

FCC Radio Test Report

FCC ID: P27SZESW02N

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

Project No. : 1608039
Equipment : ZigBee Energy Switch
Model Name : SZ-ESW02,SZ-ESW02Nxxxxxxxx,SZ-BSW02Nxxxxxxxx
(the 1st x should be "blank" or "-" ; the rest x could be 0 to 9, A to Z, "blank" or ,for marketing purpose)
Applicant : Sercomm Corporation
Address : 8F, No. 3-1, YuanQu St., NanKang, Taipei, Taiwan 115

Date of Receipt : Aug. 17, 2016
Date of Test : Aug. 17, 2016 ~ Nov. 04, 2016
Issued Date : Nov. 04, 2016
Tested by : BTL Inc.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1608039	Original Issue.	Nov. 04, 2016

1. CERTIFICATION

Equipment : ZigBee Energy Switch
Brand Name : Sercomm
Model Name : SZ-ESW02,SZ-ESW02Nxxxxxxxx,SZ-BSW02Nxxxxxxxx (the 1st x should be "blank" or "-" ; the rest x could be 0 to 9, A to Z, "blank" or ,for marketing purpose)
Applicant : Sercomm Corporation
Manufacturer: SERCOMM CORP
Address : 3F 81 YUYI RD CHU-NAN MIAO-LI, 350 TAIWAN
Factory : SERCOMM CORP
Address : 3F 81 YUYI RD CHU-NAN MIAO-LI, 350 TAIWAN
Date of Test : Aug. 17, 2016 ~ Nov. 04, 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-1-1608039) 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):

Applied Standard(s): FCC Part15 (15.247) , Subpart C			
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.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

Conducted emission Test:

C05: (VCCI RN: C-4742; FCC RN:674415; FCC DN:TW0659)

No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

Radiated emission Test (Below 1GHz):

CB15: (FCC RN:674415; FCC DN:TW0659)

No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

Radiated emission Test (Above 1GHz):

CB15: (FCC RN:674415; FCC DN:TW0659)

No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

2.1.1 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_{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)
C05	CISPR	150 kHz ~ 30MHz	3.06

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
CB15 (3m)	CISPR	9kHz ~ 150kHz	2.96
		150kHz ~ 30MHz	2.74

Test Site	Method	Measurement Frequency Range	Ant.	U,(dB)
CB15 (3m)	CISPR	30MHz ~ 200MHz	V	4.76
		30MHz ~ 200MHz	H	4.28
		200MHz ~ 1,000MHz	V	5.08
		200MHz ~ 1,000MHz	H	4.50

Test Site	Method	Measurement Frequency Range	Ant.	U,(dB)
CB15 (3m)	CISPR	1GHz ~ 6GHz	V	4.48
		1GHz ~ 6GHz	H	4.50
		6GHz ~ 18GHz	V	4.30
		6GHz ~ 18GHz	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.

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR} , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR} .

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	ZigBee Energy Switch	
Brand Name	Sercomm	
Model Name	SZ-ESW02,SZ-ESW02Nxxxxxxxx,SZ-BSW02Nxxxxxxxx (the 1st x should be "blank" or "-" ; the rest x could be 0 to 9, A to Z, "blank" or ,for marketing purpose)	
Model Difference	Differ in meter board. SZ-ESW02,SZ-ESW02Nxxxxxxxx ==> main board, meter board, power board, RF board SZ-BSW02Nxxxxxxxx ==> main board, power board, RF board	
Power Source	AC Mains	
Power Rating	Input: 100-120VAC, 60Hz Output: 100-120VAC 15A	
Product Description	Operation Frequency	2405~2480 MHz
	Modulation Technology	OQPSK
	Bit Rate of Transmitter	250Kbps
	Output Power (Max.)	20.21 dBm

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

- Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	PSA	RFECA3216060A1T	Chip	Solder	0.55

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 NOTE (1)

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 1	TX Mode NOTE (1)

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

Note:

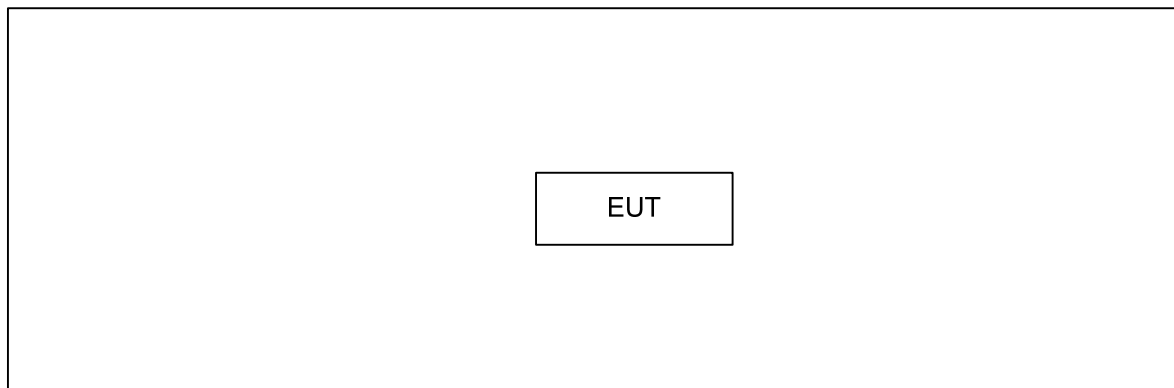
(1) The measurements are performed at the high, middle, low available channels.

3.3 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 IEEE 802.15.4.

Test Software Version	Smart-RF		
Frequency (MHz)	2405	2425	2440
IEEE 802.15.4	-2	-4	-1
Frequency (MHz)	2445	2450	2475
IEEE 802.15.4	-1	-1	-8
Frequency (MHz)	2480		
IEEE 802.15.4	-15		

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



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 = Antenna Factor + Cable Loss - Amplifier Gain(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

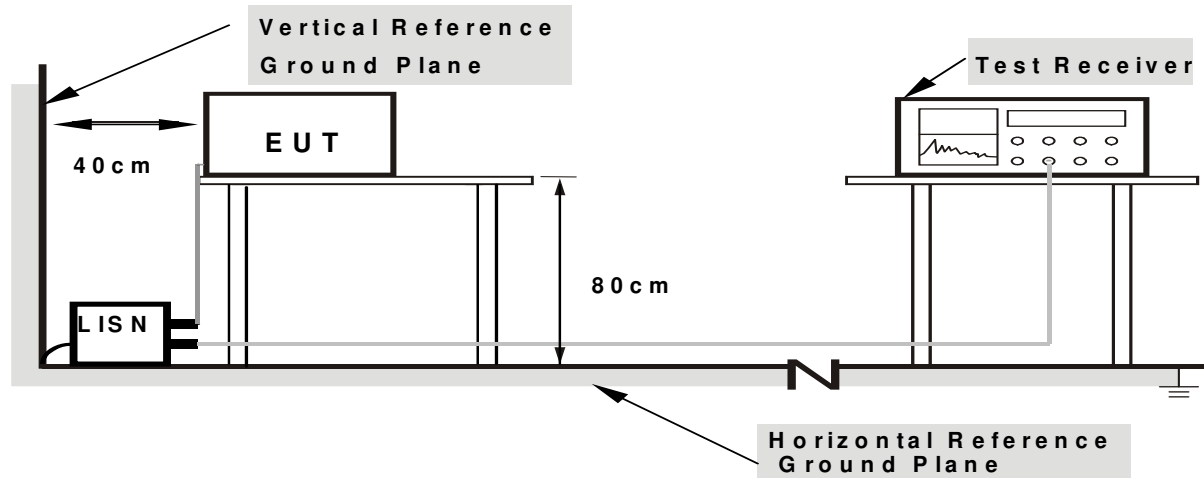
4.1.2 TEST PROCEDURE

- 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 equipment 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 function (as a customer would normally use it), EUT was programmed to be in continuously transmitting/receiving data or hopping on mode.

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

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

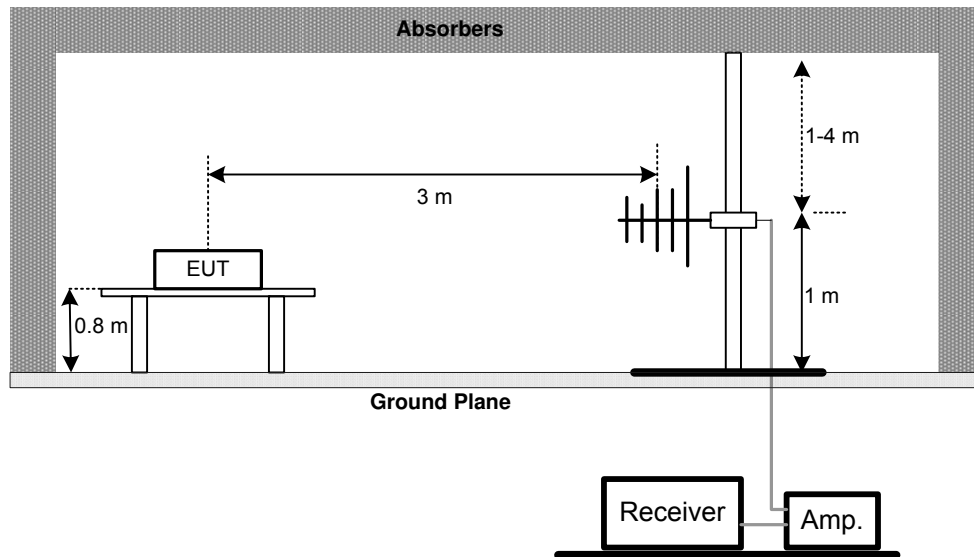
- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- The measuring distance of 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

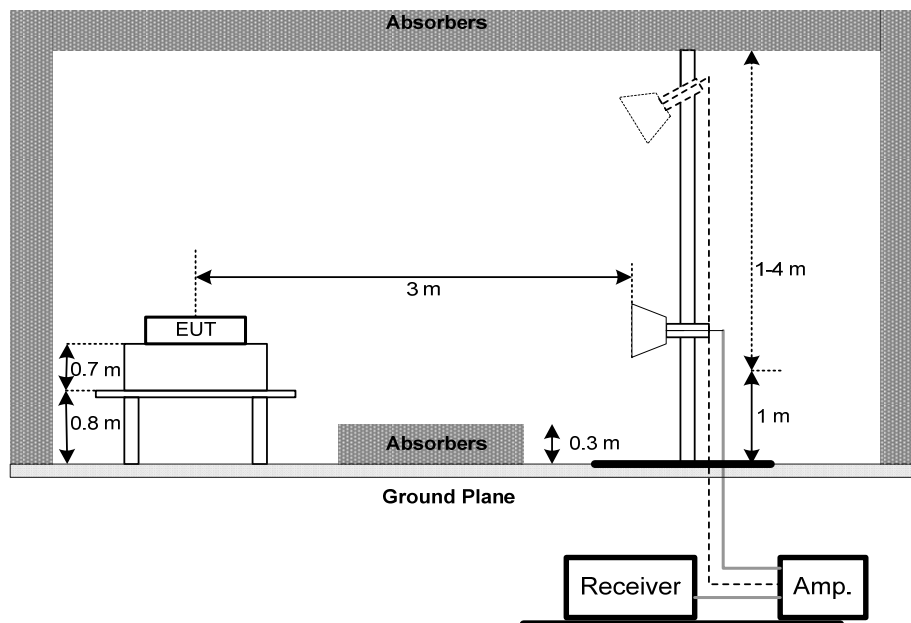
No deviation

4.2.4 TEST SETUP

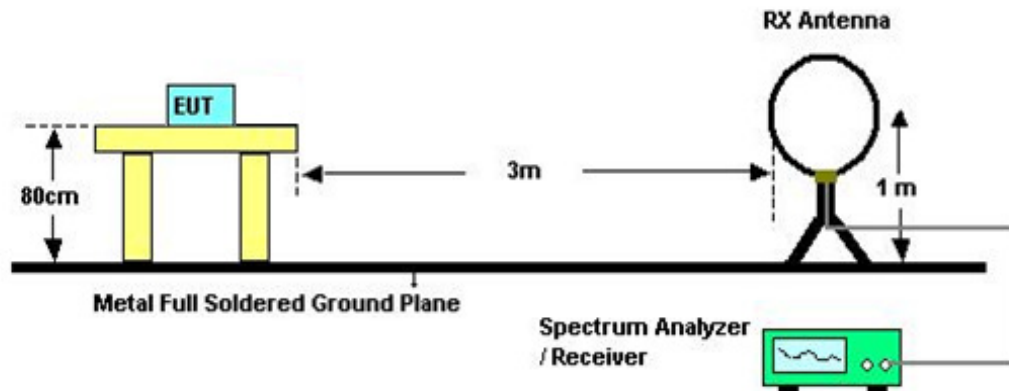
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



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



(C) For radiated emissions below 30MHz



4.2.5 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: AC 120V/60Hz

4.2.6 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.

4.2.7 TEST RESULTS (BETWEEN 30MHZ TO 1000 MHZ)

Please refer to the Attachment C.

Remark:

- (1) Measuring frequency range from 30MHz to 1000MHz.
- (2) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

Please refer to the Attachment D.

Remark:

- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
- (2) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (3) EUT Orthogonal Axis:
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (4) 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
- (5) 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)	2405~2480 MHz	PASS

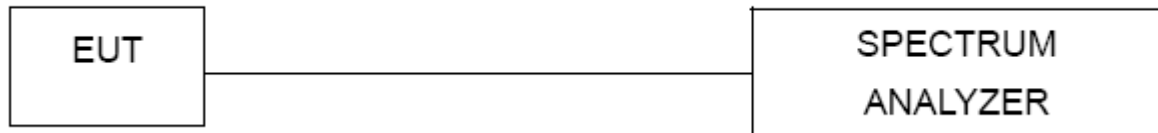
5.1.1 TEST PROCEDURE

- 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	2405~2480 MHz	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.
 Transmit output power was measured while the host equipment supply voltage was varied from 85 % to 115 % of the nominal rated supply voltage. No change in transmit output power was observed.

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.

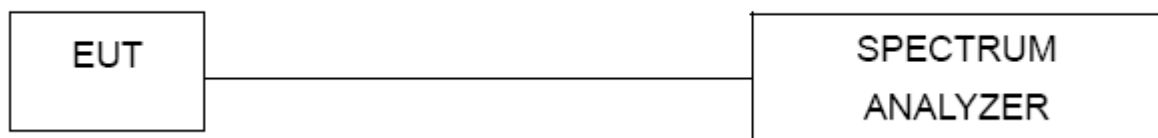
7.1.1 TEST PROCEDURE

- 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=antenna 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 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)	2405~2480 MHz	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

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	TWO-LINE V-NETWORK	R&S	ENV216	101050	Jan. 26, 2017
2	Test Cable	TIMES	CFD300-NL	C02	Jun. 13, 2017
3	EMI Test Receiver	R&S	ESR7	101433	Dec. 09, 2016
4	Power Dividers	HP	11636A	8103	May 03, 2017
5	Measurement Software	EZ	EZ EMC (Version NB-03A)	N/A	N/A

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB9168-352	9168-352	Feb. 04, 2017
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-546	Nov. 05, 2017
3	Pre-Amplifier	HP	8447D	2944A08891	Mar. 09 2017
4	Pre-Amplifier	Agilent	8449B	3008A02331	Jan. 24, 2017
5	Test Cable	EMCI	EMC8D-NM-N M-8000	150301	Mar. 09, 2017
6	Test Cable	EMCI	EMC104-SM-S M-2500	150303	Mar. 09, 2017
7	Test Cable	EMCI	EMC104-NM-S M-1000	150304	Mar. 09, 2017
8	Test Cable	EMCI	EMC104-SM-S M-5000	150302	Mar. 29, 2017
9	Test Cable	EMCI	EMC104-SM-S M-800	150305	Mar. 29, 2017
10	EXA Spectrum Analyzer	Agilent	N9010A	MY52220990	Feb. 24, 2017
11	EMI Test Receiver	Agilent	N9038A	MY51210215	Jan. 08, 2017
12	Loop Antenna	EMCO	6502	00042960	Nov. 06. 2016
13	Measurement Software	Farad	EZ EMC (Version NB-03A)	N/A	N/A

6dB Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Keysight Technologies	N9010A	MY54200240	Aug. 28, 2017

Peak Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2487A	6K00004714	May 18, 2017
2	Power Meter Sensor	Anritsu	MA2491A	034138	May 17, 2017

Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Keysight Technologies	N9010A	MY54200240	Aug. 28, 2017

Power Spectral Density Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Keysight Technologies	N9010A	MY54200240	Aug. 28, 2017

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

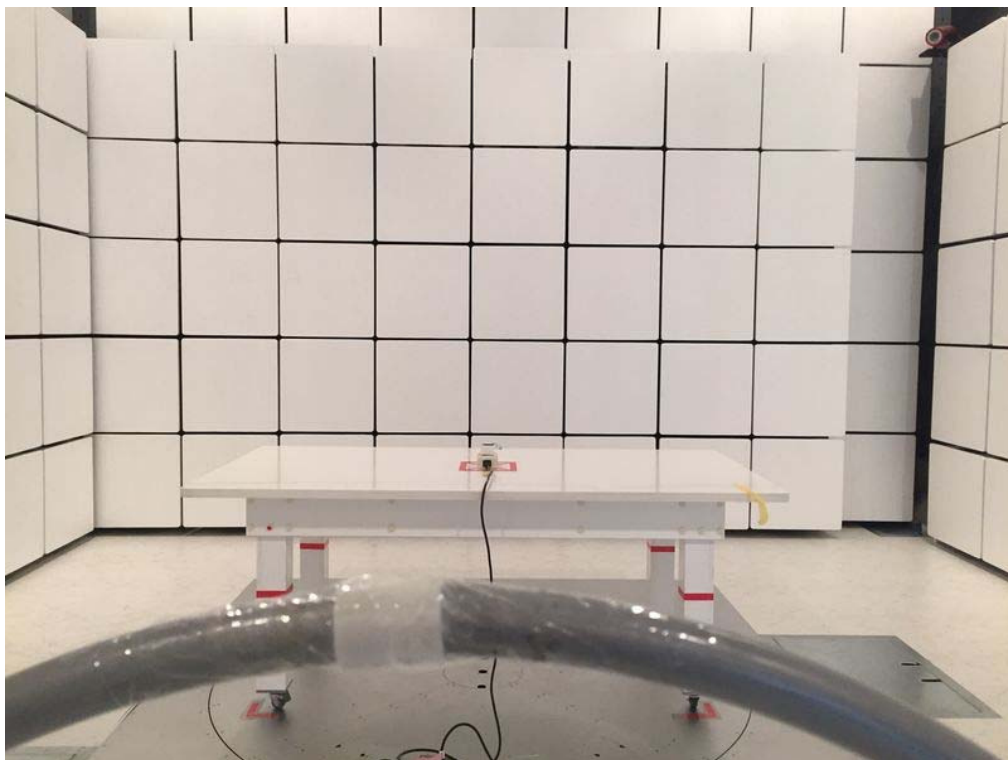
10. EUT TEST PHOTO

Conducted Measurement Photos



Radiated Measurement Photos

9KHz to 30MHz



Radiated Measurement Photos

30M to 1000MHz



Radiated Measurement Photos

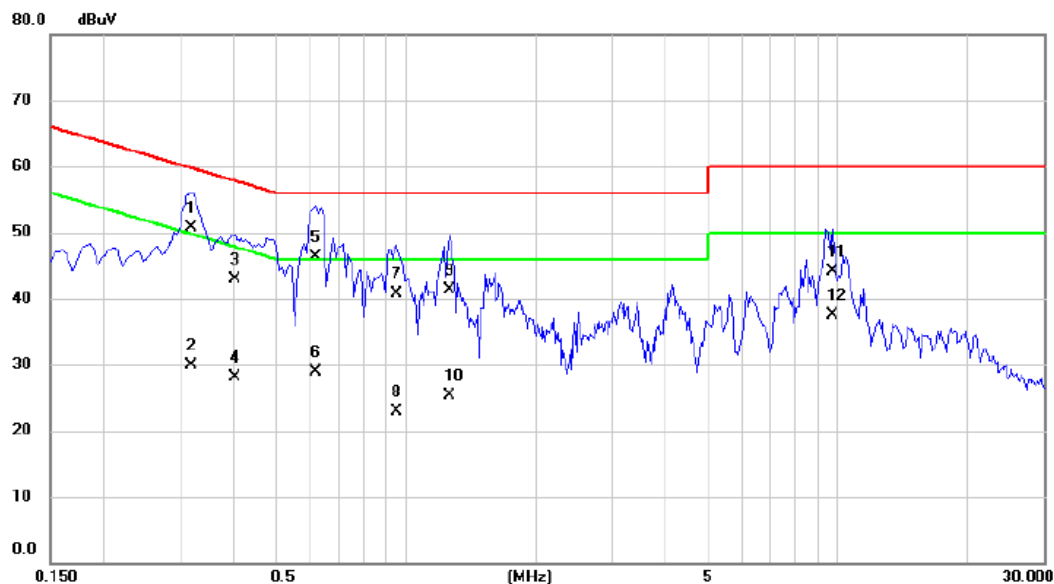
Above 1000MHz



ATTACHMENT A - CONDUCTED EMISSION

Test Mode: TX Mode(SZ-ESW02N)

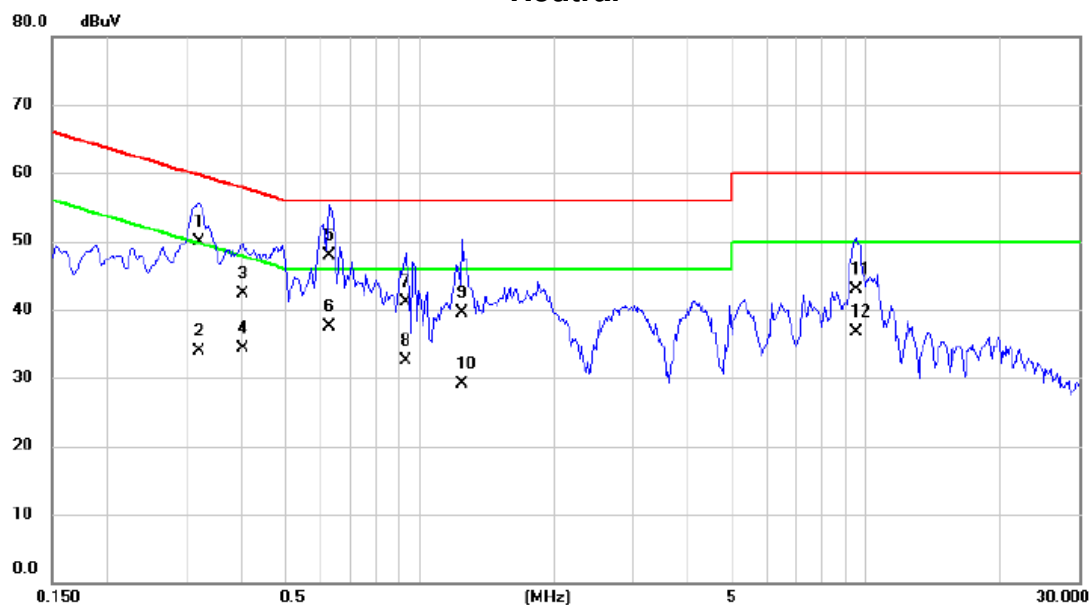
Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.3194	41.10	9.66	50.76	59.72	-8.96	QP	
2		0.3194	20.20	9.66	29.86	49.72	-19.86	AVG	
3		0.4013	33.30	9.66	42.96	57.83	-14.87	QP	
4		0.4013	18.50	9.66	28.16	47.83	-19.67	AVG	
5		0.6170	36.60	9.67	46.27	56.00	-9.73	QP	
6		0.6170	19.20	9.67	28.87	46.00	-17.13	AVG	
7		0.9500	31.00	9.67	40.67	56.00	-15.33	QP	
8		0.9500	13.30	9.67	22.97	46.00	-23.03	AVG	
9		1.2650	31.60	9.68	41.28	56.00	-14.72	QP	
10		1.2650	15.70	9.68	25.38	46.00	-20.62	AVG	
11		9.7000	34.20	9.82	44.02	60.00	-15.98	QP	
12		9.7000	27.70	9.82	37.52	50.00	-12.48	AVG	

Test Mode: TX Mode(SZ-ESW02N)

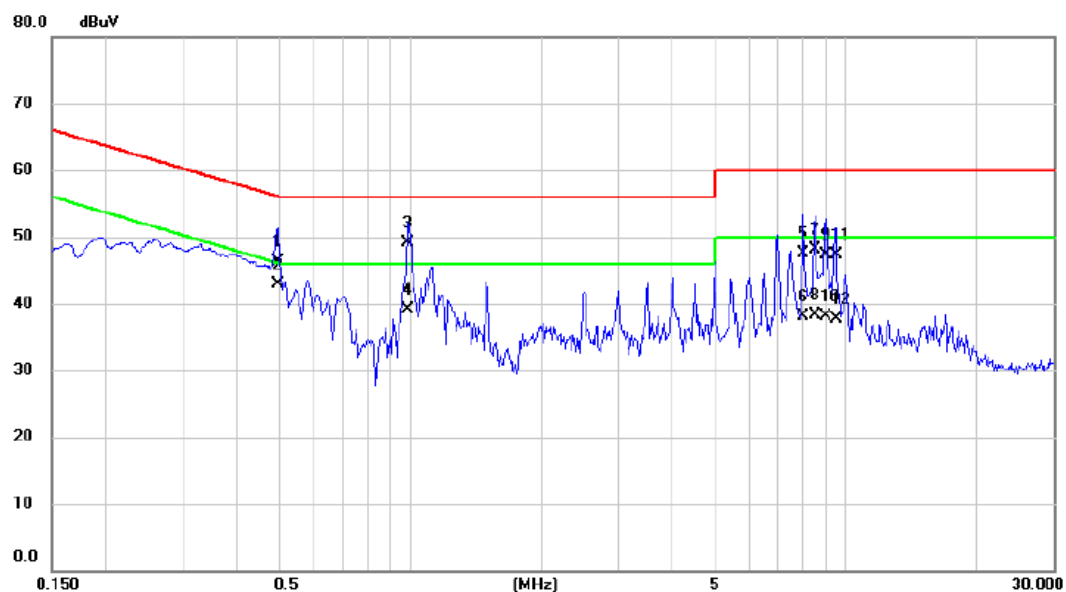
Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.3201	40.20	9.66	49.86	59.70	-9.84	QP	
2		0.3201	24.30	9.66	33.96	49.70	-15.74	AVG	
3		0.4006	32.70	9.66	42.36	57.84	-15.48	QP	
4		0.4006	24.60	9.66	34.26	47.84	-13.58	AVG	
5	*	0.6260	38.20	9.67	47.87	56.00	-8.13	QP	
6		0.6260	27.80	9.67	37.47	46.00	-8.53	AVG	
7		0.9320	31.50	9.68	41.18	56.00	-14.82	QP	
8		0.9320	22.80	9.68	32.48	46.00	-13.52	AVG	
9		1.2470	29.80	9.69	39.49	56.00	-16.51	QP	
10		1.2470	19.50	9.69	29.19	46.00	-16.81	AVG	
11		9.5000	33.10	9.83	42.93	60.00	-17.07	QP	
12		9.5000	26.80	9.83	36.63	50.00	-13.37	AVG	

Test Mode: TX Mode(SZ-BSW02N)

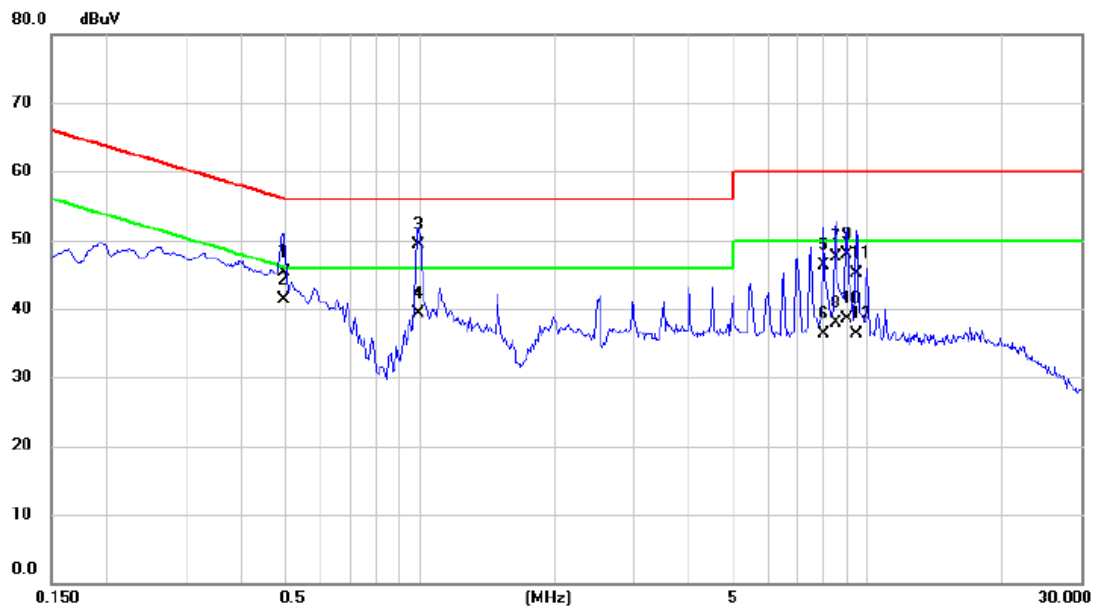
Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.4965	36.60	9.67	46.27	56.06	-9.79	QP	
2	*	0.4965	33.20	9.67	42.87	46.06	-3.19	AVG	
3		0.9860	39.50	9.67	49.17	56.00	-6.83	QP	
4		0.9860	29.40	9.67	39.07	46.00	-6.93	AVG	
5		8.0000	37.70	9.82	47.52	60.00	-12.48	QP	
6		8.0000	28.20	9.82	38.02	50.00	-11.98	AVG	
7		8.5000	38.30	9.82	48.12	60.00	-11.88	QP	
8		8.5000	28.50	9.82	38.32	50.00	-11.68	AVG	
9		9.0000	37.40	9.82	47.22	60.00	-12.78	QP	
10		9.0000	28.30	9.82	38.12	50.00	-11.88	AVG	
11		9.5000	37.40	9.82	47.22	60.00	-12.78	QP	
12		9.5000	27.90	9.82	37.72	50.00	-12.28	AVG	

Test Mode: TX Mode(SZ-BSW02N)

Neutral

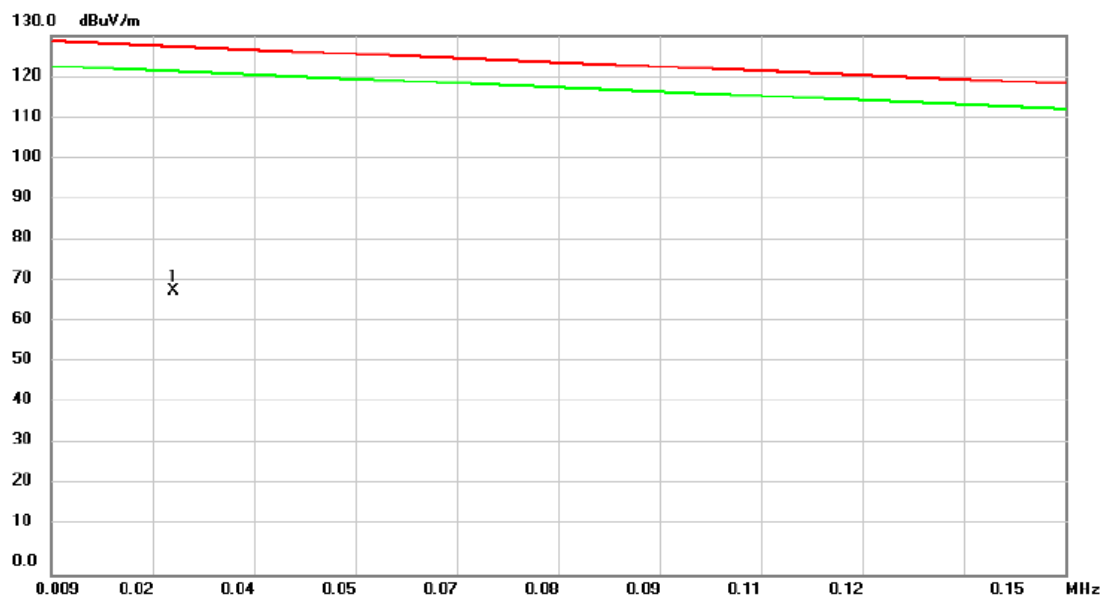


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.4958	35.60	9.67	45.27	56.07	-10.80	QP	
2	*	0.4958	31.70	9.67	41.37	46.07	-4.70	AVG	
3		0.9950	39.70	9.68	49.38	56.00	-6.62	QP	
4		0.9950	29.70	9.68	39.38	46.00	-6.62	AVG	
5		8.0000	36.40	9.82	46.22	60.00	-13.78	QP	
6		8.0000	26.40	9.82	36.22	50.00	-13.78	AVG	
7		8.5000	37.70	9.83	47.53	60.00	-12.47	QP	
8		8.5000	28.00	9.83	37.83	50.00	-12.17	AVG	
9		9.0000	38.10	9.83	47.93	60.00	-12.07	QP	
10		9.0000	28.60	9.83	38.43	50.00	-11.57	AVG	
11		9.4500	35.30	9.83	45.13	60.00	-14.87	QP	
12		9.4500	26.40	9.83	36.23	50.00	-13.77	AVG	

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

Test Mode: TX Mode(SZ-ESW02N)

OPEN



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.0260	52.24	16.10	68.34	127.29	-58.95	peak	

Test Mode: TX Mode(SZ-ESW02N)

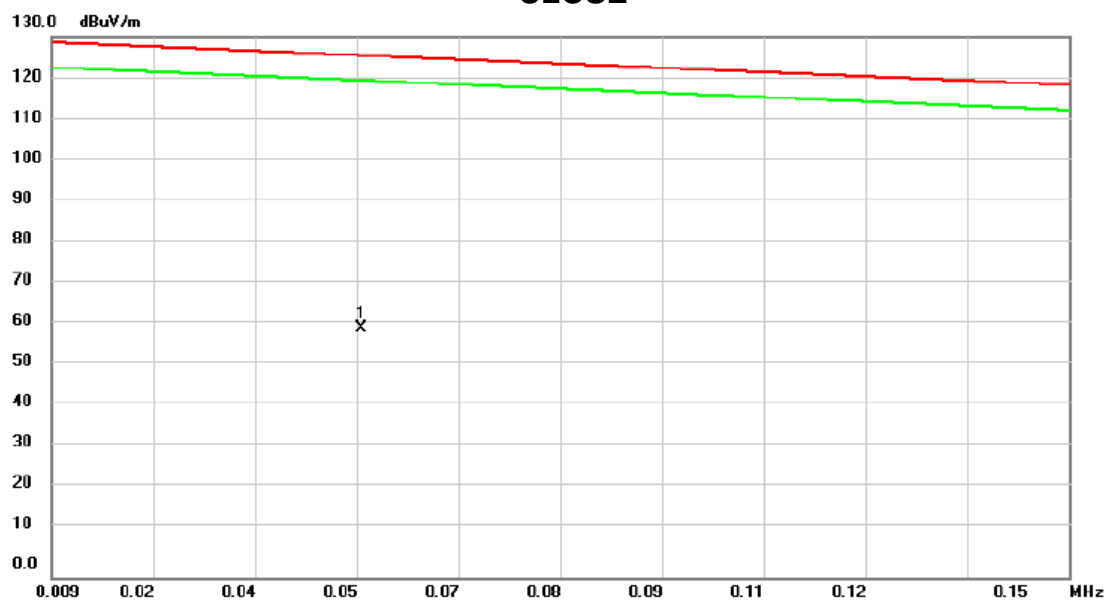
OPEN



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.1500	47.32	12.03	59.35	118.34	-58.99	peak	
2		0.2993	41.43	11.80	53.23	107.57	-54.34	peak	
3	*	0.7770	32.30	11.91	44.21	71.24	-27.03	peak	
4		1.9708	24.24	11.56	35.80	69.54	-33.74	peak	
5		5.6124	15.63	11.39	27.02	69.54	-42.52	peak	
6		9.2240	12.25	11.32	23.57	69.54	-45.97	peak	

Test Mode: TX Mode(SZ-ESW02N)

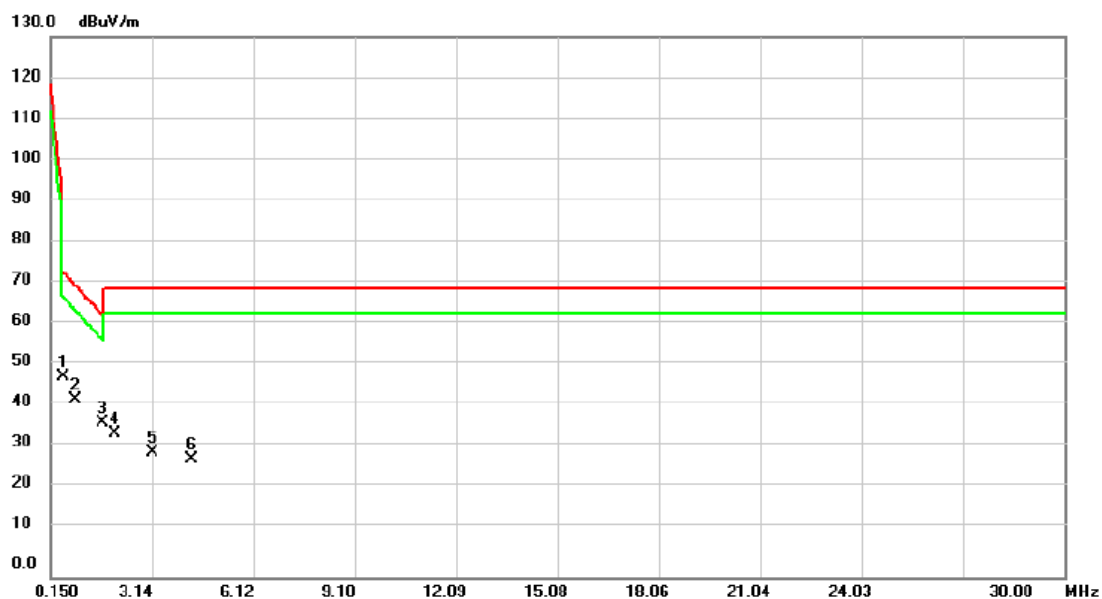
CLOSE



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.0520	47.11	12.96	60.07	125.42	-65.35	peak	

Test Mode: TX Mode(SZ-ESW02N)

CLOSE

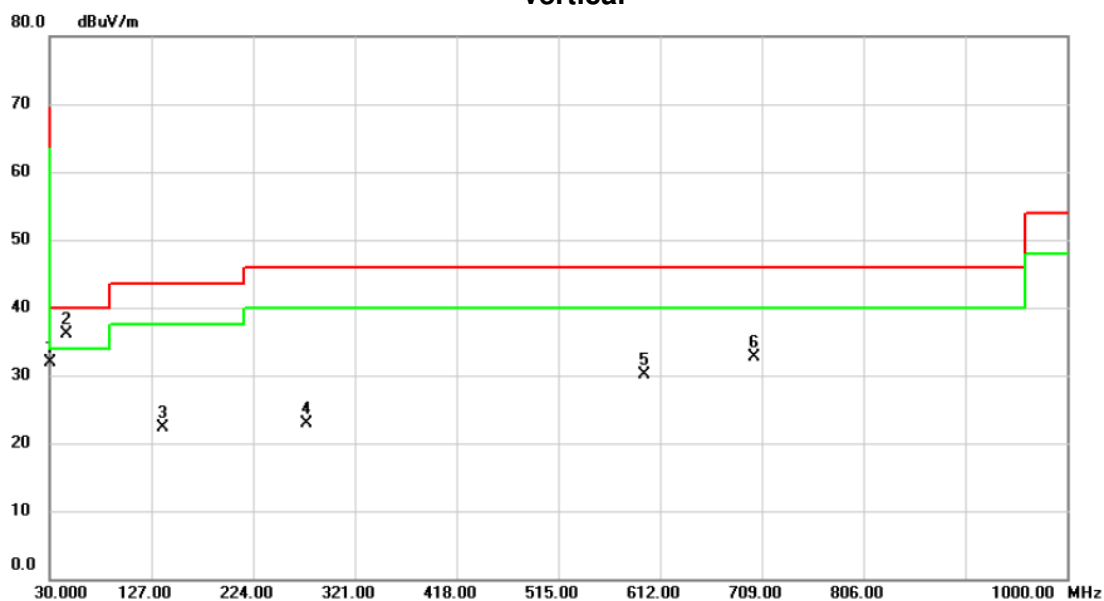


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.5381	36.30	11.82	48.12	73.37	-25.25	peak	
2		0.8664	30.89	11.95	42.84	70.44	-27.60	peak	
3		1.6724	25.60	11.70	37.30	63.26	-25.96	peak	
4		2.0305	23.15	11.54	34.69	69.54	-34.85	peak	
5		3.1350	19.08	11.12	30.20	69.54	-39.34	peak	
6		4.2991	17.26	11.29	28.55	69.54	-40.99	peak	

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

Test Mode: TX 2480MHz(SZ-ESW02N)

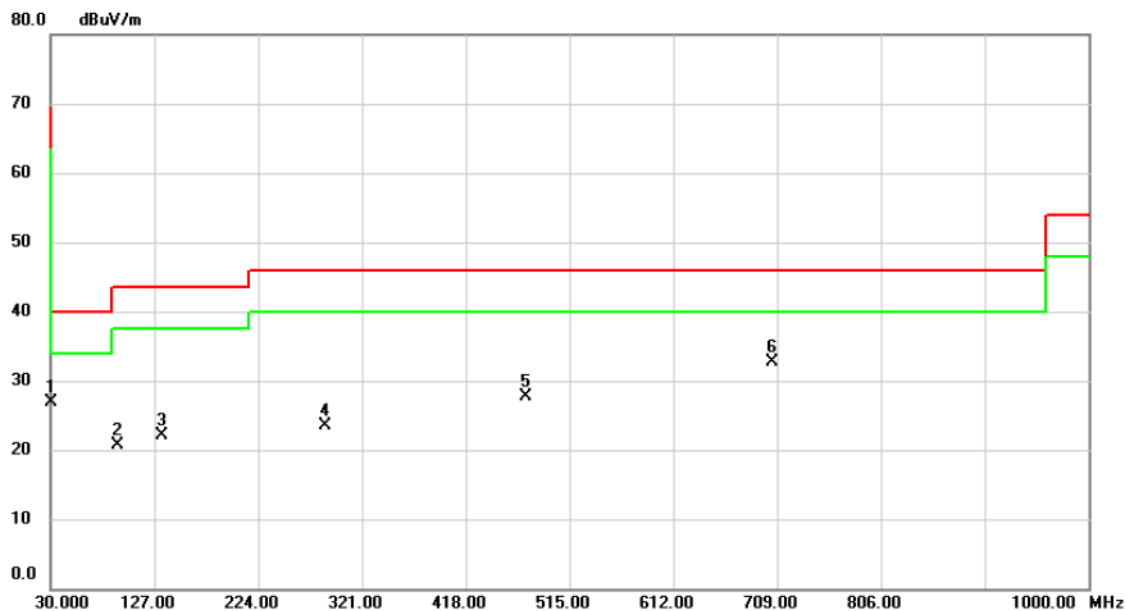
Vertical



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV/m	dBuV/m	dB		
1		30.0000	40.90	-8.91	31.99	40.00	-8.01	peak	
2	*	45.5200	44.35	-8.25	36.10	40.00	-3.90	peak	
3		138.6400	31.00	-8.77	22.23	43.50	-21.27	peak	
4		274.4400	31.12	-8.17	22.95	46.00	-23.05	peak	
5		597.4500	30.49	-0.29	30.20	46.00	-15.80	peak	
6		701.2400	31.37	1.31	32.68	46.00	-13.32	peak	

Test Mode: TX 2480MHz(SZ-ESW02N)

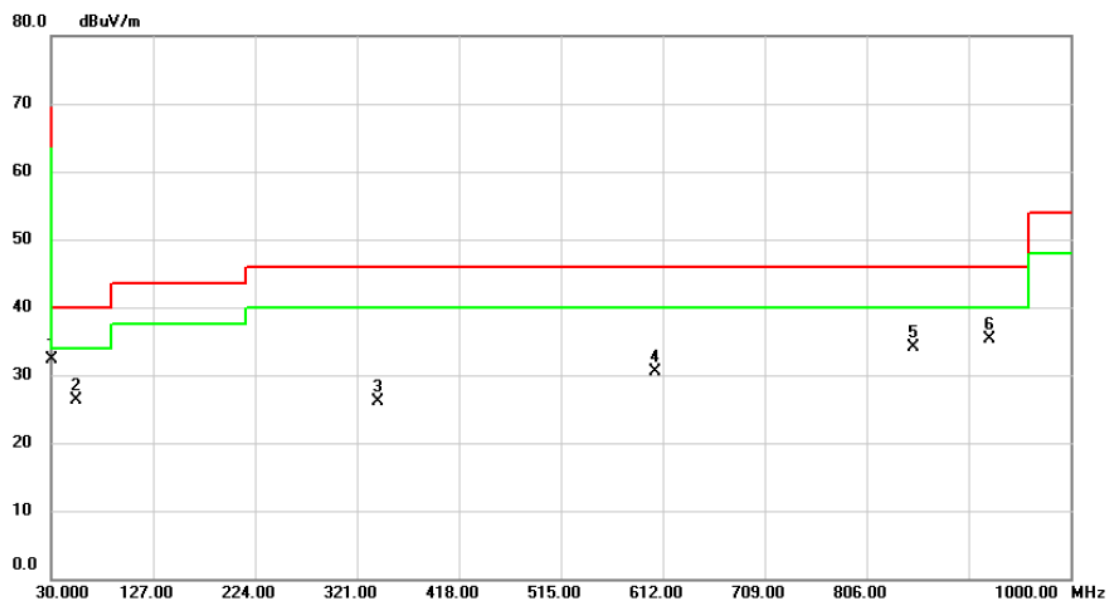
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	30.0000	35.79	-8.91	26.88	40.00	-13.12	peak	
2		92.0800	34.09	-13.35	20.74	43.50	-22.76	peak	
3		133.7900	31.35	-9.22	22.13	43.50	-21.37	peak	
4		287.0500	31.17	-7.72	23.45	46.00	-22.55	peak	
5		474.2600	30.80	-3.10	27.70	46.00	-18.30	peak	
6		704.1500	31.36	1.38	32.74	46.00	-13.26	peak	

Test Mode: TX 2480MHz(SZ-BSW02N)

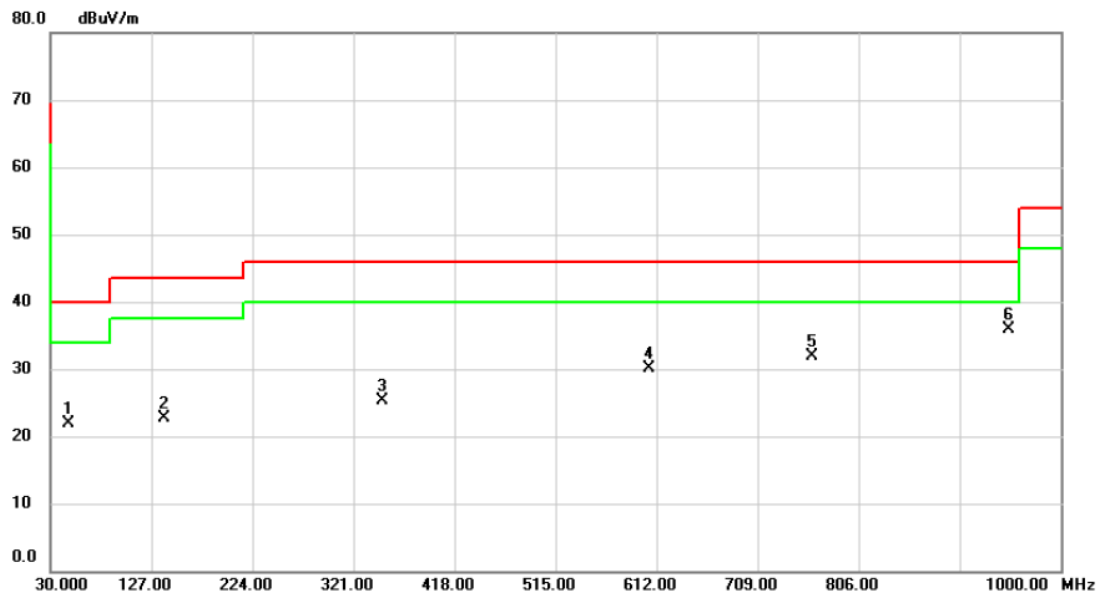
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	30.0000	41.27	-8.91	32.36	40.00	-7.64	peak	
2		53.2800	34.65	-8.44	26.21	40.00	-13.79	peak	
3		341.3700	32.44	-6.26	26.18	46.00	-19.82	peak	
4		605.2100	30.77	-0.18	30.59	46.00	-15.41	peak	
5		850.6200	30.59	3.61	34.20	46.00	-11.80	peak	
6		923.3700	30.33	5.01	35.34	46.00	-10.66	peak	

Test Mode: TX 2440MHz(SZ-BSW02N)

Horizontal

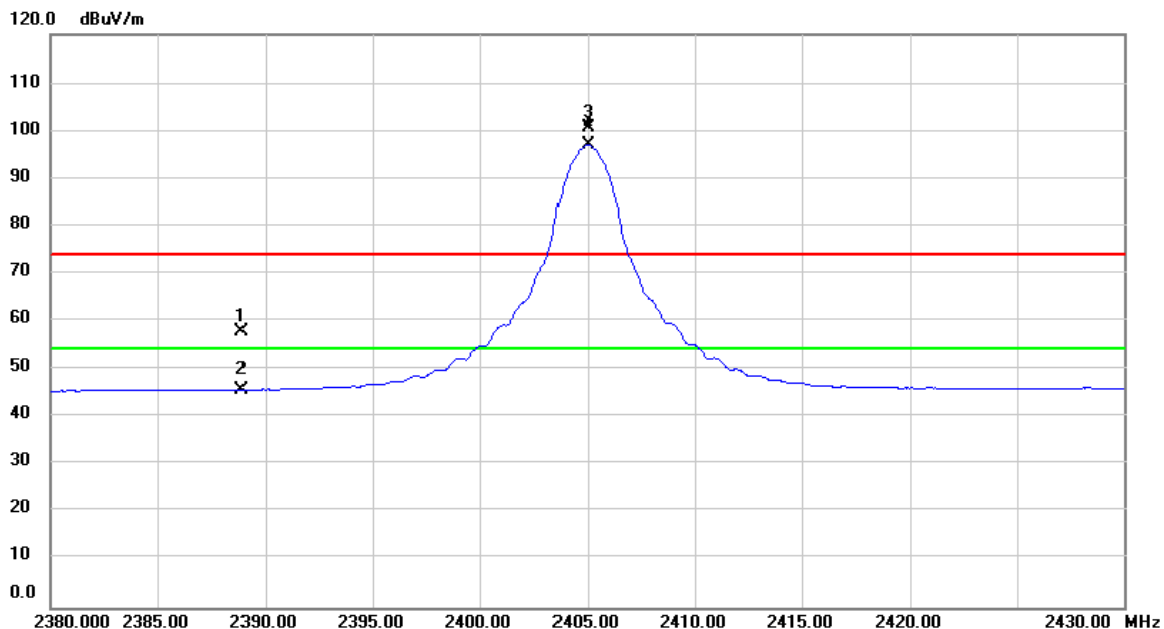


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		47.4600	30.19	-8.25	21.94	40.00	-18.06	peak	
2		139.6100	31.48	-8.69	22.79	43.50	-20.71	peak	
3		349.1300	31.38	-6.01	25.37	46.00	-20.63	peak	
4		605.2100	30.38	-0.18	30.20	46.00	-15.80	peak	
5		761.3800	29.40	2.46	31.86	46.00	-14.14	peak	
6	*	950.5300	30.38	5.49	35.87	46.00	-10.13	peak	

ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

Orthogonal Axis :	X
Test Mode :	TX 2405MHz

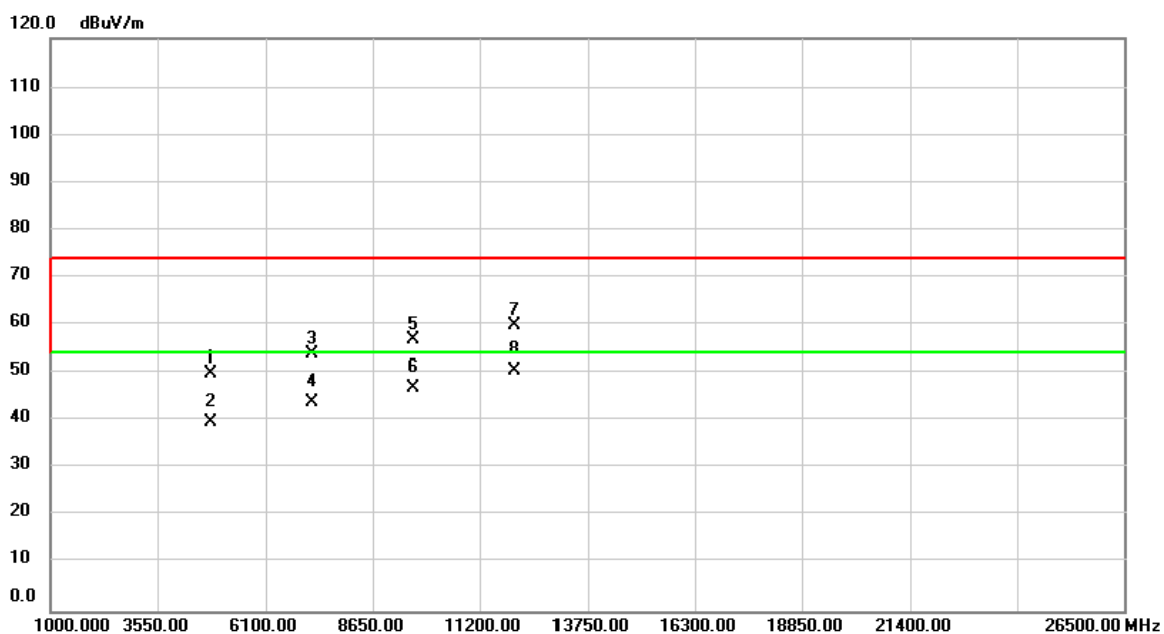
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2388.910	26.71	30.96	57.67	74.00	-16.33	peak	
2		2388.910	14.91	30.96	45.87	54.00	-8.13	AVG	
3	X	2405.000	69.52	31.02	100.54	74.00	26.54	peak	No Limit
4	*	2405.000	65.95	31.02	96.97	54.00	42.97	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX 2405MHz

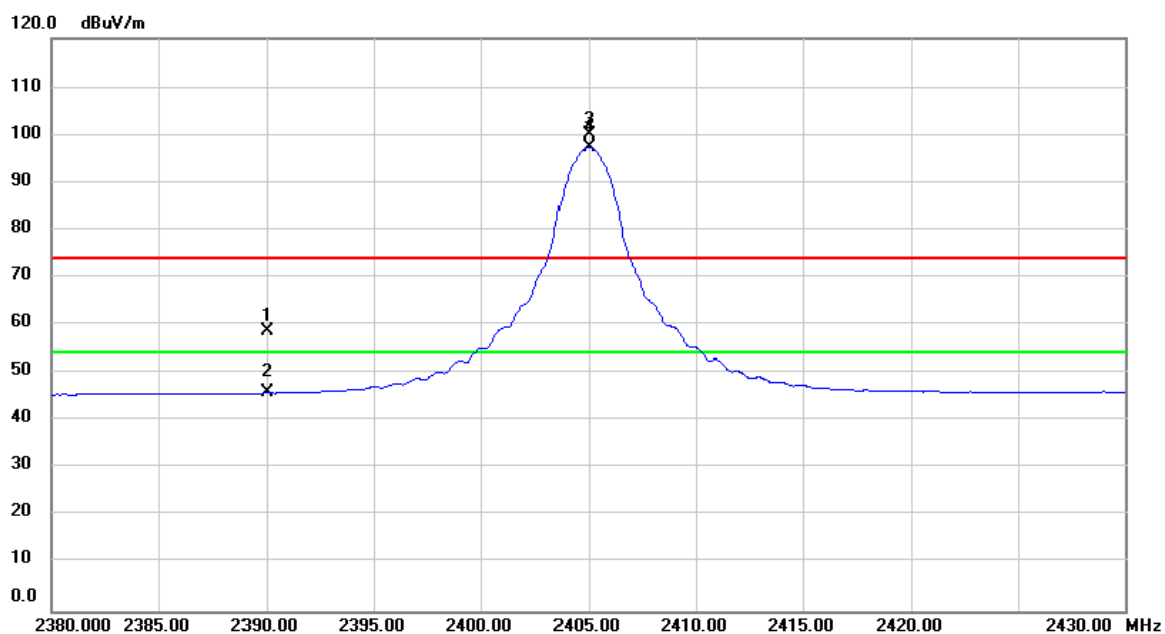
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4810.000	61.42	-11.49	49.93	74.00	-24.07	peak	
2		4810.000	51.27	-11.49	39.78	54.00	-14.22	AVG	
3		7210.000	59.22	-5.45	53.77	74.00	-20.23	peak	
4		7210.000	49.36	-5.45	43.91	54.00	-10.09	AVG	
5		9620.000	56.08	0.73	56.81	74.00	-17.19	peak	
6		9620.000	46.32	0.73	47.05	54.00	-6.95	AVG	
7		12025.00	57.32	2.60	59.92	74.00	-14.08	peak	
8	*	12025.00	47.93	2.60	50.53	54.00	-3.47	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2405MHz

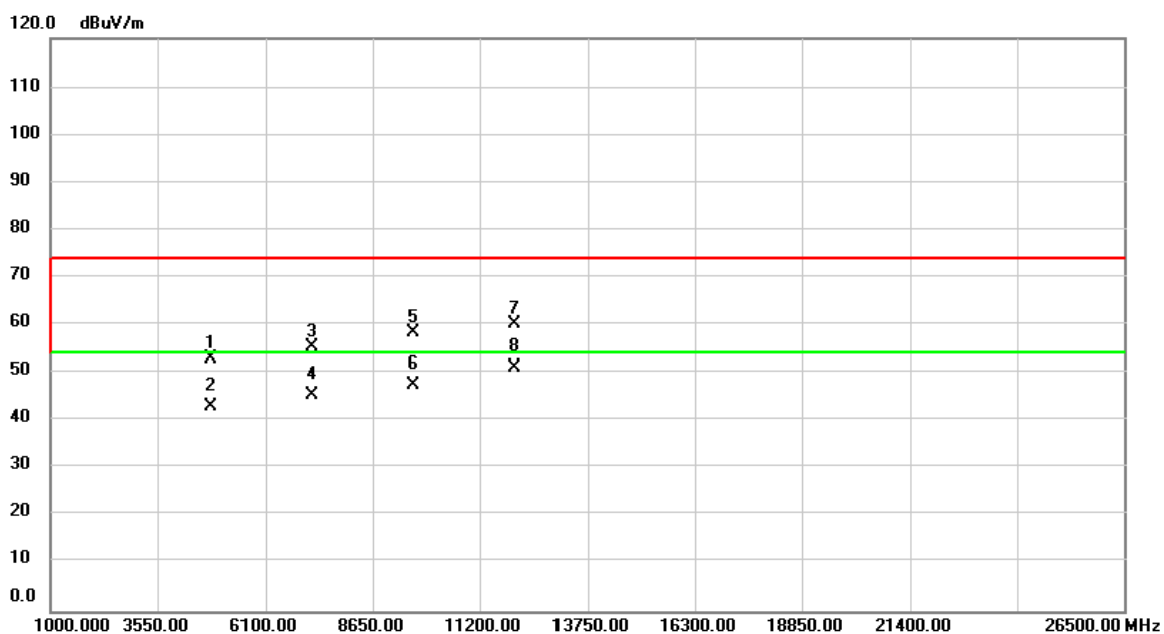
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	27.57	30.96	58.53	74.00	-15.47	peak	
2		2390.000	14.98	30.96	45.94	54.00	-8.06	AVG	
3	X	2405.000	68.91	31.02	99.93	74.00	25.93	peak	No Limit
4	*	2405.000	66.42	31.02	97.44	54.00	43.44	AVG	No Limit

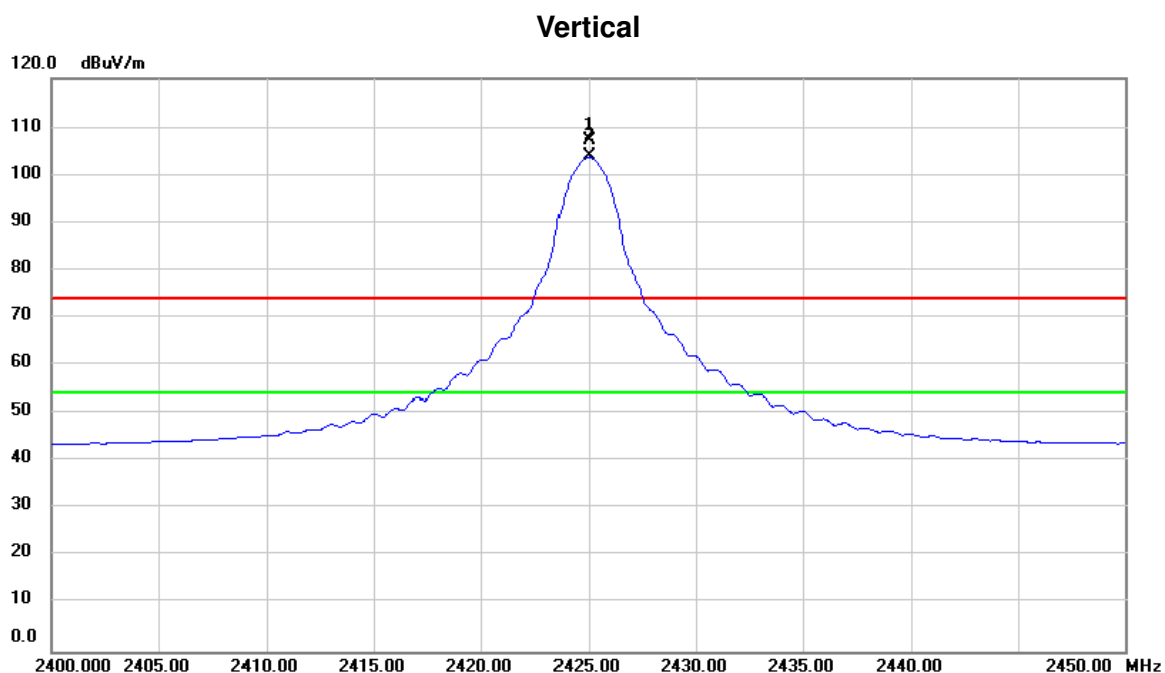
Orthogonal Axis :	X
Test Mode :	TX 2405MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4810.000	64.35	-11.49	52.86	74.00	-21.14	peak	
2		4810.000	54.51	-11.49	43.02	54.00	-10.98	AVG	
3		7215.000	60.78	-5.44	55.34	74.00	-18.66	peak	
4		7215.000	51.03	-5.44	45.59	54.00	-8.41	AVG	
5		9620.000	57.72	0.73	58.45	74.00	-15.55	peak	
6		9620.000	46.93	0.73	47.66	54.00	-6.34	AVG	
7		12025.000	57.51	2.60	60.11	74.00	-13.89	peak	
8	*	12025.000	48.43	2.60	51.03	54.00	-2.97	AVG	

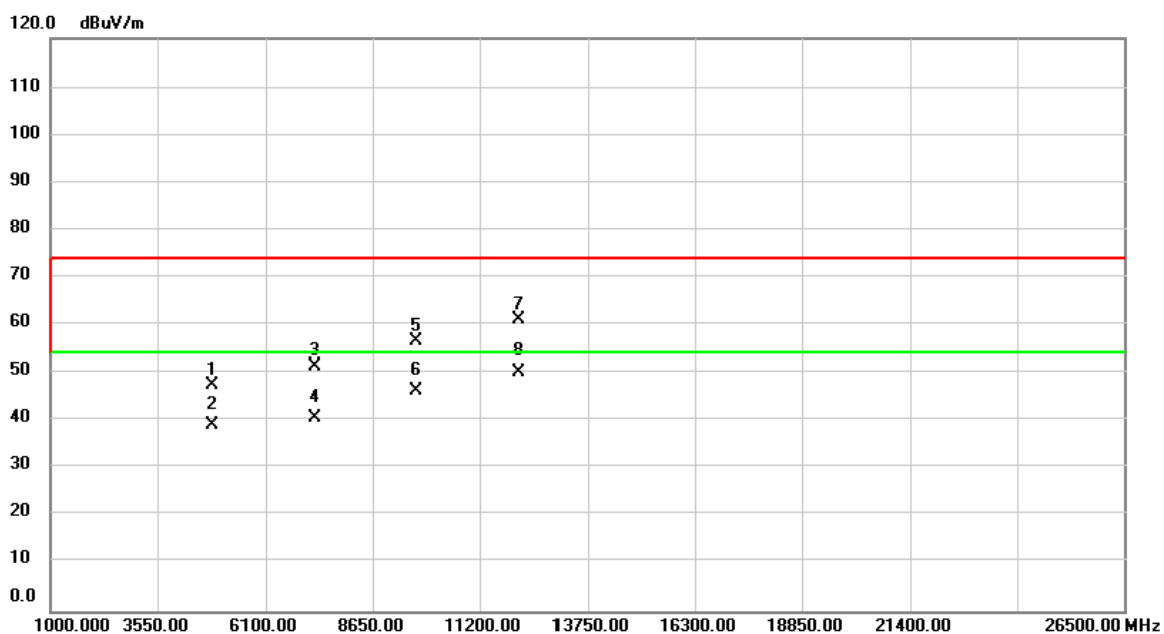
Orthogonal Axis :	X
Test Mode :	TX 2425MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2425.000	76.25	31.09	107.34	74.00	33.34	peak	No Limit
2	*	2425.000	72.72	31.09	103.81	54.00	49.81	AVG	No Limit

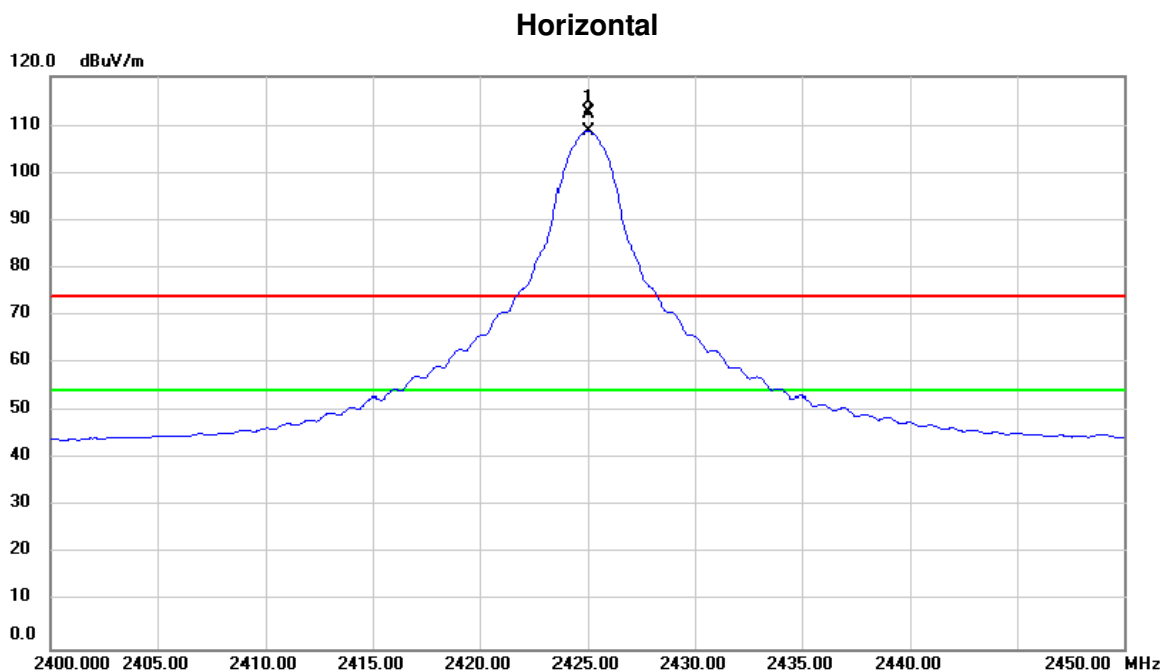
Orthogonal Axis :	X
Test Mode :	TX 2425MHz

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4850.000	59.06	-11.43	47.63	74.00	-26.37	peak	
2		4850.000	50.52	-11.43	39.09	54.00	-14.91	AVG	
3		7275.000	56.67	-5.22	51.45	74.00	-22.55	peak	
4		7275.000	45.91	-5.22	40.69	54.00	-13.31	AVG	
5		9700.000	55.70	0.96	56.66	74.00	-17.34	peak	
6		9700.000	45.27	0.96	46.23	54.00	-7.77	AVG	
7		12125.000	58.46	2.48	60.94	74.00	-13.06	peak	
8	*	12125.000	47.71	2.48	50.19	54.00	-3.81	AVG	

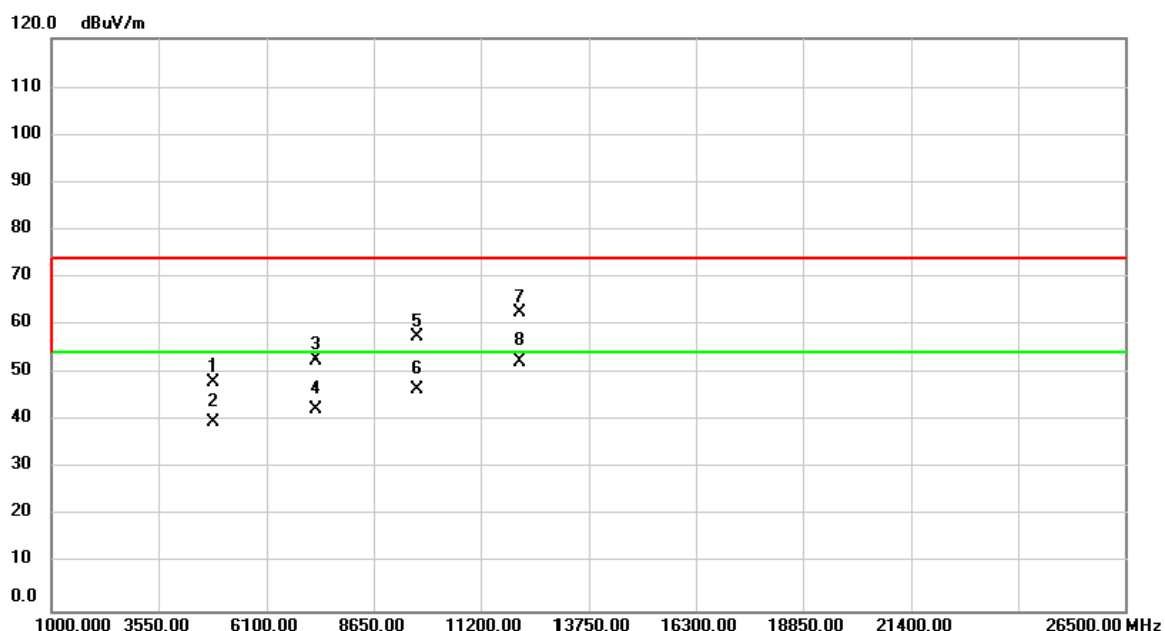
Orthogonal Axis :	X
Test Mode :	TX 2425MHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2425.000	81.15	31.09	112.24	74.00	38.24	peak	No Limit
2	*	2425.000	77.69	31.09	108.78	54.00	54.78	AVG	No Limit

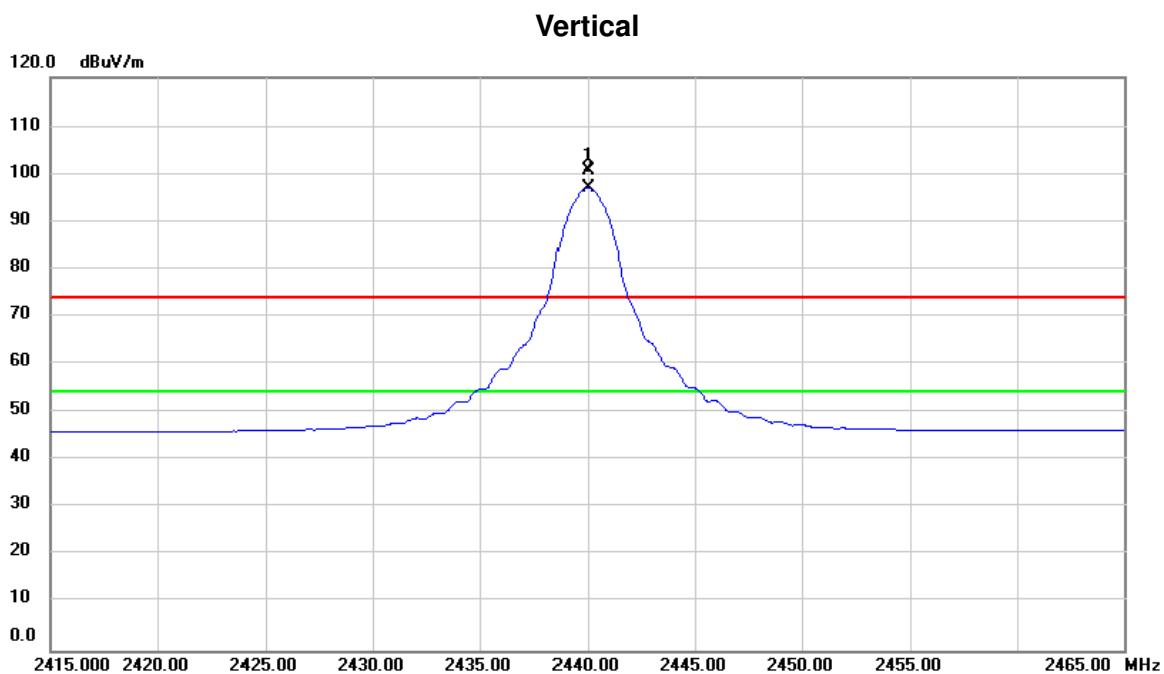
Orthogonal Axis :	X
Test Mode :	TX 2425MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4850.000	59.51	-11.43	48.08	74.00	-25.92	peak	
2		4850.000	51.06	-11.43	39.63	54.00	-14.37	AVG	
3		7275.000	58.02	-5.22	52.80	74.00	-21.20	peak	
4		7275.000	47.57	-5.22	42.35	54.00	-11.65	AVG	
5		9700.000	56.35	0.96	57.31	74.00	-16.69	peak	
6		9700.000	45.59	0.96	46.55	54.00	-7.45	AVG	
7		12125.00	60.14	2.48	62.62	74.00	-11.38	peak	
8	*	12125.00	49.94	2.48	52.42	54.00	-1.58	AVG	

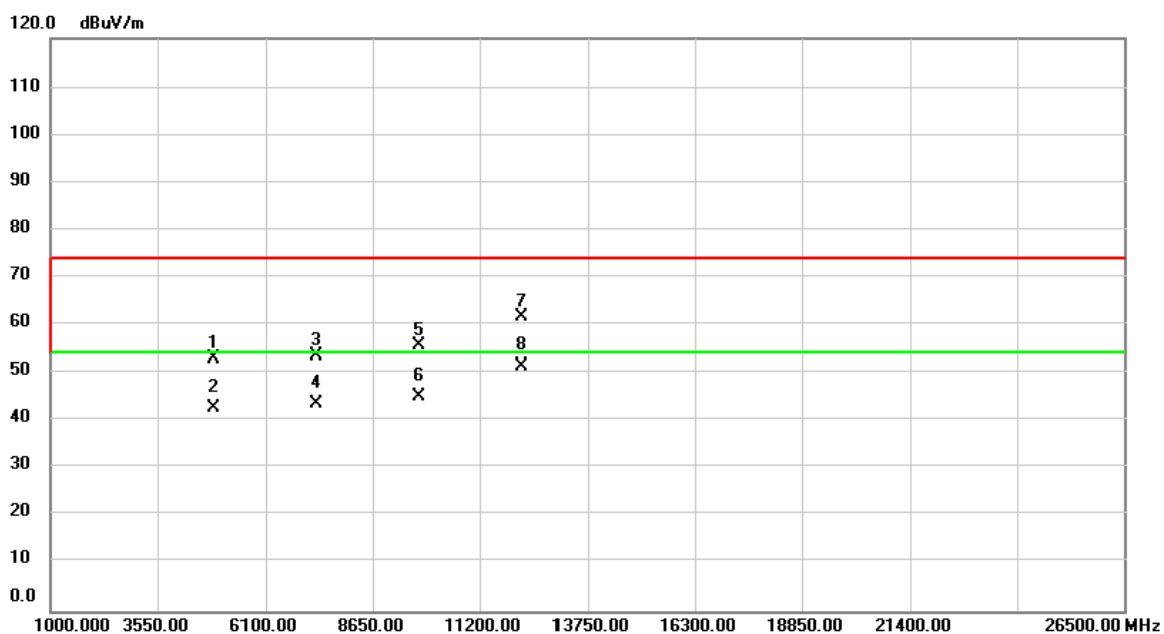
Orthogonal Axis :	X
Test Mode :	TX 2440MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.000	69.54	31.15	100.69	74.00	26.69	peak	No Limit
2	*	2440.000	65.90	31.15	97.05	54.00	43.05	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX 2440MHz

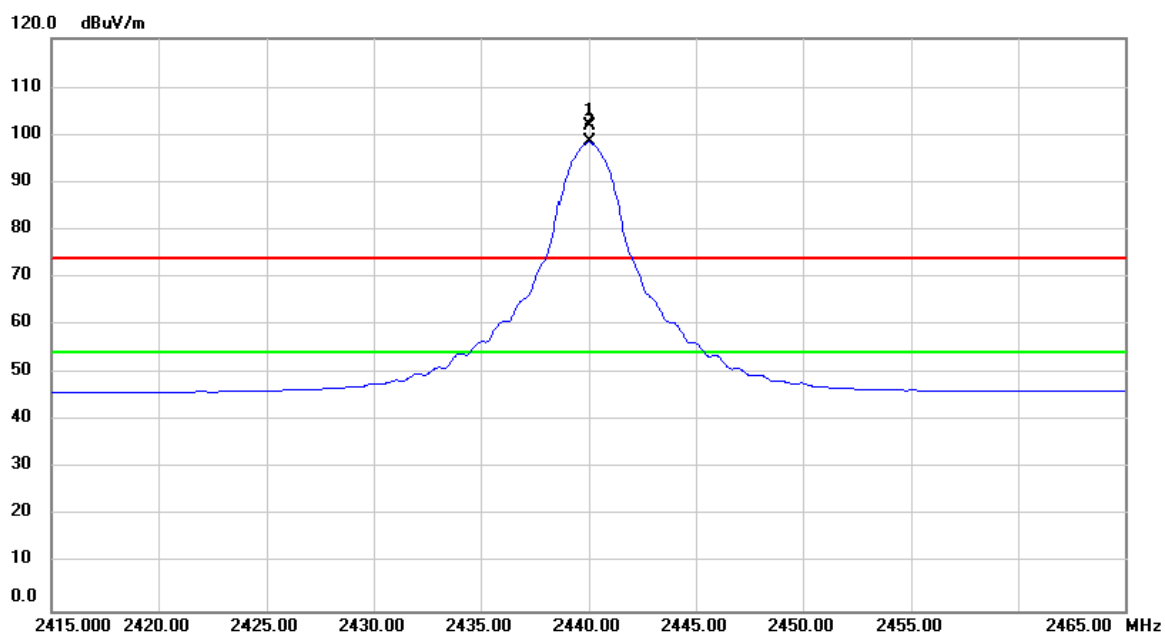
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4880.000	64.38	-11.38	53.00	74.00	-21.00	peak	
2		4880.000	54.26	-11.38	42.88	54.00	-11.12	AVG	
3		7320.000	58.67	-5.04	53.63	74.00	-20.37	peak	
4		7320.000	48.81	-5.04	43.77	54.00	-10.23	AVG	
5		9760.000	54.37	1.14	55.51	74.00	-18.49	peak	
6		9760.000	44.01	1.14	45.15	54.00	-8.85	AVG	
7		12200.000	59.27	2.37	61.64	74.00	-12.36	peak	
8	*	12200.000	49.08	2.37	51.45	54.00	-2.55	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2440MHz

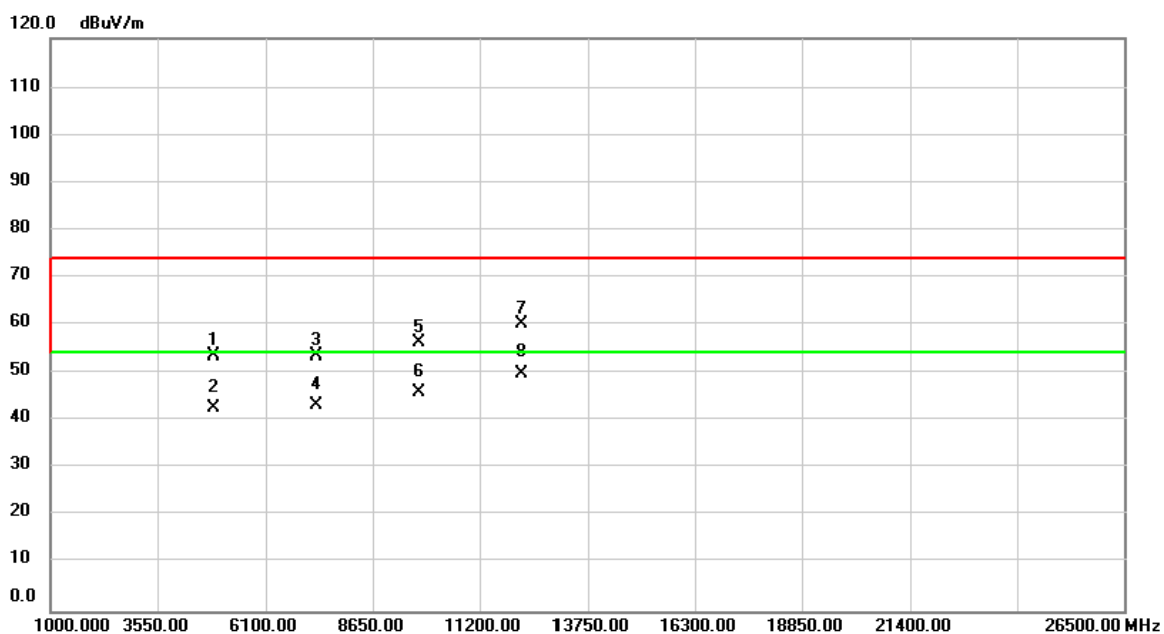
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2440.000	70.78	31.15	101.93	74.00	27.93	peak	No Limit
2	*	2440.000	67.28	31.15	98.43	54.00	44.43	AVG	No Limit

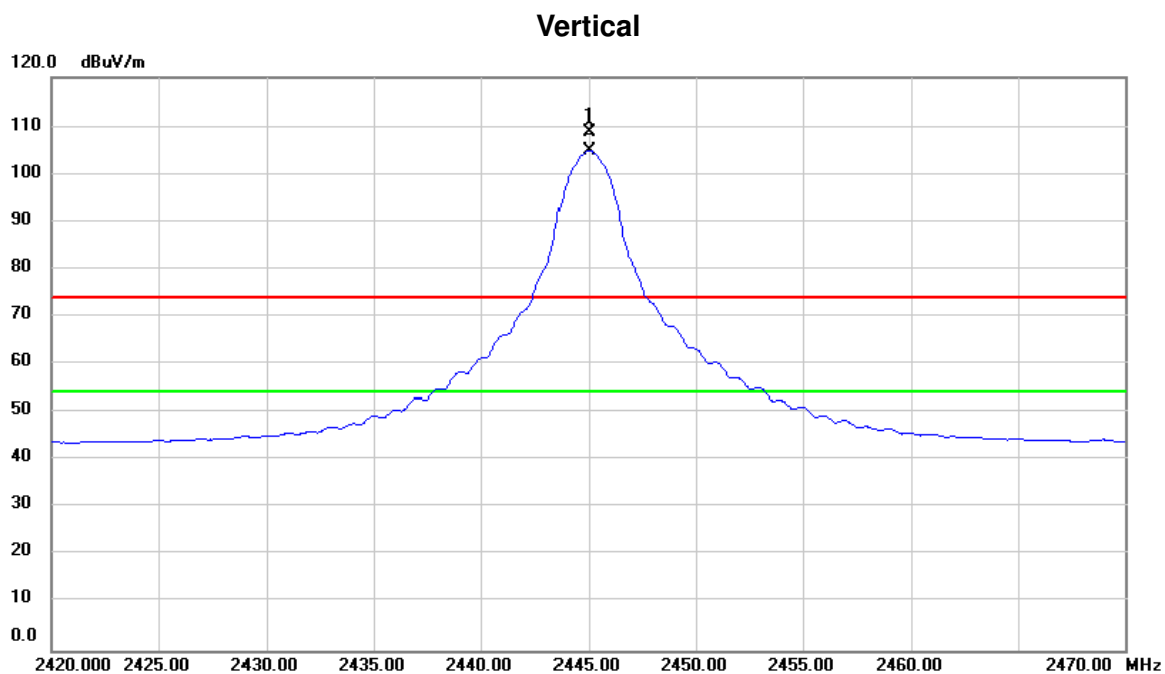
Orthogonal Axis :	X
Test Mode :	TX 2440MHz

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4880.000	64.93	-11.38	53.55	74.00	-20.45	peak	
2		4880.000	54.17	-11.38	42.79	54.00	-11.21	AVG	
3		7320.000	58.58	-5.04	53.54	74.00	-20.46	peak	
4		7320.000	48.46	-5.04	43.42	54.00	-10.58	AVG	
5		9760.000	55.08	1.14	56.22	74.00	-17.78	peak	
6		9760.000	44.91	1.14	46.05	54.00	-7.95	AVG	
7		12200.00	57.71	2.37	60.08	74.00	-13.92	peak	
8	*	12200.00	47.63	2.37	50.00	54.00	-4.00	AVG	

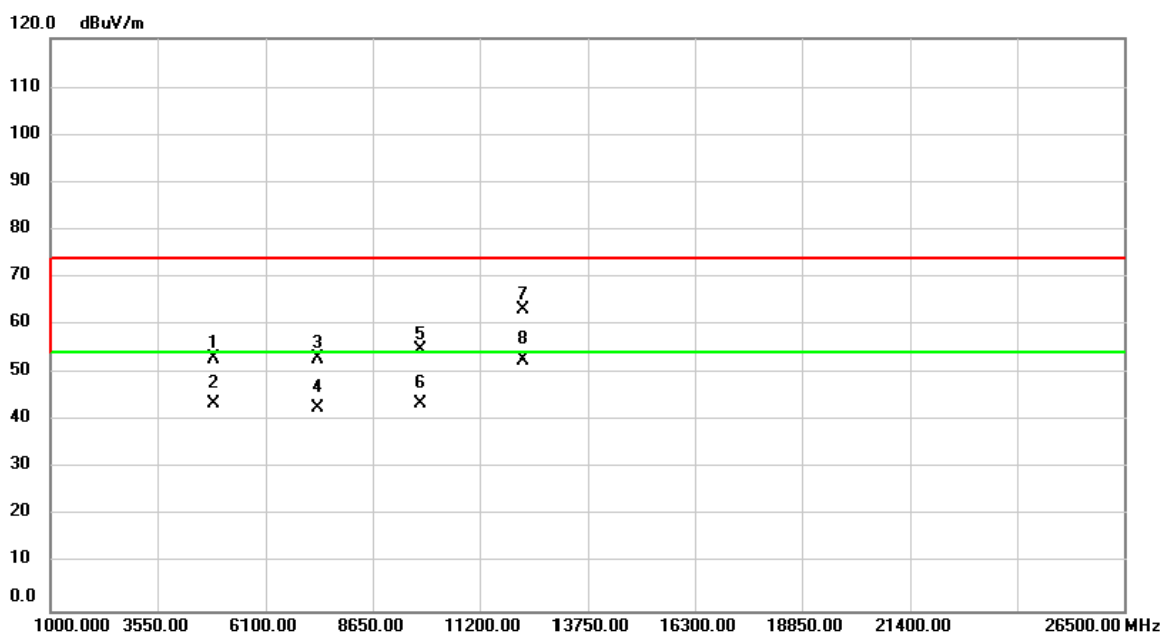
Orthogonal Axis :	X
Test Mode :	TX 2445MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2445.000	77.54	31.17	108.71	74.00	34.71	peak	No Limit
2	*	2445.000	73.69	31.17	104.86	54.00	50.86	AVG	No Limit

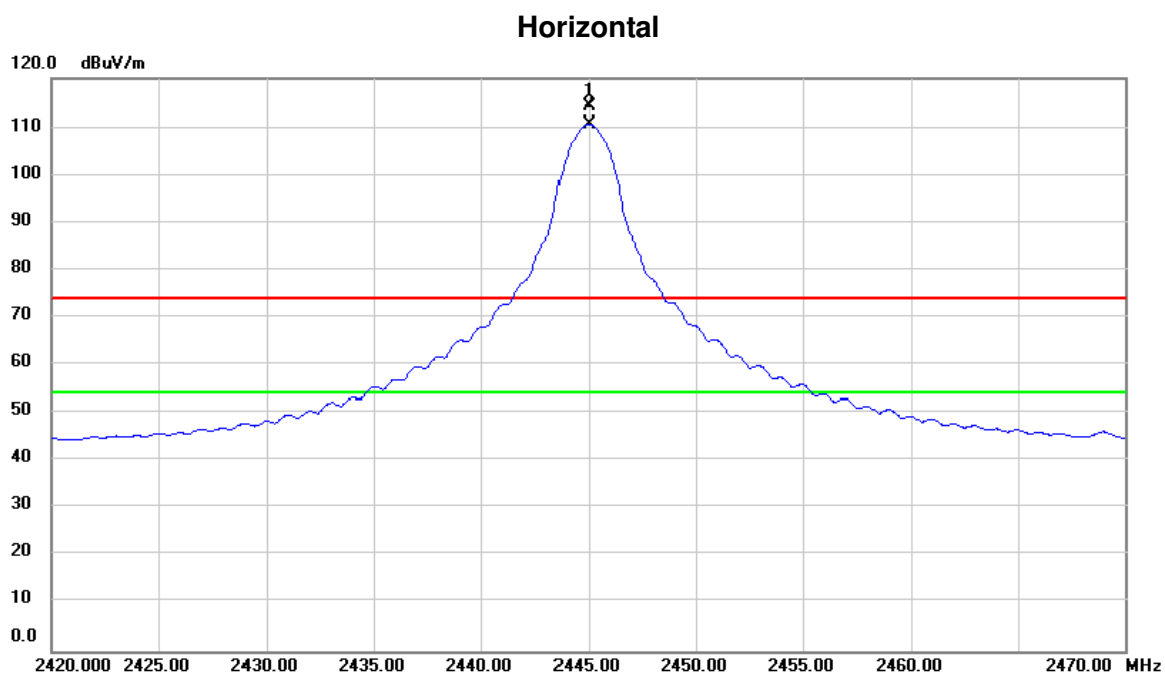
Orthogonal Axis :	X
Test Mode :	TX 2445MHz

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4890.000	64.36	-11.37	52.99	74.00	-21.01	peak	
2		4890.000	55.07	-11.37	43.70	54.00	-10.30	AVG	
3		7335.000	57.94	-4.99	52.95	74.00	-21.05	peak	
4		7335.000	47.77	-4.99	42.78	54.00	-11.22	AVG	
5		9780.000	53.51	1.19	54.70	74.00	-19.30	peak	
6		9780.000	42.45	1.19	43.64	54.00	-10.36	AVG	
7		12222.36	60.83	2.34	63.17	74.00	-10.83	peak	
8	*	12222.39	50.36	2.34	52.70	54.00	-1.30	AVG	

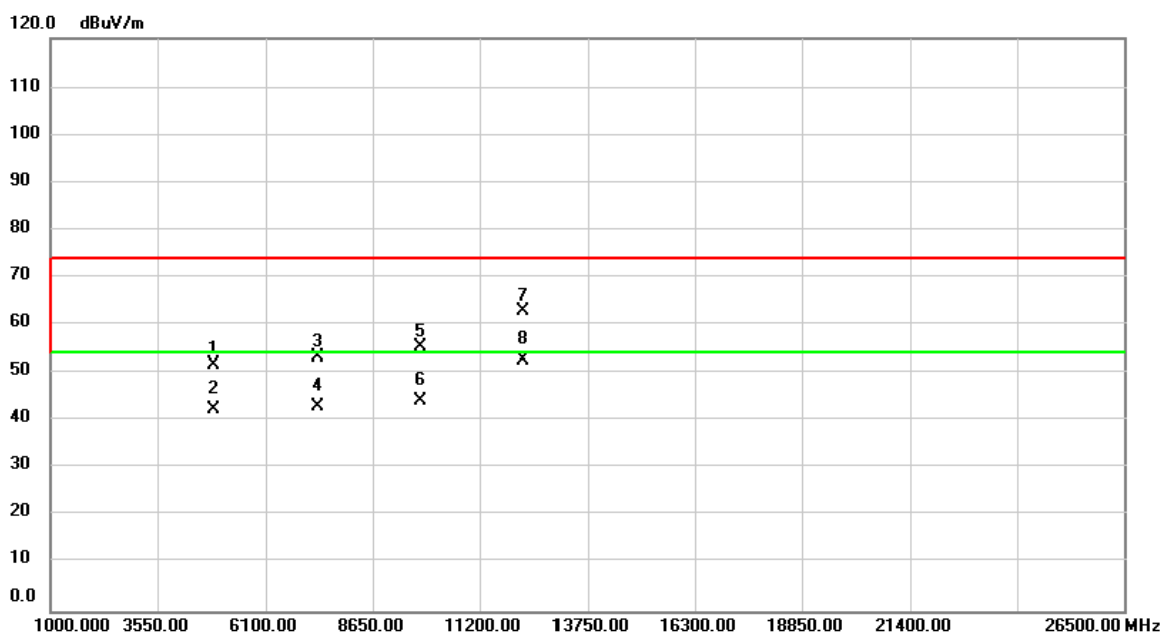
Orthogonal Axis :	X
Test Mode :	TX 2445MHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2445.000	82.96	31.17	114.13	74.00	40.13	peak	No Limit
2	*	2445.000	79.43	31.17	110.60	54.00	56.60	AVG	No Limit

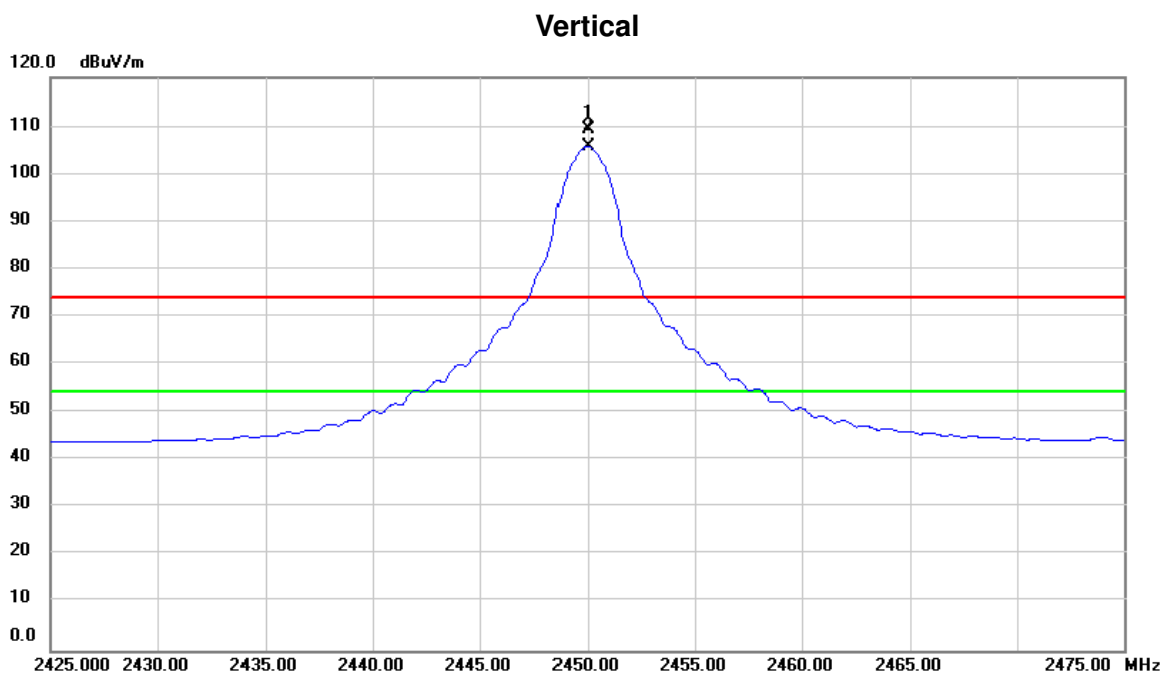
Orthogonal Axis :	X
Test Mode :	TX 2445MHz

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4890.000	63.05	-11.37	51.68	74.00	-22.32	peak	
2		4890.000	53.79	-11.37	42.42	54.00	-11.58	AVG	
3		7335.000	58.14	-4.99	53.15	74.00	-20.85	peak	
4		7335.000	48.09	-4.99	43.10	54.00	-10.90	AVG	
5		9780.000	54.28	1.19	55.47	74.00	-18.53	peak	
6		9780.000	43.16	1.19	44.35	54.00	-9.65	AVG	
7		12225.00	60.54	2.34	62.88	74.00	-11.12	peak	
8	*	12225.00	50.24	2.34	52.58	54.00	-1.42	AVG	

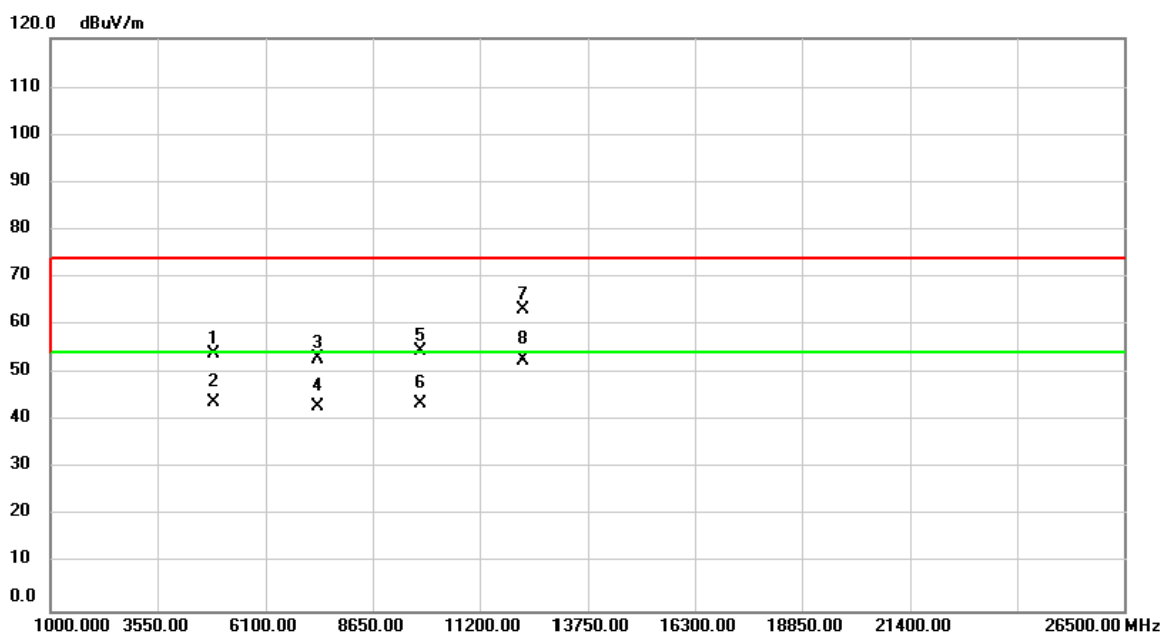
Orthogonal Axis :	X
Test Mode :	TX 2450MHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2450.000	78.20	31.19	109.39	74.00	35.39	peak	No Limit
2	*	2450.000	74.57	31.19	105.76	54.00	51.76	AVG	No Limit

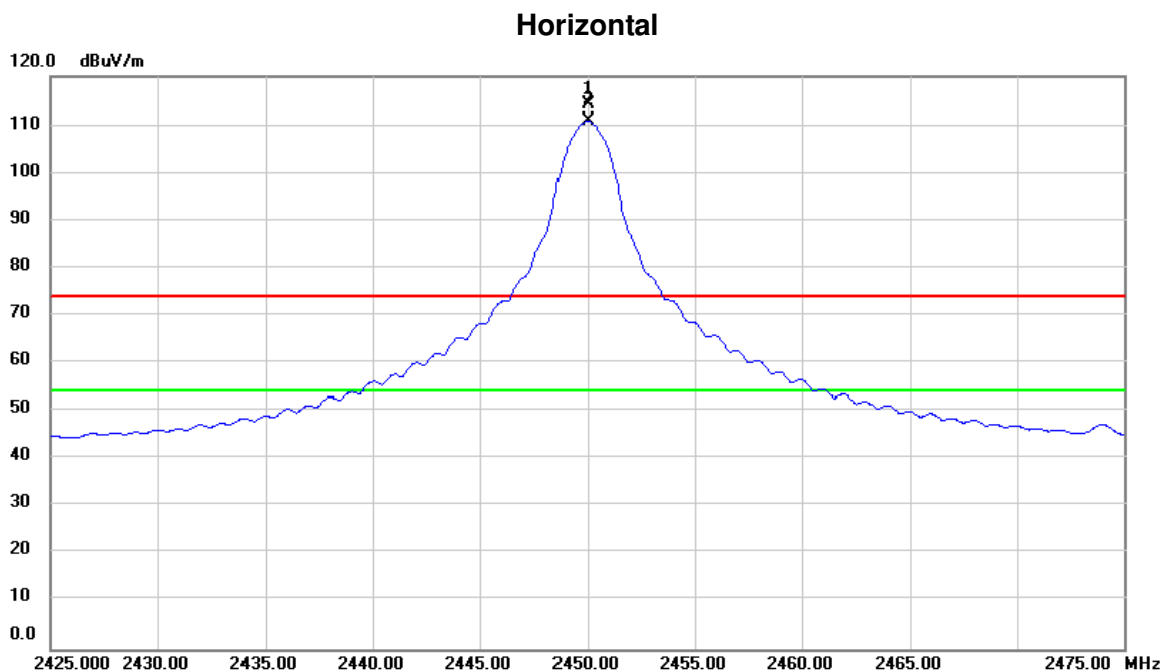
Orthogonal Axis :	X
Test Mode :	TX 2450MHz

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4900.000	65.30	-11.36	53.94	74.00	-20.06	peak	
2		4900.000	55.37	-11.36	44.01	54.00	-9.99	AVG	
3		7350.000	57.95	-4.93	53.02	74.00	-20.98	peak	
4		7350.000	47.86	-4.93	42.93	54.00	-11.07	AVG	
5		9800.000	53.22	1.25	54.47	74.00	-19.53	peak	
6		9800.000	42.44	1.25	43.69	54.00	-10.31	AVG	
7		12250.000	60.83	2.30	63.13	74.00	-10.87	peak	
8	*	12250.000	50.48	2.30	52.78	54.00	-1.22	AVG	

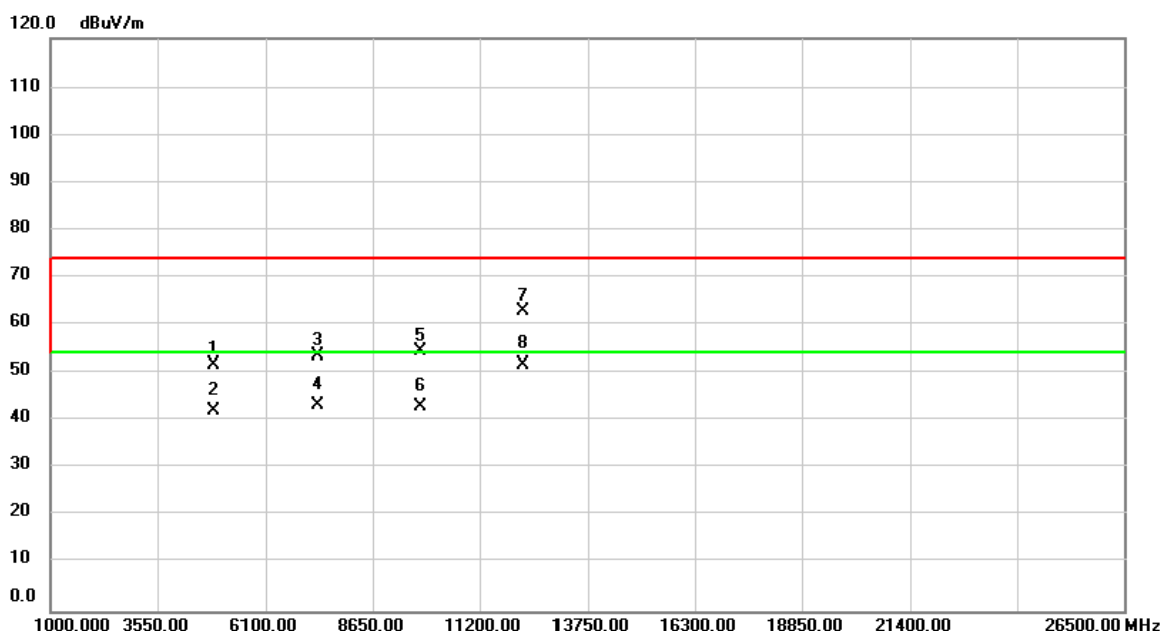
Orthogonal Axis :	X
Test Mode :	TX 2450MHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2450.000	83.11	31.19	114.30	74.00	40.30	peak	No Limit
2	*	2450.000	79.61	31.19	110.80	54.00	56.80	AVG	No Limit

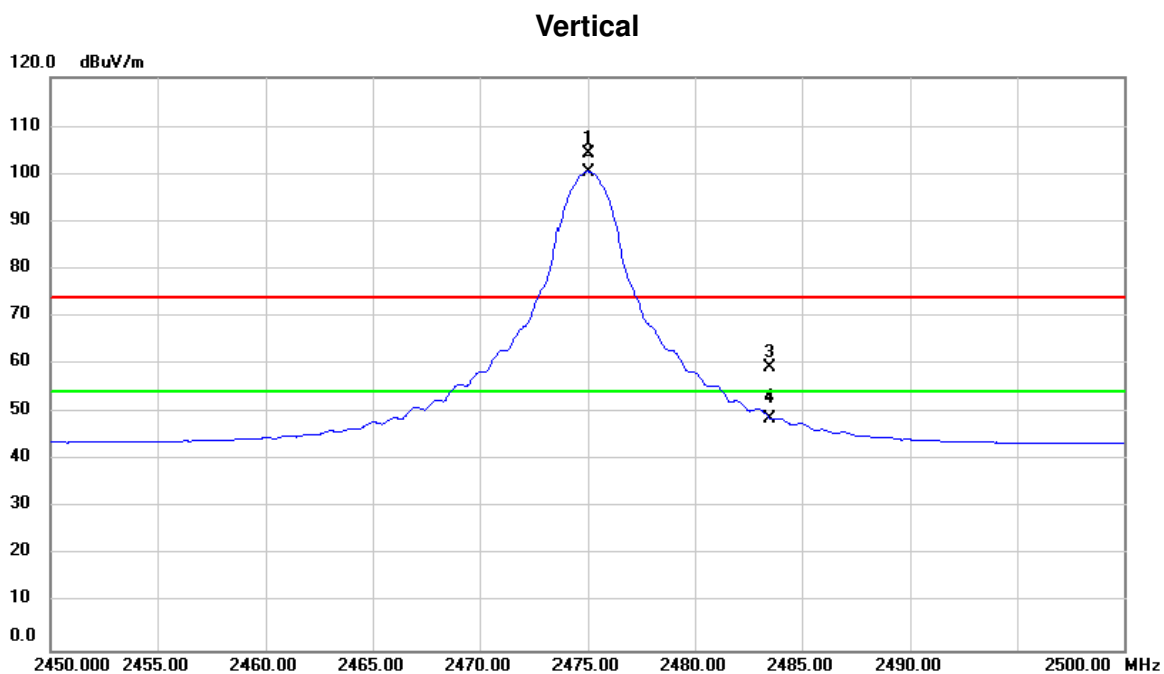
Orthogonal Axis :	X
Test Mode :	TX 2450MHz

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4900.000	63.06	-11.36	51.70	74.00	-22.30	peak	
2		4900.000	53.52	-11.36	42.16	54.00	-11.84	AVG	
3		7350.000	58.38	-4.93	53.45	74.00	-20.55	peak	
4		7350.000	48.19	-4.93	43.26	54.00	-10.74	AVG	
5		9800.000	53.21	1.25	54.46	74.00	-19.54	peak	
6		9800.000	41.74	1.25	42.99	54.00	-11.01	AVG	
7		12250.00	60.58	2.30	62.88	74.00	-11.12	peak	
8	*	12250.00	49.40	2.30	51.70	54.00	-2.30	AVG	

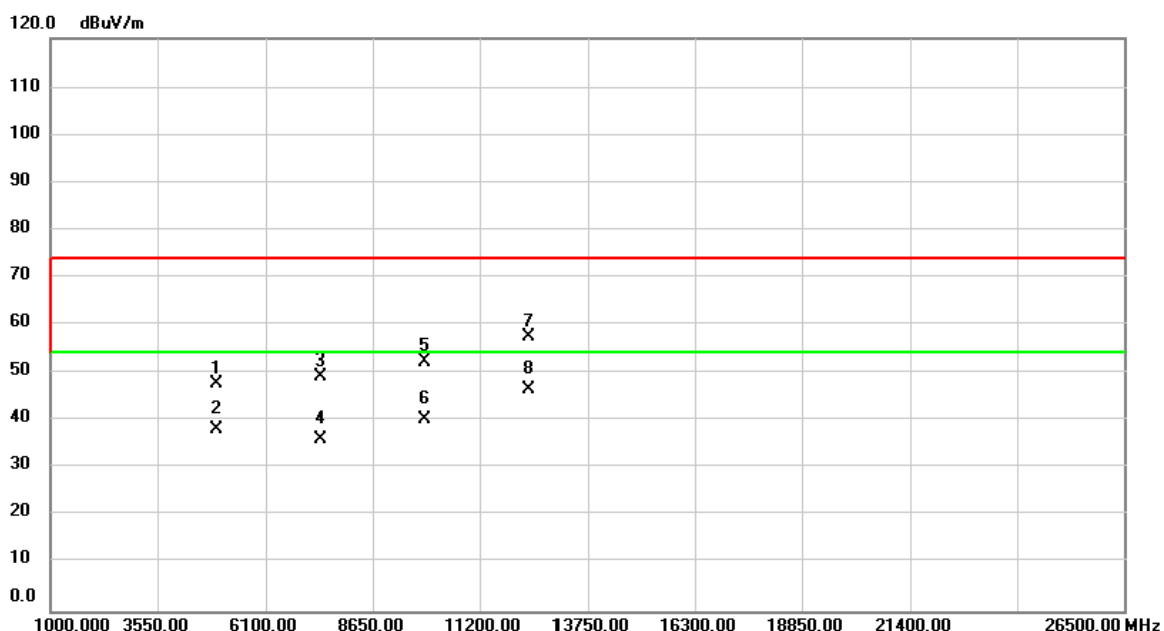
Orthogonal Axis :	X
Test Mode :	TX 2475MHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2475.000	72.96	31.28	104.24	74.00	30.24	peak	No Limit
2	*	2475.000	69.22	31.28	100.50	54.00	46.50	AVG	No Limit
3		2483.500	27.92	31.31	59.23	74.00	-14.77	peak	
4		2483.500	17.50	31.31	48.81	54.00	-5.19	AVG	

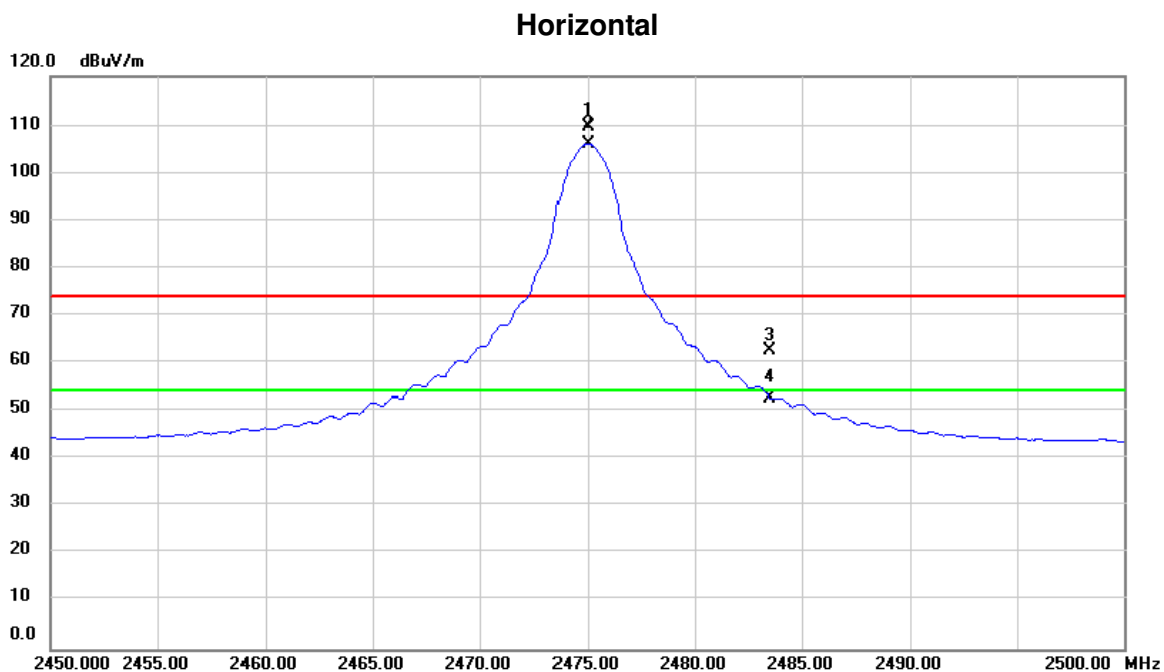
Orthogonal Axis :	X
Test Mode :	TX 2475MHz

Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4950.000	59.23	-11.27	47.96	74.00	-26.04	peak	
2		4950.000	49.55	-11.27	38.28	54.00	-15.72	AVG	
3		7425.000	53.91	-4.66	49.25	74.00	-24.75	peak	
4		7425.000	40.79	-4.66	36.13	54.00	-17.87	AVG	
5		9900.000	50.85	1.54	52.39	74.00	-21.61	peak	
6		9900.000	38.76	1.54	40.30	54.00	-13.70	AVG	
7		12375.000	55.26	2.14	57.40	74.00	-16.60	peak	
8	*	12375.000	44.48	2.14	46.62	54.00	-7.38	AVG	

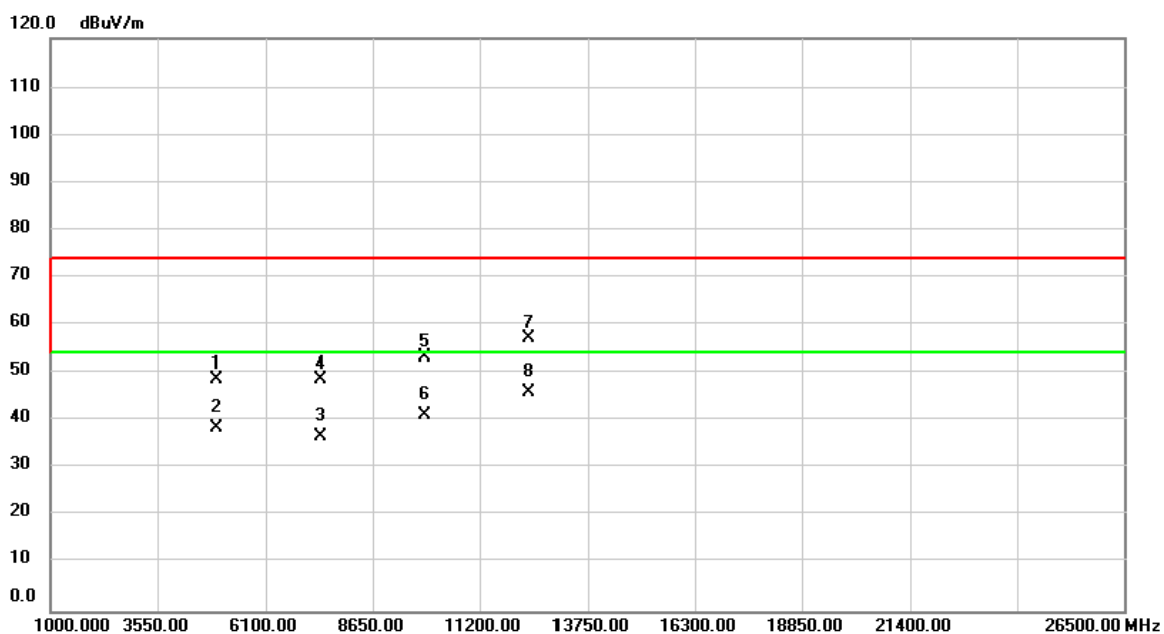
Orthogonal Axis :	X
Test Mode :	TX 2475MHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2475.000	78.35	31.28	109.63	74.00	35.63	peak	No Limit
2	*	2475.000	74.82	31.28	106.10	54.00	52.10	AVG	No Limit
3		2483.500	31.30	31.31	62.61	74.00	-11.39	peak	
4		2483.500	21.49	31.31	52.80	54.00	-1.20	AVG	

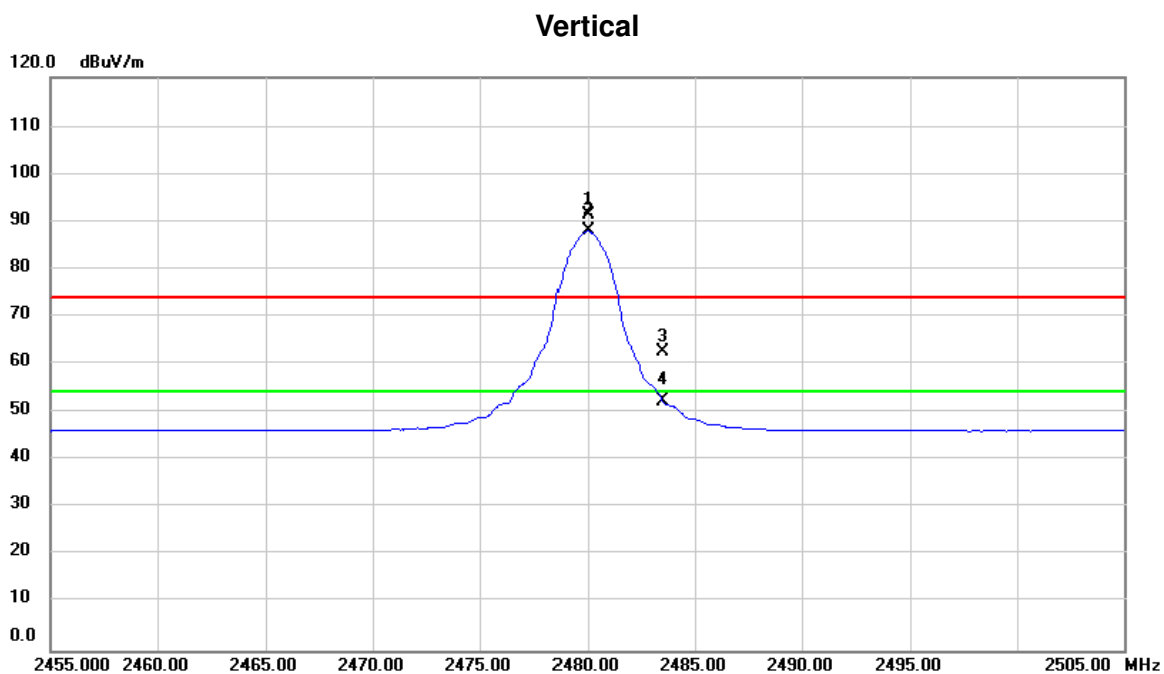
Orthogonal Axis :	X
Test Mode :	TX 2475MHz

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4950.000	59.99	-11.27	48.72	74.00	-25.28	peak	
2		4950.000	49.88	-11.27	38.61	54.00	-15.39	AVG	
3		7423.460	41.40	-4.66	36.74	54.00	-17.26	AVG	
4		7424.690	53.42	-4.66	48.76	74.00	-25.24	peak	
5		9900.000	51.75	1.54	53.29	74.00	-20.71	peak	
6		9900.000	39.72	1.54	41.26	54.00	-12.74	AVG	
7		12375.00	54.88	2.14	57.02	74.00	-16.98	peak	
8	*	12375.00	43.83	2.14	45.97	54.00	-8.03	AVG	

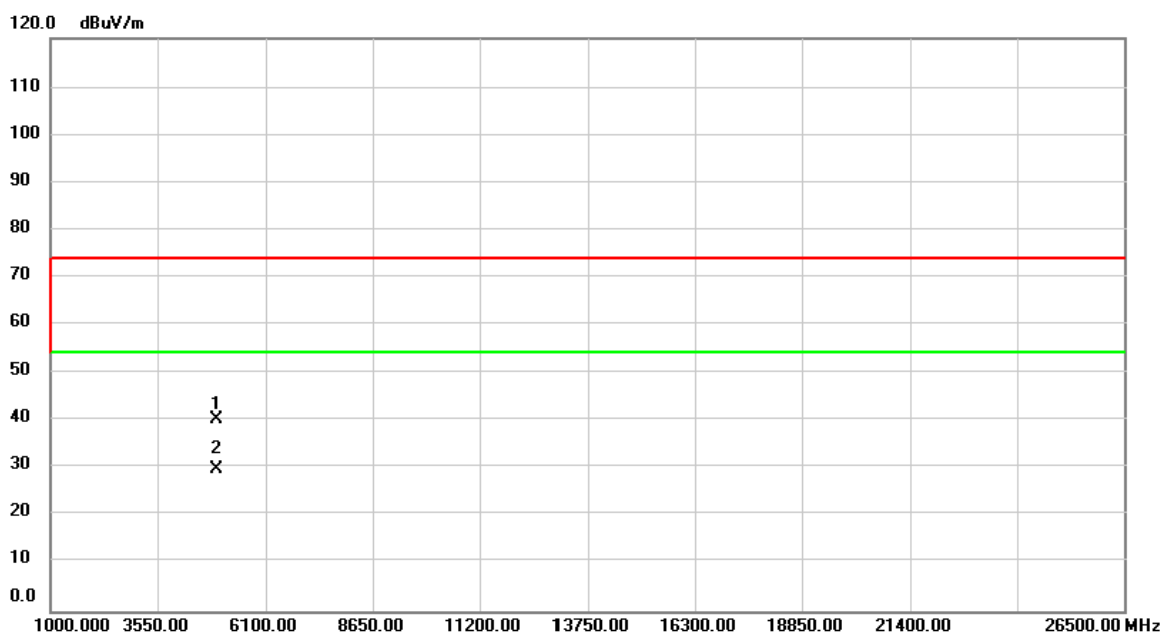
Orthogonal Axis :	X
Test Mode :	TX 2480MHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2480.000	60.20	31.29	91.49	74.00	17.49	peak	No Limit
2	*	2480.000	56.62	31.29	87.91	54.00	33.91	AVG	No Limit
3		2483.500	31.17	31.31	62.48	74.00	-11.52	peak	
4		2483.500	20.97	31.31	52.28	54.00	-1.72	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz

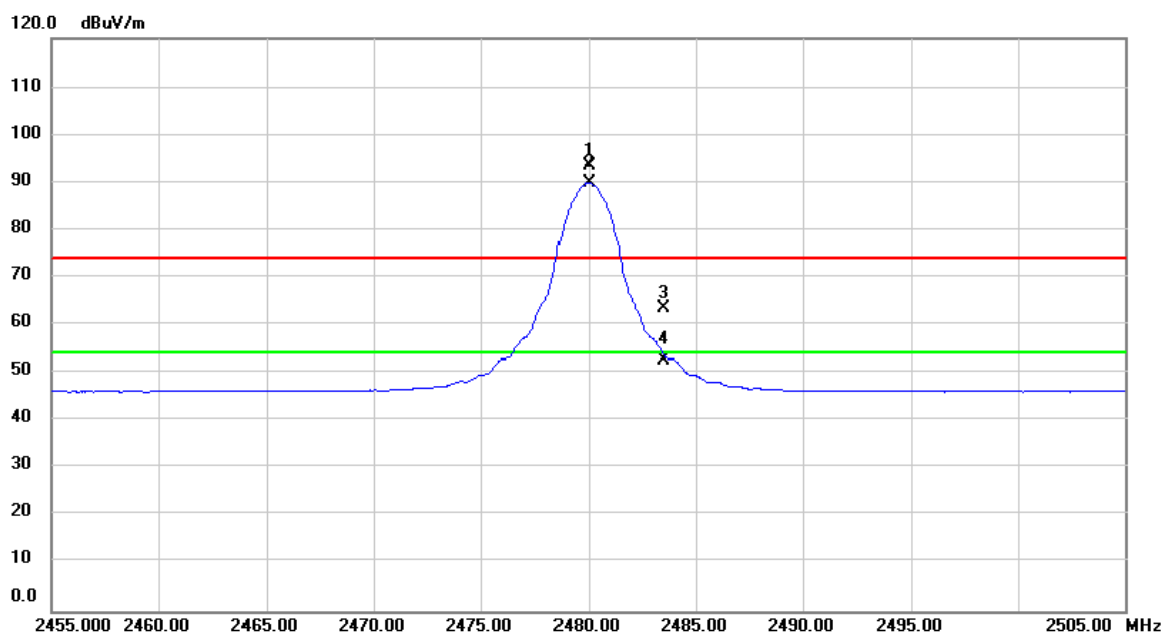
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.000	51.67	-11.25	40.42	74.00	-33.58	peak	
2	*	4960.000	41.24	-11.25	29.99	54.00	-24.01	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz

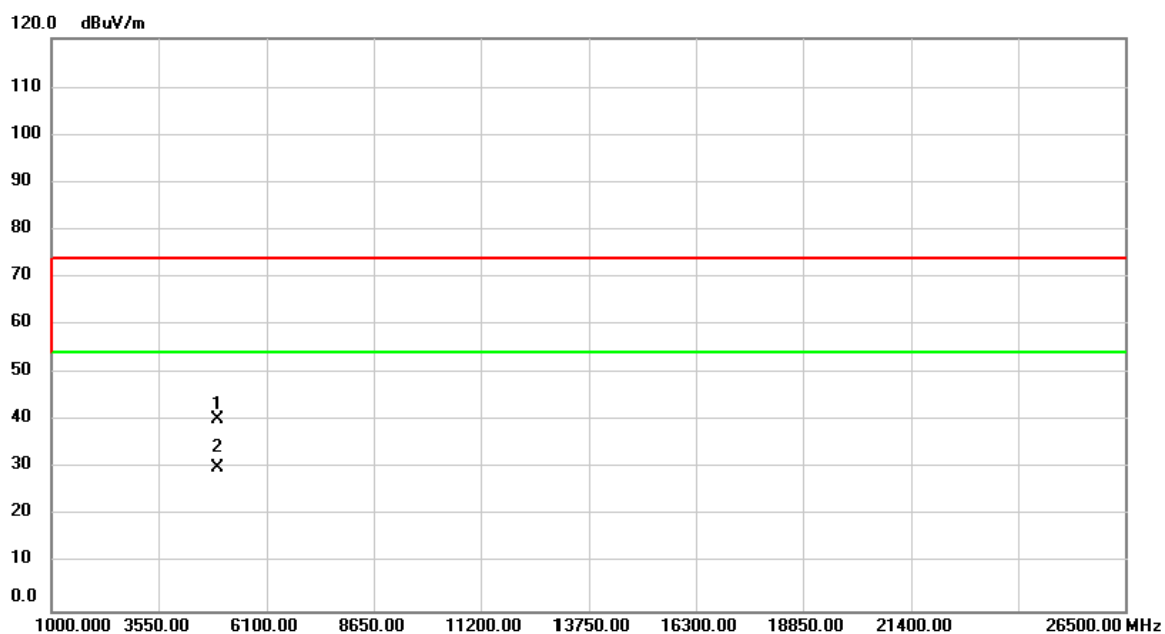
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2480.000	62.04	31.29	93.33	74.00	19.33	peak	No Limit
2	*	2480.000	58.57	31.29	89.86	54.00	35.86	AVG	No Limit
3		2483.500	32.11	31.31	63.42	74.00	-10.58	peak	
4		2483.500	21.29	31.31	52.60	54.00	-1.40	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz

Horizontal



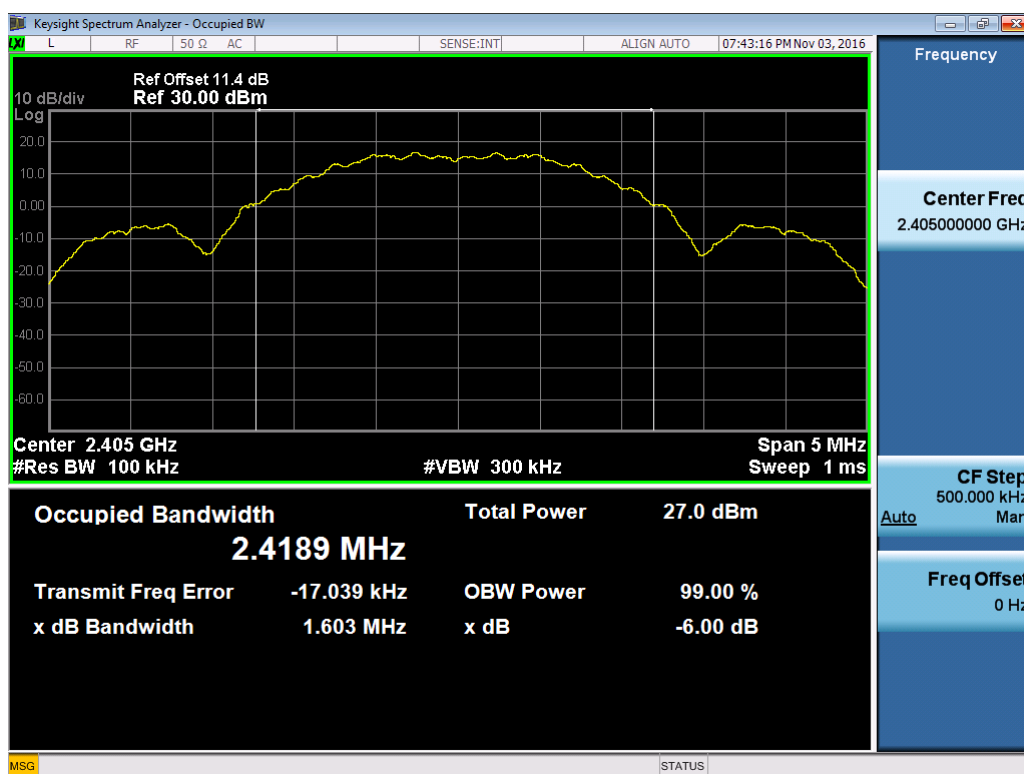
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.000	51.74	-11.25	40.49	74.00	-33.51	peak	
2	*	4960.000	41.44	-11.25	30.19	54.00	-23.81	AVG	

ATTACHMENT E - BANDWIDTH

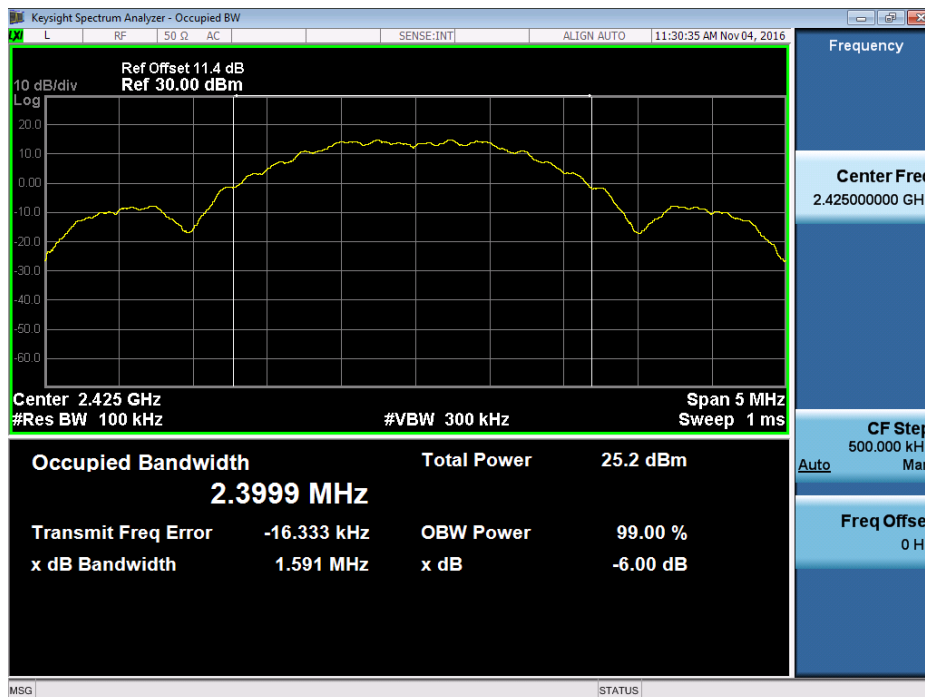
Test Mode : TX Mode

Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)
2405	1.603	2.4189	500
2425	1.591	2.3999	500
2440	1.604	2.4327	500
2445	1.592	2.4053	500
2450	1.608	2.4296	500
2475	1.605	2.4322	500
2480	1.603	2.4245	500

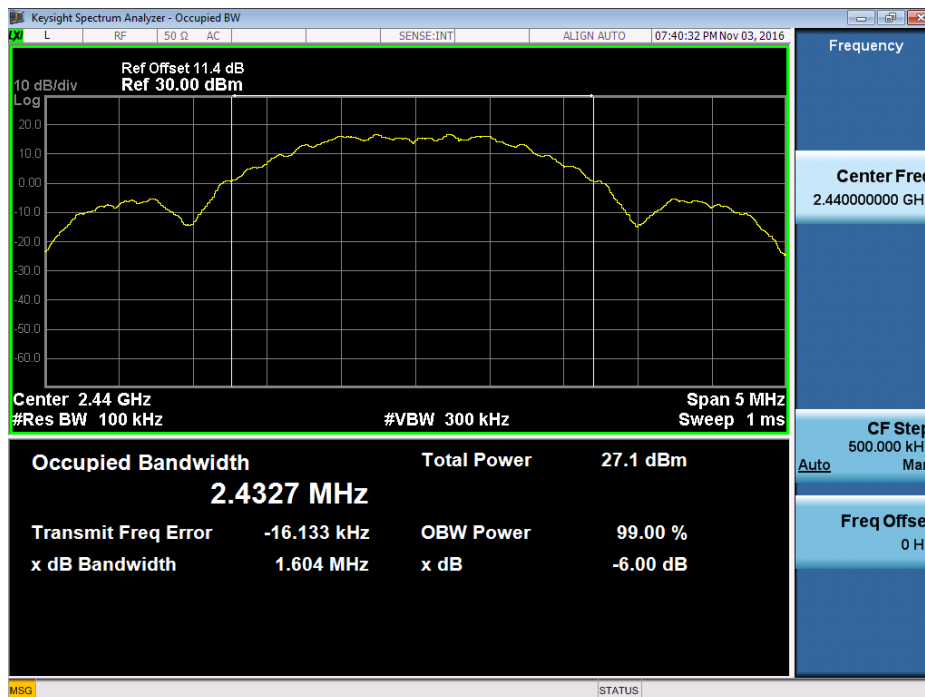
2405MHz



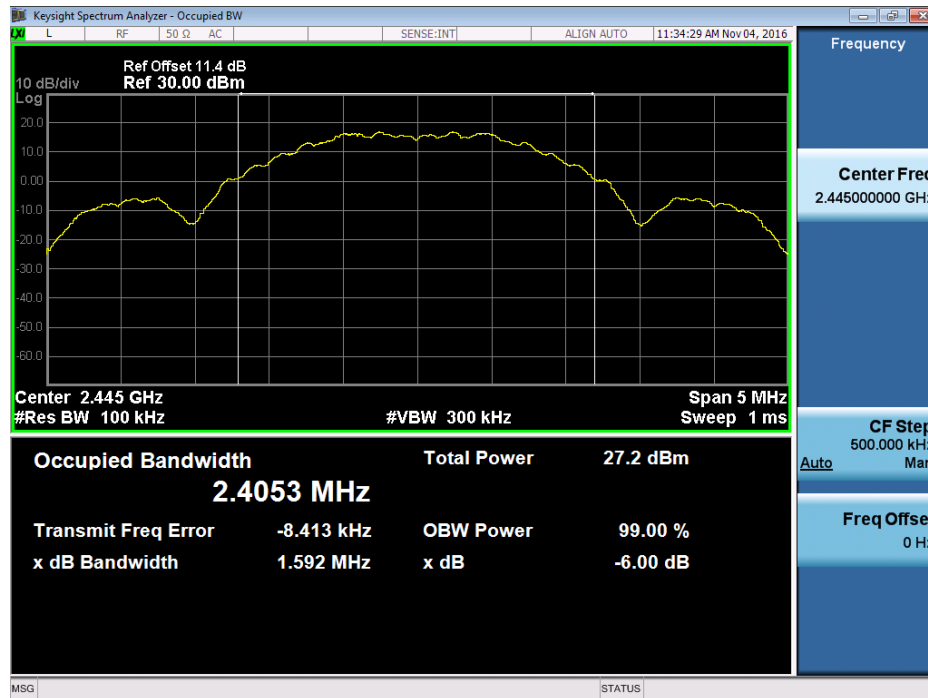
2425MHz



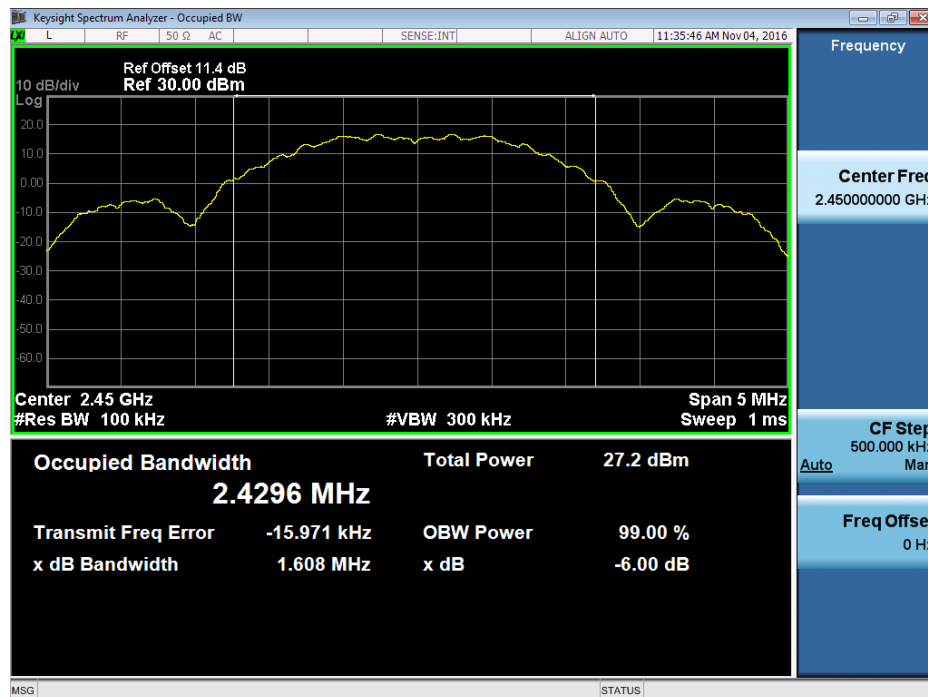
2440MHz



2445MHz



2450MHz



2475MHz



2480MHz



ATTACHMENT F - MAXIMUM OUTPUT POWER TEST

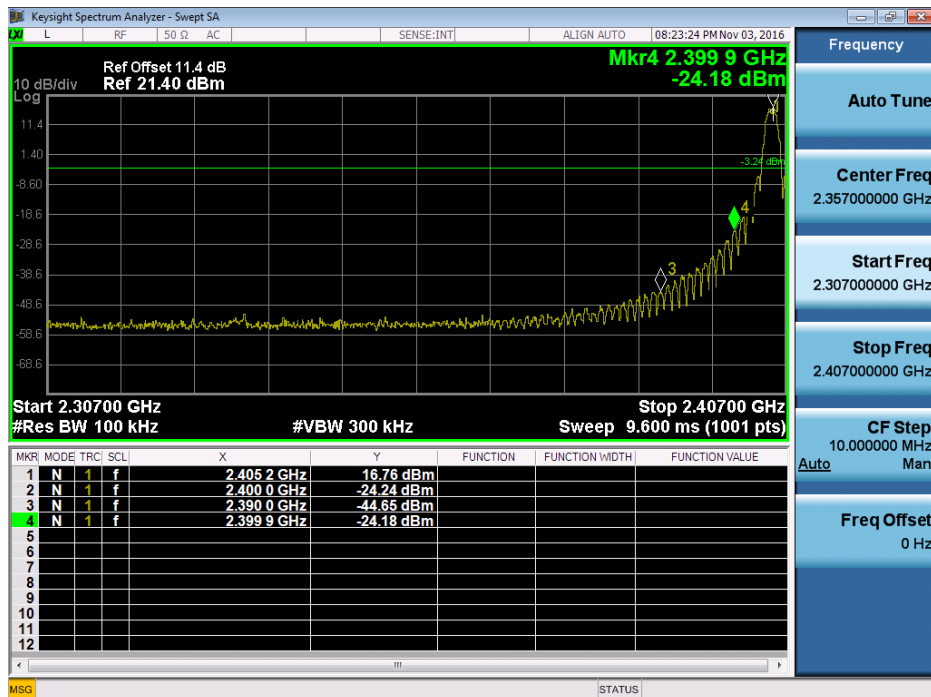
Test Mode :	TX Mode
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Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watt)	Max. Limit (dBm)	Max. Limit (Watt)
2405	19.75	0.0944	30.00	1.00
2425	18.20	0.0661	30.00	1.00
2440	20.21	0.1050	30.00	1.00
2445	19.97	0.0993	30.00	1.00
2450	19.92	0.0982	30.00	1.00
2475	13.14	0.0206	30.00	1.00
2480	-1.07	0.0008	30.00	1.00

ATTACHMENT G - ANTENNA CONDUCTED SPURIOUS EMISSION

Test Mode : TX Mode

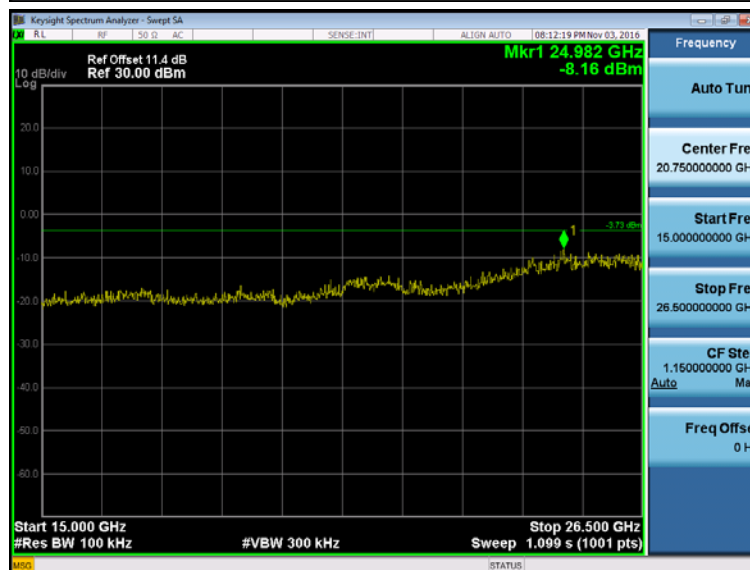
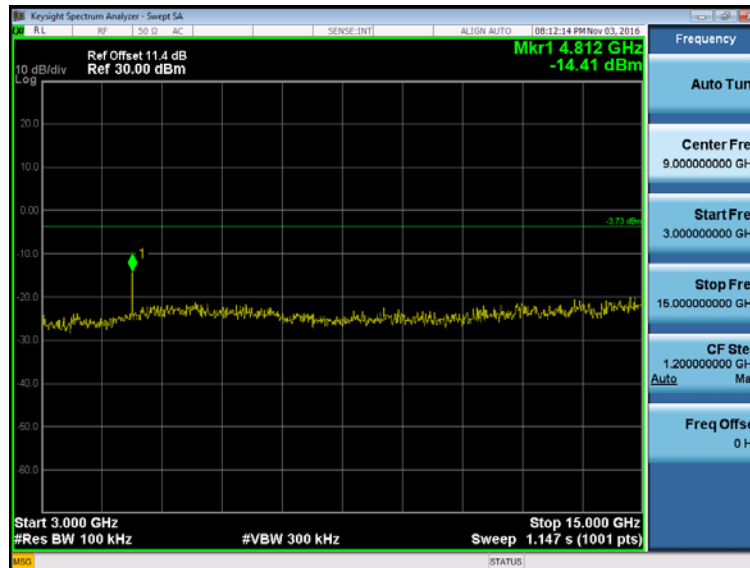
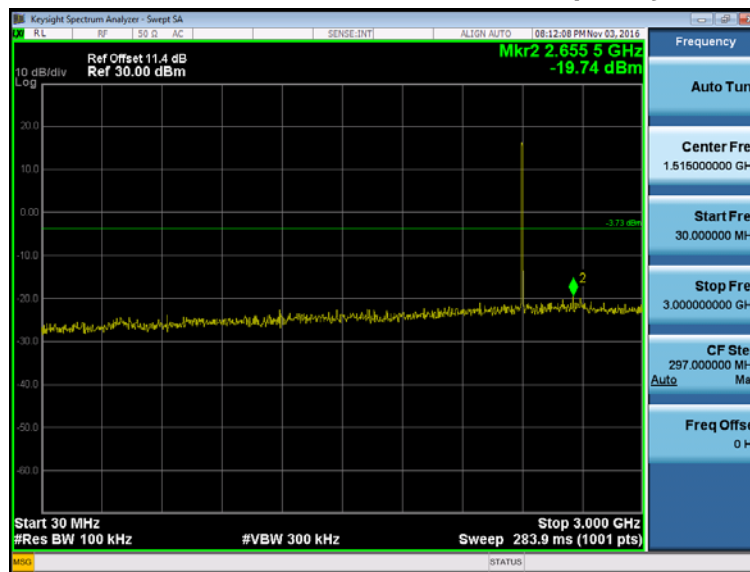
2405MHz (Lower)



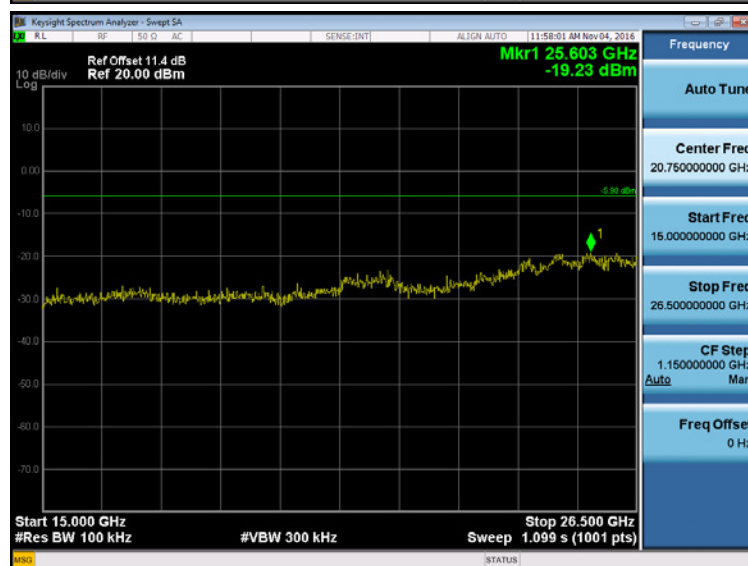
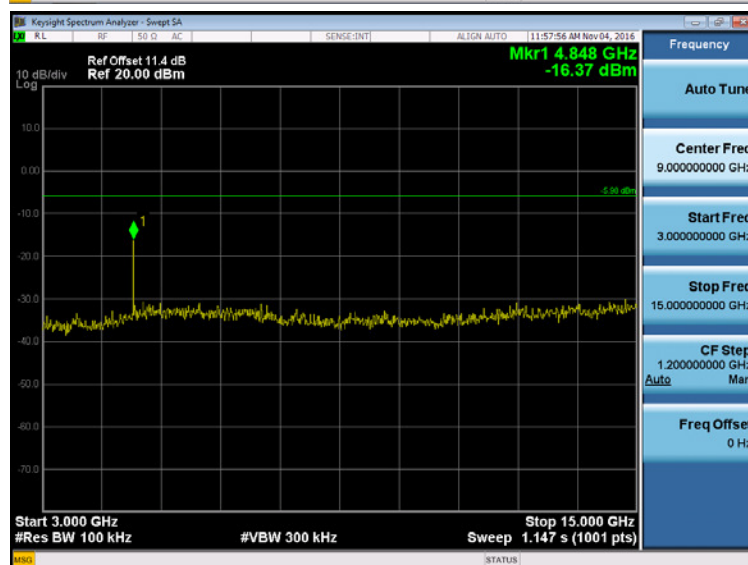
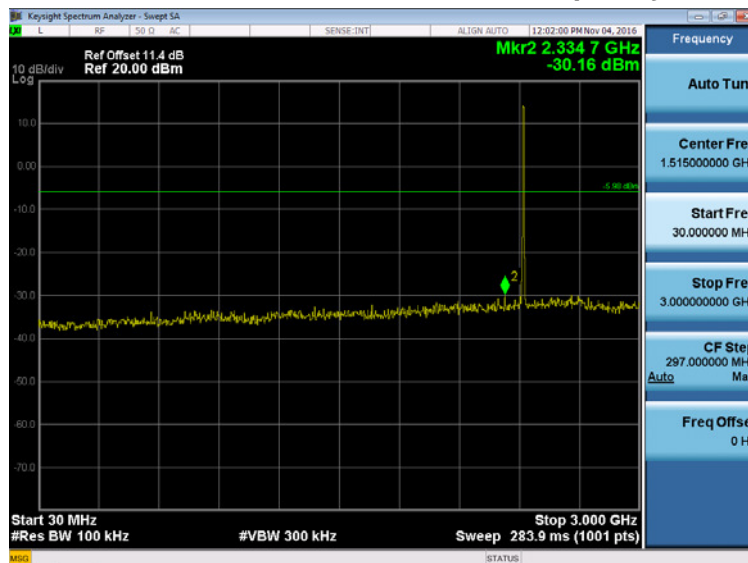
2480MHz (upper)



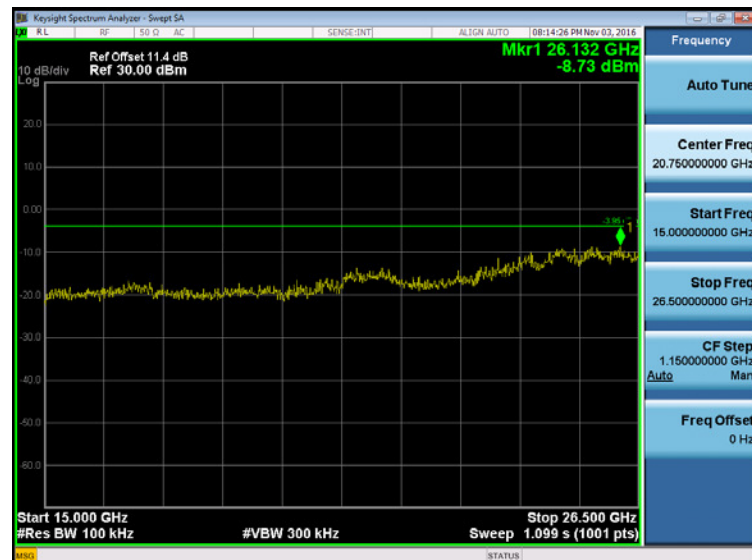
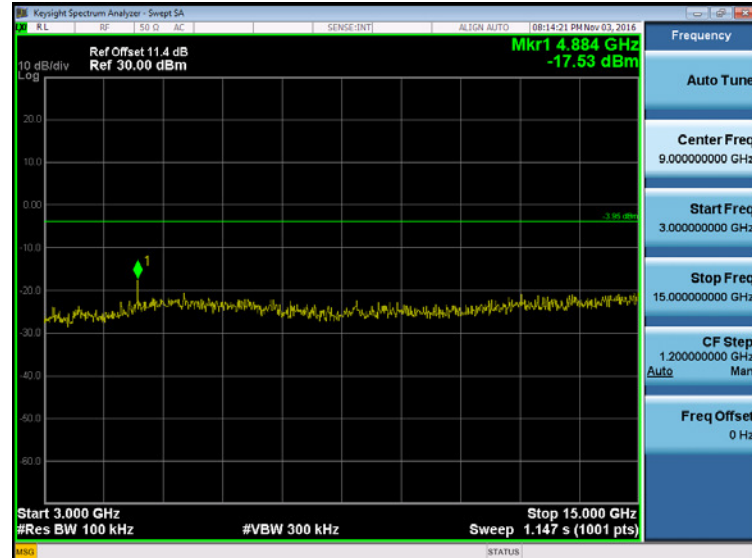
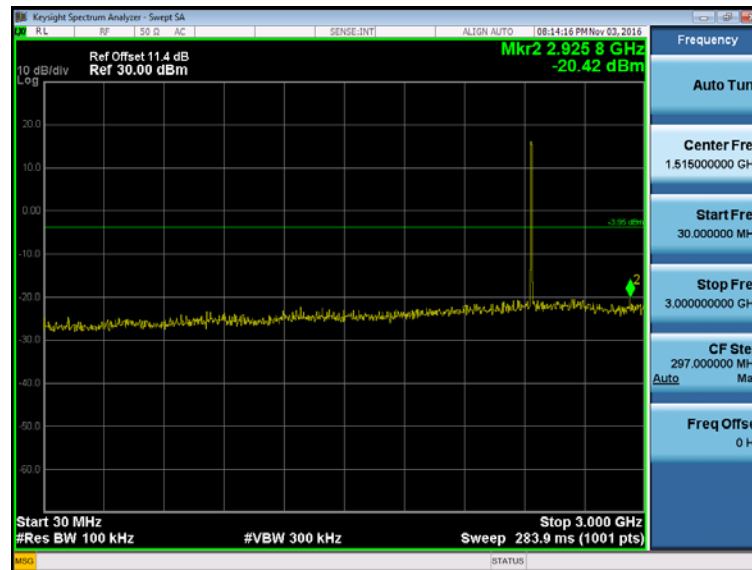
2405MHz (10th Harmonic of the frequency)



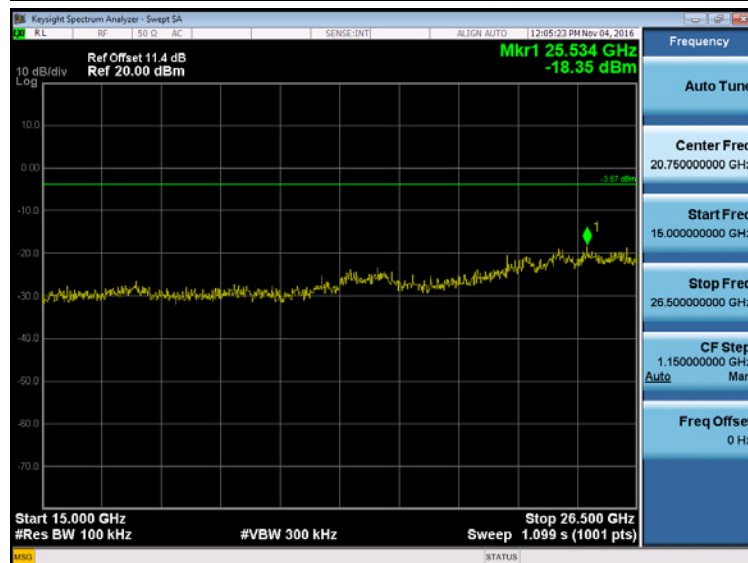
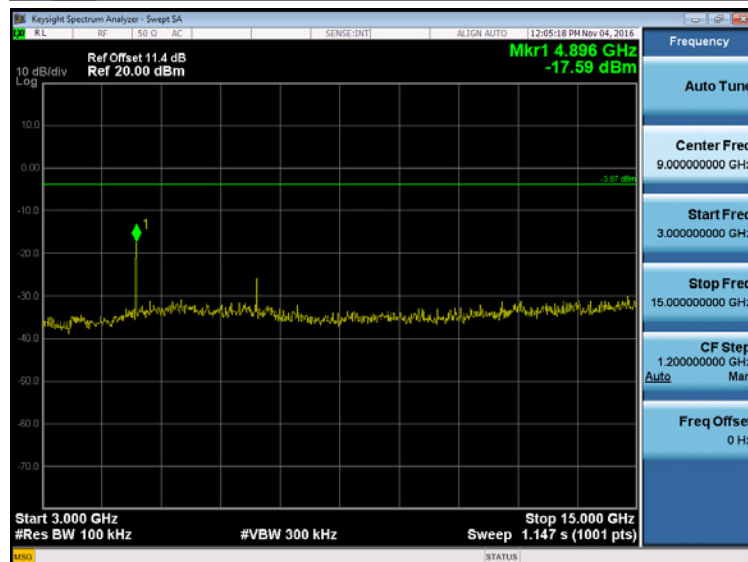
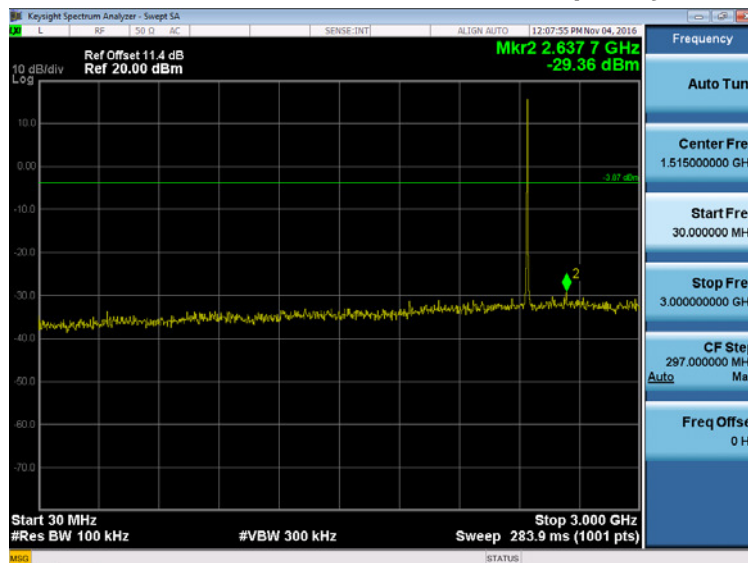
2425MHz (10th Harmonic of the frequency)



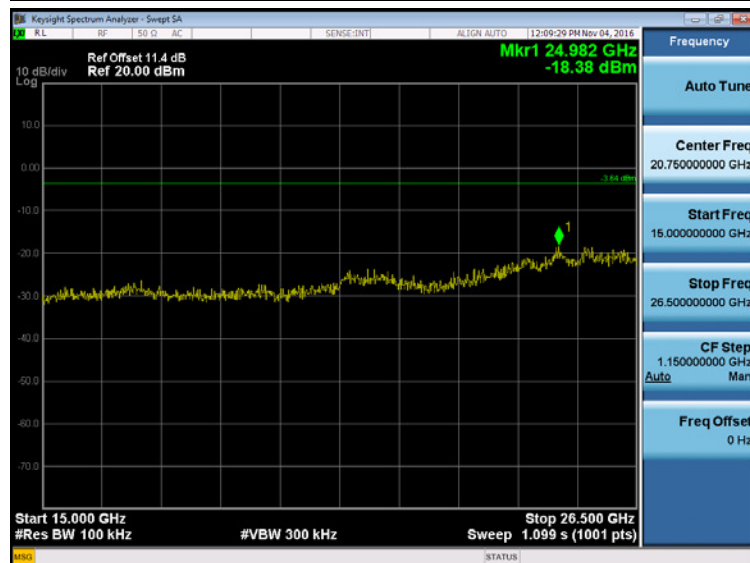
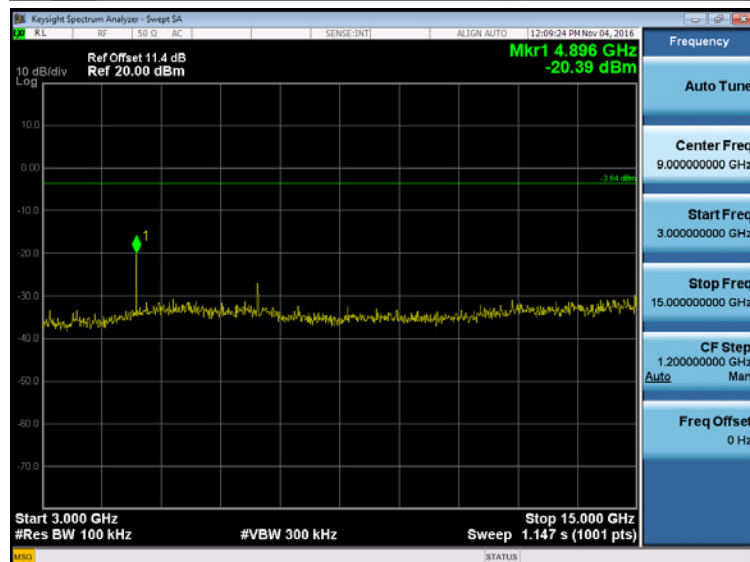
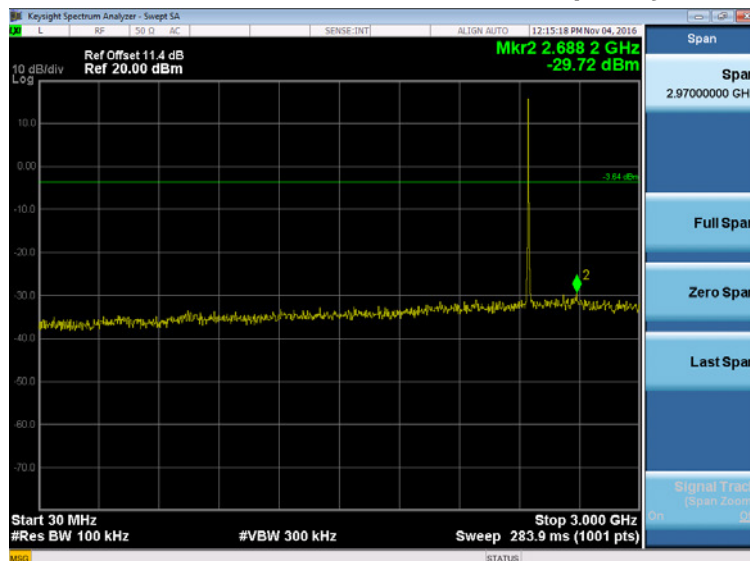
2440MHz (10th Harmonic of the frequency)



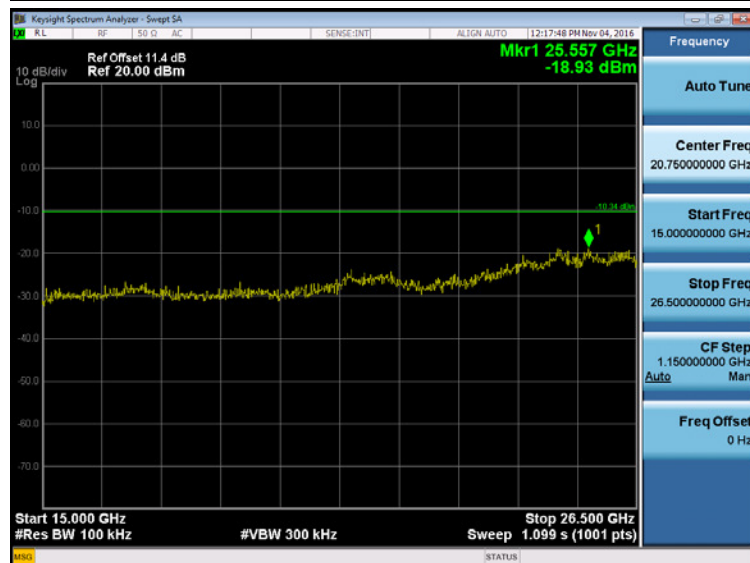
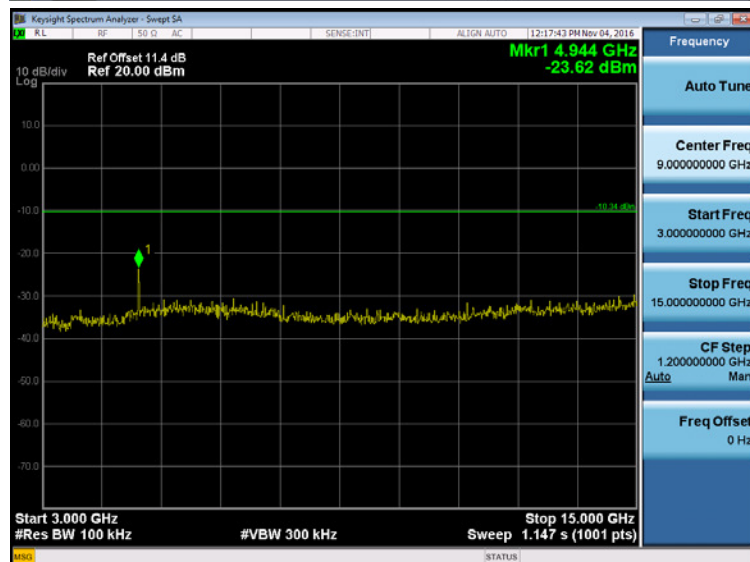
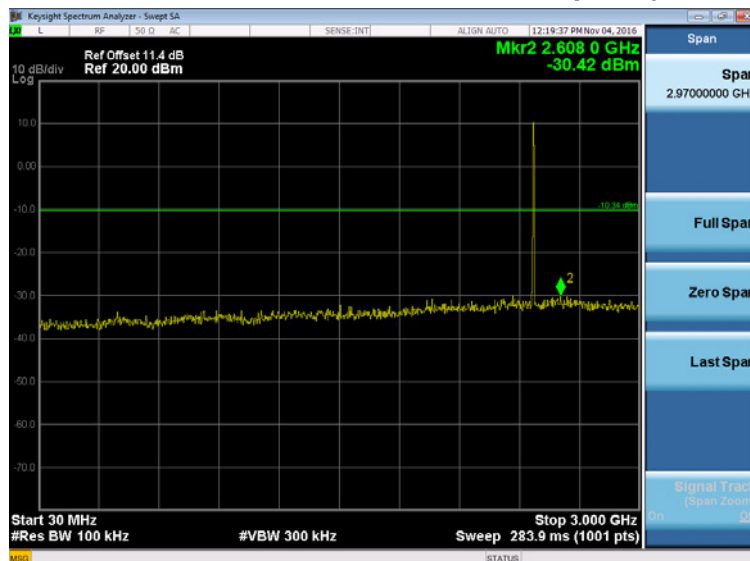
2445MHz (10th Harmonic of the frequency)



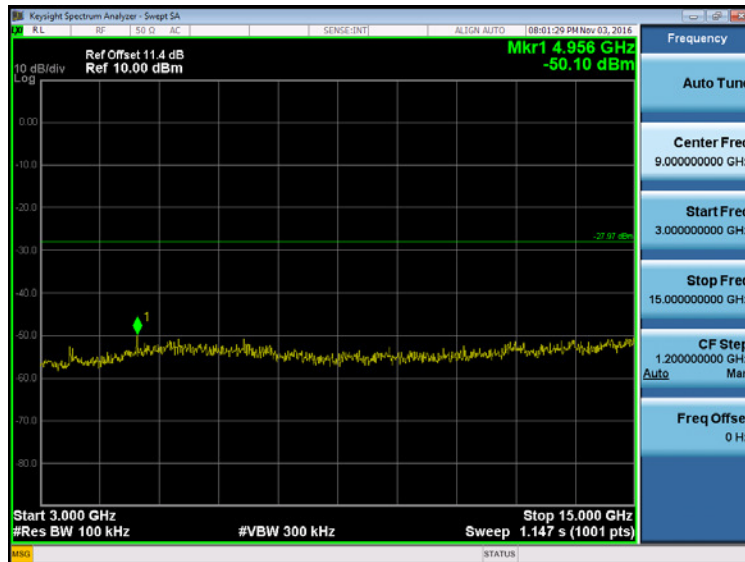
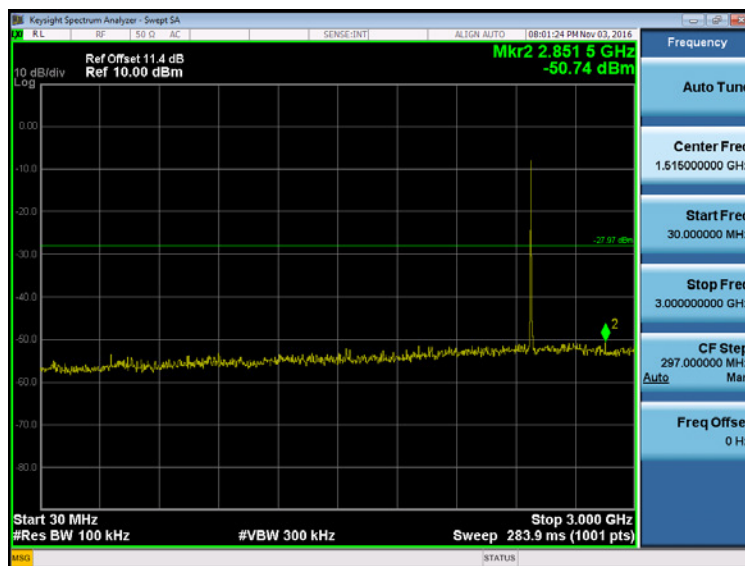
2450MHz (10th Harmonic of the frequency)



2475MHz (10th Harmonic of the frequency)



2480MHz (10th Harmonic of the frequency)



ATTACHMENT H - POWER SPECTRAL DENSITY TEST

Test Mode : TX Mode

Frequency (MHz)	Power Density (dBm)	Max. Limit (dBm)
2405	2.45	8
2425	2.20	8
2440	2.01	8
2445	4.49	8
2450	2.91	8
2475	-3.46	8
2480	-22.66	8

2405MHz



2425MHz



2440MHz



2445MHz



2450MHz



2475MHz



2480MHz

