FCC Radio Test Report

FCC ID:2AAAH-SPO001

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

Project No.	:	1411212
Equipment	:	Overflow
Model Name	:	Overflow
Applicant	:	Quirky, Inc.
Address	:	606 W. 28th St. Floor 7 New York New York 10001 United States

Date of Receipt	:	Nov. 27, 2014
Date of Test	:	Nov. 27, 2014~ Dec. 19, 2014
Issued Date	:	Dec. 22, 2014
Tested by	:	BTL Inc.

Testing Engineer : Gary Chou
(Gary Chou)

Technical Manager : Jeff Yang
(Jeff Yang)

Authorized Signatory : Andy Chiu
(Andy Chiu)

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Declaration

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

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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Limitation

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

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1411212	Original Issue.	Dec. 22, 2014

1. CERTIFICATION

Equipment	:	Overflow
Brand Name	:	Quirky+GE
Model Name	:	Overflow
Applicant	:	Quirky, Inc.
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	:	Nov. 27, 2014~ Dec. 19, 2014
Test Sample	:	ENGINEERING SAMPLE
Standard(s)	:	FCC Part15, Subpart C :2013 (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-1-1411212) 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	N/A	
15.247(d)	Antenna conducted Spurious Emission	PASS	
15.247(a)(2)	6dB Bandwidth	PASS	
15.247(b)(3)	Peak Output Power	PASS	
15.247(e)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	
15.209/15.205	Transmitter Radiated Emissions	PASS	

NOTE:

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

(2) The test follows FCC KDB Publication No. 558074 D01 DTS Meas Guidance v03r02 (Measurement Guidelines of DTS)

2.1TEST FACILITY

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

Conducted emission Test:

Radiated emission Test (Below 1 GHz):

CB08: FCC RN: 614388; FCC DN: TW1054
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Above 1 GHz):

CB08: FCC RN: 614388; FCC DN: TW1054
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

2.2MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC/Industry Canada rules and for reference only.

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

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Radiated emission test:

Test Site	Item	Measurement Frequency Range		Uncertainty	NOTE
CB08	Radiated emission at 3m	Horizontal Polarization	30 - 200MHz	3.35 dB	
			200 - 1000MHz	3.11 dB	
			1 - 18GHz	3.97 dB	
			18 - 40GHz	4.01 dB	
		Vertical Polarization	30 - 200MHz	3.22 dB	
			200 - 1000MHz	3.24 dB	
			1 - 18GHz	4.05 dB	
			18 - 40GHz	4.04 dB	

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}.

If U_{lab} is less than or equal to U_{CISPR}, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{CISPR}, then:

- compliance is deemed to occur if no measured disturbance level, increased by (U_{lab} - U_{CISPR}), exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by (U_{lab} - U_{CISPR}), exceeds the disturbance limit.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Overflow	
Brand Name	Quirky+GE	
Model Name	Overflow	
Model Difference	N/A	
Product Description	Operation Frequency	2405~2480 MHz
	Modulation Technology	OQPSK
	Bit Rate of Transmitter	250Kbps
	Output Power (Max.)	3.53 dBm
Power Source	Supplied from AA Battery*2	
Power Rating	DC 3V	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.

Channel	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

3.

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	SERCOM	SZ-WTD02	Internal	N/A	3.51

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)**

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

Note:

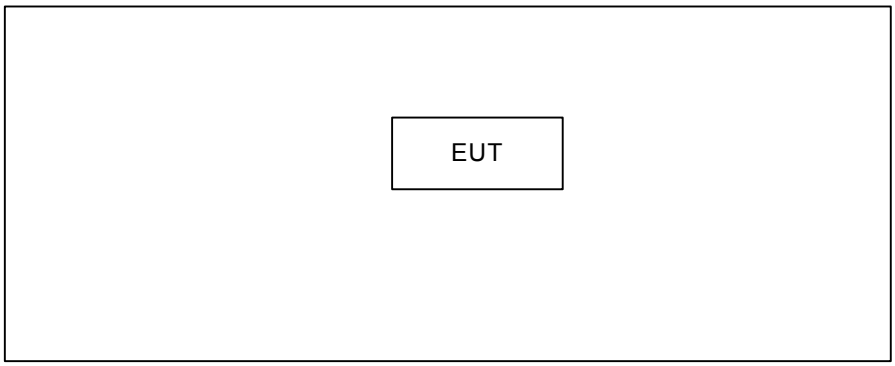
(1) The measurements are performed at the high, middle, low available channels.

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 WLAN

Test Software Version	N/A		
Frequency (MHz)	2405	2445	2480
-	0	0	0

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/IC	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 RADIATED EMISSION MEASUREMENT

4.1.1 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) & RSS-210 section 2.2& Annex 8 (A8.5), then the 15.209(a)& RSS-Gen 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

4.1.2 TEST PROCEDURE

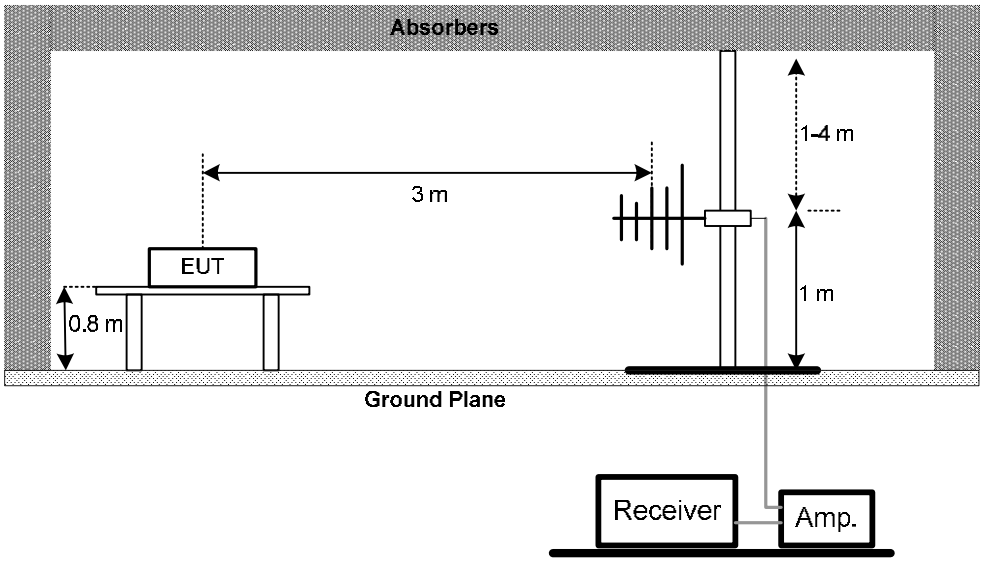
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a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

4.1.3 DEVIATION FROM TEST STANDARD

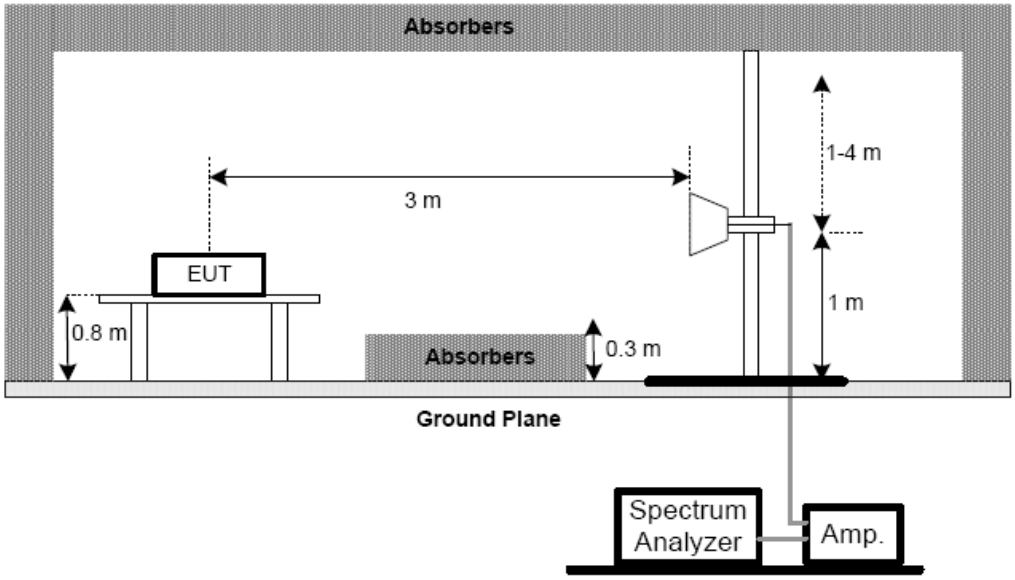
No deviation

4.1.4 TEST SETUP

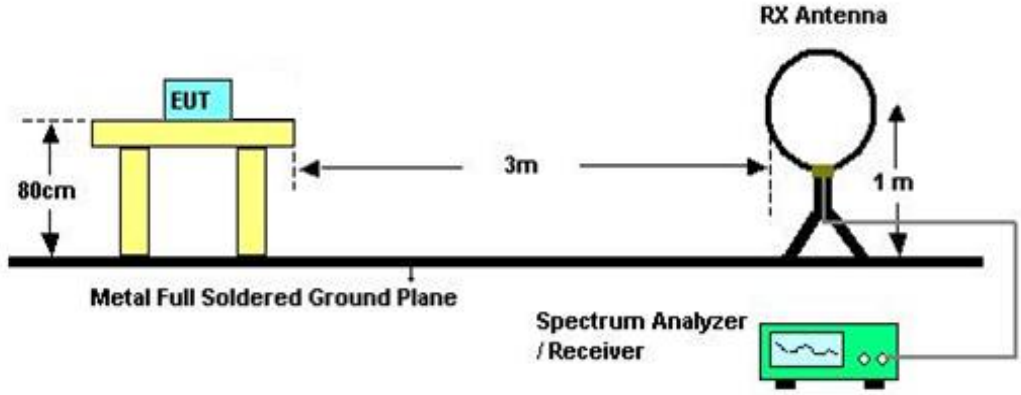
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



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



(C) For radiated emissions below 30MHz



4.1.5 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.

4.1.6 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: DC 3V

4.1.7TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Attachment A.

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 (specific distance / test distance) (dB).
(3) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.1.8TEST RESULTS (BETWEEN 30MHZ TO 1000 MHZ)

Please refer to the Attachment B.

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.

4.1.9TEST RESULTS (ABOVE 1000 MHZ)

Please refer to the Attachment C.

Remark:

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(2) 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	>= 500KHz (6dB bandwidth)	2405~2480 MHz	PASS

5.1.1 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 = 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: DC 3V

5.1.6 TEST RESULTS

Please refer to the Attachment D.

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

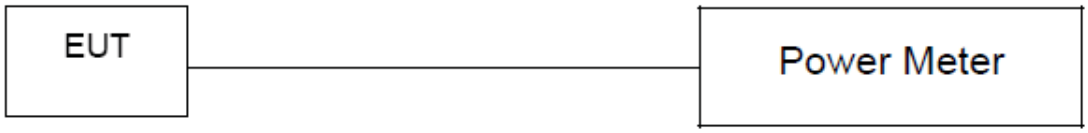
6.1.1 TEST PROCEDURE

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 v03r02.

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: DC 3V

6.1.6 TEST RESULTS

Please refer to the Attachment E.

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.

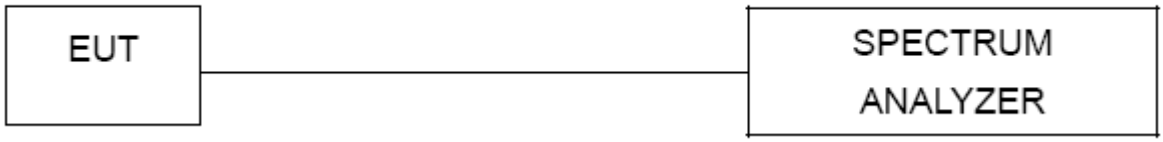
7.1.1 TEST PROCEDURE

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: DC 3V

7.1.6 TEST RESULTS

Please refer to the Attachment F.

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

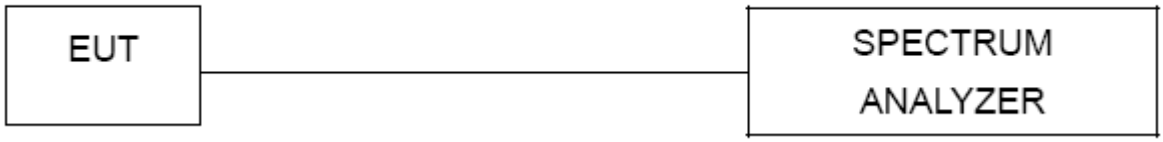
8.1.1 TEST PROCEDURE

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: DC 3V

8.1.6 TEST RESULTS

Please refer to the Attachment G.

9. MEASUREMENT INSTRUMENTS LIST

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 12, 2015
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Jun. 12, 2015
3	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 15, 2015
4	Microflex Cable	Harbour industries	27478LL142	1m	May. 12, 2015
5	Microflex Cable	EMC	S104-SMA	8m	May. 14, 2015
6	Microflex Cable	Harbour industries	27478LL142	3m	May. 12, 2015
7	Test Cable	LMR	LMR-400	12m	May. 13, 2015
8	Test Cable	LMR	LMR-400	3m	May. 13, 2015
9	Pre-Amplifier	Anritsu	MH648A	M92649	Jun. 17, 2015
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	July. 10, 2015

6dB Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 12, 2015

Peak Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter Sensor	Anritsu	MA2411B	1126001	Jul. 21, 2015
2	Signal Generator	R&S	SMR40	100502	Mar,20, 2015

Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 12, 2015

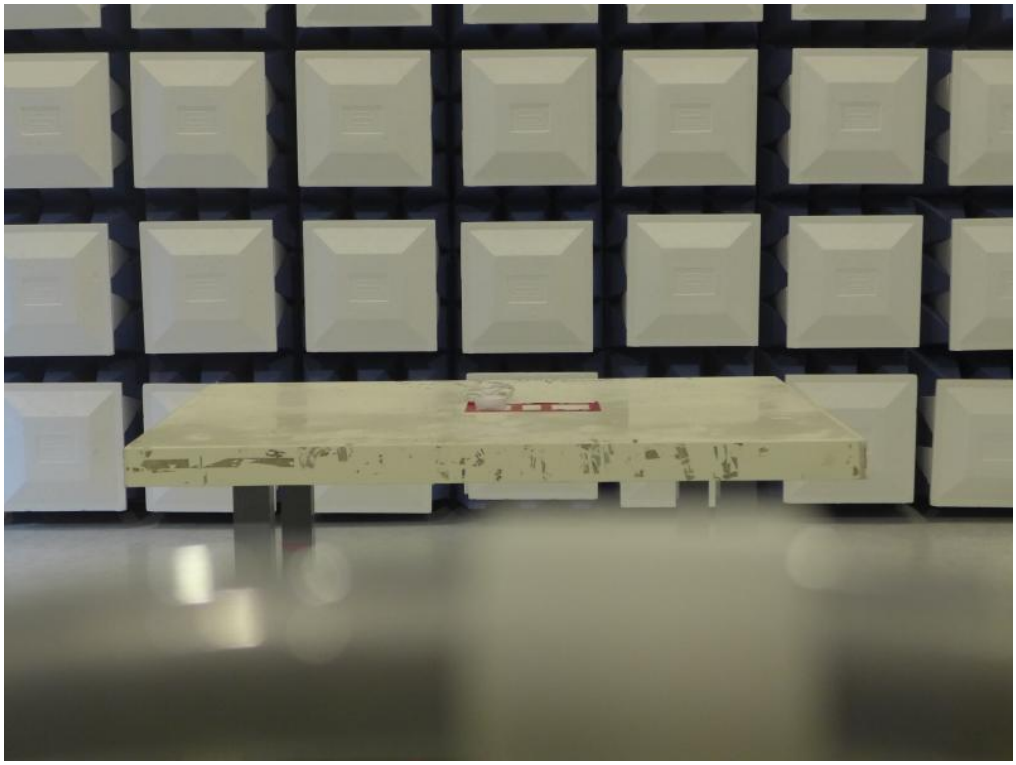
Power Spectral Density Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Oct. 12, 2015

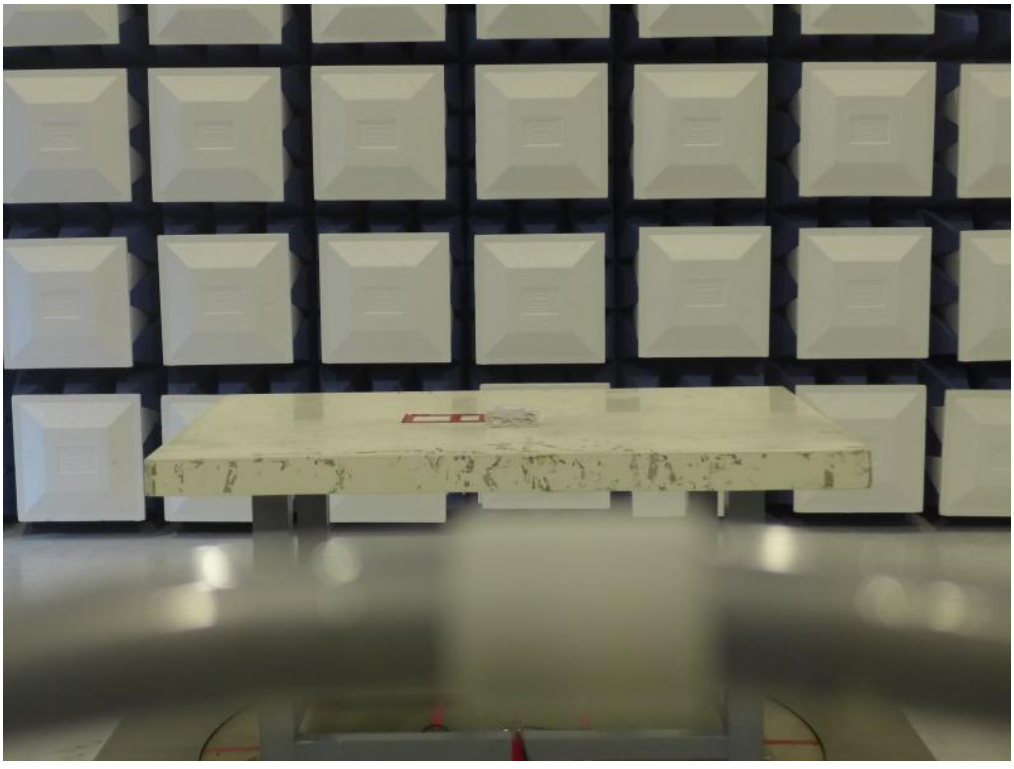
Remark: ”N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

10. EUT TEST PHOTO

Radiated Measurement Photos

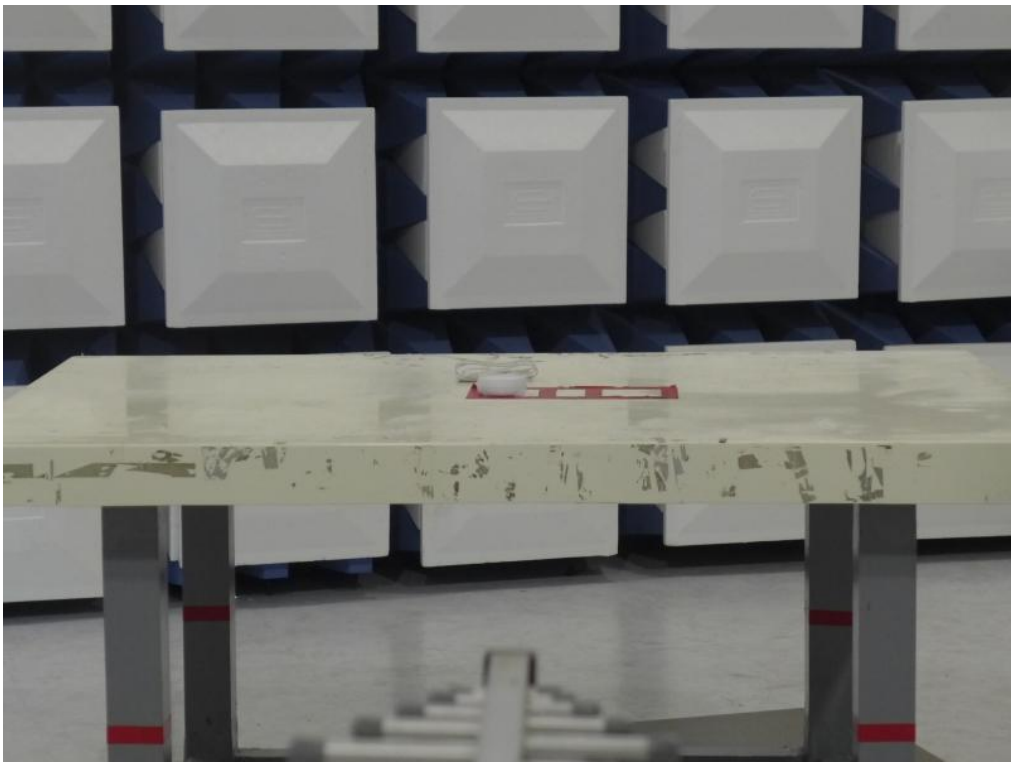
9KHz to 30MHz

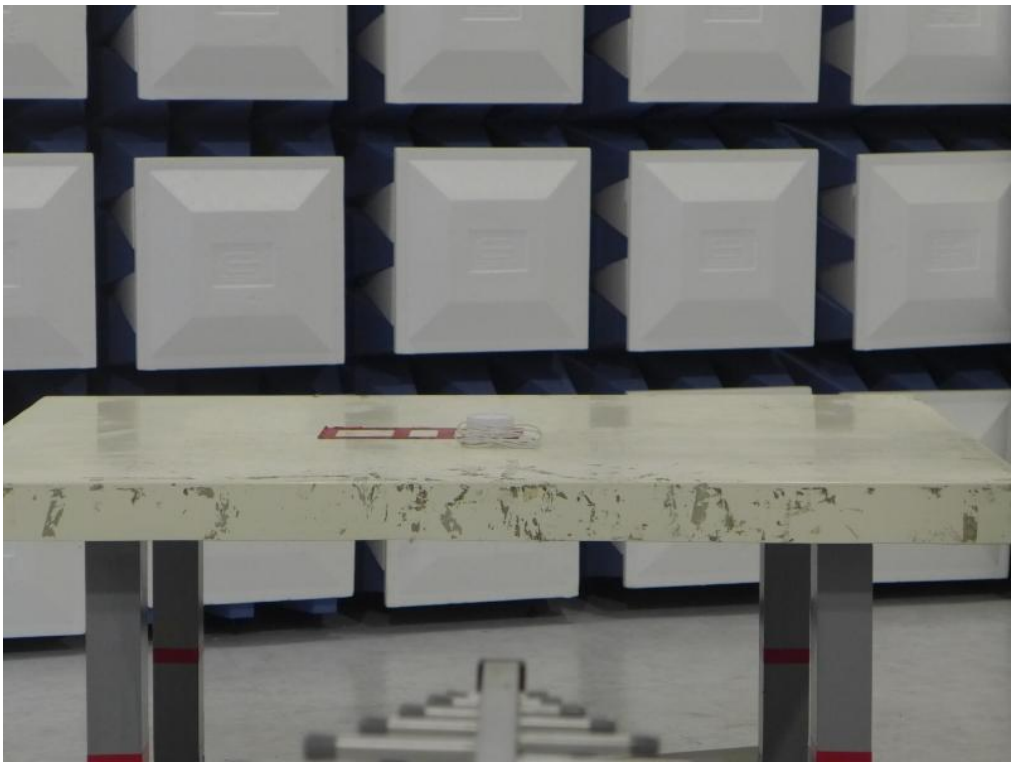




Radiated Measurement Photos

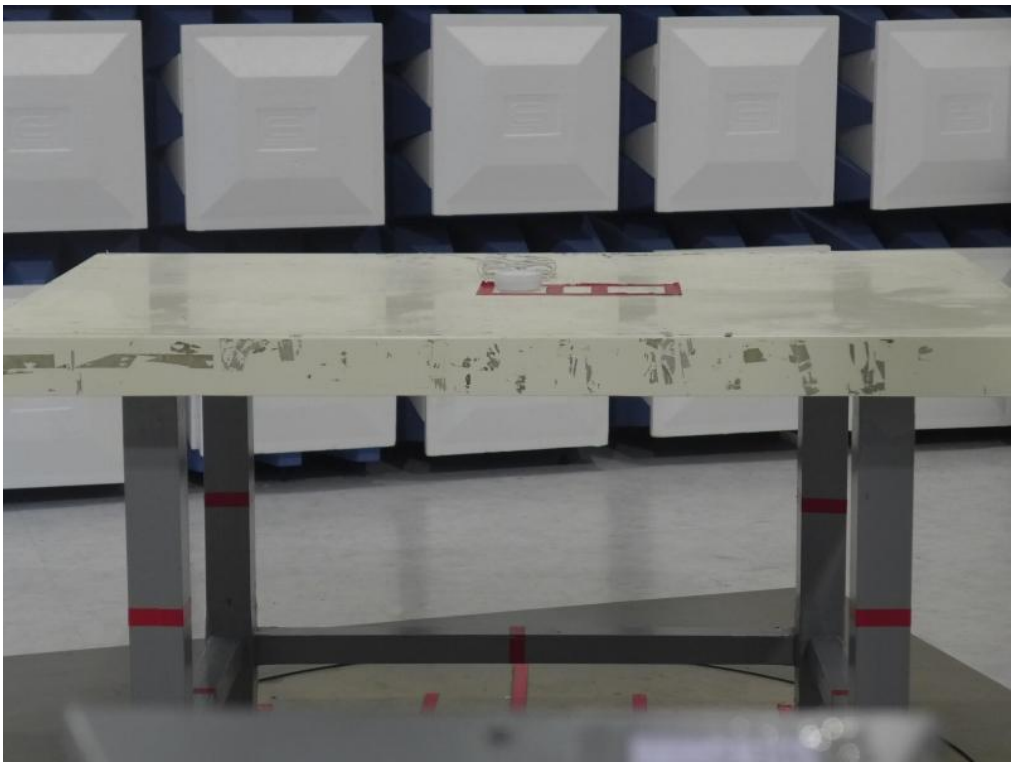
30M to 1000MHz

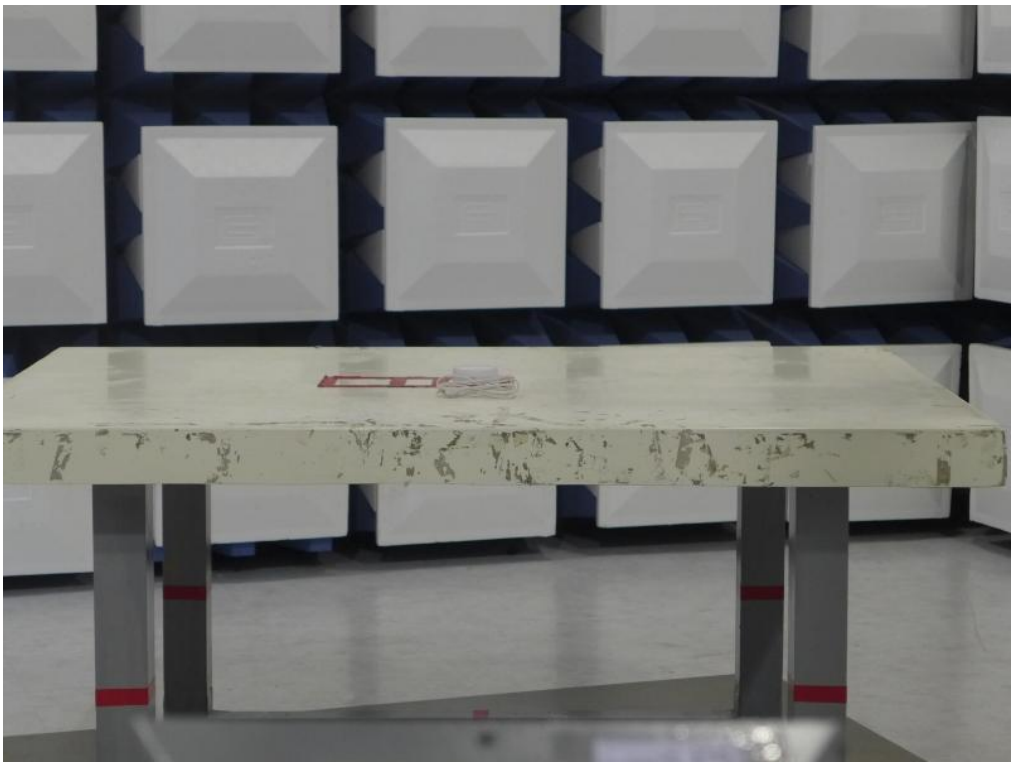




Radiated Measurement Photos

Above 1000MHz





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

Test Mode:	TX Mode

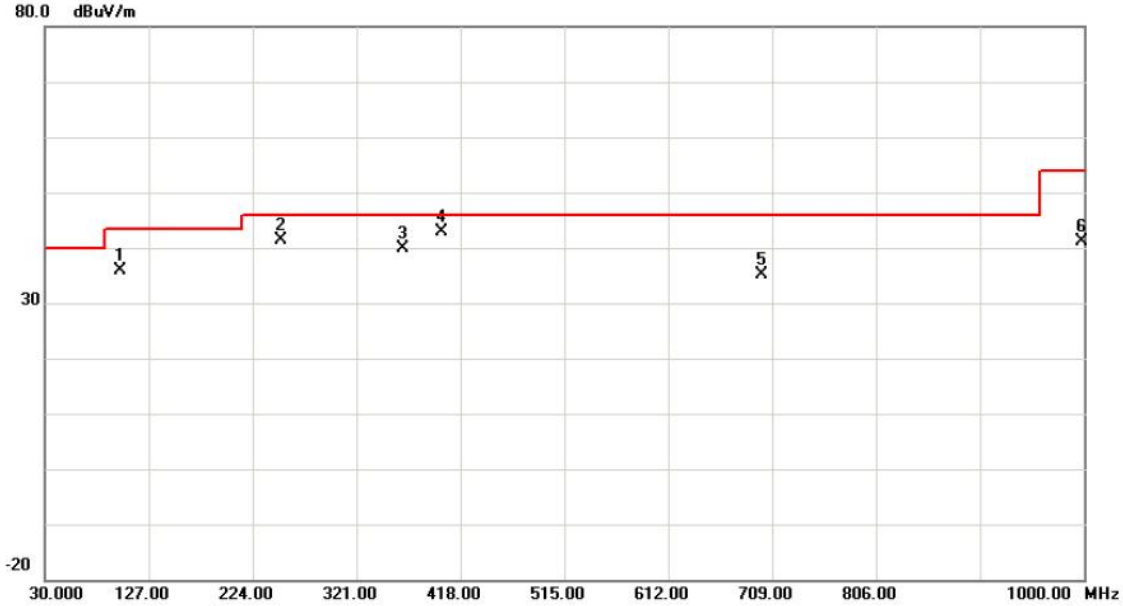
Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.0092	0°	76.12	19.73	95.85	108.33	-12.47	AVG
0.0092	0°	82.13	19.73	101.86	128.33	-26.46	PK
0.0235	0°	56.37	16.27	72.64	100.18	-27.55	AVG
0.0235	0°	59.23	16.27	75.50	120.18	-44.69	PK
0.0316	0°	57.44	14.74	72.18	97.61	-25.43	AVG
0.0316	0°	58.32	14.74	73.06	117.61	-44.55	PK
0.0427	0°	59.12	13.79	72.91	95.00	-22.08	AVG
0.0427	0°	63.42	13.79	77.21	115.00	-37.78	PK
0.4916	0°	17.23	11.21	28.44	73.77	-45.33	QP
1.7652	0°	18.34	11.65	29.99	69.54	-39.55	QP

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.0094	90°	76.31	19.62	95.93	108.18	-12.25	AVG
0.0094	90°	82.21	19.62	101.83	128.18	-26.35	PK
0.0233	90°	56.23	16.31	72.54	100.26	-27.72	AVG
0.0233	90°	59.12	16.31	75.43	120.26	-44.83	PK
0.0319	90°	57.26	14.72	71.98	97.53	-25.55	AVG
0.0319	90°	58.78	14.72	73.50	117.53	-44.03	PK
0.0442	90°	59.33	13.67	73.00	94.70	-21.70	AVG
0.0442	90°	63.06	13.67	76.73	114.70	-37.97	PK
0.4912	90°	17.58	11.21	28.79	73.78	-44.98	QP
1.7156	90°	18.22	11.63	29.85	69.54	-39.69	QP

ATTACHMENT B - RADIATED EMISSION BETWEEN (30MHZ TO 1000MHZ)

Test Mode:	TX 2445MHz -CH19

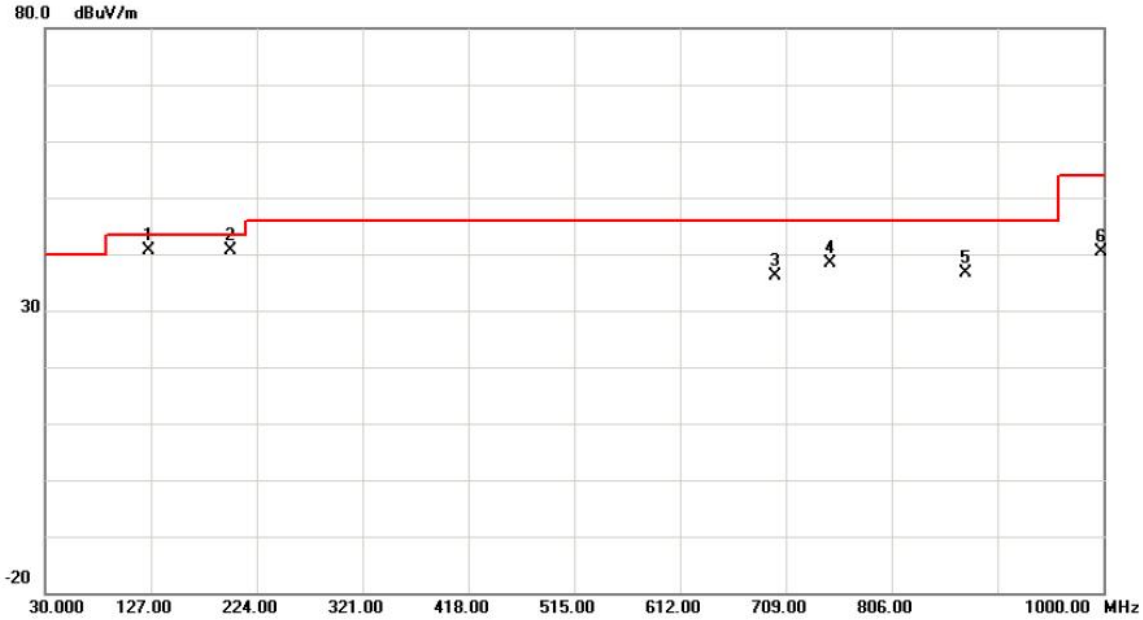
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		100.3250	54.70	-18.77	35.93	43.50	-7.57	peak	
2		250.6750	56.47	-15.10	41.37	46.00	-4.63	peak	
3		364.6500	51.97	-11.97	40.00	46.00	-6.00	peak	
4	*	401.0250	53.84	-11.07	42.77	46.00	-3.23	peak	
5		699.3000	40.49	-5.44	35.05	46.00	-10.95	peak	
6		997.5750	42.45	-1.30	41.15	54.00	-12.85	peak	

Test Mode:	TX 2445MHz -CH19

Horizontal

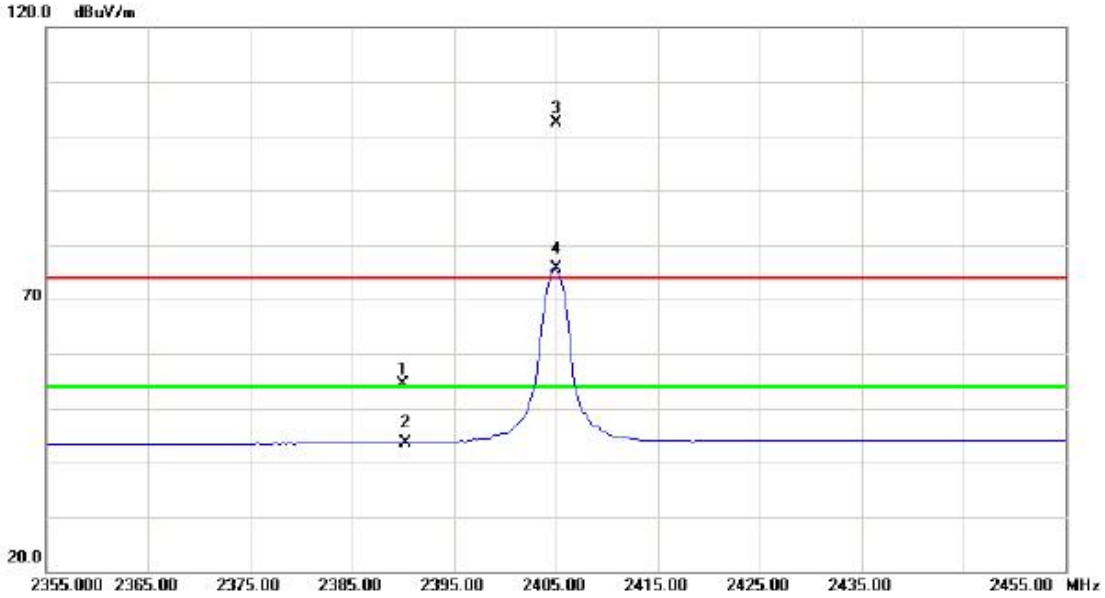


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		124.5750	56.44	-15.80	40.64	43.50	-2.86	peak	
2	*	199.7500	57.46	-16.72	40.74	43.50	-2.76	peak	
3		699.3000	41.46	-5.44	36.02	46.00	-9.98	peak	
4		750.2250	43.34	-5.01	38.33	46.00	-7.67	peak	
5		873.9000	40.00	-3.36	36.64	46.00	-9.36	peak	
6		997.5750	41.70	-1.30	40.40	54.00	-13.60	peak	

ATTACHMENT C - RADIATED EMISSION (ABOVE 1000MHZ)

Orthogonal Axis :	X
Test Mode :	TX 2405MHz _CH11

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	23.44	31.02	54.46	74.00	-19.54	peak	
2		2390.000	12.65	31.02	43.67	54.00	-10.33	AVG	
3	*	2405.000	71.18	31.09	102.27	74.00	28.27	peak	no limit
4	X	2405.000	44.66	31.09	75.75	54.00	21.75	AVG	no limit

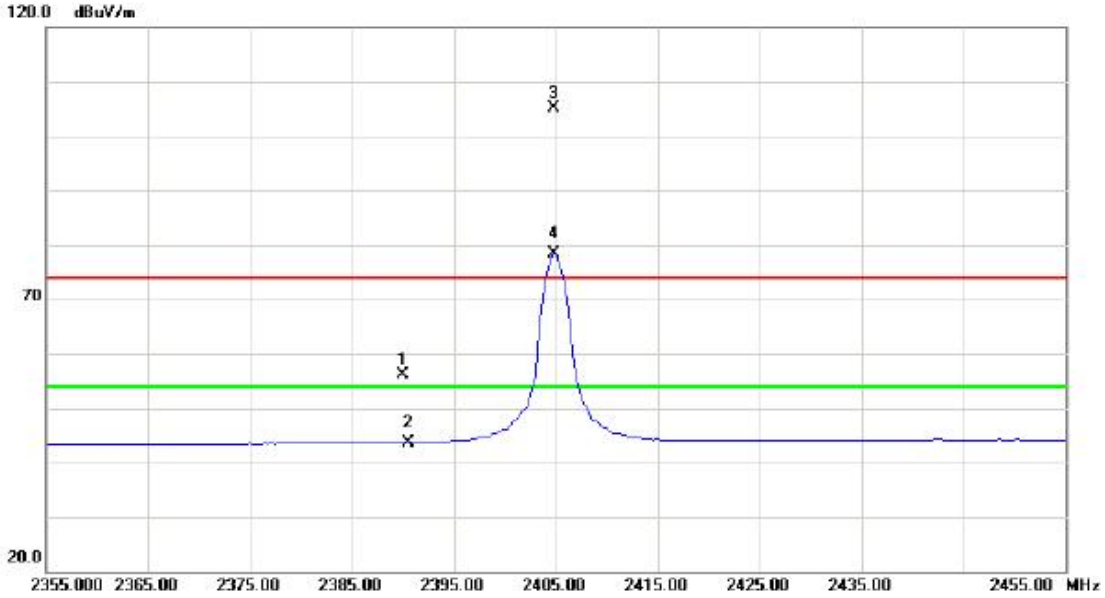
Orthogonal Axis :	X
Test Mode :	TX 2405MHz _CH11

Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4809.885	42.50	6.78	49.28	74.00	-24.72	peak	
2		4809.885	30.79	6.78	37.57	54.00	-16.43	AVG	
3		7214.970	42.62	15.06	57.68	74.00	-16.32	peak	
4	*	7214.970	31.21	15.06	46.27	54.00	-7.73	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2405MHz _CH11

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	25.07	31.02	56.09	74.00	-17.91	peak	
2		2390.000	12.72	31.02	43.74	54.00	-10.26	AVG	
3	*	2404.750	73.93	31.09	105.02	74.00	31.02	peak	no limit
4	X	2404.750	47.28	31.09	78.37	54.00	24.37	AVG	no limit

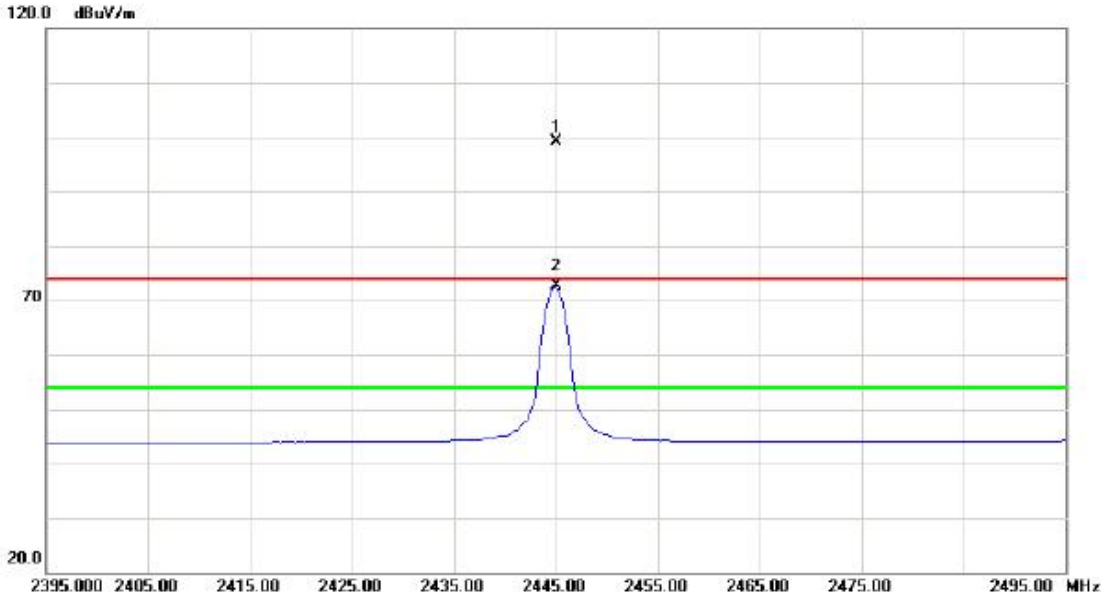
Orthogonal Axis :	X
Test Mode :	TX 2405MHz _CH11

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4809.975	42.95	6.78	49.73	74.00	-24.27	peak	
2		4809.975	30.68	6.78	37.46	54.00	-16.54	AVG	
3		7214.960	42.91	15.06	57.97	74.00	-16.03	peak	
4	*	7214.960	31.18	15.06	46.24	54.00	-7.76	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2445MHz _CH19

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2445.000	67.78	31.28	99.06	74.00	25.06	peak	no limit
2	X	2445.000	41.38	31.28	72.66	54.00	18.66	AVG	no limit

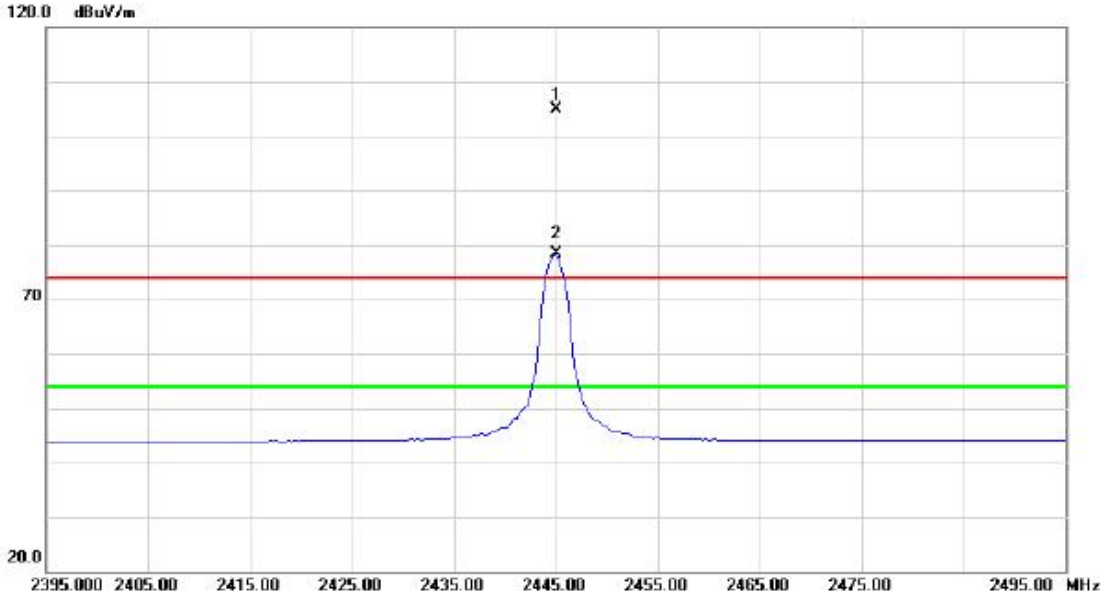
Orthogonal Axis :	X
Test Mode :	TX 2445MHz _CH19

Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4890.080	42.93	6.77	49.70	74.00	-24.30	peak	
2		4890.080	30.46	6.77	37.23	54.00	-16.77	AVG	
3		7334.855	43.07	15.71	58.78	74.00	-15.22	peak	
4	*	7334.855	30.99	15.71	46.70	54.00	-7.30	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2445MHz _CH19

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2445.000	73.70	31.28	104.98	74.00	30.98	peak	no limit
2	X	2445.000	47.04	31.28	78.32	54.00	24.32	AVG	no limit

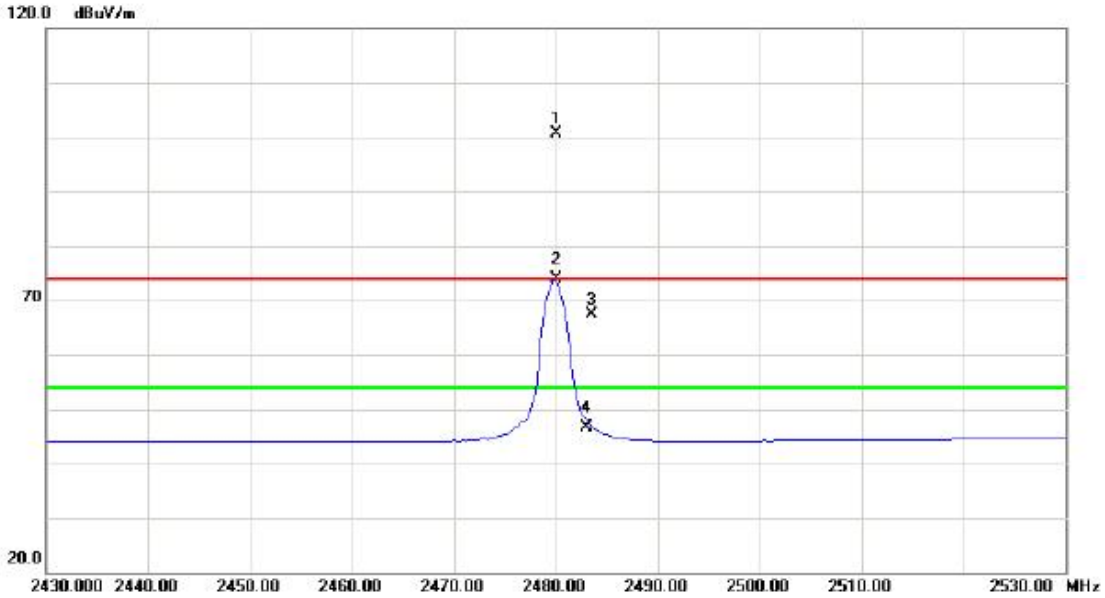
Orthogonal Axis :	X
Test Mode :	TX 2445MHz _CH19

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4890.525	42.55	6.77	49.32	74.00	-24.68	peak	
2		4890.525	30.25	6.77	37.02	54.00	-16.98	AVG	
3		7335.395	42.75	15.72	58.47	74.00	-15.53	peak	
4	*	7335.395	31.02	15.72	46.74	54.00	-7.26	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH26

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2480.000	69.23	31.44	100.67	74.00	26.67	peak	no limit
2	X	2480.000	42.34	31.44	73.78	54.00	19.78	AVG	no limit
3		2483.500	35.93	31.46	67.39	74.00	-6.61	peak	
4		2483.500	15.16	31.46	46.62	54.00	-7.38	AVG	

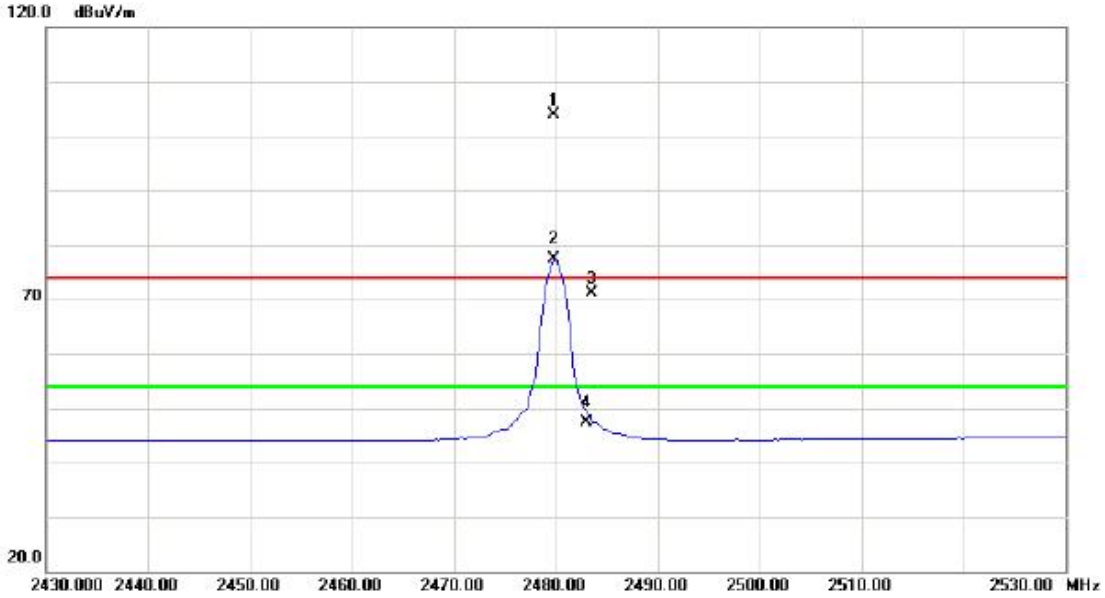
Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH26

Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4959.340	42.62	6.76	49.38	74.00	-24.62	peak	
2		4959.340	30.20	6.76	36.96	54.00	-17.04	AVG	
3		7440.535	42.42	16.28	58.70	74.00	-15.30	peak	
4	*	7440.535	31.21	16.28	47.49	54.00	-6.51	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH26

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2479.750	72.48	31.44	103.92	74.00	29.92	peak	no limit
2	X	2479.750	45.85	31.44	77.29	54.00	23.29	AVG	no limit
3		2483.500	39.79	31.46	71.25	74.00	-2.75	peak	
4		2483.500	16.01	31.46	47.47	54.00	-6.53	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH26

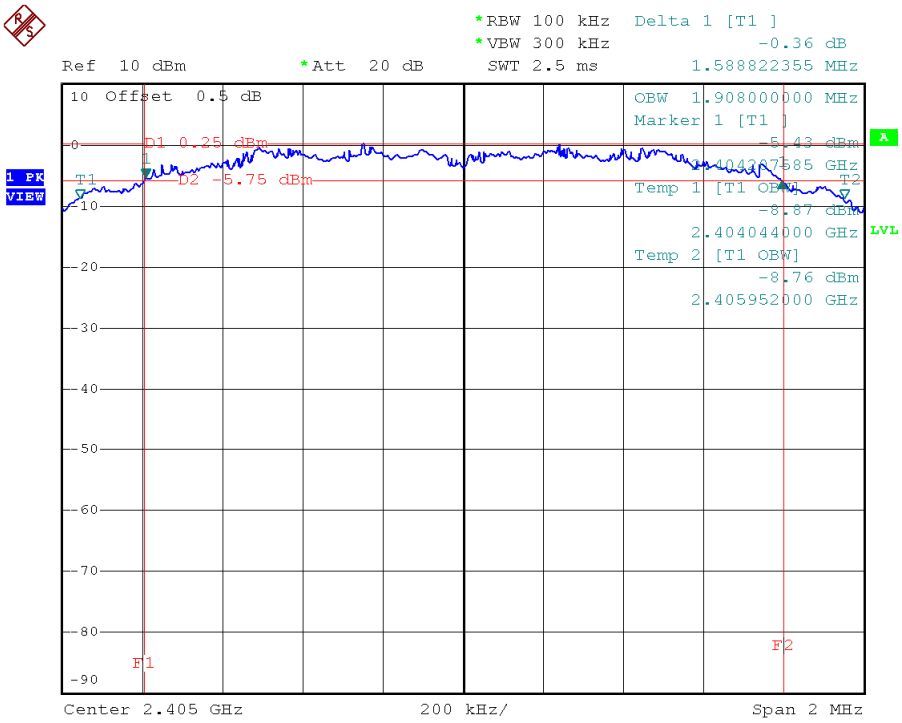
Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.095	42.73	6.76	49.49	74.00	-24.51	peak	
2		4960.095	30.01	6.76	36.77	54.00	-17.23	AVG	
3		7439.860	43.90	16.28	60.18	74.00	-13.82	peak	
4	*	7439.860	31.22	16.28	47.50	54.00	-6.50	AVG	

ATTACHMENT D - BANDWIDTH

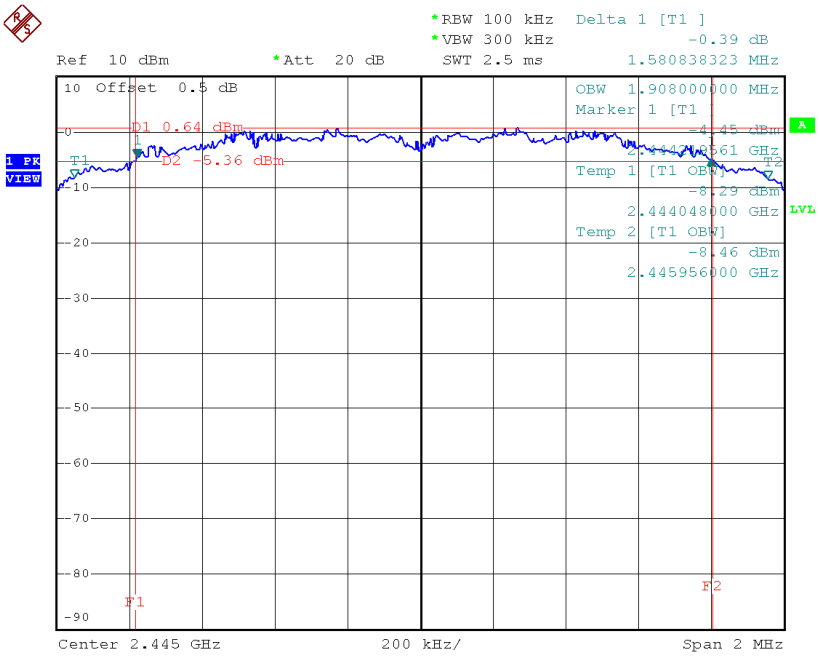
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2405	1.589	1.908	500	Complies
2445	1.581	1.908	500	Complies
2480	1.605	1.904	500	Complies

TX CH11



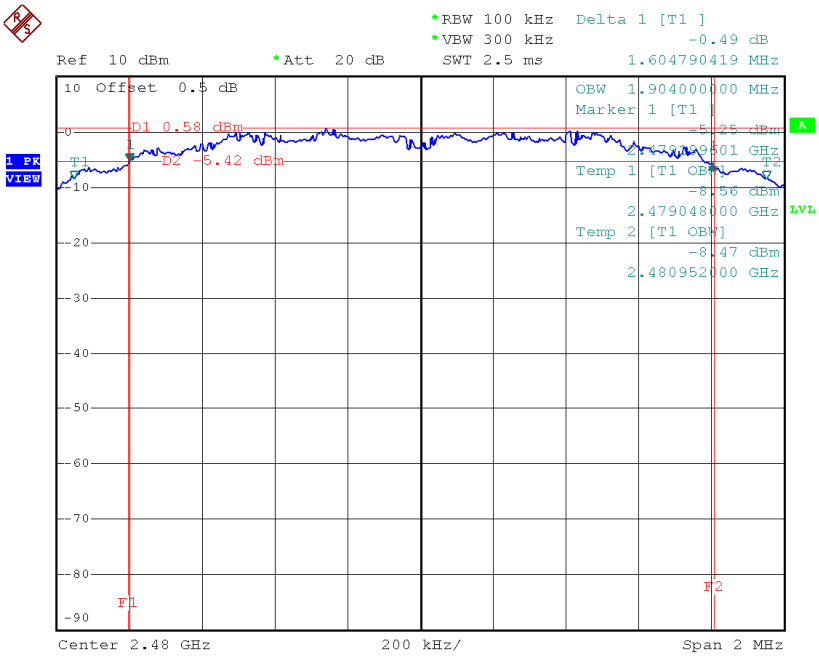
Date: 11.DEC.2014 13:51:36

TX CH19



Date: 11.DEC.2014 13:53:38

TX CH26



Date: 11.DEC.2014 13:55:00

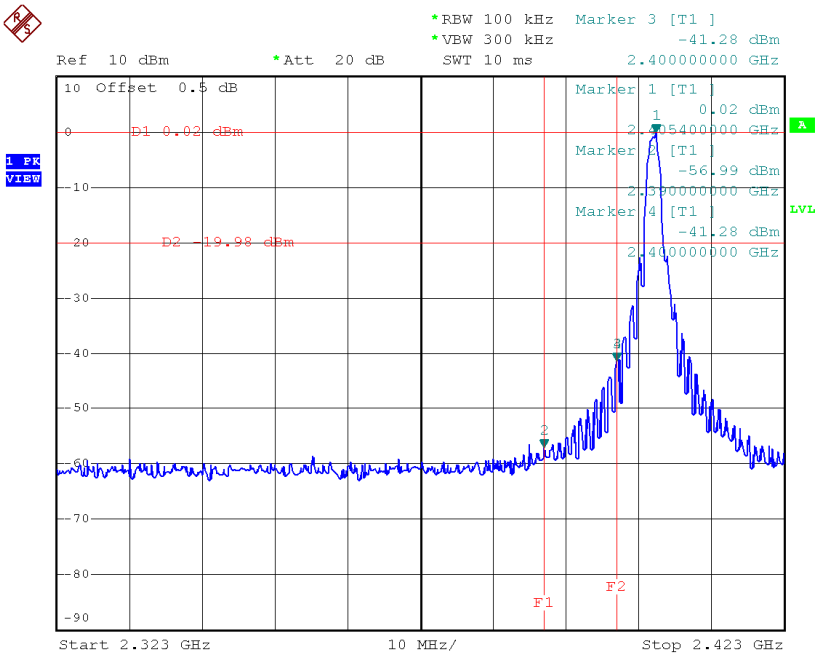
ATTACHMENT E - MAXIMUM OUTPUT POWER TEST

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watt)	Max. Limit (dBm)	Max. Limit (Watt)	Test Result
2405	2.67	0.0018	30.00	1.00	Complies
2445	2.58	0.0018	30.00	1.00	Complies
2480	3.53	0.0023	30.00	1.00	Complies

ATTACHMENT F - ANTENNA CONDUCTED SPURIOUS EMISSION

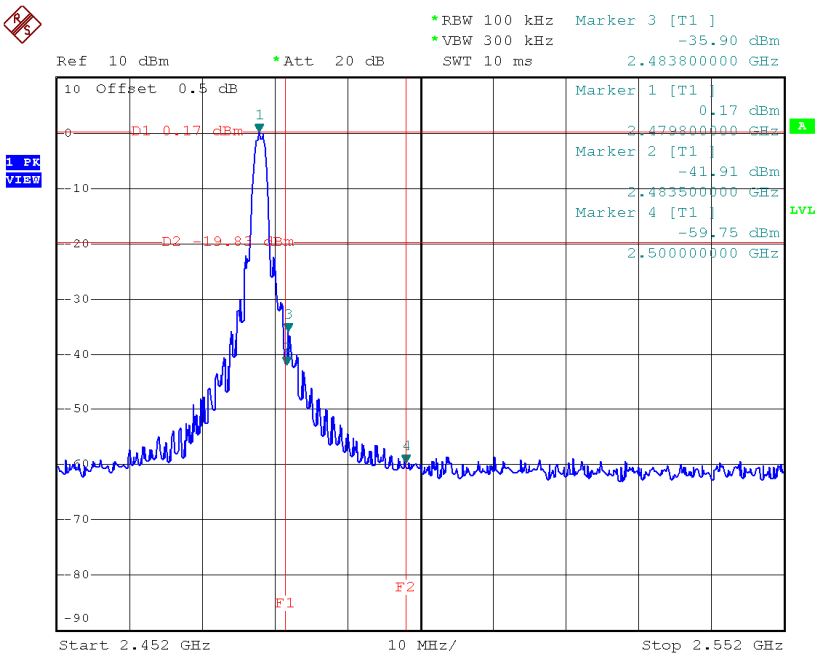
Test Mode :	CH11, CH19 , CH26

CH11 (Lower)



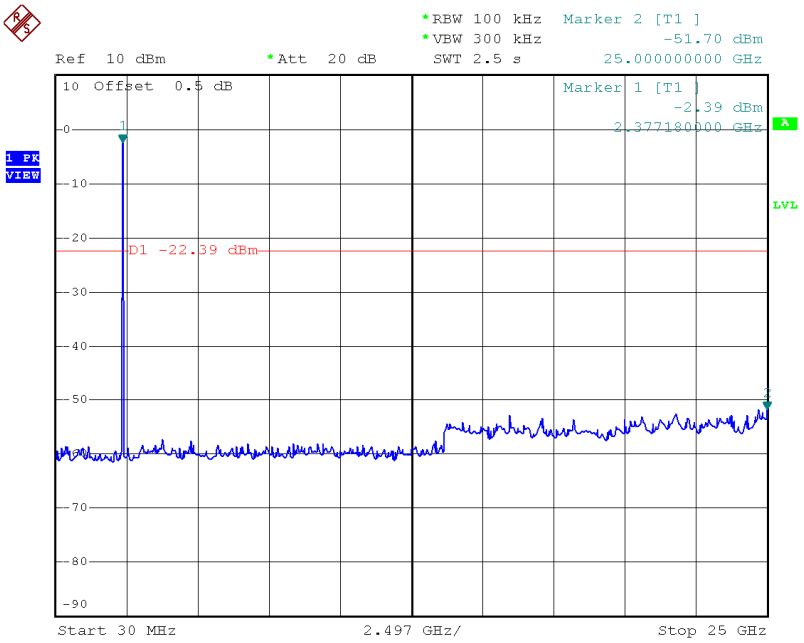
Date: 11.DEC.2014 13:51:50

CH26 (upper)



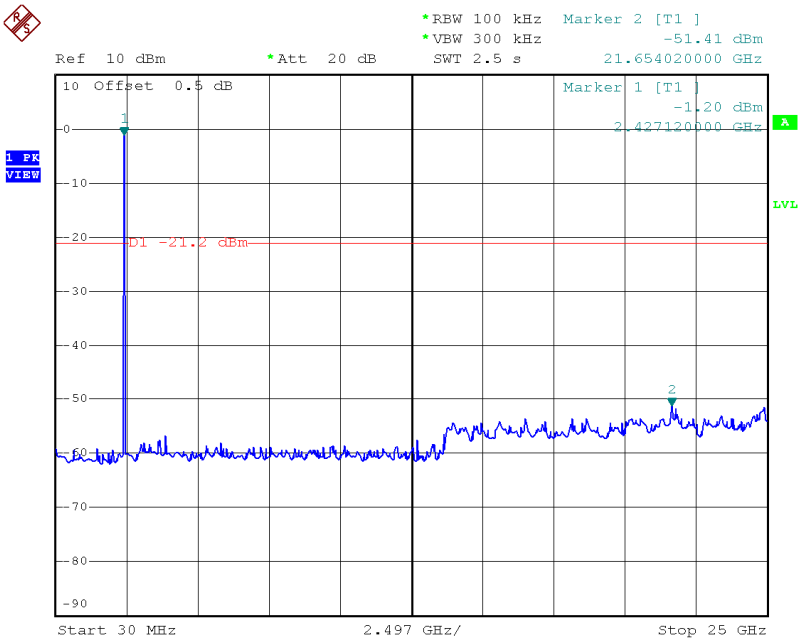
Date: 11.DEC.2014 13:55:10

CH11 (10 Harmonic of the frequency)



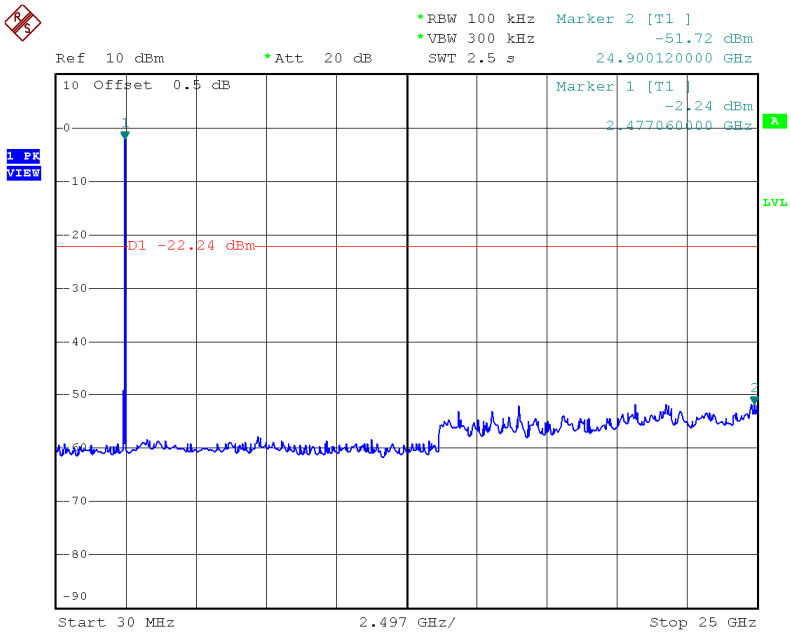
Date: 11.DEC.2014 13:51:13

CH19 (10 Harmonic of the frequency)



Date: 11.DEC.2014 13:53:03

CH26 (10 Harmonic of the frequency)

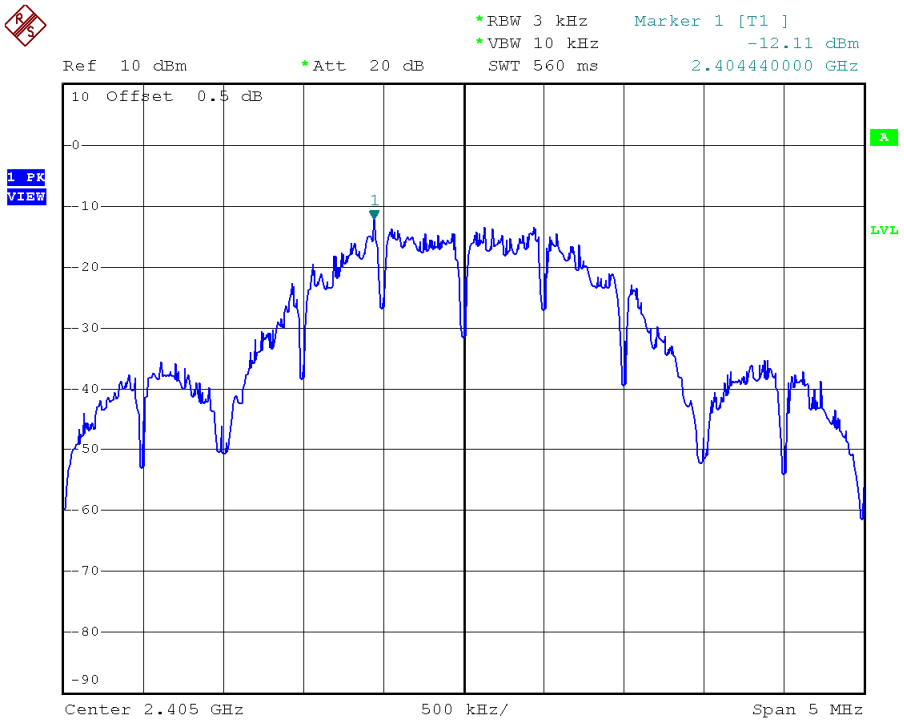


Date: 11.DEC.2014 13:54:39

ATTACHMENT G - POWER SPECTRAL DENSITY TEST

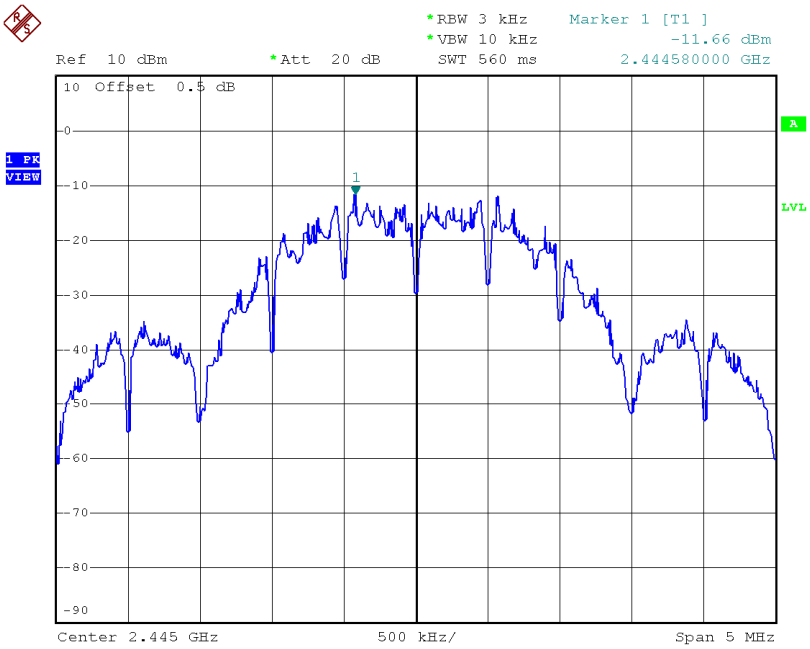
Frequency (MHz)	Power Density (dBm)	Max. Limit (dBm)	Result
2405	-12.11	8	Complies
2445	-11.66	8	Complies
2480	-12.54	8	Complies

TX CH11



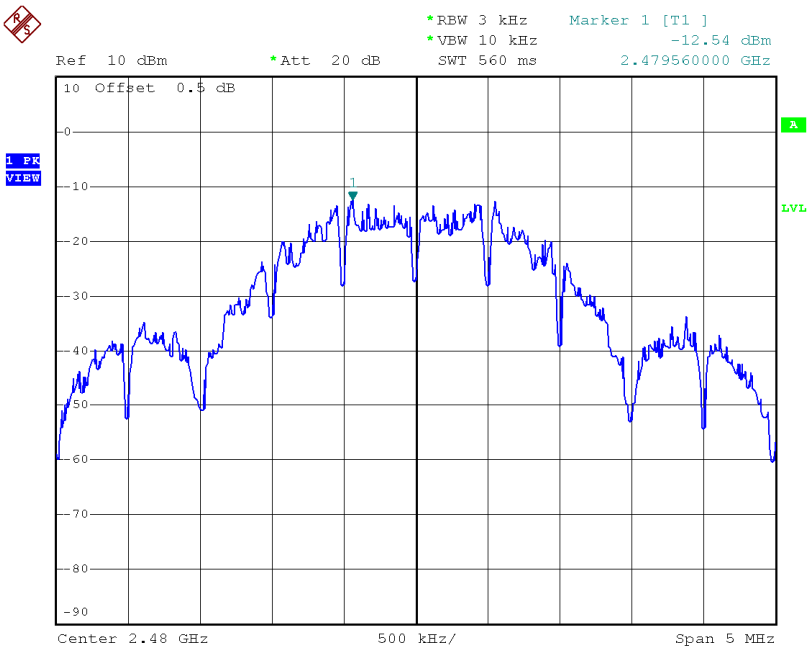
Date: 11.DEC.2014 13:52:18

TX CH19



Date: 11.DEC.2014 13:53:55

TX CH26



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