

# FCC Radio Test Report

## FCC ID: QISY560-L23

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

**Project No.** : 1505C241  
**Equipment** : Smart Phone  
**Model Name** : HUAWEI Y560-L23, Y560-L23  
**Applicant** : Huawei Technologies Co., Ltd.  
**Address** : Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

**Date of Receipt** : May 22, 2015  
**Date of Test** : May 22, 2015 ~ Jun. 18, 2015  
**Issued Date** : Jun. 19, 2015  
**Tested by** : BTL Inc.

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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-3-1505C241	Original Issue.	Jun. 19, 2015

## 1. CERTIFICATION

Equipment : Smart Phone  
Brand Name : HUAWEI  
Model Name : HUAWEI Y560-L23, Y560-L23  
Applicant : Huawei Technologies Co., Ltd.  
Manufacturer : Huawei Technologies Co., Ltd.  
Address : Administration Building, Headquarters of Huawei Technologies Co., Ltd.,  
Bantian, Longgang District, Shenzhen, 518129, P.R.C  
Date of Test : May 22, 2015 ~ Jun. 18, 2015  
Test Sample : ENGINEERING SAMPLE  
Standard(s) : FCC Part15, Subpart C :2014 (15.247) / ANSI C63.4-2009

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-3-1505C241) 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):

<b>Applied Standard(s): FCC Part15 (15.247) , Subpart C</b>				
Standard(s)	Section	Test Item	Judgment	Remark
	15.207	Conducted Emission	PASS	
	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) The test follows FCC KDB Publication No. 558074 D01 DTS Meas Guidance v03r03 (Measurement Guidelines of DTS)

## 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	1.94	

### 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	Smart Phone	
Brand Name	HUAWEI	
Model Name	HUAWEI Y560-L23, Y560-L23	
Model Difference	Only differ in model name.	
Product Description	Operation Frequency	2402~2480 MHz
	Modulation Technology	GFSK(1Mbps)
	Bit Rate of Transmitter	
	Output Power (Max.)	-0.41 dBm (1Mbps)
Power Source	#1 DC voltage supplied from AC/DC adapter. Brand / Model: HUAWEI / HW-050100U01 #2 Supplied from battery. Brand / Model: HUAWEI / HB474284RBC	
Power Rating	#1 I/P: 100-240V~ 50/60H 0.2A O/P: DC 5V 1A #2 DC 3.8V 2000mAh	

**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)
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:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	-1.5

### 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 possibly 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>
Mode 2	TX Mode

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

For Conducted Test	
Final Test Mode	Description
Mode 2	TX Mode

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) Both adapter and battery are evaluated, operated the adapter is the worst and recorded as below test data
- (3) 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

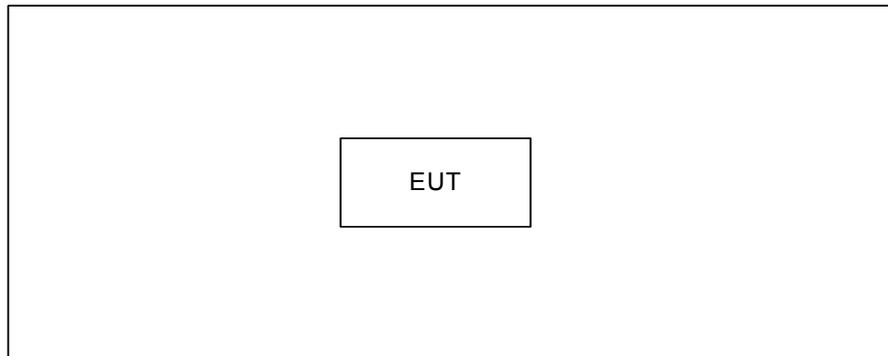
### 3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

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	0		
Frequency (MHz)	2402	2440	2480
BT LE	NA	NA	NA

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

Radiated TX Mode:



### 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.	Note
-	-	-	-	-	-	-

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 (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

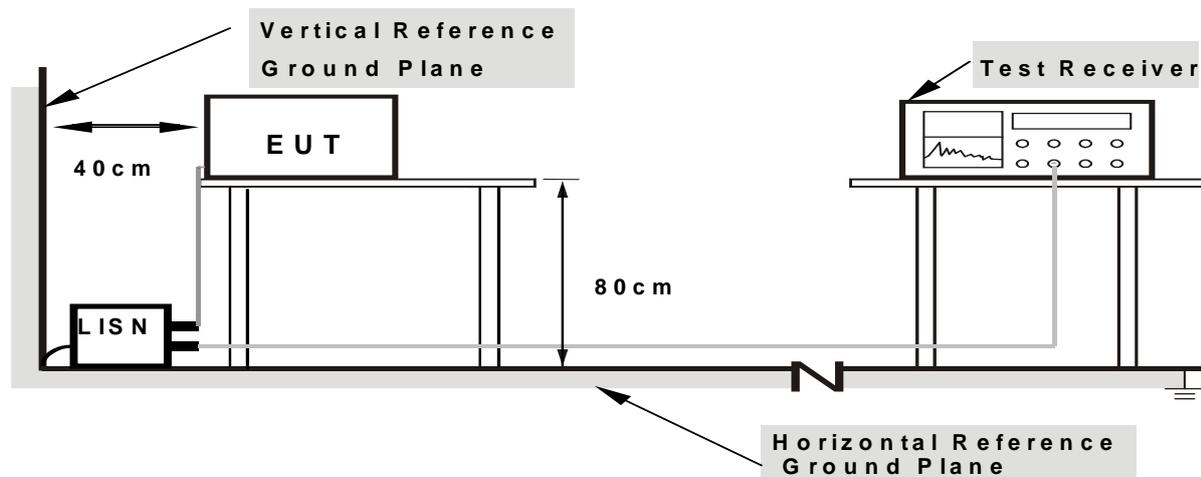
#### 4.1.2 TEST PROCEDURE

- 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 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: 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.
- (3) "N/A" denotes test is not applicable to this device.

## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 RADIATED EMISSION LIMITS

20dB in any 100 KHz bandwidth outside the operating frequency band. 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

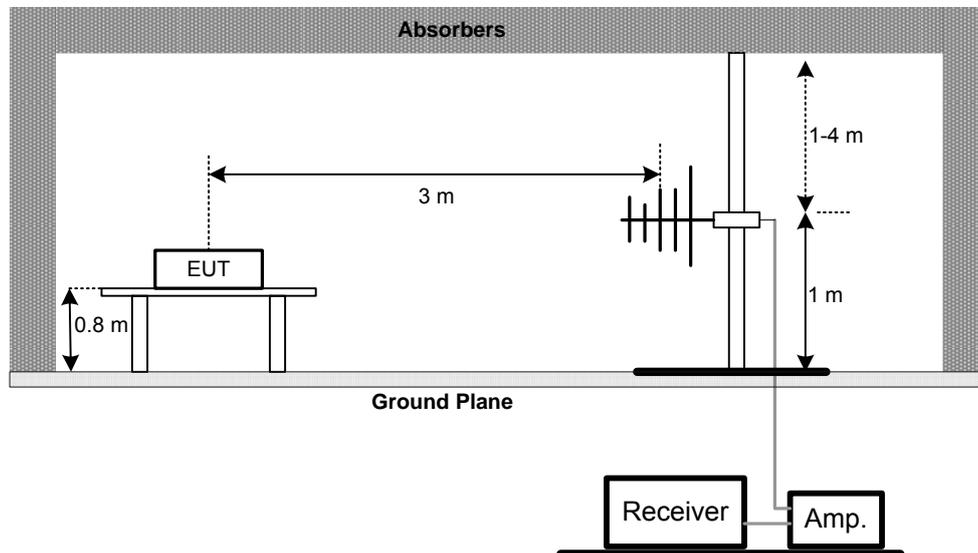
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-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 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 Quasi Peak 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

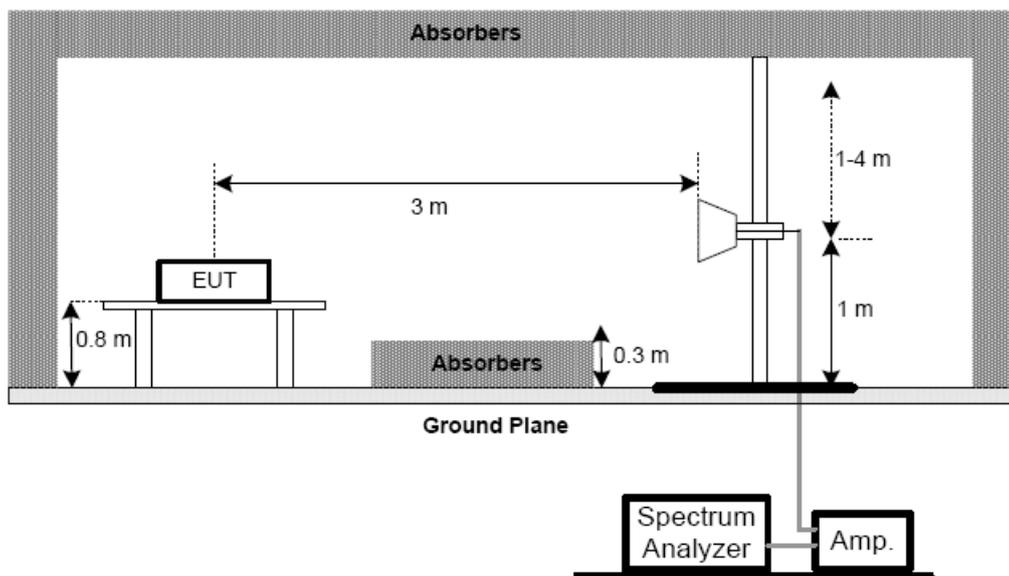
No deviation

#### 4.2.4 TEST SETUP

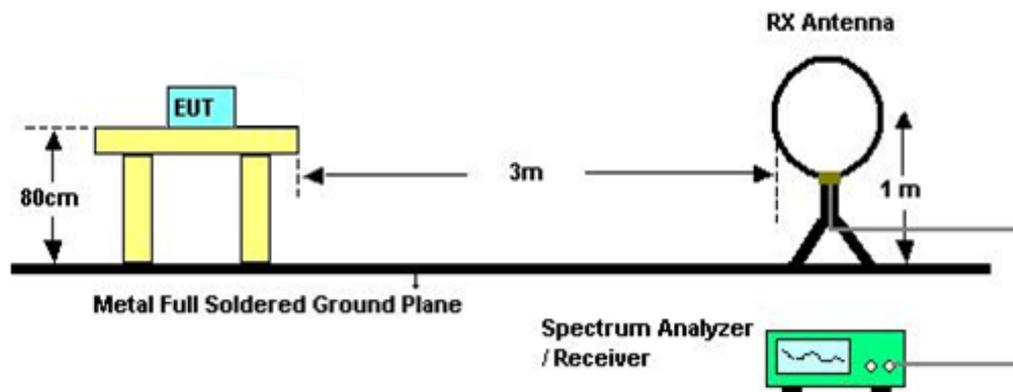
##### (A) Radiated Emission Test Set-Up Frequency Below 1 GHz



##### (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: 25°C

Relative Humidity: 55%

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) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.
- (2) 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.
- (3) Measuring frequency range from 30MHz to 1000MHz.
- (4) 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

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- b. The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance v03r03.

#### 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 intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

#### 7.1.1 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=300KHz, Sweep time = 10 ms.

#### 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 OPERATION 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

- 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=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

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	Schwarzbeck	VULB9160	9160-3232	Mar. 28, 2016
2	Amplifier	HP	8447D	2944A09673	Nov. 17, 2015
3	Receiver	AGILENT	N9038A	MY5213003 9	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	MY5213003 9	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

6dB Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 02, 2015

Peak Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	P-series Power meter	Agilent	N1911A	MY45100473	Mar. 28, 2016
2	Wireband Power sensor	Agilent	N1921A	MY51100041	Mar. 28, 2016

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

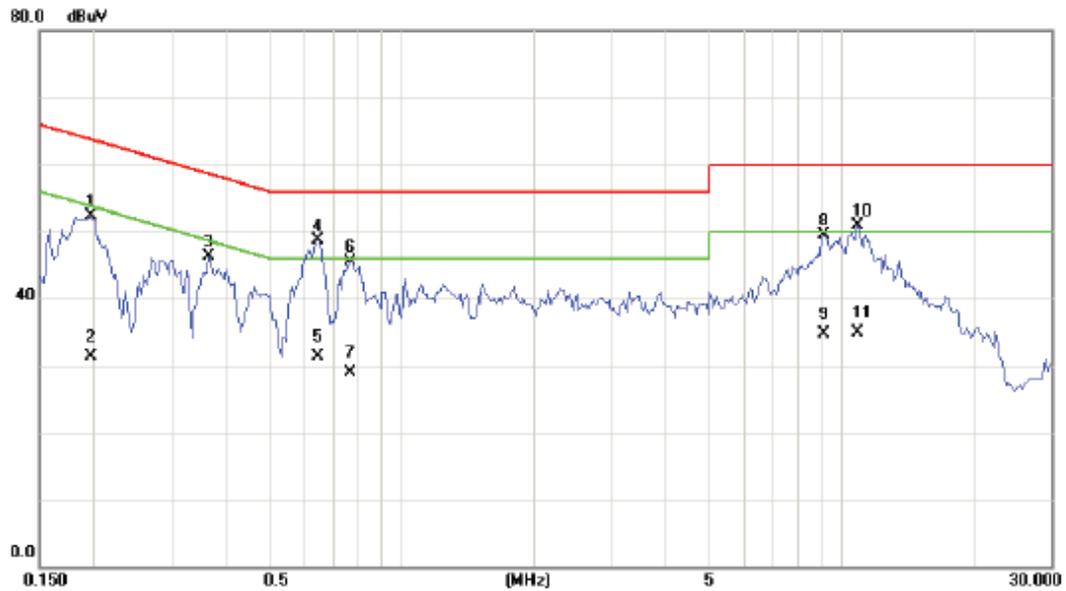
Power Spectral Density Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 02, 2015

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

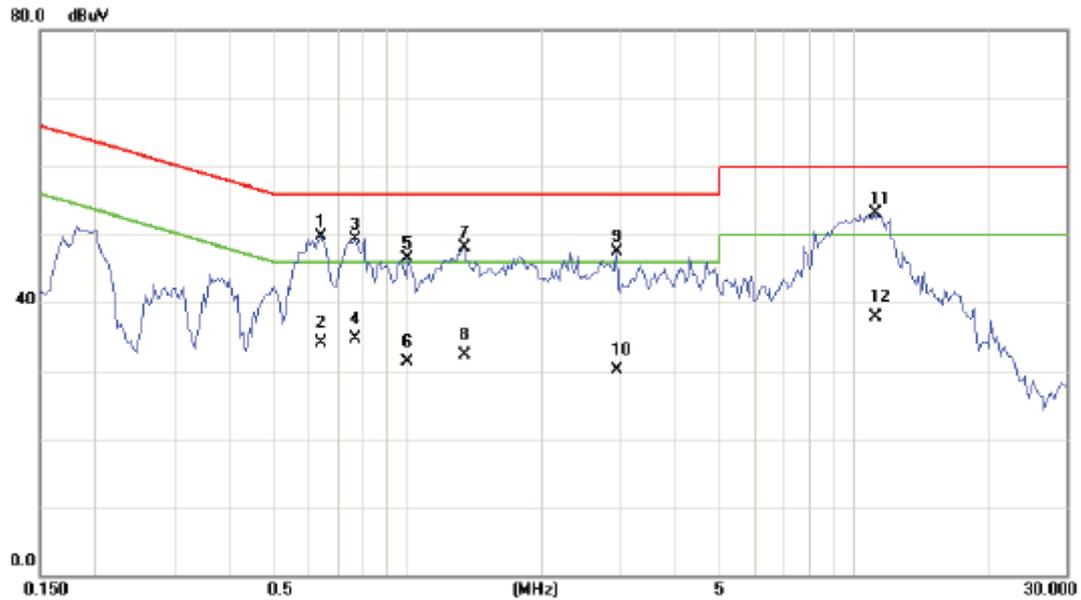
### Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1974	42.67	9.57	52.24	63.72	-11.48	peak	
2		0.1974	21.80	9.57	31.37	53.72	-22.35	AVG	
3		0.3648	36.60	9.66	46.26	58.62	-12.36	peak	
4	*	0.6465	39.06	9.73	48.79	56.00	-7.21	peak	
5		0.6465	21.65	9.73	31.38	46.00	-14.62	AVG	
6		0.7636	35.68	9.75	45.43	56.00	-10.57	peak	
7		0.7636	19.15	9.75	28.90	46.00	-17.10	AVG	
8		9.1446	39.58	9.89	49.47	60.00	-10.53	peak	
9		9.1446	24.78	9.89	34.67	50.00	-15.33	AVG	
10		10.9072	40.94	9.87	50.81	60.00	-9.19	peak	
11		10.9072	24.95	9.87	34.82	50.00	-15.18	AVG	

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	*	0.6425	40.23	9.55	49.78	56.00	-6.22	peak	
2		0.6425	24.58	9.55	34.13	46.00	-11.87	AVG	
3		0.7636	39.76	9.55	49.31	56.00	-6.69	peak	
4		0.7636	25.23	9.55	34.78	46.00	-11.22	AVG	
5		1.0020	36.88	9.58	46.46	56.00	-9.54	peak	
6		1.0020	21.76	9.58	31.34	46.00	-14.66	AVG	
7		1.3417	38.41	9.64	48.05	56.00	-7.95	peak	
8		1.3417	22.68	9.64	32.32	46.00	-13.68	AVG	
9		2.9395	37.76	9.81	47.57	56.00	-8.43	peak	
10		2.9395	20.27	9.81	30.08	46.00	-15.92	AVG	
11		11.1832	43.33	9.86	53.19	60.00	-6.81	peak	
12		11.1832	27.96	9.86	37.82	50.00	-12.18	AVG	

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

Test Mode:	TX Mode
------------	---------

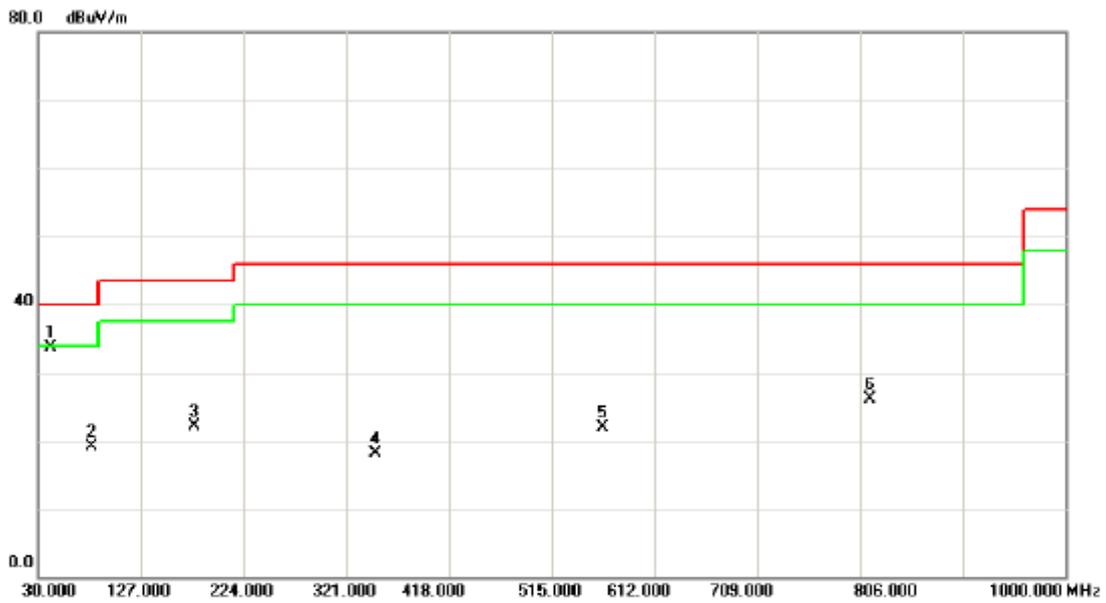
Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0165	0°	13.57	24.52	38.09	123.25	-85.16	AVG
0.0165	0°	14.61	24.52	39.13	143.25	-104.12	PK
0.0363	0°	6.88	23.27	30.15	116.41	-86.26	AVG
0.0363	0°	7.62	23.27	30.89	136.41	-105.52	PK
0.0392	0°	3.81	23.08	26.89	115.74	-88.84	AVG
0.0392	0°	5.53	23.08	28.61	135.74	-107.12	PK
0.0471	0°	0.88	22.58	23.46	114.14	-90.68	AVG
0.0471	0°	3.14	22.58	25.72	134.14	-108.42	PK
2.0663	0°	30.62	19.46	50.08	69.54	-19.46	QP
3.3684	0°	21.75	18.94	40.69	69.54	-28.85	QP

Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0163	90°	13.62	24.30	37.92	123.36	-85.44	AVG
0.0163	90°	14.63	24.30	38.93	143.36	-104.43	PK
0.0367	90°	6.41	23.24	29.65	116.31	-86.66	AVG
0.0367	90°	8.82	23.24	32.06	136.31	-104.25	PK
0.0386	90°	3.69	23.12	26.81	115.87	-89.06	AVG
0.0386	90°	5.53	23.12	28.65	135.87	-107.22	PK
0.0688	90°	0.72	22.02	22.74	110.85	-88.11	AVG
0.0688	90°	2.87	22.02	24.89	130.85	-105.96	PK
2.0572	90°	30.58	19.47	50.05	69.54	-19.49	QP
3.2469	90°	21.54	18.92	40.46	69.54	-29.08	QP

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

Test Mode: TX 2402MHz -CH00 -1Mbps

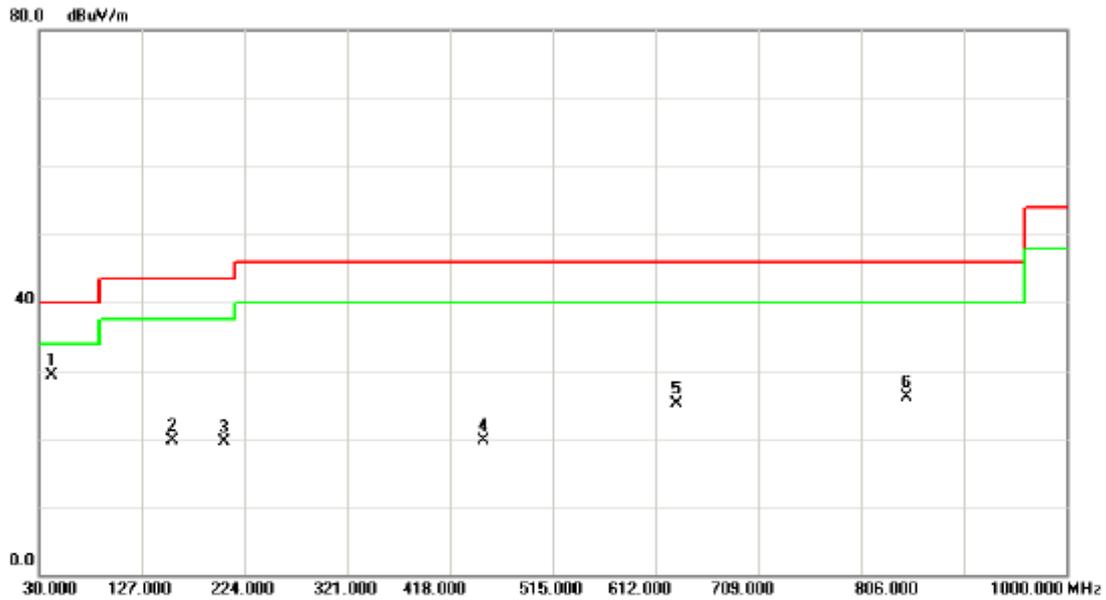
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	42.6100	48.85	-15.07	33.78	40.00	-6.22	peak	
2		81.4100	35.26	-16.13	19.13	40.00	-20.87	peak	
3		177.4400	34.94	-12.77	22.17	43.50	-21.33	peak	
4		349.1300	28.98	-10.94	18.04	46.00	-27.96	peak	
5		563.5000	29.02	-7.18	21.84	46.00	-24.16	peak	
6		815.7000	29.81	-3.71	26.10	46.00	-19.90	peak	

Test Mode: TX 2402MHz -CH00 -1Mbps

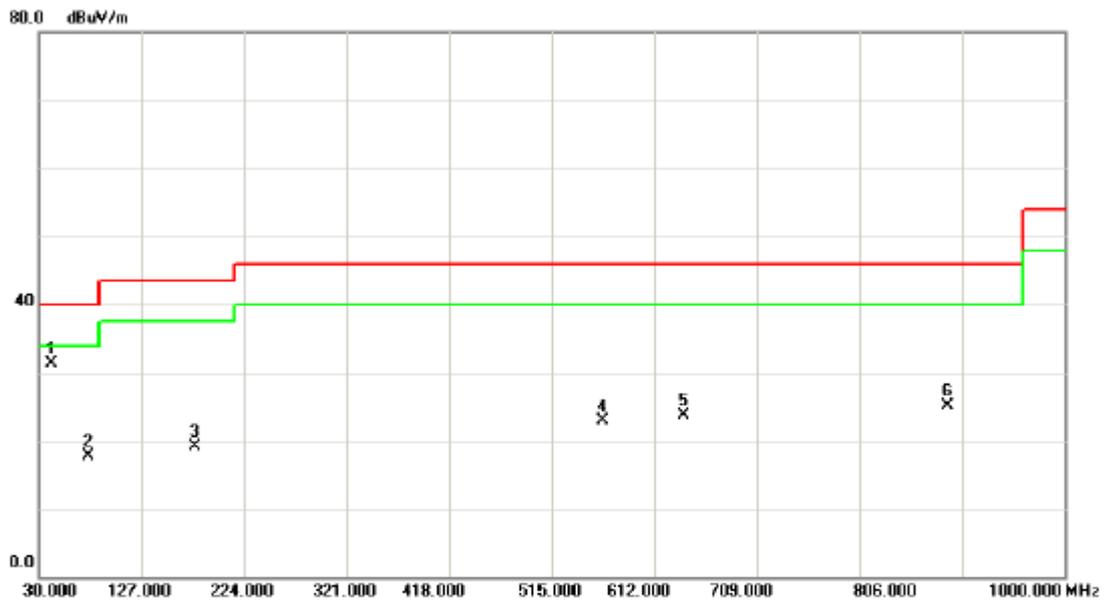
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	42.6100	44.33	-15.07	29.26	40.00	-10.74	peak	
2		156.1000	33.52	-13.72	19.80	43.50	-23.70	peak	
3		205.5700	34.09	-14.59	19.50	43.50	-24.00	peak	
4		449.0400	29.01	-9.38	19.63	46.00	-26.37	peak	
5		631.4000	31.20	-6.16	25.04	46.00	-20.96	peak	
6		849.6500	29.34	-3.15	26.19	46.00	-19.81	peak	

Test Mode: TX 2440MHz -CH19 -1Mbps

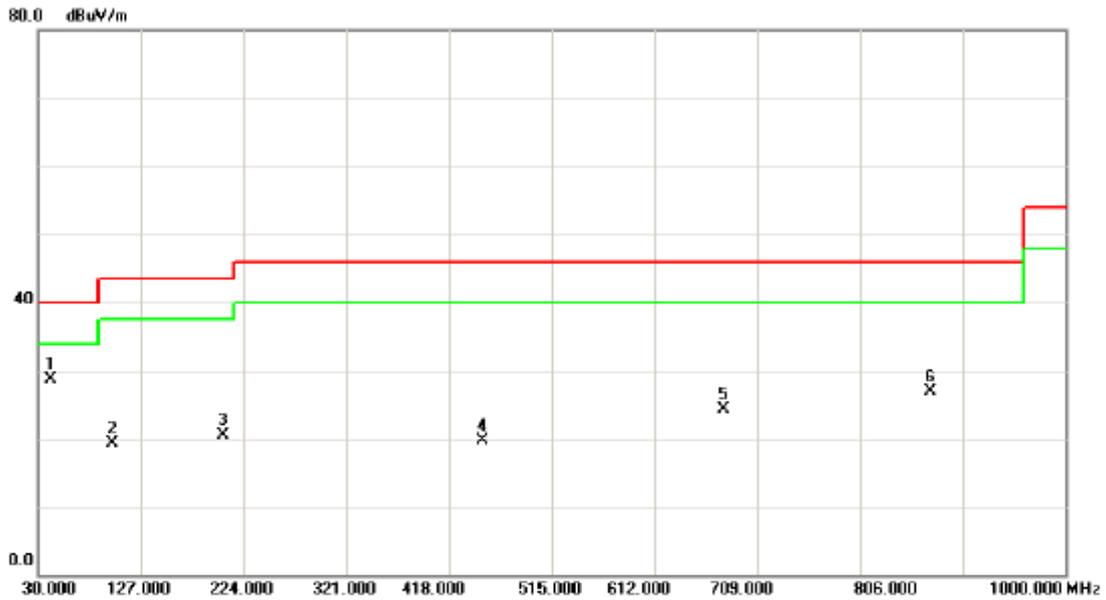
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	42.6100	46.35	-15.07	31.28	40.00	-8.72	peak	
2		76.5600	33.81	-16.04	17.77	40.00	-22.23	peak	
3		177.4400	31.94	-12.77	19.17	43.50	-24.33	peak	
4		563.5000	30.02	-7.18	22.84	46.00	-23.16	peak	
5		639.1600	29.68	-6.02	23.66	46.00	-22.34	peak	
6		889.4200	27.77	-2.58	25.19	46.00	-20.81	peak	

Test Mode: TX 2440MHz -CH19 -1Mbps

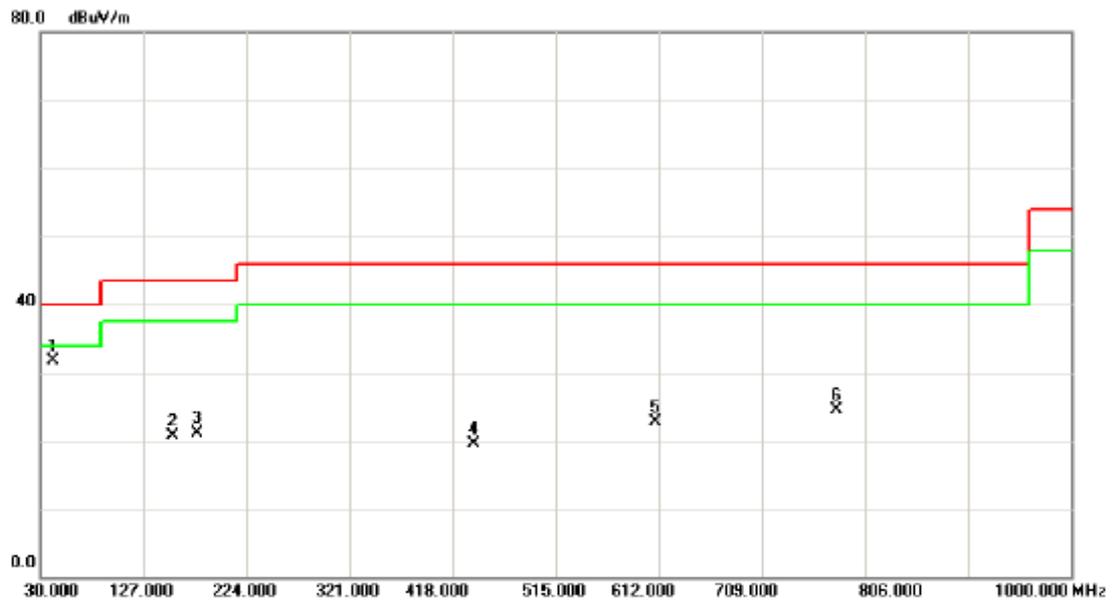
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	42.6100	43.83	-15.07	28.76	40.00	-11.24	peak	
2		99.8400	35.70	-16.31	19.39	43.50	-24.11	peak	
3		205.5700	35.09	-14.59	20.50	43.50	-23.00	peak	
4		449.0400	29.01	-9.38	19.63	46.00	-26.37	peak	
5		676.9900	30.31	-5.97	24.34	46.00	-21.66	peak	
6		871.9600	29.69	-2.84	26.85	46.00	-19.15	peak	

Test Mode: TX 2480MHz -CH39 -1Mbps

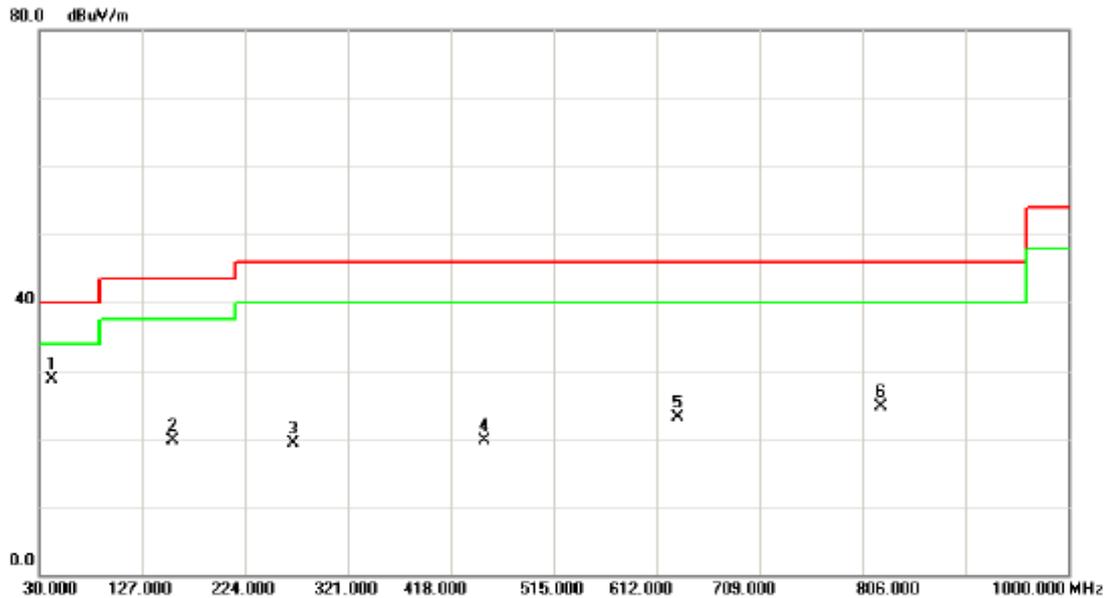
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	42.6100	46.85	-15.07	31.78	40.00	-8.22	peak	
2		154.1600	34.46	-13.71	20.75	43.50	-22.75	peak	
3		177.4400	33.94	-12.77	21.17	43.50	-22.33	peak	
4		437.4000	29.18	-9.72	19.46	46.00	-26.54	peak	
5		609.0900	29.36	-6.59	22.77	46.00	-23.23	peak	
6		779.8100	29.18	-4.60	24.58	46.00	-21.42	peak	

Test Mode: TX 2480MHz -CH39 -1Mbps

### Horizontal

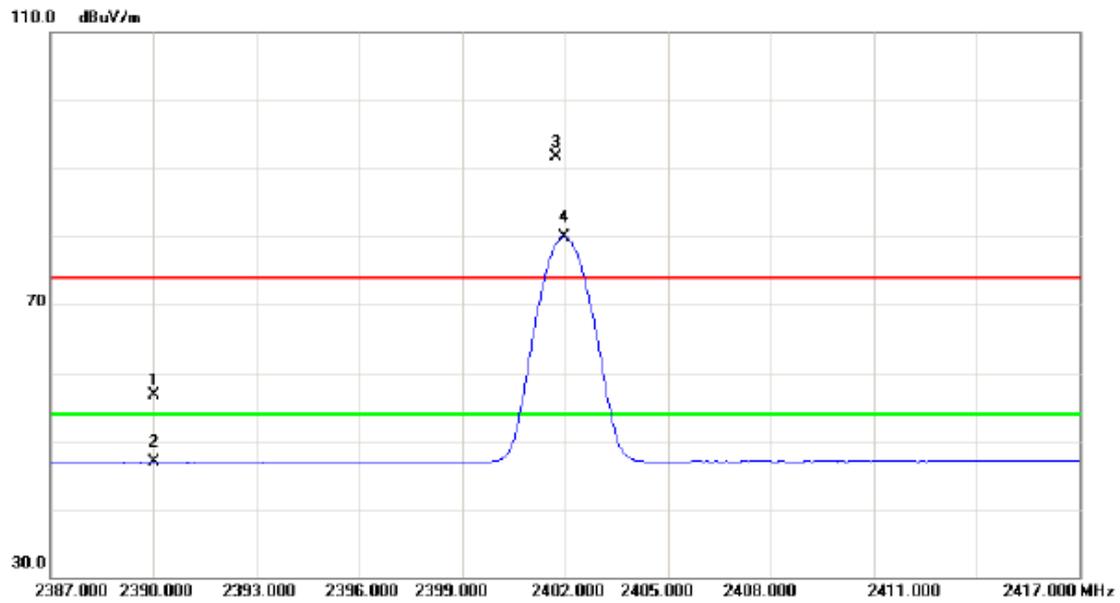


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	42.6100	43.83	-15.07	28.76	40.00	-11.24	peak	
2		156.1000	33.52	-13.72	19.80	43.50	-23.70	peak	
3		269.5900	33.37	-13.99	19.38	46.00	-26.62	peak	
4		449.0400	29.01	-9.38	19.63	46.00	-26.37	peak	
5		631.4000	29.20	-6.16	23.04	46.00	-22.96	peak	
6		823.4600	28.35	-3.58	24.77	46.00	-21.23	peak	

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

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_1Mbps

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	24.08	32.68	56.76	74.00	-17.24	peak	
2		2390.000	14.13	32.68	46.81	54.00	-7.19	AVG	
3	X	2401.730	59.09	32.69	91.78	74.00	17.78	peak	No Limit
4	*	2401.970	47.27	32.69	79.96	54.00	25.96	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_1Mbps

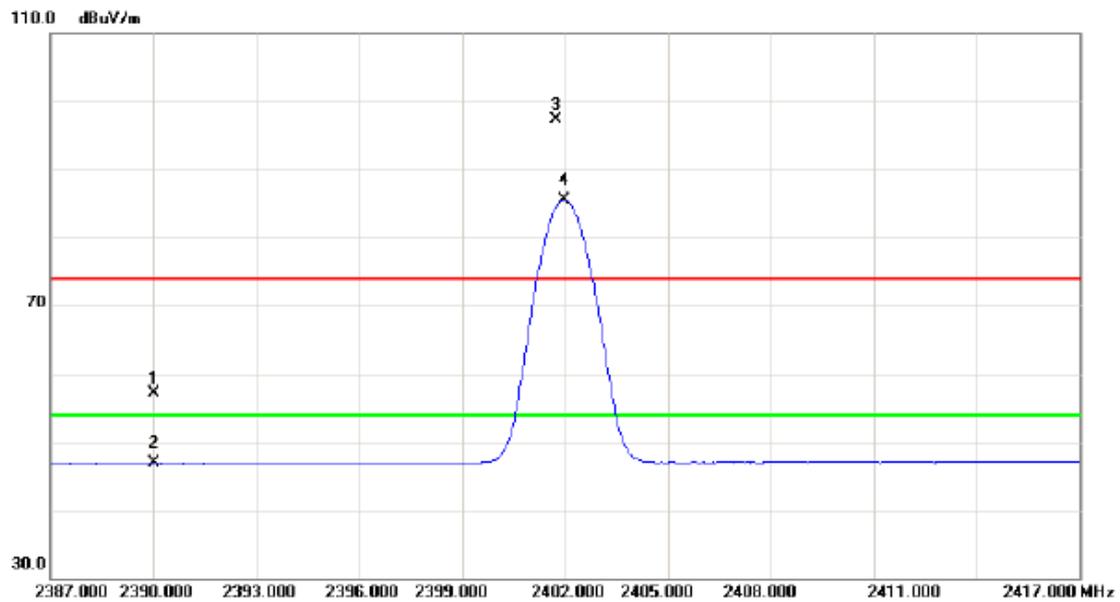
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4803.760	29.54	5.81	35.35	54.00	-18.65	AVG	
2		4803.840	40.08	5.81	45.89	74.00	-28.11	peak	

Orthogonal Axis :	X
Test Mode :	TX 2402MHz_CH00_1Mbps

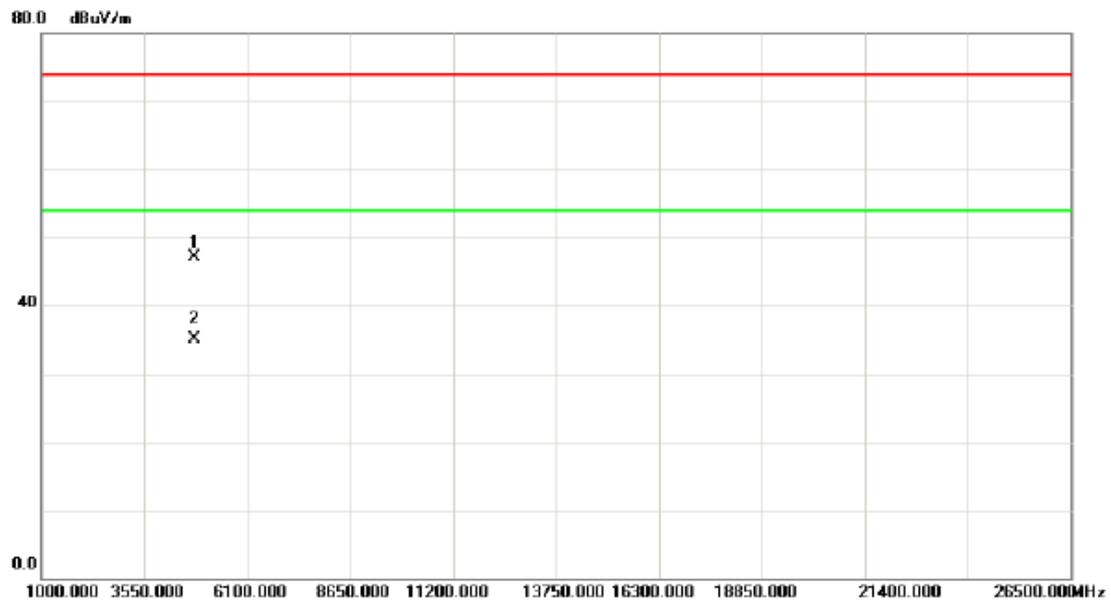
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	24.41	32.68	57.09	74.00	-16.91	peak	
2		2390.000	14.13	32.68	46.81	54.00	-7.19	AVG	
3	X	2401.730	64.61	32.69	97.30	74.00	23.30	peak	No Limit
4	*	2401.970	52.82	32.69	85.51	54.00	31.51	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_1Mbps

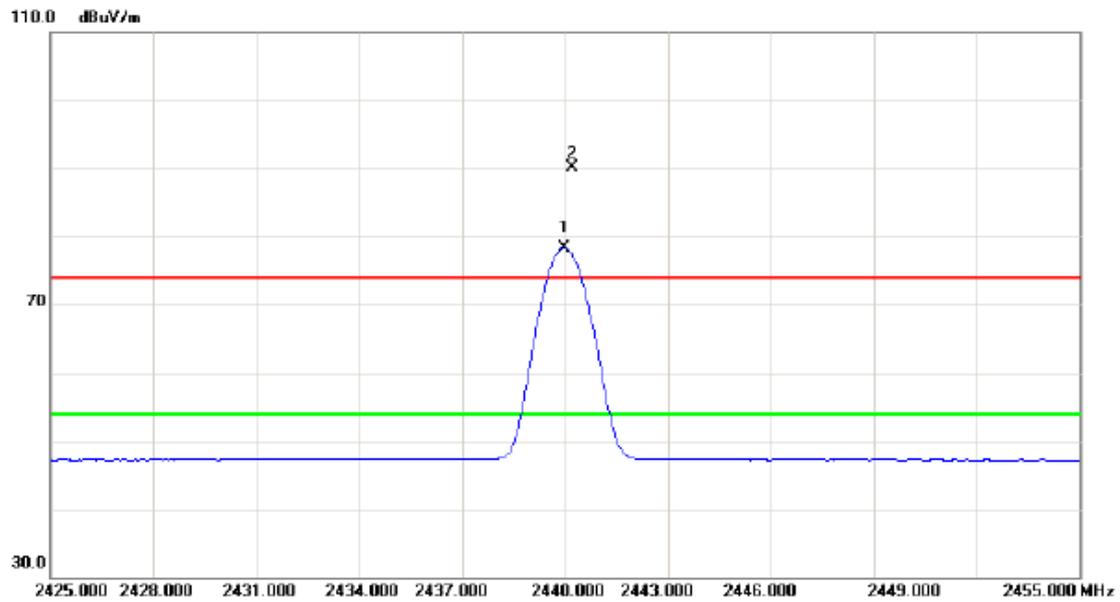
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4803.800	41.29	5.81	47.10	74.00	-26.90	peak	
2	*	4804.140	29.39	5.81	35.20	54.00	-18.80	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19_1Mbps

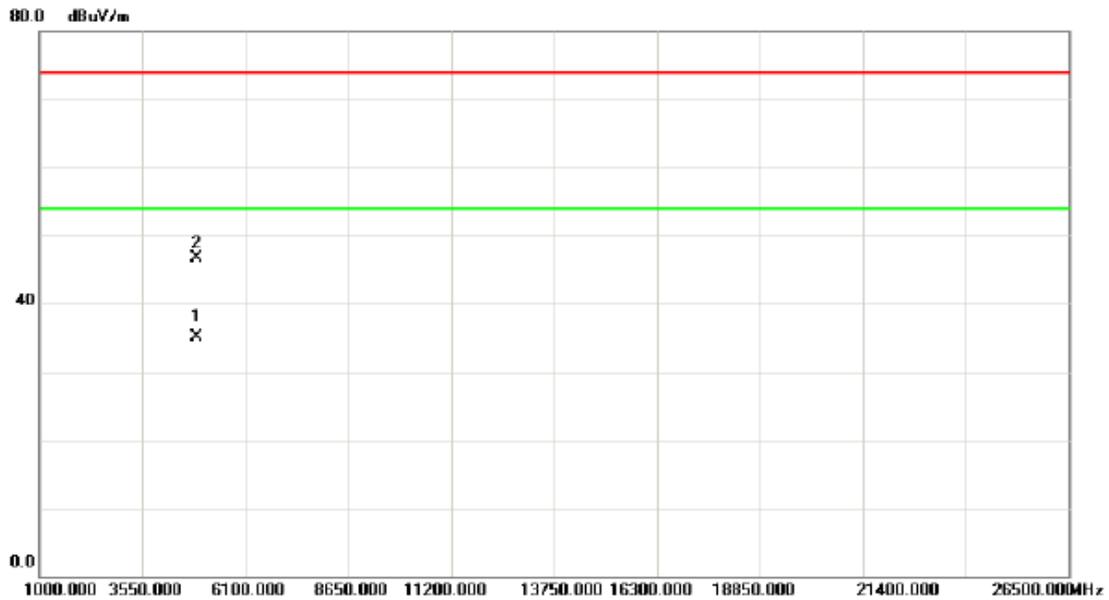
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2439.970	45.62	32.75	78.37	54.00	24.37	AVG	No Limit
2	X	2440.210	57.30	32.75	90.05	74.00	16.05	peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19_1Mbps

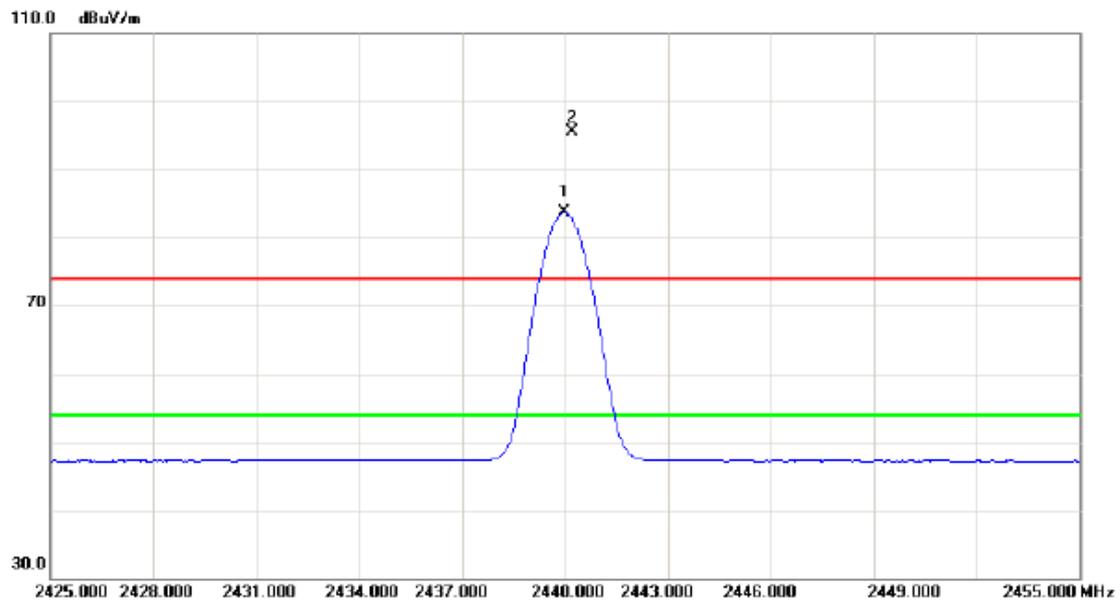
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4880.170	29.09	6.02	35.11	54.00	-18.89	AVG	
2		4880.310	40.65	6.02	46.67	74.00	-27.33	peak	

Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19_1Mbps

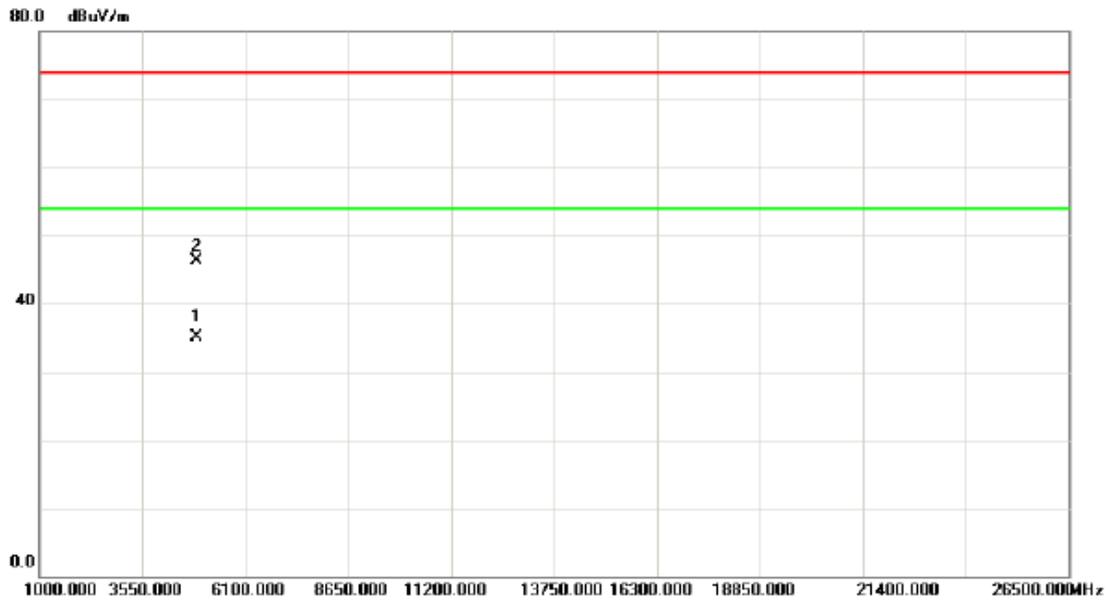
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2439.970	50.92	32.75	83.67	54.00	29.67	AVG	No Limit
2	X	2440.240	62.73	32.75	95.48	74.00	21.48	peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX 2440MHz _CH19_1Mbps

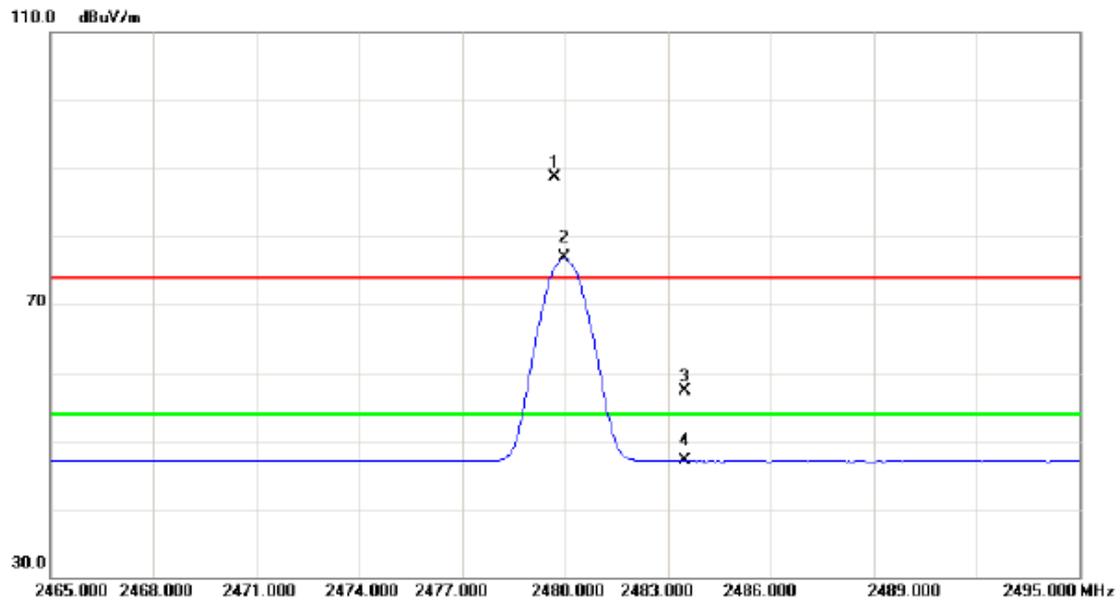
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4880.180	29.10	6.02	35.12	54.00	-18.88	AVG	
2		4881.150	40.31	6.02	46.33	74.00	-27.67	peak	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39_1Mbps

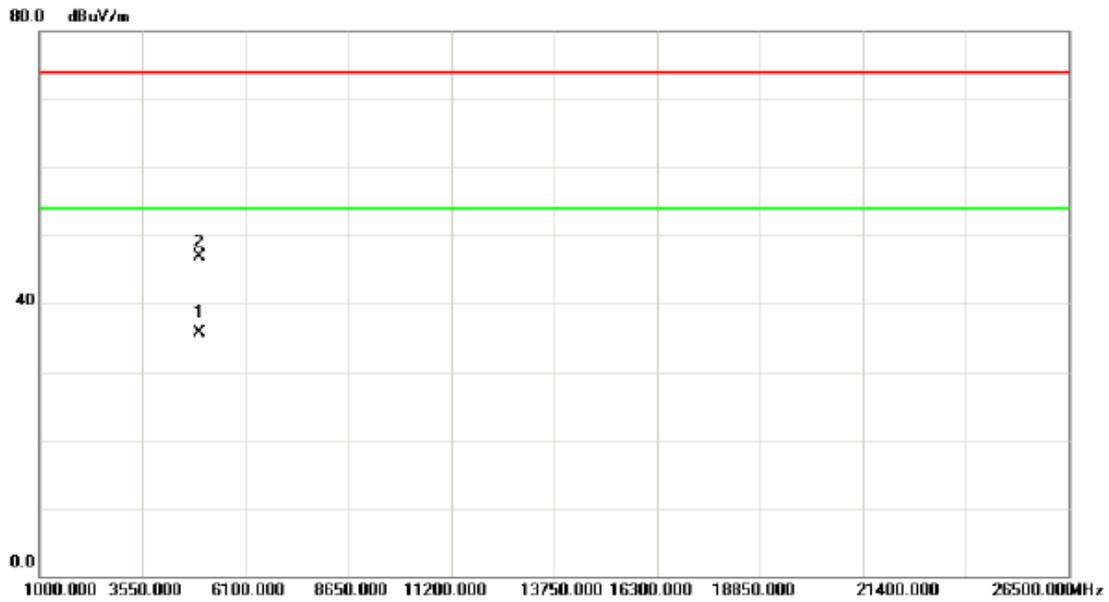
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2479.710	55.83	32.80	88.63	74.00	14.63	peak	No Limit
2	*	2479.970	44.06	32.80	76.86	54.00	22.86	AVG	No Limit
3		2483.500	24.57	32.81	57.38	74.00	-16.62	peak	
4		2483.500	14.21	32.81	47.02	54.00	-6.98	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39_1Mbps

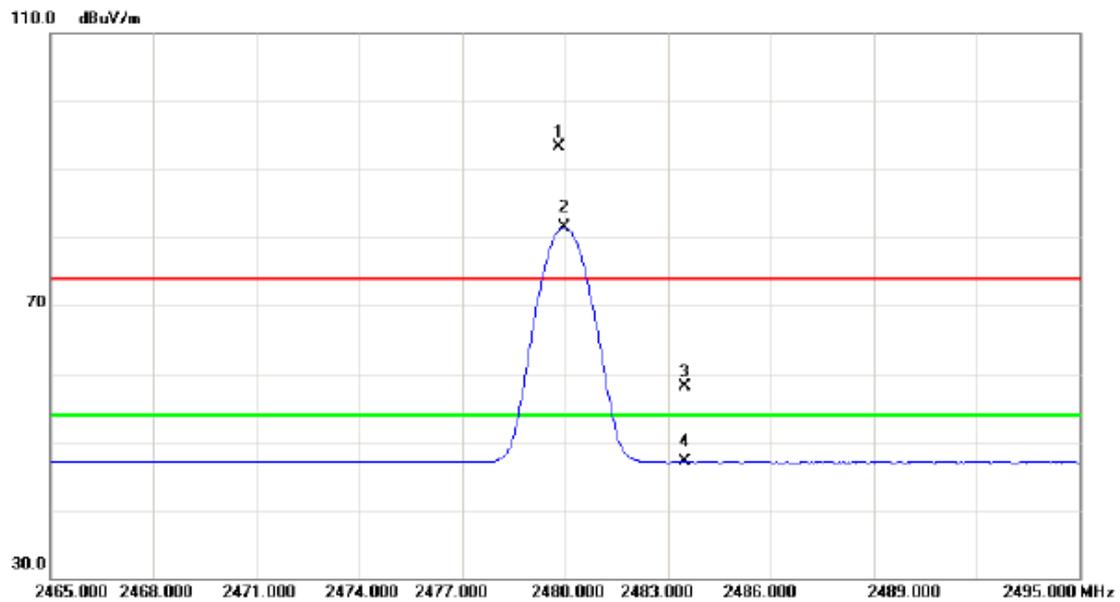
### Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4960.440	29.38	6.24	35.62	54.00	-18.38	AVG	
2		4960.980	40.62	6.24	46.86	74.00	-27.14	peak	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39_1Mbps

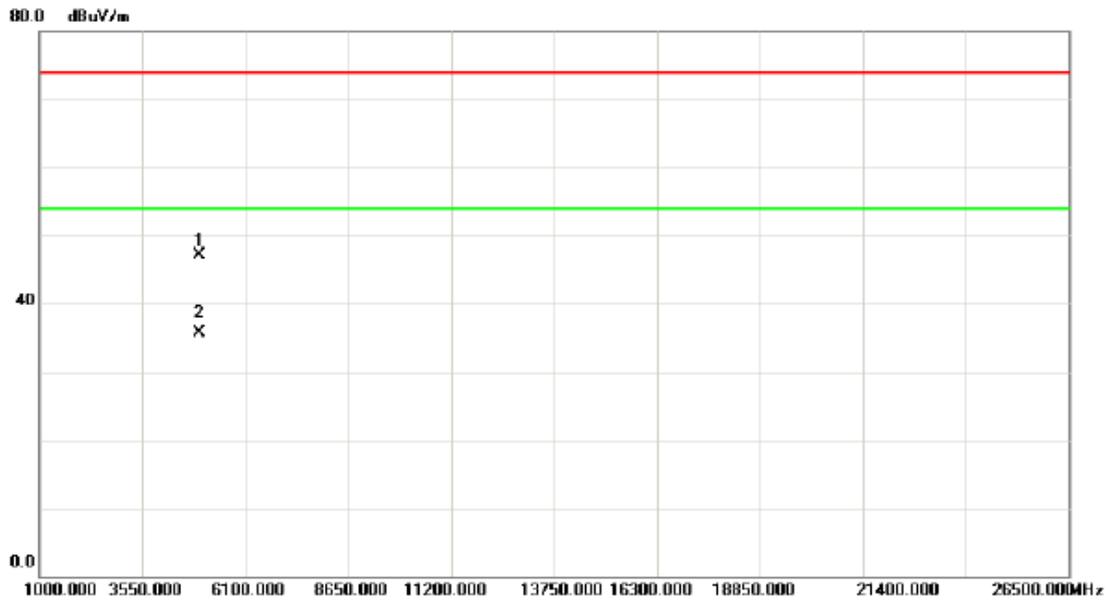
### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2479.820	60.60	32.80	93.40	74.00	19.40	peak	No Limit
2	*	2479.970	48.73	32.80	81.53	54.00	27.53	AVG	No Limit
3		2483.500	25.24	32.81	58.05	74.00	-15.95	peak	
4		2483.500	14.22	32.81	47.03	54.00	-6.97	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH39_1Mbps

### Horizontal



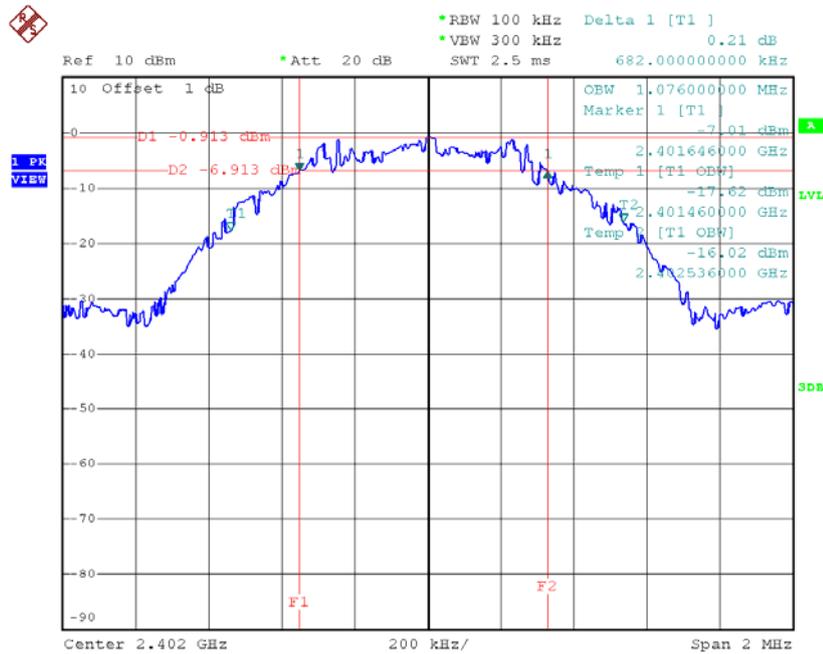
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4959.660	40.81	6.23	47.04	74.00	-26.96	peak	
2	*	4960.550	29.39	6.24	35.63	54.00	-18.37	AVG	

## ATTACHMENT E - BANDWIDTH

Test Mode : TX Mode\_CH00, CH19 , CH39 - 1Mbps

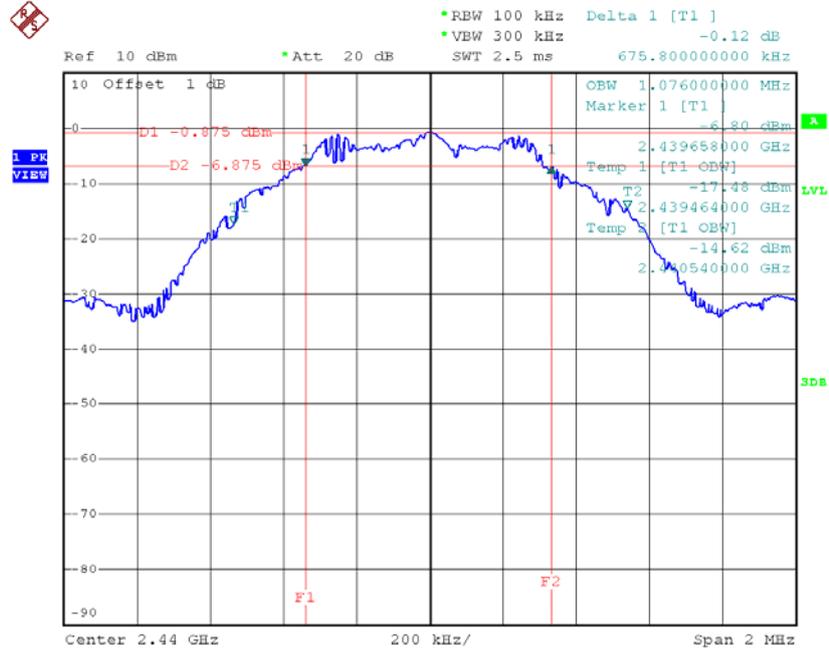
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	0.682	1.076	500	Complies
2440	0.676	1.076	500	Complies
2480	0.684	1.084	500	Complies

### TX CH00



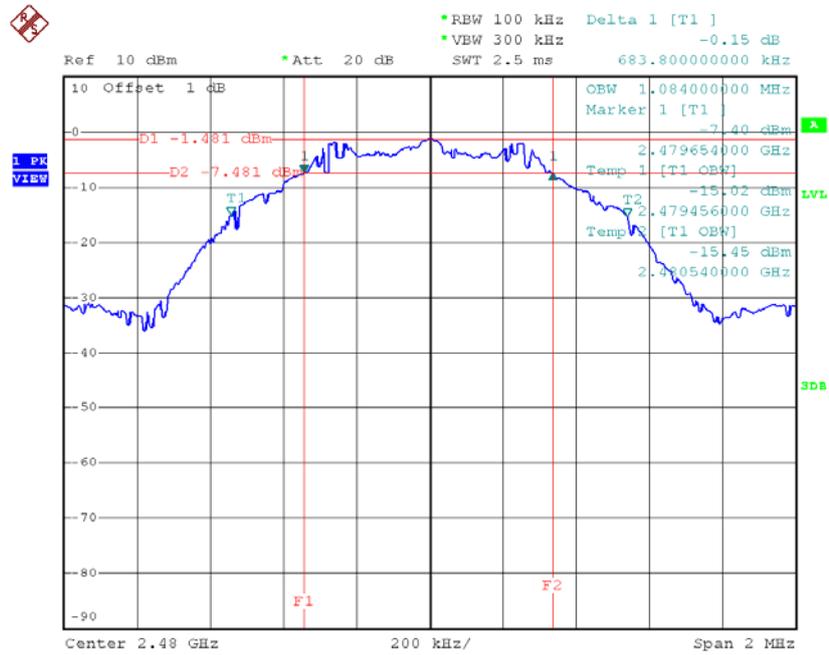
Date: 4.JUN.2015 13:05:35

### TX CH19



Date: 4.JUN.2015 13:08:26

### TX CH39



Date: 4.JUN.2015 13:09:39

## ATTACHMENT F - MAXIMUM OUTPUT POWER TEST

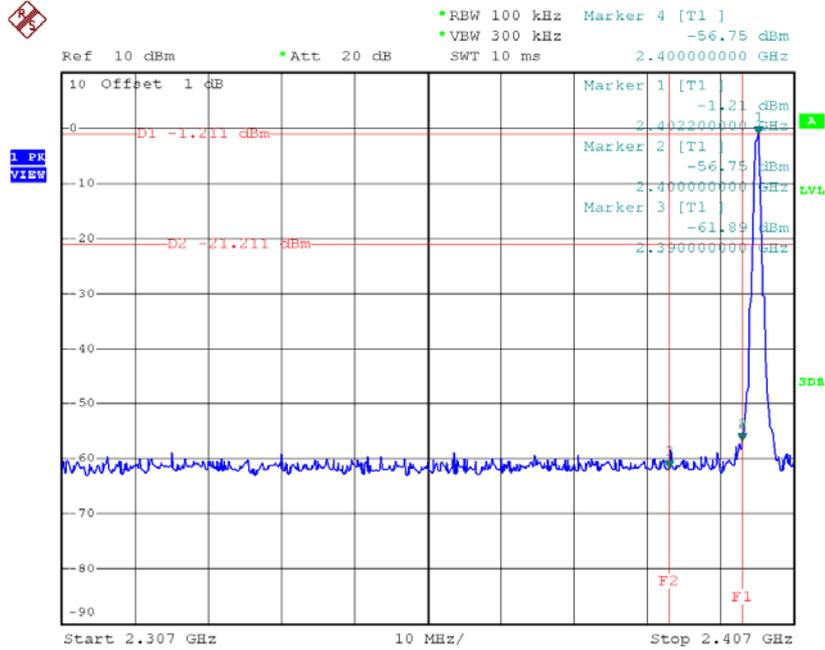
Test Mode : TX Mode\_CH00, CH19 , CH39 - 1Mbps

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watt)	Max. Limit (dBm)	Max. Limit (Watt)	Test Result
2402	-0.41	0.0009	30.00	1.00	Complies
2440	-0.42	0.0009	30.00	1.00	Complies
2480	-1.00	0.0008	30.00	1.00	Complies

**ATTACHMENT G - ANTENNA CONDUCTED SPURIOUS  
EMISSION**

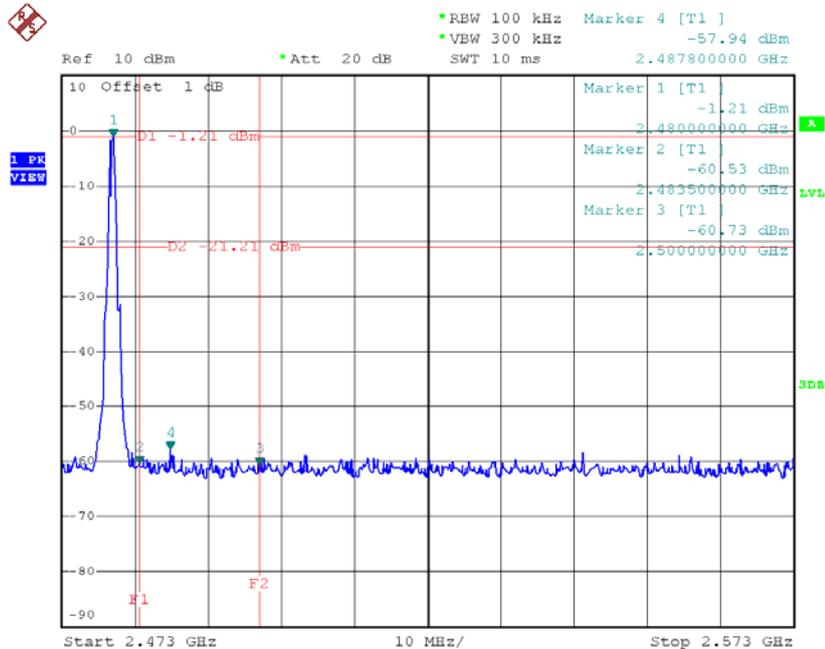
Test Mode : TX Mode\_CH00, CH19, CH39 - 1Mbps

### CH00 (Lower) - 1Mbps



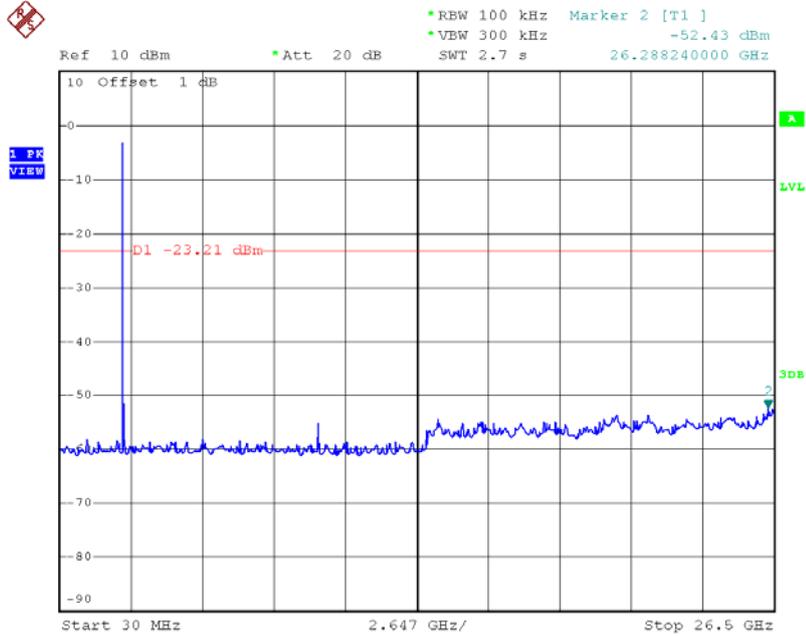
Date: 4.JUN.2015 13:05:43

### CH39 (upper) - 1Mbps



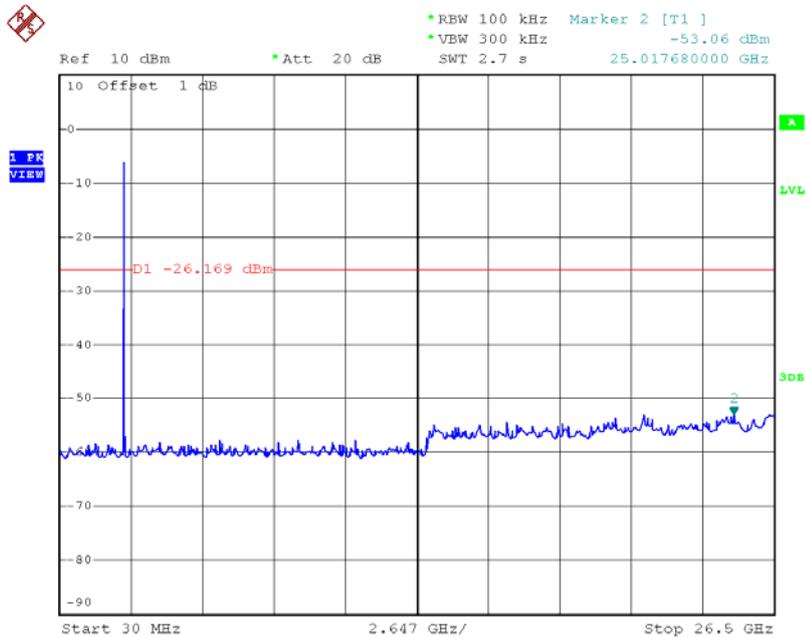
Date: 4.JUN.2015 13:09:47

### CH00 (10 Harmonic of the frequency)



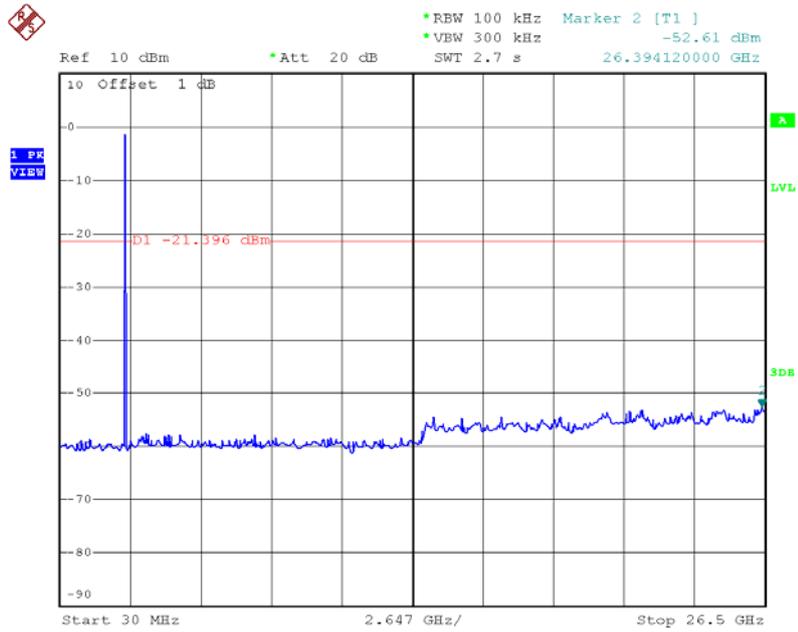
Date: 4.JUN.2015 13:05:57

### CH19 (10 Harmonic of the frequency)



Date: 4.JUN.2015 13:08:43

### CH39 (10 Harmonic of the frequency)



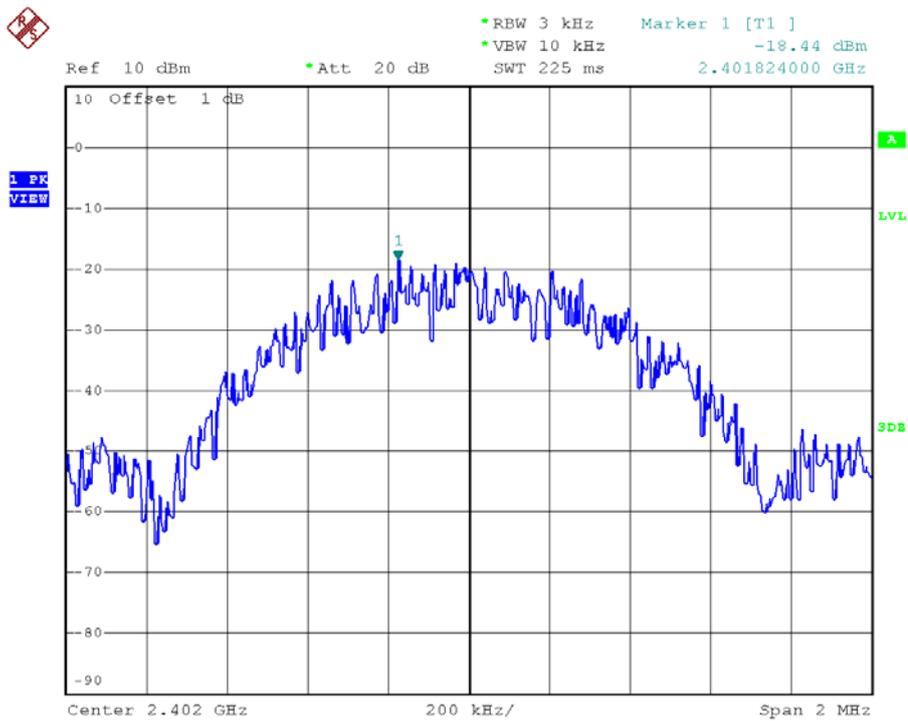
Date: 4.JUN.2015 13:10:12

## ATTACHMENT H - POWER SPECTRAL DENSITY TEST

Test Mode : TX Mode\_CH00, CH19 , CH39 - 1Mbps

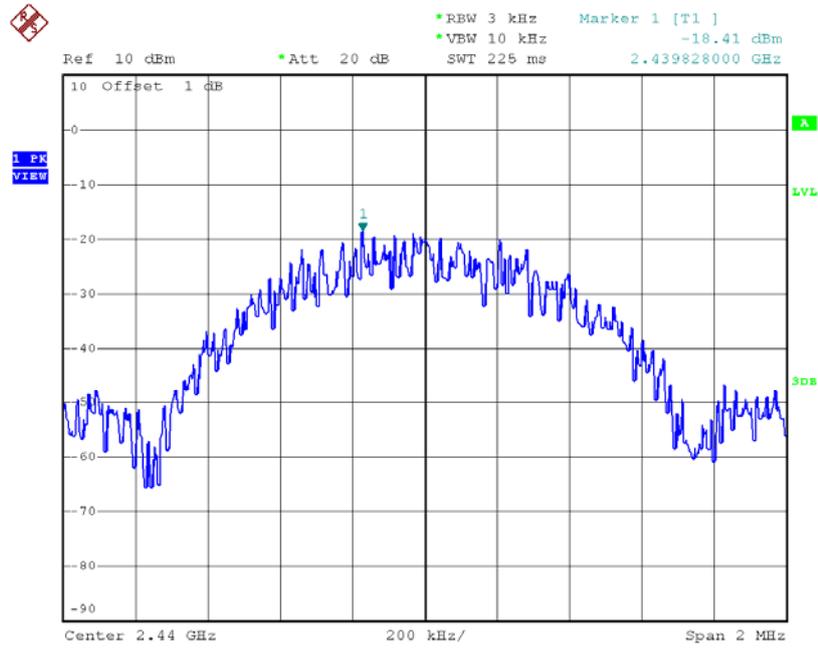
Frequency (MHz)	Power Density (dBm)	Max. Limit (dBm)	Result
2402	-18.44	8	Complies
2440	-18.41	8	Complies
2480	-19.49	8	Complies

**TX CH00**



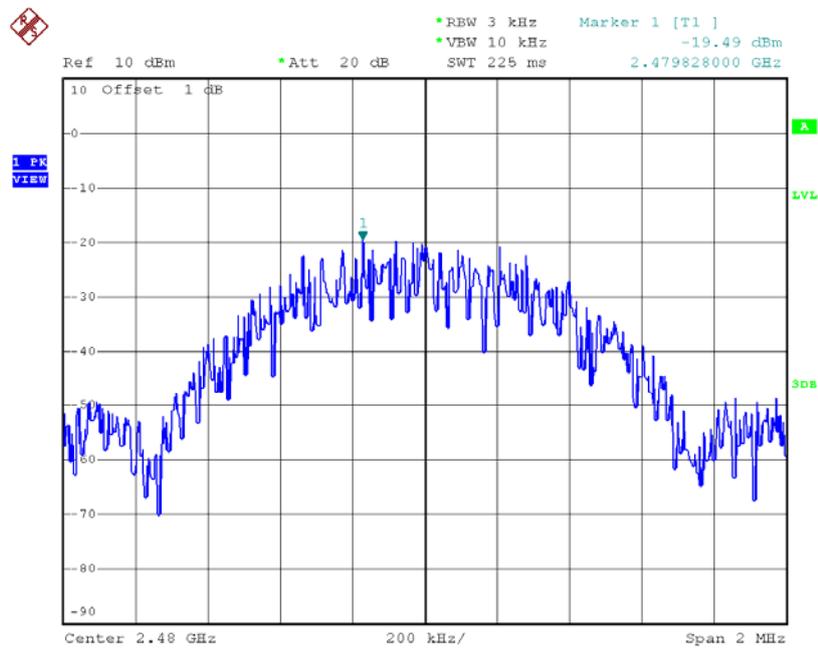
Date: 4.JUN.2015 13:06:03

### TX CH19



Date: 4.JUN.2015 13:08:50

### TX CH39



Date: 4.JUN.2015 13:10:18