

# FCC Radio Test Report

## FCC ID: 2AIMRXMRM002

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

**Project No.** : 1605C249  
**Equipment** : Xiaomi Remote Control  
**Model Name** : XMRM-002  
**Applicant** : Beijing Xiaomi Electronics Co.,Ltd  
**Address** : Room 707,7F,Building 5,No 58,JinghaiWulu Road ,Beijing economic and Technological Development Zone

**Date of Receipt** : May 27, 2016  
**Date of Test** : May 27, 2016 ~ Jul.01, 2016  
**Issued Date** : Jul.04, 2016  
**Tested by** : BTL Inc.

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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-1-1605C249	Original Issue.	Jul.04, 2016

## 1. CERTIFICATION

Equipment : Xiaomi Remote Control  
Brand Name : MI  
Model Name : XMRM-002  
Applicant : Beijing Xiaomi Electronics Co.,Ltd  
Manufacturer : Beijing Xiaomi Electronics Co.,Ltd  
Address : Room 707,7F,Building 5,No 58,JinghaiWulu Road ,Beijing economic and Technological Development Zone  
Factory : TCL Technoly Electronics (Huizhou) Co.,Ltd.  
Address : Section 37, Zhongkai Hi-tech Development Zone, Huizhou Guangdong 516006, P.R.China  
Date of Test : May 27, 2016 ~ Jul.01, 2016  
Test Sample : Engineering Sample  
Standard(s) : FCC Part15, Subpart C (15.247) / 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-1-1605C249) 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):

of procedures according to the technical standard(s):			
Applied Standard(s): FCC Part15 (15.247) , Subpart C			
Standard(s) Section		Test Item	Judgment
15.207		Conducted Emission	N/A
15.247(d)		Antenna conducted Spurious Emission	PASS
15.247(a)(2)		6dB Bandwidth	PASS
15.247(b)(3)		Peak Output Power	PASS
15.247(e)		Power Spectral Density	PASS
15.203		Antenna Requirement	PASS
15.209/15.205		Transmitter Radiated Emissions	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. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9KHz~30MHz	V	3.79
		9KHz~30MHz	H	3.57
		30MHz ~ 200MHz	V	3.82
		30MHz ~ 200MHz	H	3.78
		200MHz ~ 1,000MHz	V	4.10
		200MHz ~ 1,000MHz	H	4.06
		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	Xiaomi Remote Control	
Brand Name	MI	
Model Name	XM RM-002	
Model Difference	N/A	
Product Description	Operation Frequency	2402~2480 MHz
	Modulation Technology	GFSK (1Mbps)
	Bit Rate of Transmitter	
	Output Power (Max.)	-3.06dBm
Power Source	Supplied from 2*AAA battery.	
Power Rating	DC 3V	

**Note:**

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

## 2. Channel List:

Channel List			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

## 3. Table for Filed Antenna:

Original Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	ANT_XMRM	PCB	N/A	1.55

### 3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base 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 <b>NOTE (1)</b>

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Radiated Test	
Final Test Mode	Description
Mode 1	TX Mode <b>NOTE (1)</b>

Note:

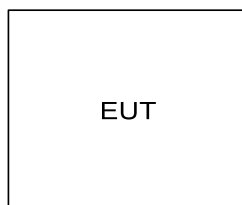
- (1) The measurements are performed at the high, middle, low available channels.
- (2) The EUT is considered a portable unit, it was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test

### 3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN

Test Software Version	N/A		
Frequency (MHz)	2402	2440	2480
BT LE	N/A	N/A	N/A

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



Ground plane  
(Remote System)

### 3.5 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.
-	-	-	-	-	-

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

Note:

- (1) For detachable type I/O cable should be specified the length in m in 『Length』 column.

## 4. EMC EMISSION TEST

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 150KHz-30MHz)

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	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

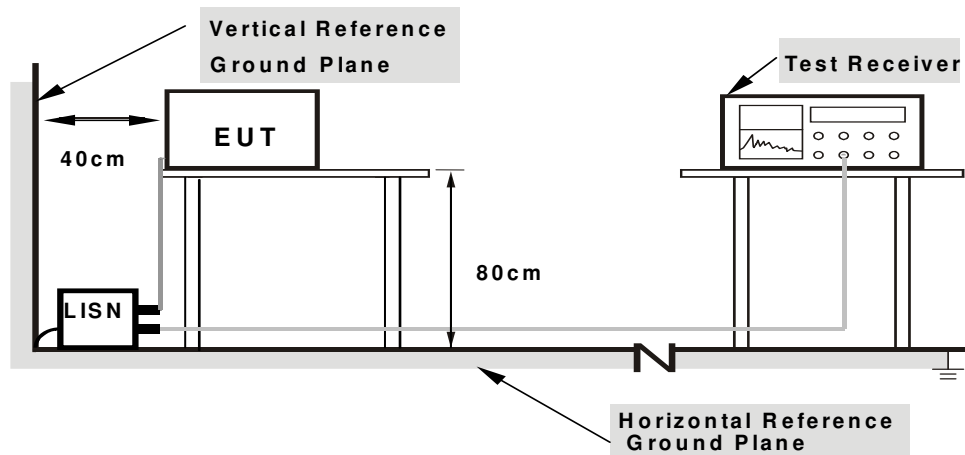
#### 4.1.2 TEST PROCEDURE

- 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 ground plane 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). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

#### 4.1.6 EUT TEST CONDITIONS

Temperature: N/A°C  
Relative Humidity: N/A %  
Test Voltage: N/A

#### 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

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

#### LIMITS OF RADIATED EMISSION MEASUREMENT (9KHz-1000MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/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

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

Frequency (MHz)	(dBuV/m) (at 3 meters)	
	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).
- (4) The test result calculated as following:  
 Measurement Value = Reading Level + Correct Factor  
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)  
 Margin Level = Measurement Value - Limit Value

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	RBW 1MHz VBW 3MHz peak detector for Pk value RMS detector for AV value

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 TEST PROCEDURE

- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter 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)
- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter 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)
- The height of the equipment or of the substitution antenna shall be 0.8 m 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.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- 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. (below 1GHz)
- All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

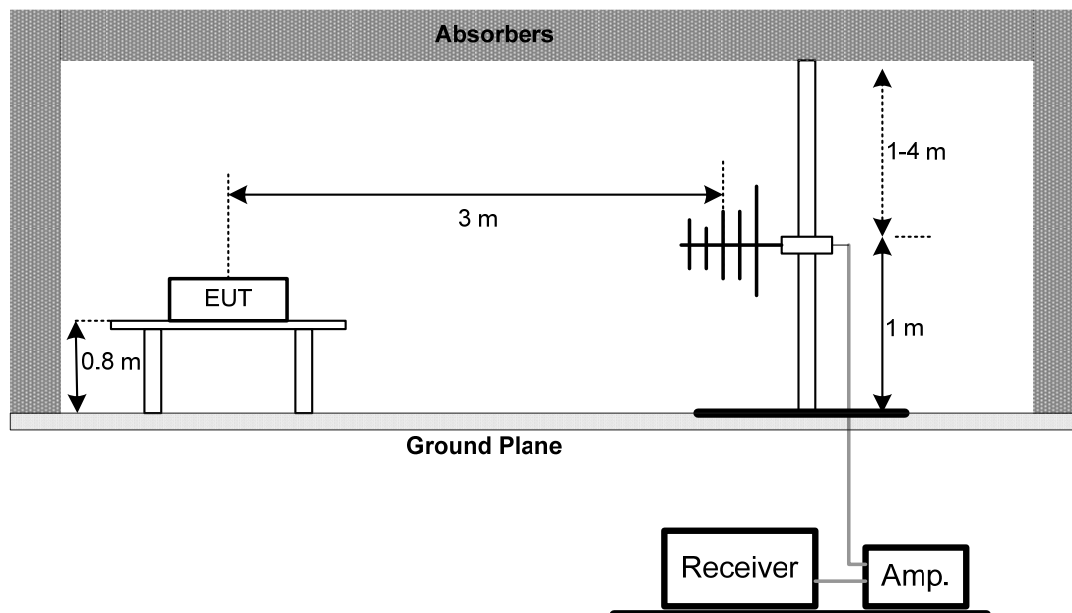
#### 4.2.3 DEVIATION FROM TEST STANDARD

No deviation

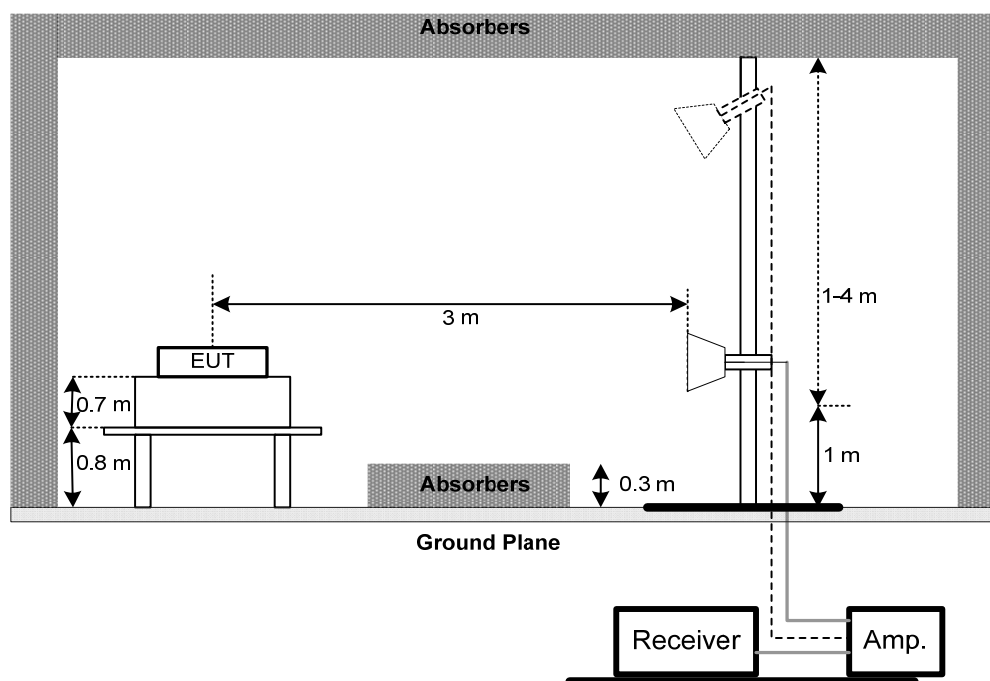


#### 4.2.4 TEST SETUP

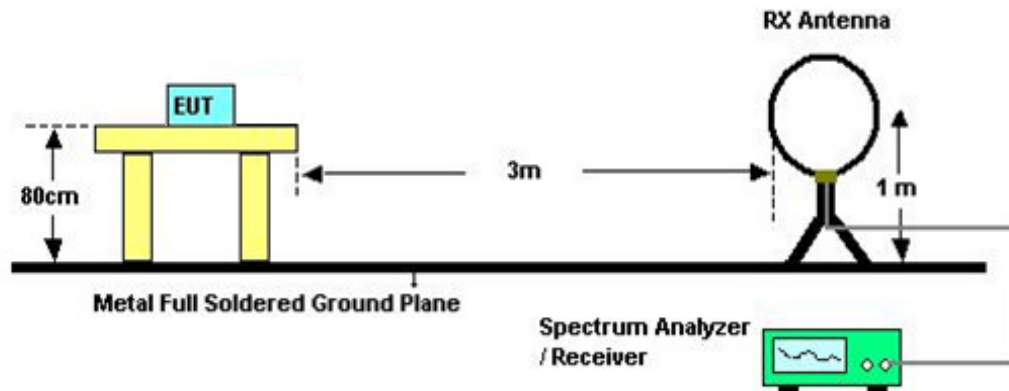
##### (A) Radiated Emission Test Set-Up Frequency Below 1 GHz



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



(C) For radiated emissions below 30MHz



#### 4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 4.2.6 EUT TEST CONDITIONS

Temperature: 22°C

Relative Humidity: 56%

Test Voltage: AC 120V/60Hz

#### 4.2.7 TEST RESULTS (9KHZ TO 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.
- (3) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

#### **4.2.9 TEST RESULTS (ABOVE 1000 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) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (4) EUT Orthogonal Axis:  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (5) 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
- (6) 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 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

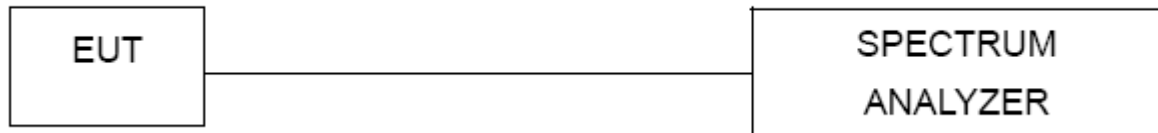
#### 5.1.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



#### 5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 5.1.5 EUT TEST CONDITIONS

Temperature: 25°C  
 Relative Humidity: 55%  
 Test Voltage: AC 120V/60Hz

#### 5.1.6 TEST RESULTS

Please refer to the Attachment E.

## 6. MAXIMUM OUTPUT POWER TEST

### 6.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2400-2483.5	PASS

#### 6.1.1 TEST PROCEDURE

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance v03r05.

#### 6.1.2 DEVIATION FROM STANDARD

No deviation.

#### 6.1.3 TEST SETUP



#### 6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 6.1.5 EUT TEST CONDITIONS

Temperature: 25°C  
 Relative Humidity: 55%  
 Test Voltage: AC 120V/60Hz

#### 6.1.6 TEST RESULTS

Please refer to the Attachment F.

## 7. ANTENNA CONDUCTED SPURIOUS EMISSION

### 7.1 Applied procedures / limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

#### 7.1.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = 10 ms.
- Offset=antanna gain + cable loss

#### 7.1.2 DEVIATION FROM STANDARD

No deviation.

#### 7.1.3 TEST SETUP



#### 7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 7.1.5 EUT TEST CONDITIONS

Temperature: 25°C  
Relative Humidity: 55%  
Test Voltage: AC 120V/60Hz

#### 7.1.6 TEST RESULTS

Please refer to the Attachment G.

## 8. POWER SPECTRAL DENSITY TEST

### 8.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

#### 8.1.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting: RBW=3KHz, VBW=10 KHz, Sweep time = auto.

#### 8.1.2 DEVIATION FROM STANDARD

No deviation.

#### 8.1.3 TEST SETUP



#### 8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 8.1.5 EUT TEST CONDITIONS

Temperature: 25°C  
 Relative Humidity: 55%  
 Test Voltage: AC 120V/60Hz

#### 8.1.6 TEST RESULTS

Please refer to the Attachment H.

## 9. MEASUREMENT INSTRUMENTS LIST

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 27, 2017
2	Amplifier	HP	8447D	2944A09673	Nov. 09, 2016
3	Receiver	AGILENT	N9038A	MY52130039	Oct. 11, 2016
4	Test Cable	emci	LMR-400(30MHz-1GHz)	C-01	Jun. 27, 2017
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. 27, 2017
8	Amplifier	Agilent	8449B	3008A02274	Nov. 01, 2016
9	Receiver	AGILENT	N9038A	MY52130039	Oct. 11, 2016
10	Test Cable	emci	EMC104-SM-S M-10000(1GHz-26.5GHz)	C-68	Jun. 27, 2017
11	Controller	CT	SC100	N/A	N/A
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Mar. 27, 2017
13	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 27, 2017
14	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Sep. 07, 2016



6dB Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

Peak Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	ANRITSU	ML2495A	1128009	Mar. 27, 2017
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Mar. 27, 2017

Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

Power Spectral Density Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

## 10. EUT TEST PHOTO

### Radiated Measurement Photos

9KHz to 30MHz



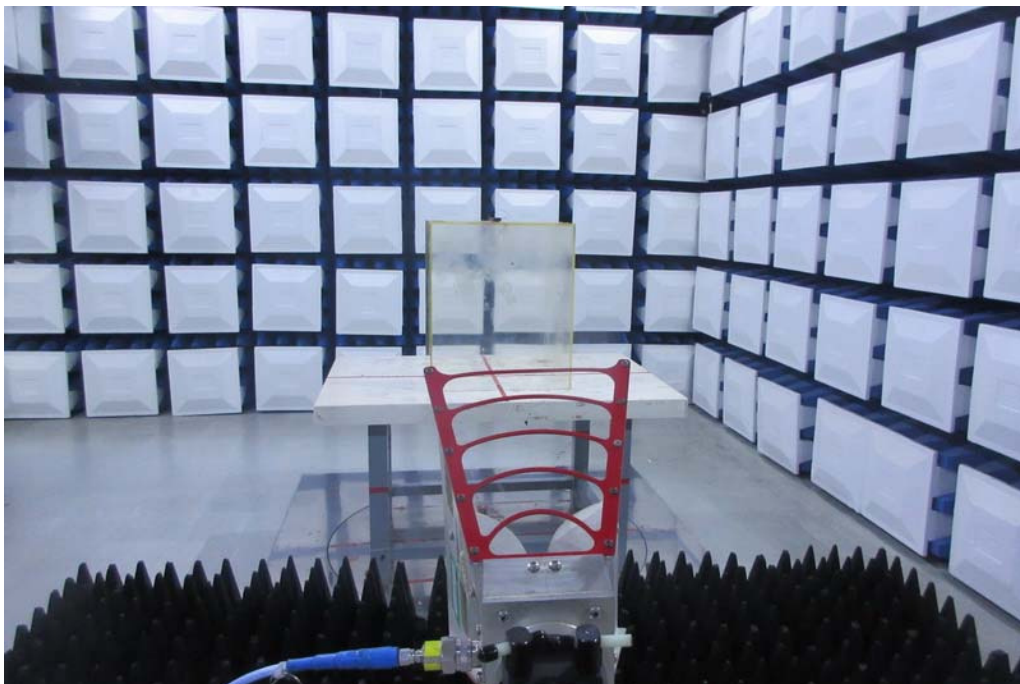
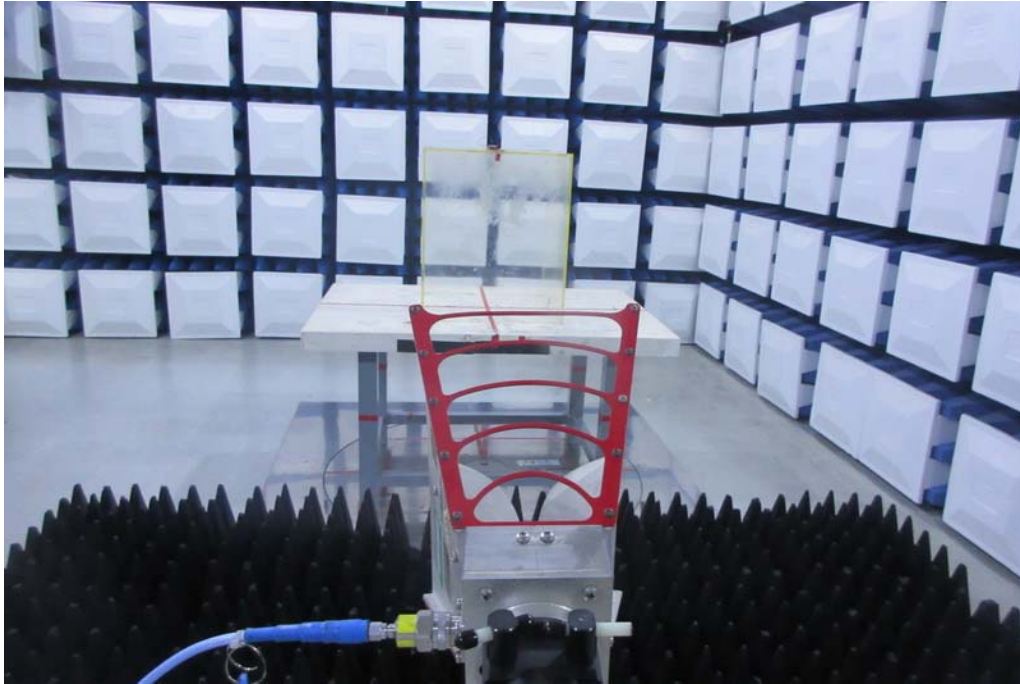
## Radiated Measurement Photos

30MHz to 1000MHz



## Radiated Measurement Photos

Above 1000MHz



## ATTACHMENT A - CONDUCTED EMISSION

**Test Mode: N/A**

Note: "N/A" denotes test is not applicable to this device.

## ATTACHMENT B - RADIATED EMISSION (9KHZ TO 30MHZ)



Test Mode: TX Mode

Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0091	0°	13.58	24.99	38.57	128.42	-89.85	AVG
0.0091	0°	14.37	24.99	39.36	148.42	-109.06	PEAK
0.0284	0°	6.70	23.77	30.47	118.54	-88.07	AVG
0.0284	0°	8.28	23.77	32.05	138.54	-106.49	PEAK
0.0362	0°	3.19	23.27	26.46	116.43	-89.97	AVG
0.0362	0°	5.56	23.27	28.83	136.43	-107.60	PEAK
0.0583	0°	1.28	22.23	23.51	112.29	-88.78	AVG
0.0583	0°	2.57	22.23	24.80	132.29	-107.49	PEAK
0.5095	0°	19.28	19.83	39.11	73.46	-34.35	QP
1.9523	0°	23.70	19.50	43.20	69.54	-26.34	QP

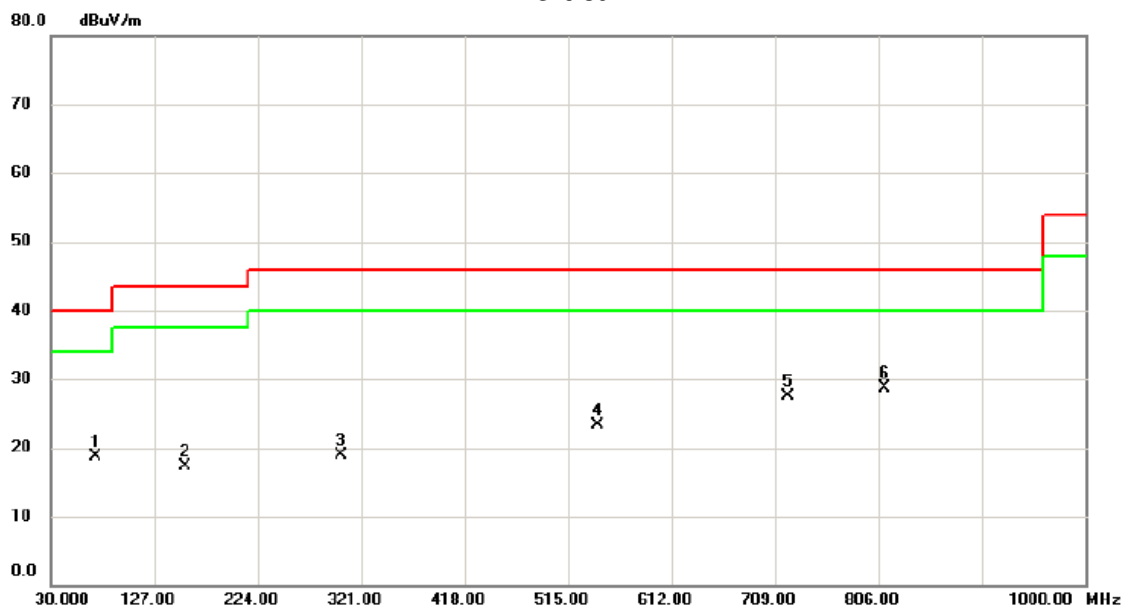
Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0122	90°	13.27	24.30	37.57	125.88	-88.31	AVG
0.0122	90°	14.81	24.30	39.11	145.88	-106.77	PEAK
0.0261	90°	7.38	23.91	31.29	119.27	-87.98	AVG
0.0261	90°	8.92	23.91	32.83	139.27	-106.44	PEAK
0.0437	90°	5.21	22.80	28.01	114.79	-86.79	AVG
0.0437	90°	6.17	22.80	28.97	134.79	-105.83	PEAK
0.0580	90°	1.52	22.24	23.76	112.34	-88.58	AVG
0.0580	90°	2.84	22.24	25.08	132.34	-107.26	PEAK
0.6219	90°	22.28	20.19	42.47	71.73	-29.26	QP
2.0542	90°	24.50	19.47	43.97	69.54	-25.57	QP

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



Test Mode: TX 2402MHz -CH00

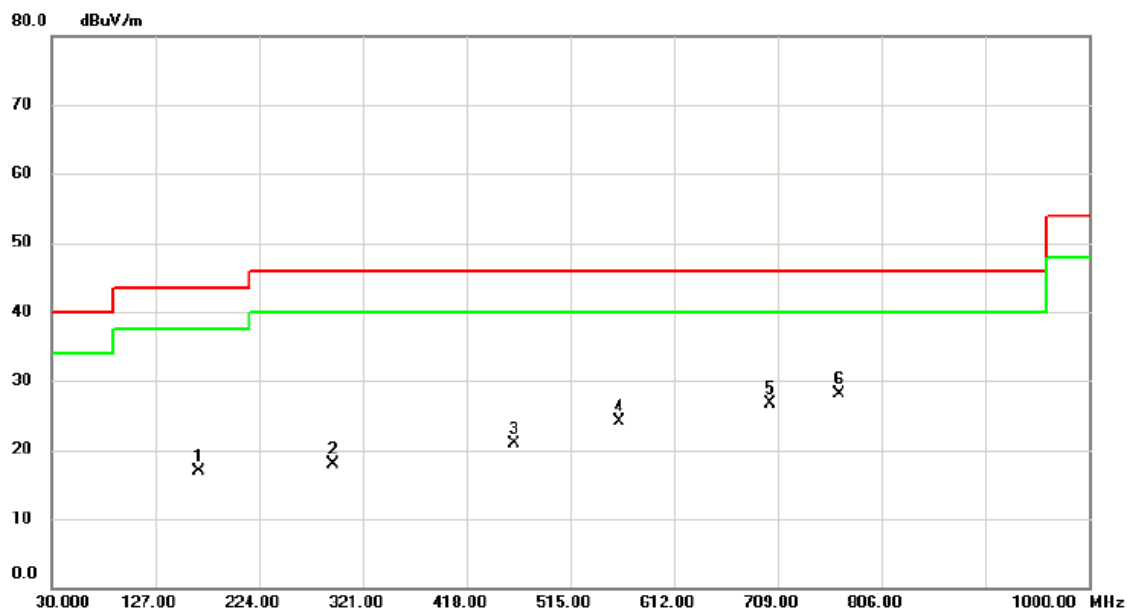
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		71.7100	35.11	-16.47	18.64	40.00	-21.36	peak	
2		156.1000	29.77	-12.50	17.27	43.50	-26.23	peak	
3		301.6000	29.43	-10.49	18.94	46.00	-27.06	peak	
4		543.1300	29.28	-5.98	23.30	46.00	-22.70	peak	
5		721.1250	30.38	-2.97	27.41	46.00	-18.59	peak	
6	*	811.8200	29.86	-1.11	28.75	46.00	-17.25	peak	

Test Mode: TX 2402MHz -CH00

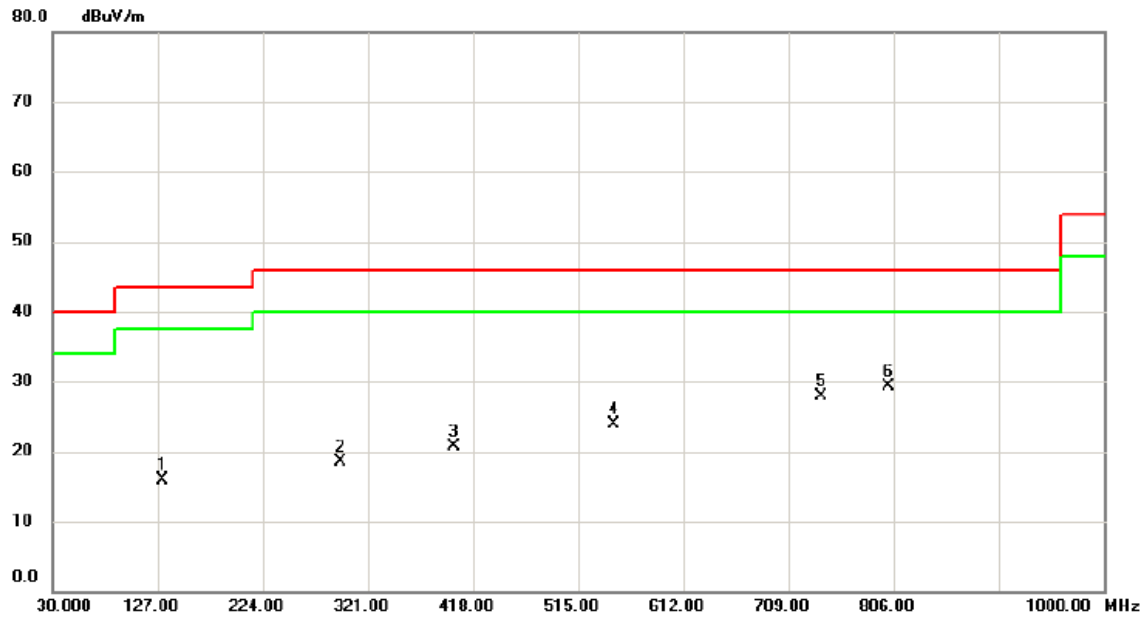
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		167.2550	29.28	-12.28	17.00	43.50	-26.50	peak	
2		293.3550	29.02	-11.16	17.86	46.00	-28.14	peak	
3		462.6200	30.02	-9.03	20.99	46.00	-25.01	peak	
4		561.5600	29.99	-5.87	24.12	46.00	-21.88	peak	
5		701.7250	29.81	-3.01	26.80	46.00	-19.20	peak	
6	*	766.7150	30.20	-2.19	28.01	46.00	-17.99	peak	

Test Mode: TX 2440MHz -CH19

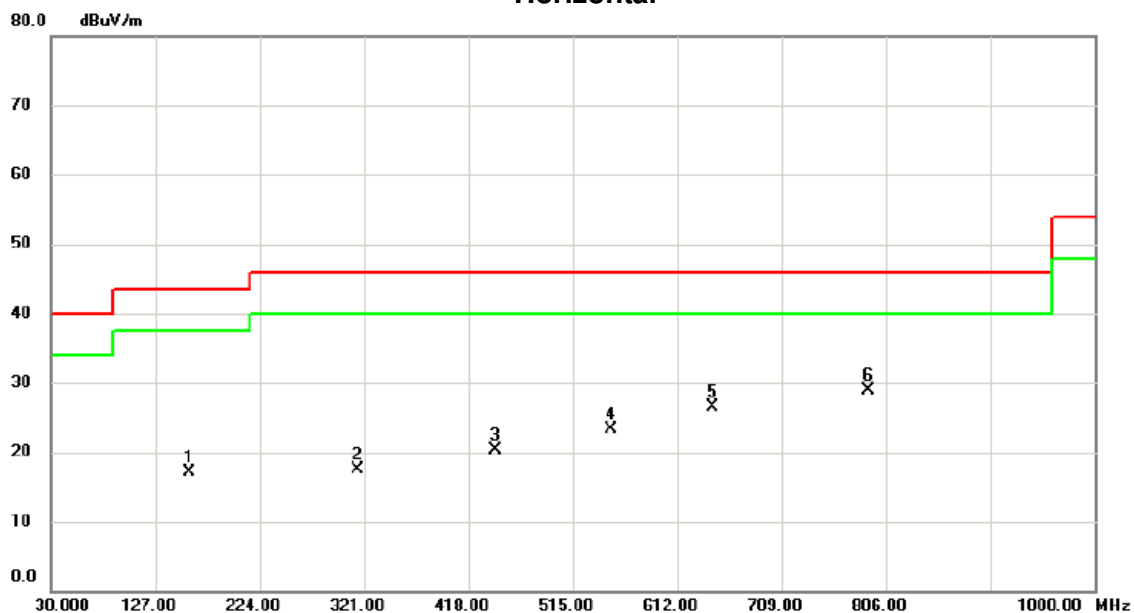
### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		130.8800	28.45	-12.49	15.96	43.50	-27.54	peak	
2		295.2950	29.56	-10.96	18.60	46.00	-27.40	peak	
3		400.5400	29.02	-8.27	20.75	46.00	-25.25	peak	
4		547.9800	29.44	-5.48	23.96	46.00	-22.04	peak	
5		739.5550	30.88	-2.94	27.94	46.00	-18.06	peak	
6	*	801.1500	30.11	-0.77	29.34	46.00	-16.66	peak	

Test Mode: TX 2440MHz -CH19

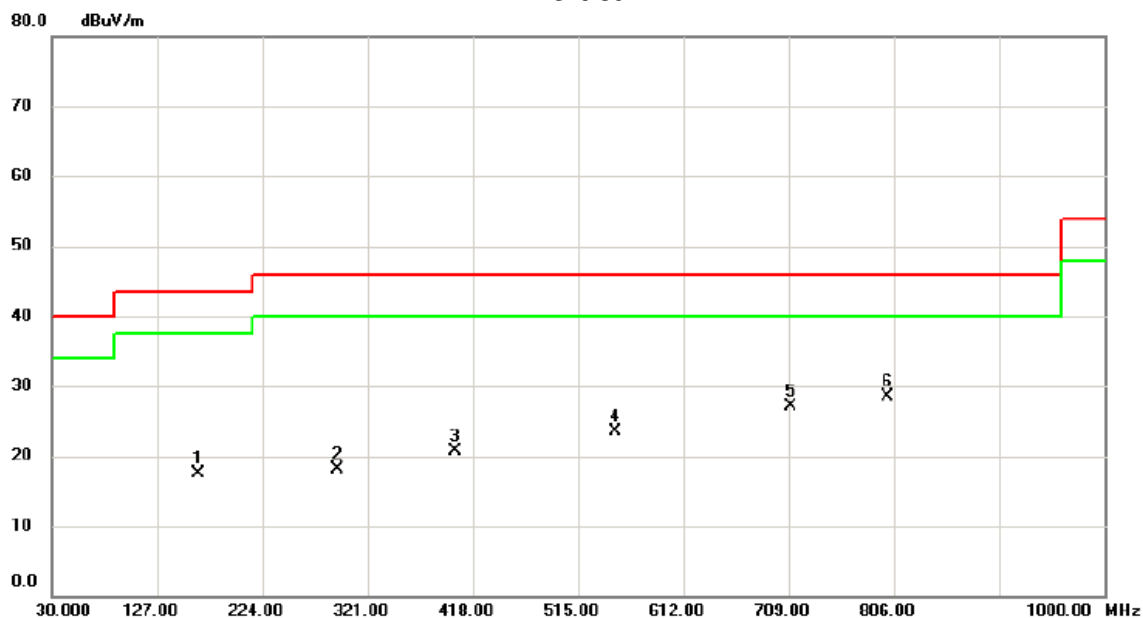
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		158.0400	29.53	-12.35	17.18	43.50	-26.32	peak	
2		314.6950	28.32	-10.80	17.52	46.00	-28.48	peak	
3		442.7350	28.82	-8.53	20.29	46.00	-25.71	peak	
4		550.4050	28.63	-5.30	23.33	46.00	-22.67	peak	
5		644.9800	31.75	-5.32	26.43	46.00	-19.57	peak	
6	*	789.9950	30.14	-1.17	28.97	46.00	-17.03	peak	

Test Mode: TX 2480MHz -CH39

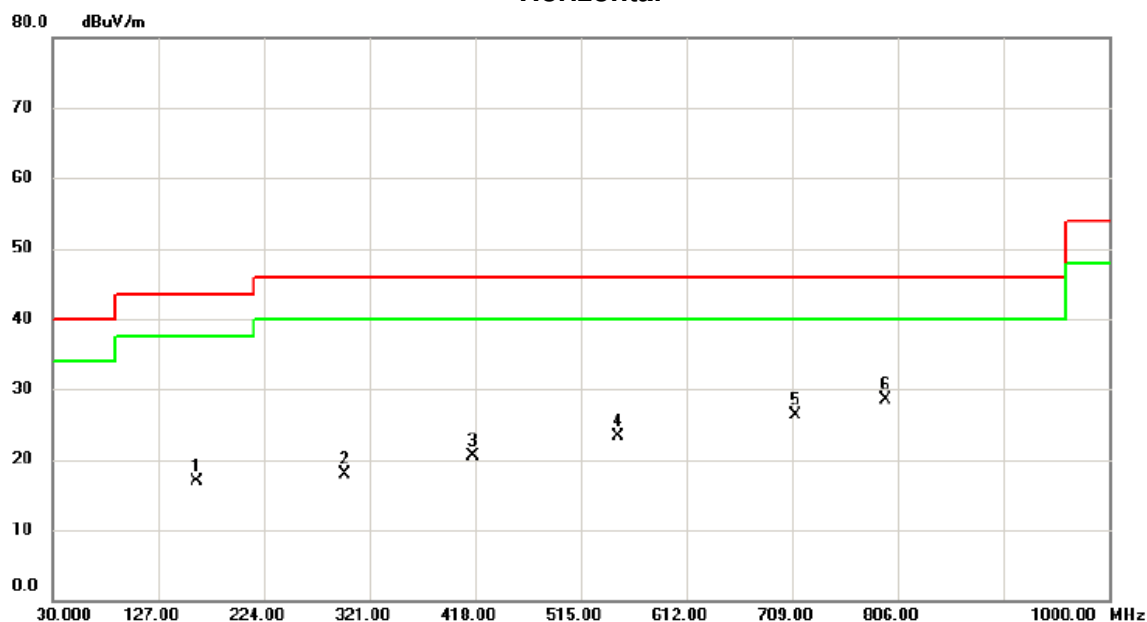
# Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		165.3150	29.79	-12.26	17.53	43.50	-25.97	peak	
2		293.8400	29.19	-11.12	18.07	46.00	-27.93	peak	
3		401.5100	28.91	-8.28	20.63	46.00	-25.37	peak	
4		549.9200	28.73	-5.28	23.45	46.00	-22.55	peak	
5		710.4550	30.12	-3.00	27.12	46.00	-18.88	peak	
6	*	800.6650	29.32	-0.77	28.55	46.00	-17.45	peak	

Test Mode: TX 2480MHz -CH39

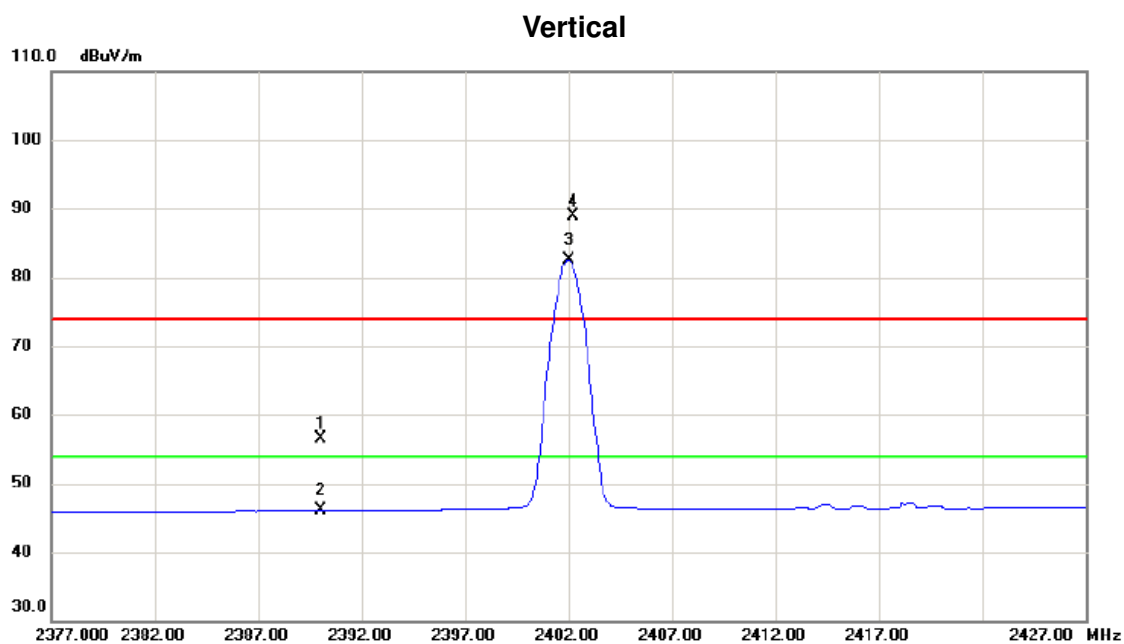
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		161.9200	29.19	-12.21	16.98	43.50	-26.52	peak	
2		297.7200	28.68	-10.70	17.98	46.00	-28.02	peak	
3		416.5450	28.90	-8.37	20.53	46.00	-25.47	peak	
4		549.9200	28.58	-5.28	23.30	46.00	-22.70	peak	
5		711.9100	29.38	-2.99	26.39	46.00	-19.61	peak	
6	*	794.8450	29.55	-0.97	28.58	46.00	-17.42	peak	

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

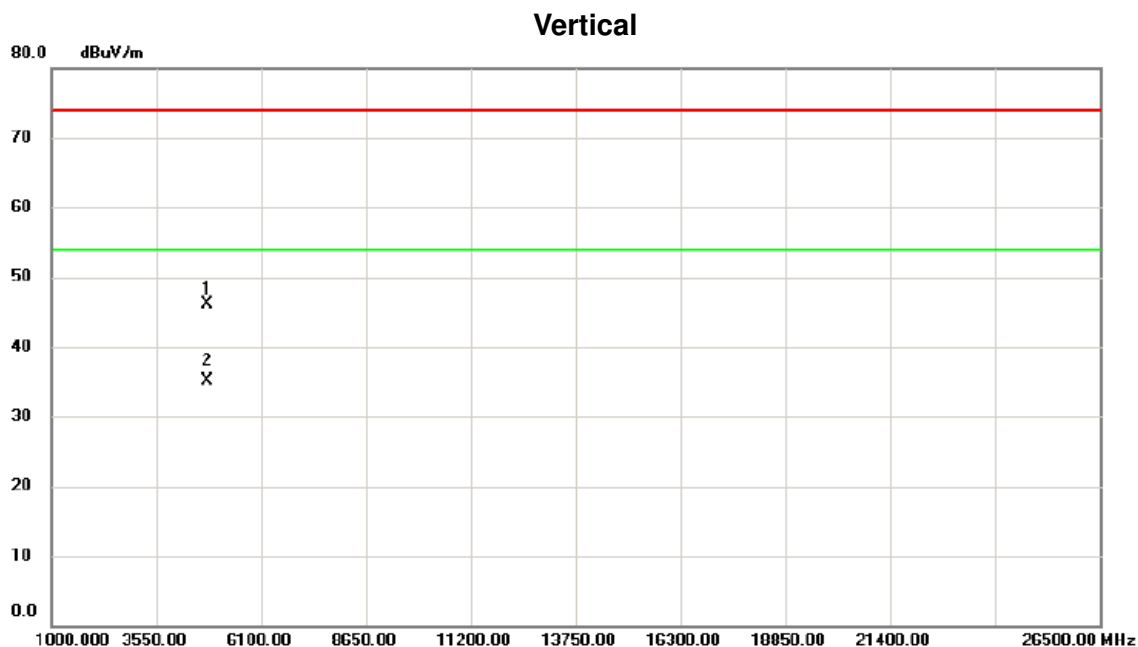
Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	23.79	32.77	56.56	74.00	-17.44	peak	
2		2390.000	13.29	32.77	46.06	54.00	-7.94	AVG	
3	*	2402.000	49.68	32.82	82.50	54.00	28.50	AVG	NO LIMIT
4	X	2402.250	56.05	32.82	88.87	74.00	14.87	peak	NO LIMIT

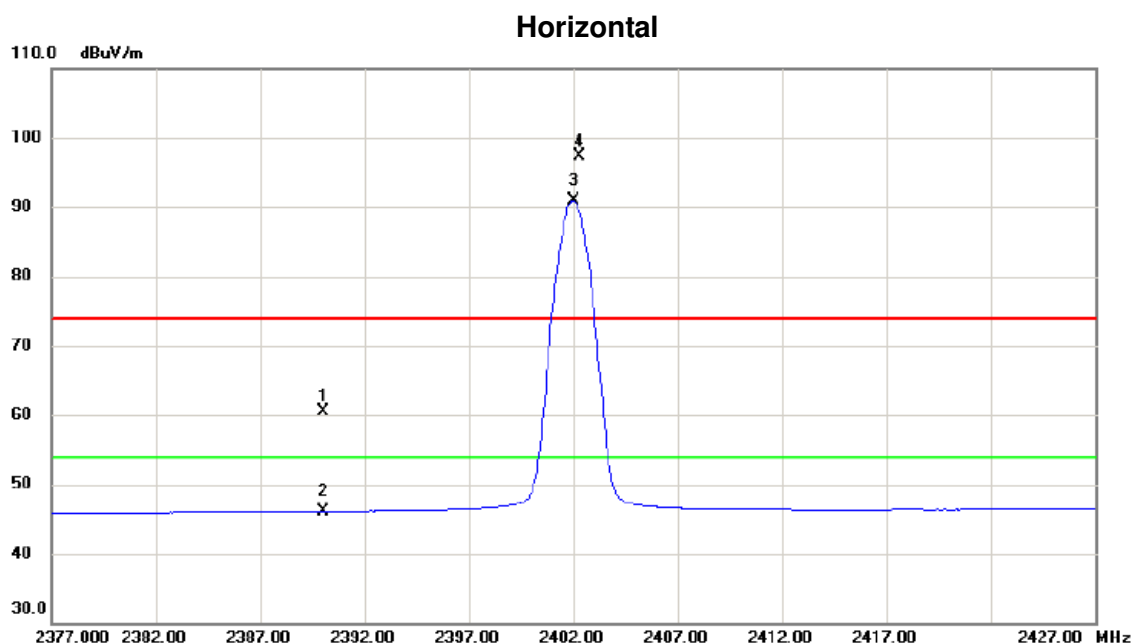


Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4803.720	41.46	4.62	46.08	74.00	-27.92	peak	
2	*	4803.860	30.57	4.62	35.19	54.00	-18.81	AVG	

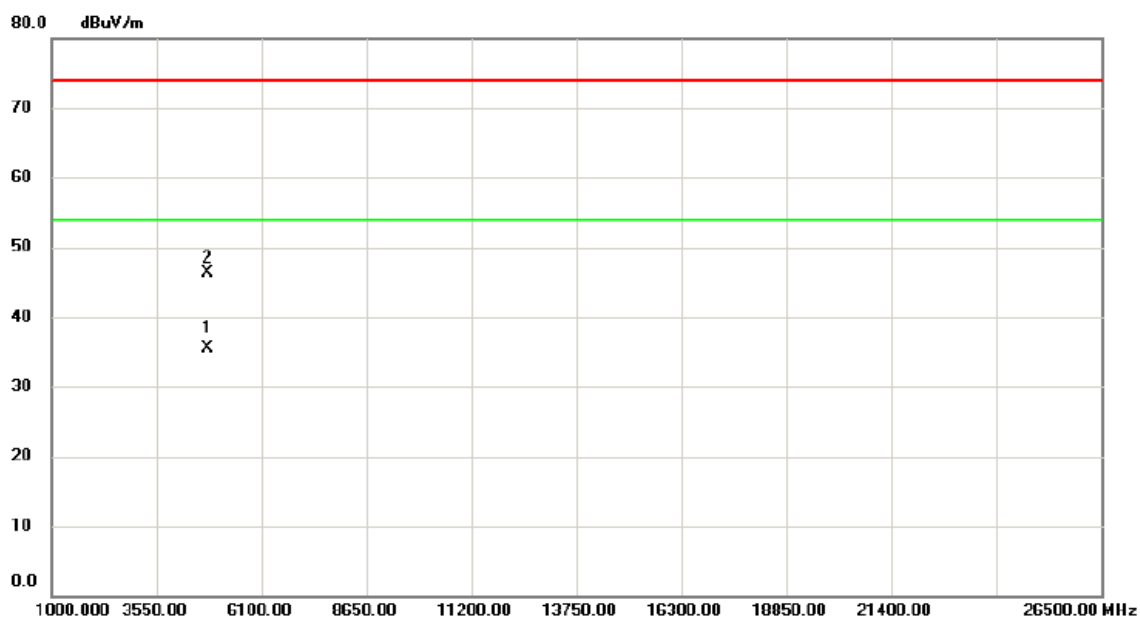
Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	27.75	32.77	60.52	74.00	-13.48	peak	
2		2390.000	13.35	32.77	46.12	54.00	-7.88	AVG	
3	*	2402.000	58.14	32.82	90.96	54.00	36.96	AVG	NO LIMIT
4	X	2402.275	64.44	32.82	97.26	74.00	23.26	peak	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00

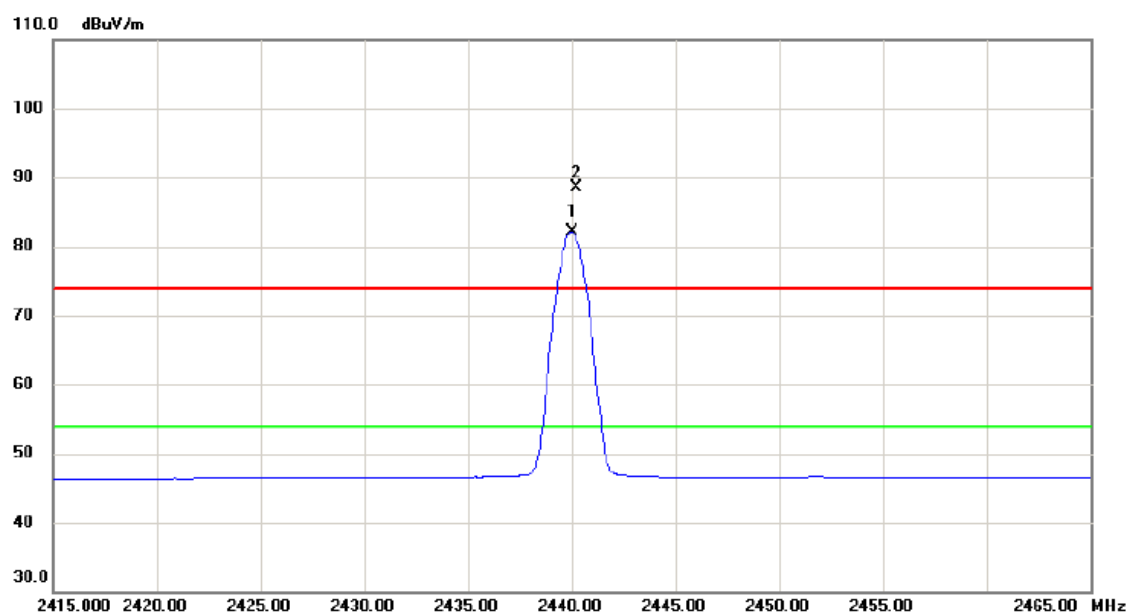
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4803.870	30.82	4.62	35.44	54.00	-18.56	AVG	
2		4804.310	41.68	4.62	46.30	74.00	-27.70	peak	

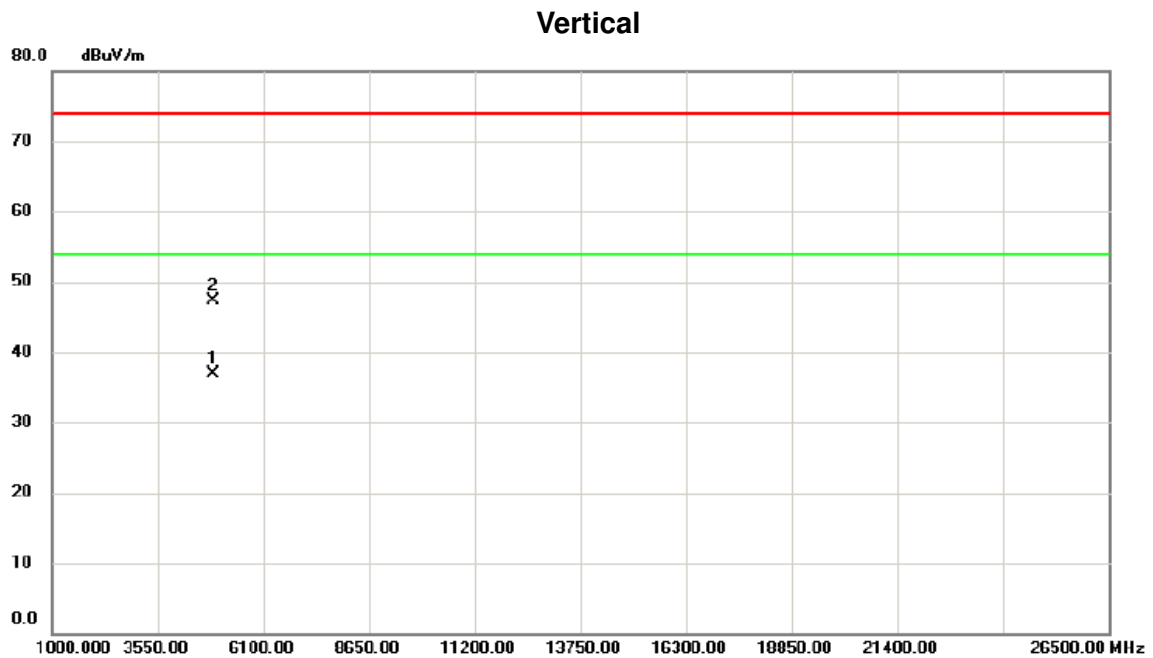
Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19

### Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2440.000	49.17	32.97	82.14	54.00	28.14	AVG	NO LIMIT
2	X	2440.225	55.58	32.98	88.56	74.00	14.56	peak	NO LIMIT

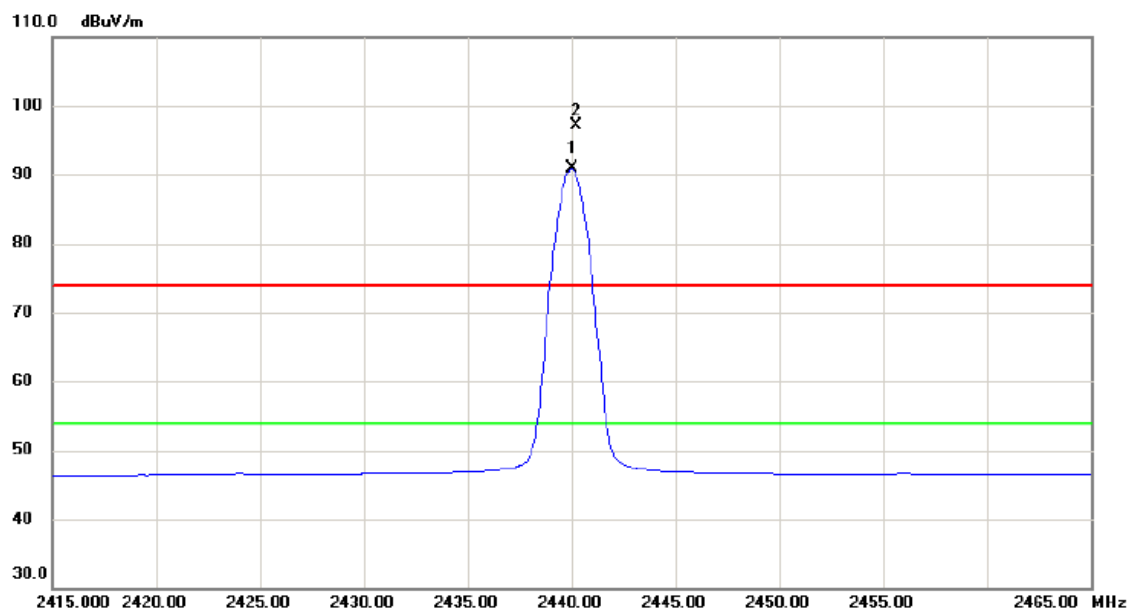
Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4879.890	31.91	4.91	36.82	74.00	-37.18	peak	
2	*	4880.060	42.43	4.91	47.34	74.00	-26.66	peak	

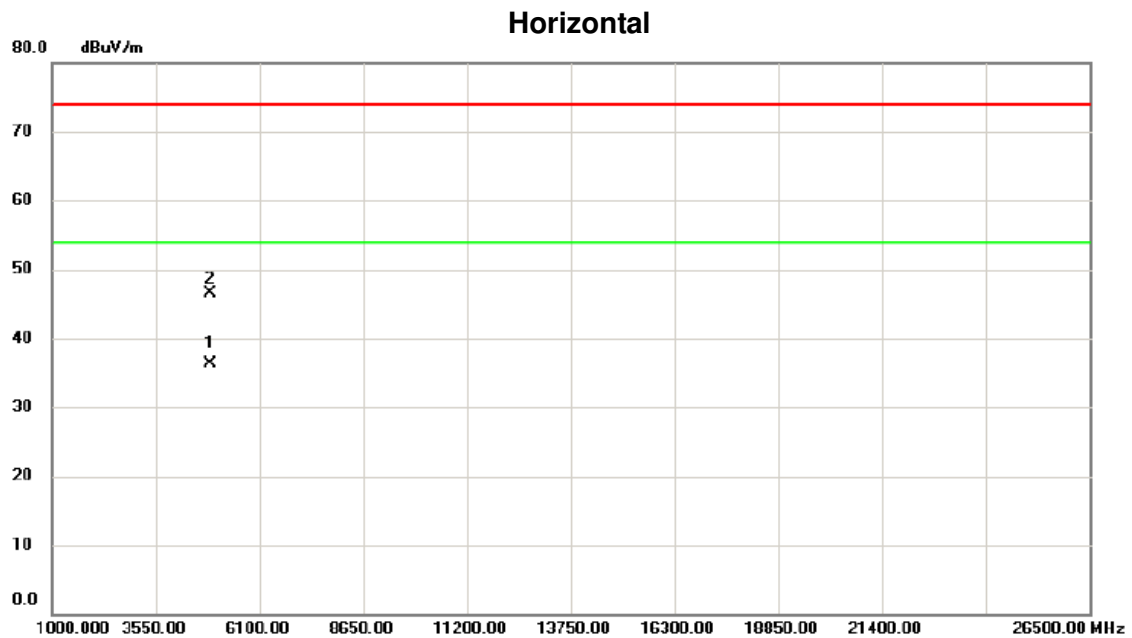
Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19

### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2440.000	57.88	32.97	90.85	54.00	36.85	AVG	NO LIMIT
2	X	2440.250	64.21	32.98	97.19	74.00	23.19	peak	NO LIMIT

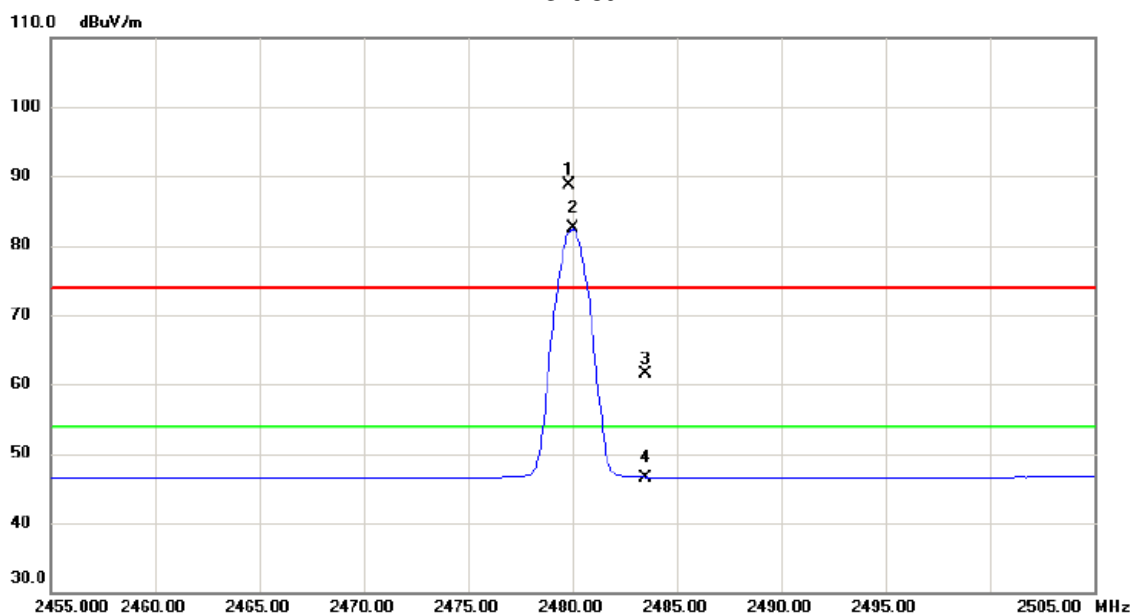
Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4879.870	31.39	4.91	36.30	54.00	-17.70	AVG	
2		4880.660	41.67	4.91	46.58	74.00	-27.42	peak	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39

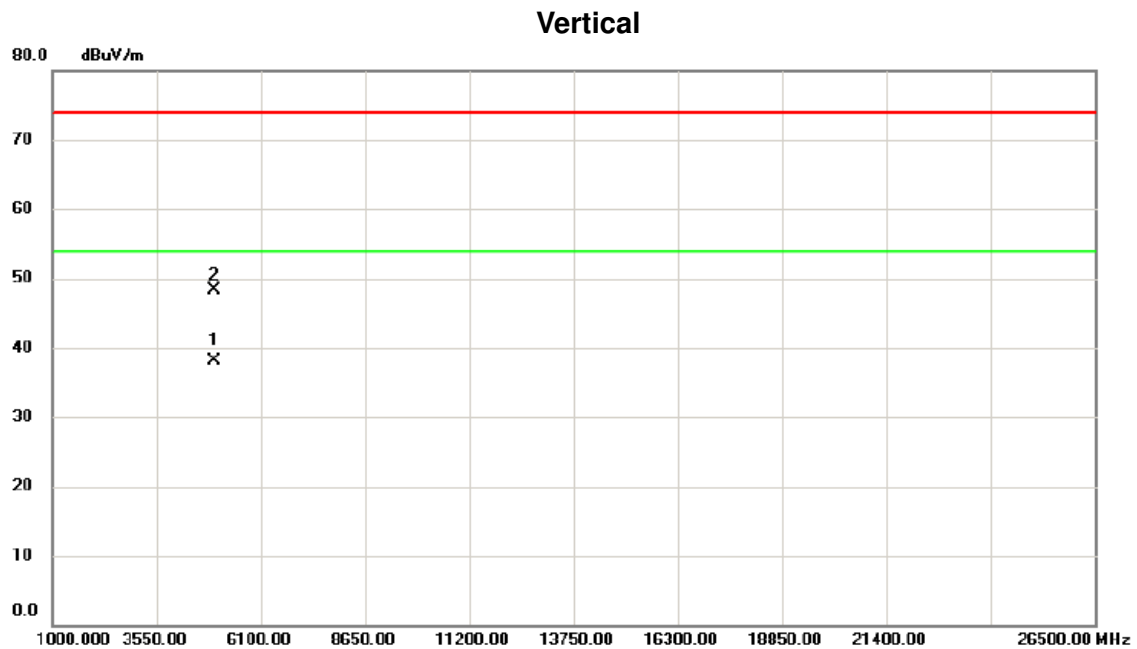
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2479.800	55.58	33.14	88.72	74.00	14.72	peak	NO LIMIT
2	*	2480.000	49.27	33.14	82.41	54.00	28.41	AVG	NO LIMIT
3		2483.500	28.37	33.15	61.52	74.00	-12.48	peak	
4		2483.500	13.45	33.15	46.60	54.00	-7.40	AVG	

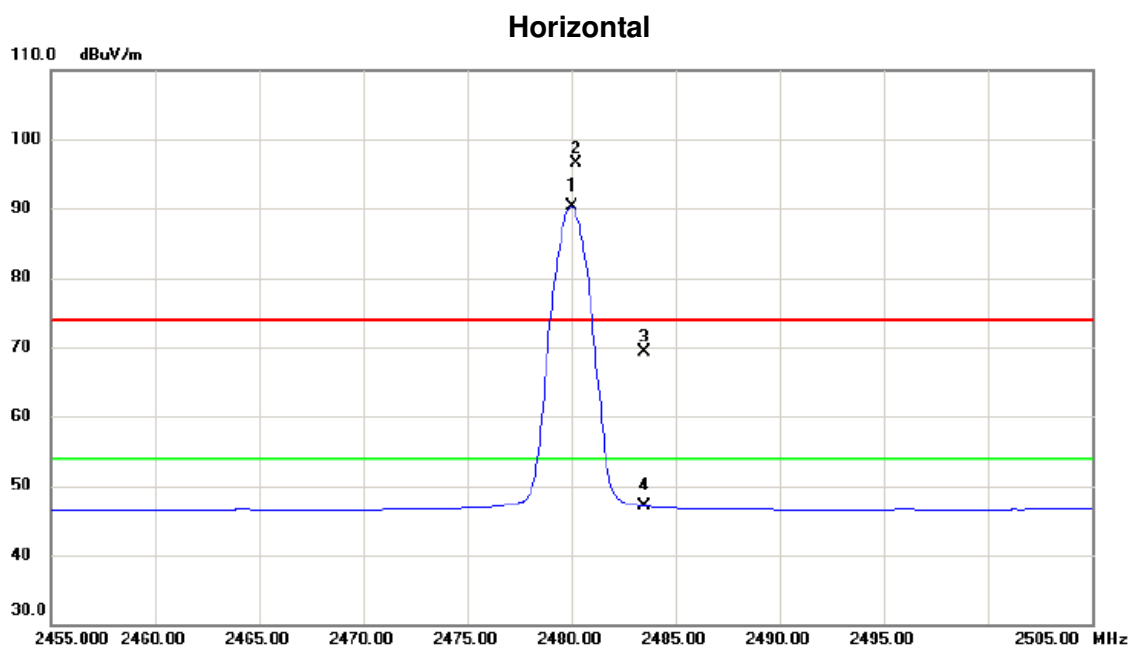


Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39



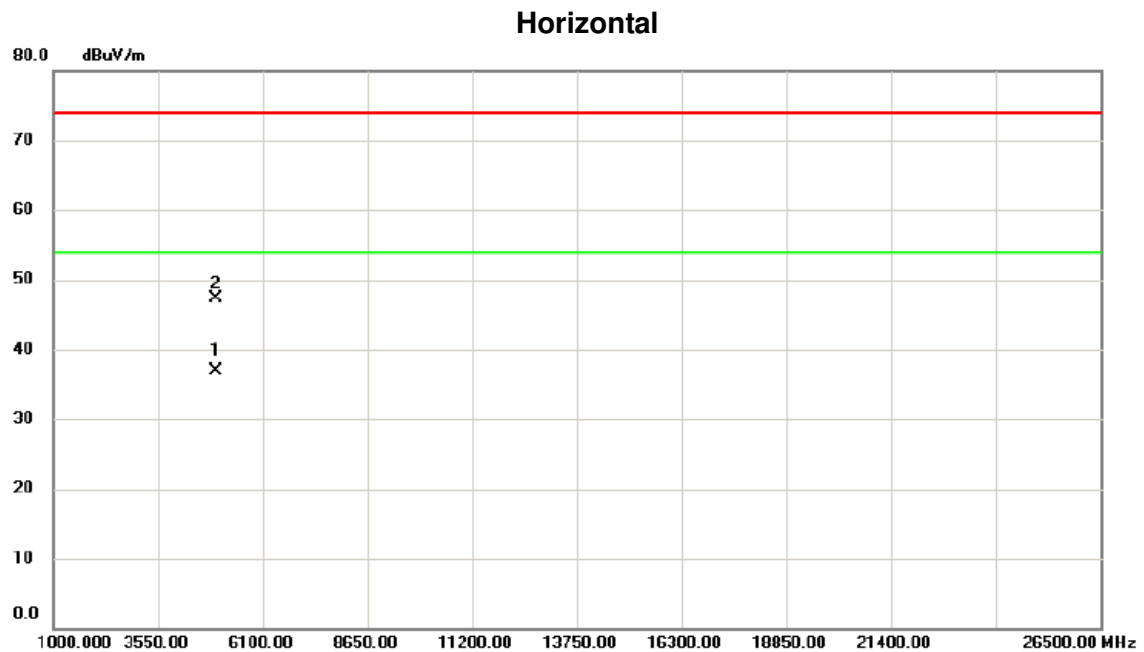
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4959.890	32.92	5.22	38.14	54.00	-15.86	AVG	
2		4960.570	43.03	5.23	48.26	74.00	-25.74	peak	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2480.000	57.09	33.14	90.23	54.00	36.23	AVG	NO LIMIT
2	X	2480.225	63.39	33.14	96.53	74.00	22.53	peak	NO LIMIT
3		2483.500	36.16	33.15	69.31	74.00	-4.69	peak	
4		2483.500	13.95	33.15	47.10	54.00	-6.90	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39



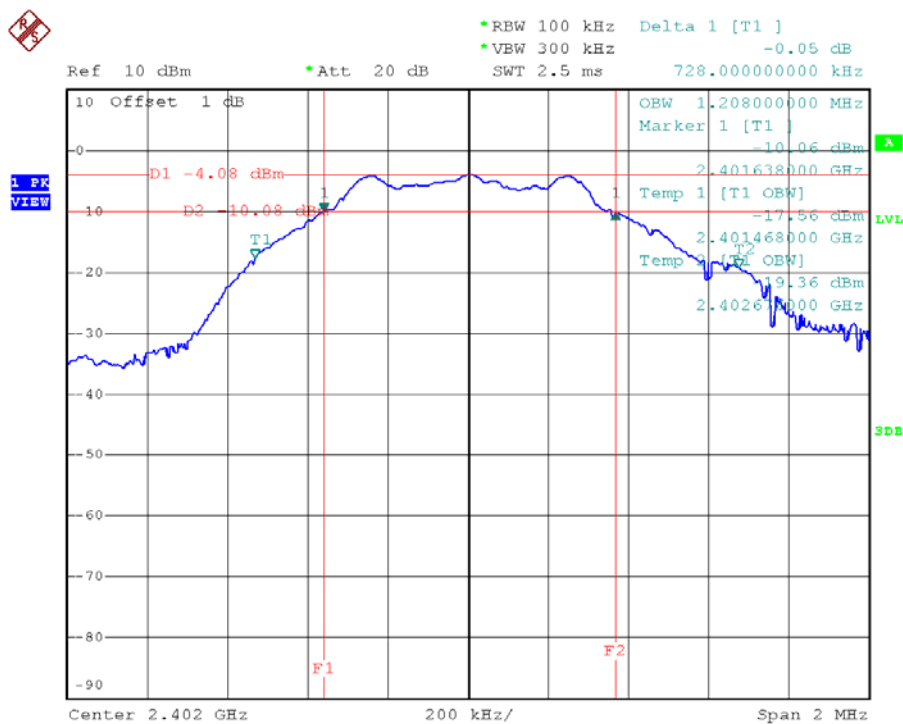
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4959.870	31.77	5.22	36.99	54.00	-17.01	AVG	
2		4960.290	42.12	5.22	47.34	74.00	-26.66	peak	

## ATTACHMENT E - BANDWIDTH

Test Mode :	CH00, CH19 , CH39
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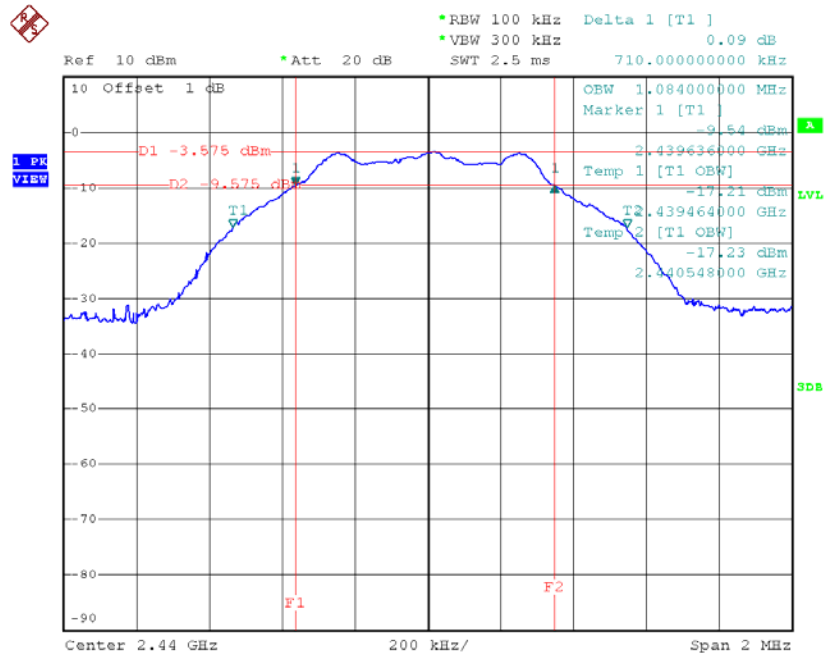
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	0.73	1.21	500	Complies
2440	0.71	1.08	500	Complies
2480	0.71	1.08	500	Complies

### TX CH00



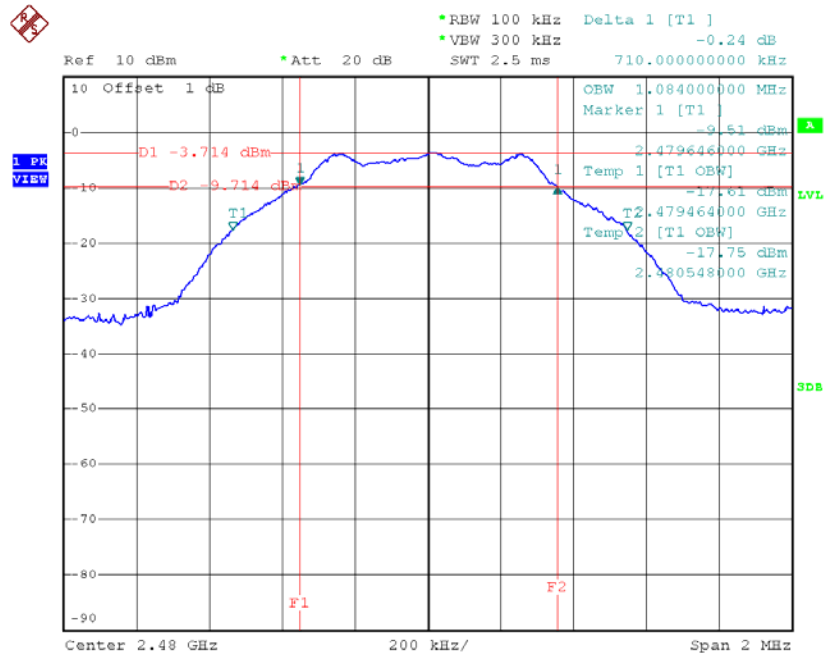
Date: 27.JUN.2016 19:43:10

### TX CH19



Date: 27.JUN.2016 19:45:01

### TX CH39



Date: 27.JUN.2016 19:47:00

## ATTACHMENT F - MAXIMUM OUTPUT POWER TEST

Test Mode :	CH00, CH19 , CH39
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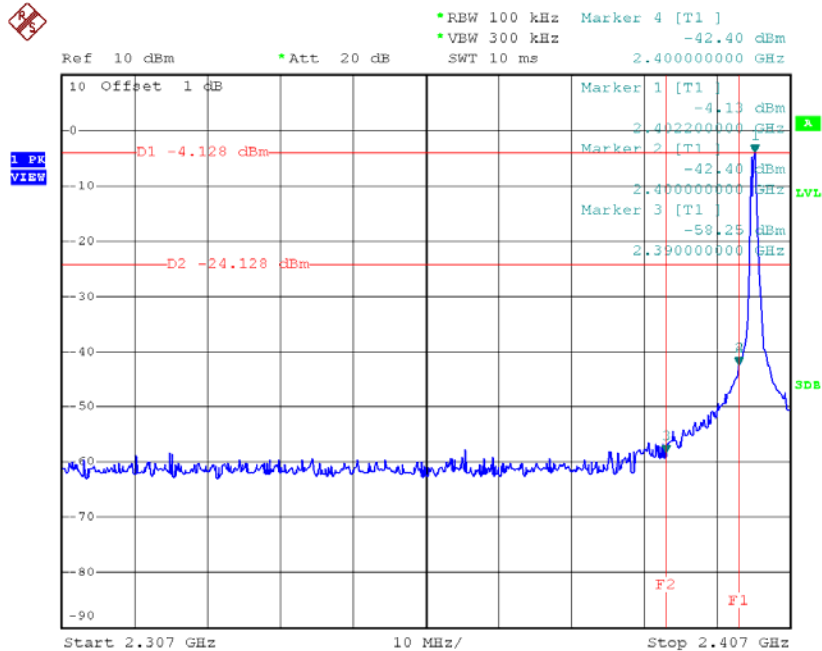
Frequency	Conducted Power (dBm)	Conducted Power (W)	Max. Limit(dBm)	Max. Limit(W)	Result
2402 MHz	-3.55	0.0004	30.00	1.0000	Complies
2440 MHz	-3.06	0.0005	30.00	1.0000	Complies
2480 MHz	-3.12	0.0005	30.00	1.0000	Complies

## ATTACHMENT G - ANTENNA CONDUCTED SPURIOUS EMISSION



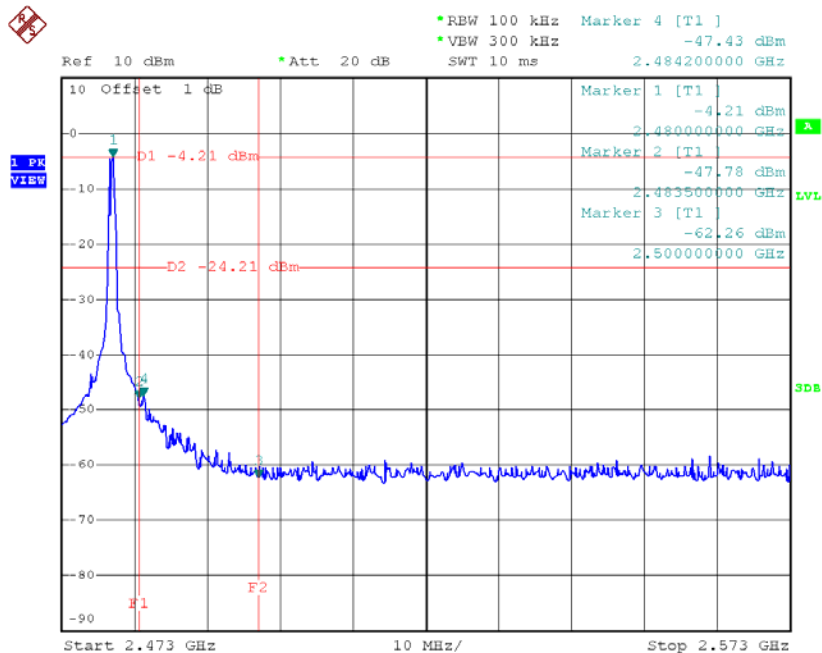
Test Mode : CH00, CH19 , CH39

### CH00 (Lower)



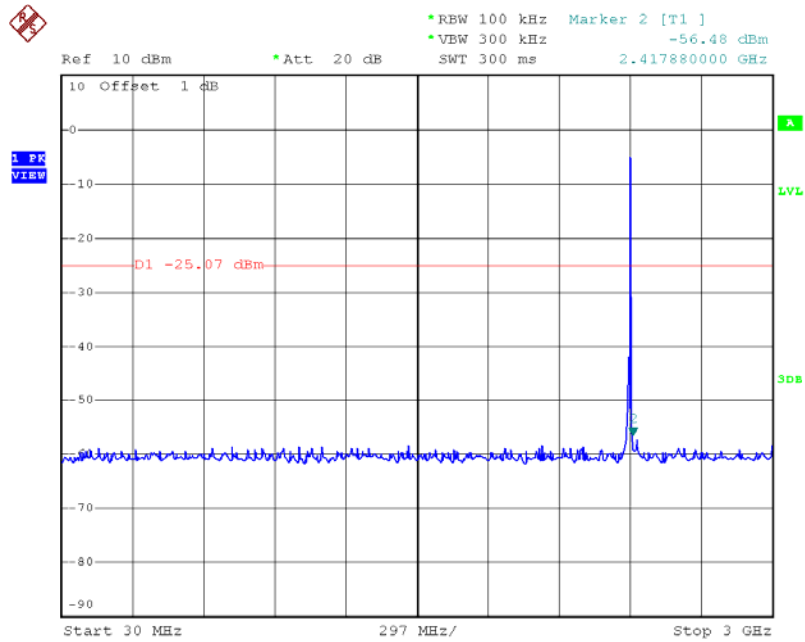
Date: 27.JUN.2016 19:43:19

### CH39 (upper) - 1Mbps



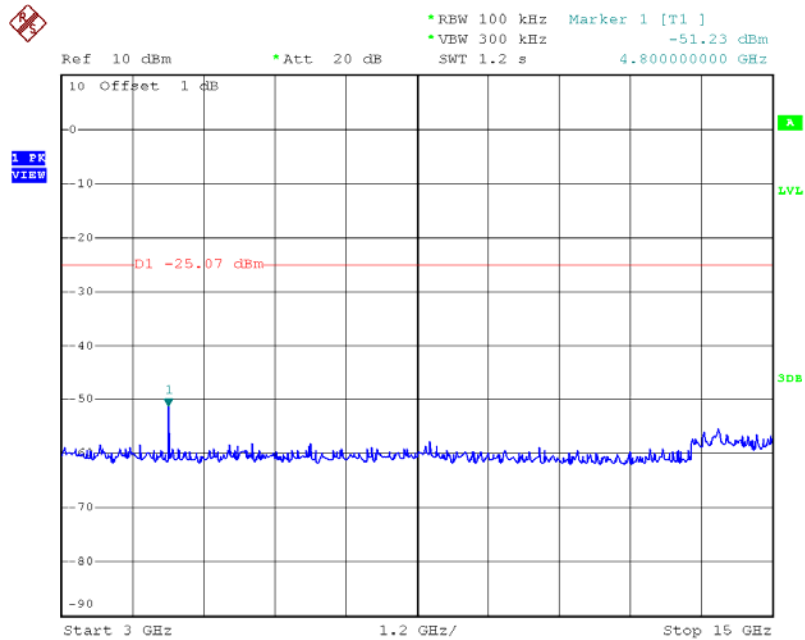
Date: 27.JUN.2016 19:47:09

### CH00 (10 Harmonic of the frequency)-1



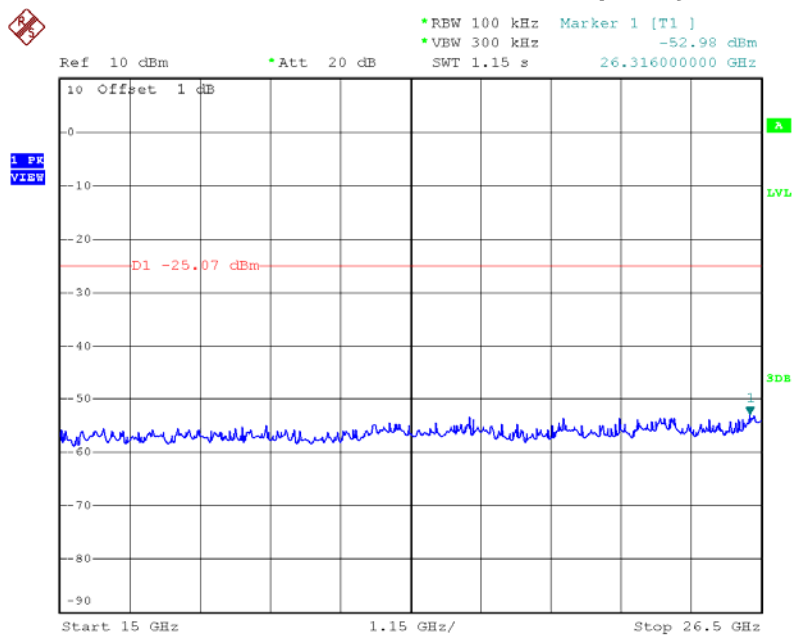
Date: 27.JUN.2016 19:43:32

### CH00 (10 Harmonic of the frequency)-2



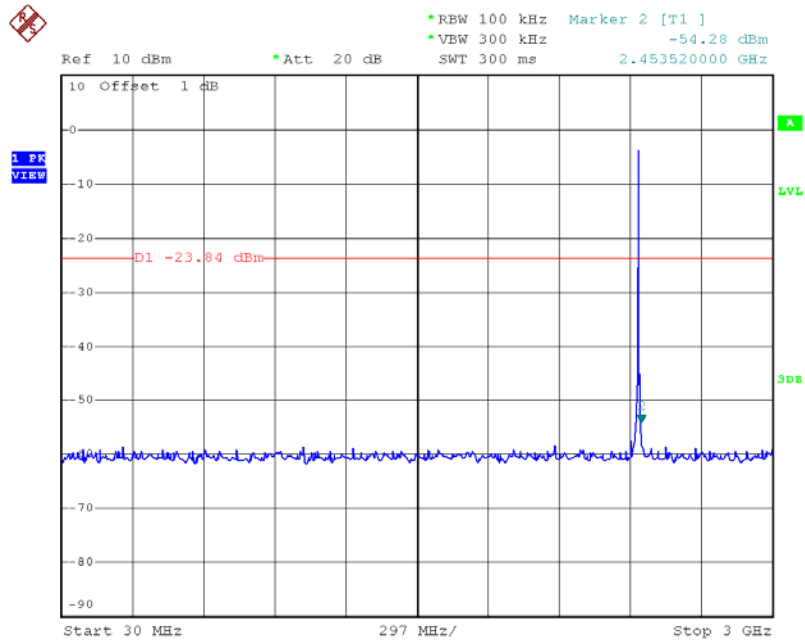
Date: 27.JUN.2016 19:43:41

### CH00 (10 Harmonic of the frequency)-3



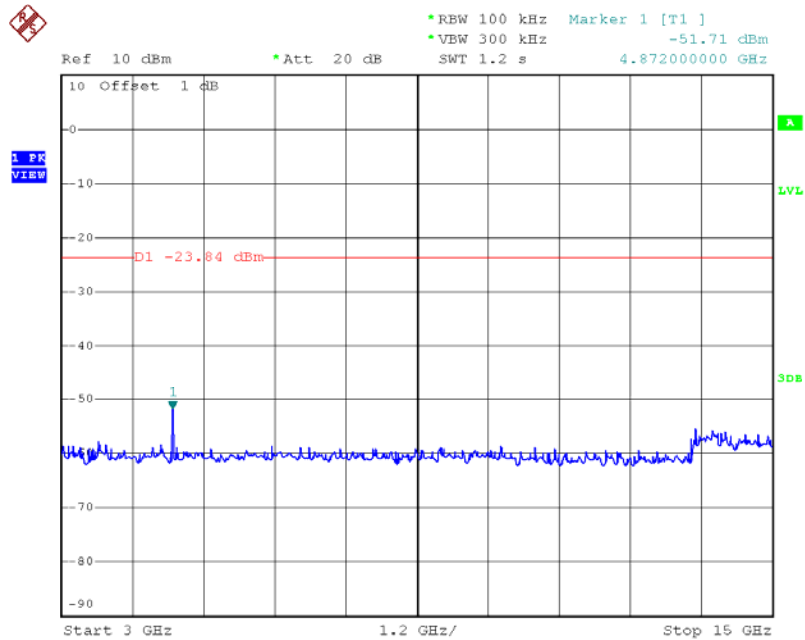
Date: 27.JUN.2016 19:43:49

### CH19 (10 Harmonic of the frequency)-1



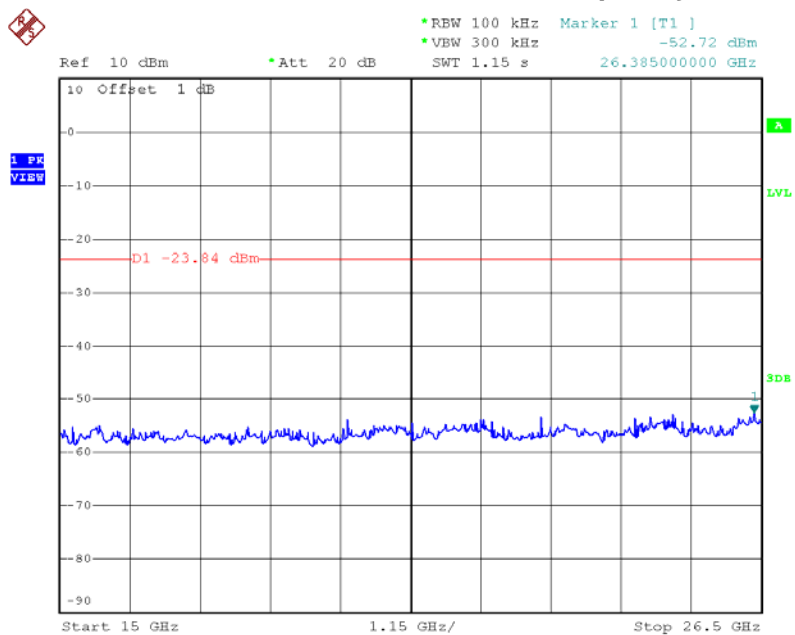
Date: 27.JUN.2016 19:45:15

### CH19 (10 Harmonic of the frequency)-2



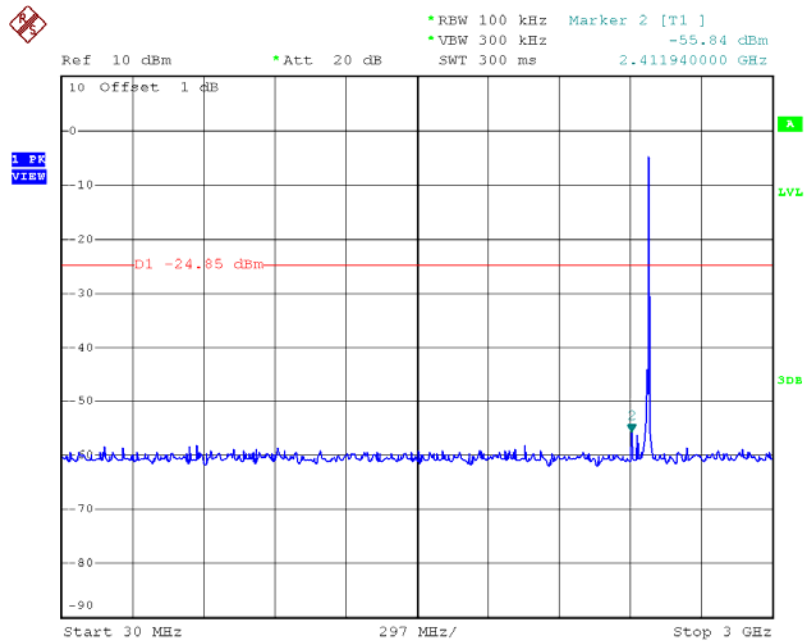
Date: 27.JUN.2016 19:45:24

### CH19 (10 Harmonic of the frequency)-3



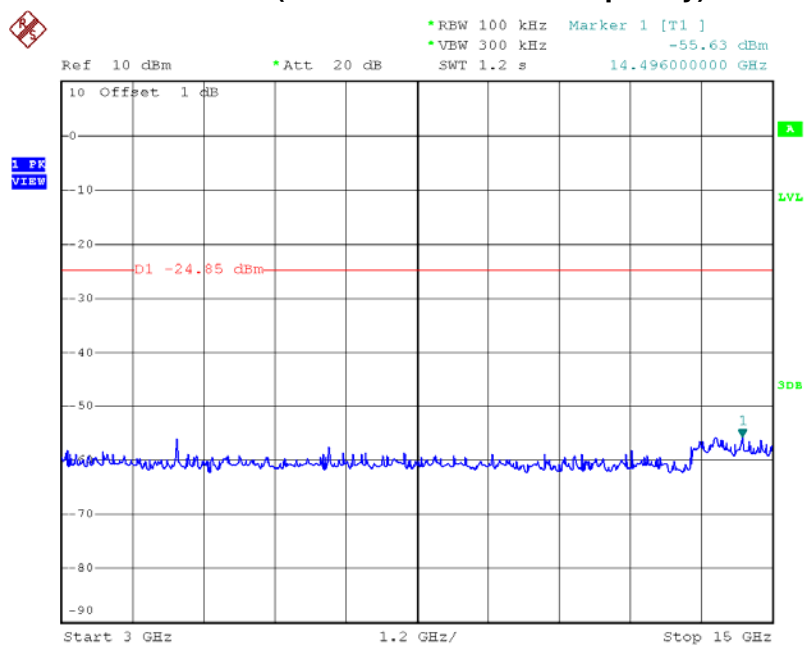
Date: 27.JUN.2016 19:45:32

### CH39 (10 Harmonic of the frequency)-1



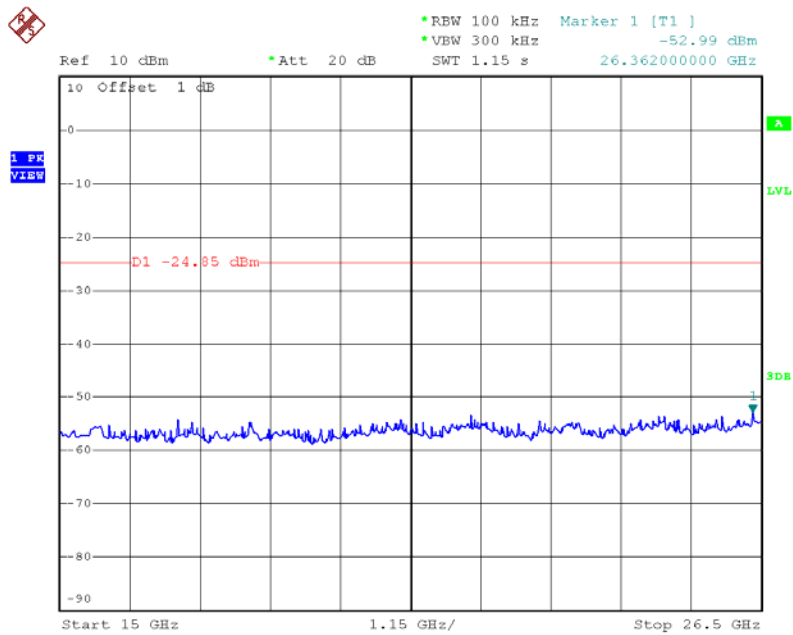
Date: 27.JUN.2016 19:47:22

### CH39 (10 Harmonic of the frequency)-2



Date: 27.JUN.2016 19:47:31

### CH39 (10 Harmonic of the frequency)-3



Date: 27.JUN.2016 19:47:39

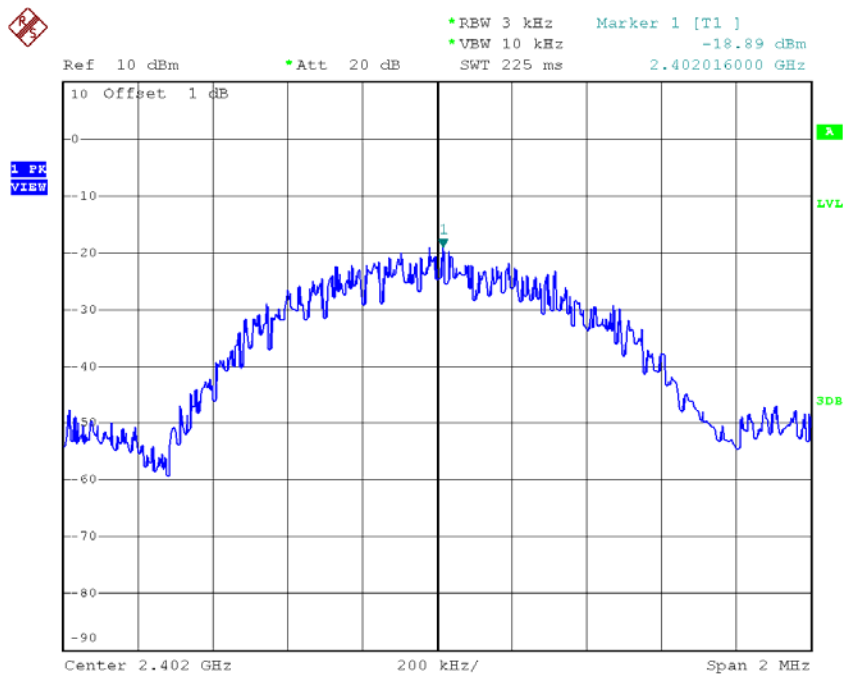
## ATTACHMENT H - POWER SPECTRAL DENSITY TEST



Test Mode :	CH00, CH19 , CH39
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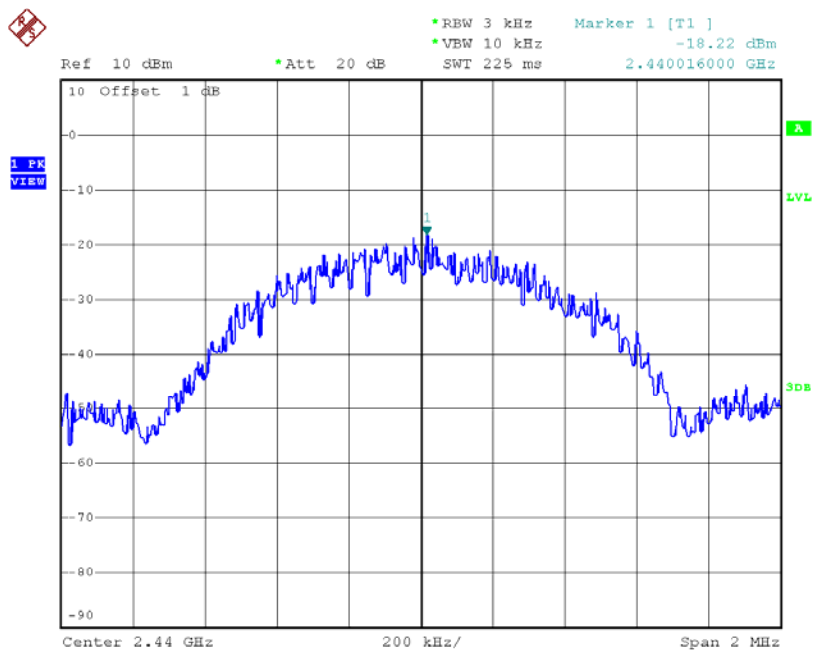
Frequency (MHz)	Power Density (dBm)	Max. Limit (dBm)	Result
2402	-18.89	8	Complies
2440	-18.22	8	Complies
2480	-18.52	8	Complies

### TX CH00



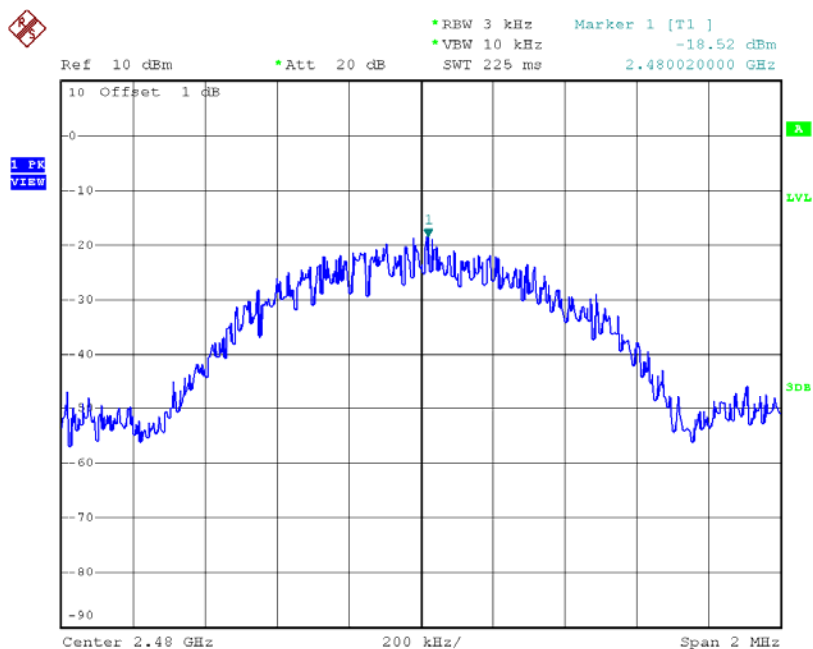
Date: 27.JUN.2016 19:44:00

### TX CH19



Date: 27.JUN.2016 19:45:43

### TX CH39



Date: 27.JUN.2016 19:47:50