

# FCC Radio Test Report

## FCC ID: RWO-RC30013601

This report concerns (check one): Original Grant Class II Change

**Project No.** : 1506C018  
**Equipment** : GAMING MOUSE  
**Model Name** : RC30-013601  
**Applicant** : Razer Inc.  
**Address** : 9 Pasteur, Suite 100 Irvine, California 92618, United States

**Date of Receipt** : Jun. 02, 2015  
**Date of Test** : Jun. 02, 2015 ~ Jun. 26, 2015  
**Issued Date** : Jun. 29, 2015  
**Tested by** : BTL Inc.

**Testing Engineer** : David Mao  
(David Mao)

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(Leo Hung)

**Authorized Signatory** : Steven Lu  
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# **B T L I N C .**

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### **Declaration**

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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### **Limitation**

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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### REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1506C018	Original Issue.	Jun. 29, 2015

## 1. CERTIFICATION

Equipment : GAMING MOUSE  
Brand Name : RAZER  
Model Name : RC30-013601  
Applicant : Razer Inc.  
Manufacturer : Razer (Asia-Pacific) Pte Ltd  
Address : 9 Pasteur, Suite 100 Irvine, California 92618, United States  
Factory : RAZER TECHNOLOGY AND DEVELOPMENT (SHENZHEN) CO., LTD  
Address : East Wing, 3rd Floor, Block 2, Phase 1 of Vision Shenzhen Business Park  
Keji South Road, Hi-Tech Industrial Park, Shenzhen 518057, China  
Date of Test : Jun. 02, 2015 ~ Jun. 26, 2015  
Test Sample : Engineering Sample  
Standard(s) : FCC Part15, Subpart C :2014 (15.249)/ ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc..

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1506C018) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.249)			
Standard Section	Test Item	Judgment	Remark
FCC			
15.207(a)	Conducted Emission	PASS	
15.205	Restricted Band of Operation	PASS	
15.209 15.249(a)	Radiated Emissions	PASS	
15.215(c)	20dB Bandwidth Test	PASS	

**NOTE:**

(1) "N/A" denotes test is not applicable to this device.

## 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.  
BTL's test firm number for FCC: 319330

## 2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2  $U_{\text{CISPR}}$  requirement.

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

### A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U,(dB)	Note
DG-C02	CISPR	150 KHz~30MHz	2.32	

### B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)	Note
DG-CB03	CISPR	9KHz~30MHz	V	3.79	
		9KHz~30MHz	H	3.57	
		30MHz~200MHz	V	3.82	
		30MHz~200MHz	H	3.60	
		200MHz~ 1,000MHz	V	3.86	
		200MHz~ 1,000MHz	H	3.94	
		1GHz~18GHz	V	3.12	
		1GHz~18GHz	H	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	H	4.14	

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

Equipment	GAMING MOUSE	
Brand Name	RAZER	
Model Name	RC30-013601	
Model Difference	N/A	
Product Description	Operation Frequency	2402~2480 MHz
	Modulation Technology	GFSK(1Mbps)
	Data rate	
	Field Strength	83.35dBuV/m(Peak Max) 76.27dBuV/m(AVG Max)
Power Source	#1 Supplied from USB port. #2 Battery supplied. Brand / Model: Grand-Pro / PL993742	
Power Rating	#1 DC 5V 500mA #2 DC 3.7V 1800mAh 6.66Wh	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	<b>2402</b>	28	2429	55	2456
02	2403	29	2430	56	2457
03	2404	30	2431	57	2458
04	2405	31	2432	58	2459
05	2406	32	2433	59	2460
06	2407	33	2434	60	2461
07	2408	34	2435	61	2462
08	2409	35	2436	62	2463
09	2410	36	2437	63	2464
10	2411	37	2438	64	2465
11	2412	38	2439	65	2466
12	2413	39	2440	66	2467
13	2414	40	<b>2441</b>	67	2468
14	2415	41	2442	68	2469
15	2416	42	2443	69	2470
16	2417	43	2444	70	2471
17	2418	44	2445	71	2472
18	2419	45	2446	72	2473
19	2420	46	2447	73	2474
20	2421	47	2448	74	2475
21	2422	48	2449	75	2476
22	2423	49	2450	76	2477
23	2424	50	2451	77	2478
24	2425	51	2452	78	2479
25	2426	52	2453	79	<b>2480</b>
26	2427	53	2454		
27	2428	54	2455		

3 Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	TDK	ANT016008LCS 2442MA2	Chip	N/A	2.5	

### 3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX Mode (Note (1))

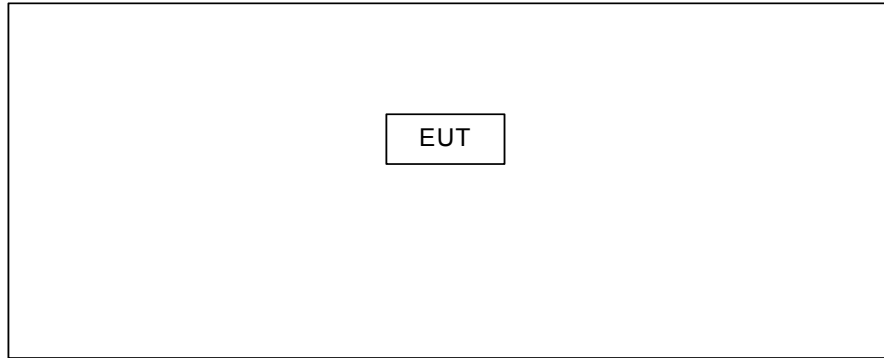
For Conducted Test	
Final Test Mode	Description
Mode 1	TX Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	TX Mode (Note (1))

**Note:**

(1) The measurements are performed at the high, middle, low available channels.

### 3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
-	-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	-

## 4. EMC EMISSION TEST

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 POWER LINE CONDUCTED EMISSION (FREQUENCY RANGE 150KHZ-30MHZ)

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15 -0.5	66 to 56*	56 to 46*
0.50 -5.0	56	46
5.0 -30.0	60	50

Note:

- (1) The limit of " \* " decreases with the logarithm of the frequency
- (2) The test result calculated as following:  
 Measurement Value = Reading Level + Correct Factor  
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)  
 Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

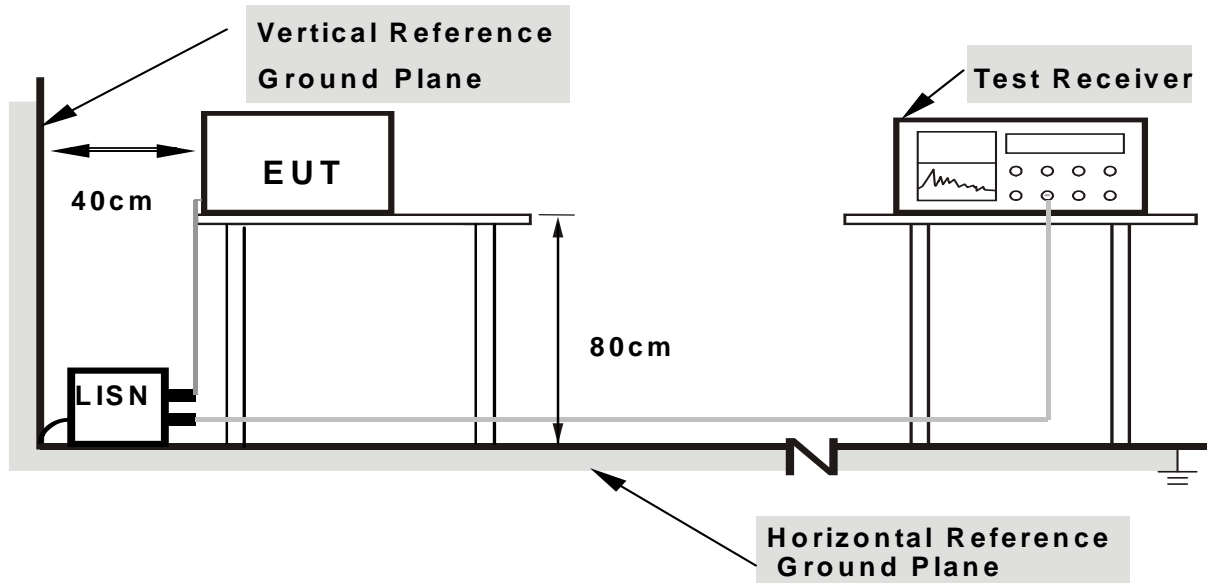
#### 4.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 4.1.3 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.4 TEST SETUP



**Note: 1.** Support units were connected to second LISN.

**2.** Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

#### 4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it).

#### 4.1.6 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: AC 120V/60Hz

#### 4.1.7 TEST RESULTS

Please refer to the Attachment A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of 'Note'. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a "\*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.

## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 RADIATED EMISSION LIMITS (FCC 15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2402/F(KHz)	300
0.490~1.705	24020/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m)=20log Emission level (uV/m).

### LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.209)

FREQUENCY (MHz)	(dBuV/m) (at 3m)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

### LIMITS OF RADIATED EMISSION MEASUREMENT (FCC Part 15.249)

FCC Part15 (15.249), Subpart C	
Limit	Frequency Range(MHz)
Field strength of fundamental 50000 $\mu$ V/m (94 dB $\mu$ V/m) @ 3 m	2402-2483.5
Field strength of harmonics 500 $\mu$ V/m (54 dB $\mu$ V/m) @ 3 m	Above 2483.5

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz for PK/AVG detector
Start ~ Stop Frequency	90kHz~110kHz for QP detector
Start ~ Stop Frequency	110kHz~490kHz for PK/AVG detector
Start ~ Stop Frequency	490kHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

#### 4.2.2 TESTPROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 or 1.5 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then AV detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

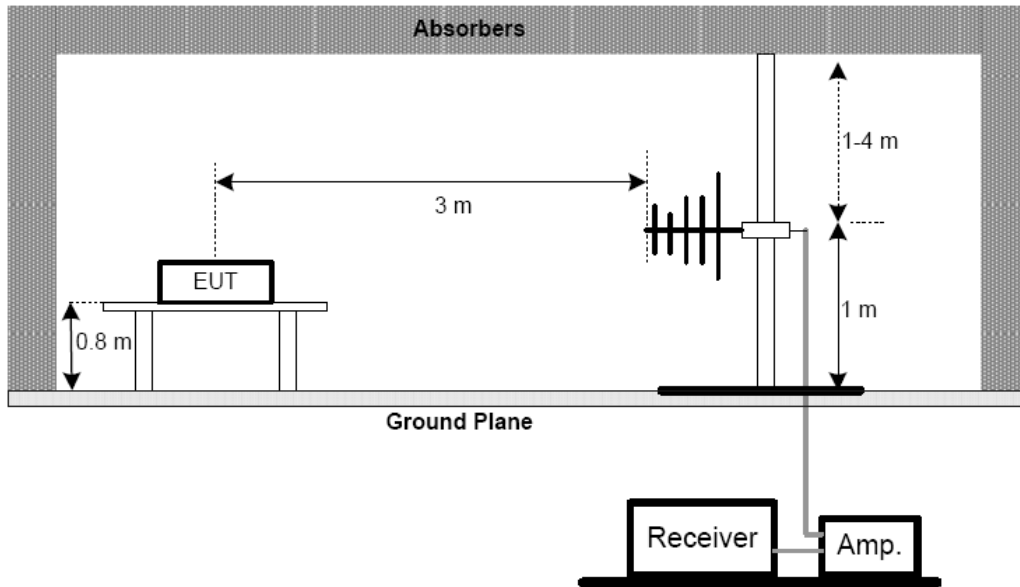
#### 4.2.3 DEVIATION FROM TEST STANDARD

No deviation

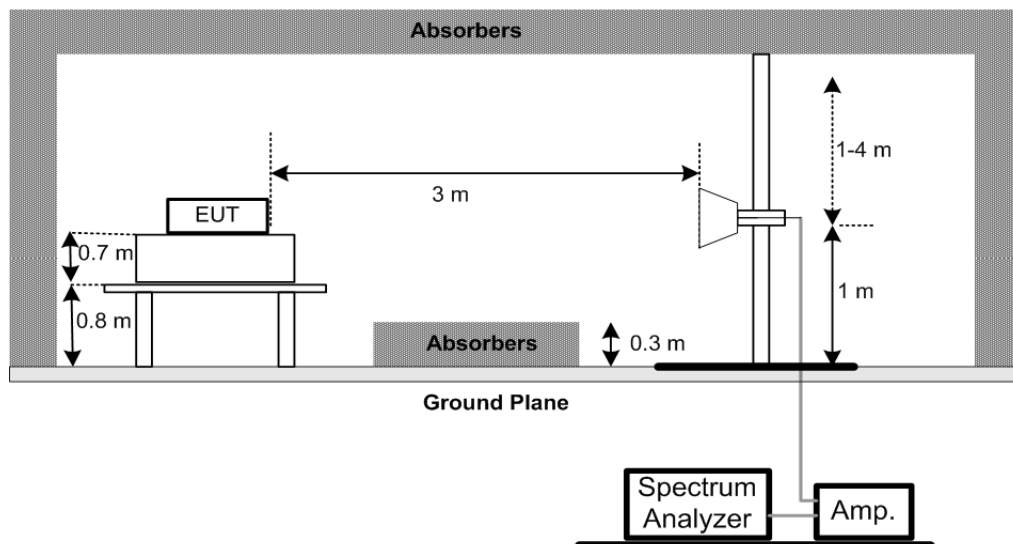


#### 4.2.4 TESTSETUP

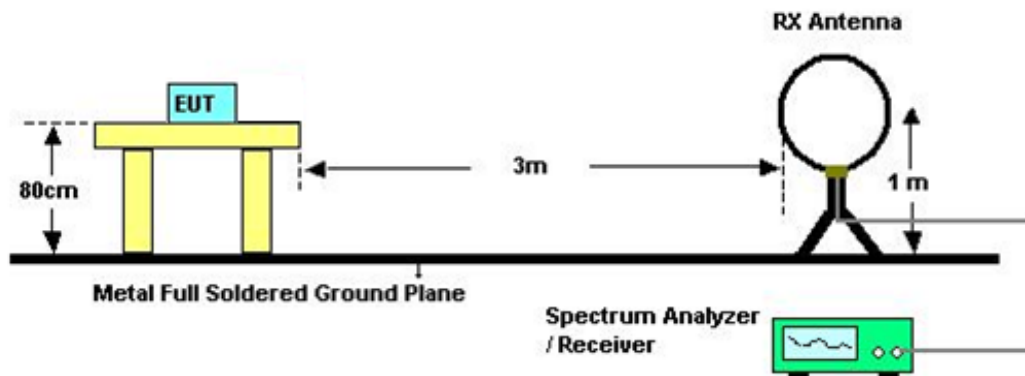
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For radiated emissions below 30MHz



#### 4.2.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 4.2.6 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: DC 3.7V

#### 4.2.7 TEST RESULTS (9KHZ 30MHZ)

Please refer to the Attachment B.

Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (dB);.
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor..

#### 4.2.8 TEST RESULTS (30MHZ to 1000 MHZ)

Please refer to the Attachment C

Remark:

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission .

#### 4.2.9 TEST RESULTS (ABOVE1000 MHZ)

Please refer to the Attachment D

Remark:

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (3) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (5) EUT Orthogonal Axis:  
“X” - denotes Laid on Table; “Y” - denotes Vertical Stand; “Z” - denotes Side Stand
- (6) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (7) No limit: This is fundamental signal, the judgment is not applicable.  
For fundamental signal judgment was referred to Peak output test.

## 5. BANDWIDTH TEST

### 5.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

### 5.2 DEVIATION FROM STANDARD

No deviation.

### 5.3 TEST SETUP



### 5.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 5.5 EUT TEST CONDITIONS

Temperature: 25°C  
Relative Humidity: 55%  
Test Voltage: DC 3.7V

### 5.6 TEST RESULTS

Please refer to the Attachment E

## 6. MEASUREMENT INSTRUMENTS LIST AND SETTING

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	Mar. 28, 2016
2	LISN	R&S	ENV216	101447	Mar. 28, 2016
3	Test Cable	N/A	C_17	N/A	Mar. 13, 2016
4	EMI TEST RECEIVER	R&S	ESCS30	833364/017	Mar. 28, 2016
5	50Ω Terminator	SHX	TF2-3G-A	08122902	Mar. 28, 2016
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 28, 2016
2	Amplifier	HP	8447D	2944A09673	Nov. 17, 2015
3	Receiver	AGILENT	N9038A	MY52130039	Sep. 30, 2015
4	Test Cable	N/A	C-01_CB03	N/A	Jul. 01, 2015
5	Controller	CT	SC100	N/A	N/A
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
7	Antenna	ETS	3115	00075789	Mar. 28, 2016
8	Amplifier	Agilent	8449B	3008A02274	Nov. 02, 2015
9	Receiver	AGILENT	N9038A	MY52130039	Sep. 30, 2015
10	Test Cable	N/A	C-68	N/A	Jul. 01, 2015
11	Controller	CT	SC100	N/A	N/A
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Mar. 28, 2016
13	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Aug. 16, 2015

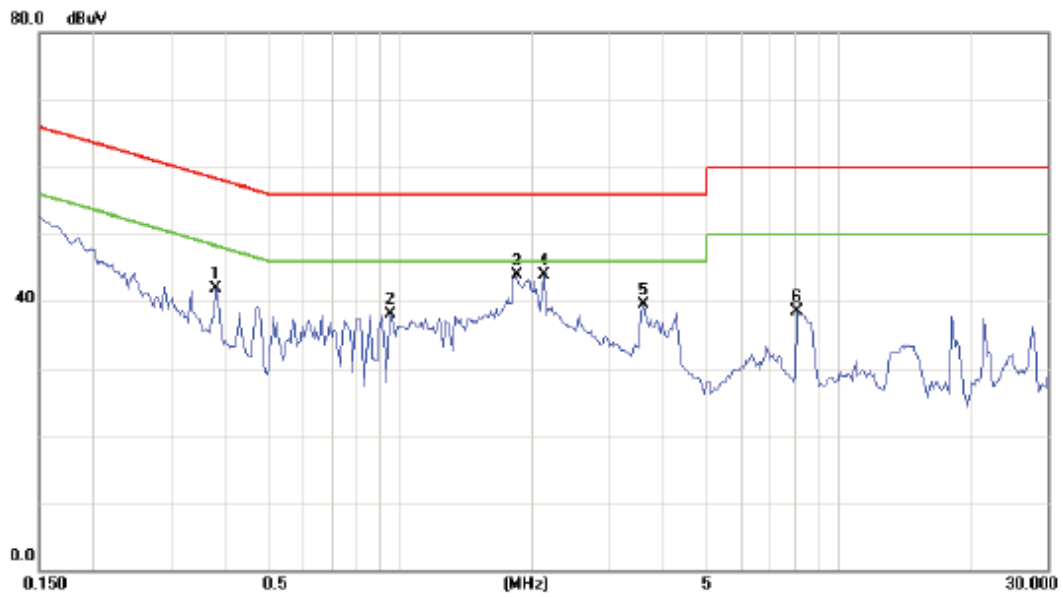
Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 02, 2015

Remark: "N/A" denotes no model name, serial no. or calibration specified.  
All calibration period of equipment list is one year.

## ATTACHMENT A - CONDUCTED EMISSION

Test Mode: TX Mode

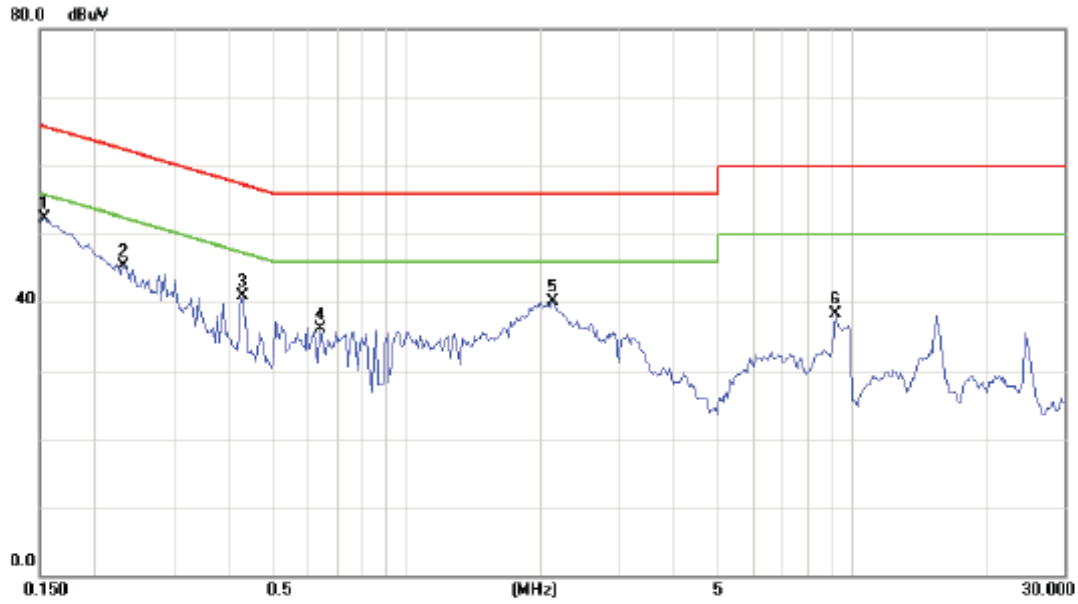
### Line



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.3805	32.28	9.67	41.95	58.27	-16.32	peak	
2	0.9547	28.36	9.79	38.15	56.00	-17.85	peak	
3 *	1.8531	33.99	9.90	43.89	56.00	-12.11	peak	
4	2.1265	33.92	9.94	43.86	56.00	-12.14	peak	
5	3.6016	29.51	9.99	39.50	56.00	-16.50	peak	
6	8.0586	28.53	9.91	38.44	60.00	-21.56	peak	

Test Mode: TX Mode

### Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.1540	42.77	9.49	52.26	65.78	-13.52	peak	
2		0.2320	35.88	9.51	45.39	62.38	-16.99	peak	
3		0.4273	31.46	9.54	41.00	57.31	-16.31	peak	
4		0.6422	26.58	9.55	36.13	56.00	-19.87	peak	
5		2.1227	30.35	9.73	40.08	56.00	-15.92	peak	
6		9.1563	28.53	9.85	38.38	60.00	-21.62	peak	



**ATTACHMENT B -RADIATED EMISSION (9KHZ to 30MHZ)**

Test Mode:	TX Mode
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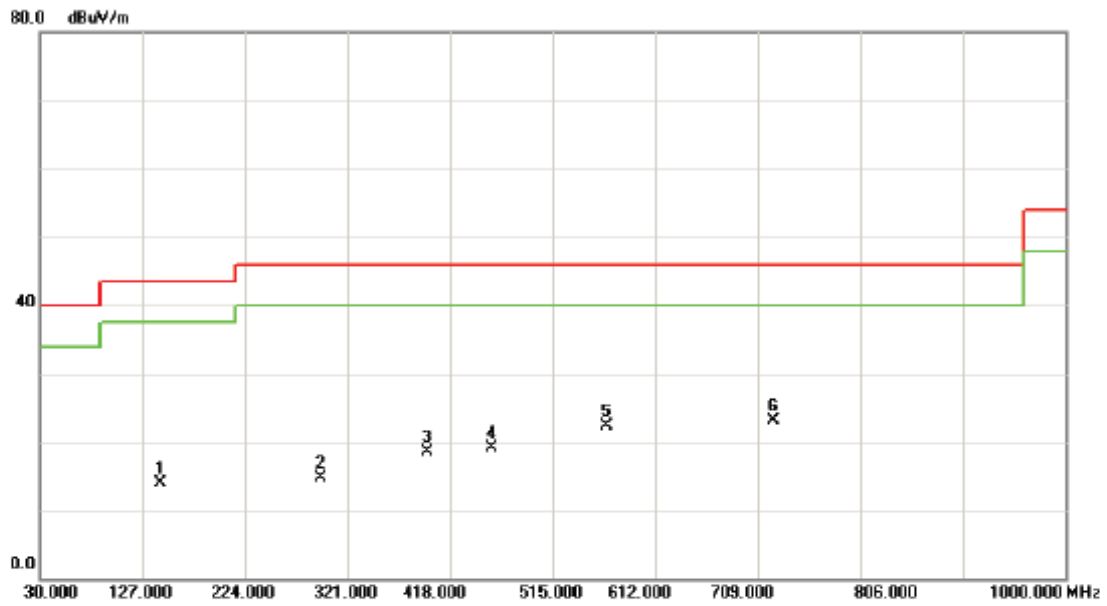
Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
0.0146	0°	14.16	24.64	38.80	104.32	-65.52	AVG
0.0146	0°	15.03	24.64	39.67	124.32	-84.65	PEAK
0.0293	0°	8.50	23.71	32.21	98.27	-66.06	AVG
0.0293	0°	9.41	23.71	33.12	118.27	-85.15	PEAK
0.0353	0°	4.85	23.33	28.18	96.65	-68.47	AVG
0.0353	0°	5.65	23.33	28.98	116.65	-87.67	PEAK
0.0382	0°	2.54	23.15	25.69	95.96	-70.28	AVG
0.0382	0°	3.81	23.15	26.96	115.96	-89.01	PEAK
2.0471	0°	27.64	19.47	47.11	69.54	-22.43	QP
3.3056	0°	22.38	18.93	41.31	69.54	-28.23	QP

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
0.0141	90°	13.05	24.30	37.35	124.62	-87.27	AVG
0.0141	90°	14.85	24.30	39.15	144.62	-105.47	PEAK
0.0367	90°	7.96	23.24	31.20	116.31	-85.11	AVG
0.0367	90°	9.11	23.24	32.35	136.31	-103.96	PEAK
0.0482	90°	5.62	22.51	28.13	113.94	-85.81	AVG
0.0482	90°	6.95	22.51	29.46	133.94	-104.48	PEAK
0.0519	90°	3.92	22.36	26.28	113.31	-87.02	AVG
0.0519	90°	5.91	22.36	28.27	133.31	-105.03	PEAK
2.9528	90°	29.98	18.93	48.91	69.54	-20.63	QP
4.9217	90°	21.91	18.26	40.17	69.54	-29.37	QP

**ATTACHMENT C -RADIATED EMISSION (30MHZ TO 1000MHZ)**

Test Mode: TX Low Channel

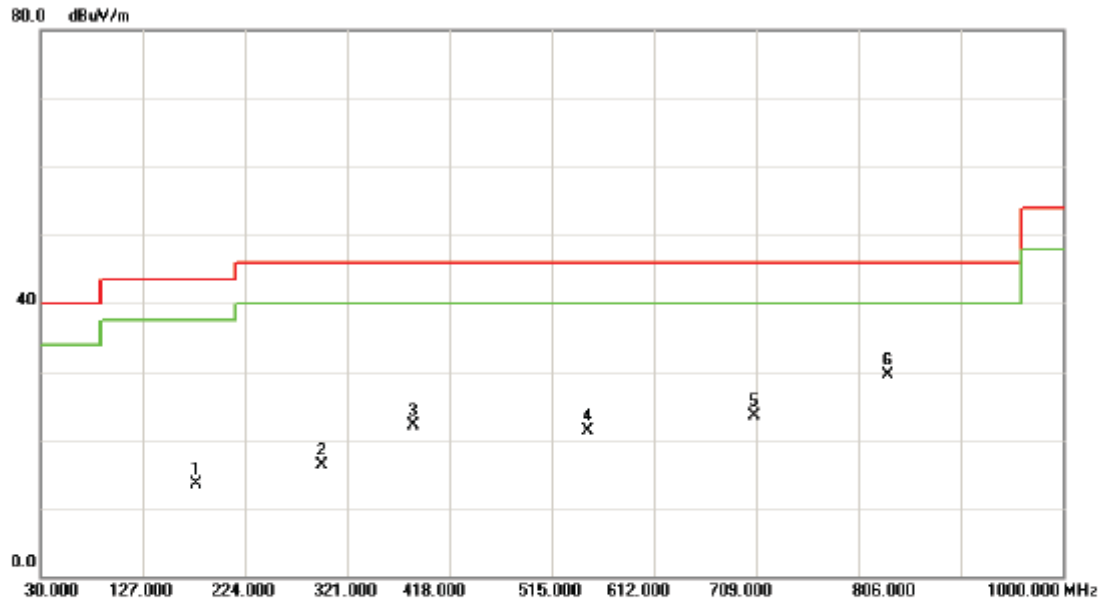
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		144.4600	27.54	-13.60	13.94	43.50	-29.56	peak	
2		295.7800	25.45	-10.71	14.74	46.00	-31.26	peak	
3		396.6600	27.96	-9.45	18.51	46.00	-27.49	peak	
4		457.7700	27.55	-8.35	19.20	46.00	-26.80	peak	
5		566.4100	28.36	-6.03	22.33	46.00	-23.67	peak	
6	*	723.5500	27.46	-4.39	23.07	46.00	-22.93	peak	

Test Mode: TX Low Channel

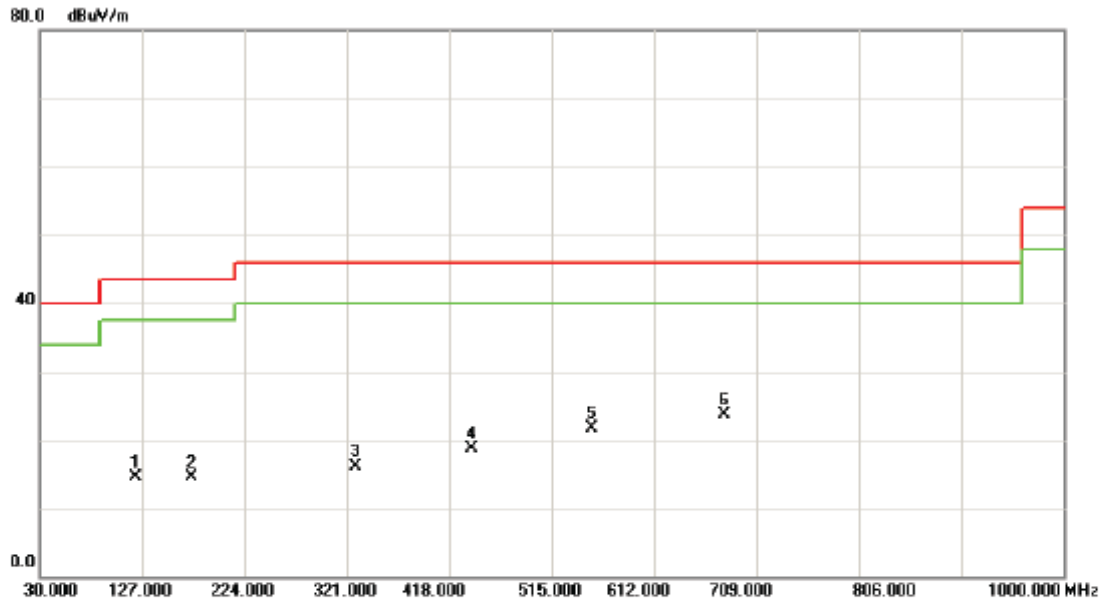
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		177.4400	26.51	-12.92	13.59	43.50	-29.91	peak	
2		296.7500	26.94	-10.66	16.28	46.00	-29.72	peak	
3		384.0500	32.04	-9.96	22.08	46.00	-23.92	peak	
4		548.9500	26.55	-5.24	21.31	46.00	-24.69	peak	
5		707.0600	27.74	-4.26	23.48	46.00	-22.52	peak	
6	*	833.1600	32.95	-3.38	29.57	46.00	-16.43	peak	

Test Mode: TX Middle Channel

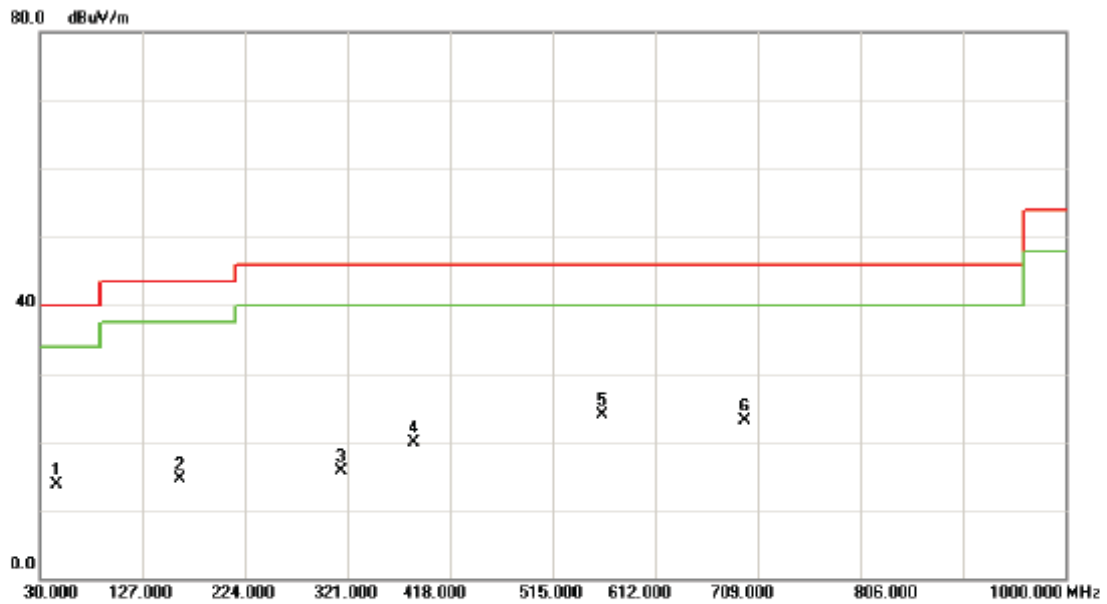
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		121.1800	28.40	-13.92	14.48	43.50	-29.02	peak	
2		173.5600	27.51	-12.91	14.60	43.50	-28.90	peak	
3		329.7300	27.02	-11.00	16.02	46.00	-29.98	peak	
4		439.3400	27.06	-8.32	18.74	46.00	-27.26	peak	
5		553.8000	27.06	-5.35	21.71	46.00	-24.29	peak	
6	*	677.9600	28.30	-4.59	23.71	46.00	-22.29	peak	

Test Mode: TX Middle Channel

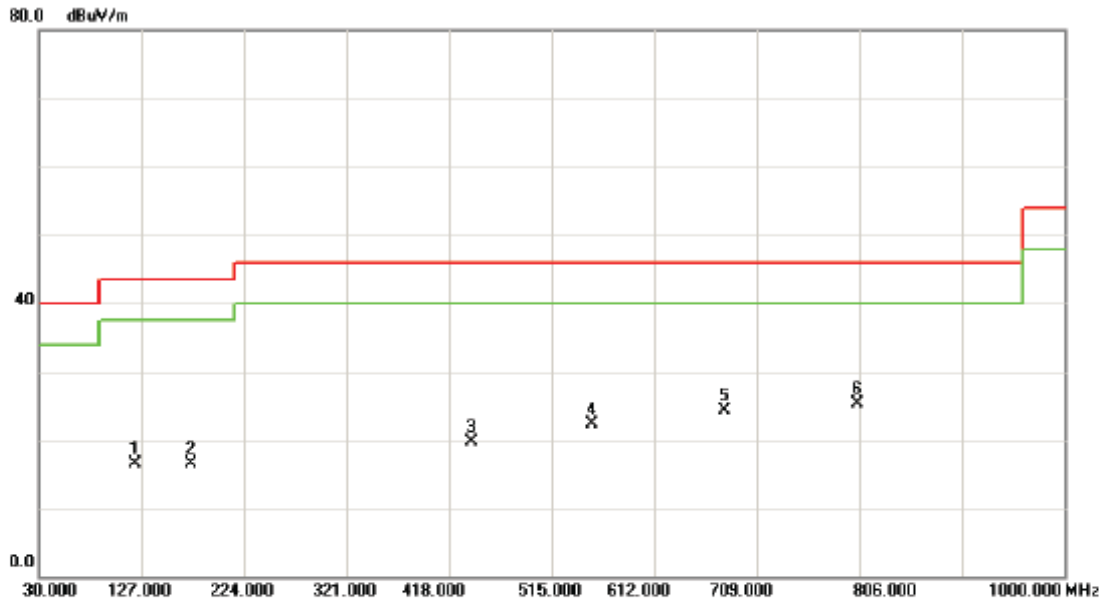
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		45.5200	27.02	-13.25	13.77	40.00	-26.23	peak	
2		162.8900	27.01	-12.55	14.46	43.50	-29.04	peak	
3		315.1800	26.47	-10.75	15.72	46.00	-30.28	peak	
4		384.0500	29.86	-9.96	19.90	46.00	-26.10	peak	
5	*	562.5300	29.64	-5.82	23.82	46.00	-22.18	peak	
6		696.3900	27.39	-4.26	23.13	46.00	-22.87	peak	

Test Mode: TX High Channel

Vertical

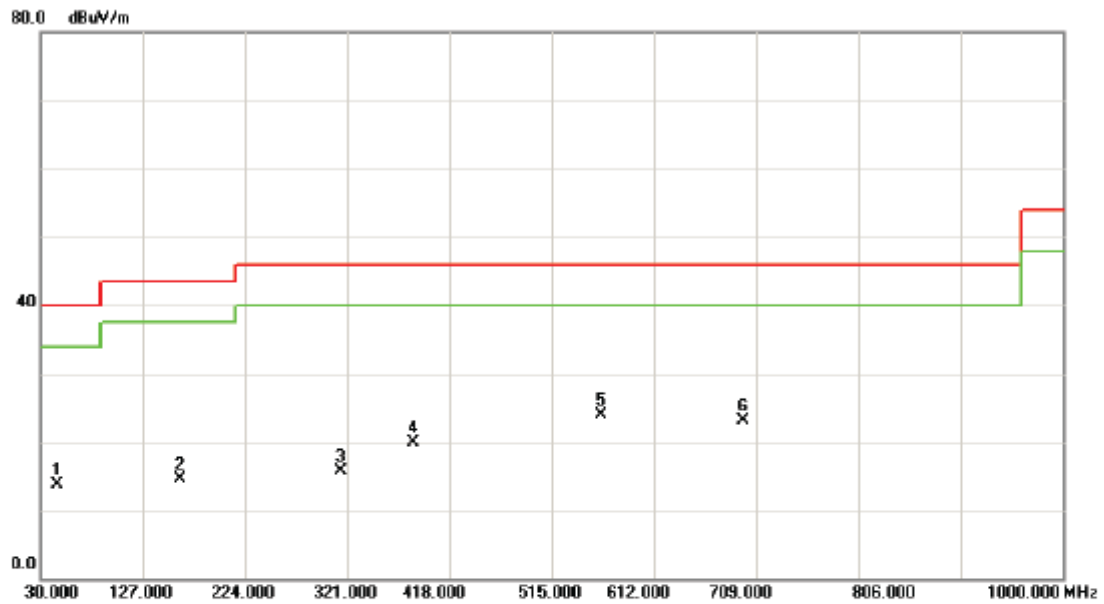


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		121.1800	30.40	-13.92	16.48	43.50	-27.02	peak	
2		173.5600	29.51	-12.91	16.60	43.50	-26.90	peak	
3		439.3400	28.06	-8.32	19.74	46.00	-26.26	peak	
4		553.8000	27.56	-5.35	22.21	46.00	-23.79	peak	
5		677.9600	28.80	-4.59	24.21	46.00	-21.79	peak	
6	*	804.0600	27.48	-2.22	25.26	46.00	-20.74	peak	



Test Mode: TX High Channel

### Horizontal

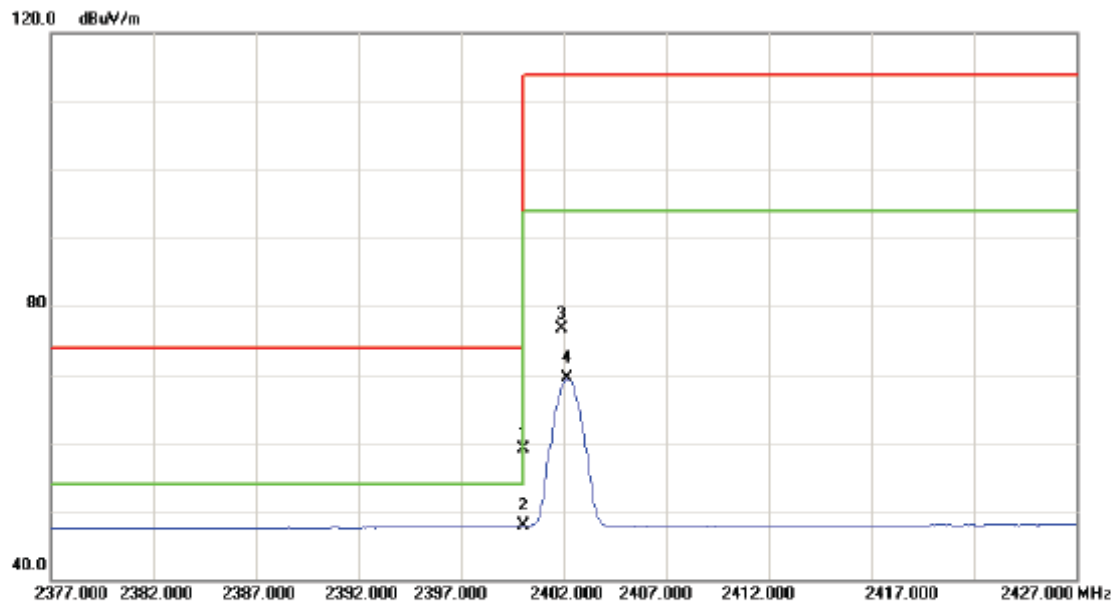


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		45.5200	27.02	-13.25	13.77	40.00	-26.23	peak	
2		162.8900	27.01	-12.55	14.46	43.50	-29.04	peak	
3		315.1800	26.47	-10.75	15.72	46.00	-30.28	peak	
4		384.0500	29.86	-9.96	19.90	46.00	-26.10	peak	
5	*	562.5300	29.64	-5.82	23.82	46.00	-22.18	peak	
6		696.3900	27.39	-4.26	23.13	46.00	-22.87	peak	

## **ATTACHMENT D -RADIATED EMISSION (ABOVE 1000MHZ)**

Test Mode : TX Low Channel

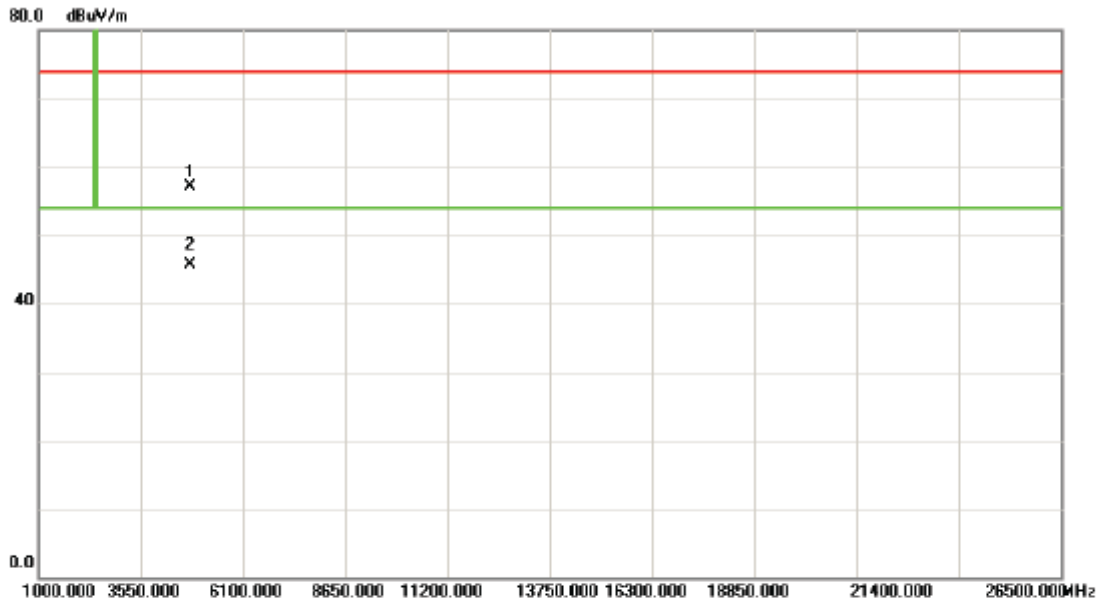
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2400.000	25.65	33.41	59.06	74.00	-14.94	peak	
2	*	2400.000	14.51	33.41	47.92	54.00	-6.08	AVG	
3		2401.900	43.31	33.41	76.72	114.00	-37.28	peak	
4		2402.200	36.07	33.41	69.48	94.00	-24.52	AVG	

Test Mode : TX Low Channel

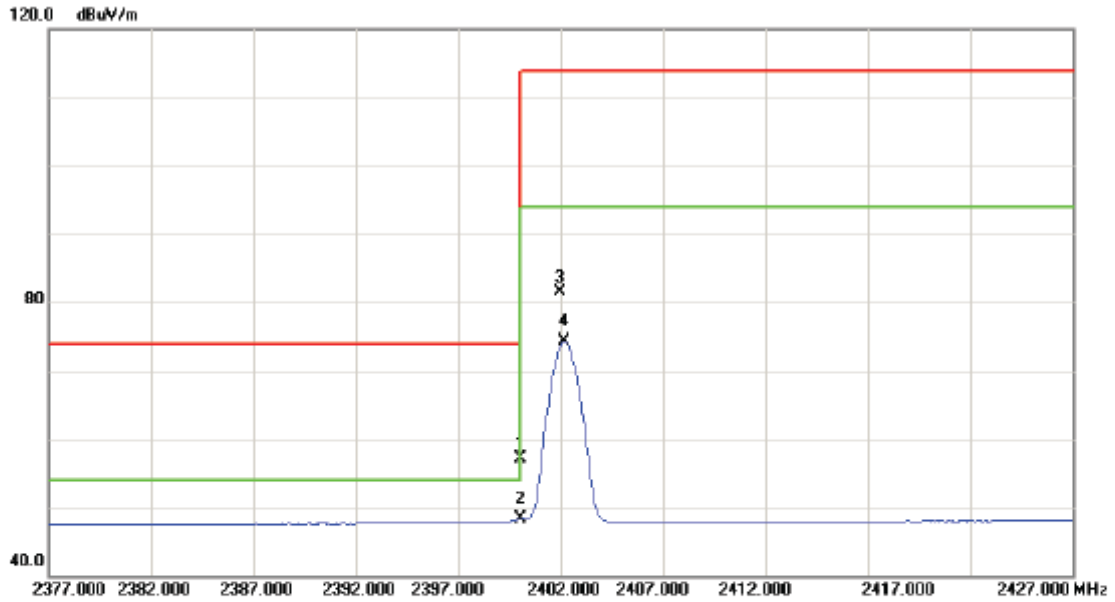
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4803.700	50.64	6.39	57.03	74.00	-16.97	peak	
2	*	4803.980	39.39	6.39	45.78	54.00	-8.22	AVG	

Test Mode : TX Low Channel

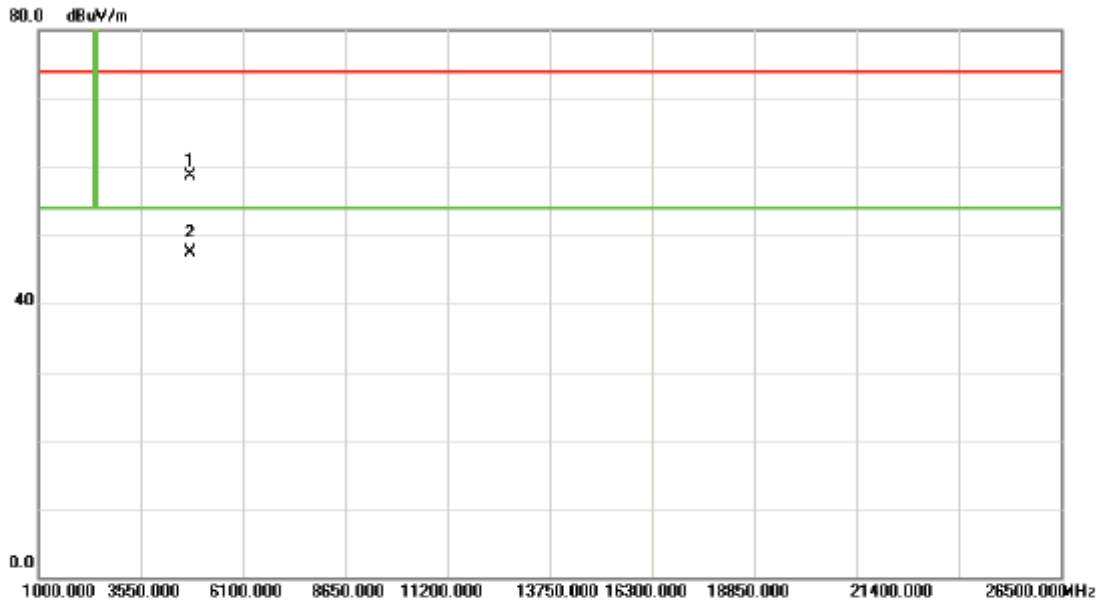
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2400.000	23.71	33.41	57.12	74.00	-16.88	peak	
2	*	2400.000	14.93	33.41	48.34	54.00	-5.66	AVG	
3		2401.950	47.99	33.41	81.40	114.00	-32.60	peak	
4		2402.200	40.86	33.41	74.27	94.00	-19.73	AVG	

Test Mode : TX Low Channel

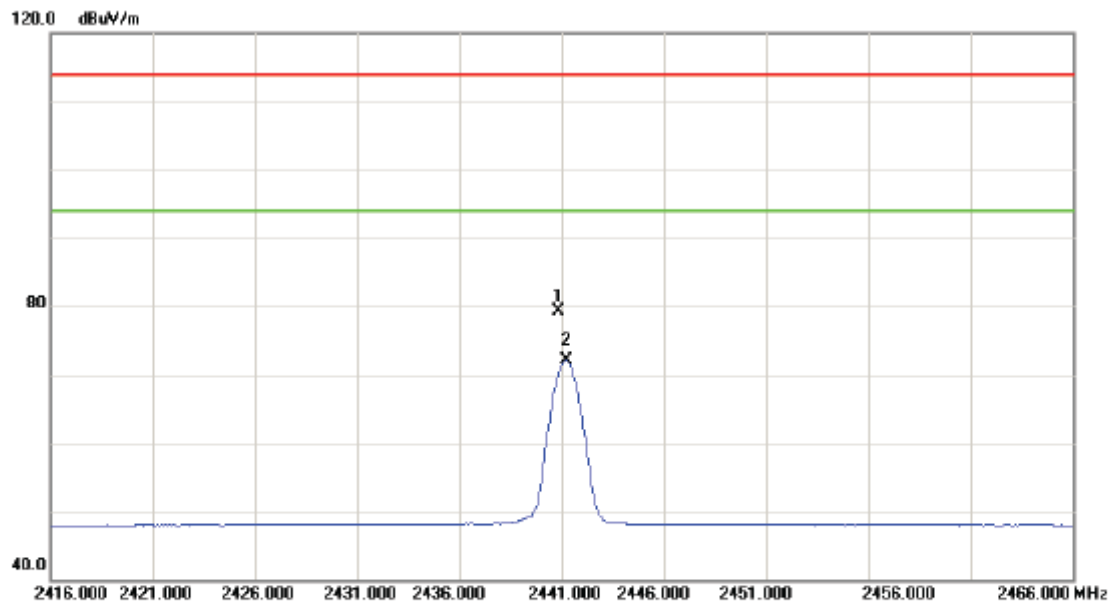
### Horizontal



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4803.760	52.39	6.39	58.78	74.00	-15.22	peak	
2 *	4803.920	41.02	6.39	47.41	54.00	-6.59	AVG	

Test Mode : TX Middle Channel

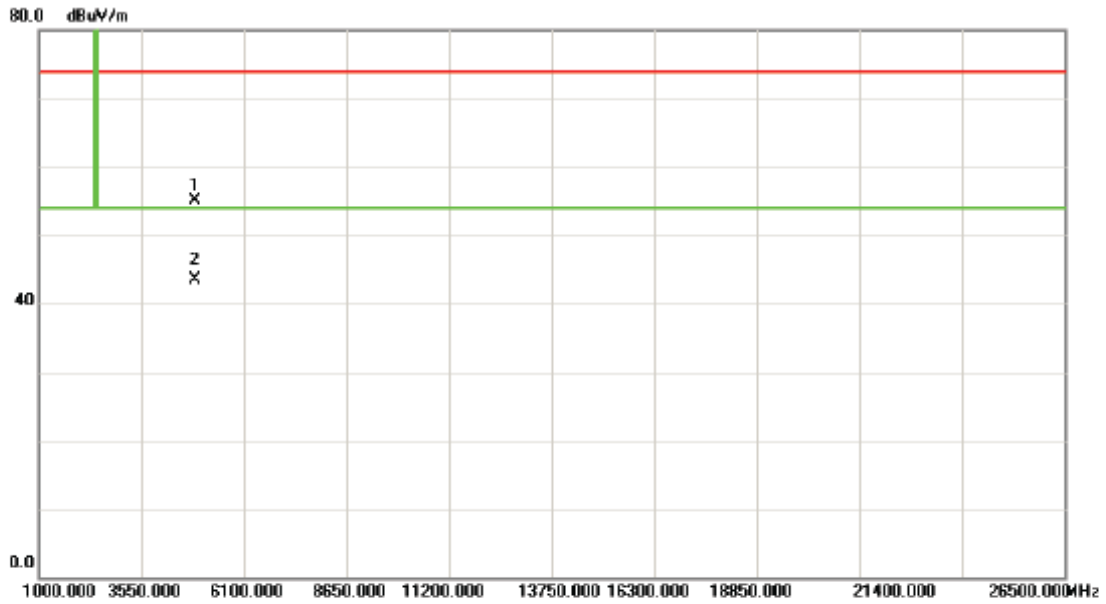
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2440.850	45.84	33.51	79.35	114.00	-34.65	peak	
2	*	2441.250	38.57	33.51	72.08	94.00	-21.92	AVG	

Test Mode : TX Middle Channel

Vertical

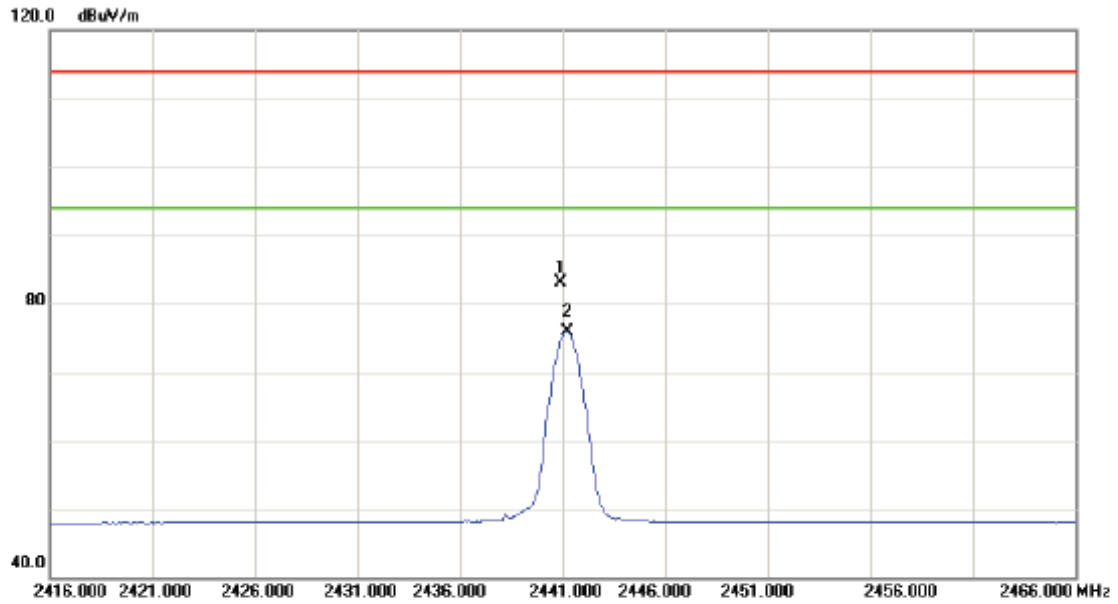


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4882.020	48.53	6.57	55.10	74.00	-18.90	peak	
2	*	4882.020	36.86	6.57	43.43	54.00	-10.57	AVG	



Test Mode : TX Middle Channel

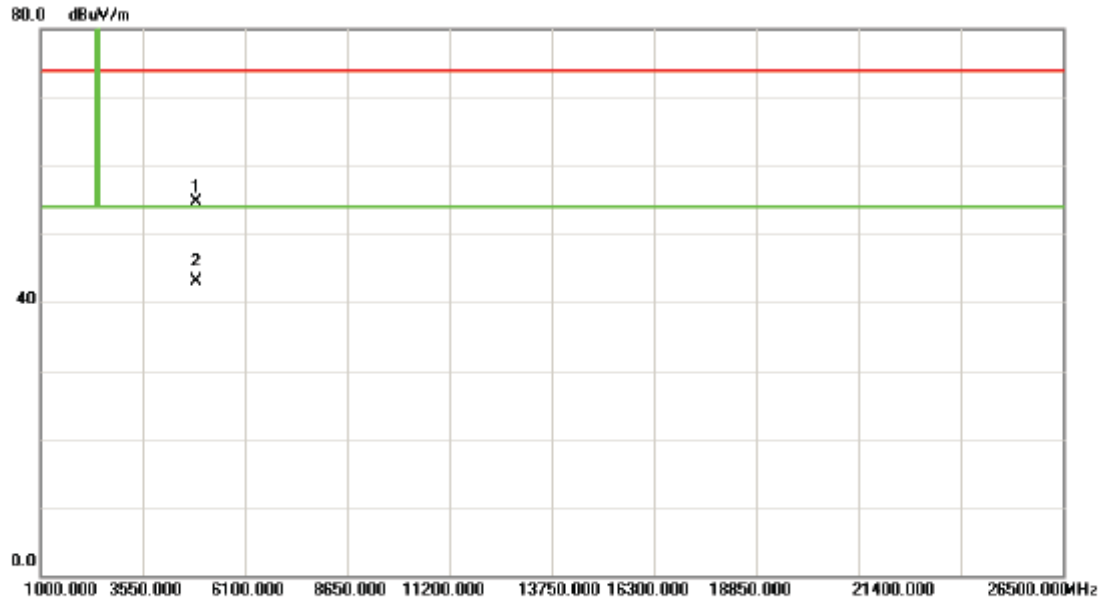
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2440.900	49.55	33.51	83.06	114.00	-30.94	peak	
2	*	2441.250	42.44	33.51	75.95	94.00	-18.05	AVG	

Test Mode : TX Middle Channel

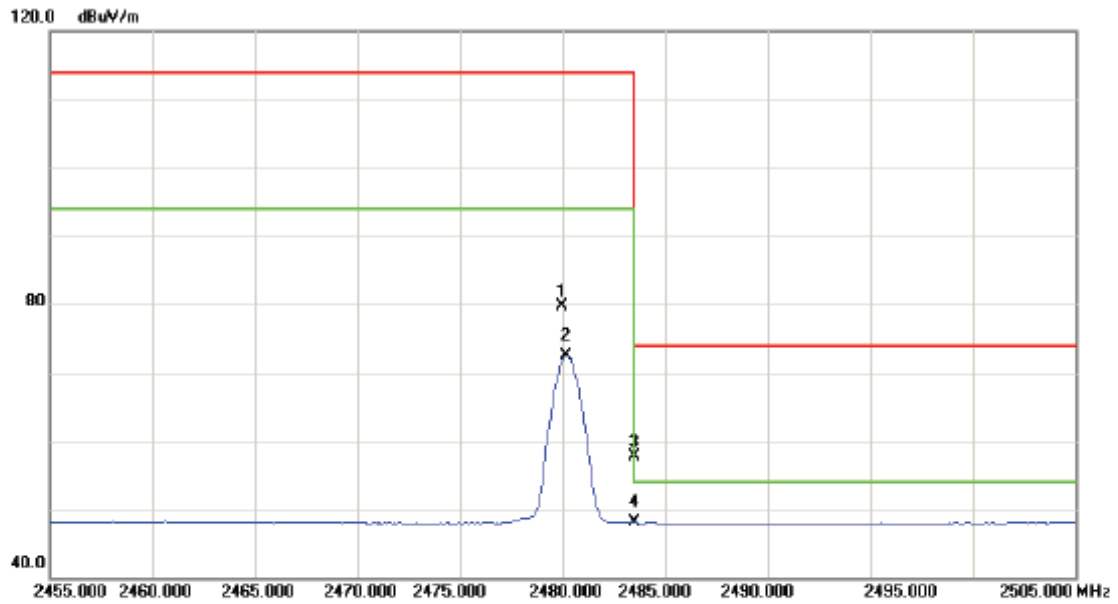
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4881.680	48.17	6.57	54.74	74.00	-19.26	peak	
2	*	4882.020	36.53	6.57	43.10	54.00	-10.90	AVG	

Test Mode : TX High Channel

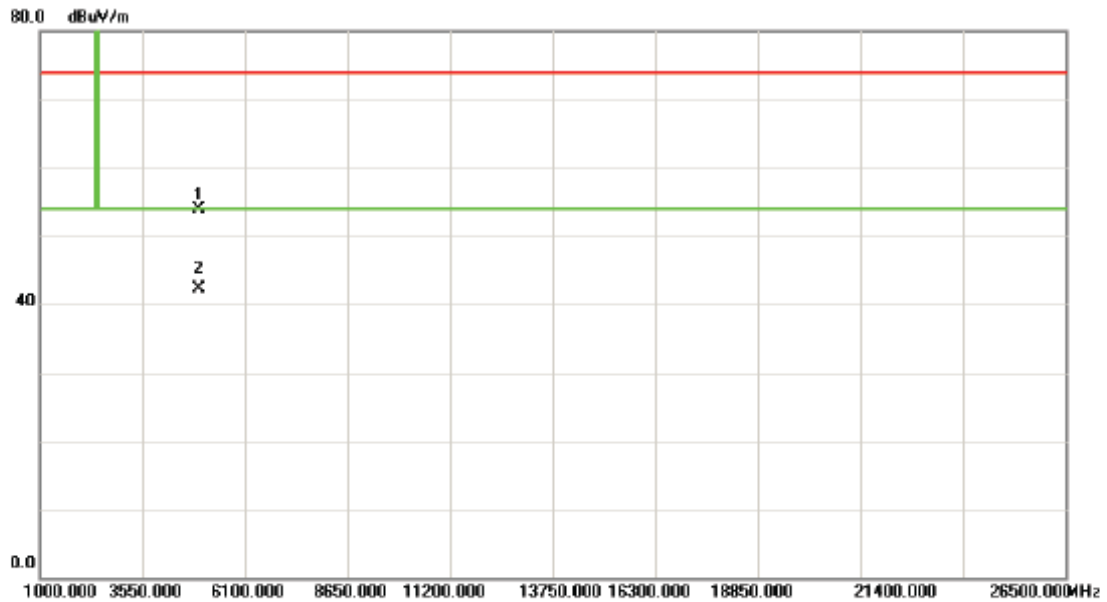
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2479.950	46.18	33.61	79.79	114.00	-34.21	peak	
2		2480.150	38.99	33.61	72.60	94.00	-21.40	AVG	
3		2483.500	23.99	33.62	57.61	74.00	-16.39	peak	
4	*	2483.500	14.41	33.62	48.03	54.00	-5.97	AVG	

Test Mode : TX High Channel

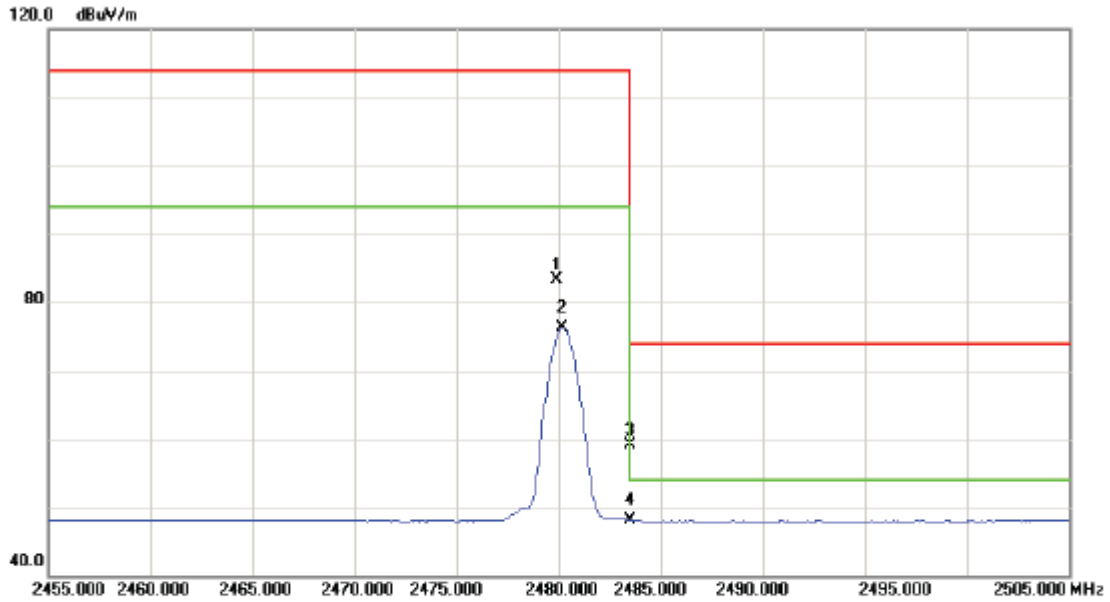
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4959.760	47.17	6.74	53.91	74.00	-20.09	peak	
2	*	4959.900	35.56	6.74	42.30	54.00	-11.70	AVG	

Test Mode : TX High Channel

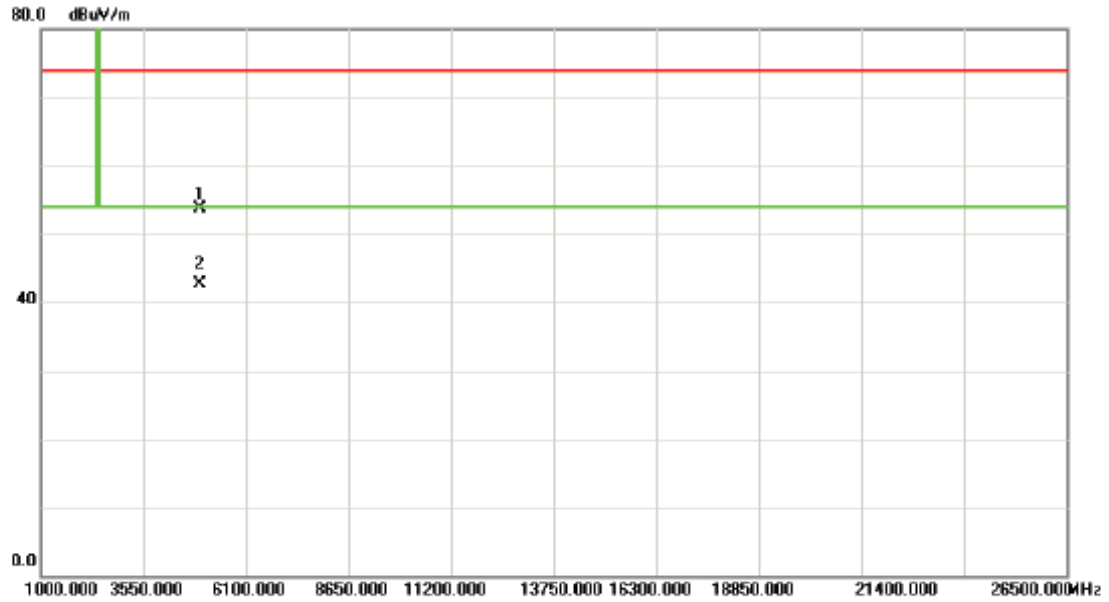
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2479.900	49.74	33.61	83.35	114.00	-30.65	peak	
2		2480.200	42.66	33.61	76.27	94.00	-17.73	AVG	
3		2483.500	25.46	33.62	59.08	74.00	-14.92	peak	
4	*	2483.500	14.48	33.62	48.10	54.00	-5.90	AVG	

Test Mode : TX High Channel

### Horizontal



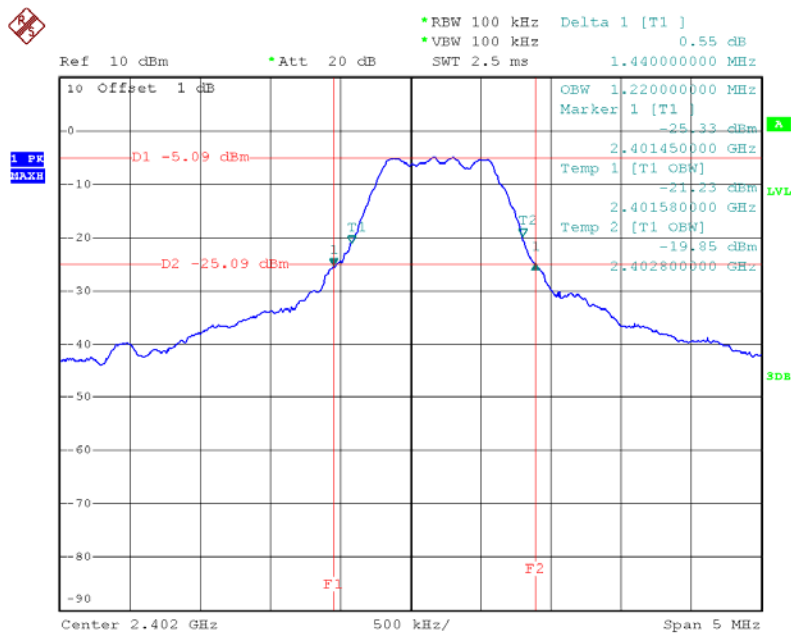
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4959.800	47.06	6.74	53.80	74.00	-20.20	peak	
2	*	4959.940	36.05	6.74	42.79	54.00	-11.21	AVG	

## ATTACHMENT E - BANDWIDTH

Test Mode:	TX Mode
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Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)
2402	1.44	1.22
2441	1.57	1.33
2480	2.05	1.73

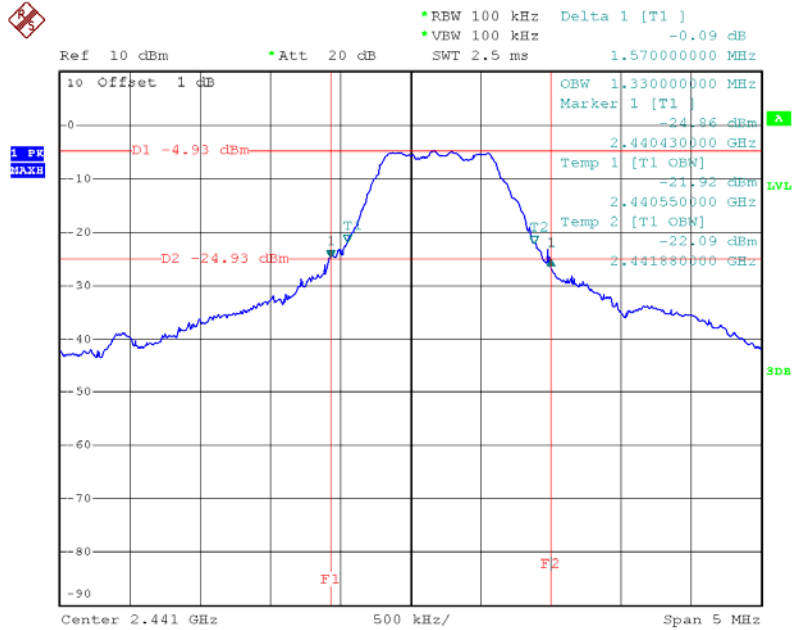
### TX Low Channel



Date: 28.JUN.2015 14:12:30

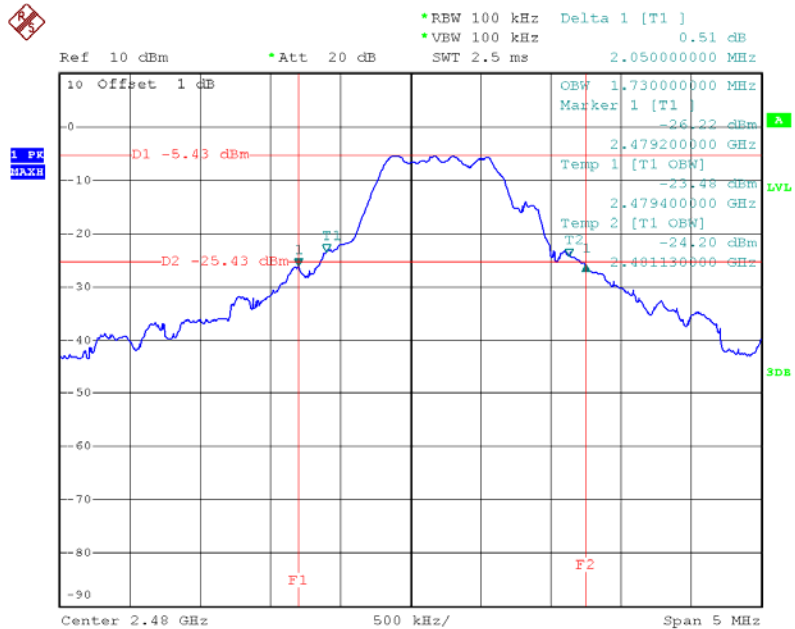


### TX Middle Channel



Date: 28.JUN.2015 14:15:51

### TX High Channel



Date: 28.JUN.2015 14:28:35