Shenzhen GTI Technology Co., Ltd

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Tel : +86-755-27559792
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EMC TEST REPORT

Product name.....:	Sense-U Clip
Trademark .....:	Sense-U
Model no.....:	SU11014
Test Standards.....:	**FCC Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz**
Applicant .....:	LEDO Network Inc.
Address of applicant.....:	560 S. Winchester Blvd, Suite 500, San Jose, CA, 95128
Date of Receipt .....:	April 02, 2014
Date of Test Date .....:	April 15, 2014 to April 23, 2014
Data of issue. .....:	April 24 2014

Test result .....:	Pass

Testing Engineer : Mart Xiong
(Mart Xiong)

Reviewed By: : Tony Wang
(Tony Wang)

Approved Signatory : Walter Chen
(Walter Chen)

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1. TEST SUMMARY

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
ANSI C63.10-2009: American National Standard for Testing Unlicensed Wireless Devices

FCC PART 15 15.247		
FCC Part 15.207	AC Power Conducted Emission	N/A(remark 2)
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Peak Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.109/ 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS
FCC Part1.1307 (b)	RF Exposure Evaluation	PASS

Remark: 1,The measurement uncertainty is not included in the test result.

2,EUT is powered with DC input.

1.1TEST FACILITY

1.1.1 Address of the test laboratory
Shenzhen GTI Technology Co., Ltd
1F, 2 Block, Jiaquan Building, Guanlan High-tech Park Baoan District, Shenzhen, Guangdong, China

1.1.2 Laboratory accreditation
The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9783A

The 3m alternate test site of Shenzhen GTI Technology Co., Ltd.EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Aug, 2011.

FCC-Registration No.: 214666

Shenzhen GTI Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 214666, Sep 19, 2011

1.1.3 Environmental conditions
During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

1.2 MEASUREMENT UNCERTAINTY

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** %

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)
Conducted spurious emission 9KHz-40 GHz	1.60 dB	(1)
Radiated Emission 9KHz~30MHz	3.85 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emissio 1~25GHz	5.16 dB	(1)
Occupied Bandwidth	---------	(1)

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Name of EUT	**Sense-U Clip**
Model Number	SU11014
Adding Model(s):	/
Model Difference:	/
Antenna Type	Chip antenna
BT CE Operation frequency	2402MHz-2480MHz
BT Modulation Type	GFSK (BT 4.0)
2.4GHz Operation frequency	2402MHz-2480MHz with five fix channels
2.4GHz Modulation Type	GFSK(other protocal)

Note:

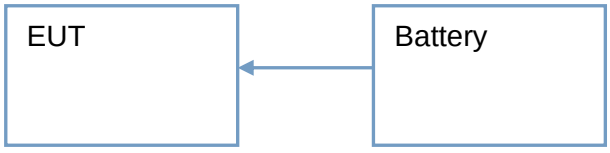
1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2 DESCRIPTION OF TEST MODES

Bluetooth v4.0,40 channels are provided to the EUT. Channel00/19/39 were selected for test.

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**

2.3 DESCRIPTION OF TEST SETUP



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

/

2.5 MEASUREMENT INSTRUMENTS LIST

Maximum Peak Output Power / Power Spectral Density / 6dB Bandwidth / Band Edge Compliance of RF Emission / Spurious RF Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Rohde&Schwarz	FSP	1164.4391.40	Oct 25,2014
2	Climate Chamber	ESPEC	EL-10KA	05107008	Oct 25,2014

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100658	Dec 26, 2014
2	High pass filter	Compliance Direction systems	BSU-6	34202	Oct 25,2014
3	Log-Bicon Antenna	Schwarzbeck	CBL6141A	4180	Dec 27, 2014
4	Ultra-Broadband Antenna	ShwarzBeck	BBHA9170	25841	Dec 27, 2014
5	Loop Antenna	LAPLAC INSTRUMENTS LTD	RF300	9138	Nov 15,2014
6	Spectrum Analyzer	HP	8563E	02052	Dec 27, 2014
7	Horn Antenna	Schwarzbeck	BBHA 9120D	648	Dec 27, 2014
8	Pre-Amplifier	HP	8447D	1937A03050	Dec 26, 2014
9	Pre-Amplifier	EMCI	EMC051835	980075	Dec 27, 2014
10	Antenna Mast	UC	UC3000	N/A	N/A
11	Turn Table	UC	UC3000	N/A	N/A

3. TEST CONDITIONS AND RESULTS

3.1 Radiated Emission

3.1.1 Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the100kHz bandwidth within the band that contains the highest level of desired power.

The frequency spectrum above 1 GHz for Transmitter was investigated. All emission not reported are much lower than the prescribed limits. Set the RBW=1MHz,VBW=3MHz for Peak Detector while the RBW=1MHz,VBW=10Hz for Average Detector,Readings are both peak and average values. The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

3.1.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. The EUT minimum operation frequency was 32.768KHz and maximum operation frequency was 2480MHz.so radiated emission test frequency band from 9KHz to 25GHz.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL – AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

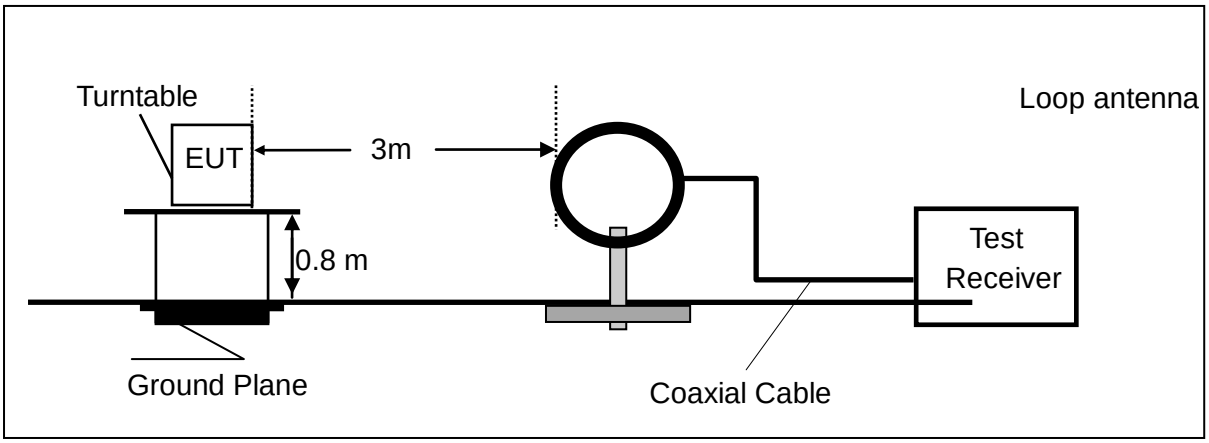
For example

Frequency (MHz)	FS (dBμV/m)	RA (dBμV/m)	AF (dB)	CL (dB)	AG (dB)	Transd (dB)
300.00	40	58.1	12.2	1.6	31.90	-18.1

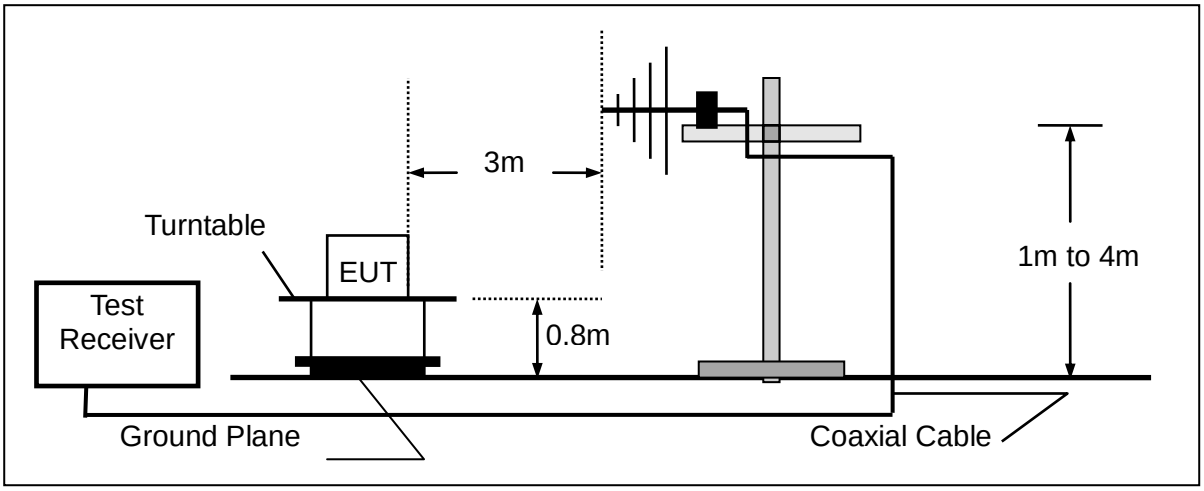
Transd=AF +CL-AG

3.1.3 Test Configuration

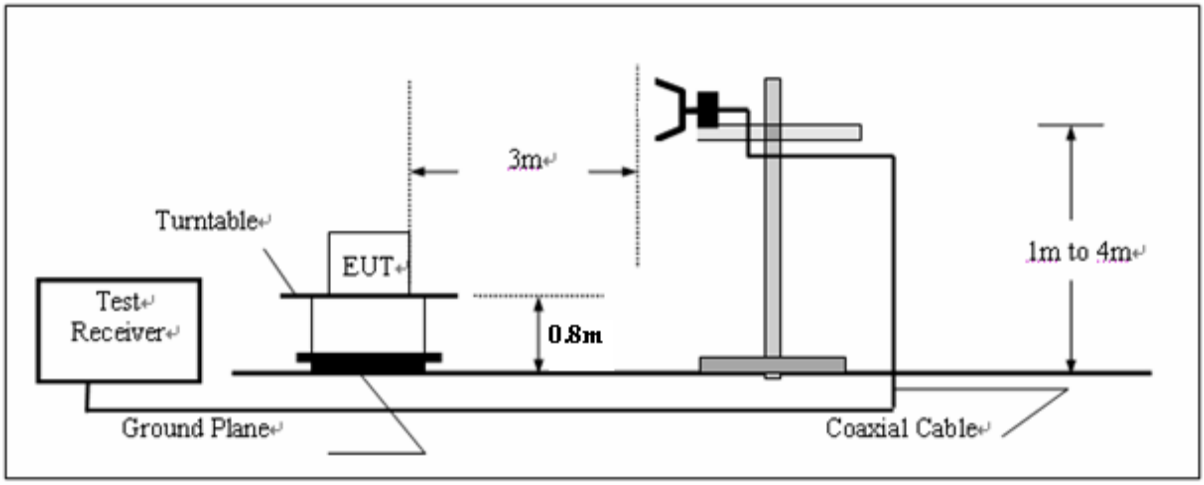
Frequency range 9KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



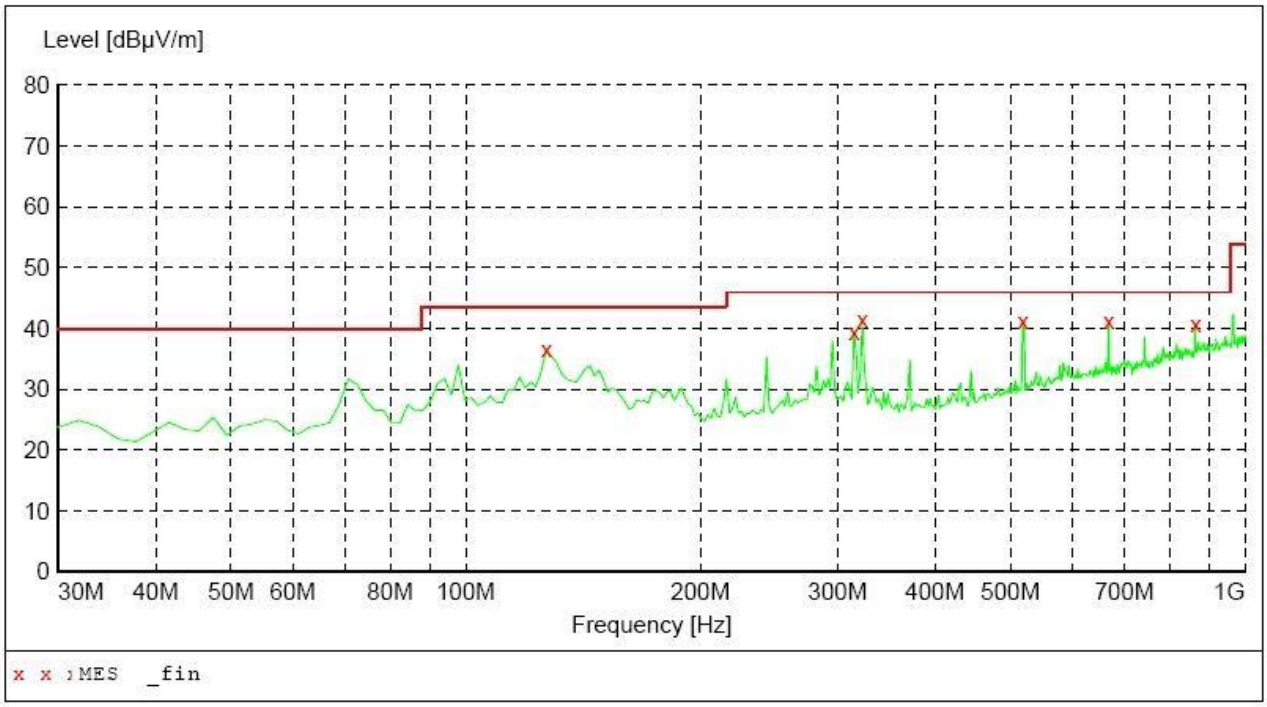
3.1.4 Test Results

Remark: 1. We tested three channels and recorded worst case.

For 30MHz to 1000MHz

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW

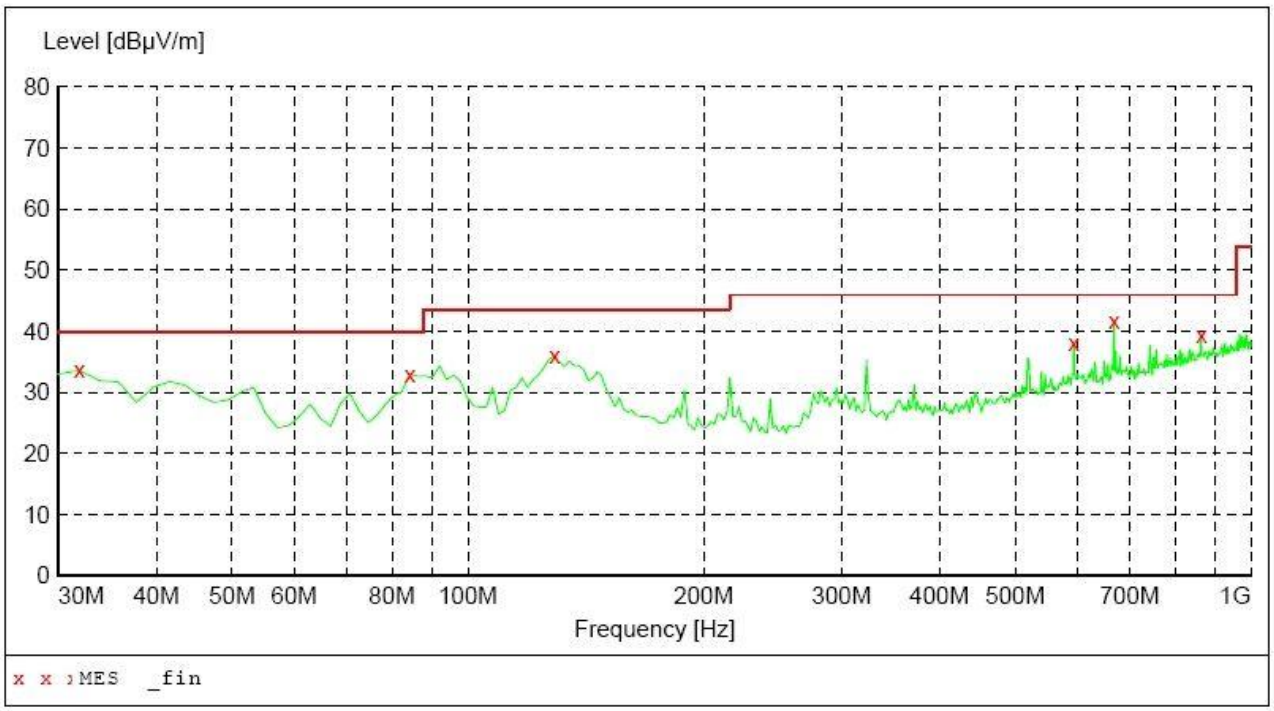


MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
127.000000	36.60	14.1	43.5	6.9	QP	300.0	25.00	HORIZONTAL
315.180000	39.40	19.1	46.0	6.6	QP	100.0	30.00	HORIZONTAL
322.940000	41.50	19.3	46.0	4.5	QP	100.0	125.00	HORIZONTAL
518.880000	41.30	24.4	46.0	4.7	QP	100.0	350.00	HORIZONTAL
668.260000	41.20	27.2	46.0	4.8	QP	100.0	272.00	HORIZONTAL
864.200000	40.80	30.6	46.0	5.2	QP	100.0	105.00	HORIZONTAL

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW



MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
31.940000	33.60	14.4	40.0	6.4	QP	100.0	15.00	VERTICAL
84.320000	33.00	14.1	40.0	7.0	QP	100.0	124.00	VERTICAL
128.940000	36.00	13.9	43.5	7.5	QP	100.0	60.00	VERTICAL
594.540000	38.20	26.3	46.0	7.8	QP	100.0	238.00	VERTICAL
668.260000	41.80	27.2	46.0	4.2	QP	100.0	325.00	VERTICAL
864.200000	39.30	30.6	46.0	6.7	QP	100.0	75.00	VERTICAL

For 1GHz to 25GHz

Low Channel @ Channel 00 @ 2402 MHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4804.00	56.56	PK	74.00	17.44	1.00 H	123	54.48	31.58	7.00	36.5	2.08
2	4804.00	37.98	AV	54.00	16.02	1.00 H	123	35.90	31.58	7.00	36.5	2.08
3	7206.00	36.67	PK	74.00	37.33	1.00 H	30	26.01	37.06	8.90	35.3	10.66

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4804.00	57.89	PK	74.00	16.11	1.00 V	155	55.81	31.58	7.00	36.5	2.08
2	4804.00	38.15	AV	54.00	15.85	1.00 V	155	36.07	31.58	7.00	36.5	2.08
3	7206.00	37.18	PK	74.00	36.82	1.00 V	100	26.52	37.06	8.90	35.3	10.66

Middle Channel @ Channel 39 @ 2440 MHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4880.00	56.95	PK	74.00	17.05	1.00 H	55	54.81	31.04	7.60	36.5	2.14
2	4880.00	38.03	AV	54.00	15.97	1.00 H	55	35.89	31.04	7.60	36.5	2.14
3	7320.00	39.47	PK	74.00	34.53	1.00 H	110	28.33	37.84	8.60	35.3	11.14

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4880.00	55.34	PK	74.00	18.66	1.00 V	135	53.20	31.04	7.60	36.5	2.14
2	4880.00	38.49	AV	54.00	15.51	1.00 V	135	36.35	31.04	7.60	36.5	2.14
3	7320.00	39.28	PK	74.00	34.72	1.00 V	170	28.14	37.84	8.60	35.3	11.14

High Channel @ Channel 78 @ 2480 MHz

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4960.00	55.68	PK	74.00	18.32	1.00 H	35	53.25	31.63	7.00	36.2	2.43
2	4960.00	37.15	AV	54.00	16.85	1.00 H	35	34.72	31.63	7.00	36.2	2.43
3	7340.00	39.76	PK	74.00	34.24	1.00 H	124	28.16	38.40	8.50	35.3	11.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M												
No.	Frequency (MHz)	Emssion Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4960.00	55.18	PK	74.00	18.82	1.00 V	55	52.75	31.63	7.00	-36.2	2.43
2	4960.00	37.85	AV	54.00	16.15	1.00 V	55	35.42	31.63	7.00	-36.2	2.43
3	7340.00	40.87	PK	74.00	33.13	1.00 V	180	29.27	38.40	8.50	-35.3	11.60

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) -Pre-amplifier Factor
3. The other emission levels were very low against the limit.
4. Margin value = Limit value- Emission level.
5. The average measurement was not performed when the peak measured data under the limit of average detection.

3.2 Maximum Peak Output Power

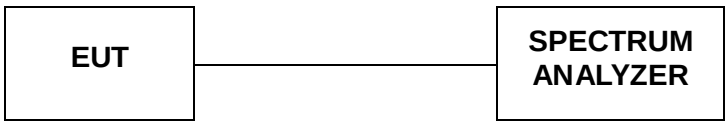
3.2.1 Limit

The Maximum Peak Output Power Measurement is 30dBm.

3.2.2 Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum.

3.2.3 Test Configuration



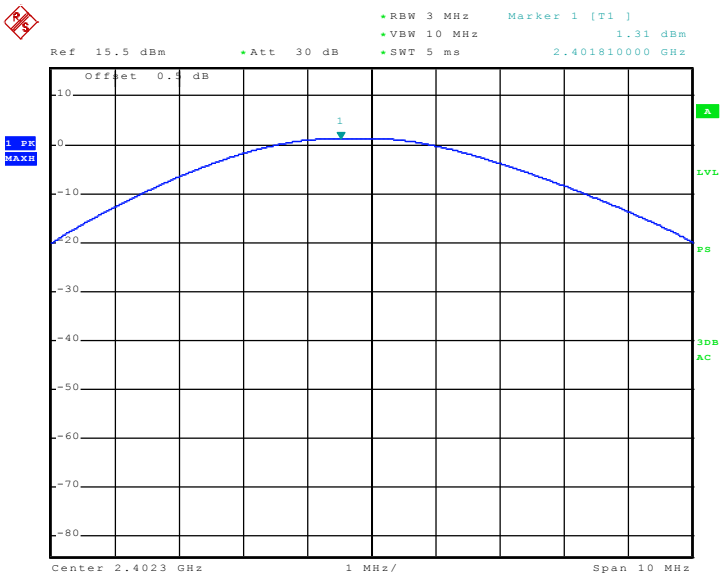
3.2.4 Test Results

A. Test Verdict

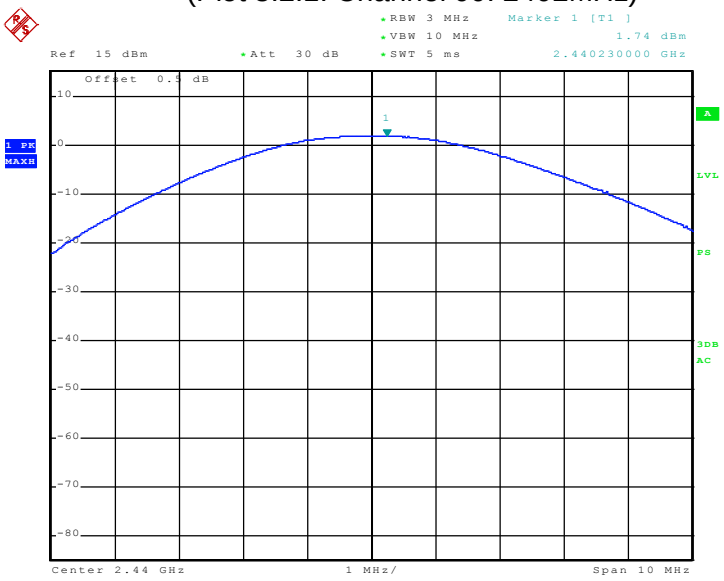
Channel	Frequency (MHz)	Measured Output Peak Power (dBm)	Refer to Plot	Limits (dBm)	Verdict
00	2402	1.31	Plot 3.2.1	30	PASS
39	2440	1.74	Plot 3.2.2	30	PASS
78	2480	2.43	Plot 3.2.3	30	PASS

Note: 1.The test results including the cable lose.

B. Test Plots



(Plot 3.2.1: Channel 00: 2402MHz)



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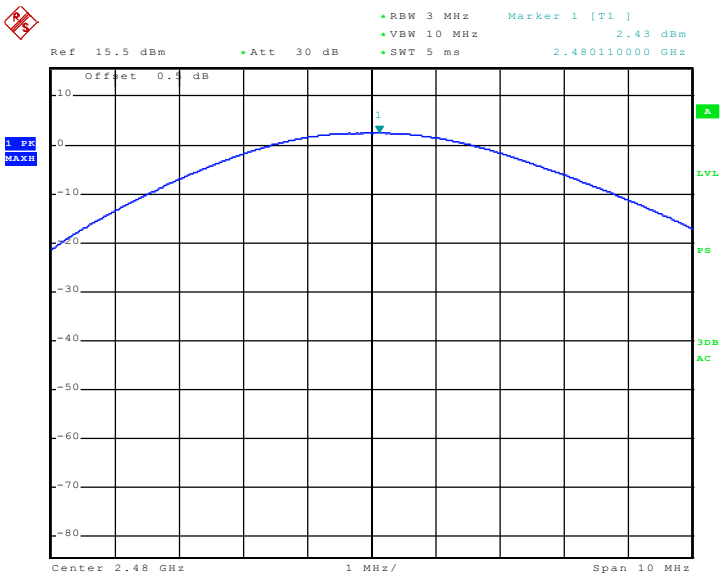
(Plot 3.2.2: Channel 19: 2440MHz)



Date: 21.APR.2014 17:05:09

(Plot 3.2.3: Channel 39: 2480MHz)

3.3 Power Spectral Density

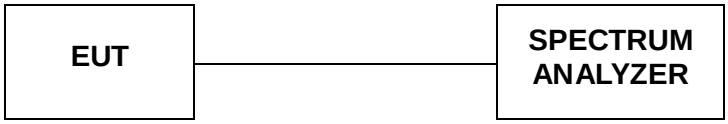
3.3.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

3.3.2 Test Procedure

1.Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2.Set the RBW ≥3 kHz.
3.Set the VBW ≥3× RBW.
4.Set the span to 1.5 times the DTS channel bandwidth.
5.Detector = peak.
6.Sweep time = auto couple.
7.Trace mode = max hold.
8.Allow trace to fully stabilize.
9.Use the peak marker function to determine the maximum power level.
10.If measured value exceeds limit,reduce RBW(no less than 3 kHz)and repeat.
11.The resulting peak PSD level must be 8 dBm.

3.3.3 Test Configuration

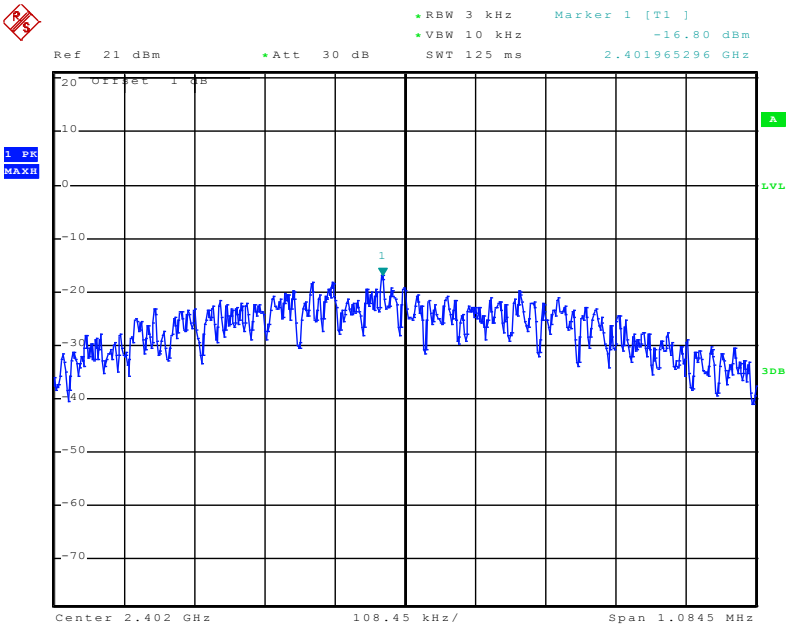


3.3.4 Test Results

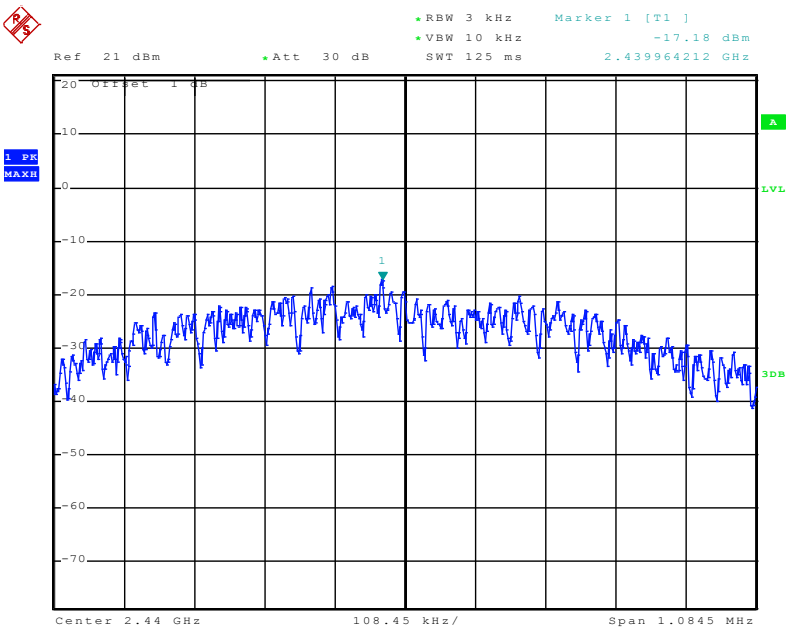
A. Test Verdict

Channel	FREQUENCY (MHz)	PSD (dBm)	Refer to Plot	LIMIT (dBm)	PASS/FAIL
00	2402	-16.80	Plot 3.3.1	8	PASS
19	2440	-17.18	Plot 3.3.2	8	PASS
39	2480	-17.58	Plot 3.3.3	8	PASS

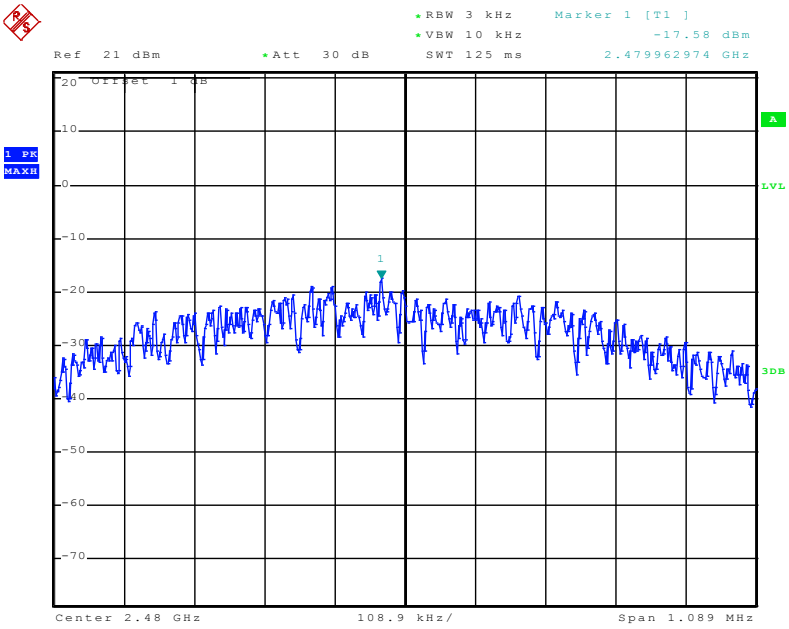
B. Test Plots



(Plot 3.3.1 : Channel 00: 2402MHz)



(Plot 3.3.2 : Channel 19: 2440MHz)



(Plot 3.3.3 : Channel 39: 2480MHz)

3.4 6dB Bandwidth

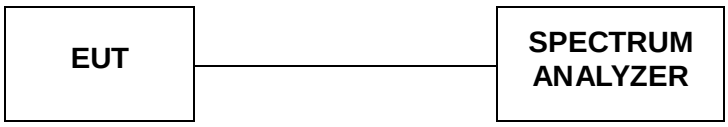
3.4.1 Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

3.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100KHz RBW and 300KHz VBW.The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

3.4.2 Test Configuration



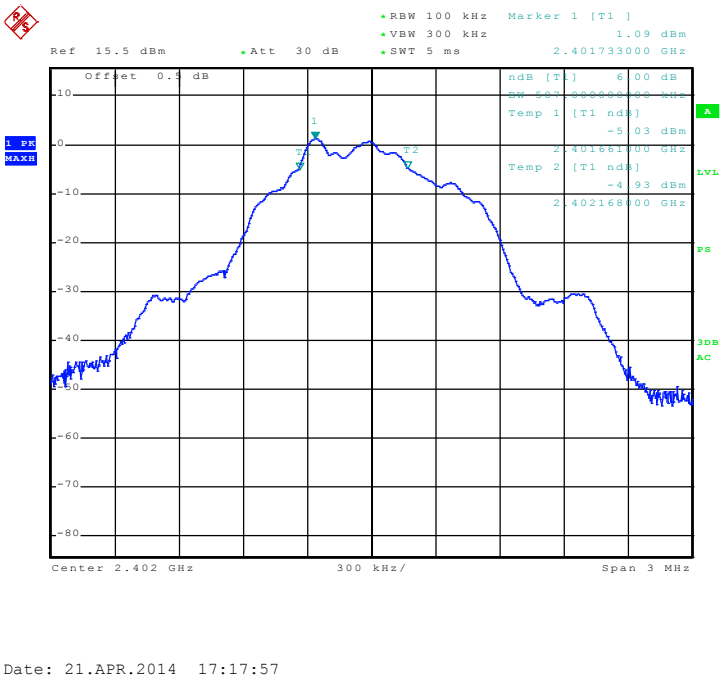
3.4.2 Test Results

A. Test Verdict

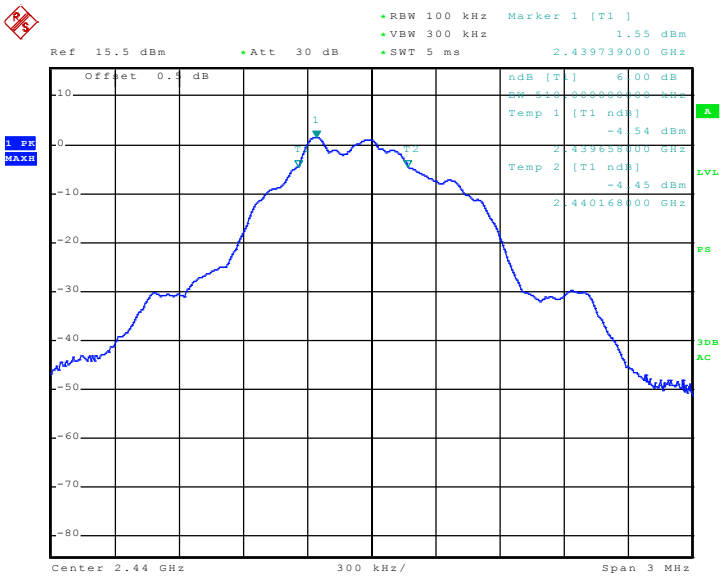
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Refer to Plot	MINIMUM LIMIT(MHz)	Verdict
00	2402	0.507	Plot 3.4.1	0.5	PASS
19	2440	0.510	Plot 3.4.2	0.5	PASS
39	2480	0.510	Plot 3.4.3	0.5	PASS

Note: 1.The test results including the cable lose.

B. Test Plots

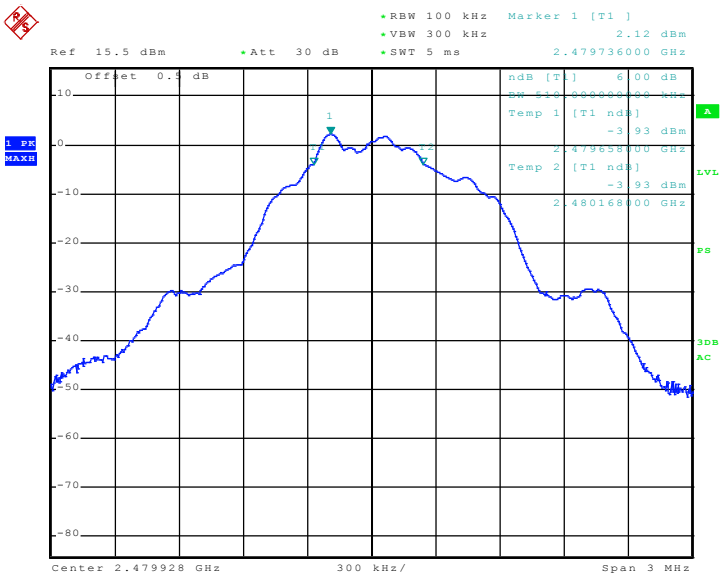


(Plot 3.4.1: Channel 00: 2402MHz)



Date: 21.APR.2014 17:16:35

(Plot 3.4.2: Channel 19: 2440MHz)



Date: 21.APR.2014 17:08:32

(Plot 3.4.3: Channel 39: 2480MHz)

3.5 Band Edge Compliance of RF Emission

3.5.1 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 or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Below -20dB of the highest emission level in operating band.
Radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)

3.5.2 Test Procedure

According to KDB 558074 D01 V03 for Antenna-port conducted measurement. Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

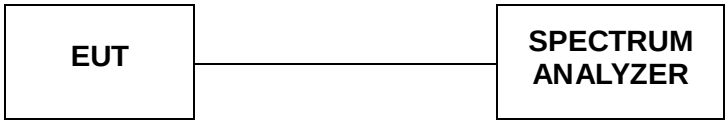
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz for peak detector and RBW=1MHz, VBW=10Hz for average detector.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.
6. Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 12.2.2, 12.2.3, and 12.2.4 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
7. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)

8. Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
9. For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
10. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
    E = EIRP – 20log D + 104.8

where:
E = electric field strength in dBμV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.

11. Compare the resultant electric field strength level to the applicable regulatory limit.
12. Perform radiated spurious emission test

3.5.3 Test Configuration

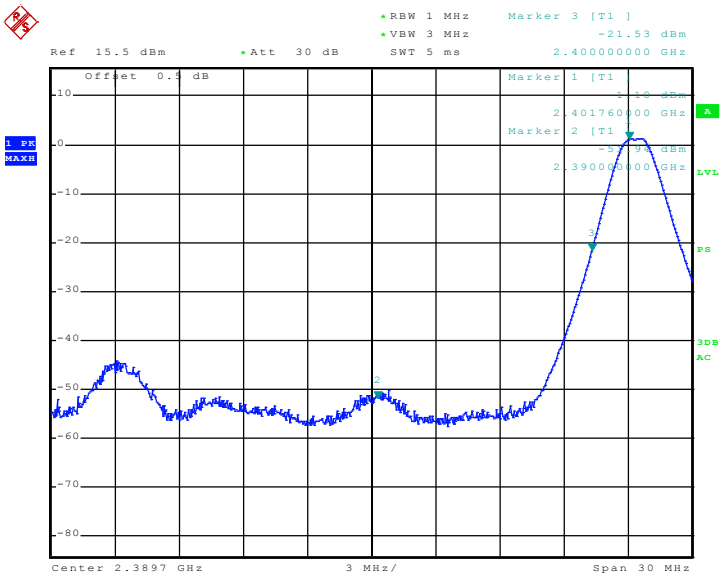


3.5.4 Test Results

A. Test Verdict

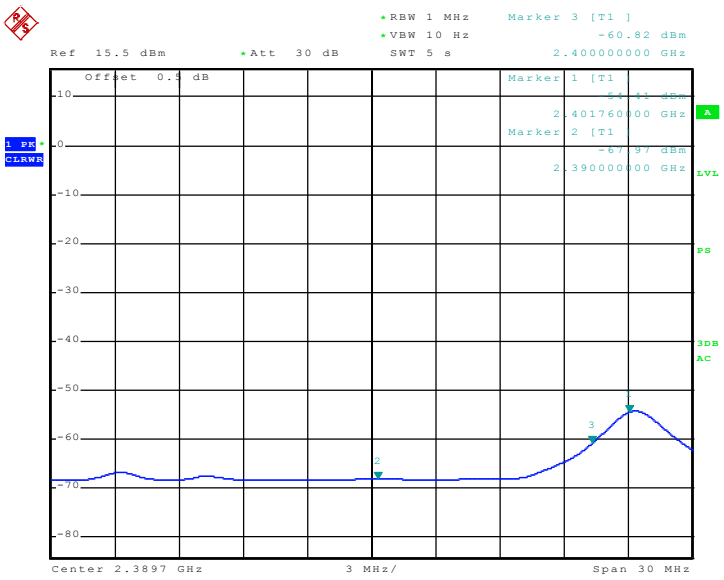
Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground reflection factor(dBi)	Covert Radiated E Level At 3m (dBuV/m)	Refer to Plot	Detector	Limit (dBuV/m)
2390.00	-51.94	1	0	44.32	Plot 3.5.1	PK	74.00
2390.00	-67.97	1	0	28.29	Plot 3.5.2	AV	54.00
2483.50	-36.09	1	0	60.17	Plot 3.5.3	PK	74.00
2483.50	-63.76	1	0	32.50	Plot 3.5.4	AV	54.00

B. Test Plots



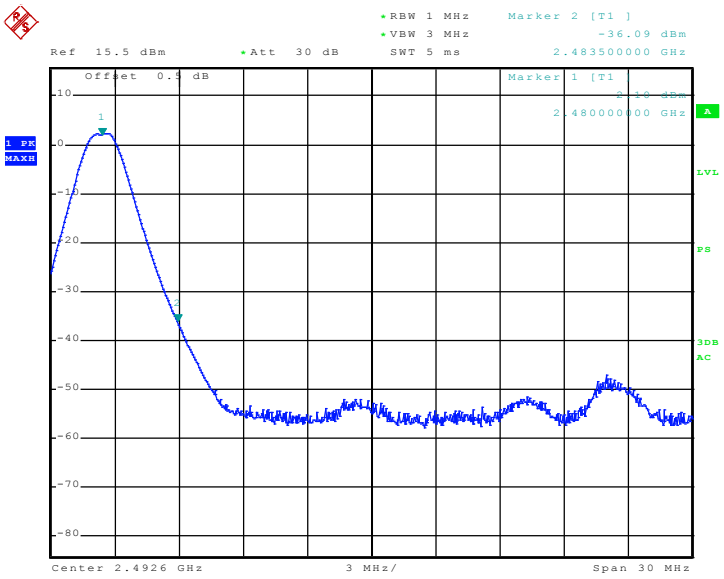
Date: 21.APR.2014 17:31:21

(Plot 3.5.1 : Channel 00: 2402MHz)



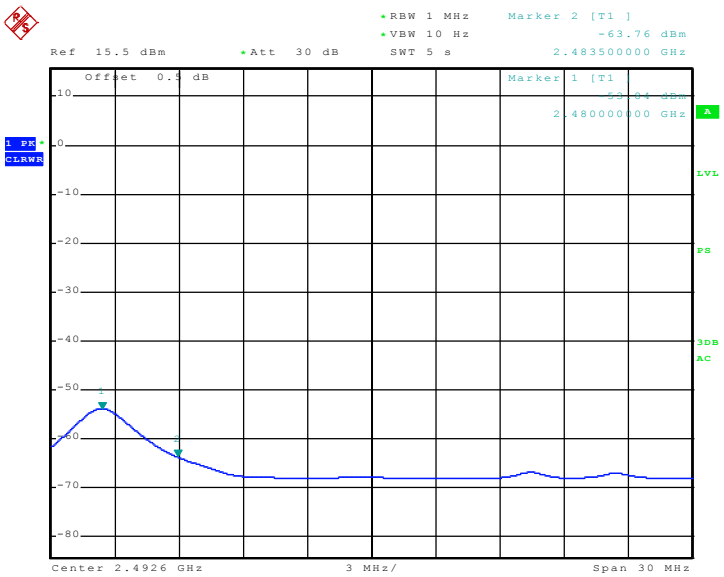
Date: 21.APR.2014 17:32:36

(Plot 3.5.2 : Channel 00: 2402MHz)



Date: 21.APR.2014 17:34:46

(Plot 3.5.3 : Channel 39: 2480MHz)



Date: 21.APR.2014 17:34:00

(Plot 3.5.4 : Channel 39: 2480MHz)

3.6 Spurious RF Conducted Emission

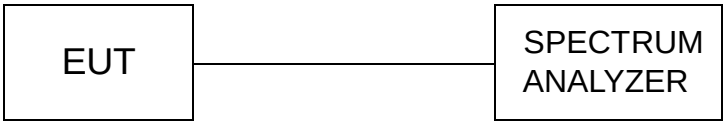
3.6.1 Limit

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

3.6.2 Test Procedure

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2009 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBM= 300KHz to measure the peak field strength , and mwasure frequeny range from 30MHz to 26.5GHz.

3.6.3 Test Configuration



3.6.4 Test Results

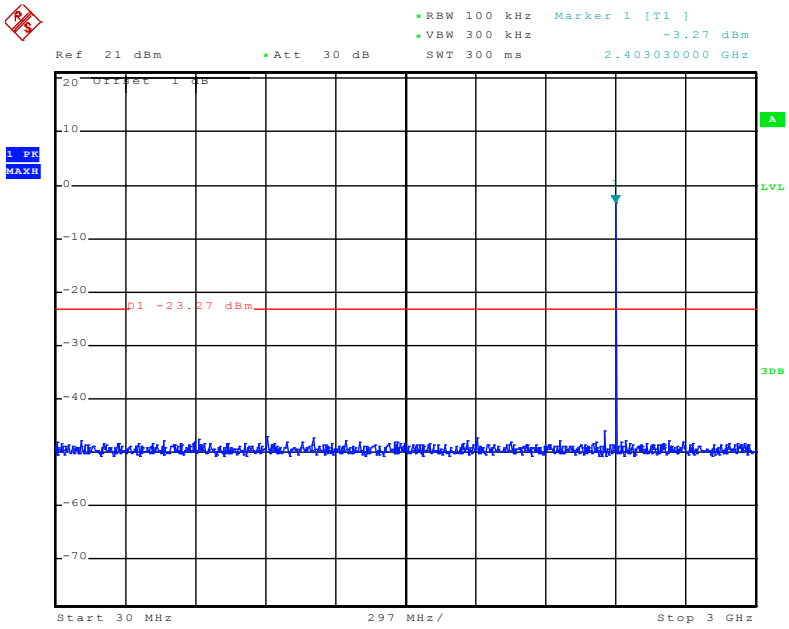
Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.

A. Test Verdict

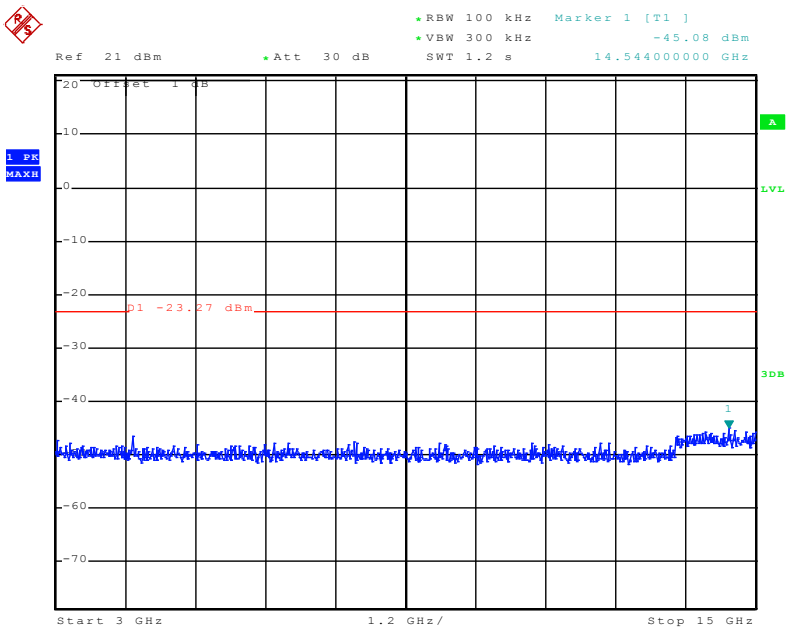
Channel	Frequency (MHz)	Frequency Range	Refer to Plot	Limit (dBc)	Verdict
00	2402	30MHz-3GHz	Plot 3.6 A1	20	PASS
		3GHz-15GHz	Plot 3.6 A2	20	PASS
		15GHz-25GHz	Plot 3.6 A3	20	PASS
19	2440	30MHz-3GHz	Plot 3.6 B1	20	PASS
		3GHz-15GHz	Plot 3.6 B2	20	PASS
		15GHz-25GHz	Plot 3.6 B3	20	PASS
39	2480	30MHz-3GHz	Plot 3.6 C1	20	PASS
		3GHz-15GHz	Plot 3.6 C2	20	PASS
		15GHz-25GHz	Plot 3.6 C3	20	PASS

Frequency (MHz)	Delta Peak to Band emission (dBc)	Detector	Limit (dBc)	Refer to Plot	Verdict
2399.30	36.07	Peak	20	Plot 3.6 D	PASS
2483.50	38.27	Peak	20	Plot 3.6 E	PASS

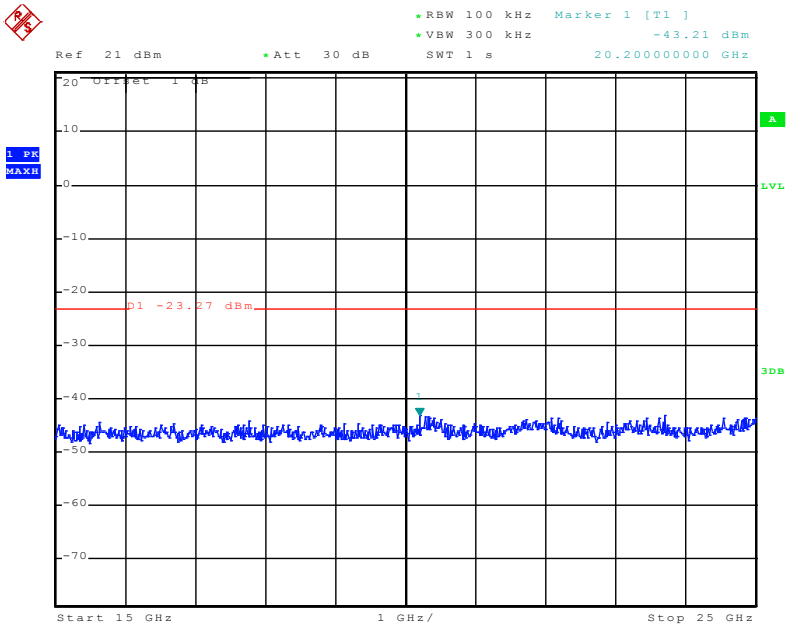
B. Test Plots



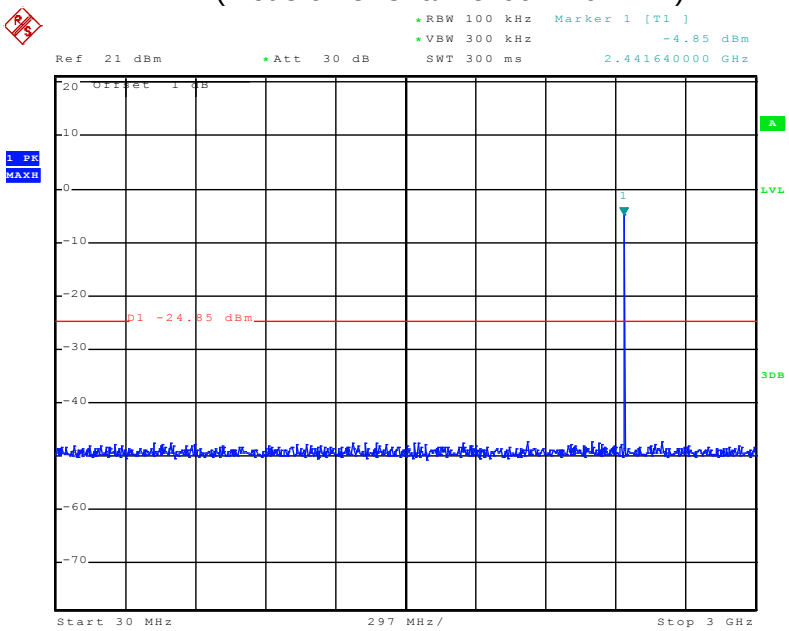
(Plot 3.6 A1: Channel 00: 2402MHz)



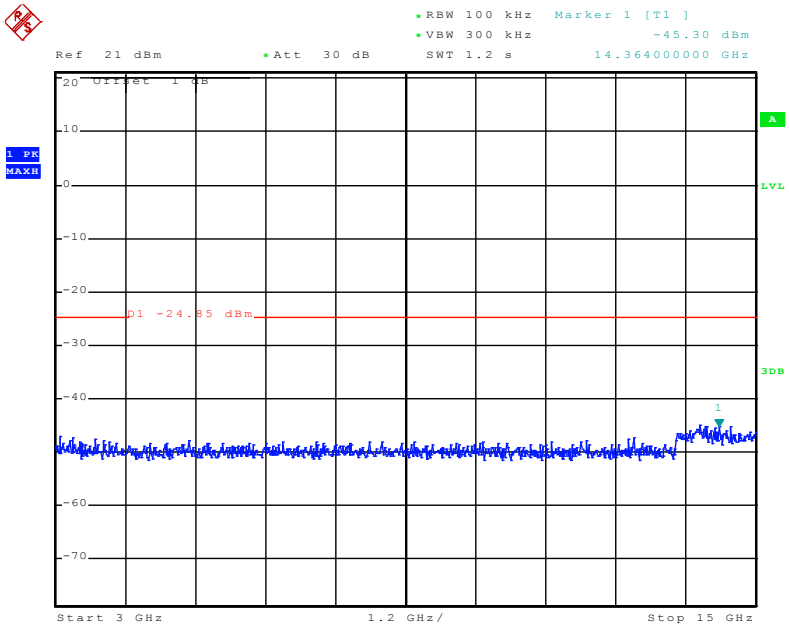
(Plot 3.6 A2: Channel 00: 2402MHz)



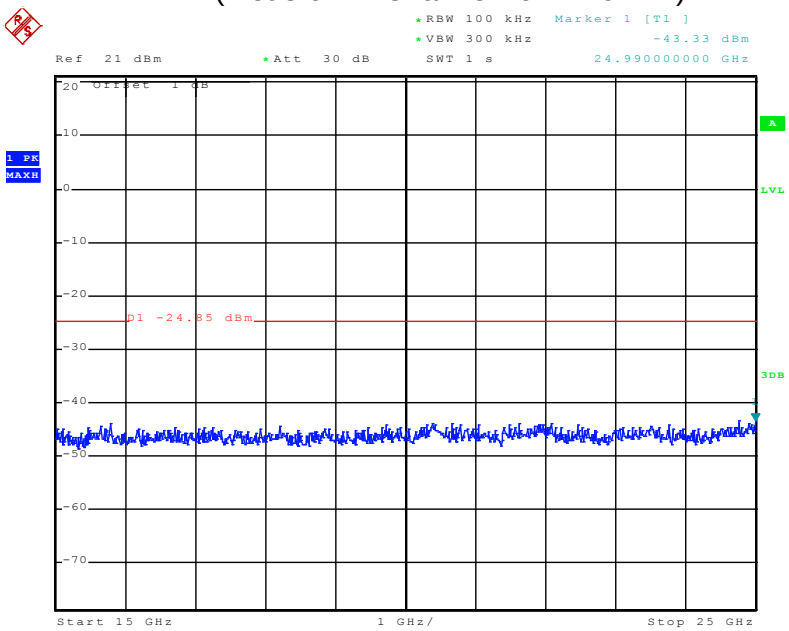
(Plot 3.6 A3: Channel 00: 2402MHz)



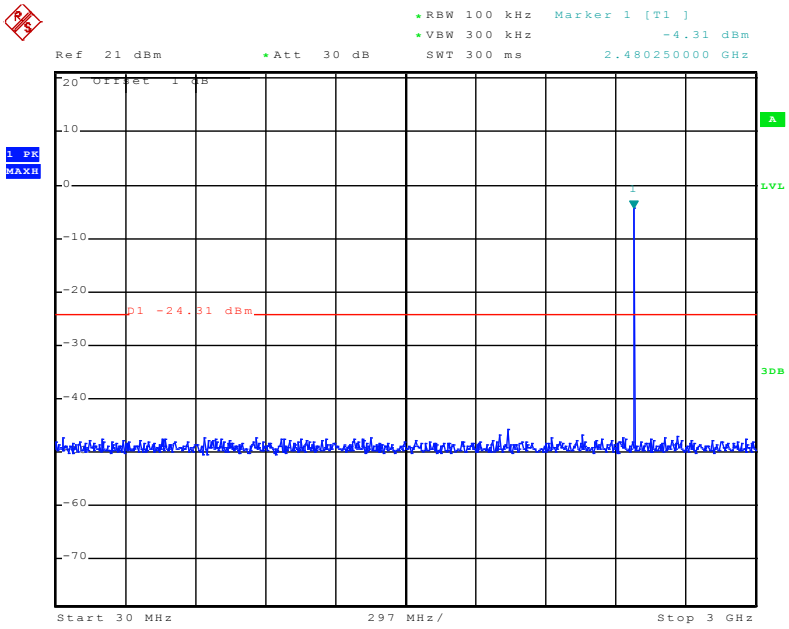
(Plot 3.6 B1: Channel 19: 2440MHz)



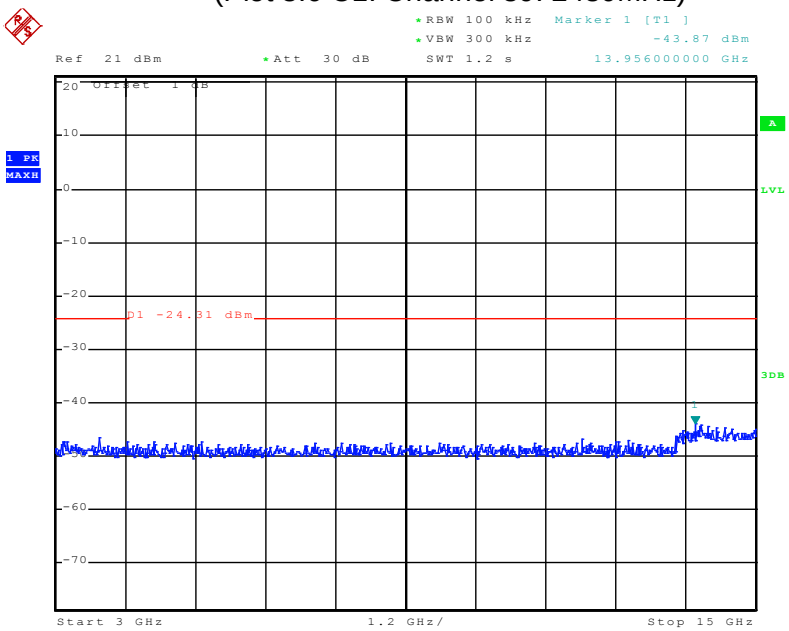
(Plot 3.6 B2: Channel 19: 2440MHz)



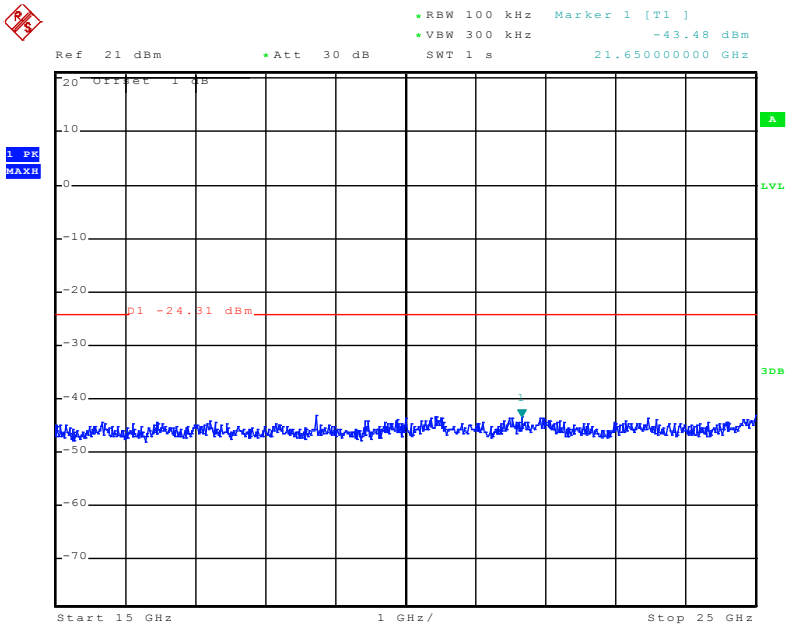
(Plot 3.6 B3: Channel 19: 2440MHz)



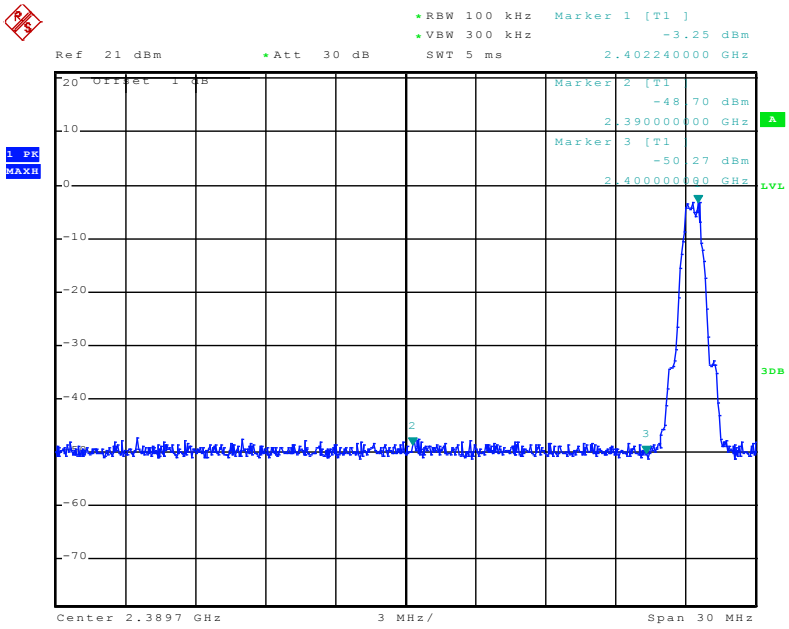
(Plot 3.6 C1: Channel 39: 2480MHz)



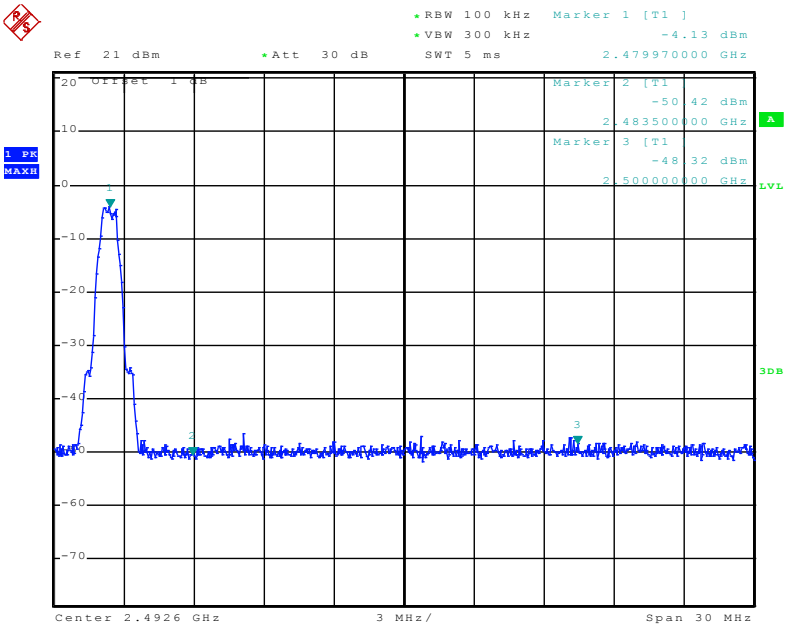
(Plot 3.6 C2: Channel 39: 2480MHz)



(Plot 3.6 C3: Channel 39: 2480MHz)



(Plot 3.6 D: Channel 1: 2402MHz)



53

(Plot 3.6 E: Channel 39: 2480MHz)

3.7 Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

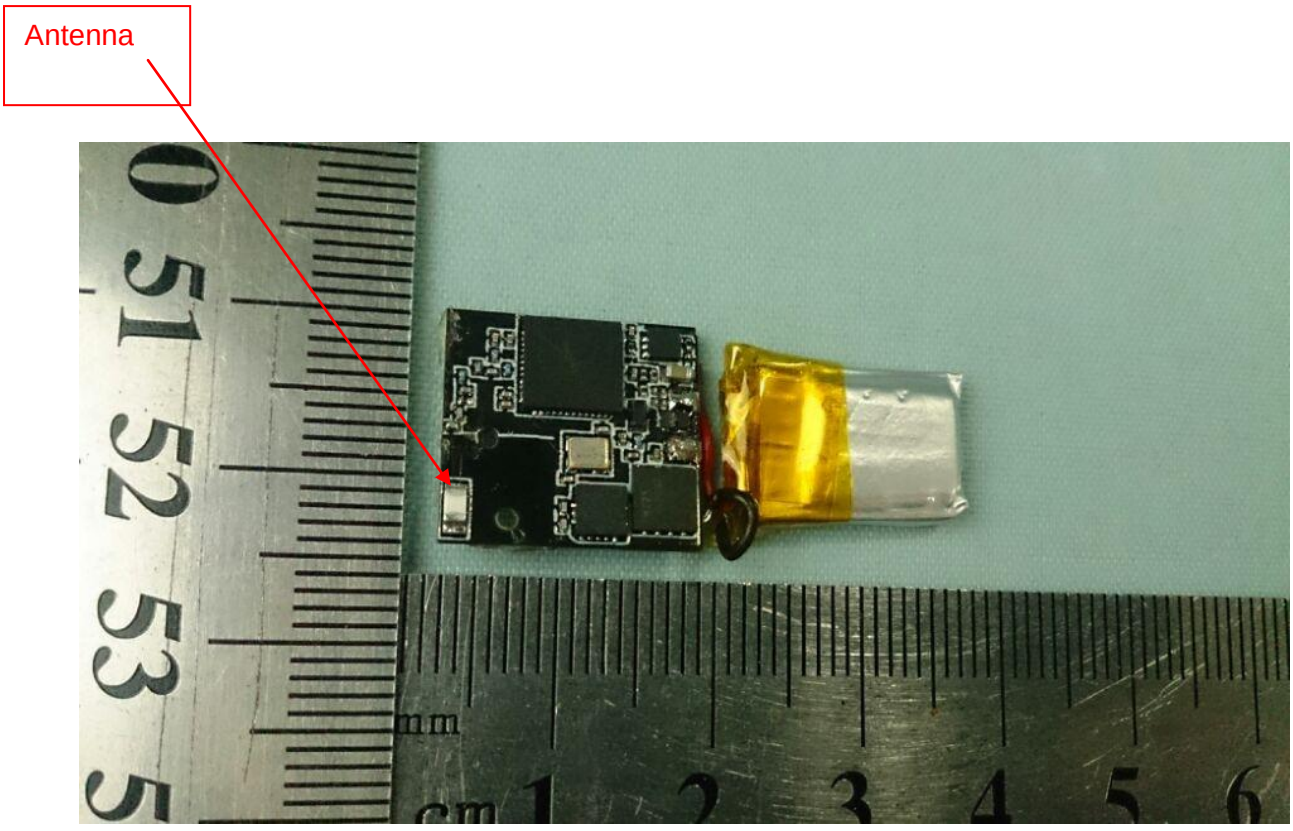
And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

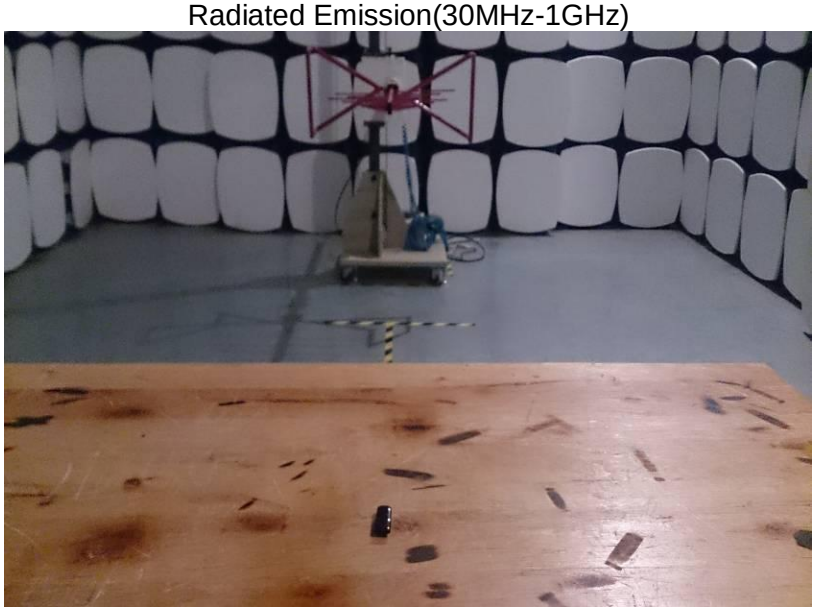
Antenna Connected Construction

The maximum gain of bluetooth antenna was 1 dBi.



4. EUT TEST PHOTO

Radiated Emission(30MHz-1GHz)



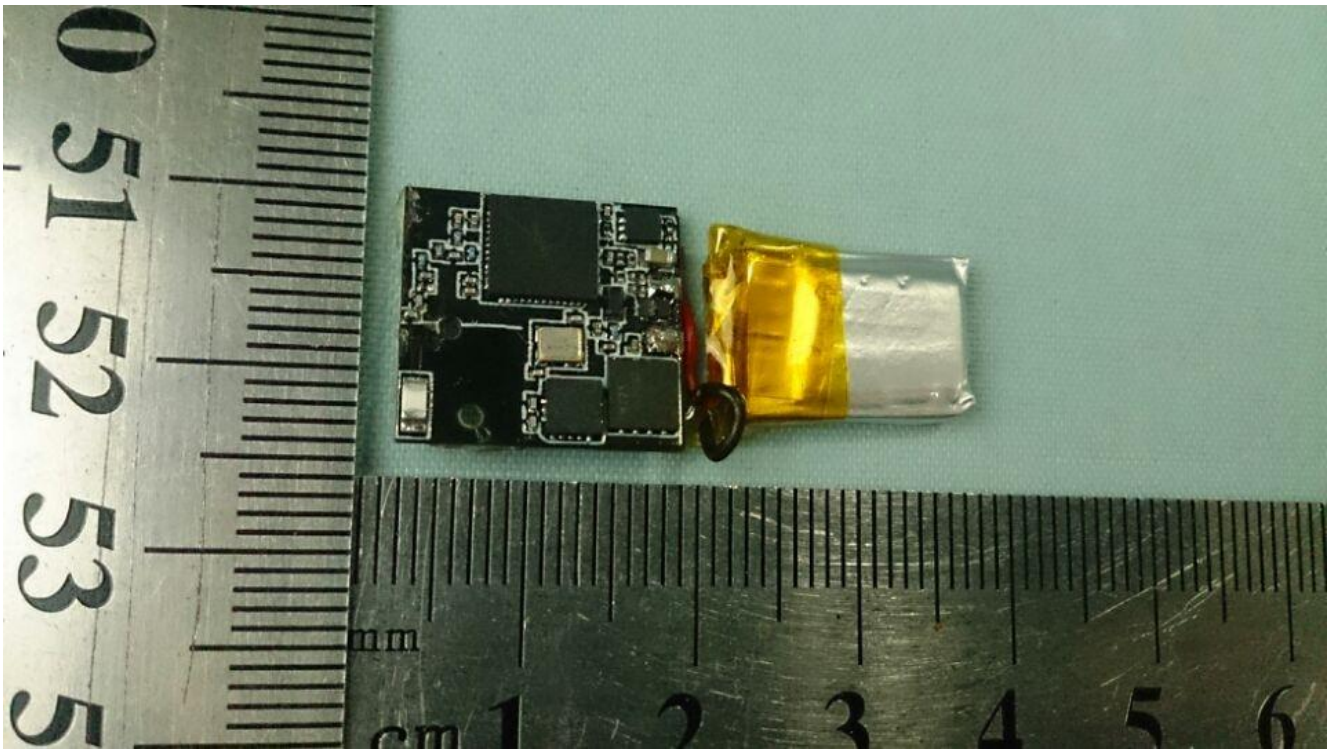
Radiated Emission(1GHz-25GHz)

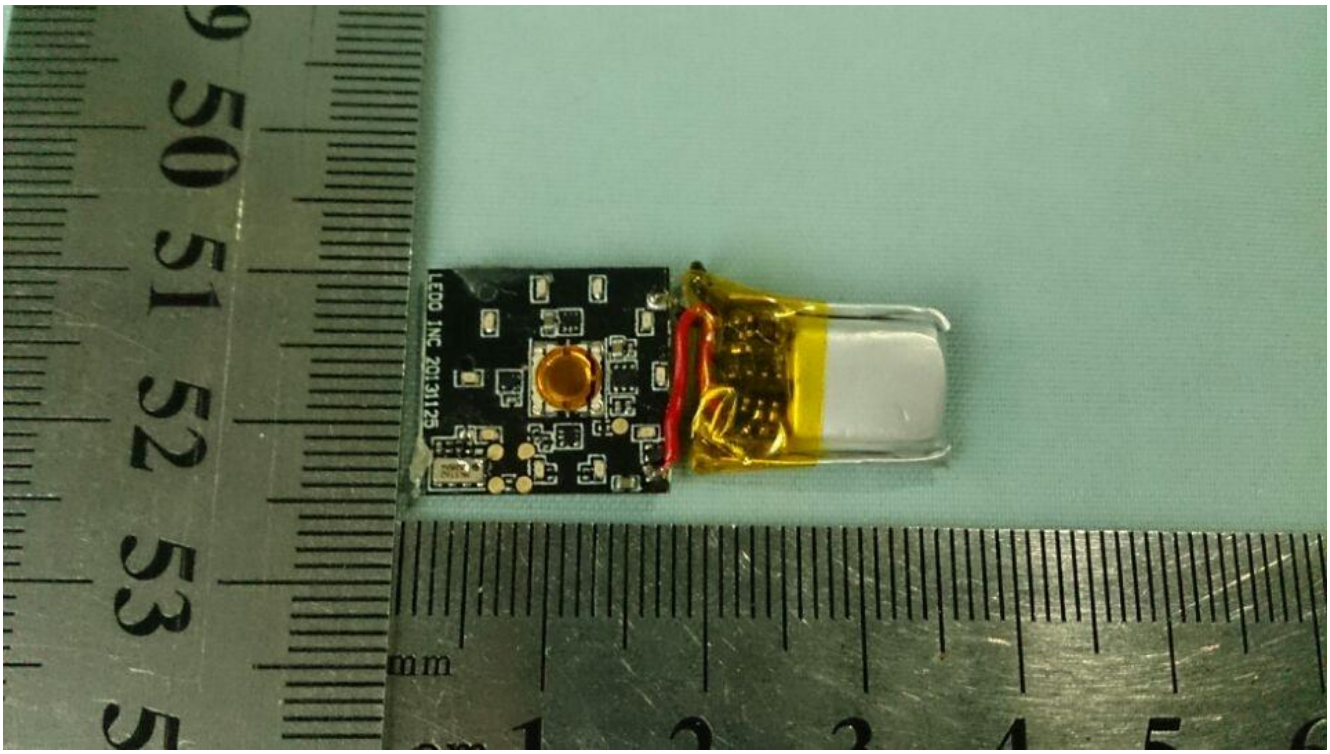
5 APPENDIX-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

External photos of EUT


cm 1 2 3 4 5 6 7

Internal photos of EUT





**************************THE END**************************