

## Test Report

<b>Product</b>	Zigbee Light Link Remote Control	
<b>Name and address of the applicant</b>	Texas Instruments Norway AS Gaustadalléen 21, NO-0349 Oslo, Norway	
<b>Name and address of the manufacturer</b>	Texas Instruments Norway AS Gaustadalléen 21, NO-0349 Oslo, Norway	
<b>Model</b>	ZLLRC	
<b>Rating</b>	3.0Vdc	
<b>Trademark</b>	Texas Instruments	
<b>Serial number</b>	/	
<b>Additional information</b>	/	
<b>Tested according to</b>	<b>FCC Part 15.247</b> Digital Transmission Systems <b>Industry Canada RSS-210, Issue 8</b> Low Power Licence-Exempt Radiocommunications Devices	
<b>Order number</b>	239391	
<b>Tested in period</b>	05.07.2013 – 11.07.2013	
<b>Issue date</b>	02.09.2013	
<b>Name and address of the testing laboratory</b>	 FCC No: 994405 IC OATS: 2040D-1  Instituttveien 6 Kjeller, Norway TEL: (+47) 22 96 03 30 FAX: (+47) 22 96 05 50	
		
	Prepared by [G.Suhanthakumar]	Approved by [Frode Sveinsen]
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## 1 INFORMATION

### 1.1 Test Item

Name :	Texas Instruments
FCC ID :	ZATZLLRC
IC :	451H-ZLLRC
Model/version :	ZLLRC
Serial number :	-
Hardware identity and/or version:	Rev.1.1
Software identity and/or version :	-
Frequency Range :	2405 – 2480 MHz
Number of Channels :	16
Type of Modulation :	250 kbps, OQPSK (Digital)
Conducted Output Power:	2.1 mW (Peak)
User Frequency Adjustment :	None
Type of Power Supply :	3.0V <sub>DC</sub> (Lithium Battery)
Antenna Connector :	No, PCB antenna
Antenna Diversity Supported :	No
Desktop Charger :	None

#### Description of Test Item

The ZigBee Light Link Remote Control (ZLLRC) is based on the CC2530 System-on-Chip device operating in the 2.4 GHz ISM band. The CC2530 physical layer complies with the IEEE 802.15.4 standard.

#### Exposure Evaluation

The EUT is exempted from RF Exposure Evaluation.

## 1.2 Test Environment

### 1.2.1 Normal test condition

Temperature:	21 - 22 °C
Relative humidity:	42 - 48 %
Normal test voltage:	3.0 V DC

The values are the limit registered during the test period.

## 1.3 Test Engineer(s)

G.Suhandhakumar

## 1.4 Test Equipment

See list of test equipment in clause 5.

## 2 TEST REPORT SUMMARY

### 2.1 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.

Radiated tests were conducted in accordance with ANSI C63.4-2003 and KDB 558074 D01 DTS Measurement Guidance v03r01. 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 type="checkbox"/> Production Unit                |
| <input type="checkbox"/> Class II Permissive Change | <input checked="" type="checkbox"/> Pre-production Unit |
| <b>DTS</b> 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".

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## 2.2 Test Summary

Name of test	FCC Part 15 reference	RSS-210 Issue 8 reference	Result
Antenna Requirement	15.203	7.1.4 (RSS-GEN)	Pass
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2.2 (RSS-GEN)	N/A*
Minimum 6 dB Bandwidth	15.247(a)(2)	A8.2	Pass
Peak Power Output	15.247(b)	A8.4	Pass
Power Spectral Density	15.247(d)	A8.2	Pass
Spurious Emissions (Antenna Conducted)	15.247(c)	A8.5	Pass
Spurious Emissions (Radiated)	15.247(c) 15.109(a) 15.209(a)	A8.5	Pass
Receiver Emissions (Radiated)	N/A	2.3	N/A

\*EUT is battery operated only.

## 2.3 Description of modification for Modification Filing

Not applicable.

## 2.4 Comments

All ports were populated during spurious emission measurements.

## 2.5 Family List Rational

Not Applicable.

### 3 TEST RESULTS

#### 3.1 Power Line Conducted Emissions

Para. No.: 15.207 (a)

The test is not applicable since the device is battery powered.

Test Performed By: -	Date of Test: -
----------------------	-----------------

Measurement procedure: ANSI C63.4-2003 using 50  $\mu$ H/50 ohms LISN.

Test Results: -

Measurement Data: -

### 3.2 Minimum 6 dB Bandwidth

Para. No.: 15.247 (a)(2)

Test Performed By: G.Suhanthakumar	Date of Test: 05 July 2013
------------------------------------	----------------------------

Test Results: Complies

Measurement Data:

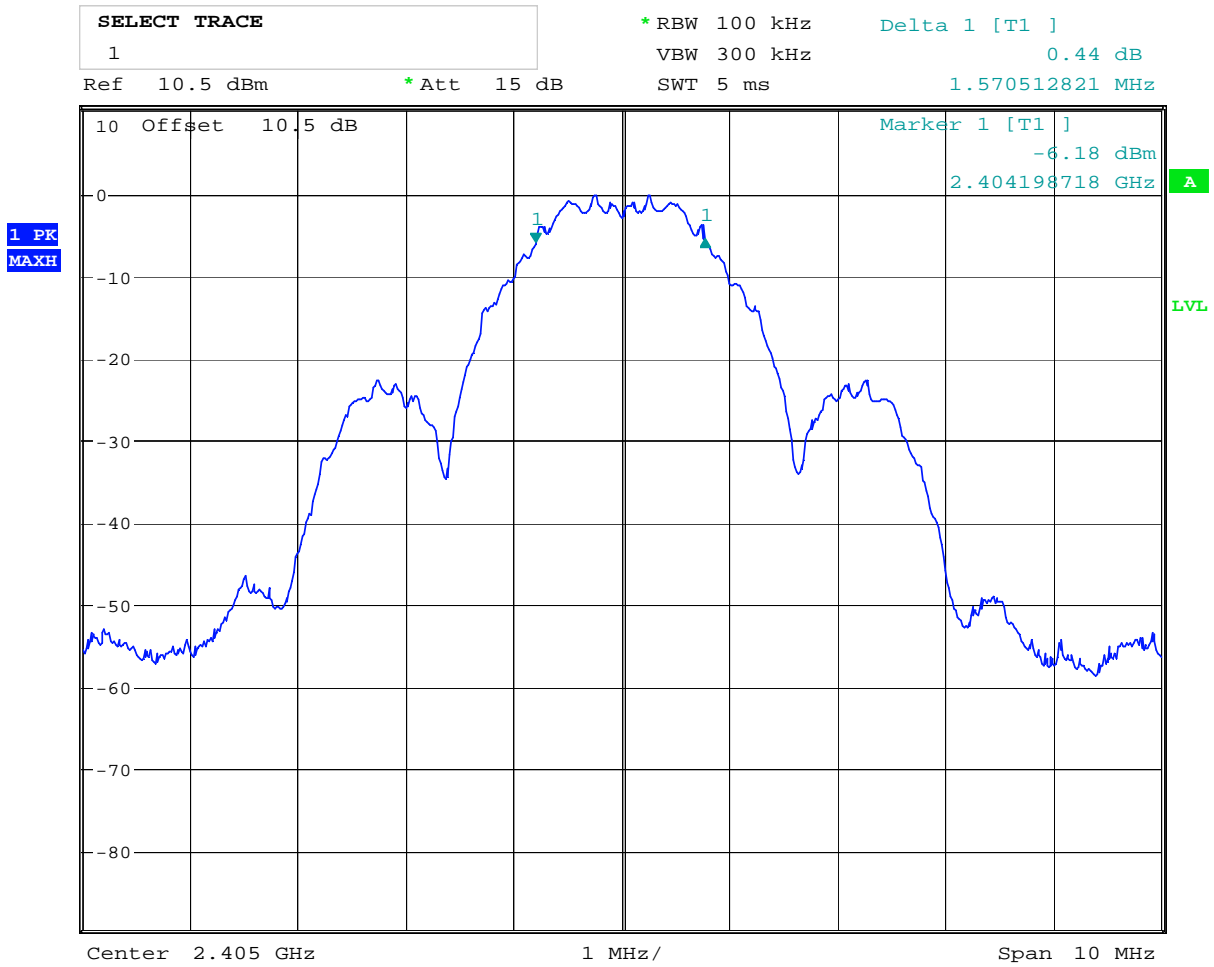
Measured 6 dB Bandwidth (MHz)		
2405MHz	2440 MHz	2480MHz
1.57	1.63	1.60

Tested according to KDB 558074 D01 DTS Meas Guidance v03r01, Section 8.1.

**Requirements:**

For Digital Transmission Systems in the 2400-2483.5 MHz band the minimum 6 dB bandwidth shall be at least 500 KHz.

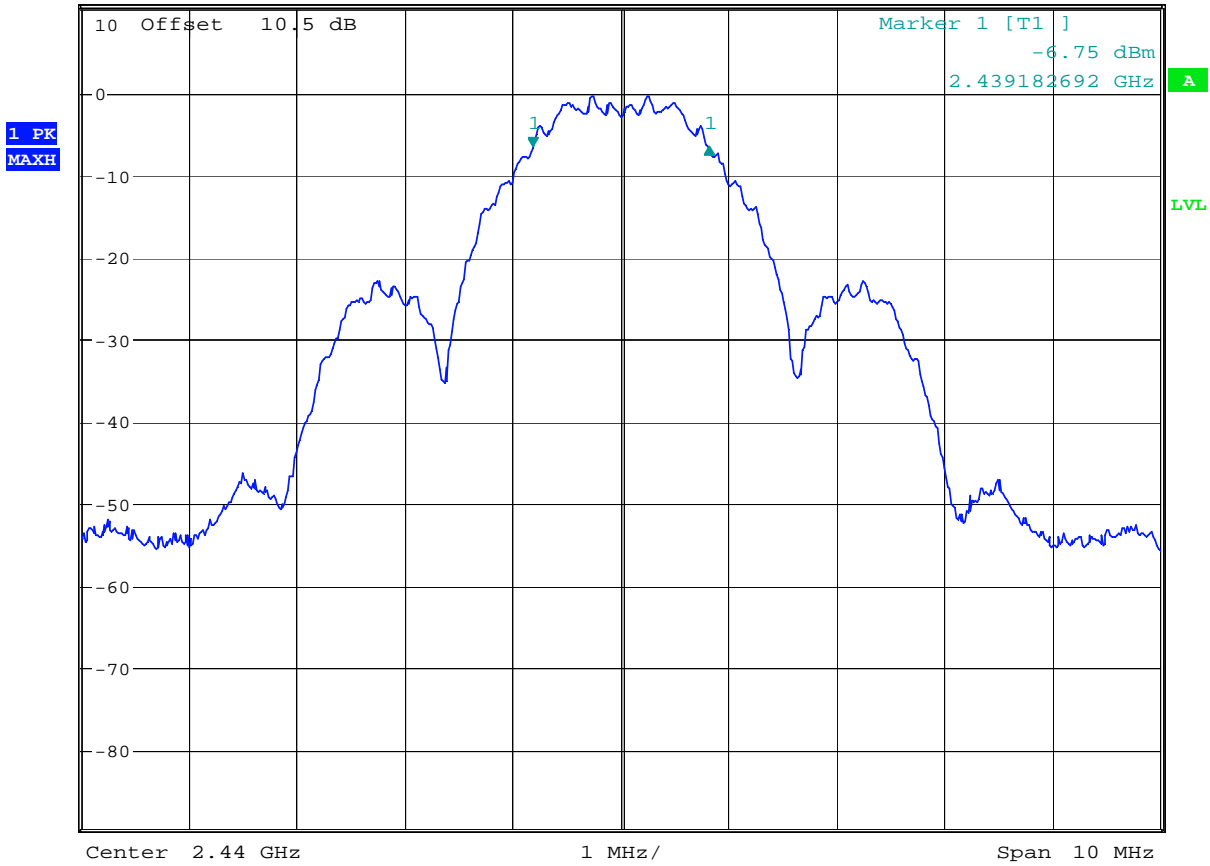




Date: 5.JUL.2013 14:07:31

**6 dB Bandwidth at 2405 MHz**

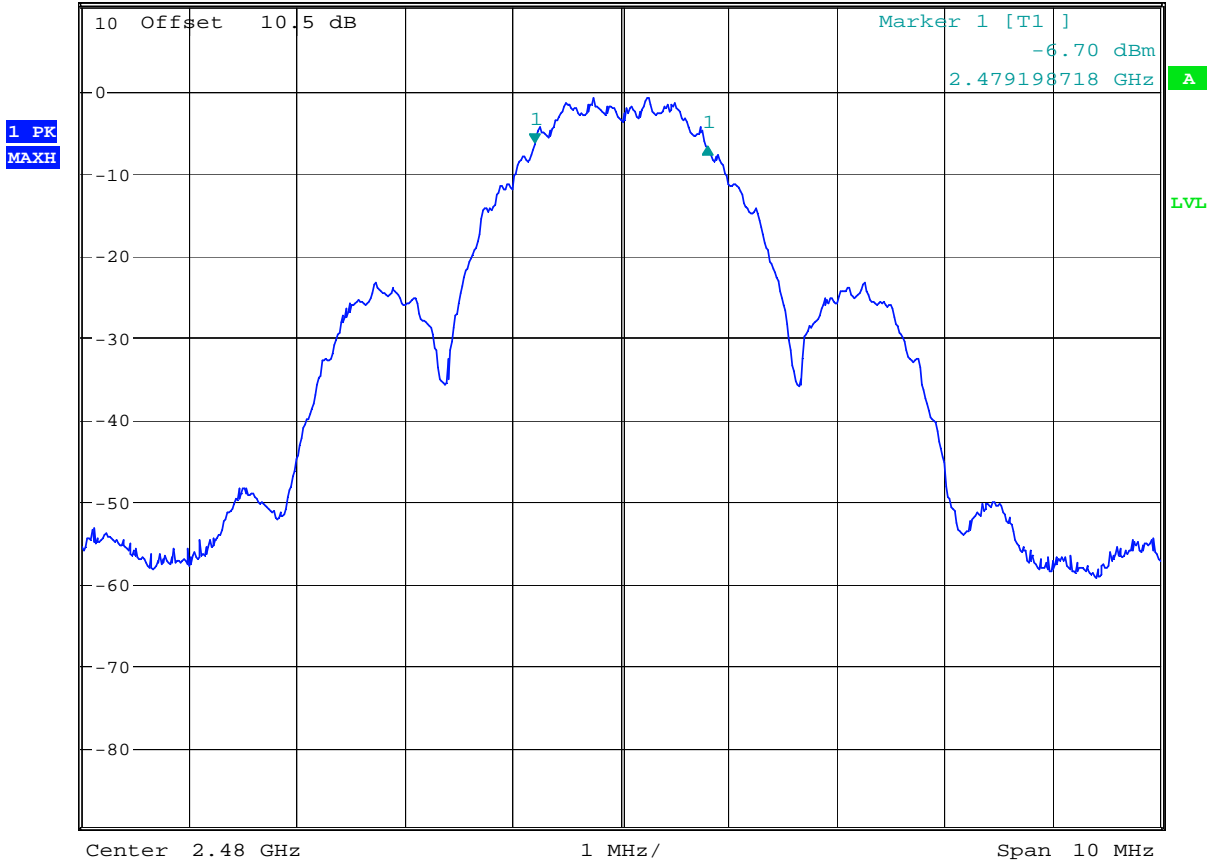
DELTA MARKER 1  
 1.634615385 MHz  
 Ref 10.5 dBm \*Att 15 dB \*RBW 100 kHz VBW 300 kHz SWT 5 ms Delta 1 [T1 ] 0.01 dB  
 1.634615385 MHz



Date: 5.JUL.2013 14:14:59

**6 dB Bandwidth at 2440 MHz**

DELTA MARKER 1  
 1.602564103 MHz  
 Ref 10.5 dBm \*Att 15 dB \*RBW 100 kHz VBW 300 kHz Delta 1 [T1 ] -0.34 dB  
 SWT 5 ms 1.602564103 MHz



Date: 5.JUL.2013 14:19:48

**6 dB Bandwidth at 2480 MHz**

### 3.3 20 dB Bandwidth

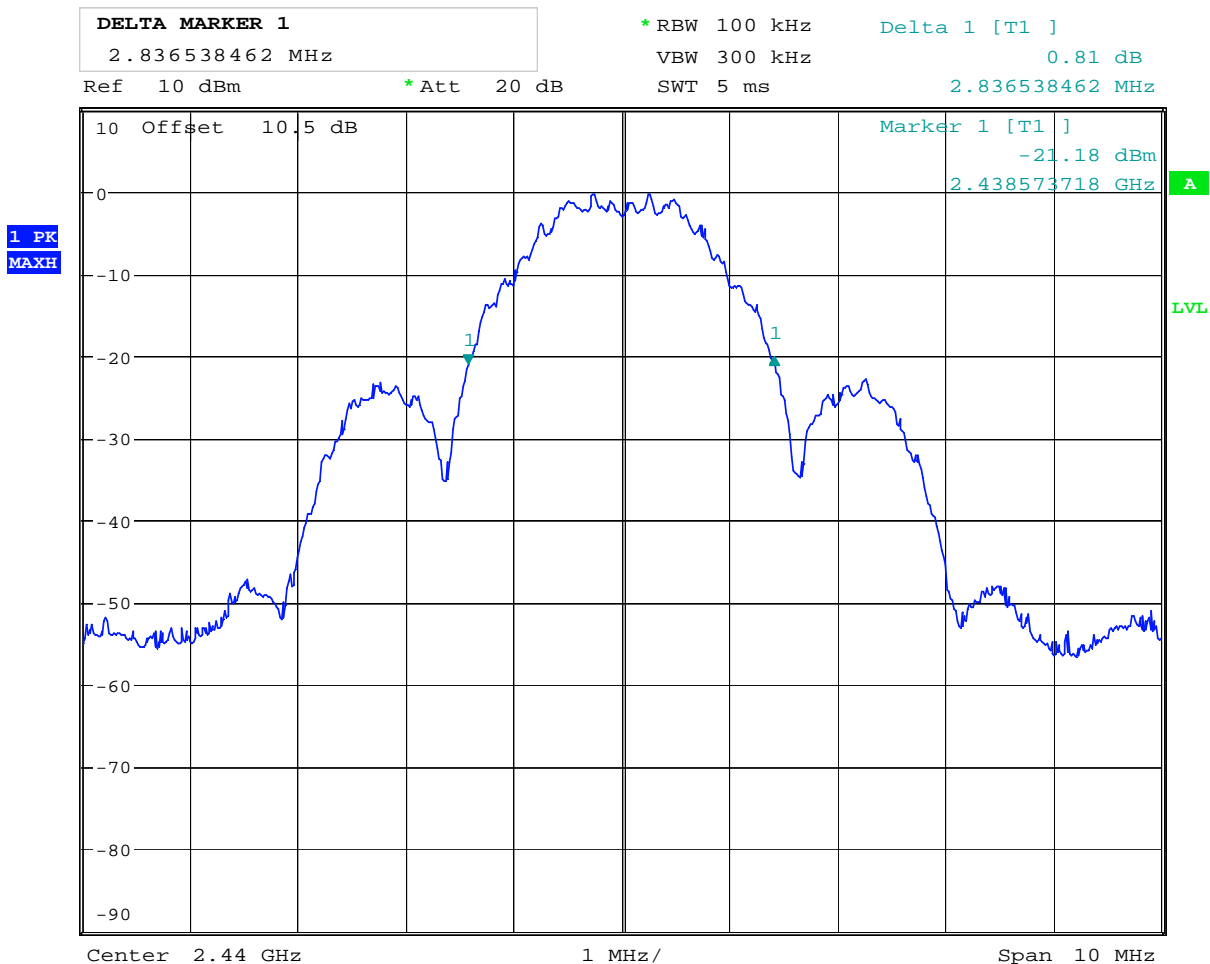
Test Performed By: G.Suwanthakumar	Date of Test: 09 July 2013
------------------------------------	----------------------------

**Measurement Data:**

<b>Measured 20 dB Bandwidth (MHz)</b>
<b>2440 MHz</b>
2.84

**Requirements:**

No requirements. Reported for information only.



Date: 9.JUL.2013 15:45:20

**20 dB Bandwidth at 2440 MHz**

### 3.4 Peak Power Output

Para. No.: 15.247 (b)

Test Performed By: G.Suhanthakumar	Date of Test: 05 & 09 July 2013
------------------------------------	---------------------------------

Test Results: Complies

**Measurement Data:**

RF channel	2405 MHz	2440 MHz	2480 MHz
Measured Maxium Field strength (dB $\mu$ V/m) –HP	101.2	100.4	98.9
Calc. Radiated Power (dBm)	6.3	5.1	3.6
Calc. Radiated Power (mW)	4.3	3.2	2.3
Measured Conducted Power (dBm)	3.2	2.9	2.6
Measured Conducted Power (mW)	2.1	1.9	1.8
Calculated Antenna Gain (dBi)	3.1	2.2	1.1

Tested according to KDB 558074 D01 DTS Meas Guidance v03r01, Section 9.1.1.

EIRP is calculated according to KDB 558074 D01 DTS Meas Guidance v03r01, Section 12.2.2. (e)

The maximum field strength is obtained in XZ plane and Horizontal polarization.

**See attached graph.**

Detachable antenna?

Yes  No

If detachable, is the antenna connector non-standard?

Yes  No

**Requirements:**

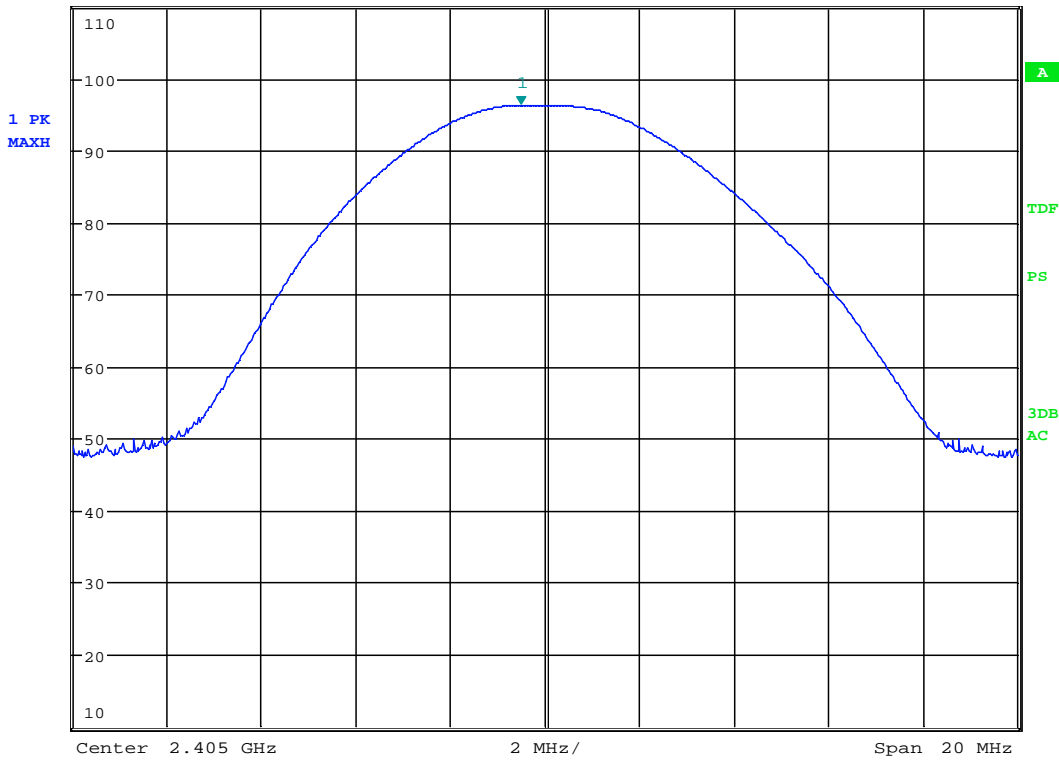
The maximum peak output power shall not exceed the following limits:

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.



\*RBW 3 MHz      Marker 1 [T1 ]  
 VBW 10 MHz      96.34 dBuV/m  
 Ref 110 dBuV/m    \*Att 10 dB      SWT 2.5 ms      2.404487179 GHz

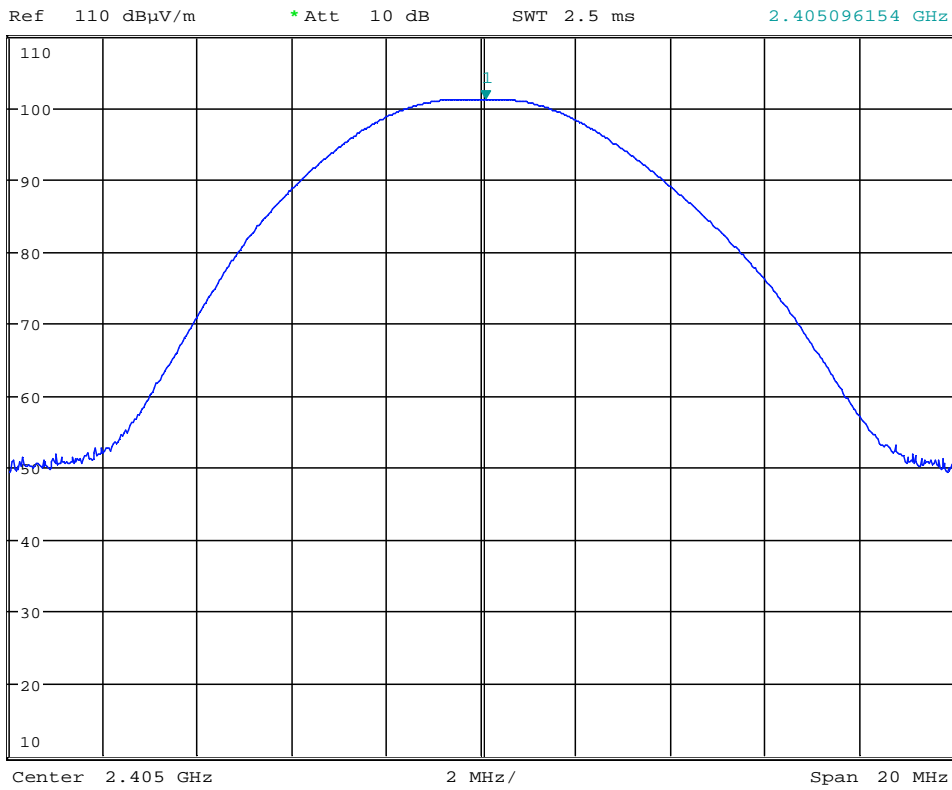


Date: 9.JUL.2013 09:25:08

**Radiated Field strength, VP , 2405 MHz,PK**



\*RBW 3 MHz      Marker 1 [T1 ]  
VBW 10 MHz      101.16 dBμV/m  
SWT 2.5 ms      2.405096154 GHz

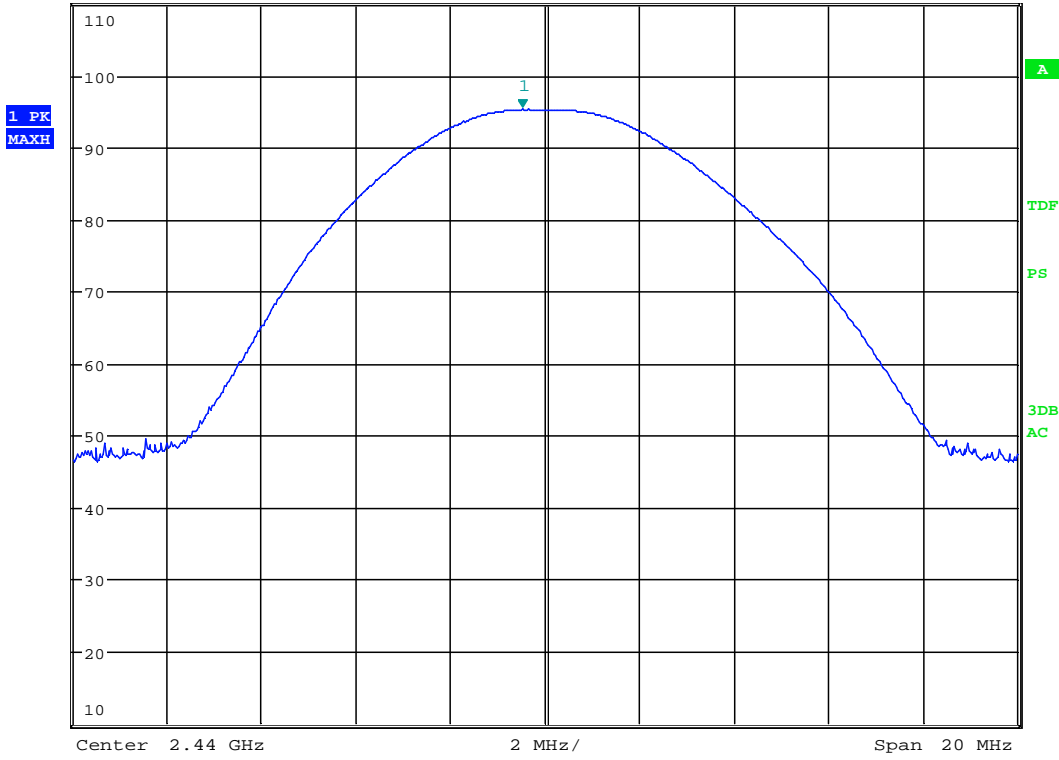


Date: 9.JUL.2013 09:30:21

**Radiated field strength, HP, 2405 MHz,PK**



\* RBW 3 MHz      Marker 1 [T1 ]  
 VBW 10 MHz      95.31 dBµV/m  
 SWT 2.5 ms      2.439519231 GHz  
 Ref 110 dBµV/m    \* Att 10 dB



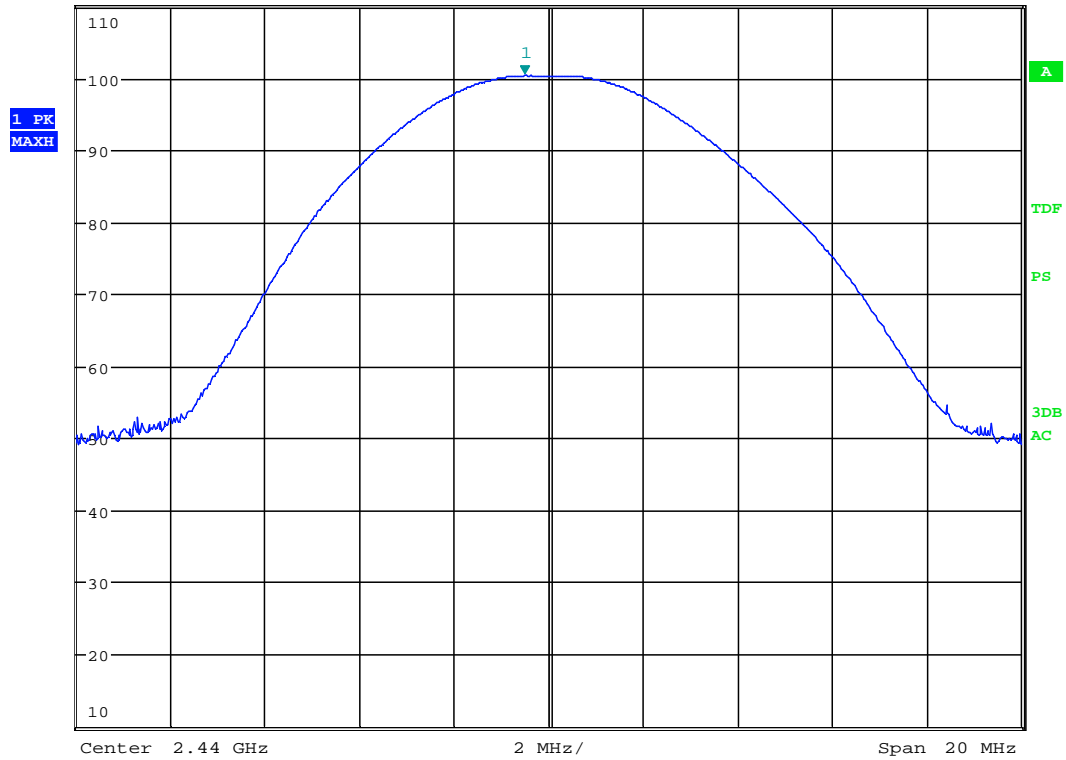
Date: 9.JUL.2013 09:33:58

**Radiated field strength, VP, 2440 MHz,PK**





Ref 110 dB $\mu$ V/m      \*Att 10 dB      \*RBW 3 MHz      Marker 1 [T1 ]  
 VBW 10 MHz      100.35 dB $\mu$ V/m  
 SWT 2.5 ms      2.439487179 GHz

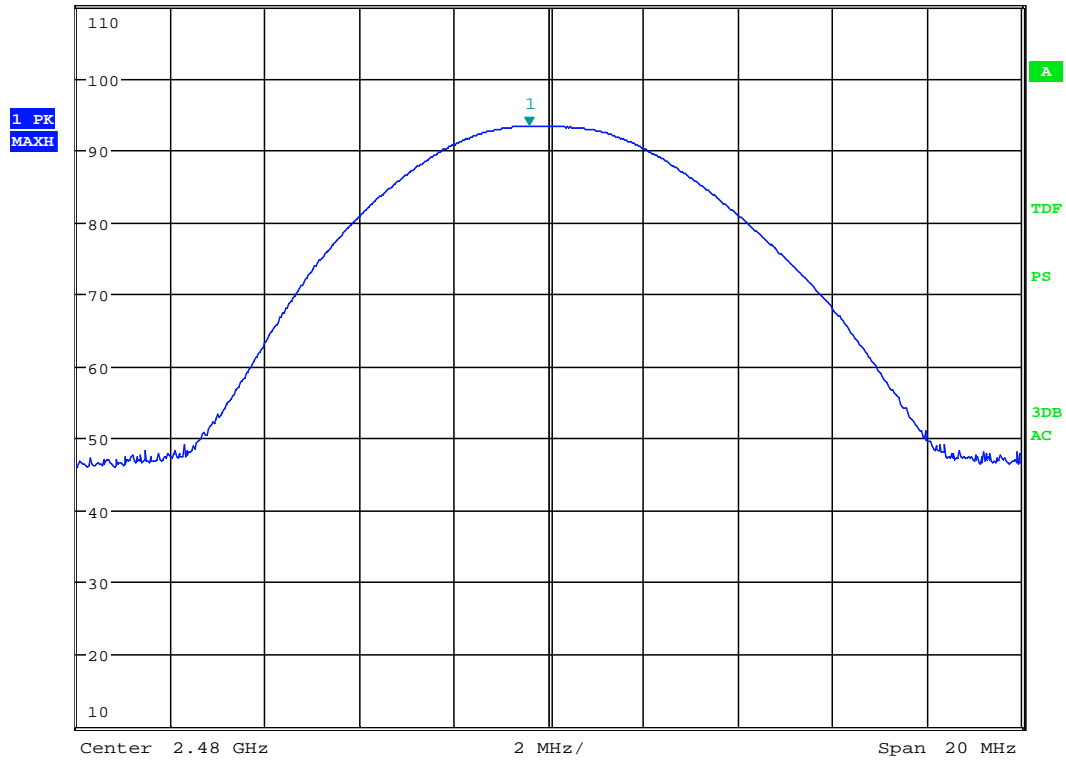


Date: 9.JUL.2013 09:33:02

**Radiated field strength, HP, 2440 MHz,PK**



Ref 110 dB $\mu$ V/m      \*Att 10 dB      \*RBW 3 MHz      Marker 1 [T1 ]  
 VBW 10 MHz      93.28 dB $\mu$ V/m  
 SWT 2.5 ms      2.479583333 GHz

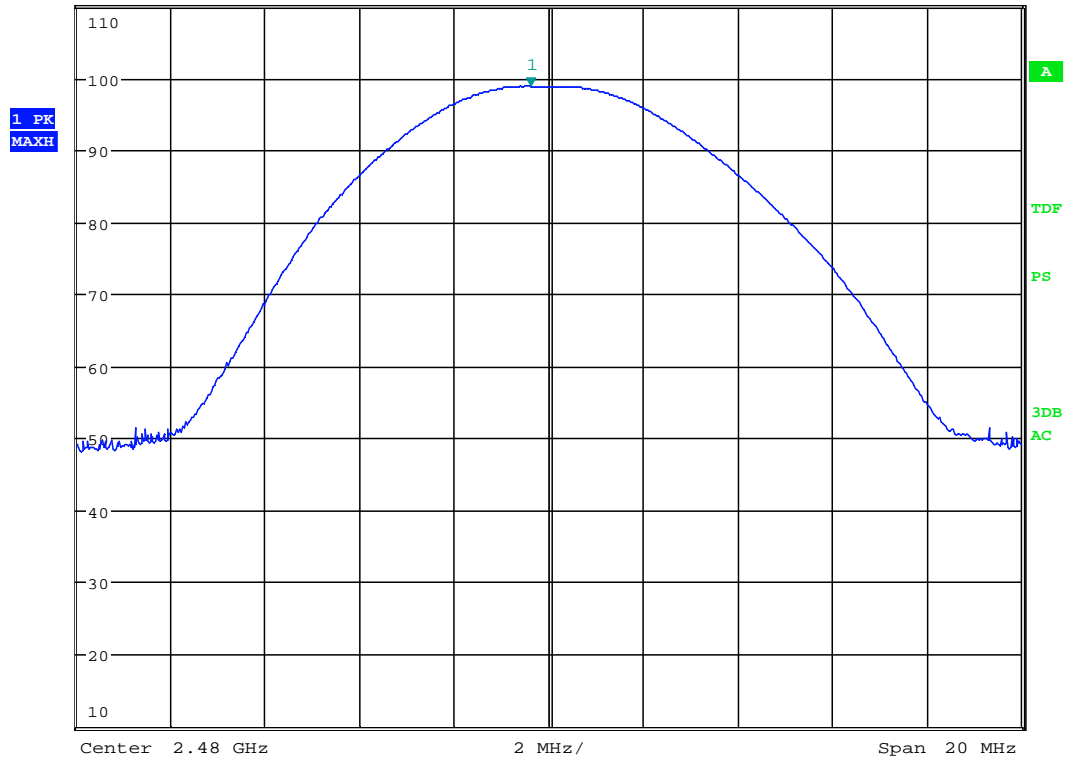


Date: 9.JUL.2013 09:36:28

**Radiated field strength, VP, 2480 MHz,PK**

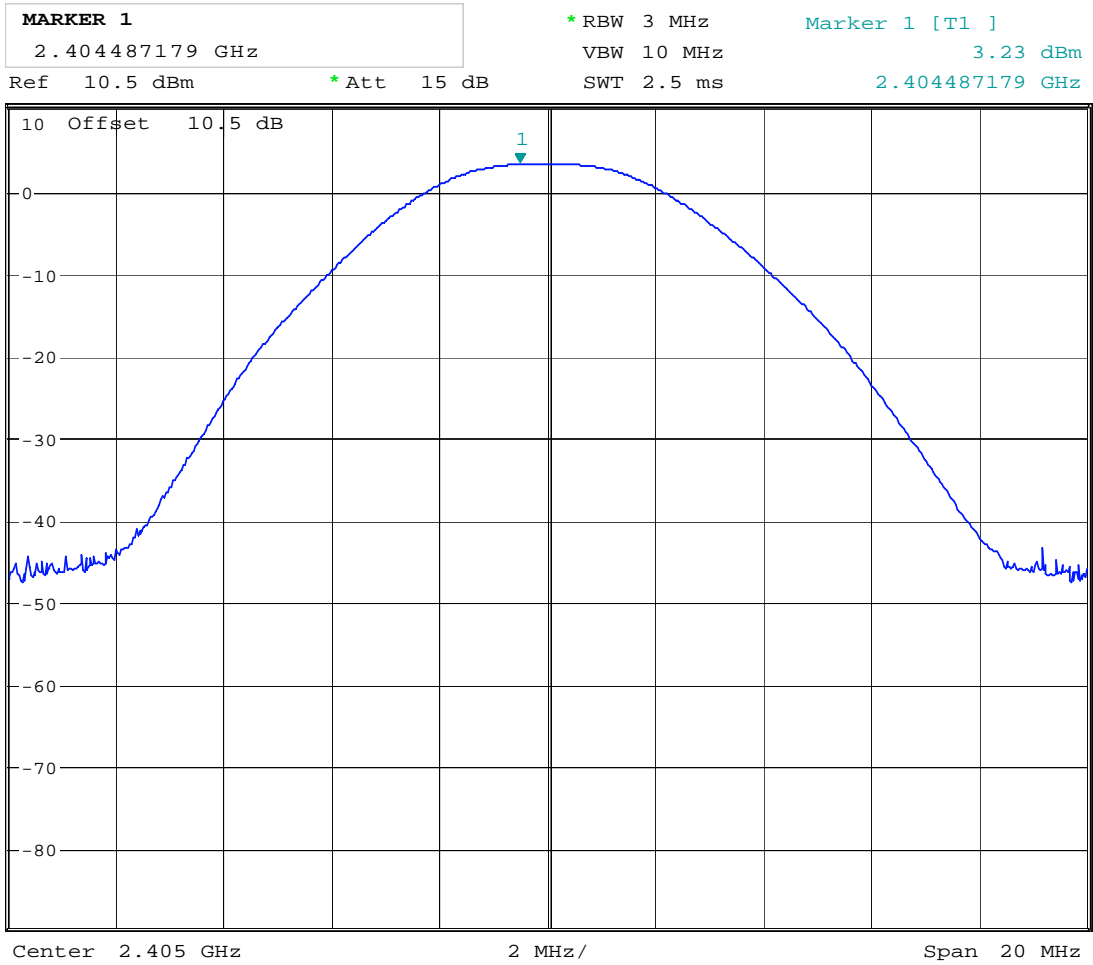


Ref 110 dB $\mu$ V/m      \*Att 10 dB      \*RBW 3 MHz      Marker 1 [T1 ]  
 VBW 10 MHz      98.87 dB $\mu$ V/m  
 SWT 2.5 ms      2.479615385 GHz



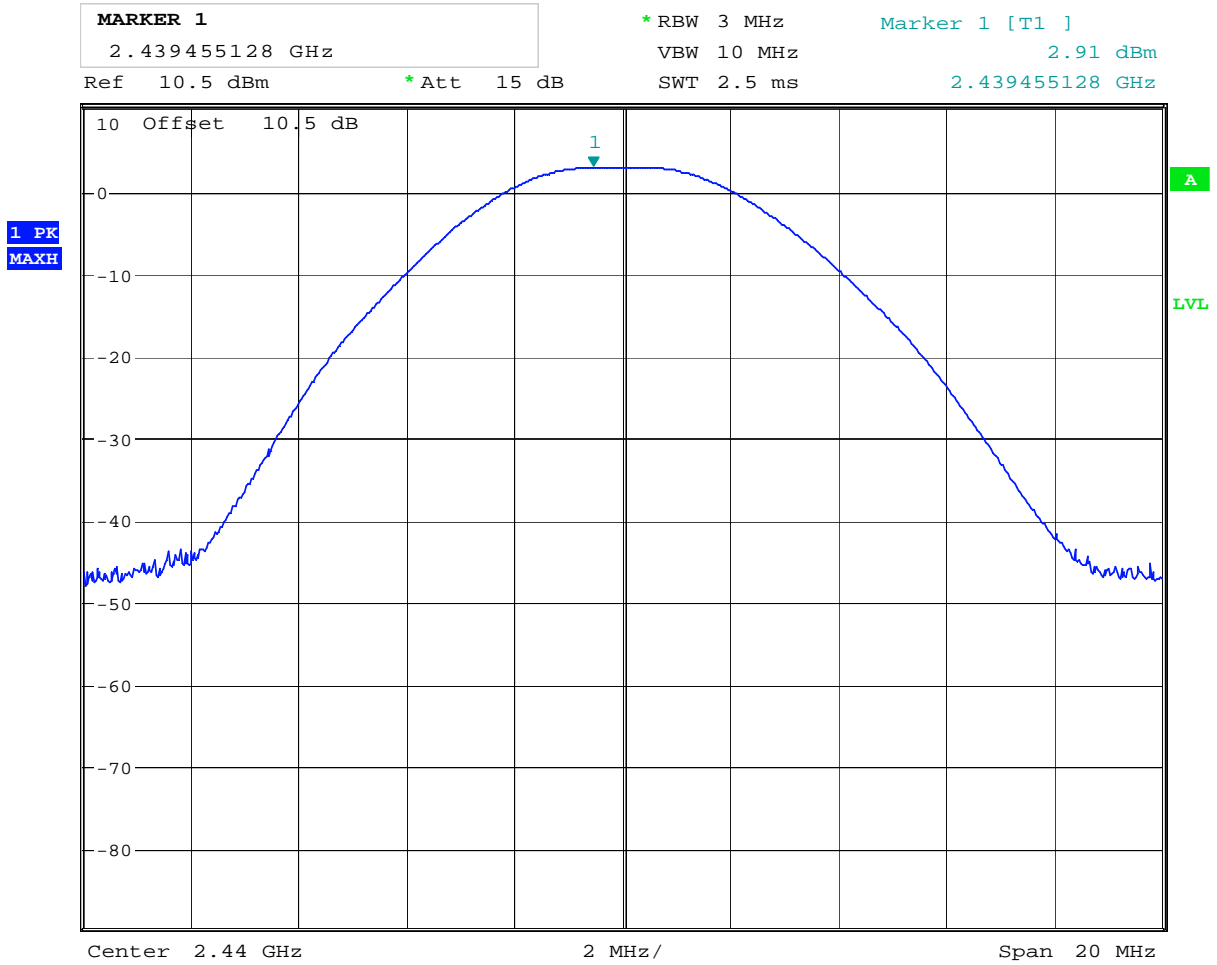
Date: 9.JUL.2013 09:37:56

**Radiated field strength, HP, 2480 MHz,PK**



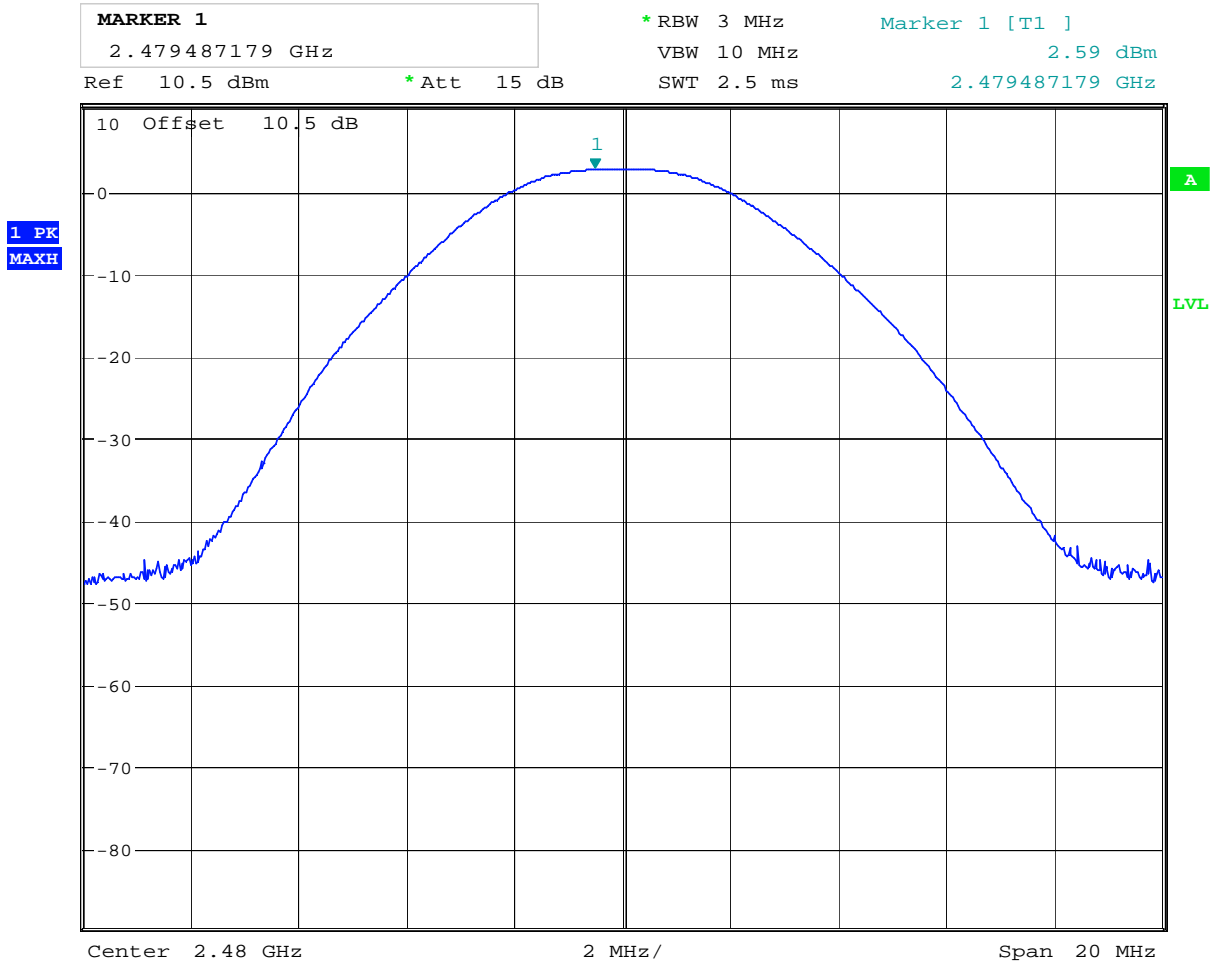
Date: 5.JUL.2013 14:09:00

**Conducted power – 2405MHz,PK**



Date: 5.JUL.2013 14:23:51

**Conducted power – 2440MHz,PK**



Date: 5.JUL.2013 14:21:30

**Conducted power – 2480MHz, PK**

### 3.5 Spurious Emissions (Radiated)

Para. No.: 15.247 (c)

Test Performed By: G.Suhanthakumar	Date of Test: 09 - 11 July 2013
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**Test Results: Complies**

**Measurement Data:**

**Band-edge, @3m**

Frequency	Measured Field Strength @3m, dB $\mu$ V/m	Detector	Limit dB $\mu$ V/m	Margin dB
2.39 GHz	42.4	PK	74	31.6
	36.7	AV	54	17.3
2.4835 GHz	67.3	PK	74	6.7
	44.6	AV	54	9.4

Tested according to KDB 558074 D01 DTS Measurement Guidance v03r01, Section 13.3.2.

**100% duty cycle**

See attached plots.

**RF conducted power**

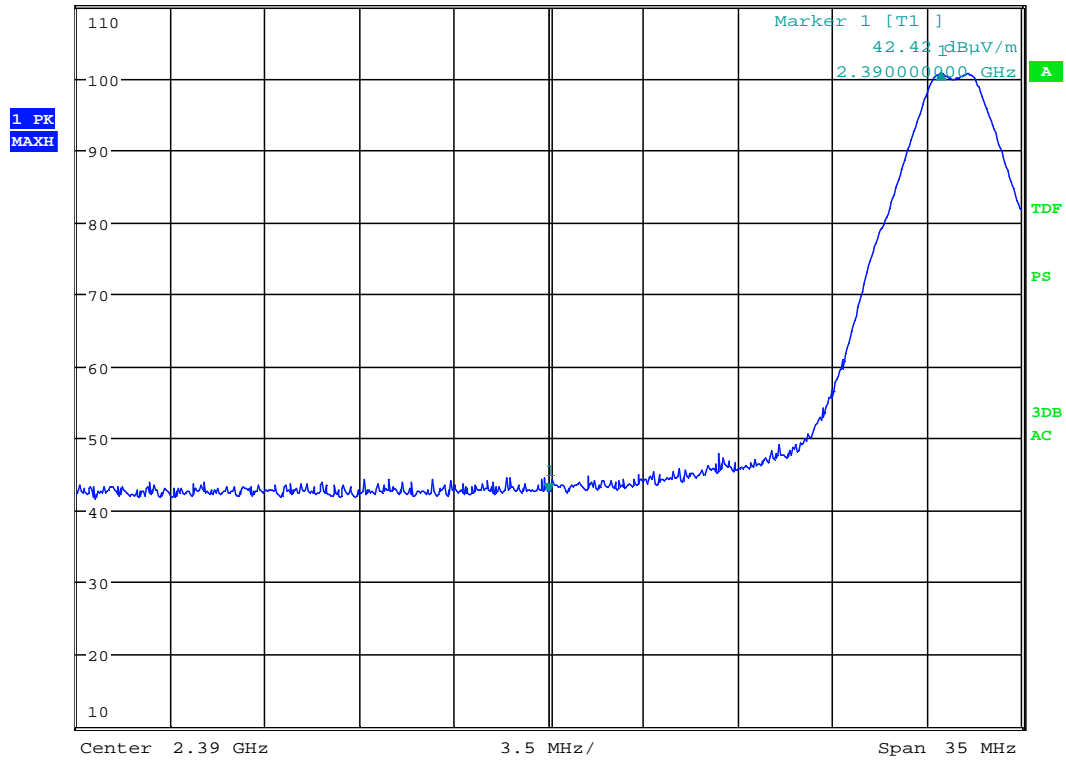
Scan performed with 100 kHz Bandwidth from 0.01 to 25 GHz.

All emissions are more than 20dB below carrier.

See plots.



\*RBW 1 MHz      Delta 1 [T1]      58.20 dB  
 VBW 3 MHz  
 Ref 110 dBμV/m      \*Att 10 dB      SWT 2.5 ms      14.527243590 MHz



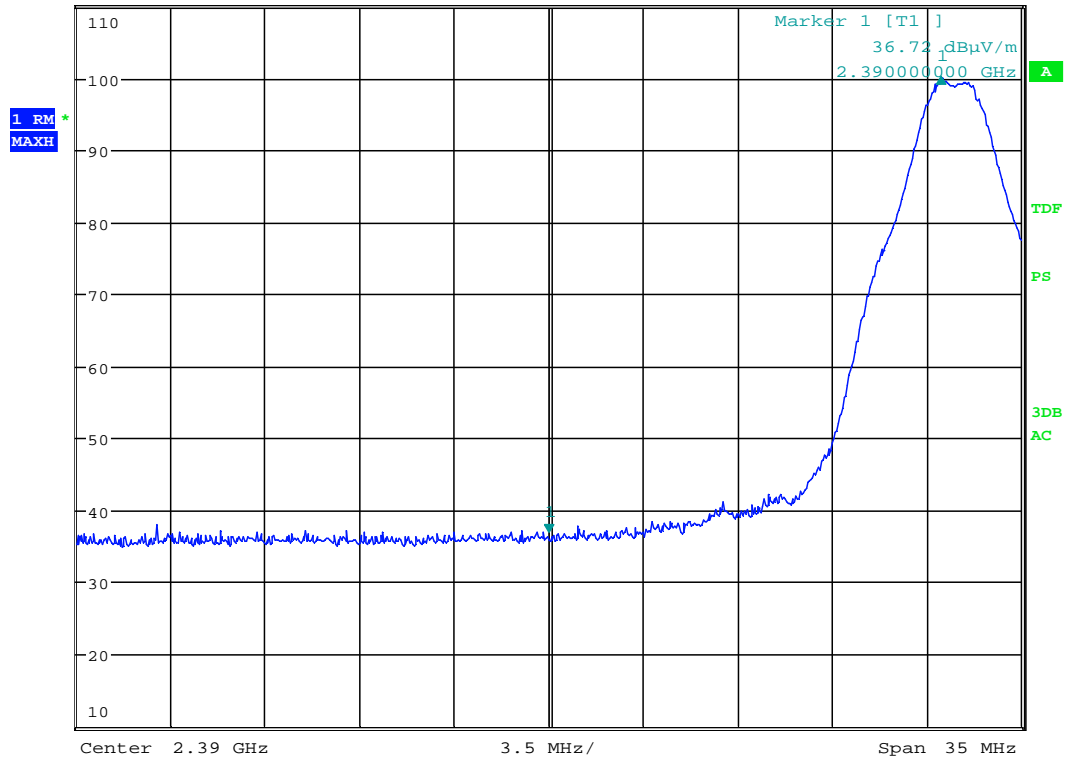
Date: 9.JUL.2013 13:11:04

**Band Edge, 2390 MHz, Peak Detector**





\*RBW 1 MHz      Delta 1 [T1 ]  
 VBW 10 MHz      63.24 dB  
 SWT 2.5 ms      14.527243590 MHz  
 Ref 110 dBuV/m    \*Att 10 dB



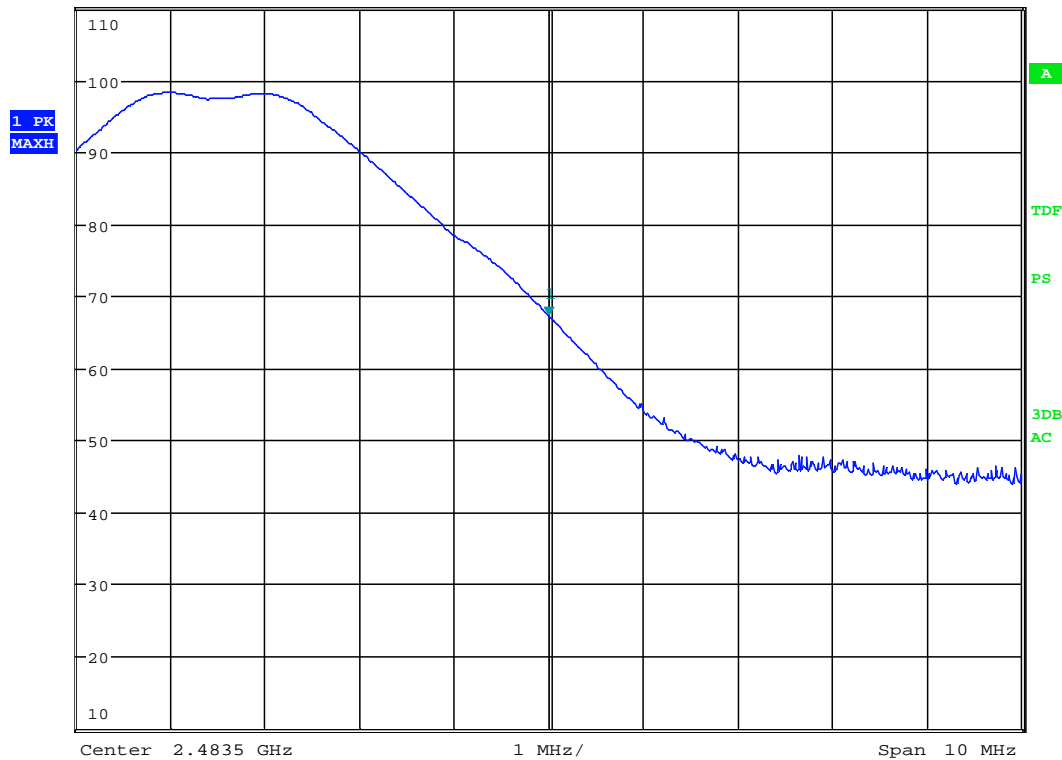
Date: 9.JUL.2013 13:10:42

**Band Edge, 2390 MHz, Average Detector**



\*RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      67.29 dBμV/m  
 SWT 2.5 ms      2.483500000 GHz

Ref 110 dBμV/m      \*Att 10 dB

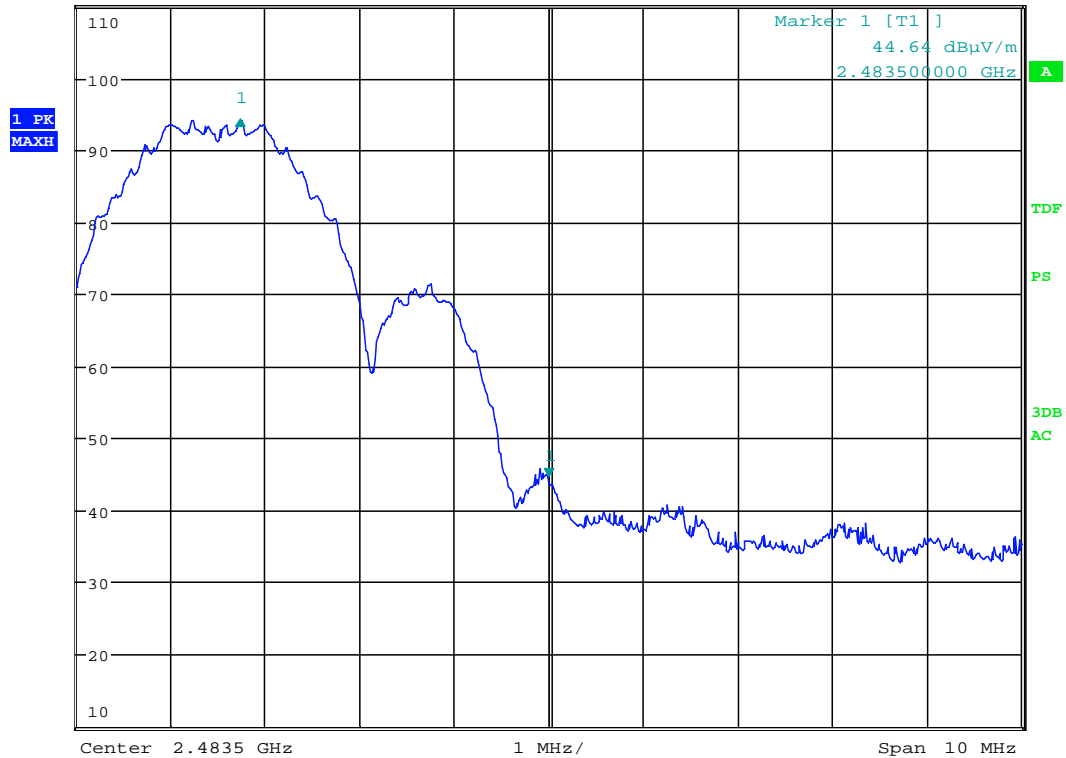


Date: 9.JUL.2013 13:12:48

**Band Edge, 2483.5 MHz, Peak Detector**



Ref 110 dB $\mu$ V/m \*Att 10 dB \*RBW 100 kHz Delta 1 [T1 ]  
 VBW 300 kHz 49.59 dB  
 SWT 5 ms -3.269230769 MHz

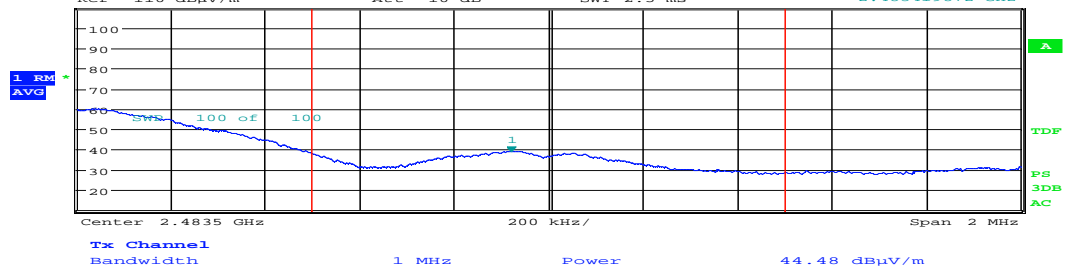


Date: 9.JUL.2013 13:14:11

Prescan at 2.4835GHz

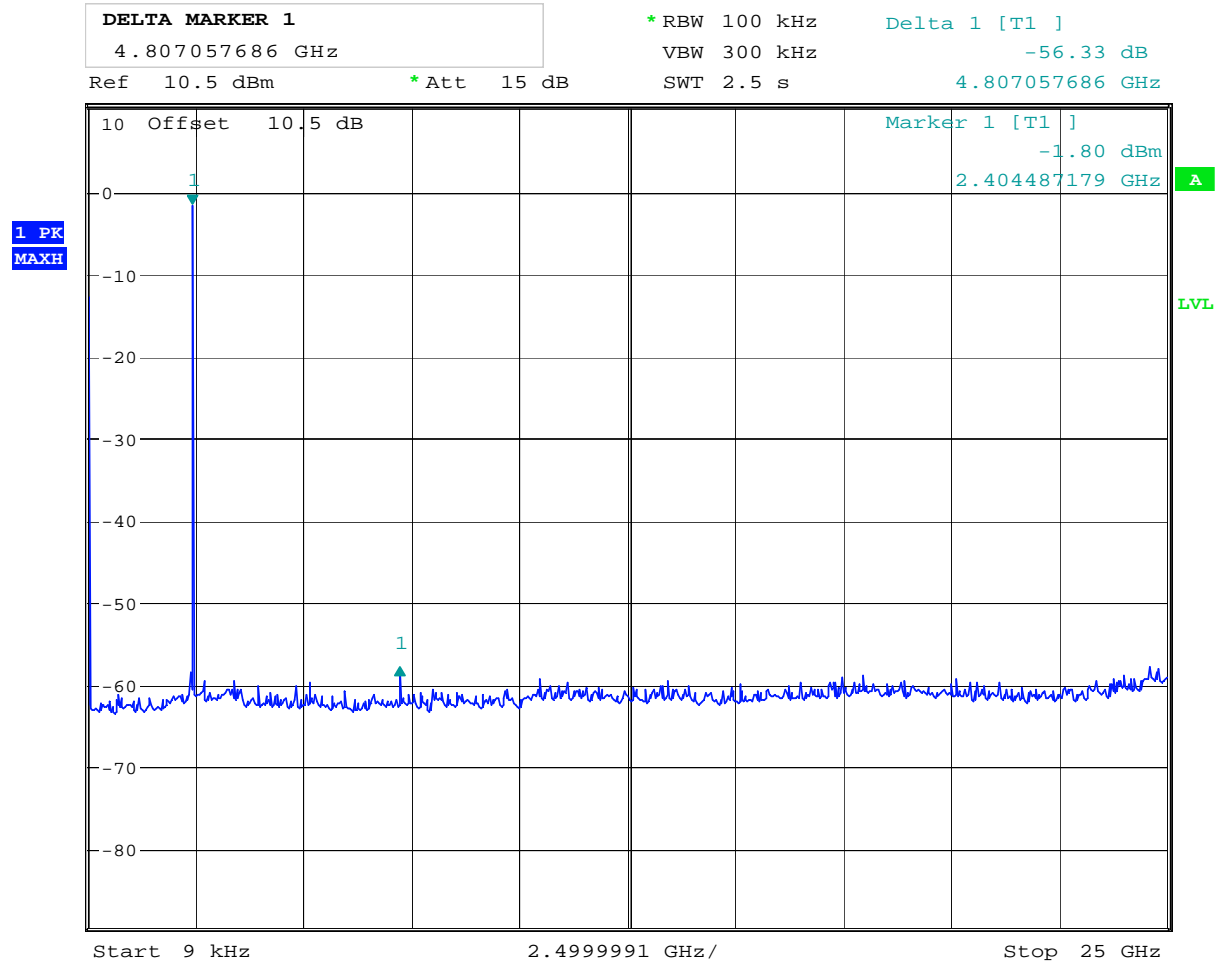


Ref 110 dB $\mu$ V/m \*Att 10 dB \*RBW 100 kHz Marker 1 [T1 ]  
 VBW 1 MHz 39.09 dB $\mu$ V/m  
 SWT 2.5 ms 2.483419872 GHz



Date: 9.JUL.2013 13:56:49

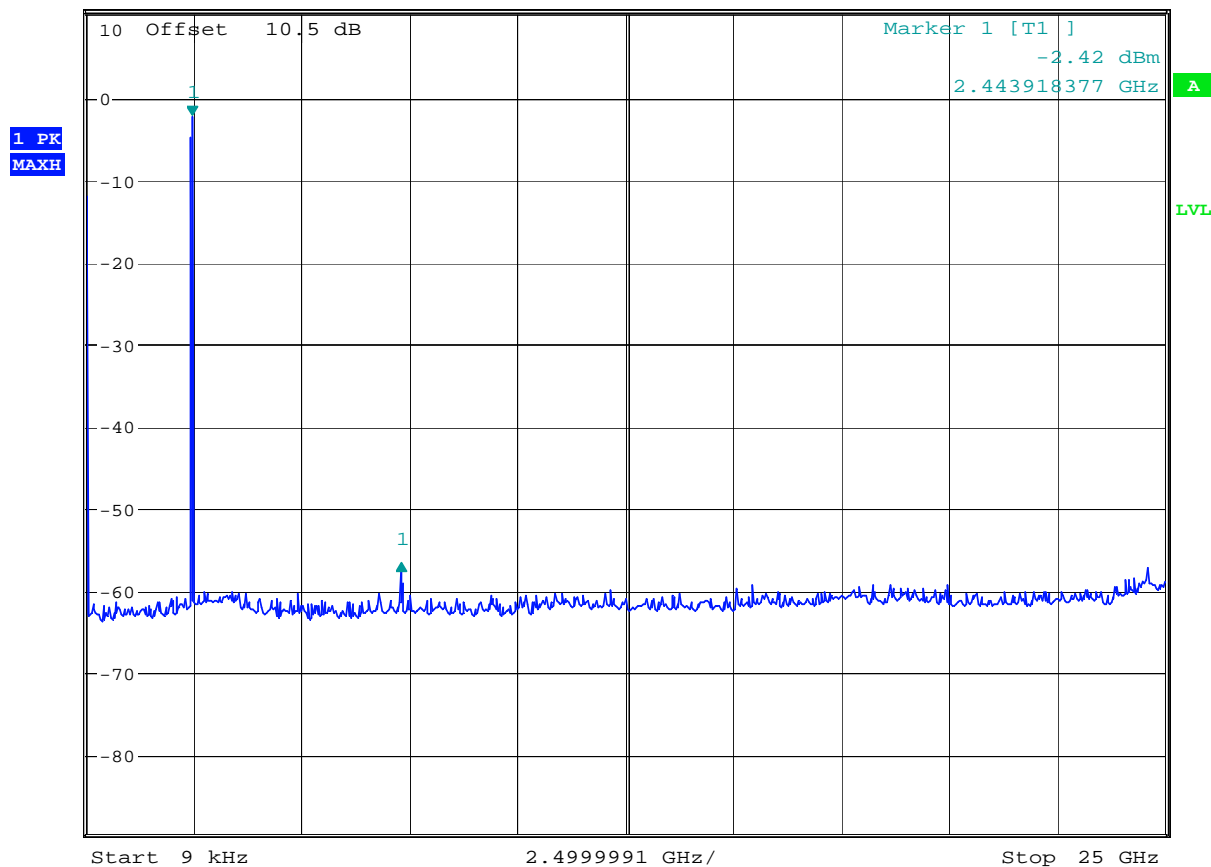
Band edge power, 2483.5MHz, AV detector



Date: 5.JUL.2013 14:09:57

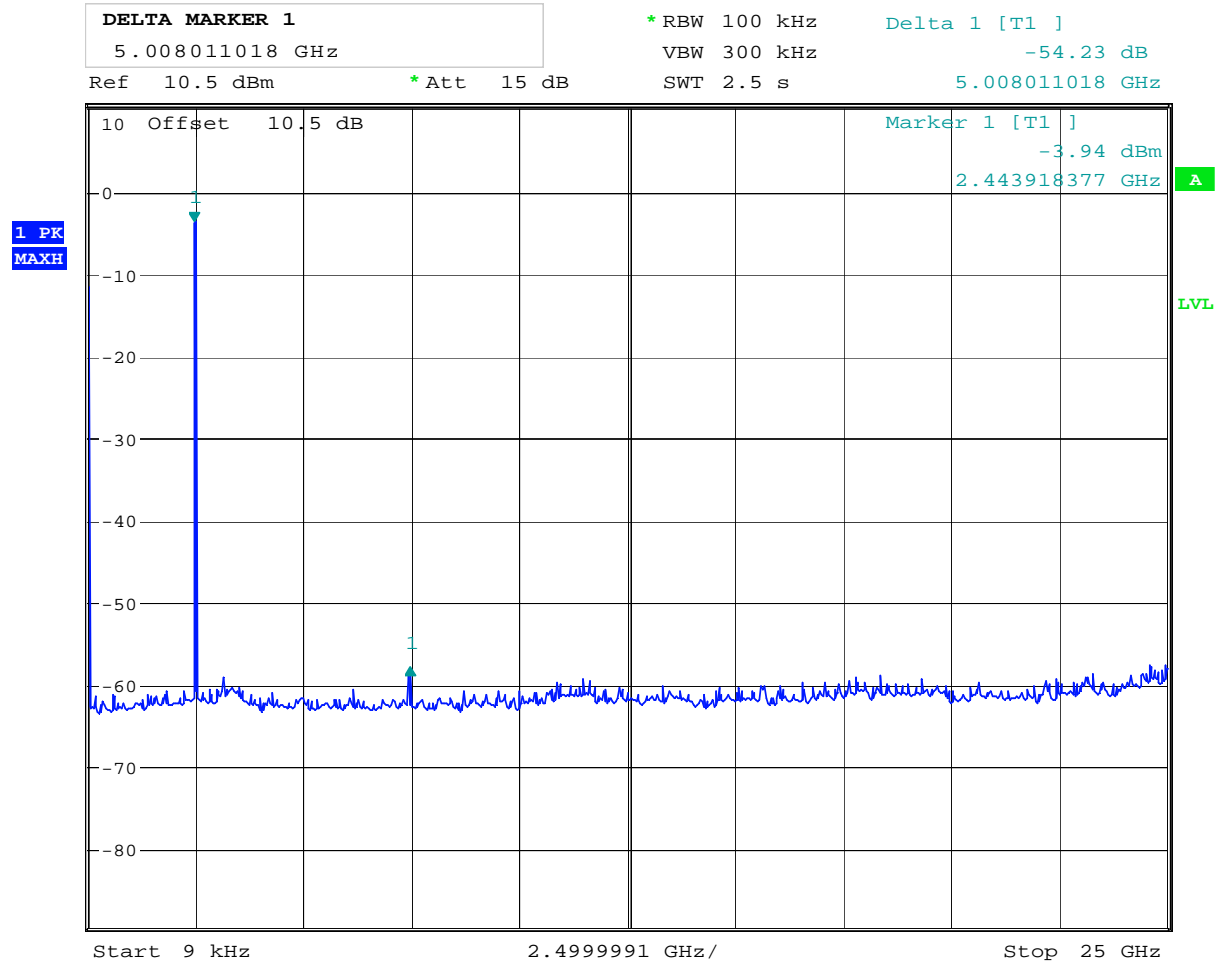
**Conducted spurious emission 9kHz – 25GHz - ch2405MHz**

<b>DELTA MARKER 1</b>		*RBW 100 kHz	Delta 1 [T1 ]
4.847754665 GHz		VBW 300 kHz	-54.51 dB
Ref 10.5 dBm	*Att 15 dB	SWT 2.5 s	4.847754665 GHz



Date: 5.JUL.2013 14:16:51

**Conducted spurious emission 9kHz – 25GHz - ch2440MHz**



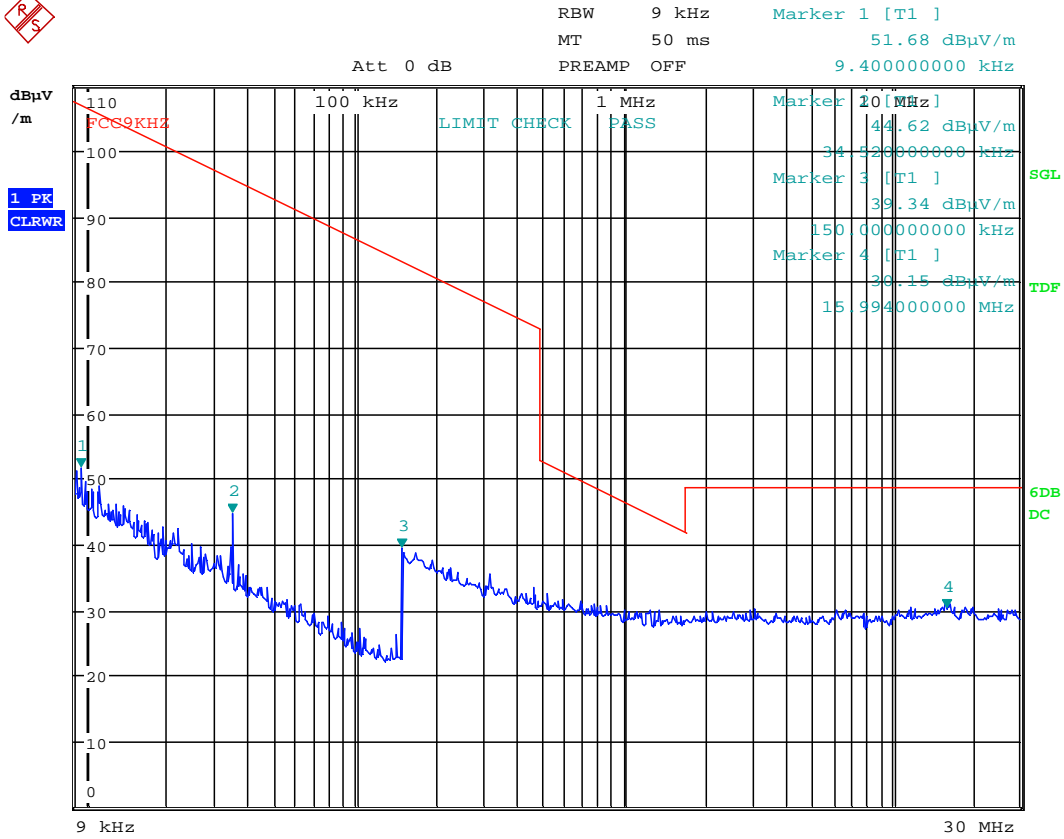
Date: 5.JUL.2013 14:20:37

**Conducted spurious emission 9kHz – 25GHz - ch2480MHz**

**Radiated emissions 9kHz - 30 MHz.**

Detector: Quasi-Peak

Measuring distance 10 m.



Date: 9.JUL.2013 15:07:17

**Radiated Emissions, 9 kHz – 30 MHz @10m**

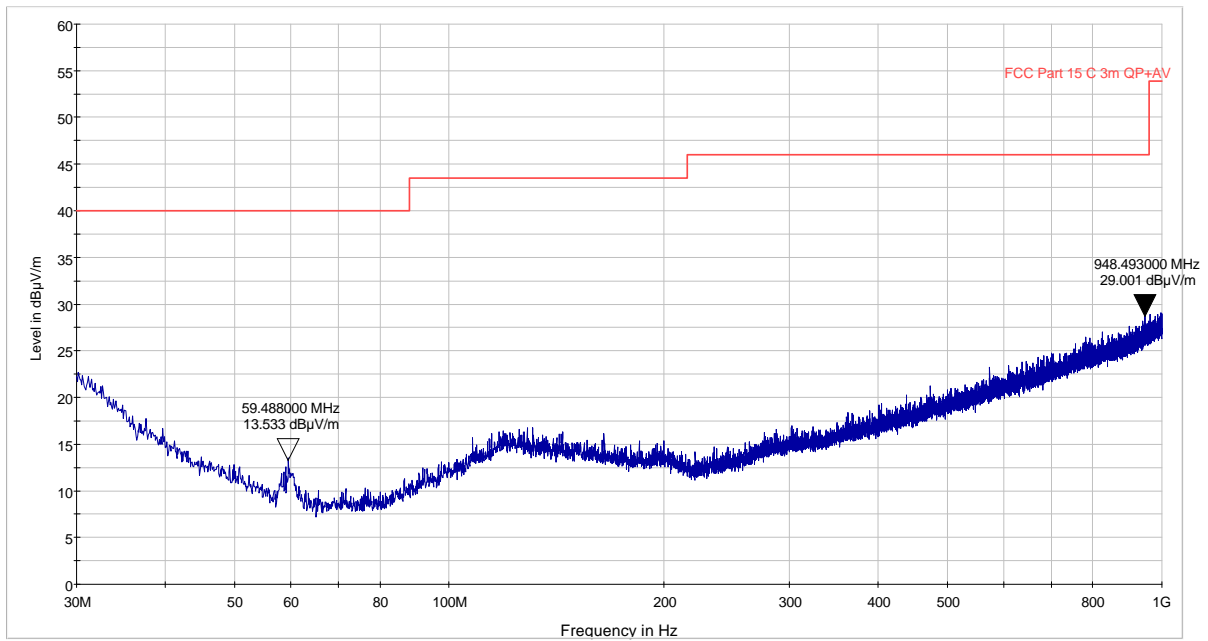
**Radiated emission 30 – 1000 MHz.**

Detector: Peak

Measuring distance at 3m.

All values are below the limit even when measured with Peak Detector, RBW=100kHz, VBW=300kHz.

See attached plot.



**Radiated Emissions, 30 – 1000 MHz, VP and HP, @3m**



**Radiated Emissions, 1-25 GHz**

1-8 GHz measured at a distance of 3 m

8 - 25 GHz measured at 1m

**Peak detector**

Frequency MHz	Field Strength @3m dB $\mu$ V/m	Detector	Limit dB $\mu$ V/m	Margin dB
All freqs	None detected	Pk	74	-

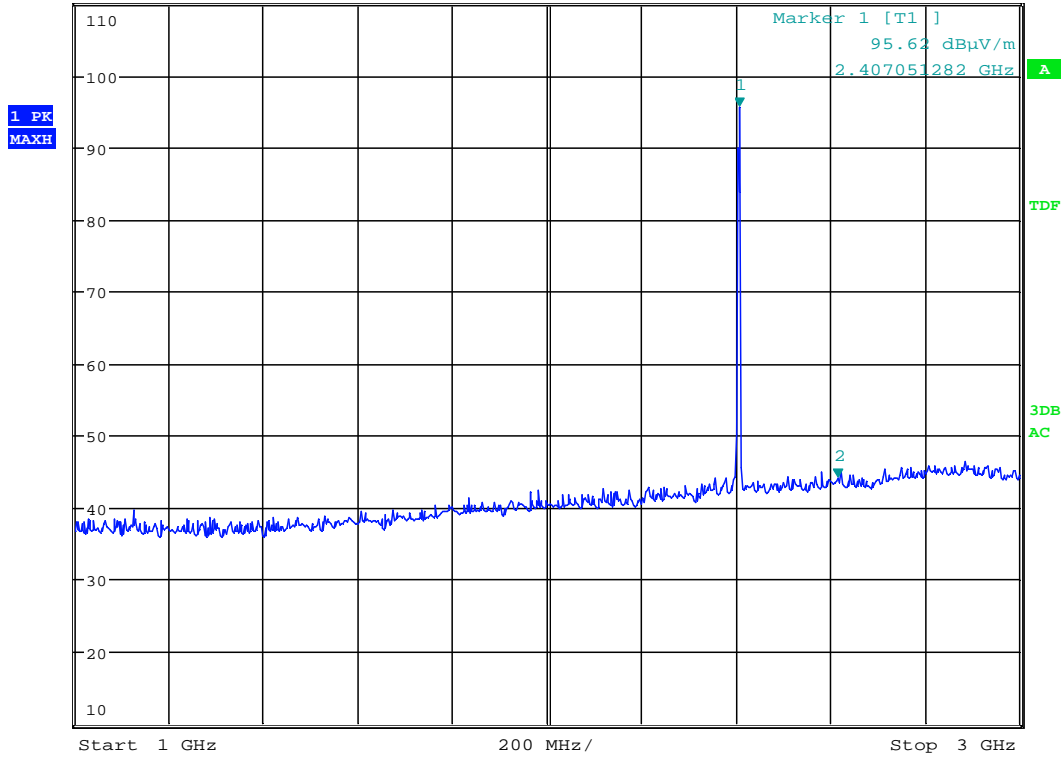
**Average detector**

Frequency MHz	Field Strength @3m dB $\mu$ V/m	Detector	Limit dB $\mu$ V/m	Margin dB
All freqs	None detected	Av	54	-

Antenna factor, amplifier gain and cable loss are included in Spectrum Analyzer "Transducer factor".  
 See attached graphs.



Ref 110 dBuV/m      \* Att 10 dB      \* RBW 1 MHz      Marker 2 [T1 ]  
 VBW 3 MHz      44.21 dBuV/m  
 SWT 5 ms      2.615384615 GHz

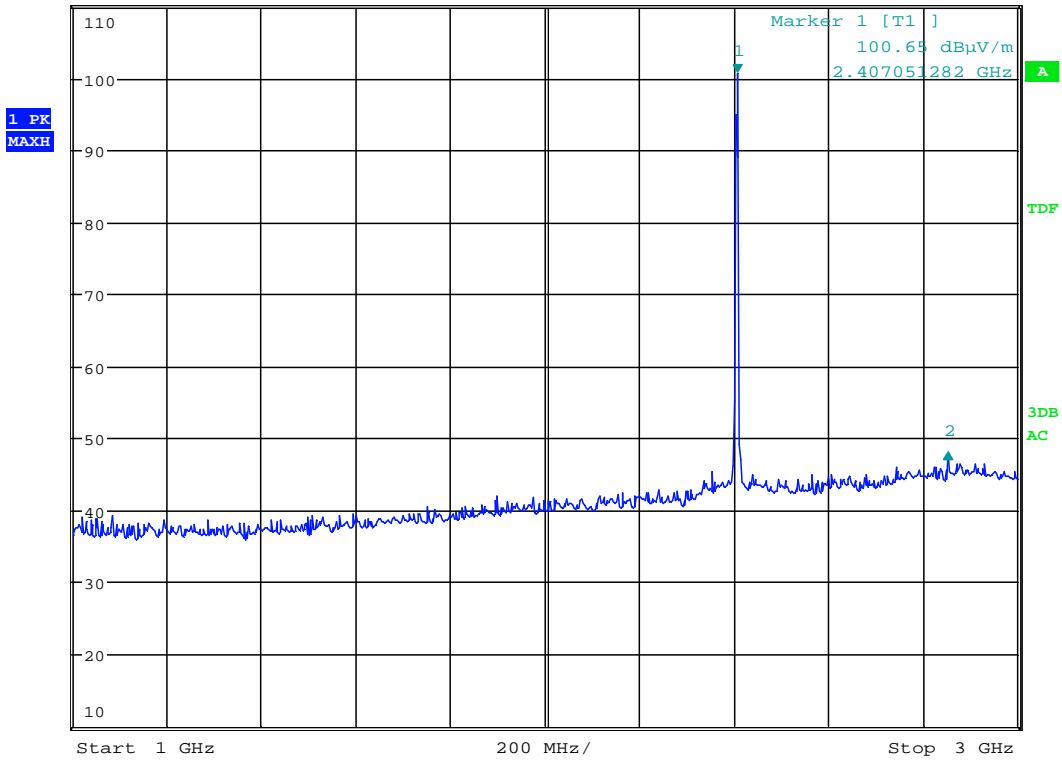


Date: 9.JUL.2013 12:41:41

**Radiated Emissions ch. 2405 MHz, 1 – 3 GHz, VP, @3m – Pre-scan with Peak detector**



\*RBW 1 MHz      Delta 2 [T1 ]  
 VBW 3 MHz      -52.82 dB  
 Ref 110 dBuV/m    \*Att 10 dB      SWT 5 ms      445.512820513 MHz



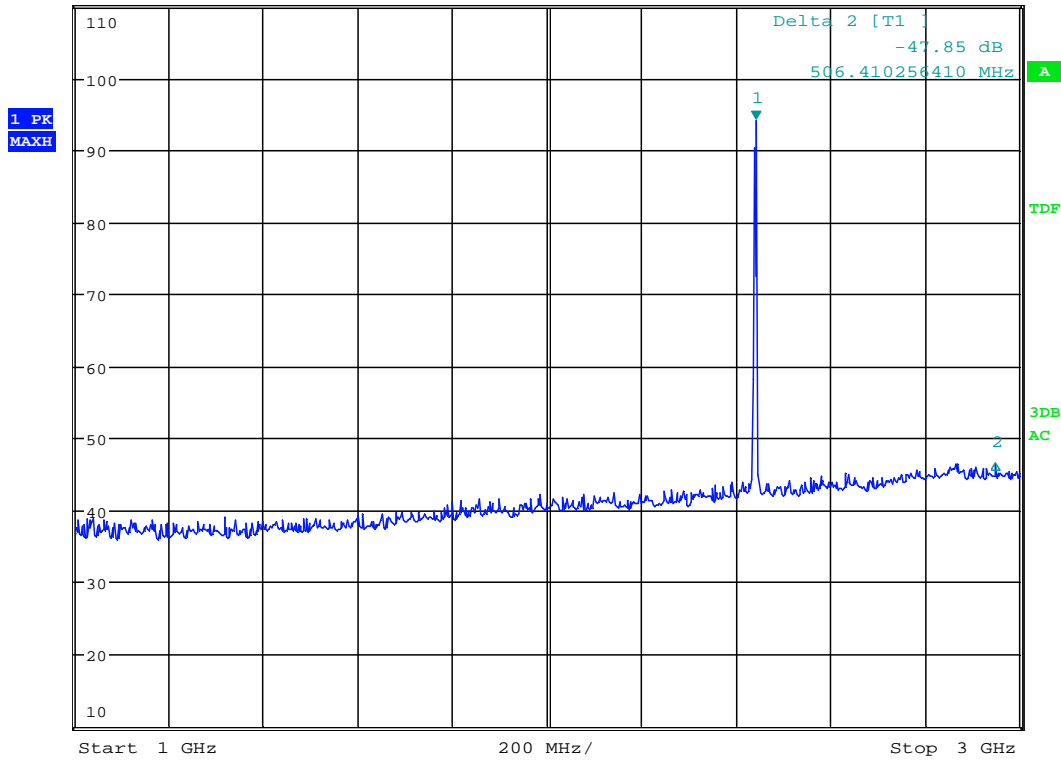
Date: 9.JUL.2013 12:42:54

**Radiated Emissions ch. 2405 MHz, 1 – 3 GHz, HP, @3m – Pre-scan with Peak detector**



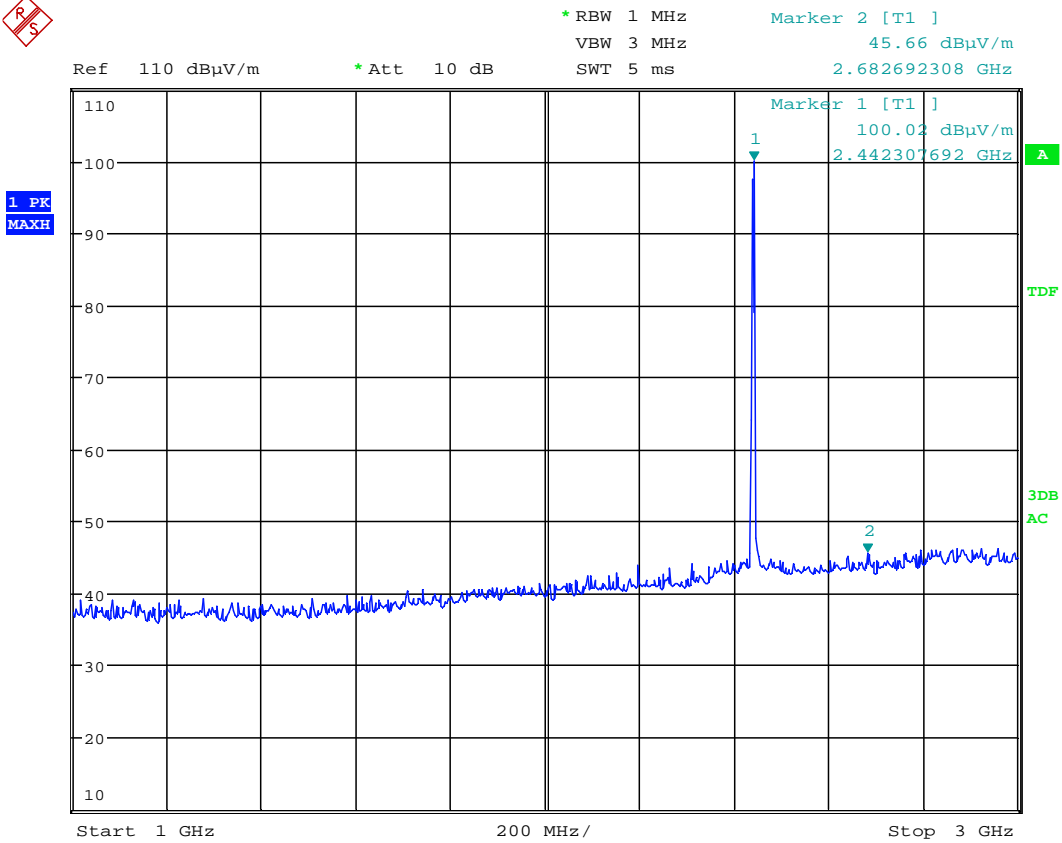
\*RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      94.22 dBµV/m  
 SWT 5 ms      2.442307692 GHz

Ref 110 dBµV/m      \*Att 10 dB



Date: 9.JUL.2013 12:44:14

**Radiated Emissions ch. 2440 MHz, 1 – 3 GHz, VP, @3m – Pre-scan with Peak detector**

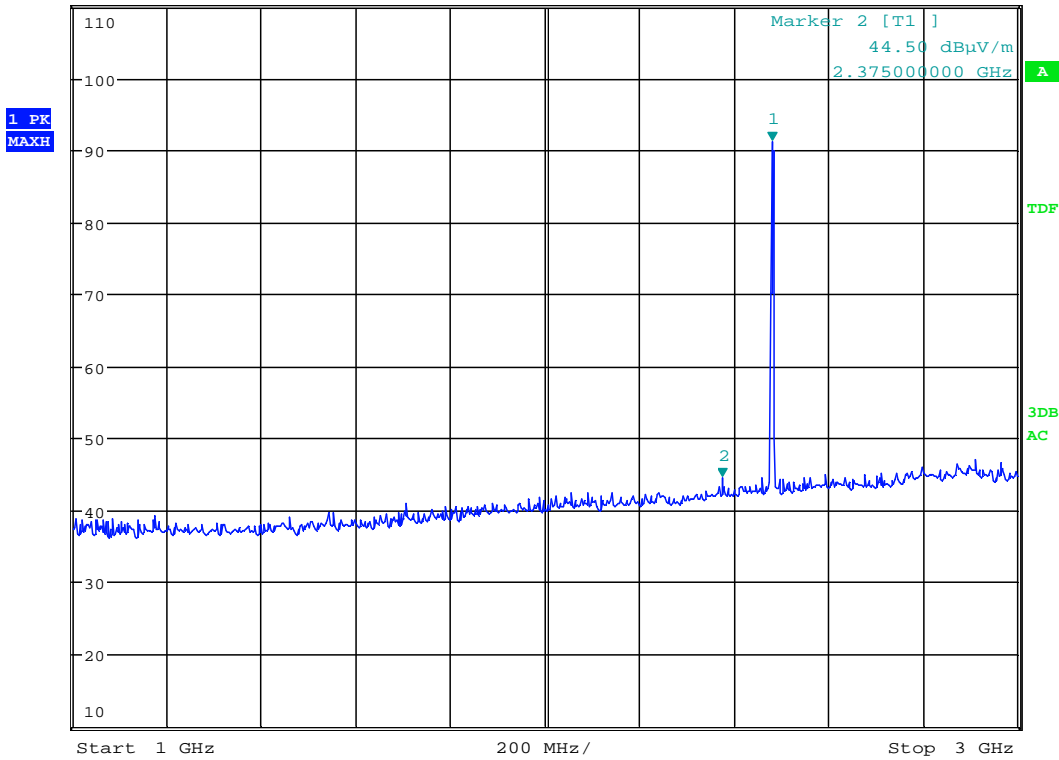


Date: 9.JUL.2013 12:43:47

**Radiated Emissions ch. 2440 MHz, 1 – 3 GHz, HP, @3m – Pre-scan with Peak detector**



\*RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      91.23 dBuV/m  
 Ref 110 dBuV/m      \*Att 10 dB      SWT 5 ms      2.480769231 GHz

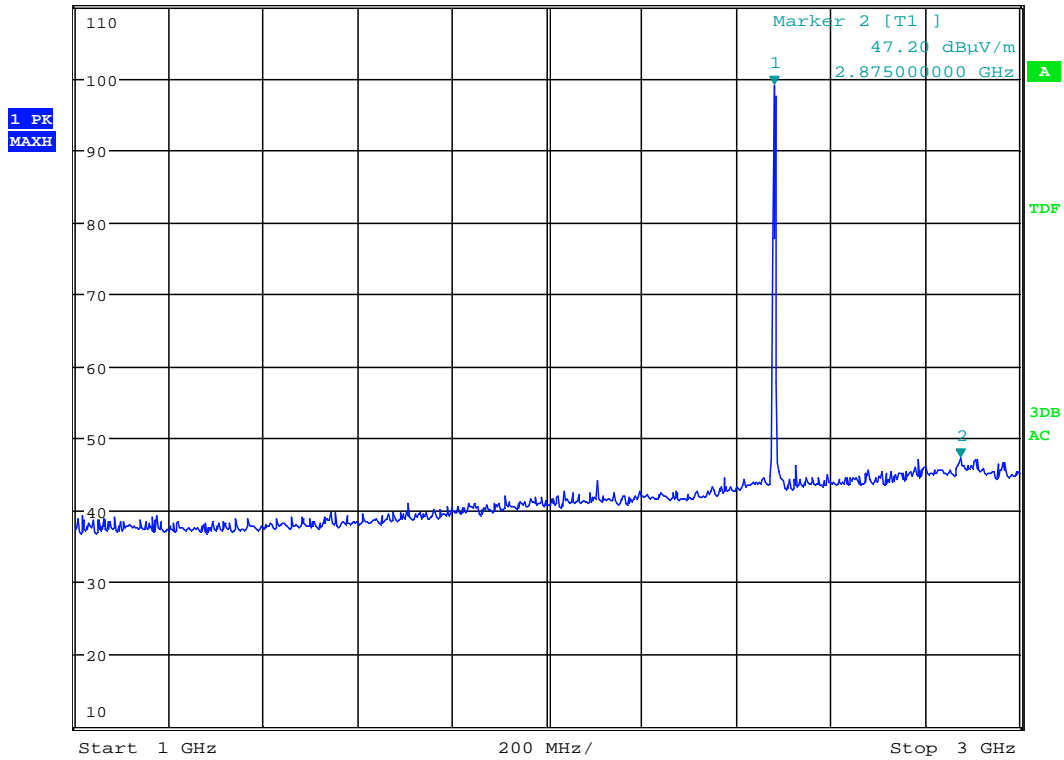


Date: 9.JUL.2013 12:45:12

**Radiated Emissions ch. 2480 MHz, 1 – 3 GHz, VP, @3m – Pre-scan with Peak detector**



\*RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      98.92 dBuV/m  
 Ref 110 dBuV/m      \*Att 10 dB      SWT 5 ms      2.480769231 GHz



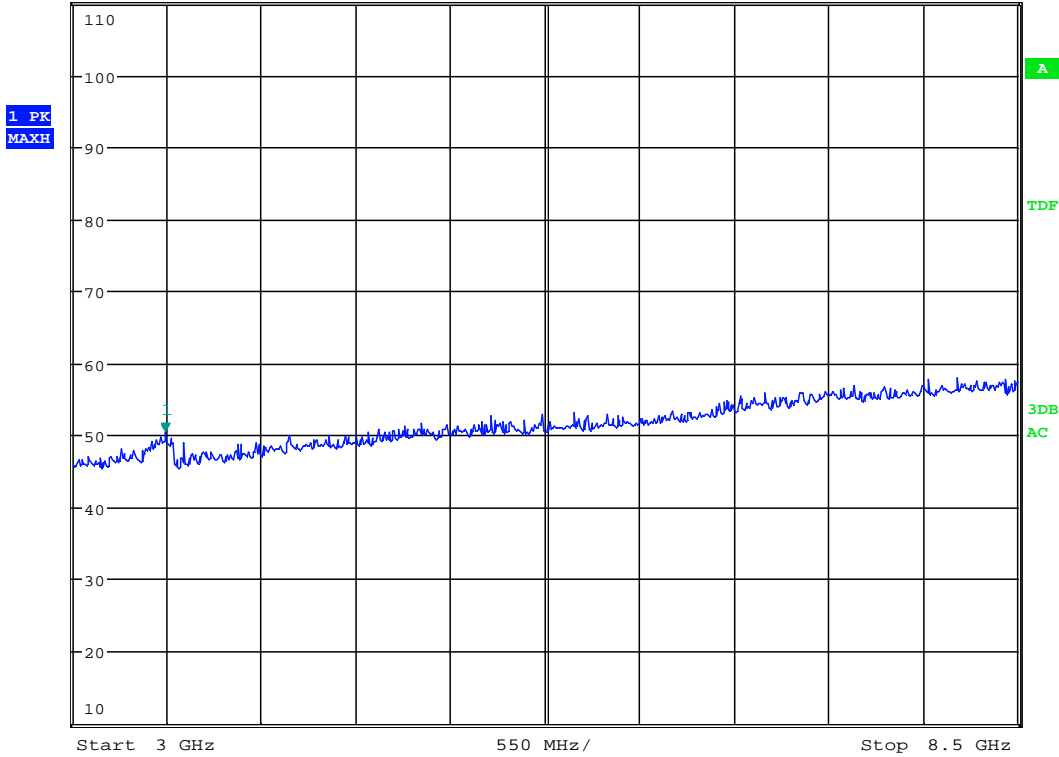
Date: 9.JUL.2013 12:45:35

**Radiated Emissions ch. 2480 MHz, 1 – 3 GHz, HP, @3m – Pre-scan with Peak detector**



\* RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      50.38 dBµV/m  
 SWT 35 ms      3.537660256 GHz

Ref 110 dBµV/m      \* Att 10 dB



Date: 9.JUL.2013 12:56:22

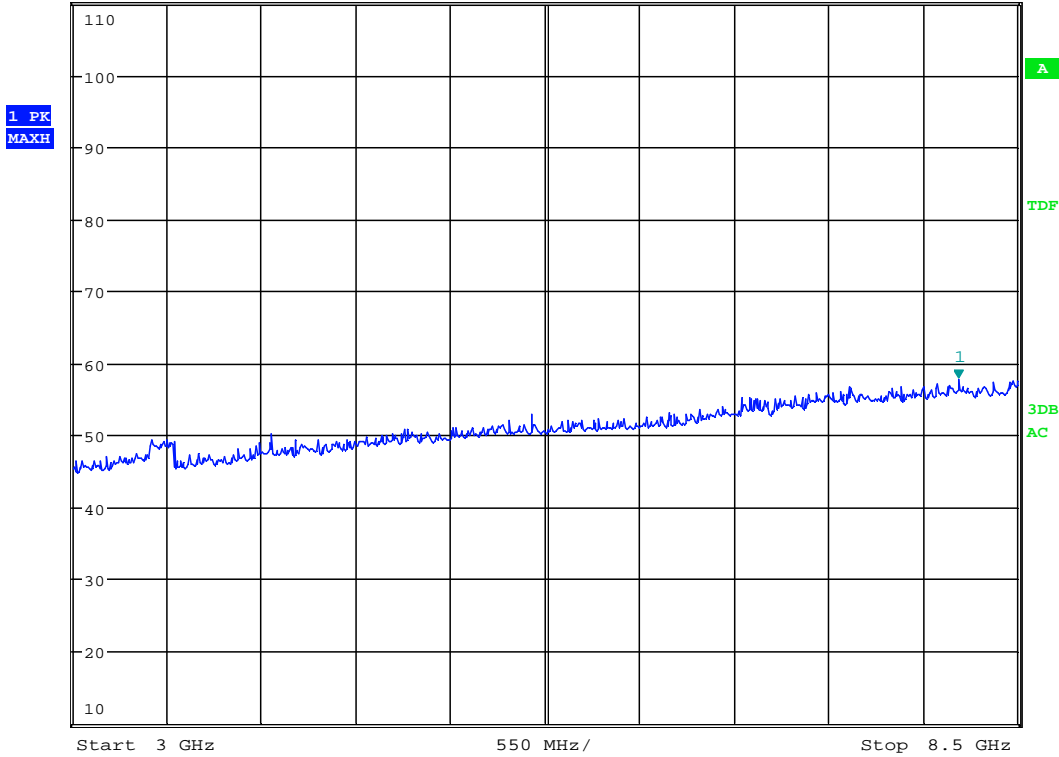
**Radiated Emissions ch. 2405 MHz, 3 – 8.5 GHz, VP, @3m – Pre-scan with Peak detector**





\* RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      57.80 dBµV/m  
 SWT 35 ms      8.156250000 GHz

Ref 110 dBµV/m      \* Att 10 dB

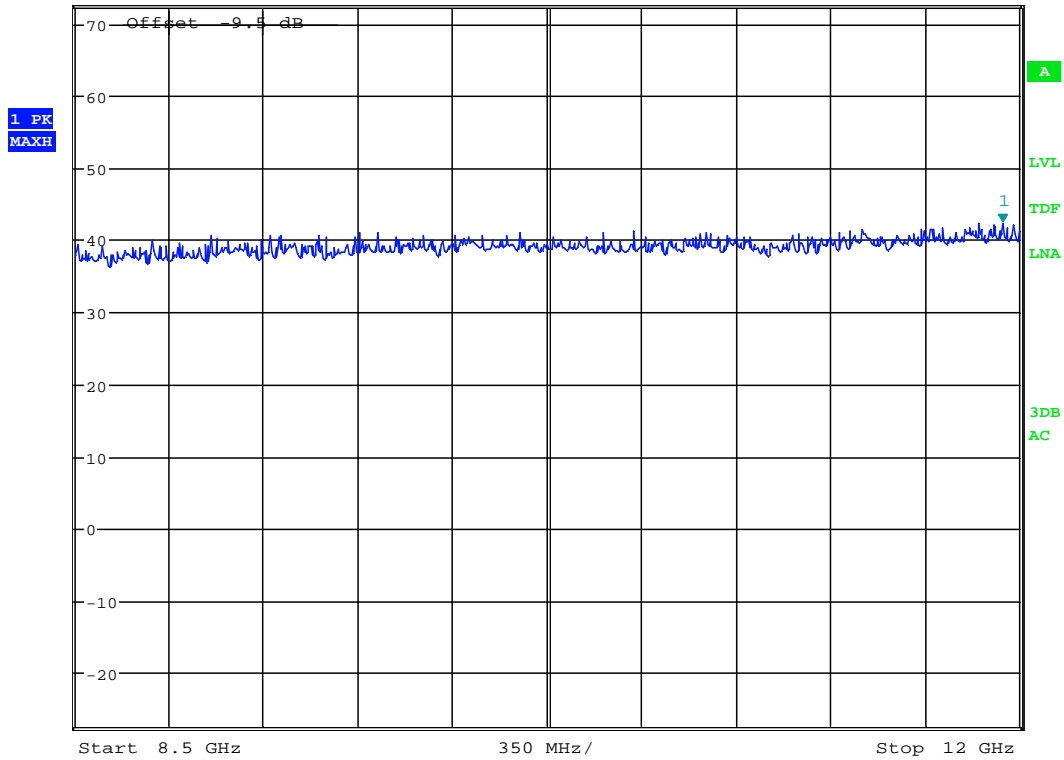


Date: 9.JUL.2013 12:55:12

**Radiated Emissions ch. 2405 MHz, 3 – 8.5 GHz, HP, @3m – Pre-scan with Peak detector**



\*RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      42.26 dBµV  
 Ref 72.5 dBµV    \*Att 10 dB      SWT 25 ms      11.938301282 GHz

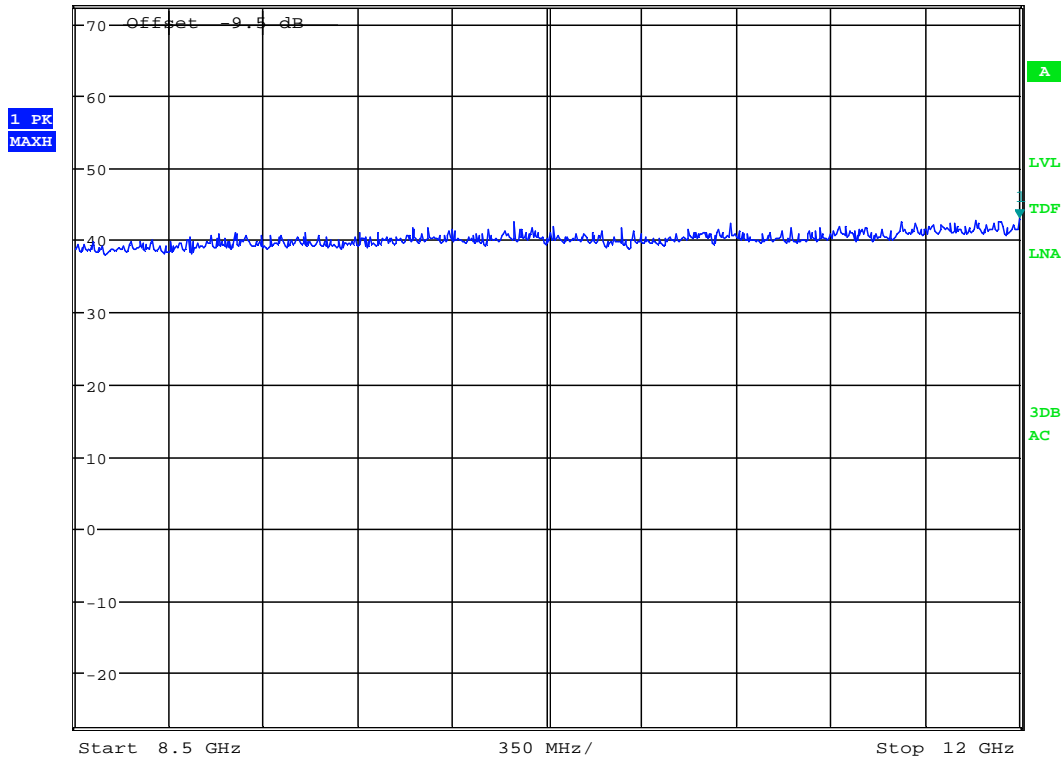


Date: 9.JUL.2013 14:10:06

**Radiated Emissions ch. 2405 MHz, 8.5 – 12 GHz, VP, @1m – Pre-scan with Peak detector , Distance Correction factor of -9.5 dB is included in the graph**



\* RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      43.00 dBµV  
 Ref 72.5 dBµV    \* Att 10 dB      SWT 25 ms      12.000000000 GHz



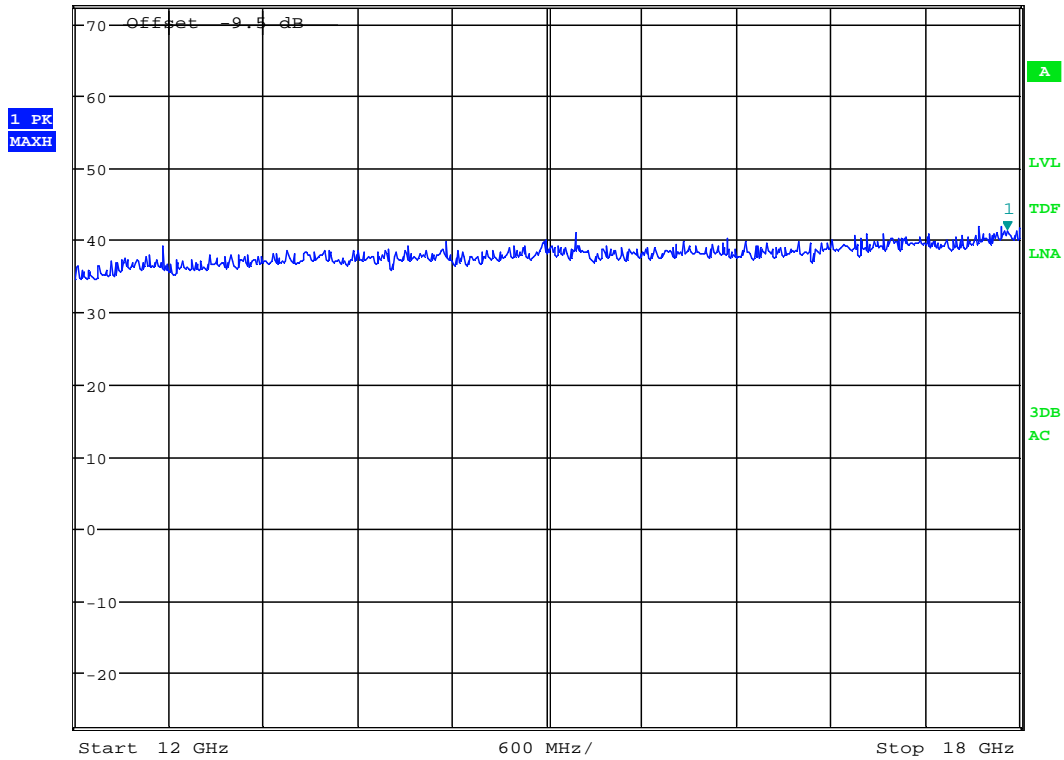
Date: 9.JUL.2013 14:10:45

**Radiated Emissions ch. 2405 MHz, 8.5 – 12 GHz, HP, @1m – Pre-scan with Peak detector , Distance Correction factor of -9.5 dB is included in the graph.**



\*RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      41.24 dBµV/m  
 SWT 35 ms      17.923076923 GHz

Ref 72.5 dBµV/m      \*Att 10 dB      Offset -9.5 dB

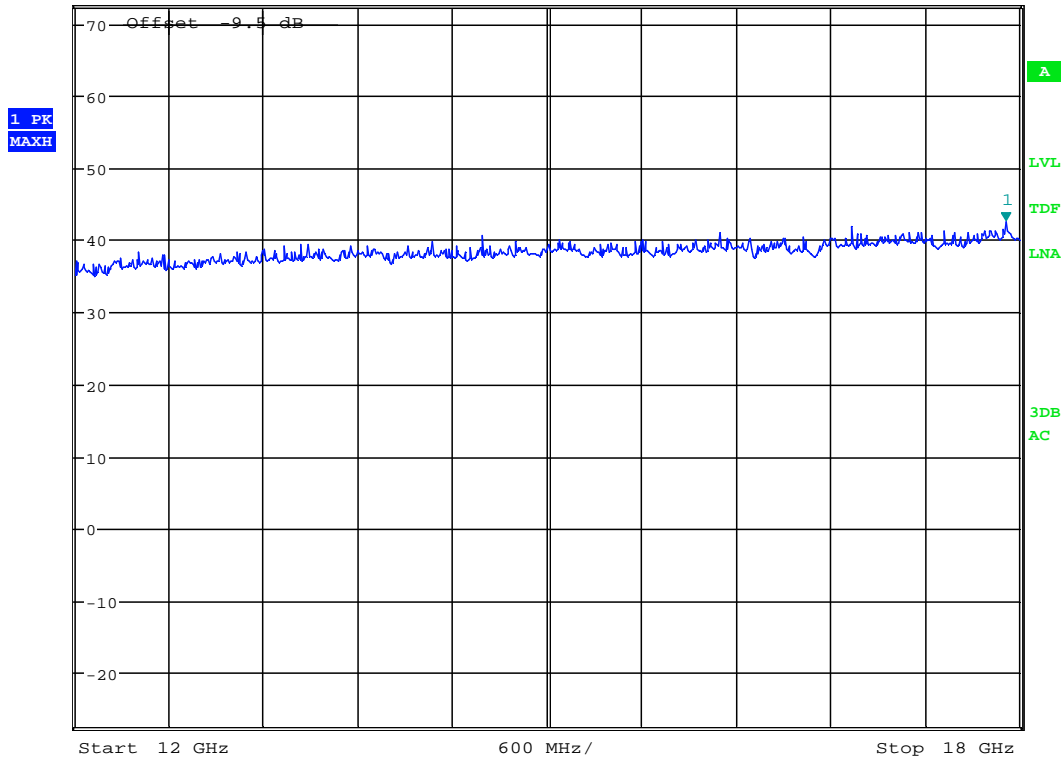


Date: 9.JUL.2013 14:42:42

**Radiated Emissions ch. 2405 MHz, 12 – 18 GHz, VP, @1m – Pre-scan with Peak detector, Distance Correction factor of -9.5 dB is included in the graph.**



\* RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      42.60 dBμV/m  
 Ref 72.5 dBμV/m    \* Att 10 dB    SWT 35 ms      17.913461538 GHz



Date: 9.JUL.2013 14:43:18

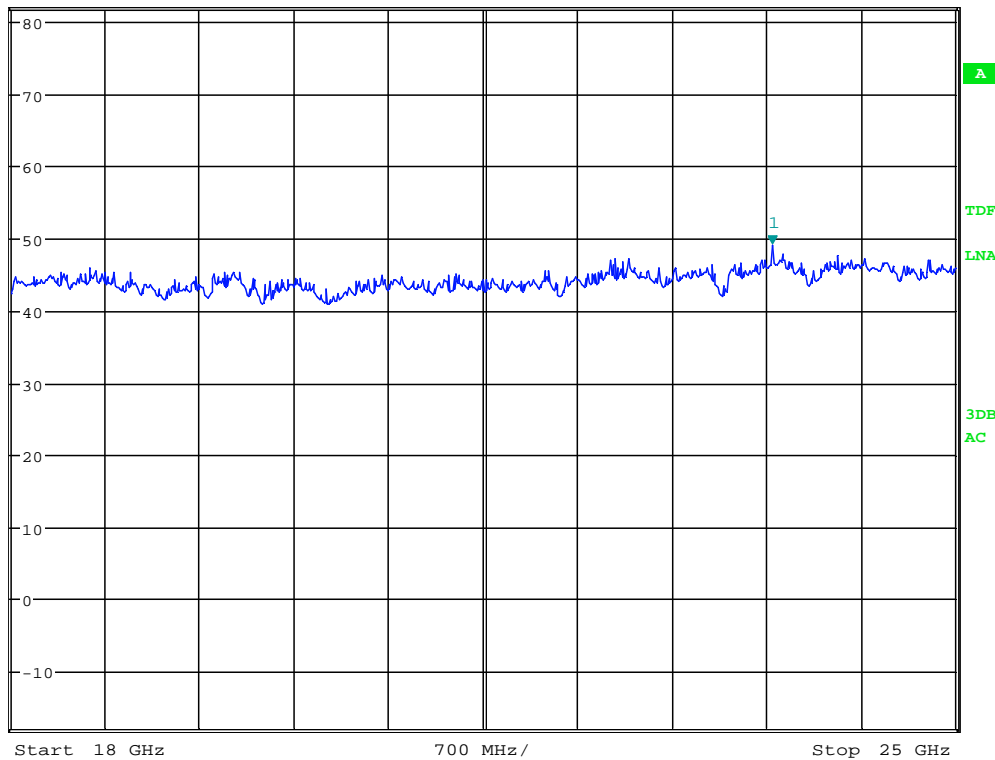
**Radiated Emissions ch. 2405 MHz, 12 – 18 GHz, HP, @1m – Pre-scan with Peak detector, Distance Correction factor of -9.5dB is included in the graph.**



\* RBW 1 MHz      Marker 1 [T1 ]  
 VBW 3 MHz      49.09 dBµV/m  
 SWT 45 ms      23.642628205 GHz

Ref 82 dBµV/m      \* Att 10 dB

1 PK  
 MAXH



Date: 9.JUL.2013 14:45:26

**Radiated Emissions ch. 2405 MHz, 18 – 25 GHz, VP/HP, Pre-scan with Peak detector, Distance Correction factor -9.5dB is not included in the graph.**

**LO leakage emissions detected in receive mode:**

**Peak detector**

Frequency MHz	Channel MHz	Field Strength @3m dB $\mu$ V/m	Detector	Limit dB $\mu$ V/m	Margin dB
4809	2405	50.31	Pk	74	23.69
4879	2440	50.26	Pk	74	23.74
4900	2480	50.44	Pk	74	23.56

**Average detector**

Frequency MHz	Channel MHz	Field Strength @3m dB $\mu$ V/m	Detector	Limit dB $\mu$ V/m	Margin dB
4809	2405	45.24	Av	54	8.76
4879	2440	43.90	Av	54	10.1
4900	2480	43.58	Av	54	10.42

The detected spurious emissions are within the restricted band (4.5 - 5.15 GHz).

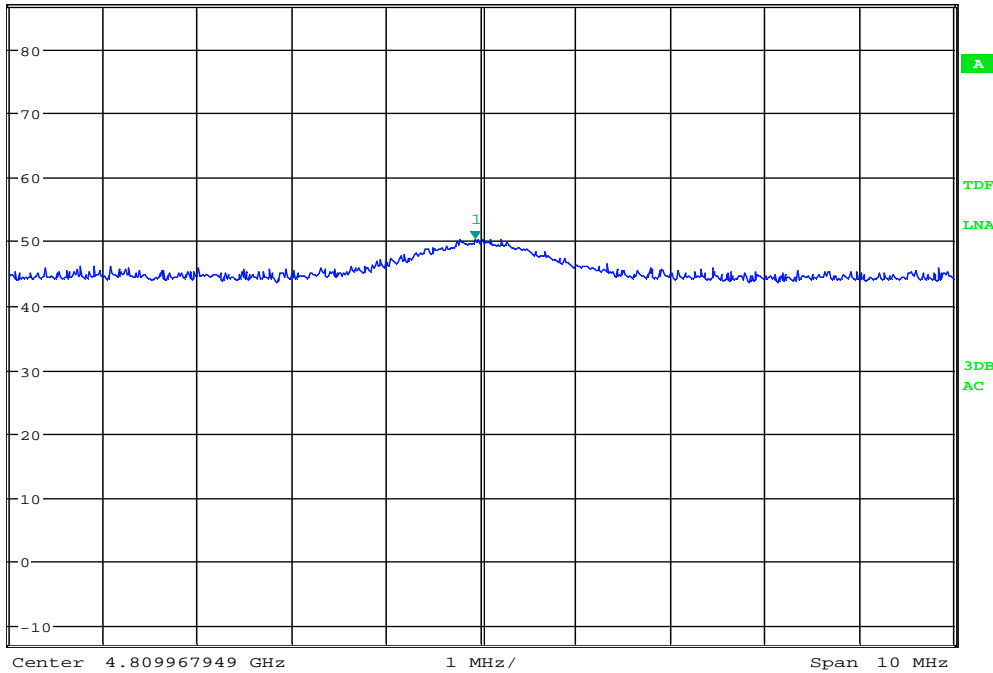
The maximum is detected in Horizontal polarization.

See attached graphs.



Ref 87 dB $\mu$ V/m \* Att 10 dB \* RBW 1 MHz VBW 3 MHz SWT 20 ms Marker 1 [T1 ] 50.31 dB $\mu$ V/m 4.809903846 GHz

1 PK  
MAXH



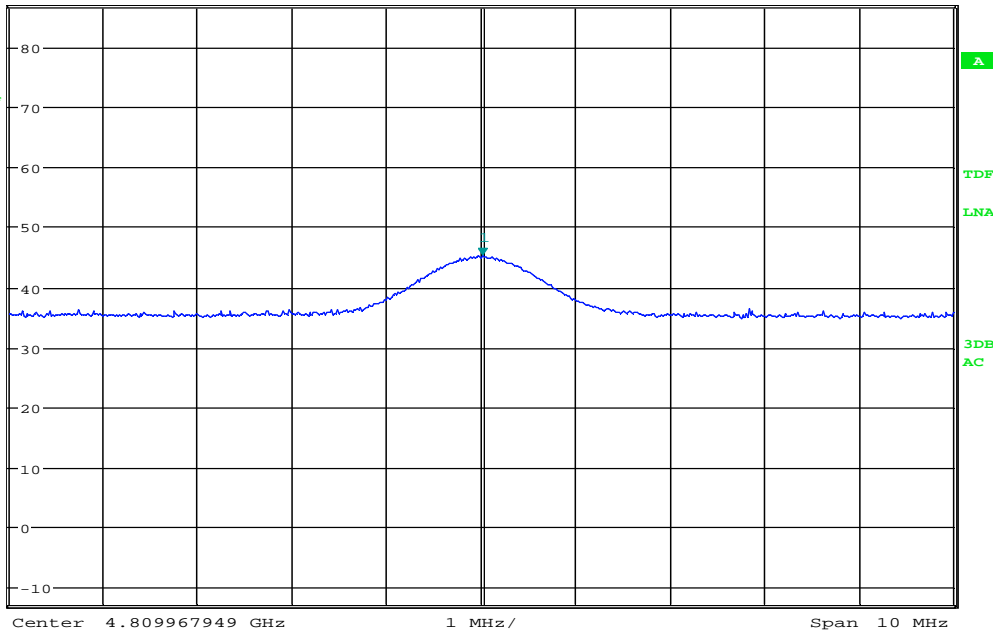
Date: 11.JUL.2013 14:04:43

LO leakage at ch 2405MHz – VP : PK detector



Ref 87 dB $\mu$ V/m \* Att 10 dB \* RBW 1 MHz VBW 10 MHz SWT 20 ms Marker 1 [T1 ] 45.24 dB $\mu$ V/m 4.809983975 GHz

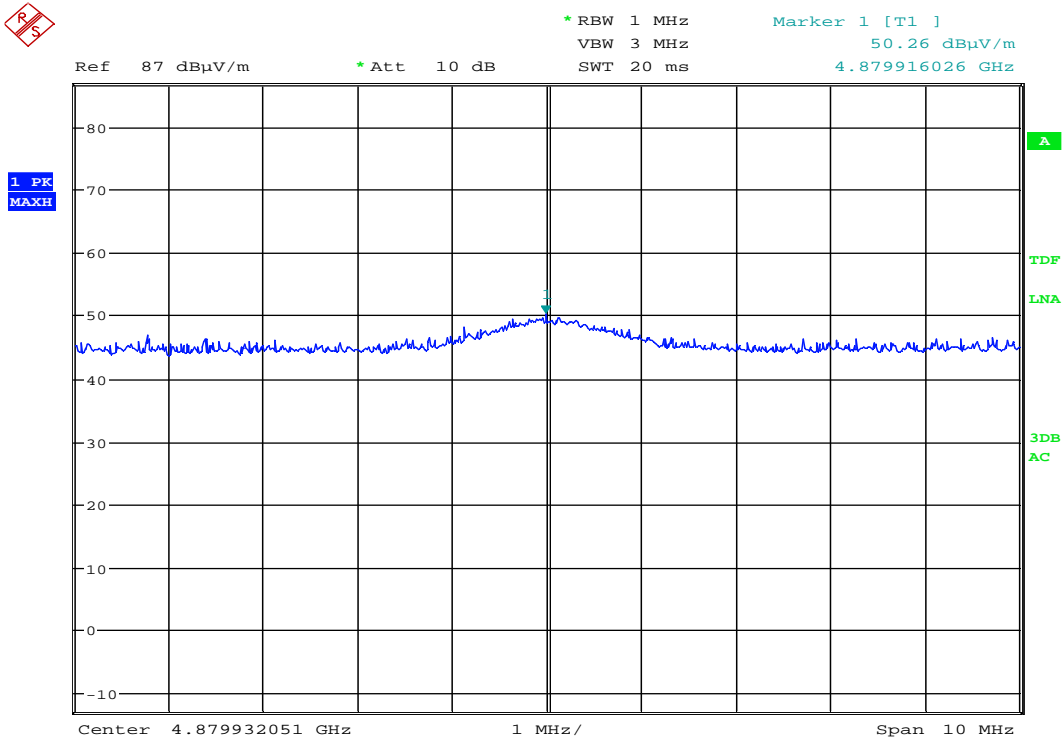
1 RM  
MAXH



Date: 11.JUL.2013 14:05:02

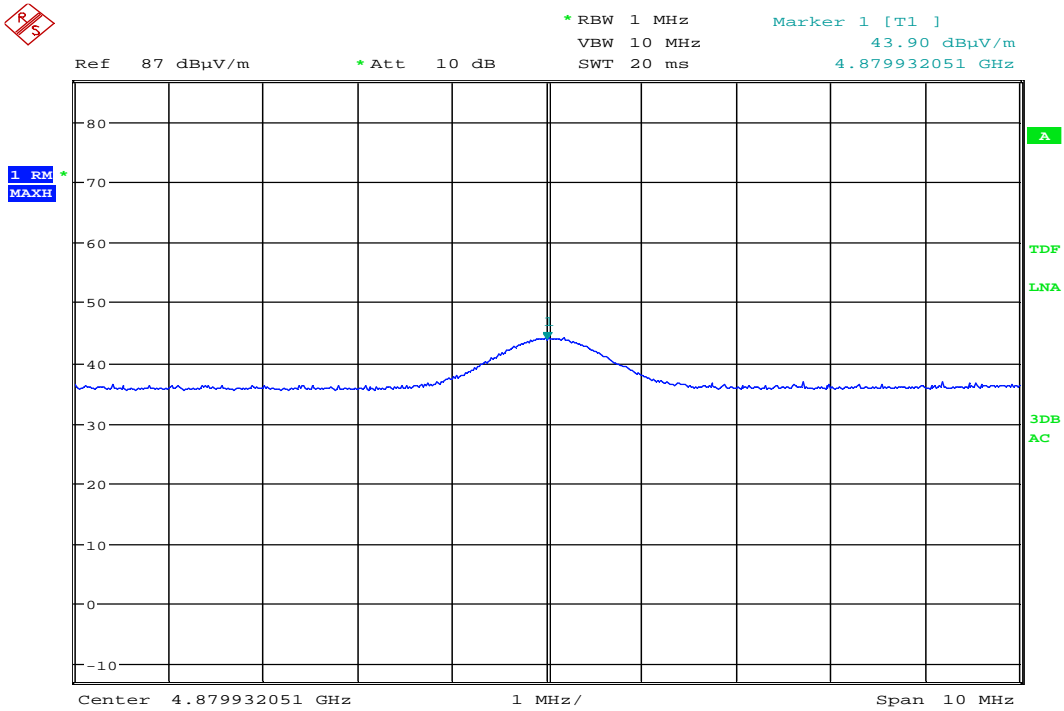


LO leakage at ch 2405MHz – VP : AV detector



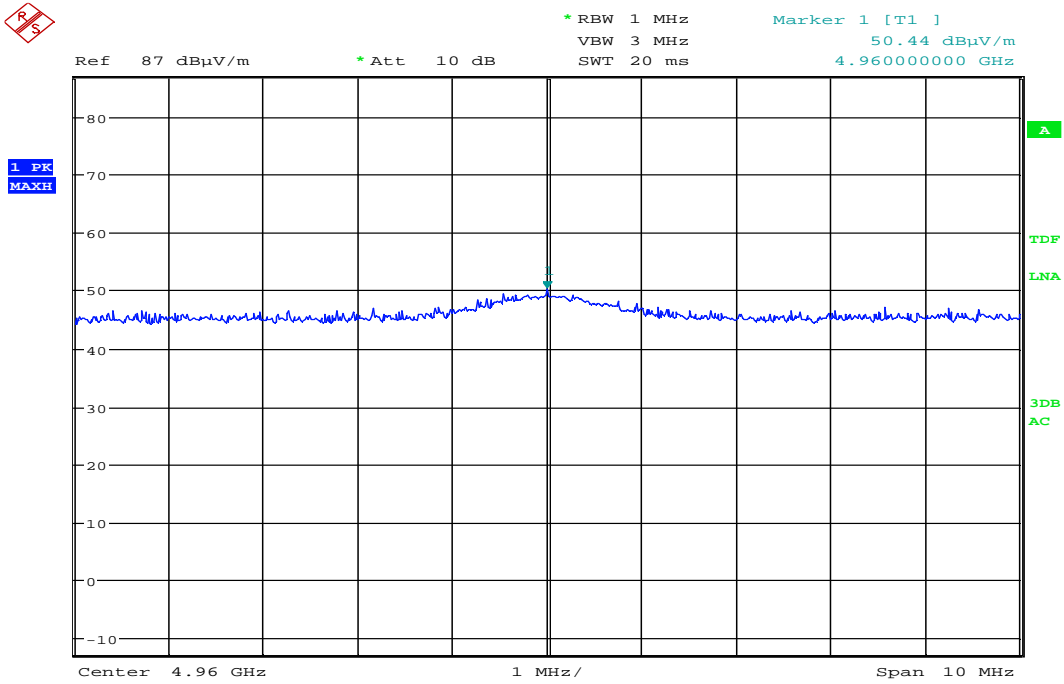
Date: 11.JUL.2013 14:06:48

LO leakage at ch 2440MHz – VP : PK detector



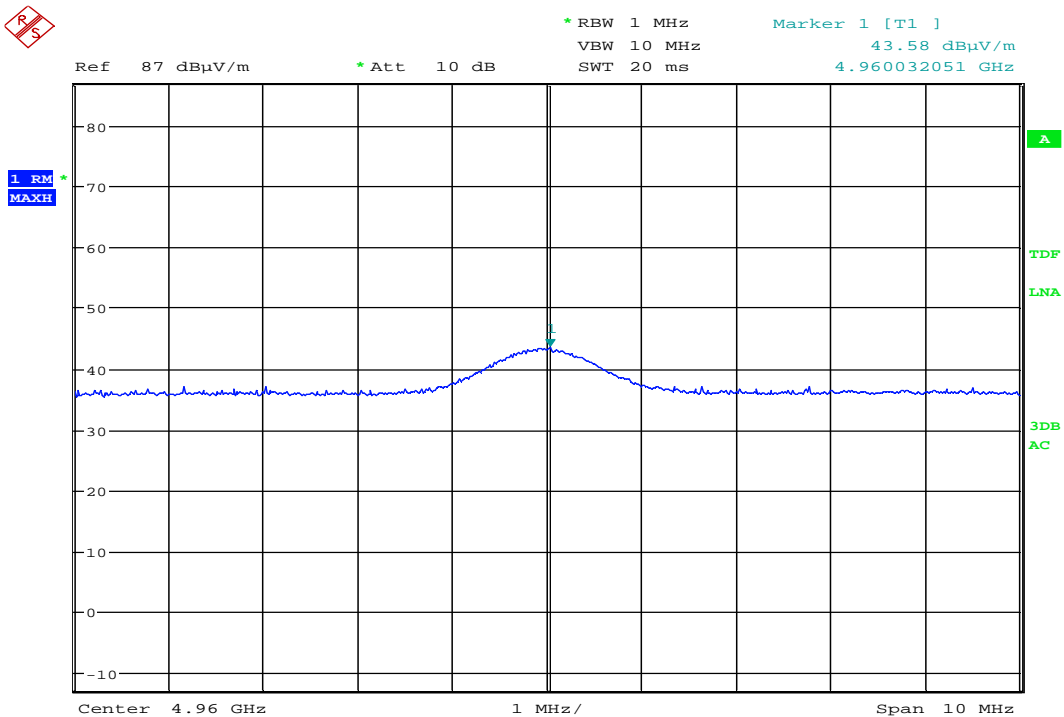
Date: 11.JUL.2013 14:06:24

LO leakage at ch 2440MHz – VP : AV detector



Date: 11.JUL.2013 14:07:51

LO leakage at ch 2480MHz – VP : PK detector



Date: 11.JUL.2013 14:08:07

LO leakage at ch 2480MHz – VP : AV detector



### 3.6 Power Spectral Density (PSD)

Para. No.: 15.247 (e)

Test Performed By: G.Suhanthakumar	Date of Test: 05 july 2013
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Test Results: Complies

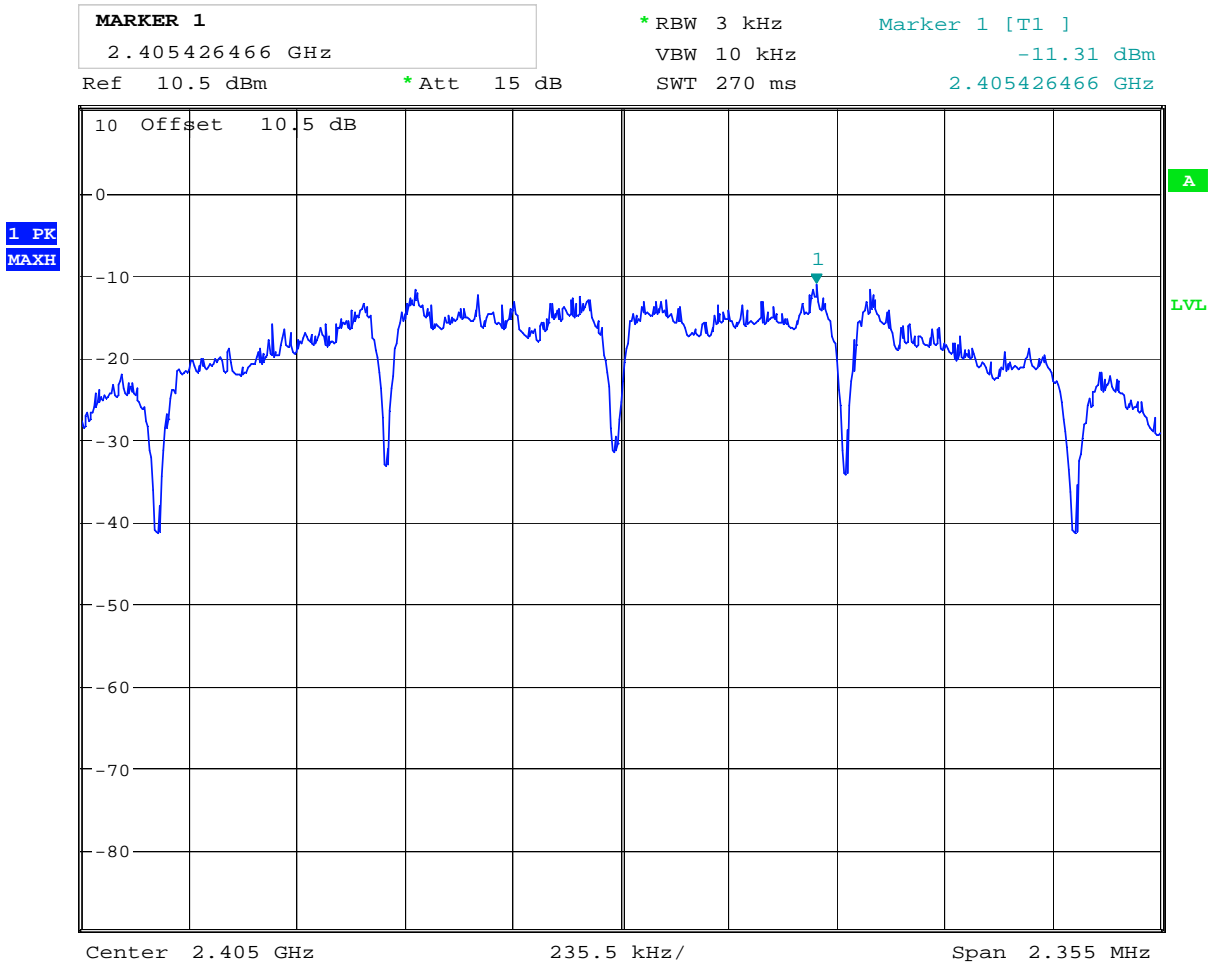
Measured and Calculated Data:

	calculated peak PSD dBm
Power Spectral Density @2405 MHz	-11.31
Power Spectral Density @2440 MHz	-11.73
Power Spectral Density @2480 MHz	-12.75

Tested according to KDB 558074 D01 DTS Meas Guidance v03r01, Section 10.2.

#### Requirements:

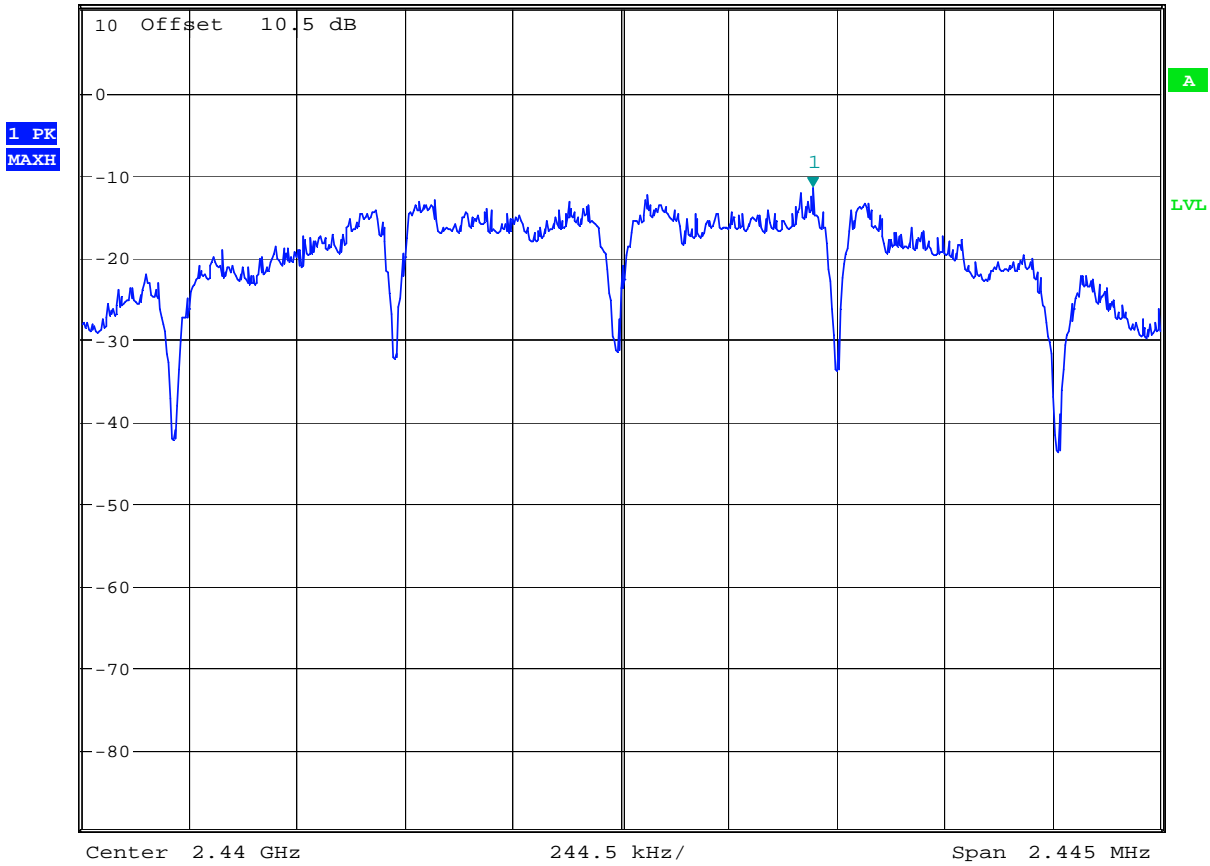
The Power Spectral Density of a Digital Transmission System shall be no greater than +8 dBm in any 3 kHz band.



Date: 5.JUL.2013 14:12:17

**PSD Measurement - 2405MHz**

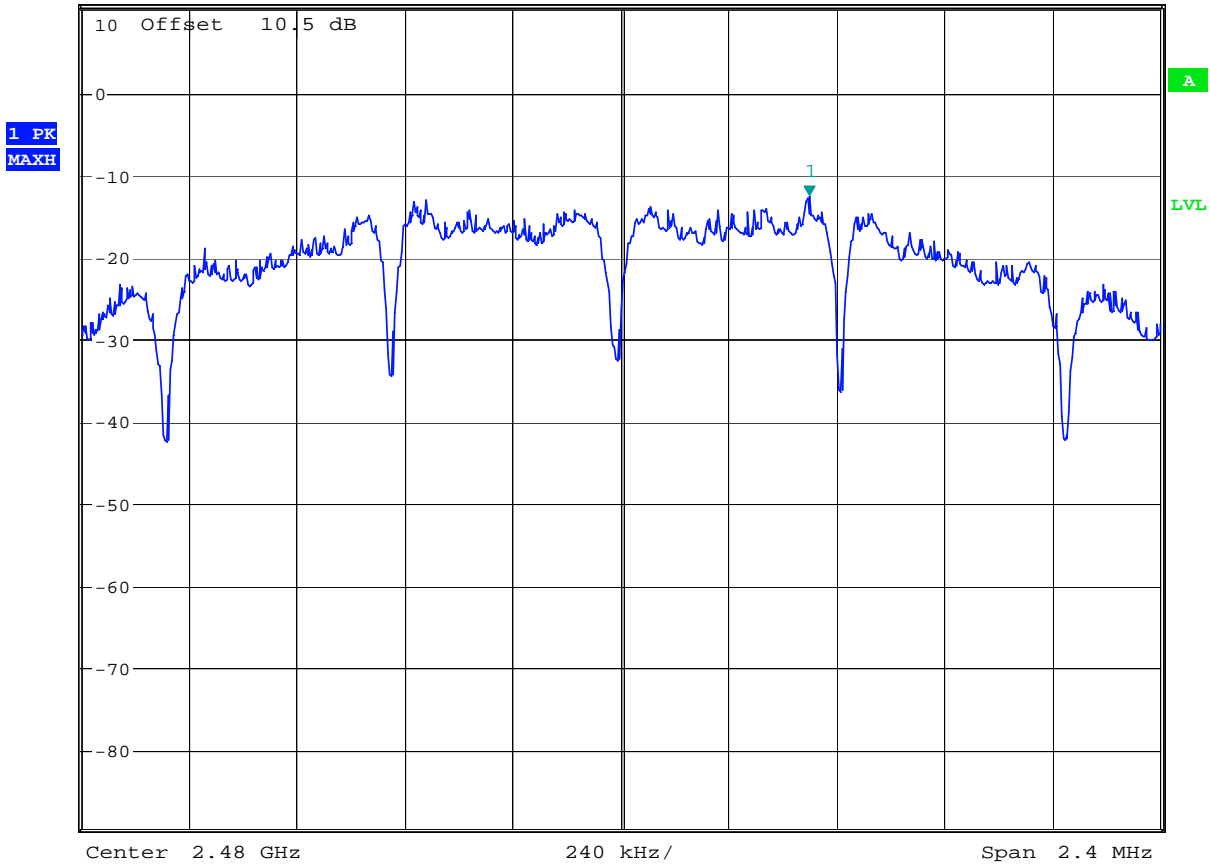
MARKER 1  
2.440434928 GHz  
Ref 10.5 dBm \*Att 15 dB \*RBW 3 kHz VBW 10 kHz SWT 280 ms  
Marker 1 [T1 ]  
-11.73 dBm  
2.440434928 GHz



Date: 5.JUL.2013 14:16:12

PSD Measurement – 2440MHz

MARKER 1  
2.480419231 GHz  
Ref 10.5 dBm \*Att 15 dB \*RBW 3 kHz VBW 10 kHz SWT 270 ms  
Marker 1 [T1 ] -12.75 dBm  
2.480419231 GHz



Date: 5.JUL.2013 14:22:56

**PSD Measurement - 2480MHz**

## 4 LIST OF TEST EQUIPMENT

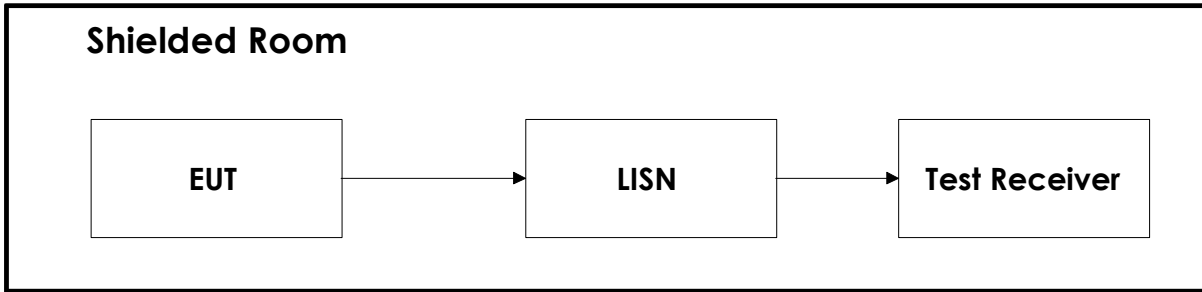
To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the test laboratory.

No.	Instrument/ ancillary	Type of instrument/ ancillary	Manufacturer	Ref. no.	Cal. Date	Cal. Due
1	FSU26	Spectrum Analyzer	Rohde & Schwarz	LR 1504	2011.11.03	2013.11.03
2	ESU40	EMI Receiver	Rohde & Schwarz	LR1639	2013.06	2014.06
3	3115	Antenna horn	EMCO	LR 1330	2010.08.05	2013.08.05
4	643	Antenna horn	Narda	LR 093	2009.01.26	2014.01.26
5	642	Antenna horn	Narda	LR 220	2009.01.26	2014.01.26
6	PM7320X	Antenna horn	Siverts lab	LR 103	2009.01.26	2014.01.26
7	DBF-520-20	Antenna horn	Systron Donner	LR 101	2009.01.26	2014.01.26
8	638	Antenna horn	Narda	LR 098	2010.06.17	2015.06.17
9	VULB 9163	Antenna TriLog	Schwarzbeck	LR1616	2012-08	2013-08
10	8449B	Pre-amplifier	Hewlett Packard	LR 1322	2012-09-27	2013-09-27
11	LNA6900	Pre-amplifier	Teseq	LR 1593	2012-11	2013-11
14	80S	Signal Generator	Powertron	LT 502	Cal b4 use	
15	Model 87 V	Multimeter	Fluke	LR 1598	2012-12-14	2014-12-14
17	6810.17A	10 attenuator	Suhner	LR 1143	2012.09.15	2014.09.15
18	FA210A1010003030	Microwave cable	Rosenberger	LR1566	Cal b4 use	
19	6HC 3000-18000	HP Filter	Trithlic	LR1614	Cal b4 use	
20	6HC 2500-18000	HP Filter	Trithlic	LR1615	Cal b4 use	
21	FSW	Spectrum Analyzer	Rohde & Schwarz	LR1640	2012.06	2014.06



## 5 BLOCK DIAGRAM

### 5.1 Power Line Conducted Emission



### 5.2 Test Site Radiated Emission

