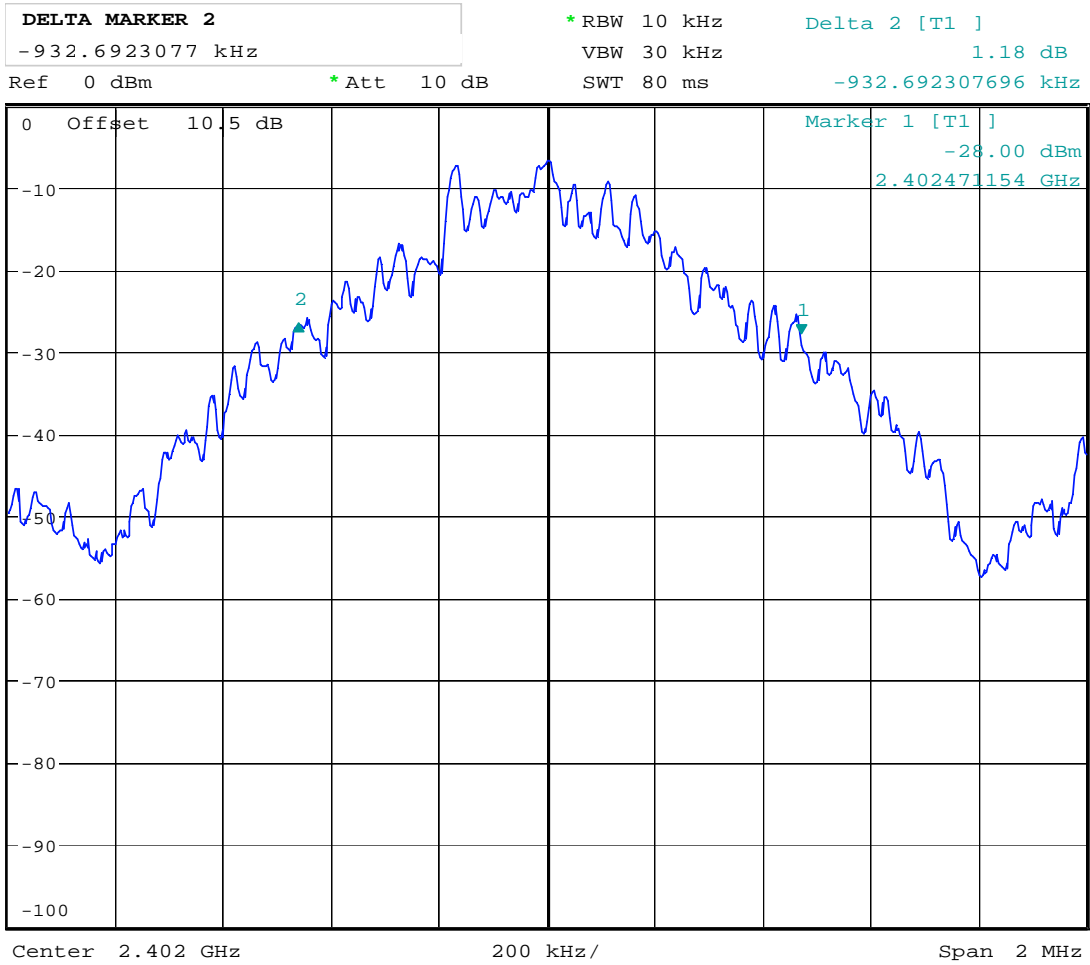
or:

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.



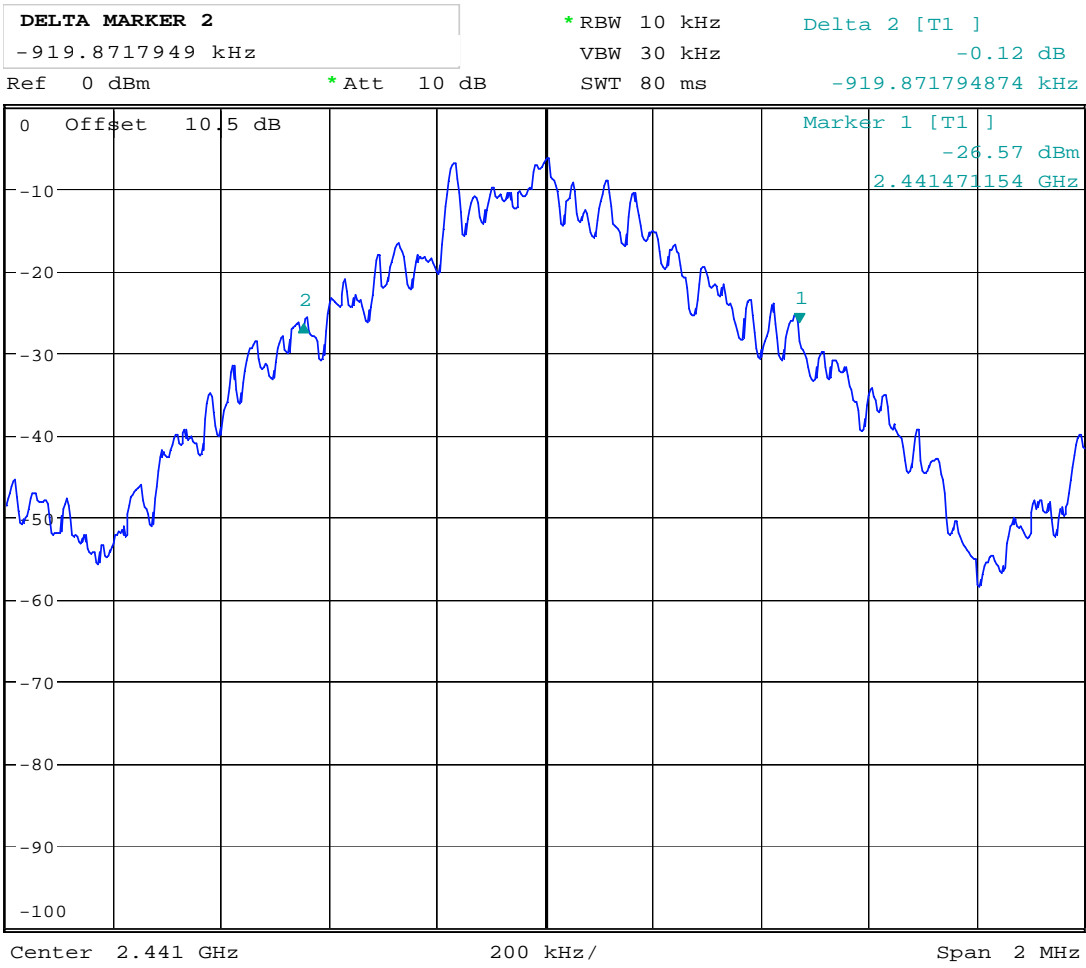
Date: 19.APR.2012 16:53:04

Channel Separation



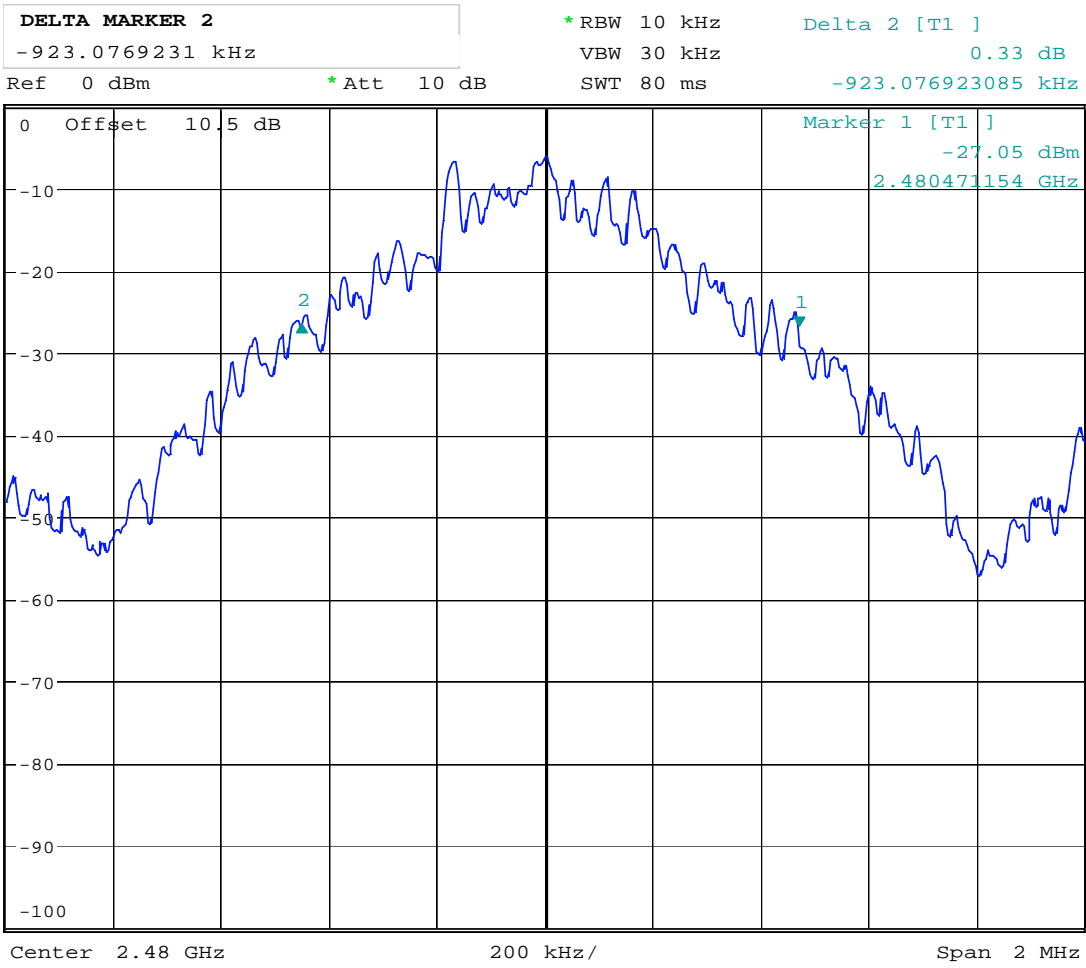
Date: 19.APR.2012 12:46:11

20 dB Bandwidth, 2402 MHz



Date: 19.APR.2012 13:09:47

20 dB Bandwidth, 2441 MHz



Date: 19.APR.2012 13:21:05

20 dB Bandwidth, 2480 MHz

4.3 Pseudorandom Hopping Algorithm

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

Test Performed By: Frode Sveinsen	Date of Test: 2 May 2012
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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: 19 Apr 2012
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Test Results: Complies

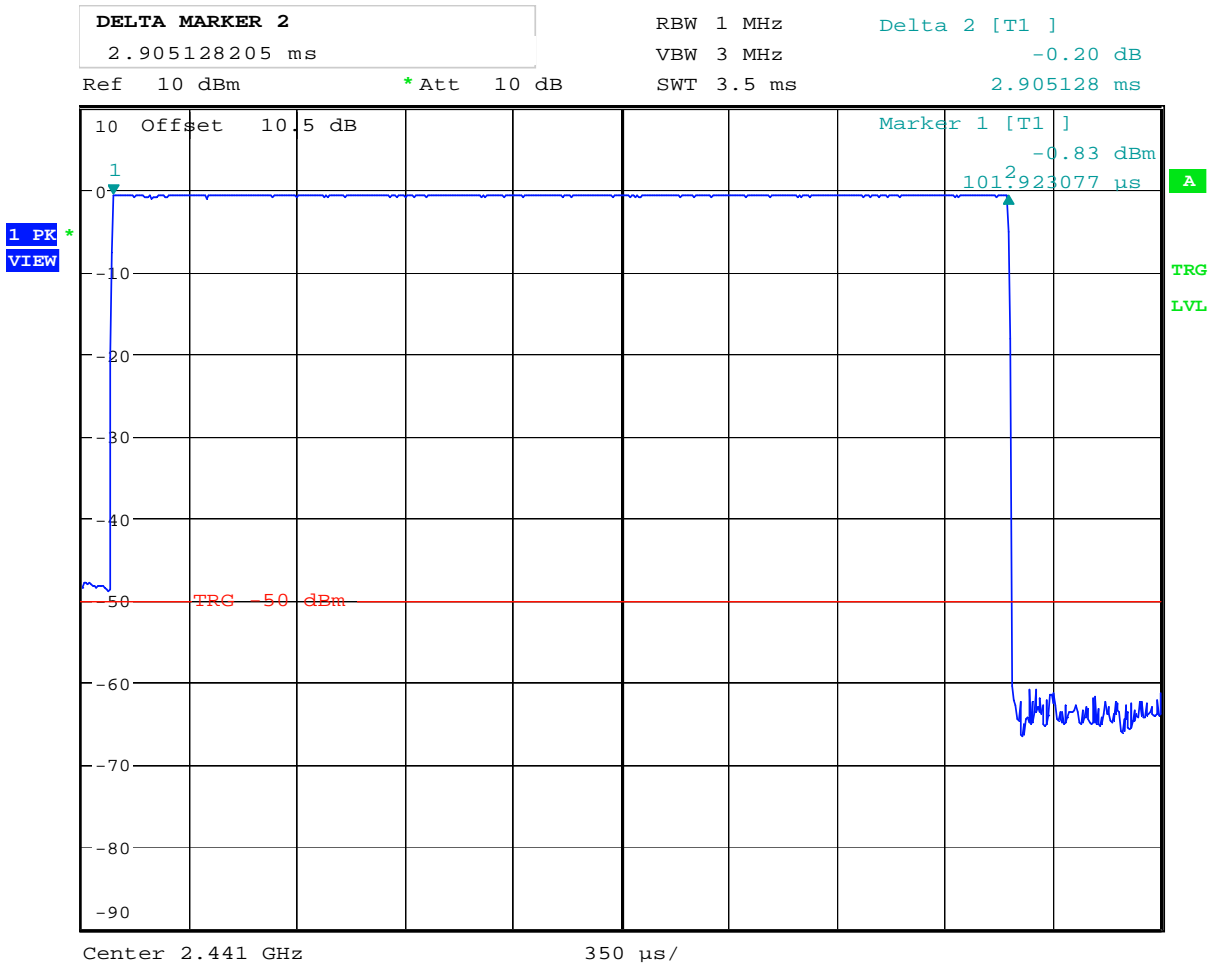
Measurement Data:

Number of RF channel: 79
RF burst pr channel: 2.91 ms
Time between each RF burst on same RF channel: $3.725 \times 79 = 294.275$ ms
Time of occupancy: $(2.91 \times 400 \times 79) / 294.275 = 0.3125$ 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: 19.APR.2012 16:33:38

Occupancy Time, DH5

4.5 Occupied Bandwidth

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

Test Performed By: Frode Sveinsen	Date of Test: 19 Apr 2012
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Test Results: Complies

Measurement Data: 79 RF channels in use

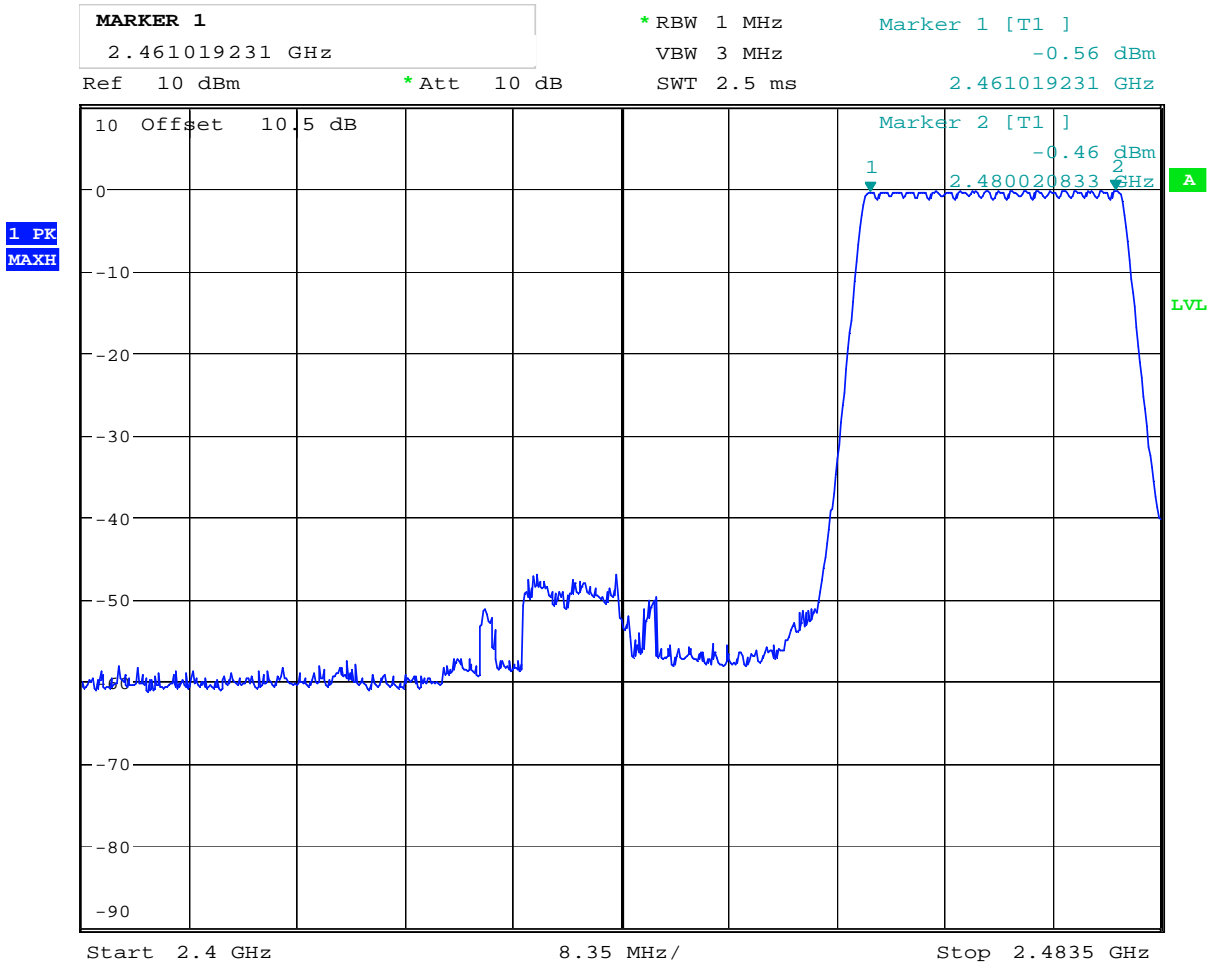
Channel Centre Frequencies:

The 79 channels are centered at each full MHz from 2402 to 2480 MHz.

See plot.

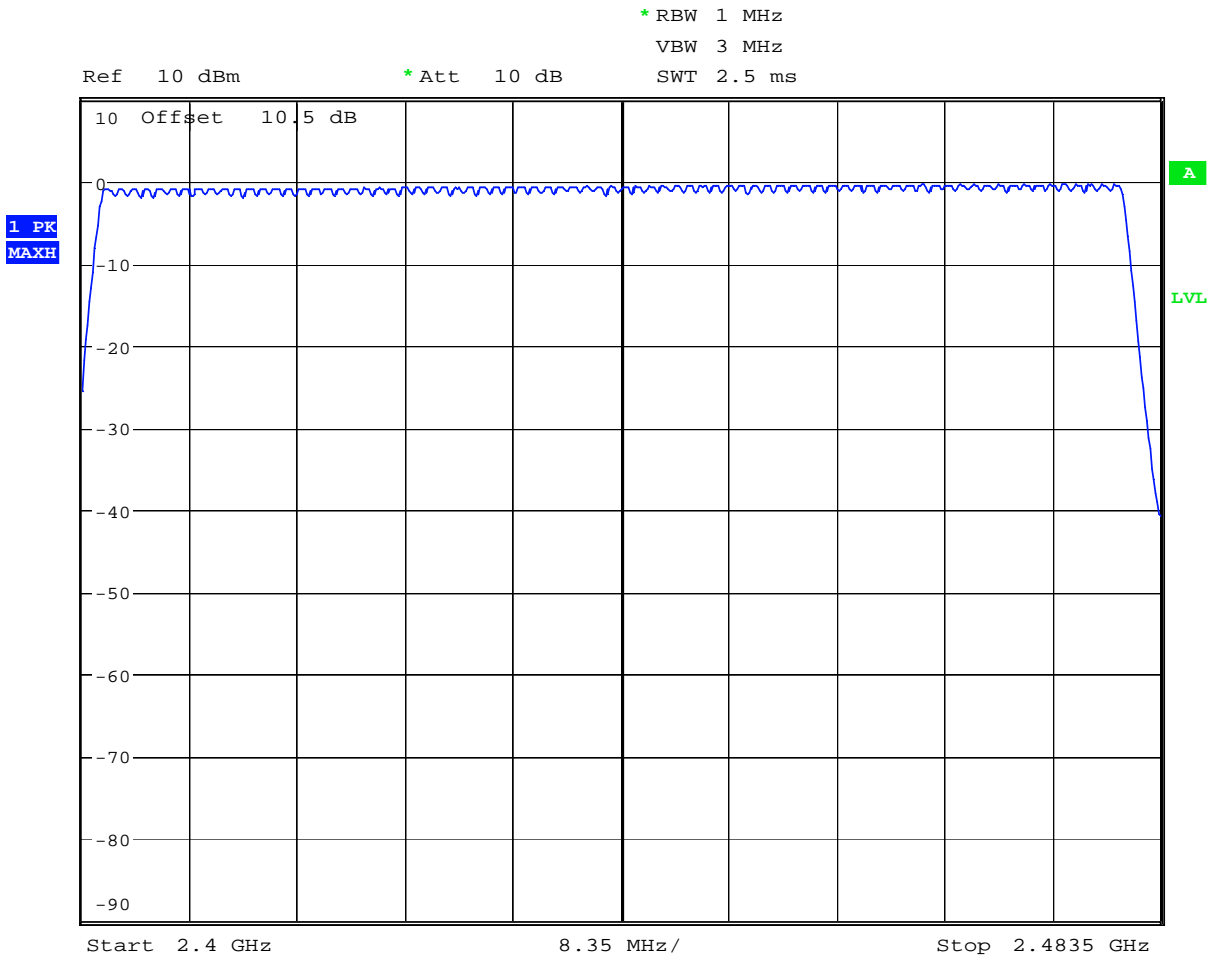
Requirements:

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: 19.APR.2012 17:22:21

RF Channels in use, Upper 20



Date: 19.APR.2012 16:49:47

RF Channels in use, Full Band

4.6 Peak Power Output

Para. No.: 15.247 (b)

Test Performed By: Frode Sveinsen	Date of Test: 19/25 Apr 2012
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Test Results: Complies

Measurement Data:

	2402 MHz	2441 MHz	2480 MHz
Peak Power (dBm)	-1.0	-0.7	-0.5
Peak Power (Watts)	0.0008	0.0009	0.0009
Field Strength (dBµV/m)	94.4	95.0	94.8
EIRP, Calculated (Watts)	0.0008	0.0009	0.0009
Antenna gain (dBi)	0.2	0.5	0.0

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:

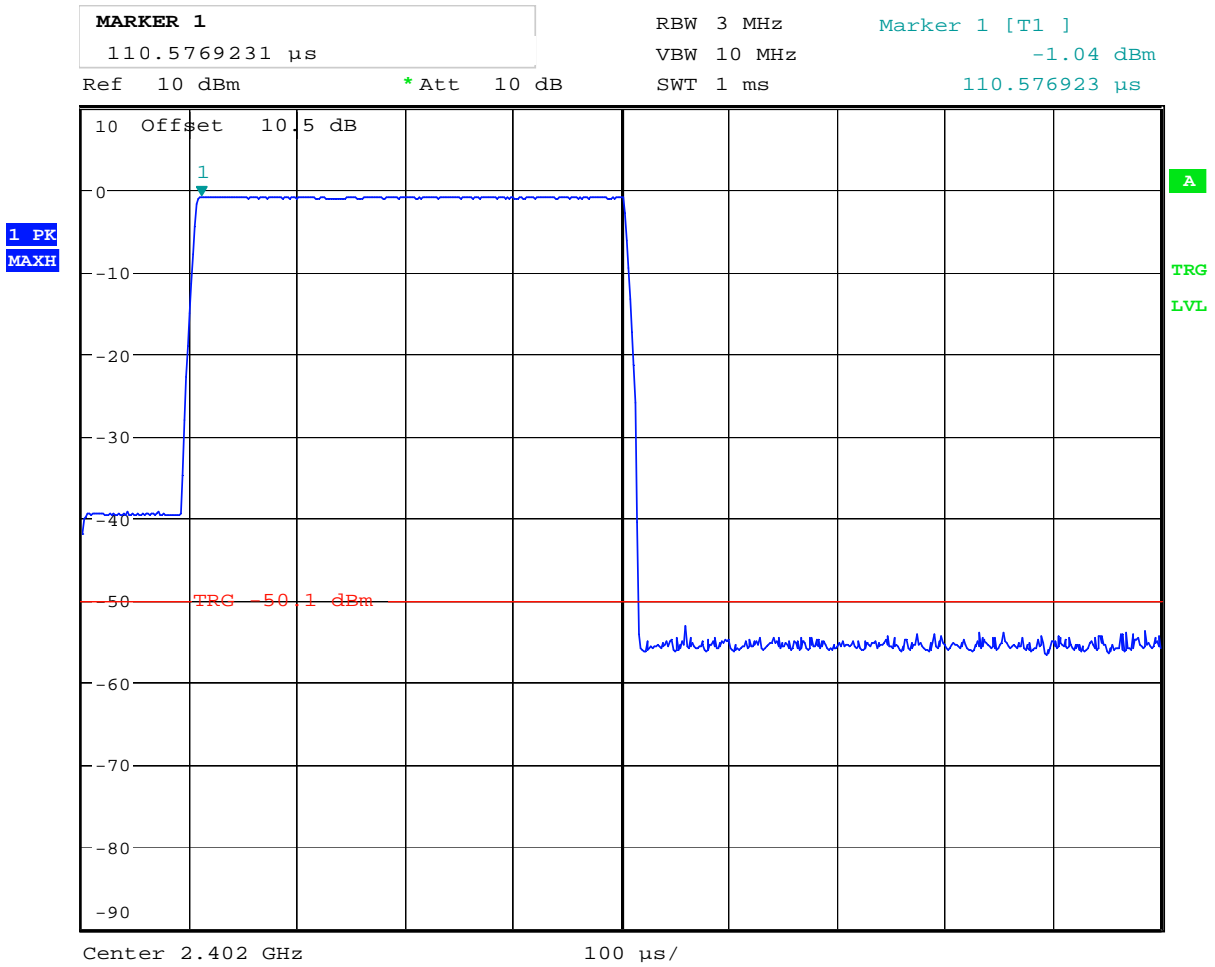
The maximum peak output power shall not exceed the following limits:

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.

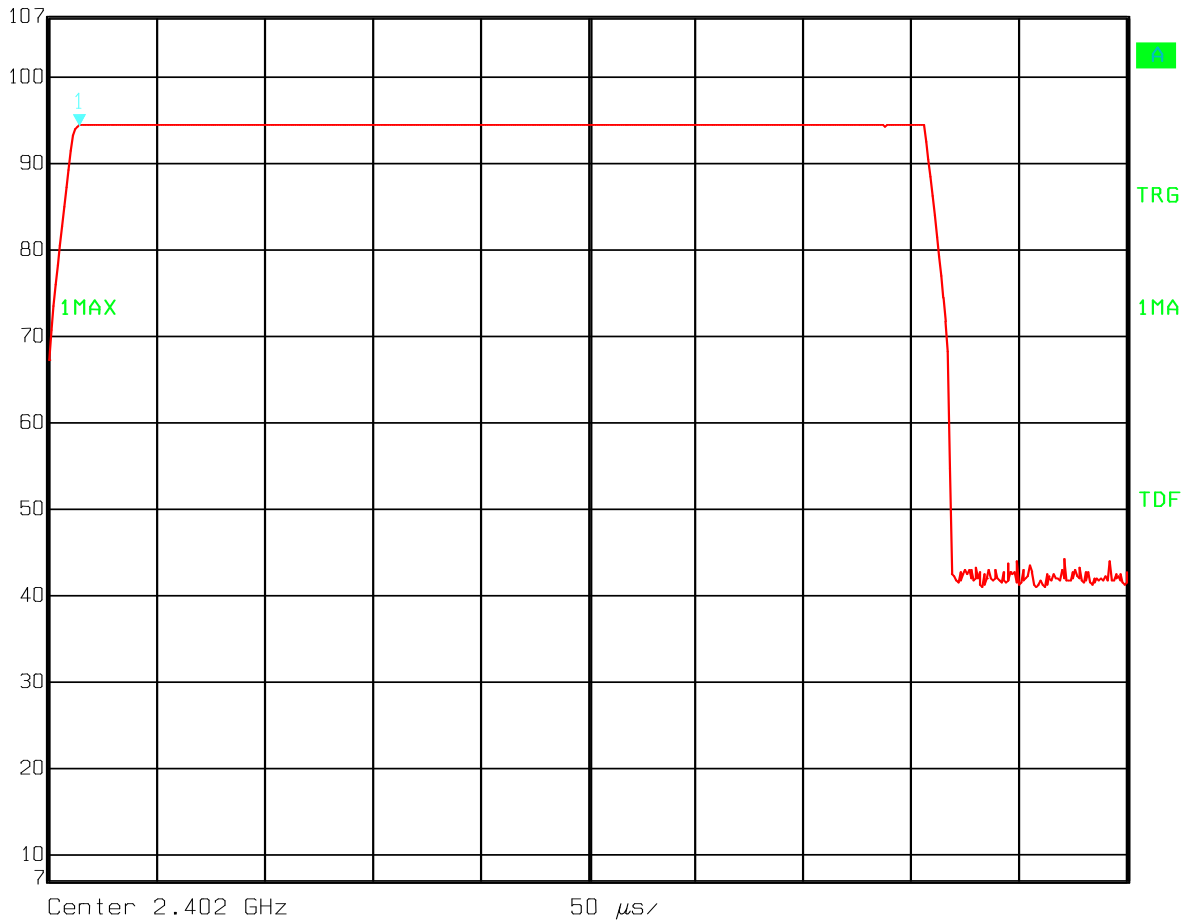


Date: 19.APR.2012 12:41:06

Conducted Output Power, 2402MHz

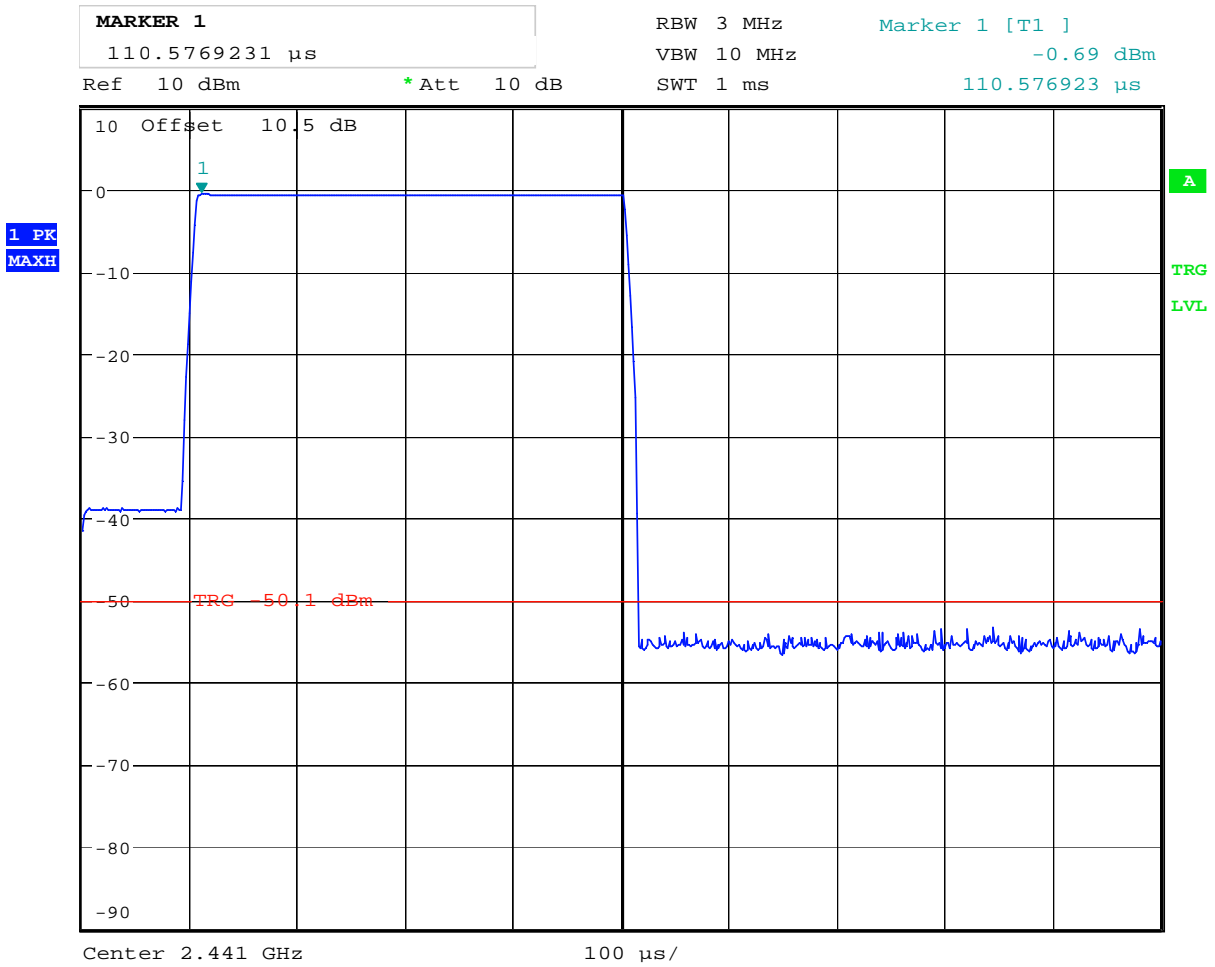


Ref Lvl	Marker 1 [T1]	RBW	2 MHz	RF Att	10 dB
107 dB*	94.35 dB μ V/m	VBW	5 MHz		
	14.028056 μ s	SWT	500 μ s	Unit	dB μ V/m



Date: 25.APR.2012 10:15:01

Maximum Field Strength, 2402MHz (Max: EUT H1, VP)

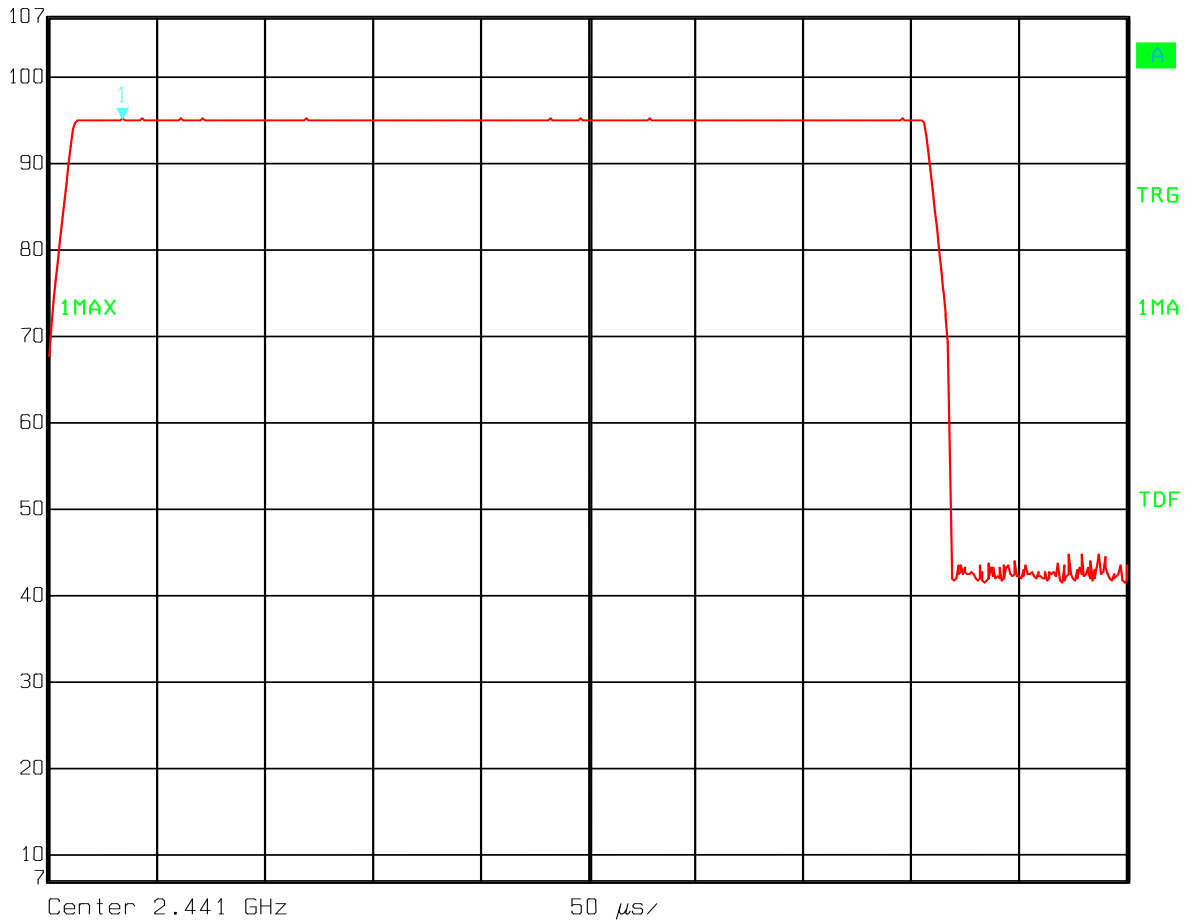


Date: 19.APR.2012 13:17:47

Conducted Output Power, 2441MHz

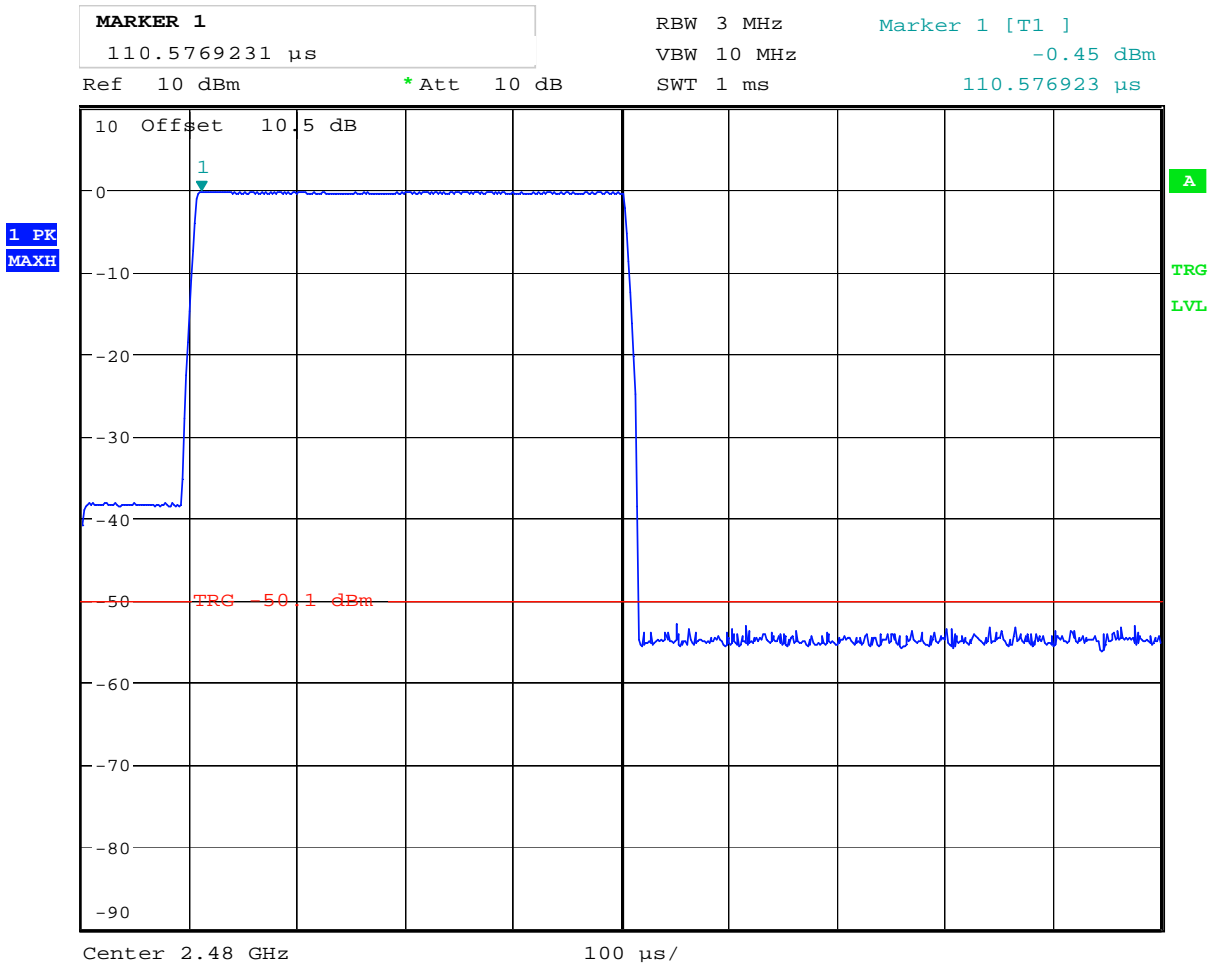


Ref Lvl	Marker 1 [T1]	RBW	2 MHz	RF Att	10 dB
107 dB*	95.00 dB μ V/m	VBW	5 MHz		
	34.068136 μ s	SWT	500 μ s	Unit	dB μ V/m



Date: 25.APR.2012 09:43:47

Maximum Field Strength, 2441MHz (Max: EUT H1, VP)

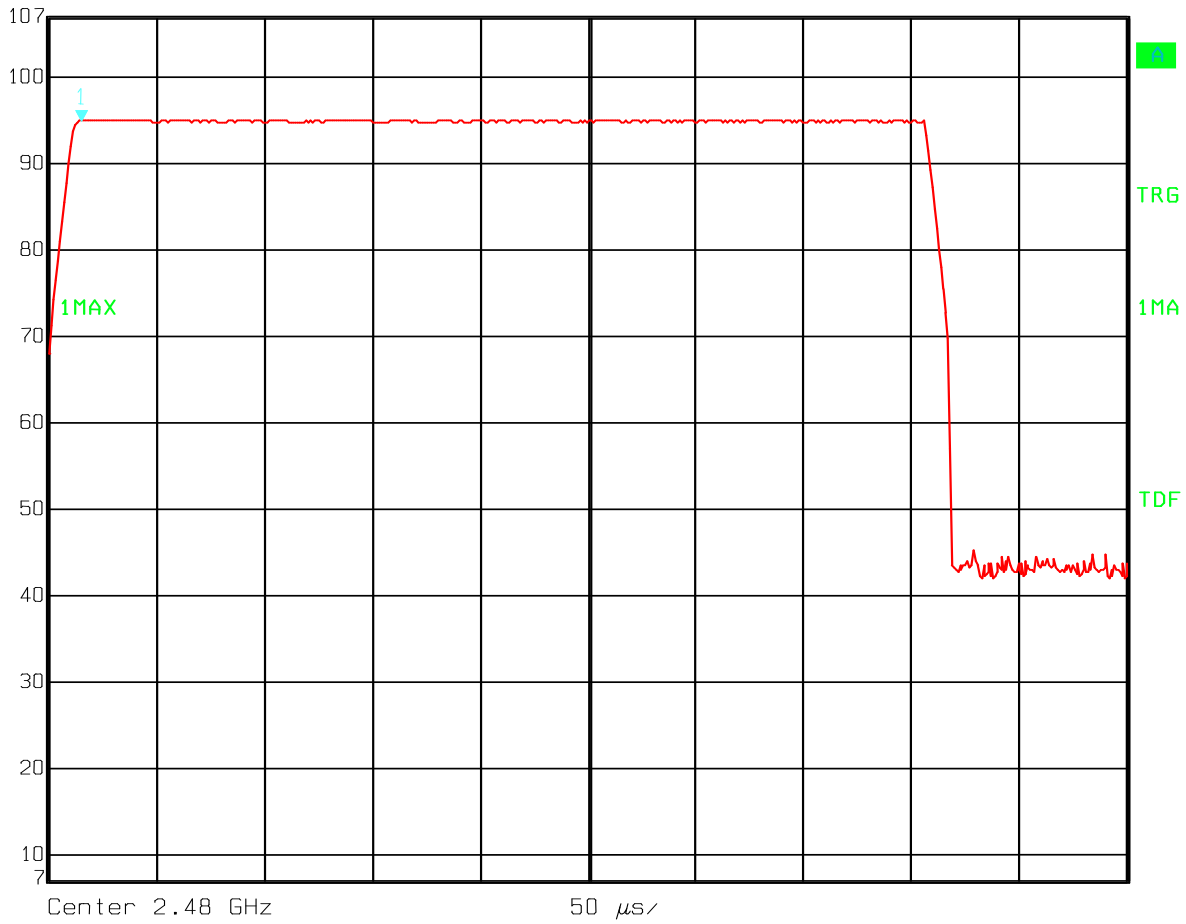


Date: 19.APR.2012 13:19:30

Conducted Output Power, 2480MHz



Ref Lvl	Marker 1 [T1]	RBW	2 MHz	RF Att	10 dB
107 dB*	94.81 dB μ V/m	VBW	5 MHz	Unit	dB μ V/m
	15.030060 μ s	SWT	500 μ s		



Date: 25.APR.2012 10:42:10

Maximum Field Strength, 2480MHz (Max: EUT H1, VP)

4.7 Spurious Emissions (Radiated)

Para. No.: 15.247 (c)

Test Performed By: Frode Sveinsen	Date of Test: 19/25 Apr 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	40.9	40.6	74	33.1
2.4835	55.4	54.5	74	18.6

Band-edge, Average Detector

Frequency GHz	Field Strength, dB μ V/m		Limit dB	Margin dB
	Hopping Off	Hopping On		
2.39	20.9	20.6	54	33.1
2.4835	35.4	34.5	54	18.6

See plots.

Calculated Field Strength, Peak Det.:

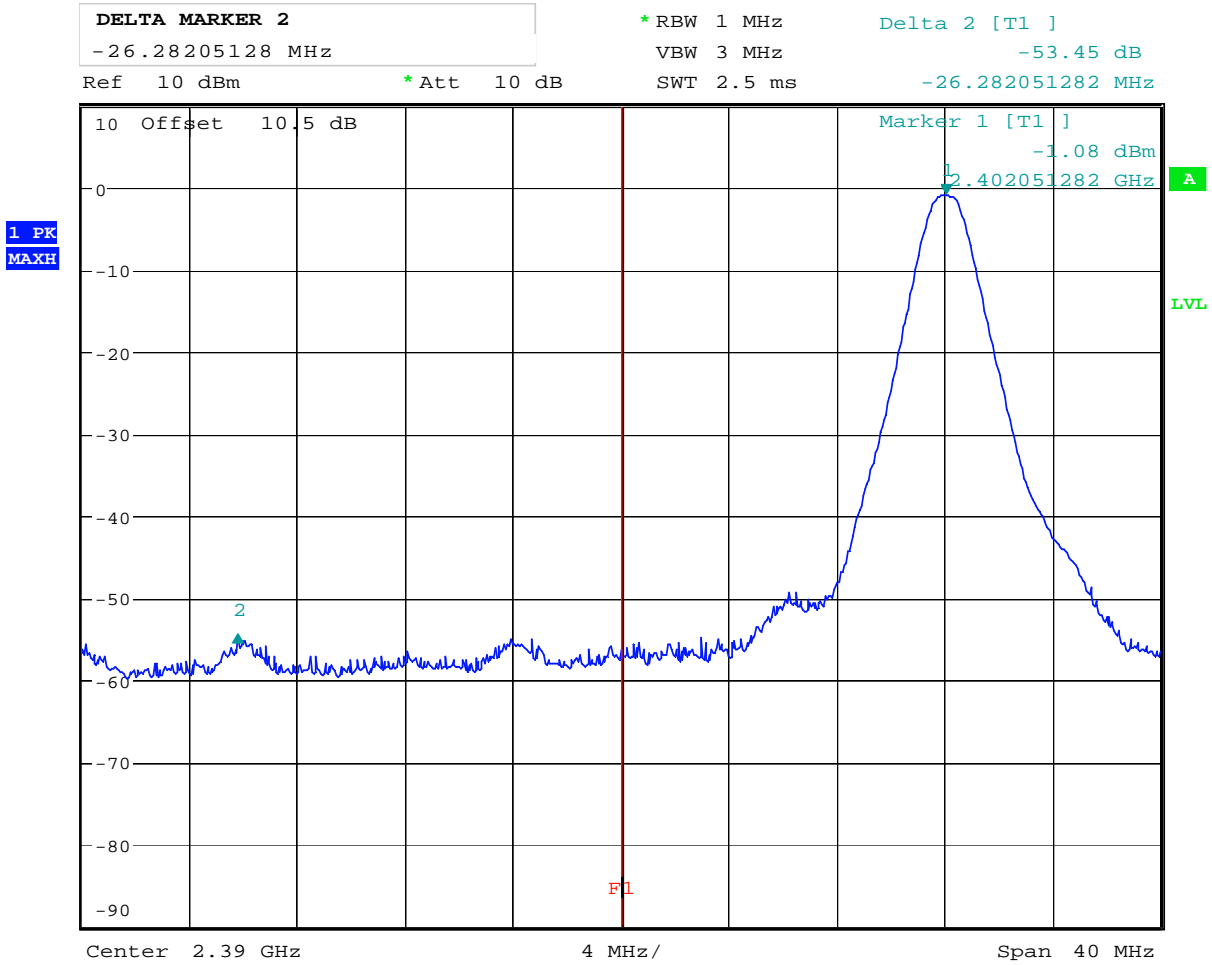
2390 MHz: Hopping Off: 94.4 dB μ V/m – 53.5 dB = 40.9 dB μ V/m
 Hopping On: 94.4 dB μ V/m – 54.8 dB = 40.6 dB μ V/m
 2483.5 MHz: Hopping Off: 94.8 dB μ V/m – 39.4 dB = 55.4 dB μ V/m
 Hopping On: 94.8 dB μ V/m – 40.3 dB = 54.5 dB μ V/m

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

RF conducted power to 25 GHz see plots.

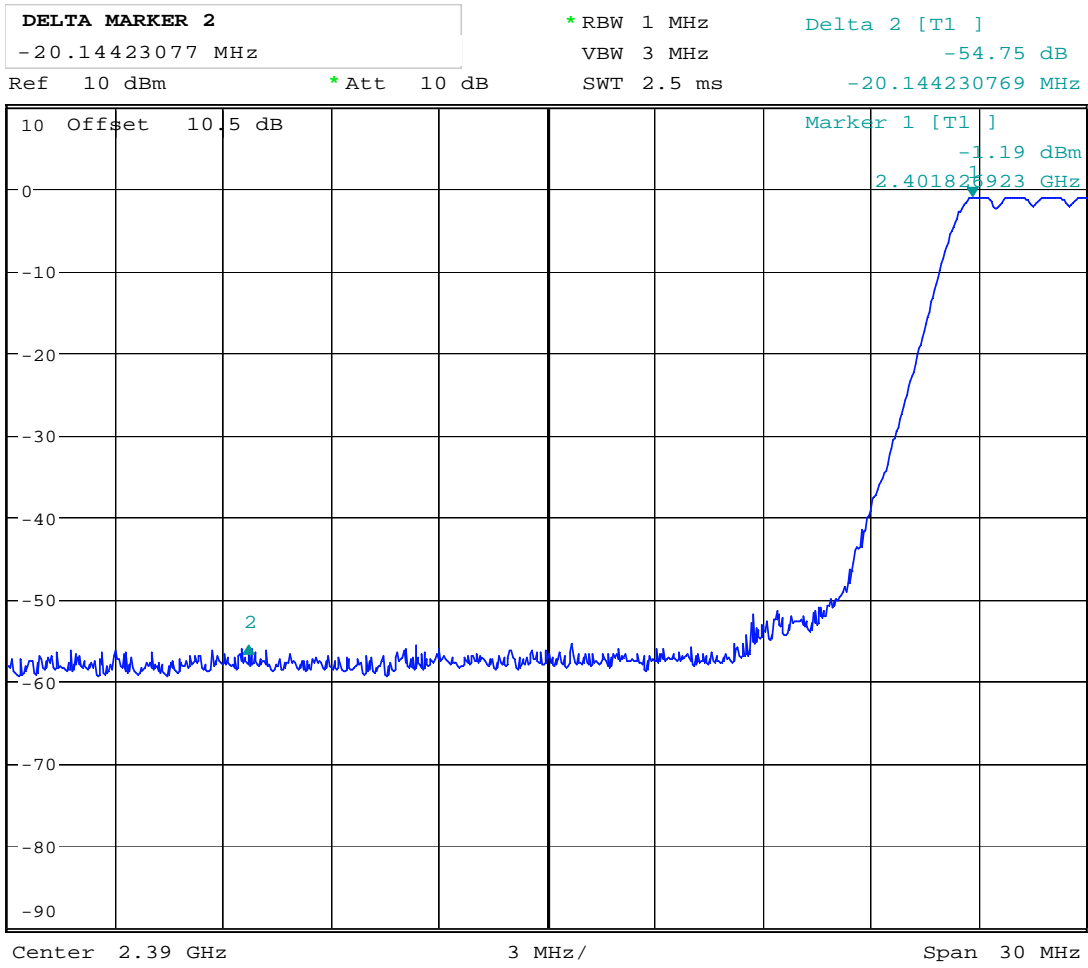
Maximum RF level outside operating band:

2402MHz: >40 dB/C, margin >20 dB
 2441MHz: >40 dB/C, margin >20 dB
 2480MHz: >40 dB/C, margin >20 dB



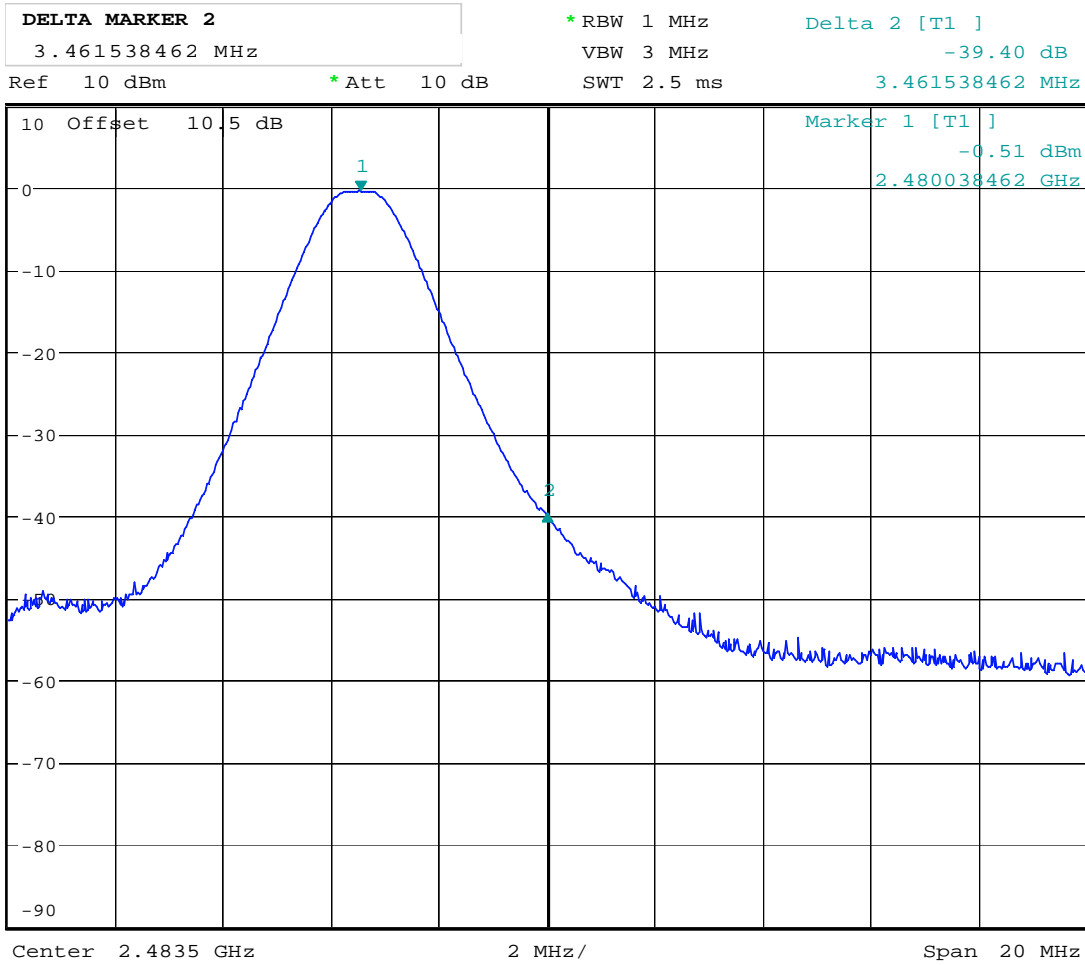
Date: 19.APR.2012 12:59:51

Band Edge, Lower Channel, Hopping OFF



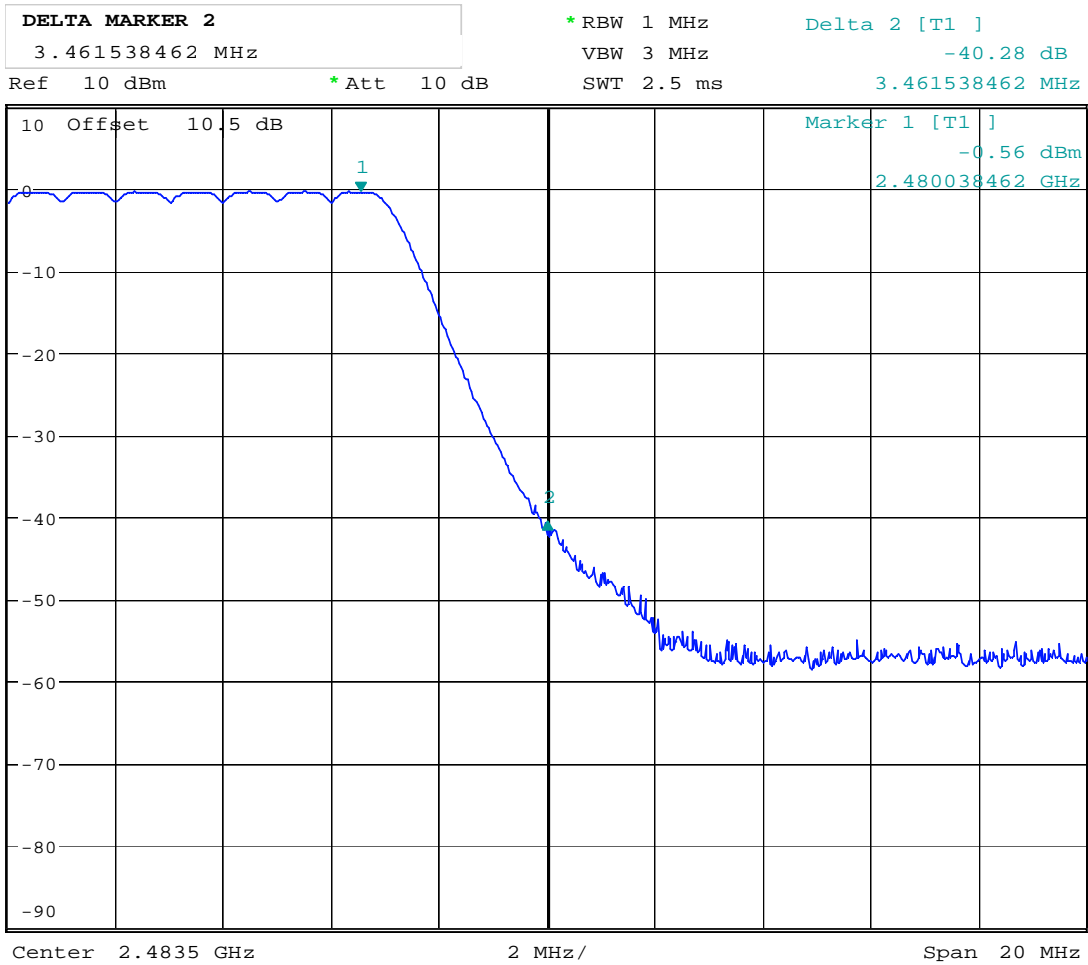
Date: 19.APR.2012 17:06:09

Band Edge, Lower Channel, Hopping ON



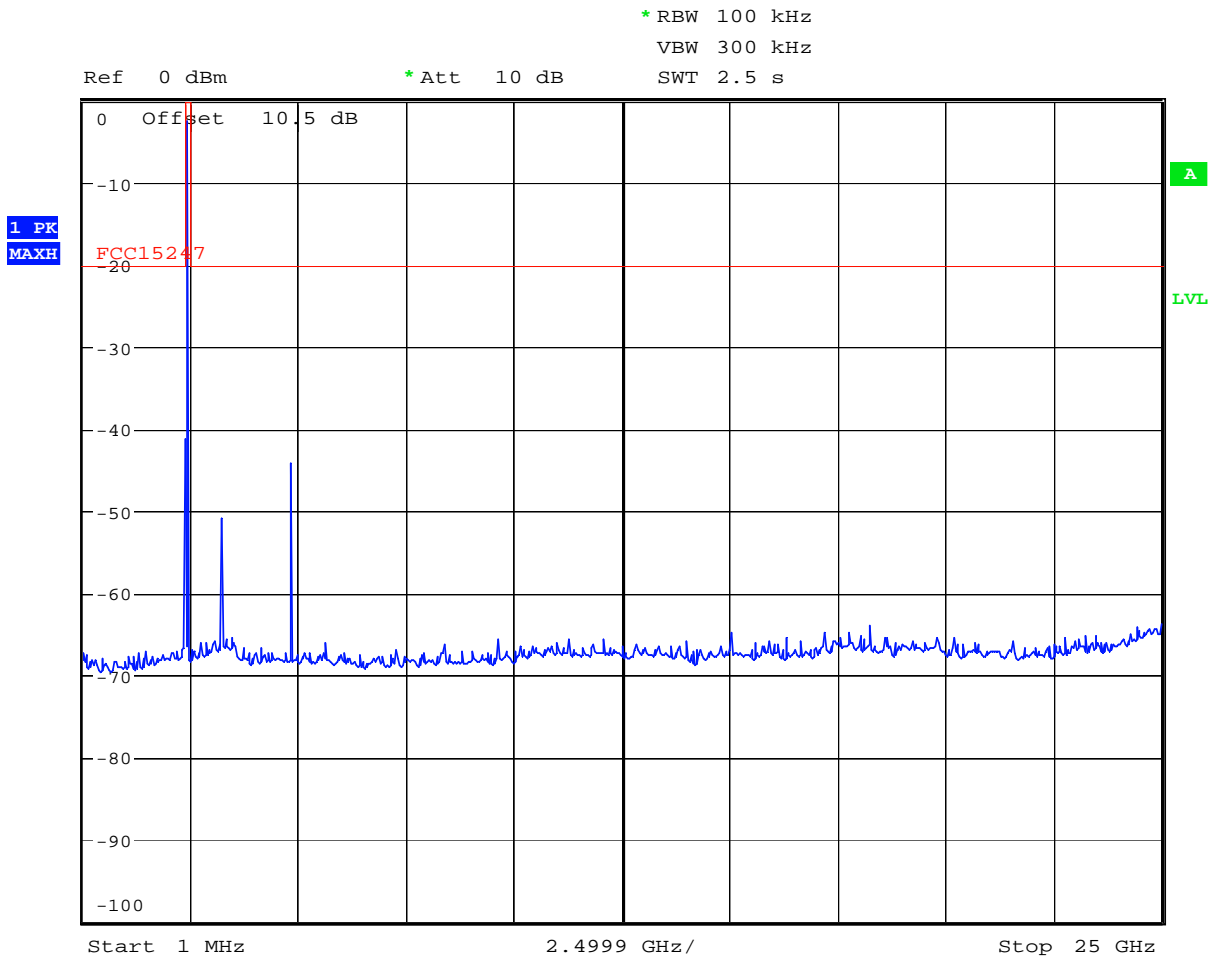
Date: 19.APR.2012 15:22:36

Band Edge, Upper Channel, Hopping OFF



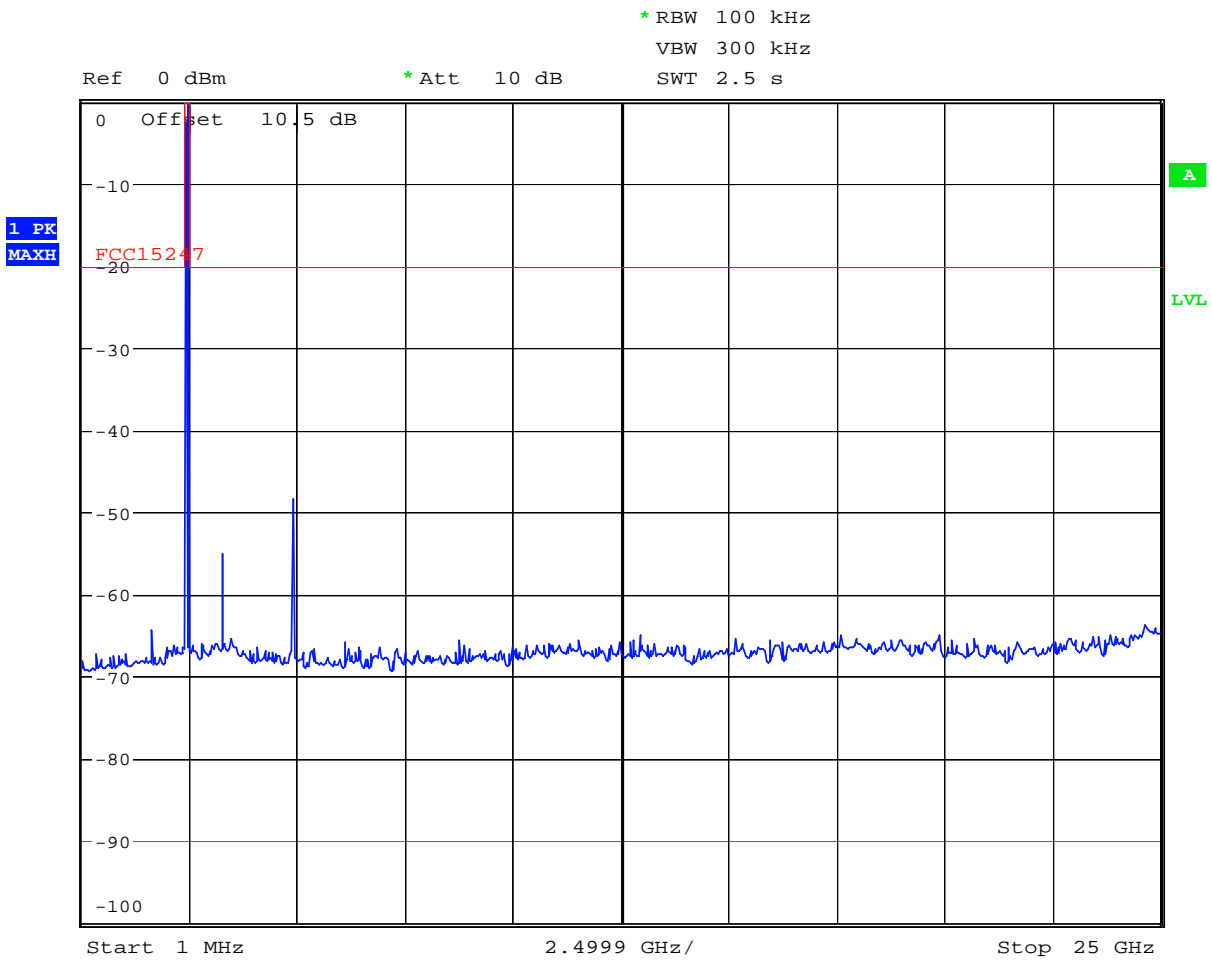
Date: 19.APR.2012 17:04:10

Band Edge, Upper Channel, Hopping ON



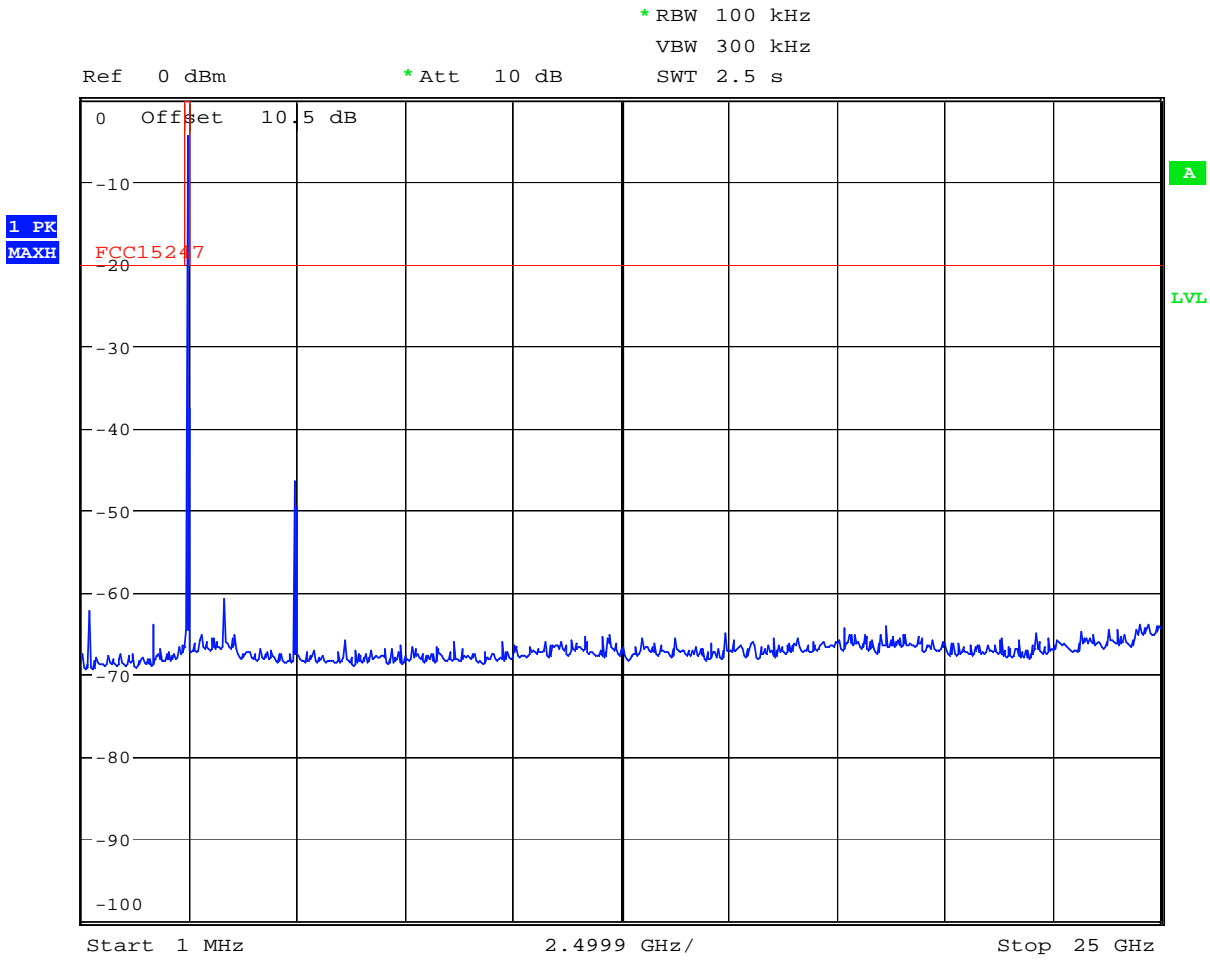
Date: 19.APR.2012 17:13:41

Conducted Emissions, 2402 MHz, 1 - 25000 MHz



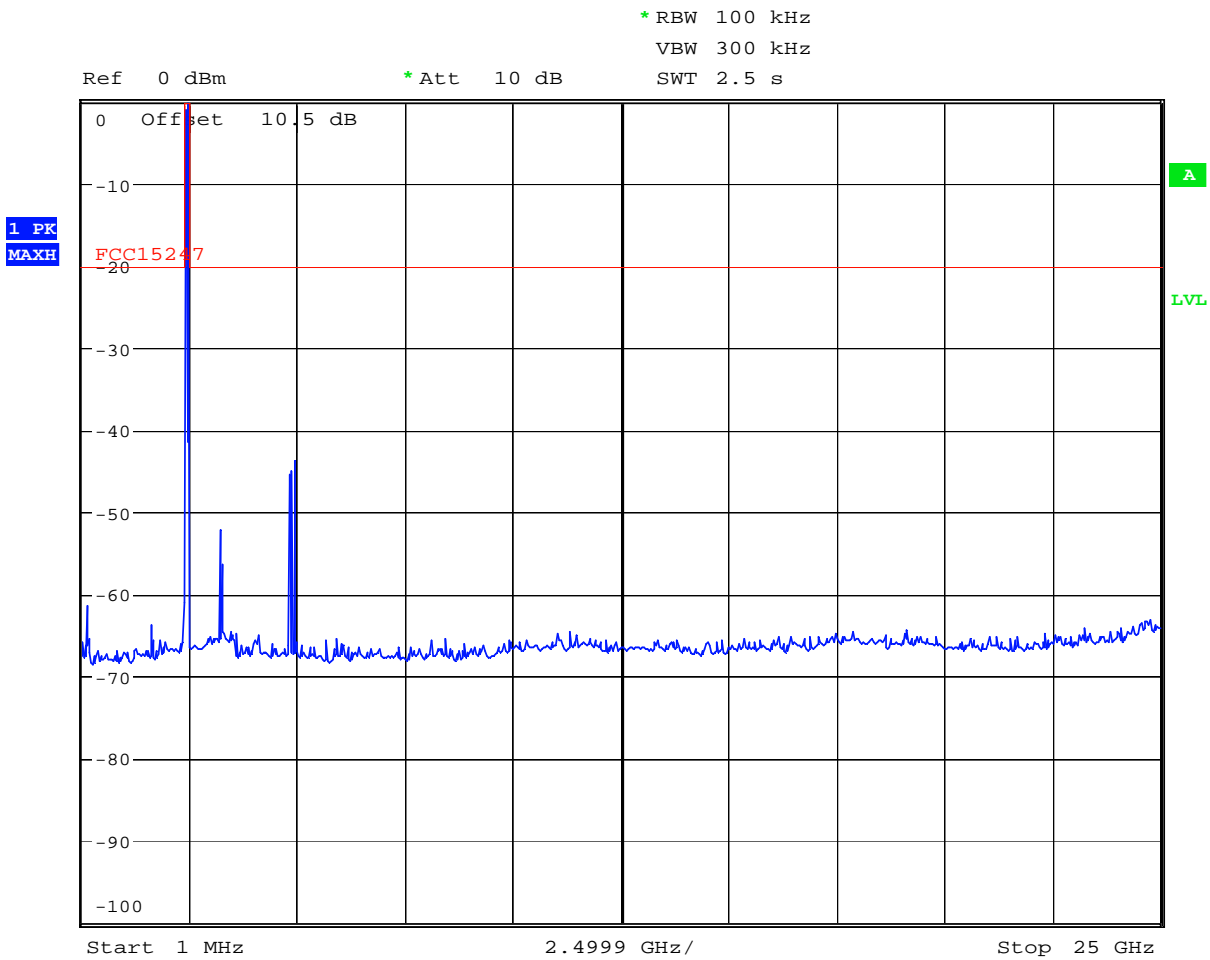
Date: 19.APR.2012 17:12:53

Conducted Emissions, 2441 MHz, 1 - 25000 MHz



Date: 19.APR.2012 17:14:27

Conducted Emissions, 2480 MHz, 1 - 25000 MHz



Date: 19.APR.2012 17:10:46

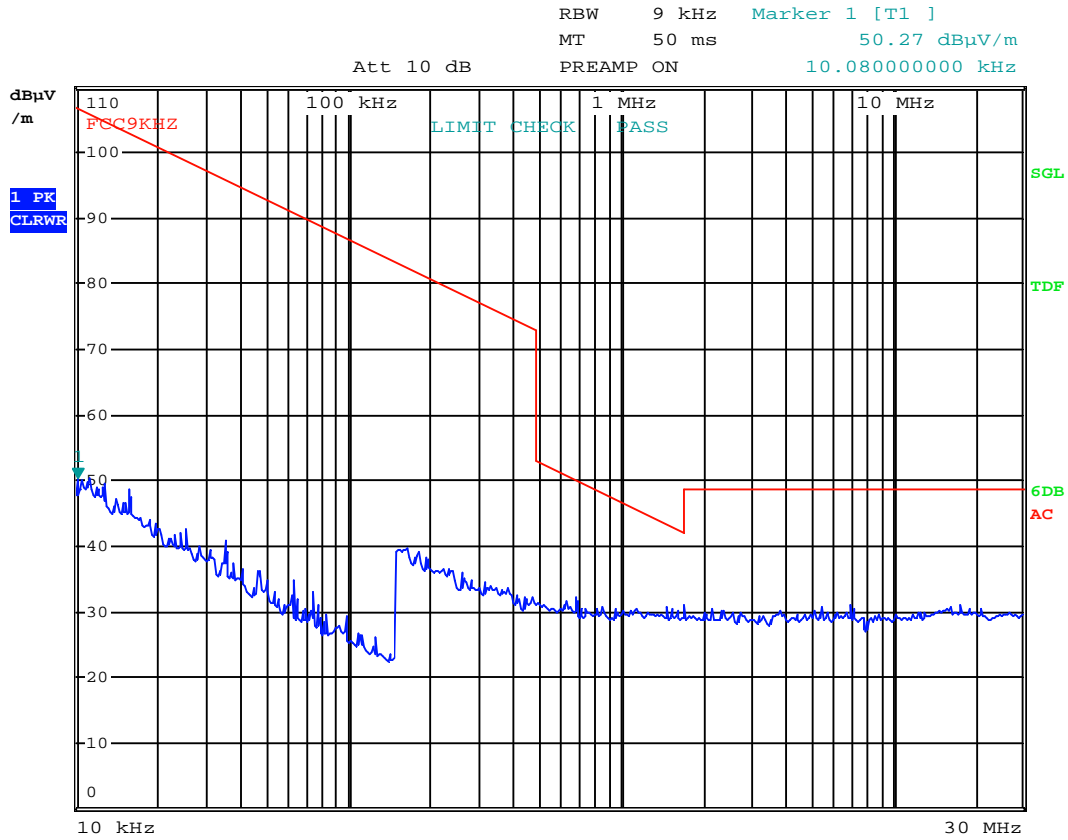
Conducted Emissions, Hopping On, 1 - 25000 MHz

Radiated emissions 10 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: 25.APR.2012 16:21:13

Radiated Emissions, 0.010 -30MHz

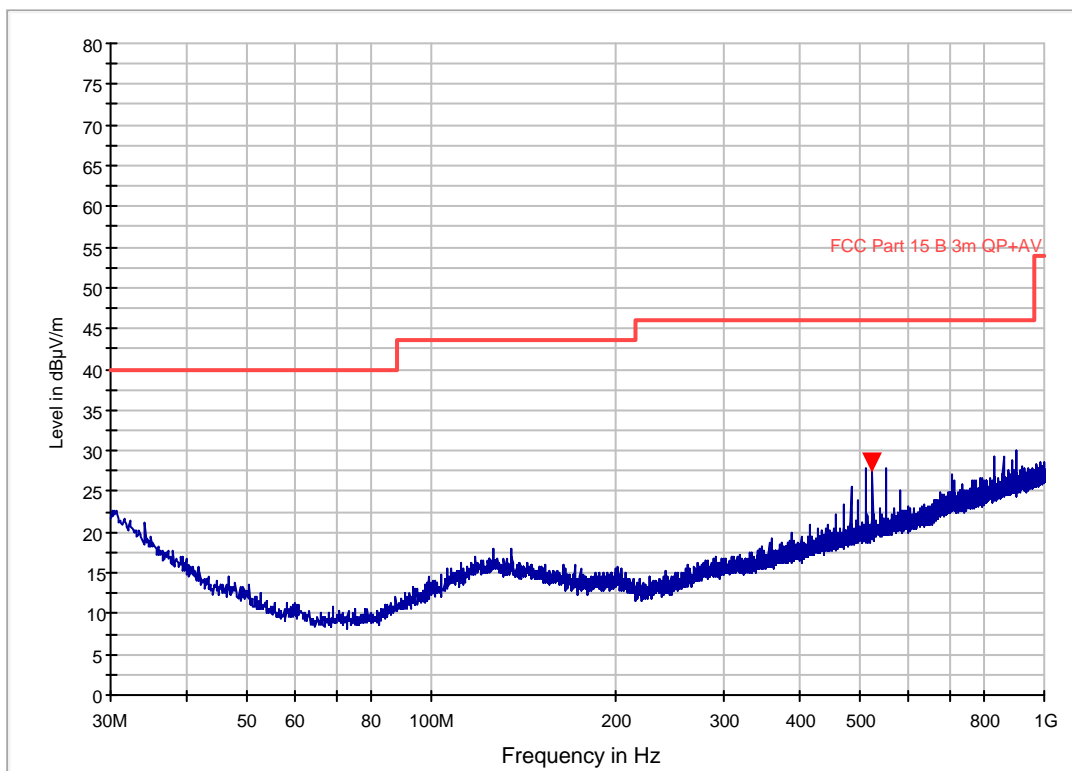
Radiated emission 30 – 1000 MHz.

Detector: Peak

Measuring distance: 3m

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
525.310728	28.5	1000.0	120.000	100.0	V	227.0	-4.0	17.5	46.0	

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
4804	L	60.7	74	13.3
4882	M	62.5	74	11.5
4960	H	63.8	74	10.2
Other 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
4804	L	40.7	54	13.3
4882	M	42.5	54	11.5
4960	H	43.8	54	10.2
Other freqs	L,M,H	None detected	54	>20

Average Detector values are calculated from Peak values by Duty Cycle Correction Factor (20 dB).

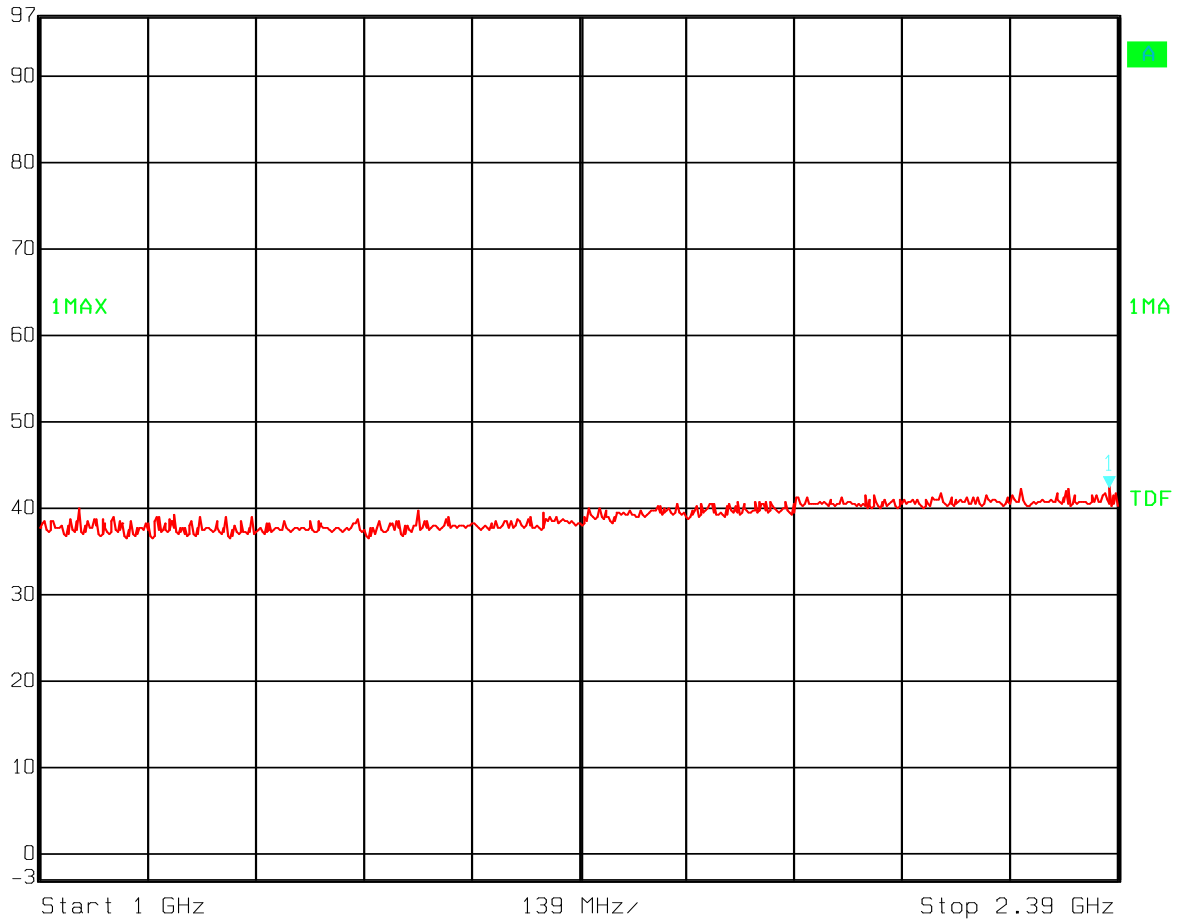
Antenna factor, amplifier gain and cable loss are included in spectrum analyzer "Transducer factor".

Distance correction factor is included in the plots at 1m.

See plots.



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
97 dB*	42.25 dB μ V/m	VBW	3 MHz	Unit	dB μ V/m
	2.37885772 GHz	SWT	5 ms		

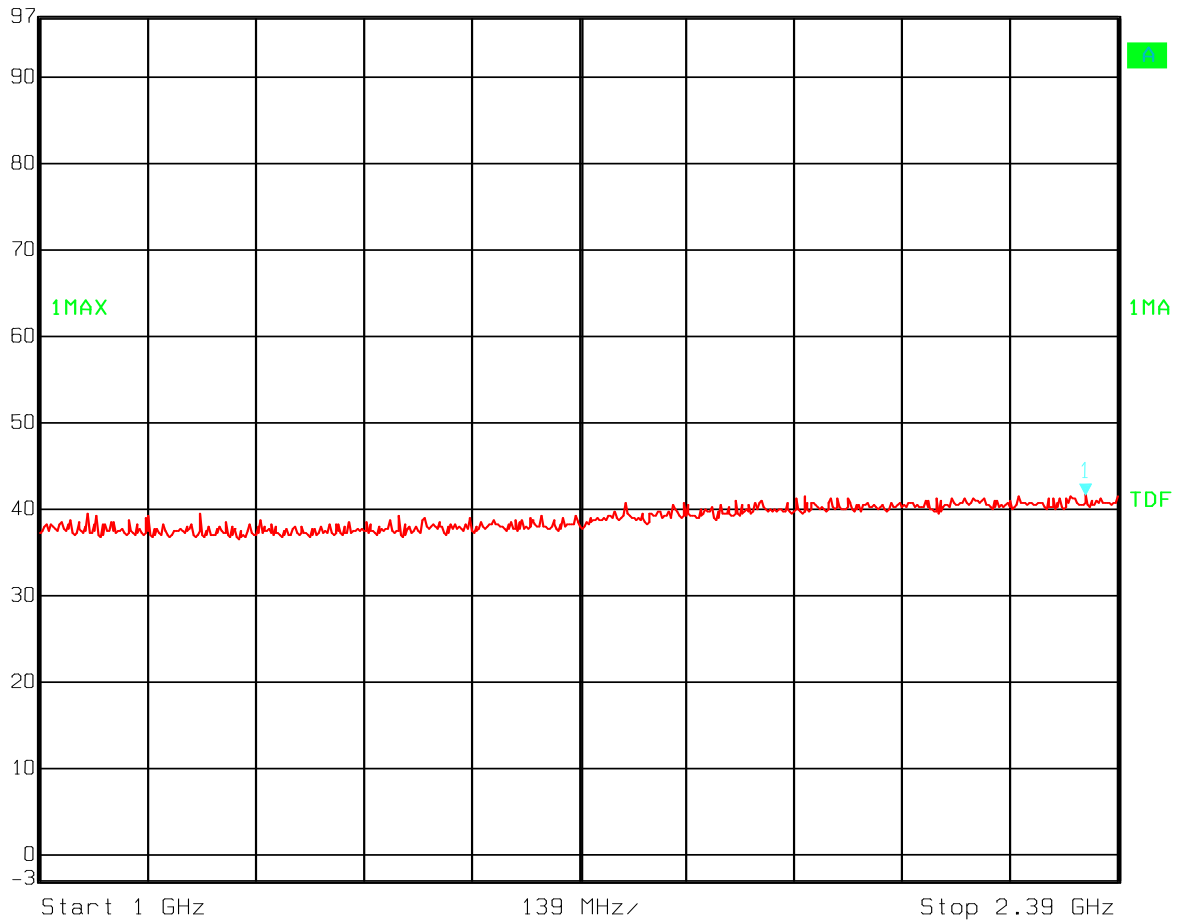


Date: 25.APR.2012 10:27:06

Radiated Emissions, 1000 -2390MHz, VP



Ref Lvl 97 dB*
 Marker 1 [T1] 41.69 dB μ V/m
 2.34821643 GHz
 RBW 1 MHz RF Att 10 dB
 VBW 3 MHz
 SWT 5 ms Unit dB μ V/m

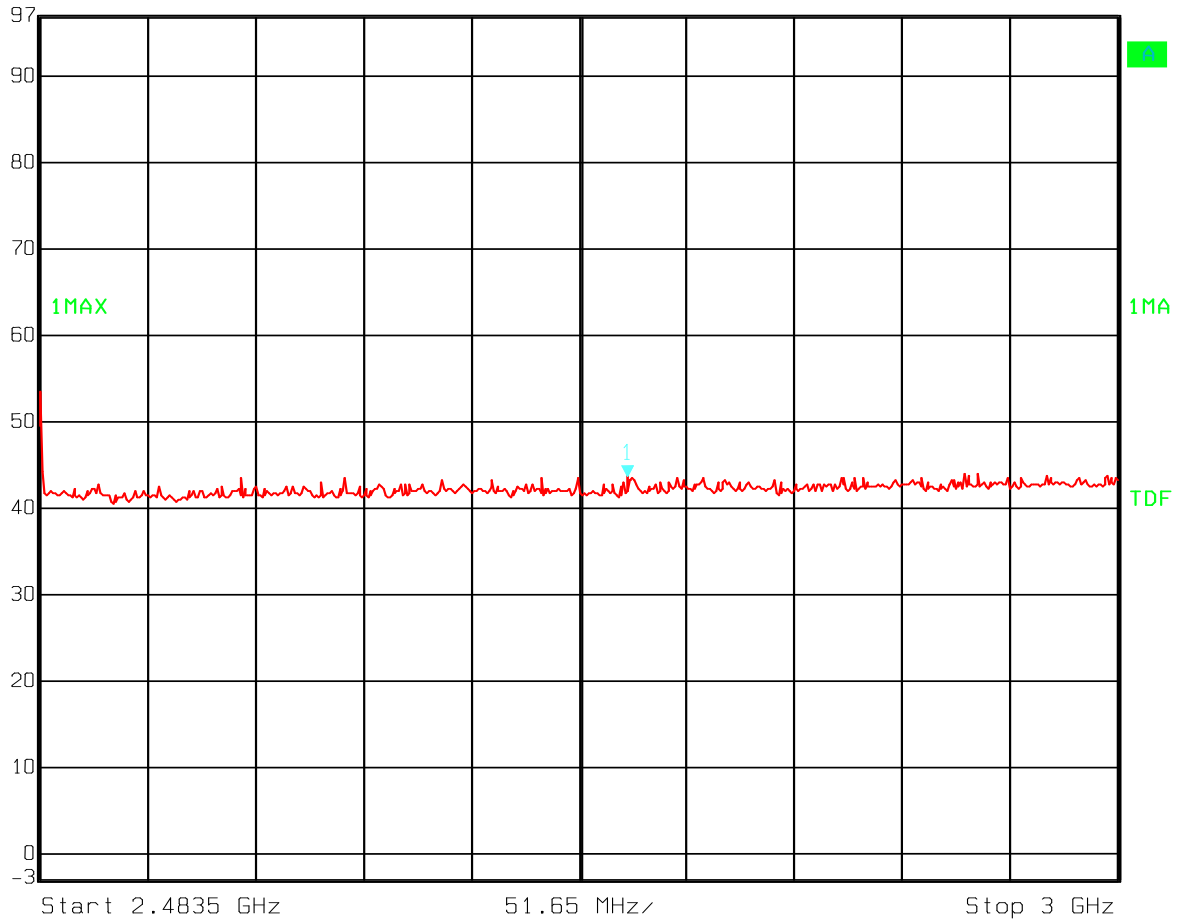


Date: 25.APR.2012 10:30:16

Radiated Emissions, 1000 -2390MHz, HP



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
97 dB*	43.63 dB μ V/m	VBW	3 MHz		
	2.76503908 GHz	SWT	5 ms	Unit	dB μ V/m

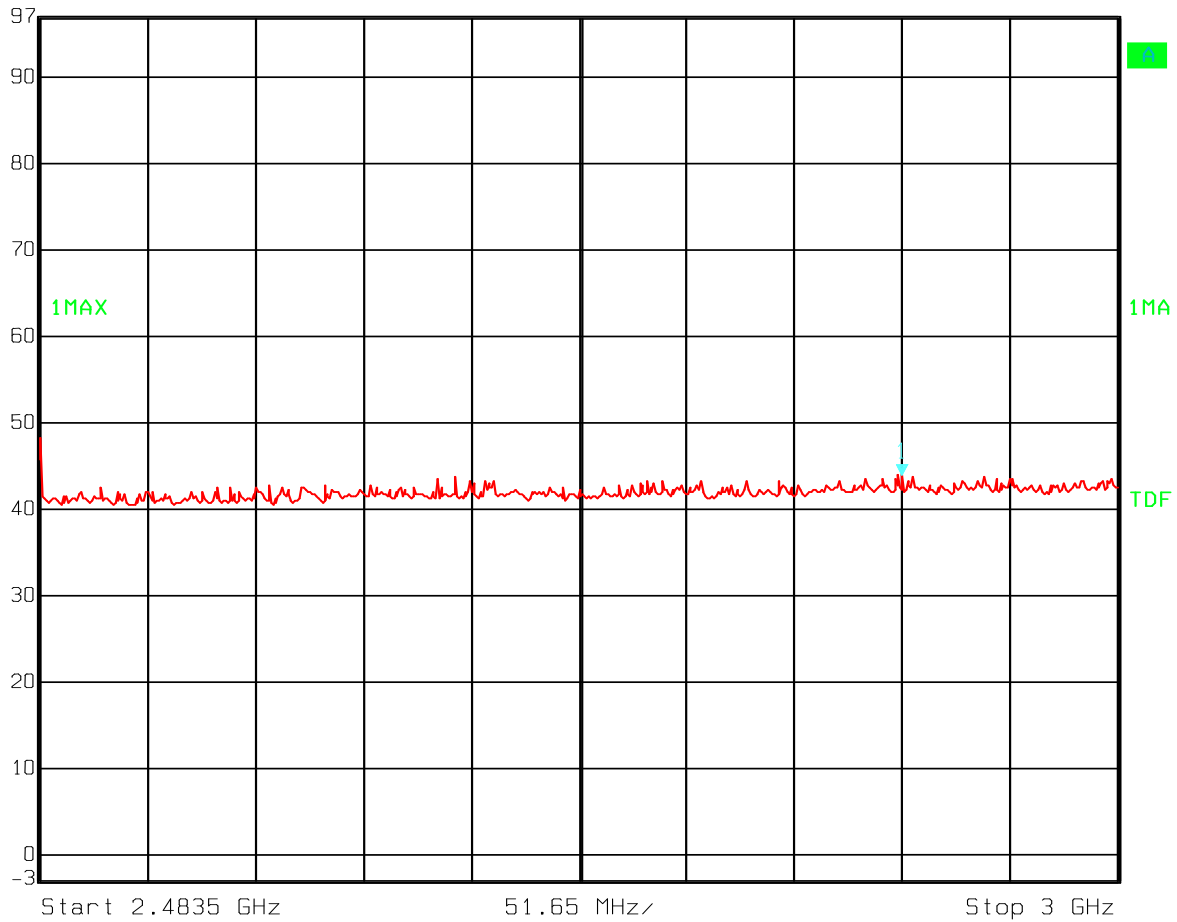


Date: 25.APR.2012 10:52:33

Radiated Emissions, 2483.5 -3000MHz, VP



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
97 dB*	43.96 dB μ V/m	VBW	3 MHz		
	2.89649299 GHz	SWT	5 ms	Unit	dB μ V/m

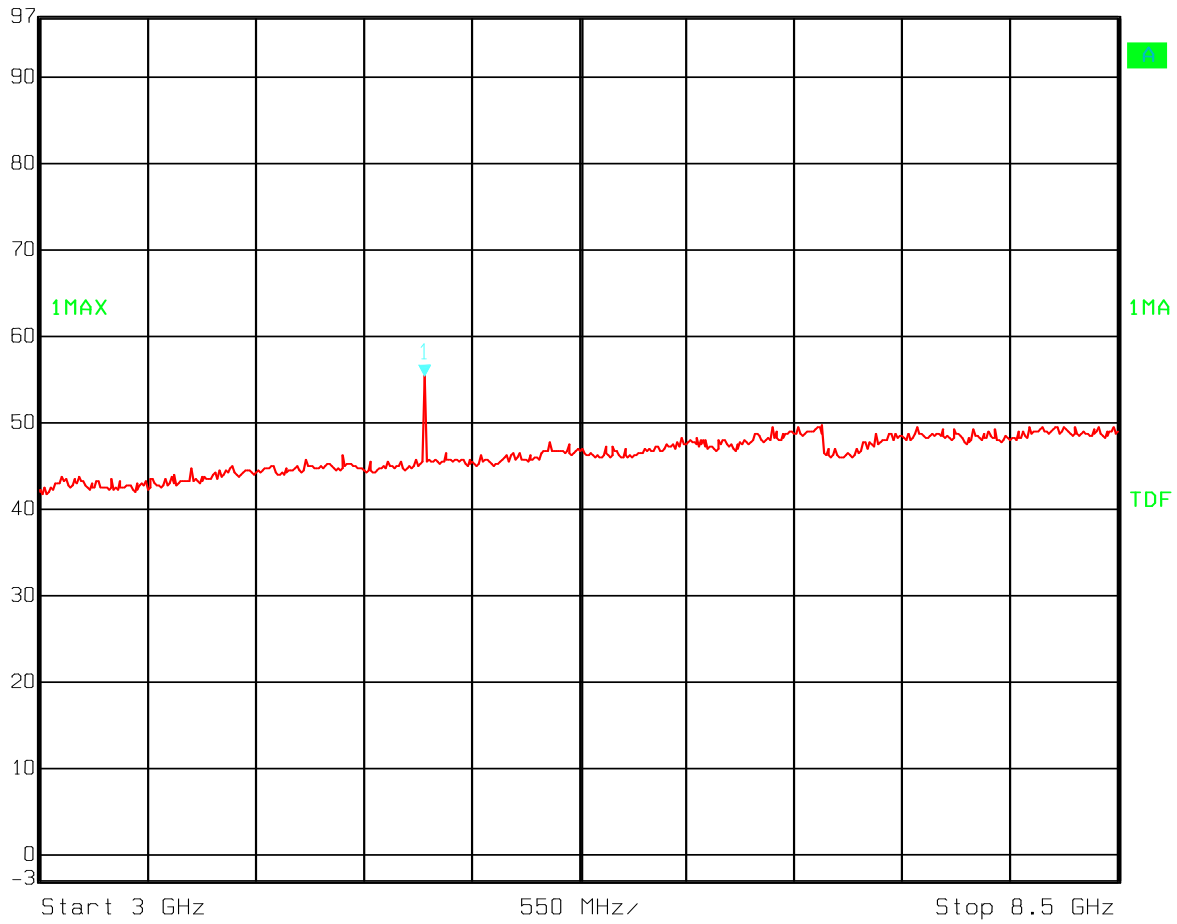


Date: 25.APR.2012 10:56:03

Radiated Emissions, 2483.5 -3000MHz, HP



Ref Lvl 97 dB*
 Marker 1 [T1] 55.42 dB μ V/m
 4.96192385 GHz
 RBW 1 MHz RF Att 0 dB
 VBW 3 MHz
 SWT 56 ms Unit dB μ V/m

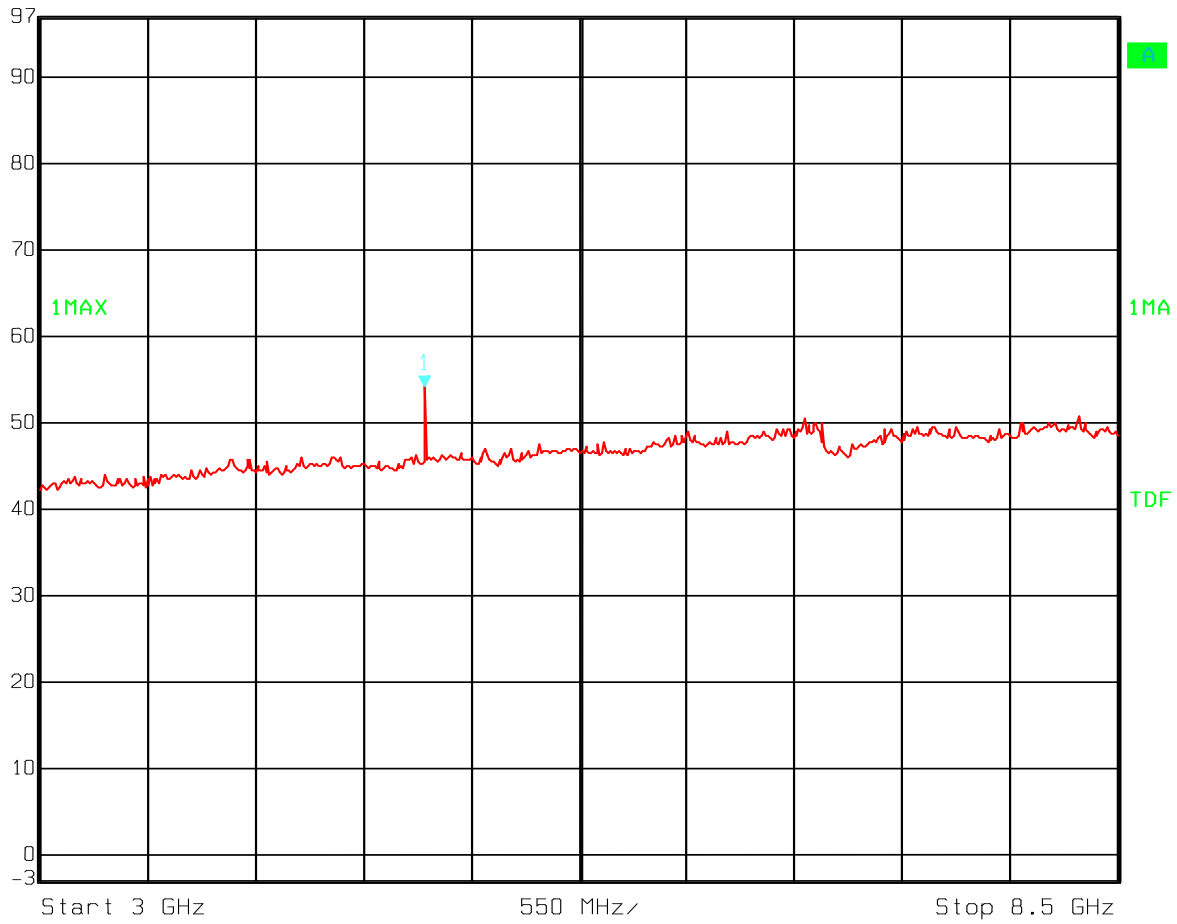


Date: 25.APR.2012 11:10:55

Radiated Emissions, 3000 -8500MHz, VP



Marker 1 [T1]
 Ref Lvl 97 dB*
54.24 dB μ V/m
4.96192385 GHz
 RBW 1 MHz RF Att 0 dB
 VBW 3 MHz
 SWT 56 ms Unit dB μ V/m

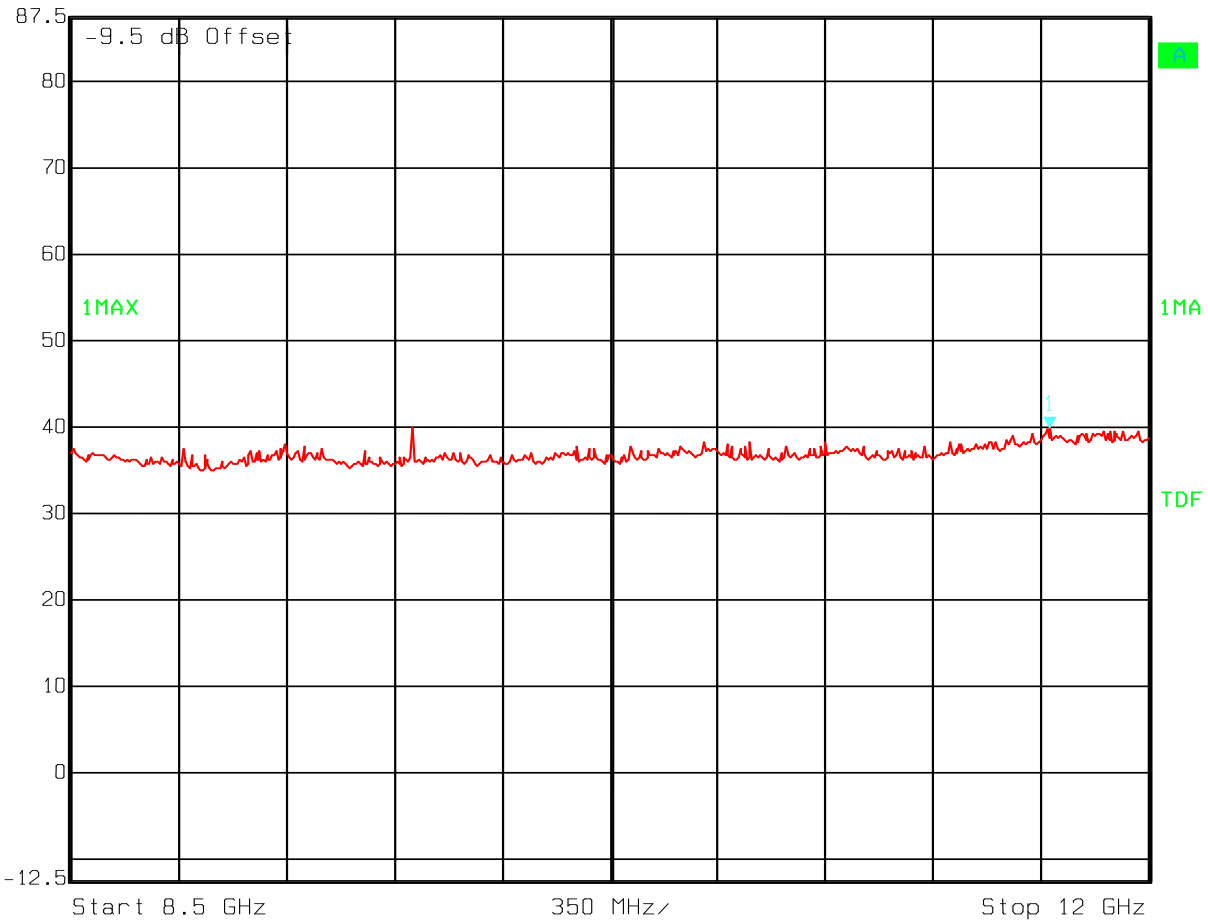


Date: 25.APR.2012 11:08:25

Radiated Emissions, 3000 -8500MHz, HP



Marker 1 [T1]
 Ref Lvl 39.88 dB μ V/m RBW 1 MHz RF Att 0 dB
 87.5 dB* 11.67735471 GHz VBW 3 MHz
 SWT 35 ms Unit dB μ V/m

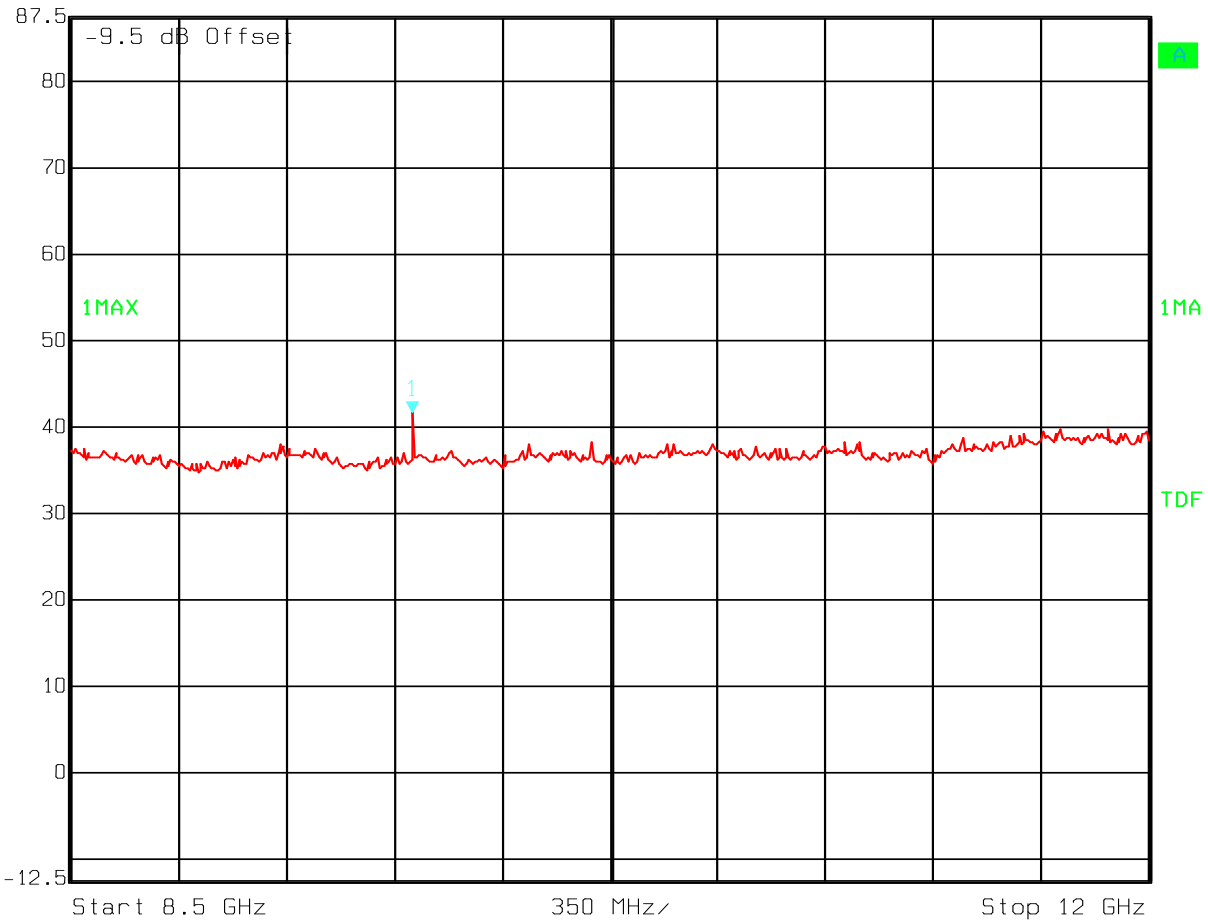


Date: 25.APR.2012 13:13:15

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



Ref Lvl 87.5 dB* Marker 1 [T1] RBW 1 MHz RF Att 0 dB
 41.55 dB μ V/m VBW 3 MHz
 9.60821643 GHz SWT 35 ms Unit dB μ V/m

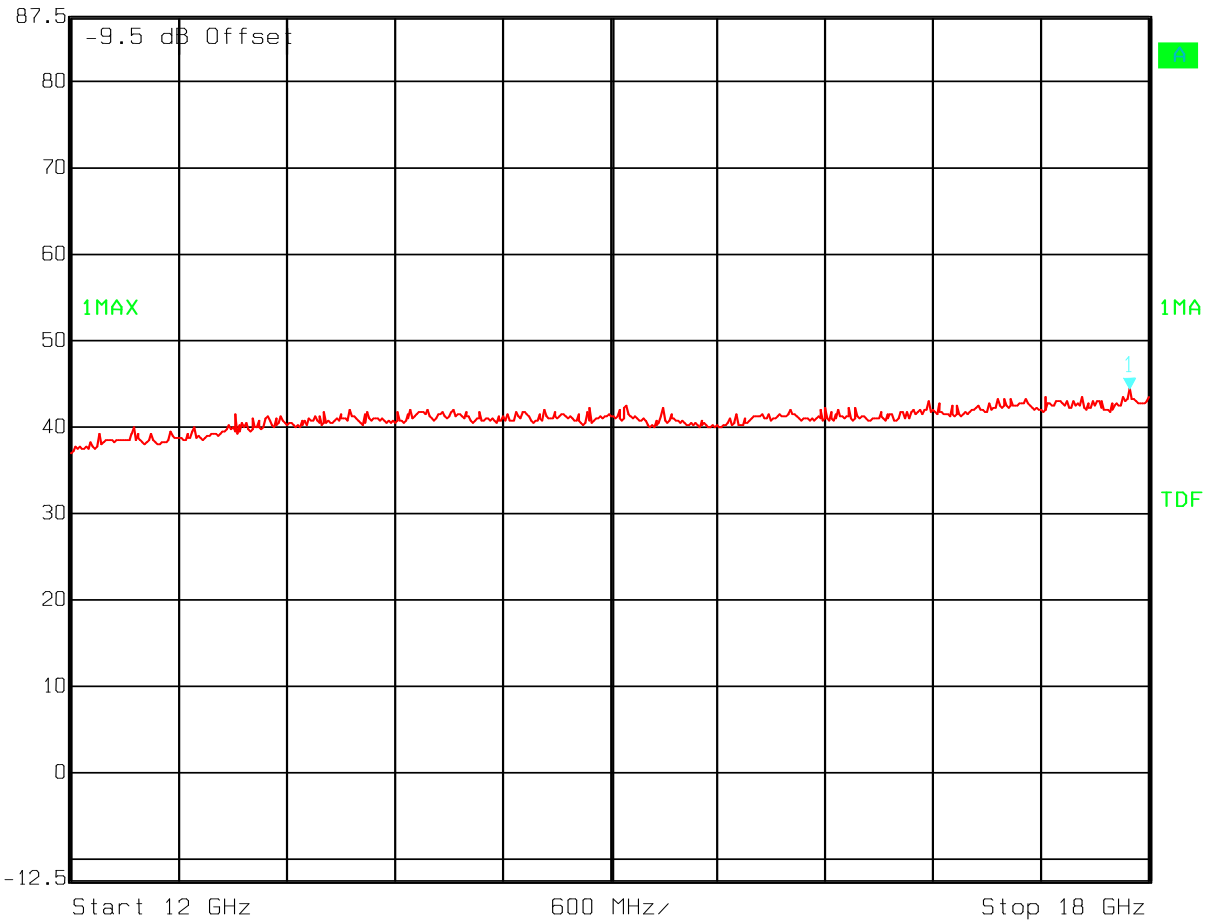


Date: 25.APR.2012 13:15:09

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



Marker 1 [T1] RBW 1 MHz RF Att 0 dB
 Ref Lvl 44.41 dB μ V/m VBW 3 MHz
 87.5 dB* 17.89178357 GHz SWT 60 ms Unit dB μ V/m

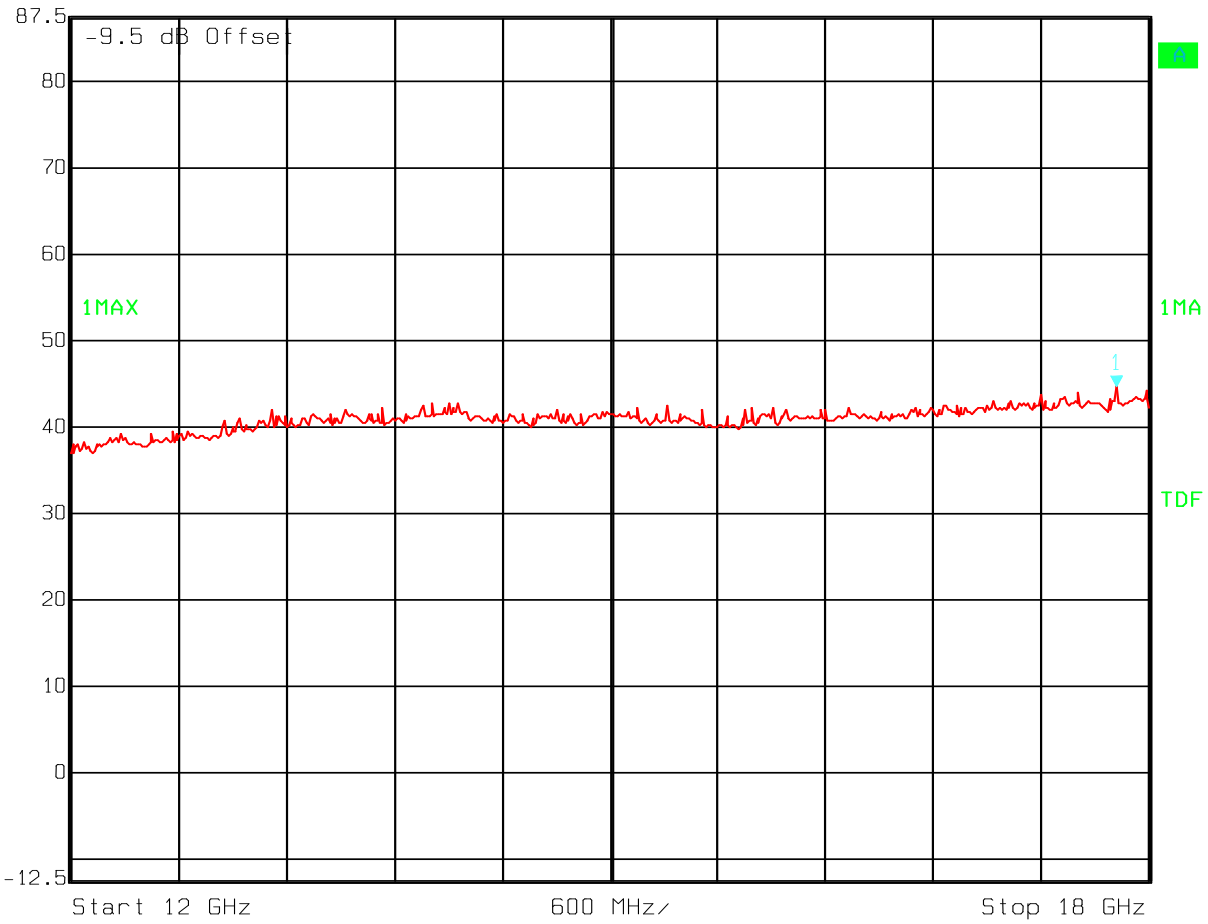


Date: 25.APR.2012 13:06:24

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



Marker 1 [T1]
 Ref Lvl 44.69 dB μ V/m RBW 1 MHz RF Att 0 dB
 87.5 dB* 17.81963928 GHz VBW 3 MHz
 SWT 60 ms Unit dB μ V/m

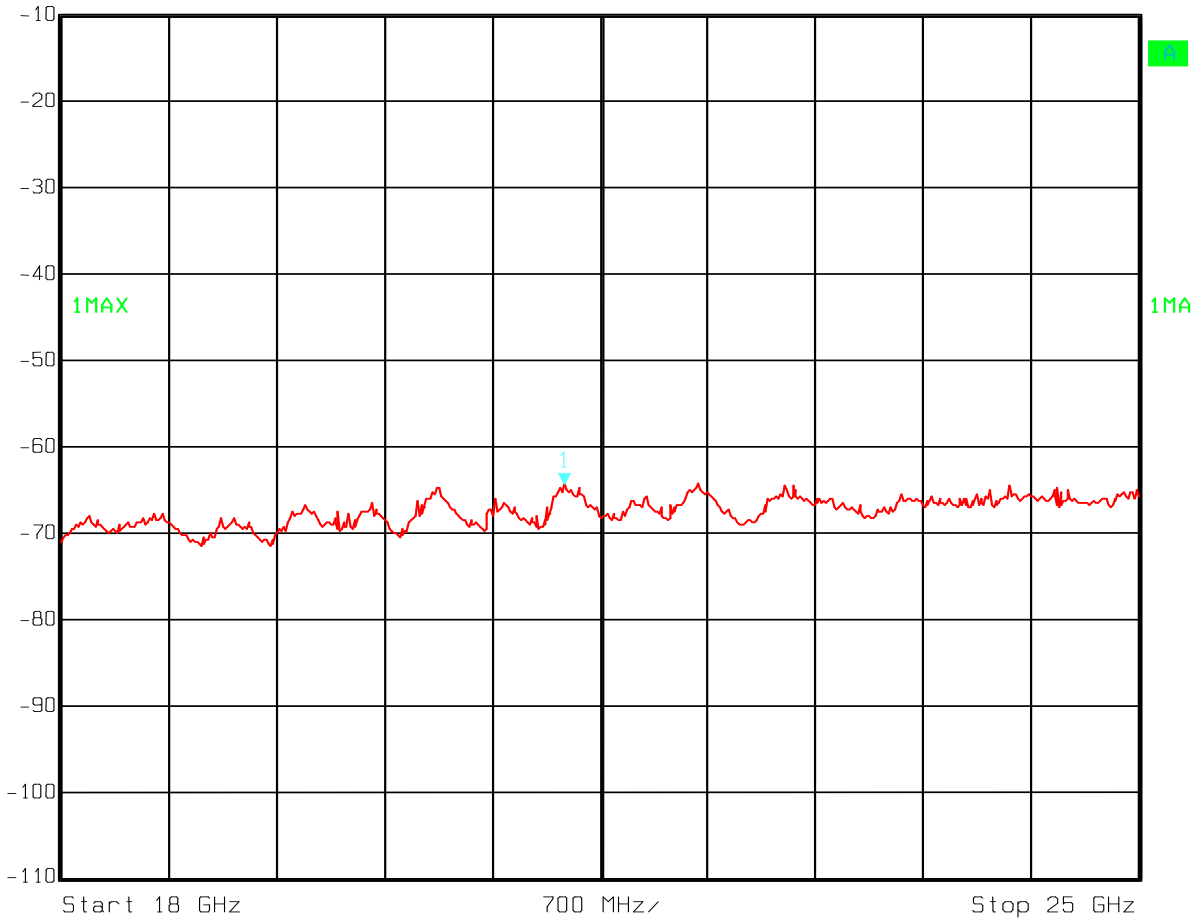


Date: 25.APR.2012 13:08:18

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



Ref Lvl -10 dBm
Marker 1 [T1] -64.25 dBm
21.26853707 GHz
RBW 1 MHz RF Att 0 dB
VBW 3 MHz
SWT 70 ms Unit dBm

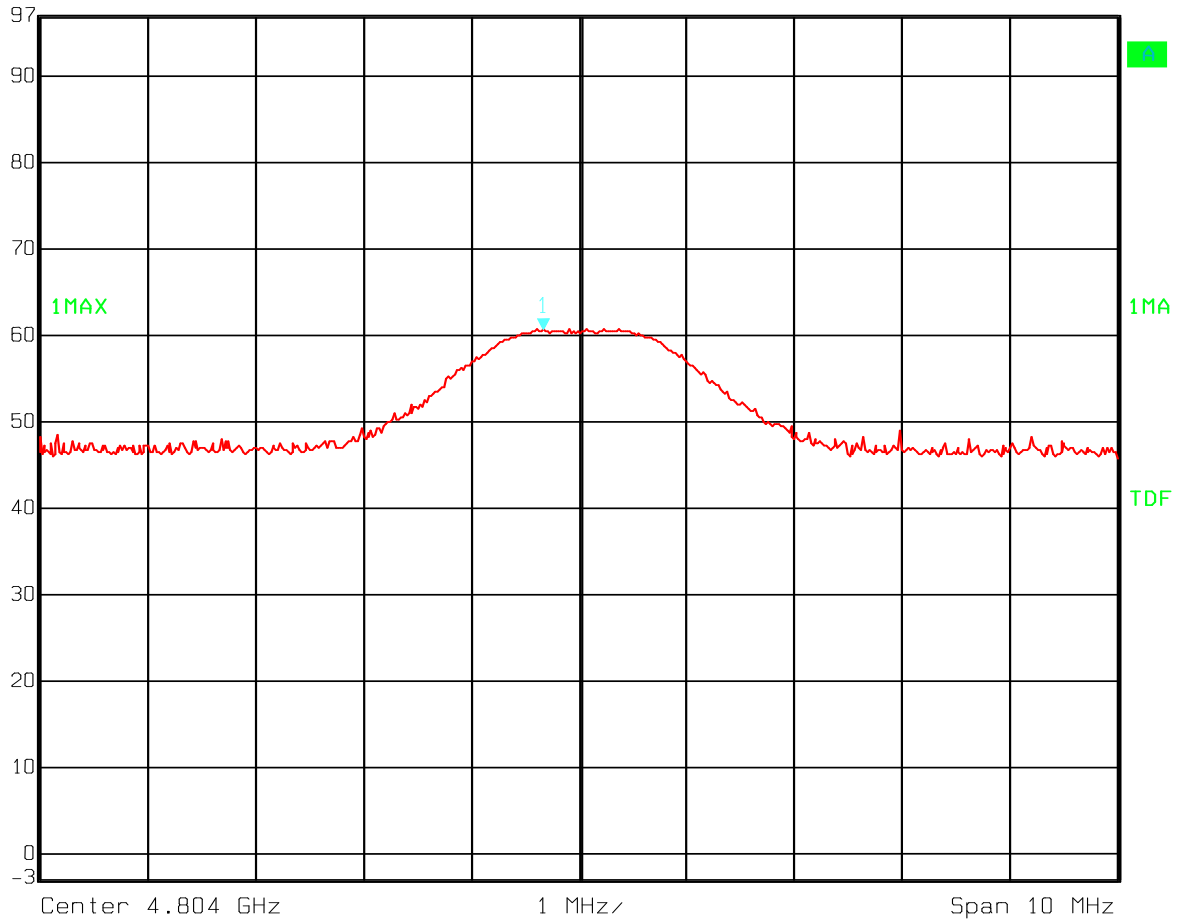


Date: 25.APR.2012 16:44:15

Pre-scan, 18000 -25000MHz



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
97 dB*	60.73 dB μ V/m	VBW	3 MHz	Unit	dB μ V/m
	4.80366934 GHz	SWT	5 ms		

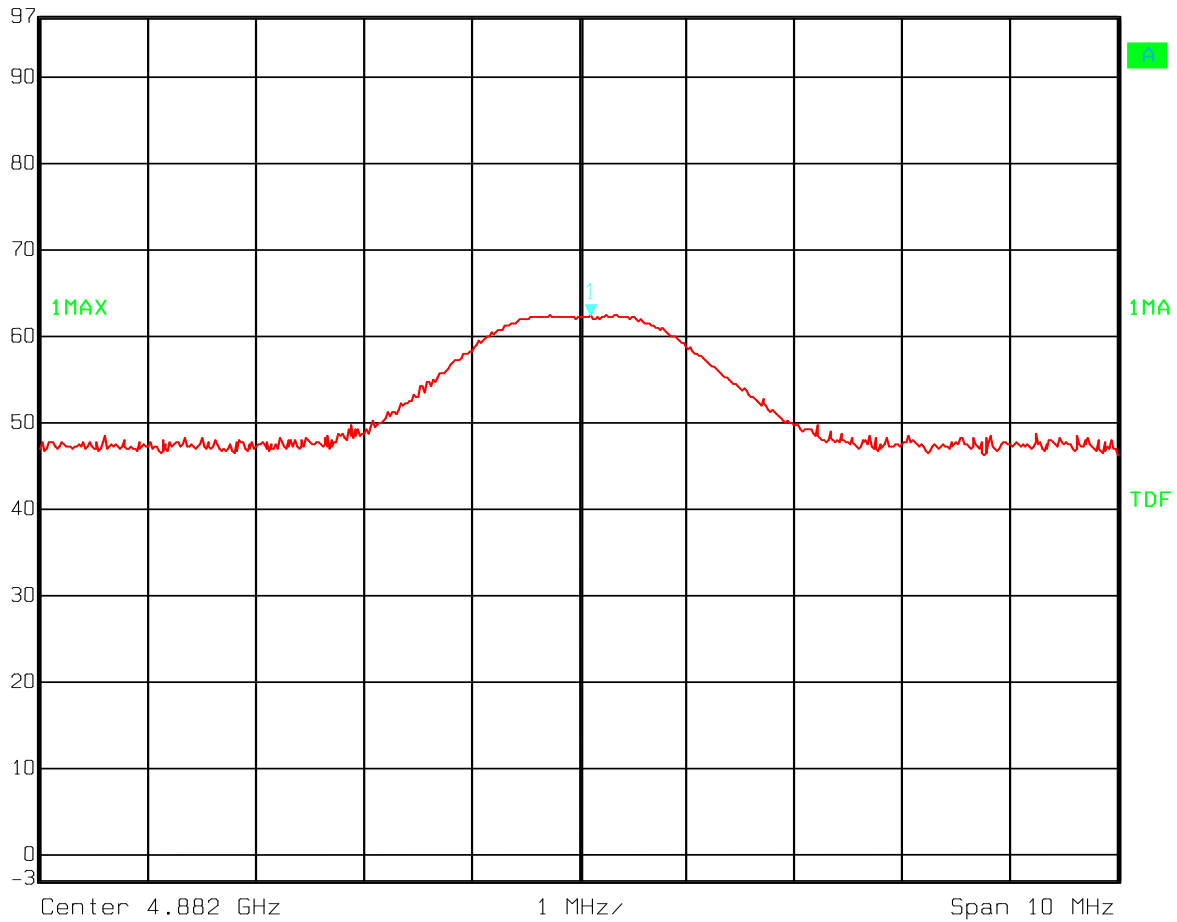


Date: 25.APR.2012 12:40:50

Radiated Emissions, 4804MHz (Max: EUT H2, VP)



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
97 dB*	62.50 dB μ V/m	VBW	3 MHz		
	4.88211022 GHz	SWT	5 ms	Unit	dB μ V/m

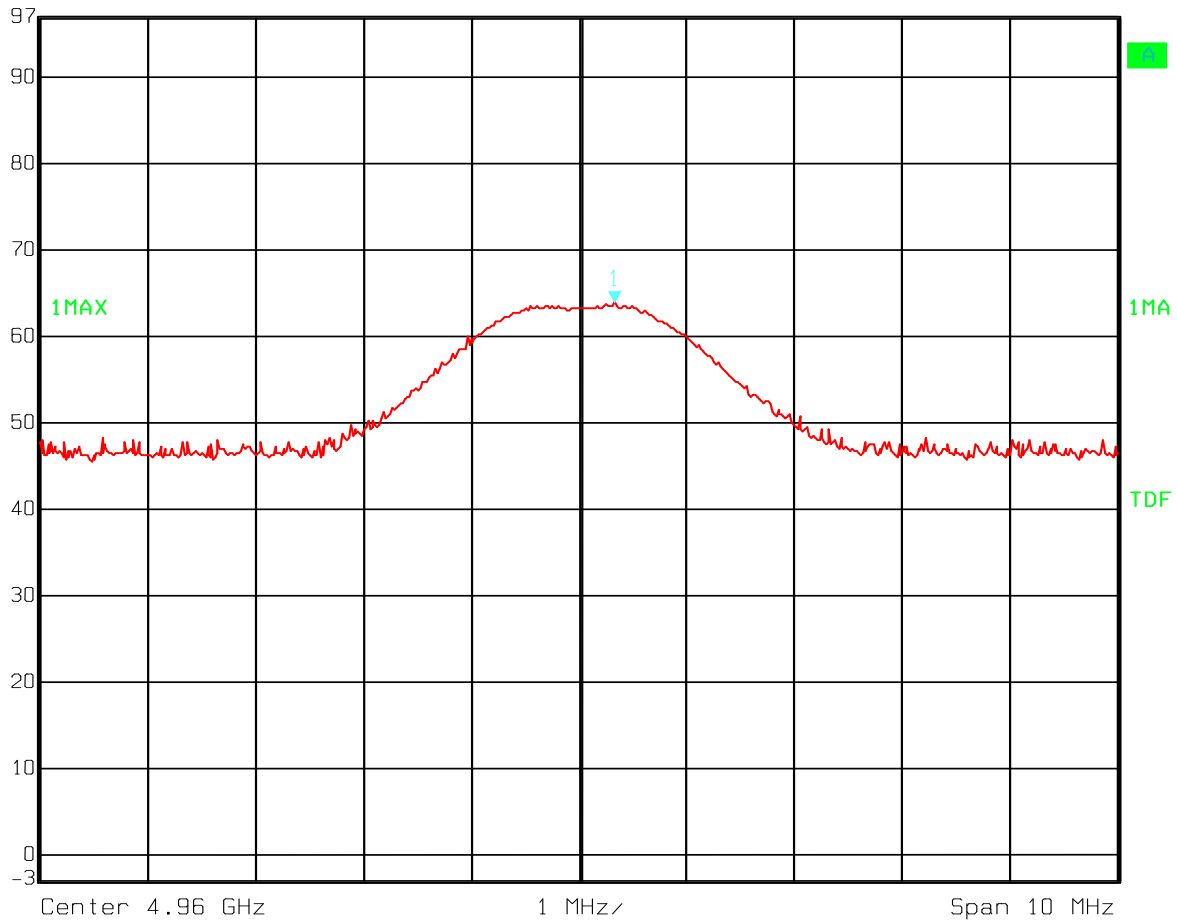


Date: 25.APR.2012 12:19:46

Radiated Emissions, 4882MHz, (Max: EUT V, HP)



Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
97 dB*	63.78 dB μ V/m	VBW	3 MHz		
	4.96033066 GHz	SWT	5 ms	Unit	dB μ V/m



Date: 25.APR.2012 12:14:05

Radiated Emissions, 4960MHz, (Max: EUT V, HP)

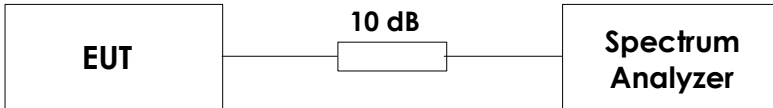
5 LIST OF TEST EQUIPMENT

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	FSEK30	Spectrum Analyzer	Rohde & Schwarz	LR 1337	2010.12.15	2012.12.15
2	ESHS10	Measuring Receiver	Rohde & Schwarz	N- 3528	2011.06.21	2012.06.21
3	6810.17B	Attenuator	Suhner	LR1212	2010.09.15	2012.09.15
4	ESH3-Z5	Two Line V-Network	Rohde & Schwarz	LR 1076	2011.11.03	2013.11.03
5	80S	Signal Generator	Powertron	LT 502	Cal b4 use	
6	6812B	AC Power Source	Agilent	LR 1515	Cal b4 use	
7	ESH3-Z2	Pulse Limiter	Rohde & Schwarz	LR 285	2010.10.08	2013.10.08
8	ESCI	Measuring Receiver	Rohde & Schwarz	N-4259	2011.12.21	2012.12.21
9	JB3	BiLog Antenna	Sunol Sciences	N-4525	2011.09.07	2014.09.07
10	LNA6900	Preamplifier	Teseq	LR 1593	2010.11.16	2012.11.16
11	3115	Horn Antenna	EMCO	LR 1330	2010.08.05	2013.08.05
12	8449B	Pre-amplifier	Hewlett Packard	LR 1322	2011-09-27	2012-09-27
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	FSU26	Spectrum Analyzer	Rohde & Schwarz	LR 1504	2011.11.03	2013.11.03
19	Model 87 V	Multimeter	Fluke	LR 1600	2010.12.15	2012.12.15

6 BLOCK DIAGRAM

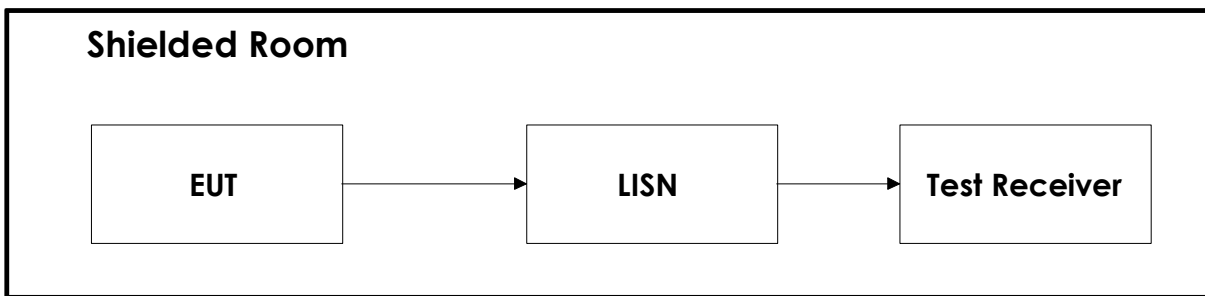
6.1 Conducted Tests



Test equipment included: 3, 6, 18

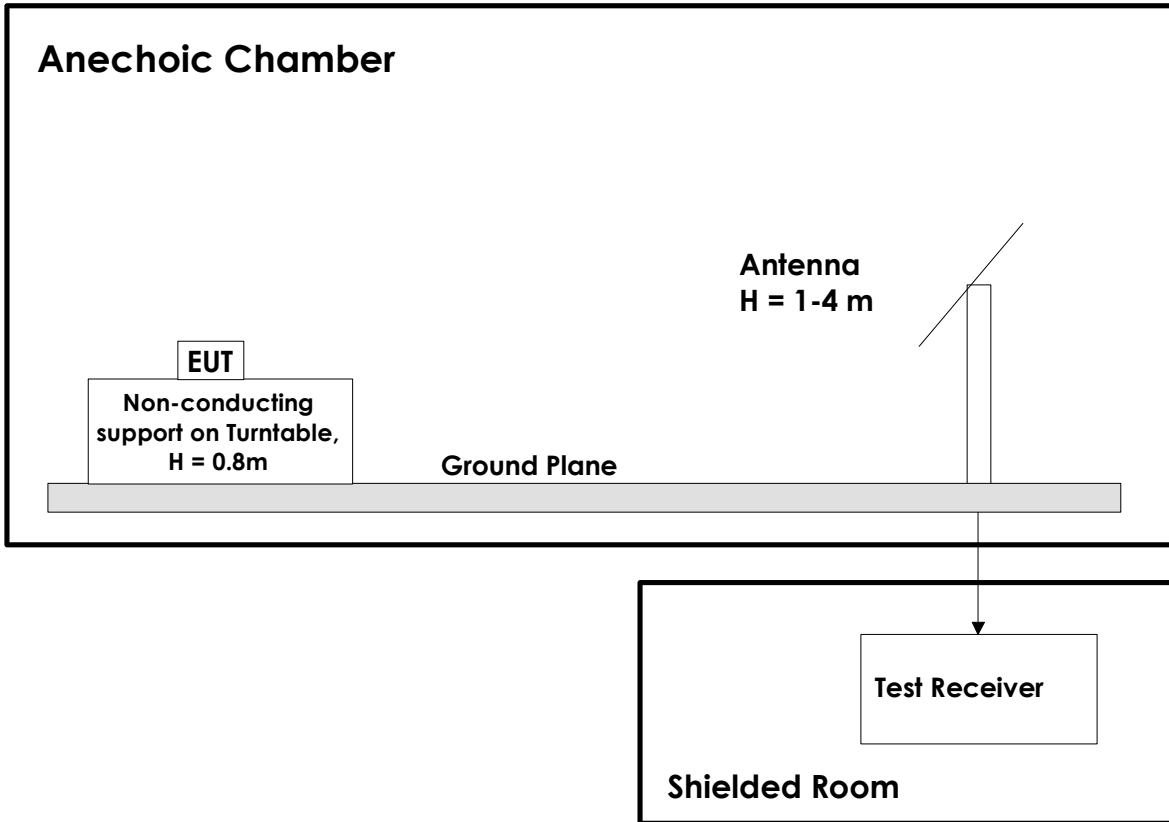
This setup is used for all measurements on 50 ohm antenna connector.

6.2 Power Line Conducted Emission



Test equipment: 2, 4, 5, 7, 19

6.3 Test Site Radiated Emission



Test equipment: 1, 6, 8, 9, 10, 11, 12, 14, 15, 16, 17, 19

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.