



FCC TEST REPORT

According to

CFR47 §15.247

Applicant	:	Somaxis Electronics Tech Ltd.
Address	:	A402,BID 4, SISPARK, NO.328 Xinghu Street, SIP,Suzhou City.JiangSu province, china
Manufacturer	:	Suzhou Chaoku Electric Science Technology Co., Ltd.
Address	:	A402,BID 4, SISPARK, NO.328 Xinghu Street, SIP,Suzhou City.JiangSu province, china
Equipment	:	Cricket
Model No.	:	cricket_C001
FCC ID	:	2AHKFCRICKET2016DLE

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of **CerpPASS Technology Corp.** the test report shall not be reproduced except in full.
- The test report must not be used by the clients to claim product certification approval by **NVLAP** or any agency of the Government.

I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.10 – 2013** and the energy emitted by this equipment was **passed**.
CISPR PUB. 22 and FCC Part 15 in both radiated and conducted emission class B limits.

Prepared By: Kerry Zhou
Kerry Zhou

Laboratory accreditation

Approved By: Miro Chueh
Miro Chueh





Release History

Attachment No.	Date	Description
SEFD1601042	2016-03-03	Initial release



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1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

Performed Test Item	Normative References	Test Performed	Deviation	Result
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.207	Yes	N/A	Pass
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.209	Yes	No	Pass
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(d)	Yes	No	Pass
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2014 15.247(d)	Yes	No	Pass
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 15.215(c)	Yes	No	Pass
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(a)(2)	Yes	No	Pass
Output Power	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(b)(3)	Yes	No	Pass
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(e)	Yes	No	Pass



2. Test Configuration of Equipment under Test

EUT Type	cricket_C001
BT Specification	BT 4.0
BT Frequency	2402~2480MHz
BT Channel Number	40
BT Channel Separation	2MHz
BT Type of Modulation	GFSK
BT Data Rate	1Mbps(GFSK)
Channel Control	Auto
Antenna Gain	1.9dBi



2.1 Carrier Frequency of Channels

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



2.2 Manner

Test Manner	
1	During testing, the interface cables and equipment positions were varied according to C63.10
2	Connect the HUB, Notebook, IP Express and EUT.
3	Adjust the EUT at the test mode and the test channel. Then test.
Test mode	
1	Transmit by BLE

2.3 Description of Test System

No	Device	Manufacturer	Model No.	Description
1	N/A	N/A	N/A	N/A

2.4 General Information of Test

Test Site:	Cerpass Technology Corp.
Performand Location :	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572, 331395
IC Registration Number :	7290A-1, 7290A-2

2.5 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	± 2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	± 4.11 dB
		Horizontal	± 4.10 dB
Occupied Bandwidth	---	---	± 7500 Hz
Maximum Peak Output Power	---	---	± 1.4 dB
Power Spectral Density	---	---	± 2.2 dB



3. Test of Conducted Emission

3.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	AVG (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

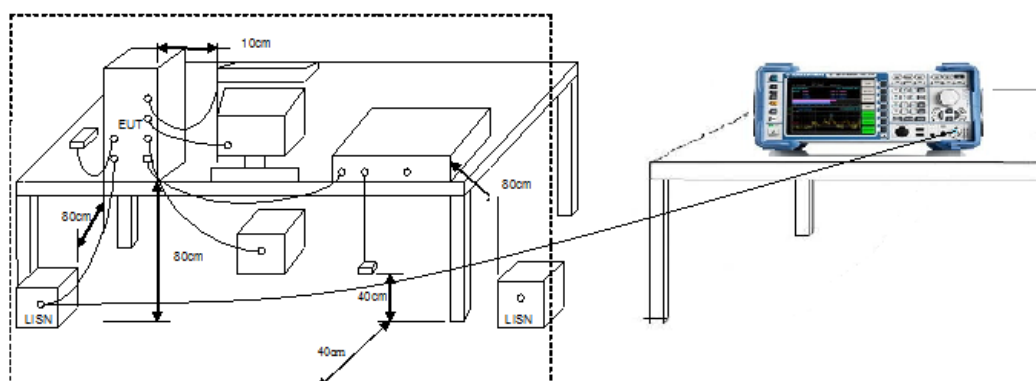
*Decreases with the logarithm of the frequency.

3.2 Test Procedures

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of Oct 2014 KDB558074 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.



3.3 Typical Test Setup



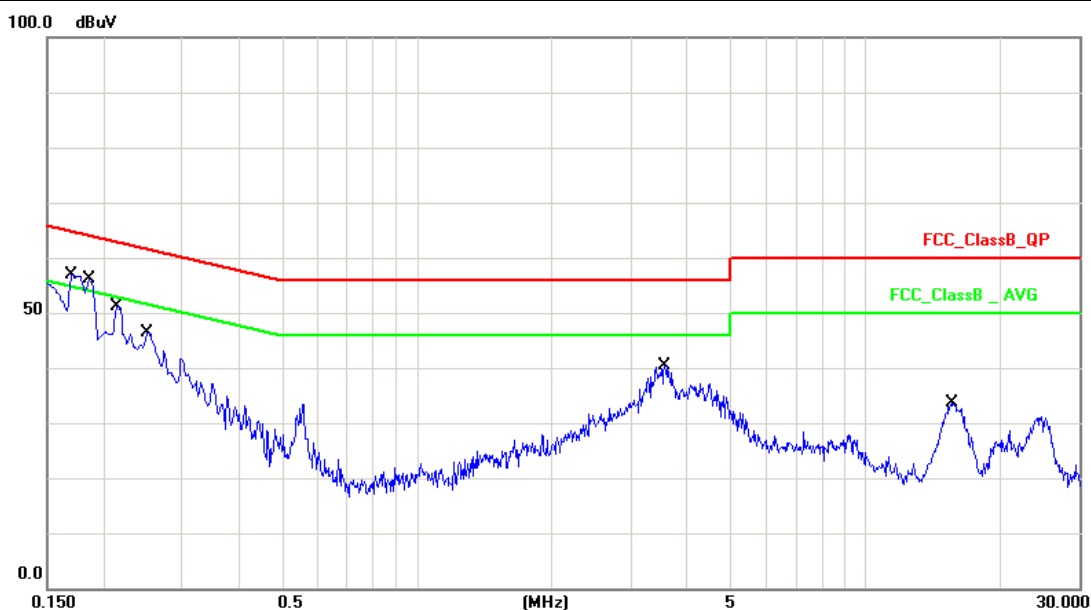
3.4 Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2015.03.24	2016.03.23
AMN	R&S	ESH2-Z5	100182	2015.09.04	2016.09.03
Two-Line V-Network	R&S	ENV216	100325	2015.12.04	2016.12.03
ISN	FCC	FCC-TLISN-T2-02	20379	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T4-02	20380	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T8-02	20381	2015.03.24	2016.03.23
ISN	TESEQ	ISN ST08	30175	2015.03.24	2016.03.23
Current Probe	R&S	EZ-17	100303	2015.04.04	2016.04.03
Passive Voltage Probe	R&S	ESH2-Z3	100026	2015.03.29	2016.03.28
Pulse Limiter	R&S	ESH3-Z2	100529	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-00 4	2015.03.31	2016.03.30



3.5 Test Result and Data

Test Mode :	Mode 1: Normal Operation with BT on		
AC Power :	AC 120V/60Hz	Phase :	LINE
Temperature :	23°C	Humidity :	52%
Pressure(mbar) :	1002	Date:	2016/03/01

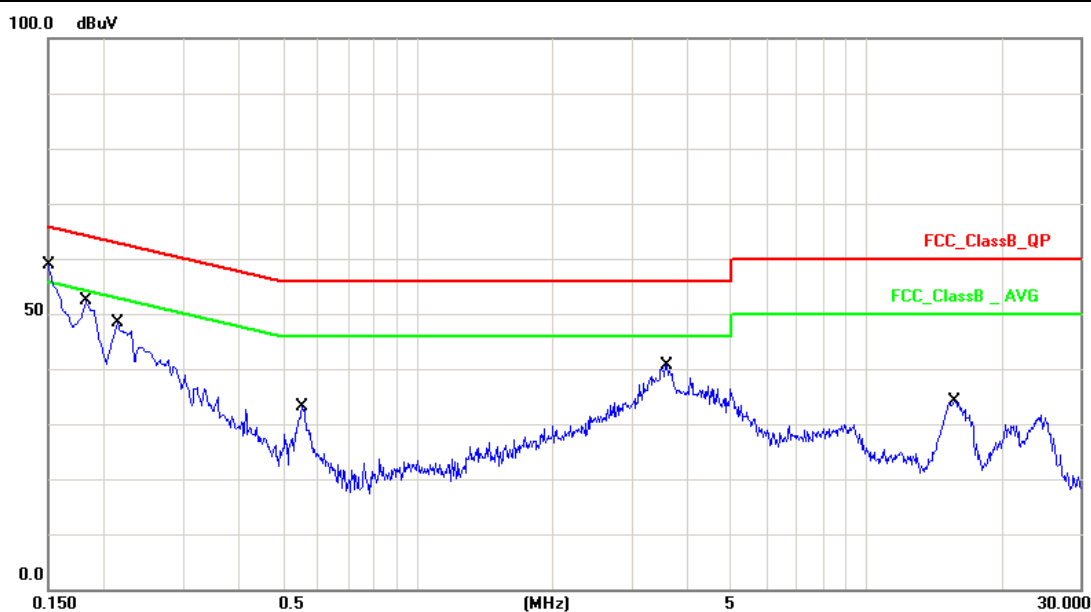


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1700	10.13	39.99	50.12	64.96	-14.84	QP
2	0.1700	10.13	20.54	30.67	54.96	-24.29	AVG
3	0.1860	10.12	38.78	48.90	64.21	-15.31	QP
4	0.1860	10.12	22.81	32.93	54.21	-21.28	AVG
5	0.2140	10.12	34.76	44.88	63.04	-18.16	QP
6	0.2140	10.12	18.47	28.59	53.04	-24.45	AVG
7	0.2500	10.13	29.90	40.03	61.75	-21.72	QP
8	0.2500	10.13	12.33	22.46	51.75	-29.29	AVG
9	3.5780	10.20	23.10	33.30	56.00	-22.70	QP
10	3.5780	10.20	16.47	26.67	46.00	-19.33	AVG
11	15.6060	10.50	18.16	28.66	60.00	-31.34	QP
12	15.6060	10.50	11.20	21.70	50.00	-28.30	AVG

Note: Measurement Level = Reading Level + Correct Factor



Test Mode :	Mode 1: Normal Operation with BT on		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Temperature :	23°C	Humidity :	52%
Pressure(mbar) :	1002	Date:	2016/03/01



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	10.13	43.95	54.08	65.99	-11.91	QP
2	0.1500	10.13	27.13	37.26	55.99	-18.73	AVG
3	0.1819	10.13	38.69	48.82	64.39	-15.57	QP
4	0.1819	10.13	17.80	27.93	54.39	-26.46	AVG
5	0.2140	10.13	34.69	44.82	63.04	-18.22	QP
6	0.2140	10.13	17.74	27.87	53.04	-25.17	AVG
7	0.5540	10.15	18.55	28.70	56.00	-27.30	QP
8	0.5540	10.15	12.77	22.92	46.00	-23.08	AVG
9	3.5860	10.21	23.63	33.84	56.00	-22.16	QP
10	3.5860	10.21	17.06	27.27	46.00	-18.73	AVG
11	15.7780	10.51	18.13	28.64	60.00	-31.36	QP
12	15.7780	10.51	10.53	21.04	50.00	-28.96	AVG

Note: Measurement Level = Reading Level + Correct Factor



4. Test of Radiated Emission

4.1 Test Limit

In any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

FREQUENCIES(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
Above 960	500	3

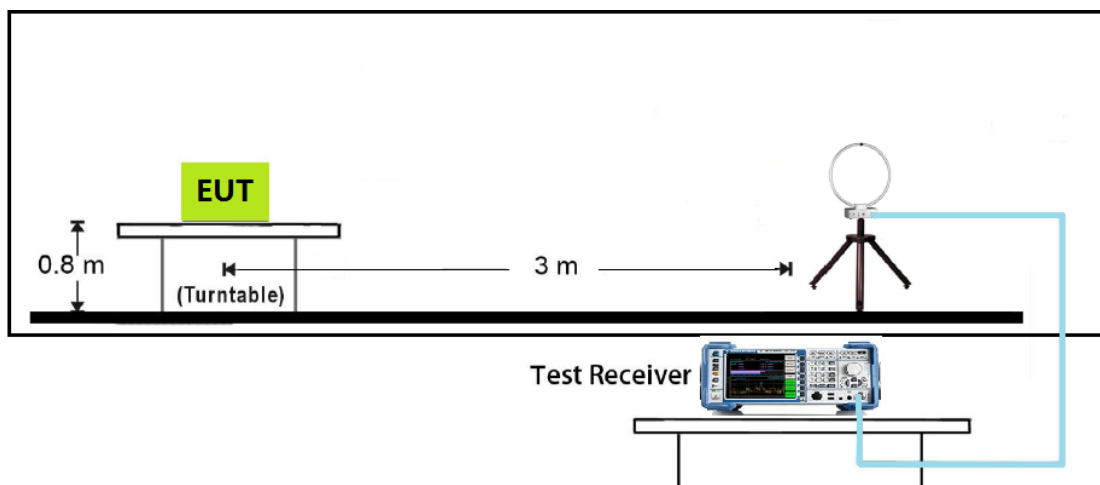
4.2 Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter for frequency below 1GHz and 1.5meter for frequency above 1GHz above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than AVG limit (that means the emission level in peak mode also complies with the limit in AVG mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in AVG mode again and reported.

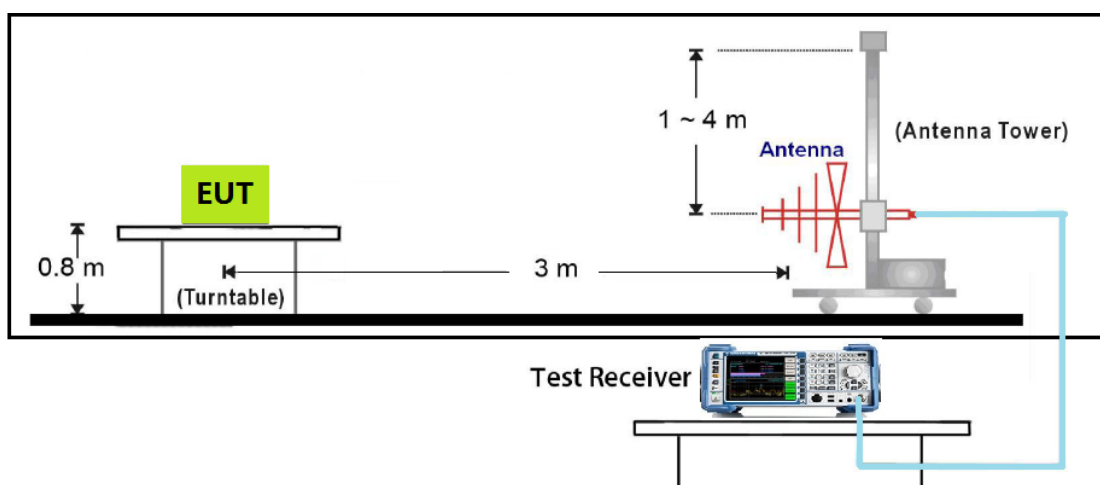


4.3 Typical Test Setup

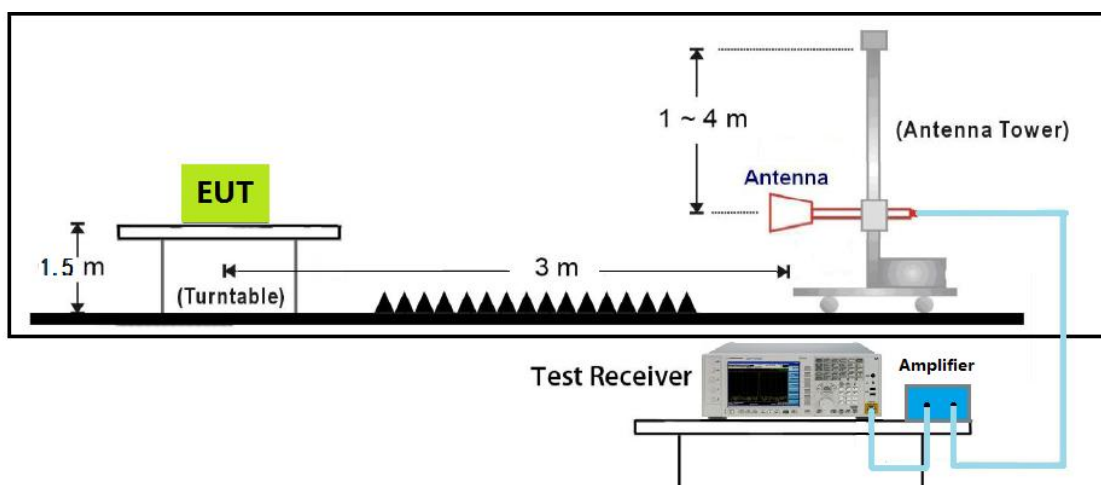
9kHz~30MHz Test Setup



Below 1GHz Test Setup

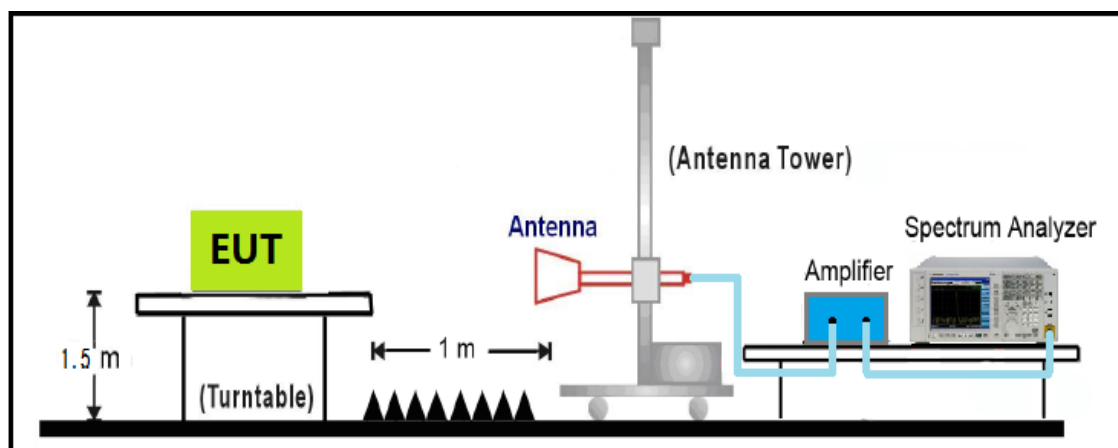


1GHz~18GHz Test Setup





18GHz~40GHz Test Setup



**4.4 Measurement Equipment**

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2016.02.10	2017.02.09
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	COM-POWER	PA-840	711885	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30



4.5 Test Result and Data

The 9kHz-30MHz spurious emission is under limit 20dB more.

4.5.1 Test Result and Data of Transmitter

Site : EMC Lab AC 102	Time : 2016-03-01
Limit : FCC_15_03M_PK	Margin : 6
EUT : Cricket	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by BLE (2402MHz)

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	AntPol. H/V
1	4804.00	-7.88	49.36	41.48	74.00	-32.52	peak	H
2	7206.00	-3.69	39.89	36.20	74.00	-37.80	peak	H
3	4804.00	-7.88	51.32	43.44	74.00	-30.56	peak	V
4	7206.00	-3.69	37.72	34.03	74.00	-39.97	peak	V

Site : EMC Lab AC 102	Time : 2016-03-01
Limit : FCC_15_03M_PK	Margin : 6
EUT : Cricket	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by BLE (2440MHz)

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	AntPol. H/V
1	4880.00	-8.00	46.76	38.76	74.00	-35.24	peak	H
2	7320.00	-3.29	38.78	35.49	74.00	-38.51	peak	H
3	4880.00	-8.00	49.41	41.41	74.00	-32.59	peak	V
4	7320.00	-3.29	38.89	35.60	74.00	-38.40	peak	V

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or AVG measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor

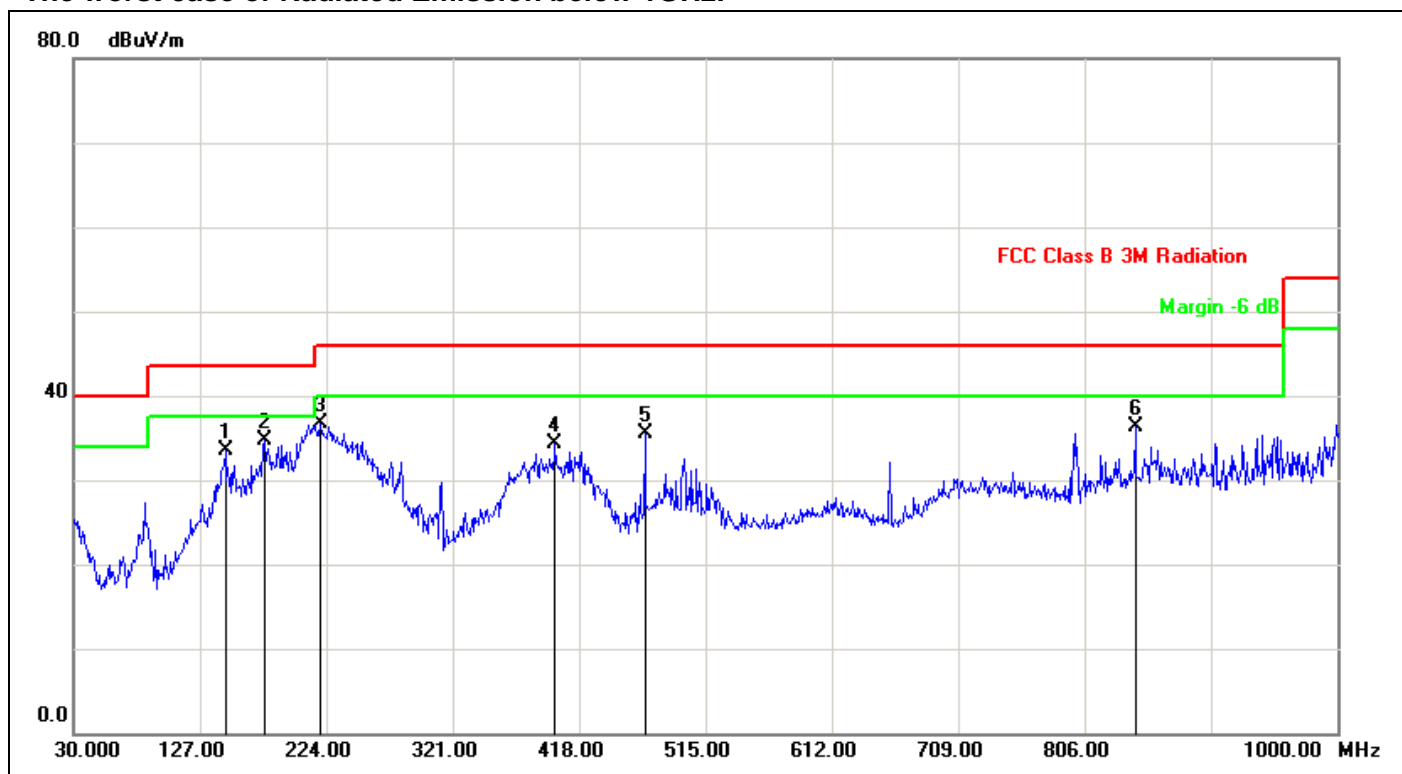


Site : EMC Lab AC 102	Time : 2016-03-01
Limit : FCC_15_03M_PK	Margin : 6
EUT : Cricket	Probe : VERTICAL/ HORIZONTAL
Power : AC 120V/60Hz	Note : Transmit by BLE (2480MHz)

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	AntPol. H/V
1	4960.00	-8.13	48.02	39.89	74.00	-34.11	peak	H
2	7440.00	-2.87	37.82	34.95	74.00	-39.06	peak	H
3	4960.00	-8.13	49.99	41.86	74.00	-32.14	peak	V
4	7440.00	-2.87	37.06	34.19	74.00	-39.81	peak	V



The worst case of Radiated Emission below 1GHz:



Report No.: 1601042

Test Distance: 3M

Test Standard: FCC Class B 3M Radiation

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2016-3-2 16:42:35

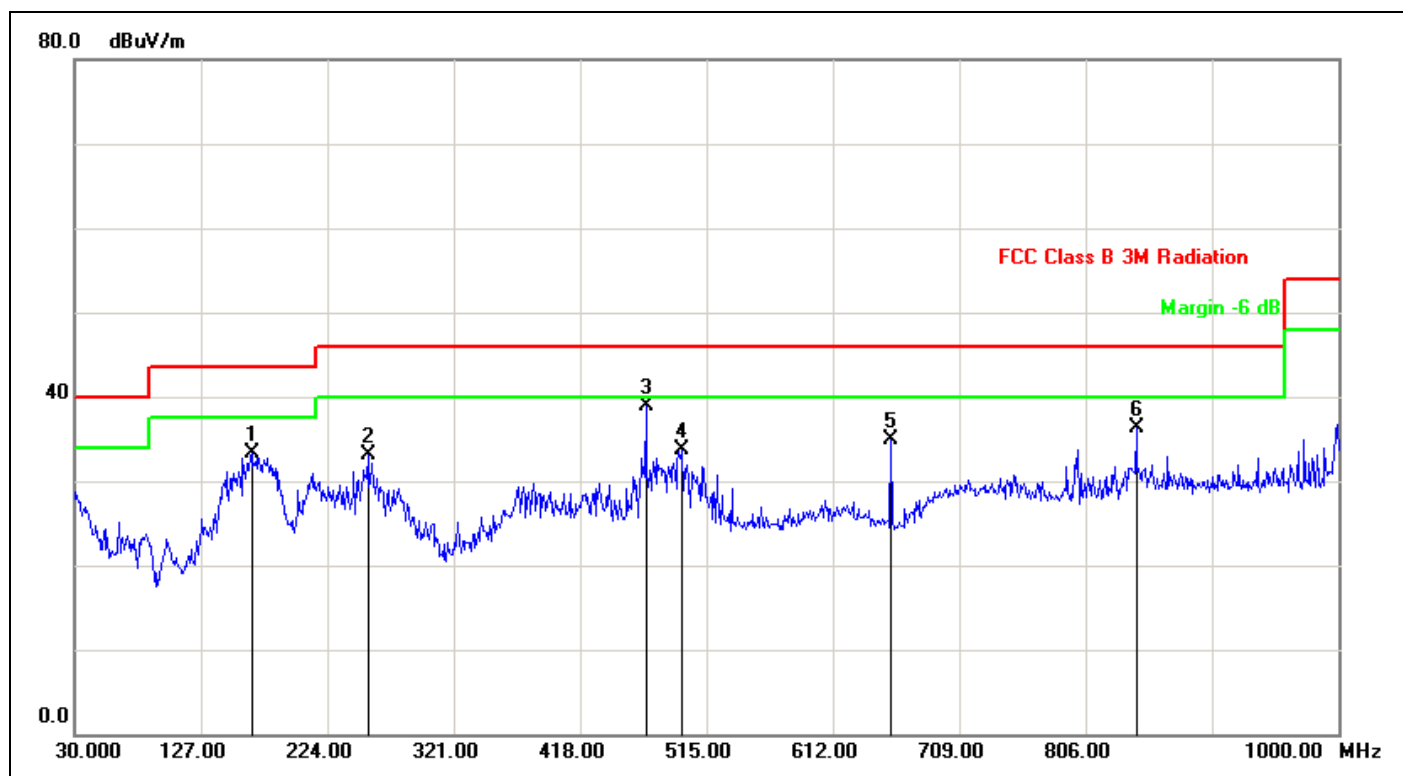
Product: Cricket

Temp.(C)/Hum.(%): 26()/60%

Model No.: cricket_C001

Power Rating: AC 120V/60Hz

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	146.4000	-7.72	41.27	33.55	43.50	-9.95	peak	200	298	
2	176.4700	-7.63	42.41	34.78	43.50	-8.72	peak	200	287	
3	219.1500	-12.20	48.82	36.62	46.00	-9.38	peak	100	334	
4	399.5700	-5.77	40.07	34.30	46.00	-11.70	peak	100	210	
5	468.4400	-6.97	42.50	35.53	46.00	-10.47	peak	100	115	
6	844.8000	1.57	34.83	36.40	46.00	-9.60	peak	100	328	



Report No.: 1601042

Test Distance: 3M

Test Standard: FCC Class B 3M Radiation

Ant. Polarization: Vertical

Test item: Radiation Emission

Test Time: 2016-3-2 16:45:42

Product: Cricket

Temp.(C)/Hum.(%): 26()/60%

Model No.: cricket_C001

Power Rating: AC 120V/60Hz

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	165.8000	-7.53	40.77	33.24	43.50	-10.26	peak	100	342	
2	255.0400	-10.59	43.73	33.14	46.00	-12.86	peak	200	354	
3	468.4400	-6.97	45.93	38.96	46.00	-7.04	peak	200	107	
4	496.5700	-5.09	38.80	33.71	46.00	-12.29	peak	100	317	
5	656.6200	-2.52	37.48	34.96	46.00	-11.04	peak	100	196	
6	844.8000	1.57	34.80	36.37	46.00	-9.63	peak	100	182	



5. Occupied Bandwidth

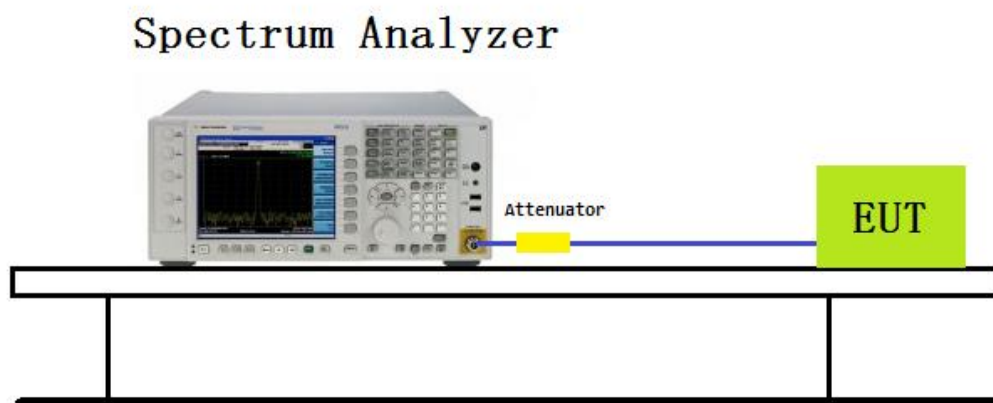
5.1 Test Limit

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725- 5850 MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.2 Test Procedures

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 100KHz and $VBW \geq 3 \times RBW$.
- The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
- The 6dB Bandwidth was measured and recorded.

5.3 Test Setup Layout



5.4 Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015/11/03	2016/11/03



5.5 Test Result and Data

Test Item	Occupied Bandwidth
Test Mode	Transmit by BLE

Channel No.	Frequency (MHz)	Measurement Level (kHz)	99% Occupied Bandwidth (kHz)	Result
00	2402	675.9	1065.3	Pass
19	2440	669.0	1064.7	Pass
39	2480	675.9	1068.4	Pass





6. Output Power

6.1 Test Limit

The output power shall be less 1Watt (30dBm).

The conducted output power limits specified in §15.247(b) are based on the use of transmit antennae with directional gains that do not exceed 6 dBi. If transmit antennae with an effective directional gain greater than 6 dBi are used, then the conducted output power from the EUT shall be reduced as specified in §15.247(b) and (c).

Per RSS247 Issue 1 Section 5.4(4), for DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum conducted output power shall not exceed 1W.

6.2 Test Procedure

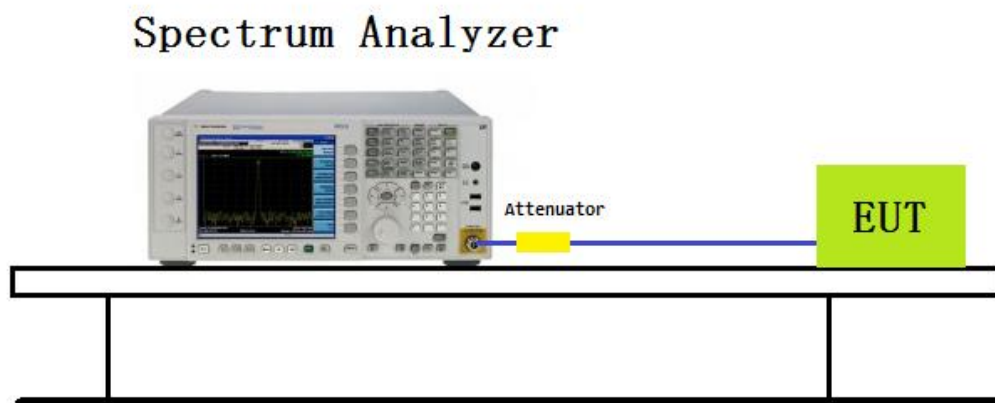
The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum conducted Peak output power using KDB 558074 D01v03r04 - Section 9.1.1 RBW \geq DTS bandwidth.

The maximum conducted Average output power using KDB 558074 D01v03r04 - Section 9.2.3.2 Method AVGPM-G.

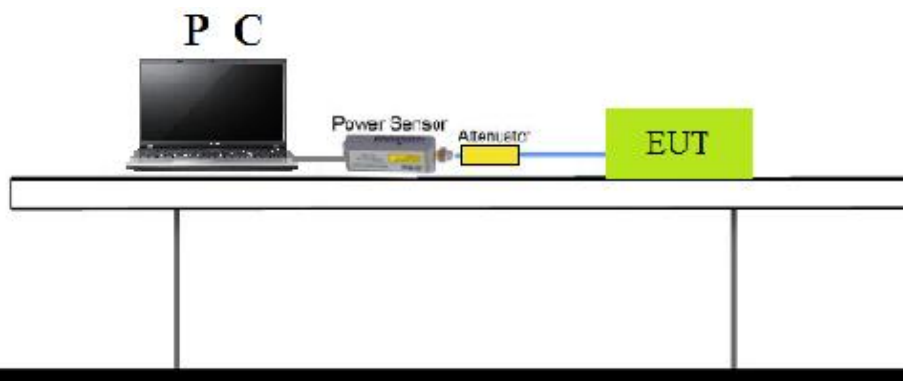
6.3 Test Setup Layout

Peak Power test setup





Average Power test setup



6.4 Measurement Equipment

Instrument	Manufacturer	Type No.	Serial No.	Calibration Date	Valid Date.
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015/11/03	2016/11/03
POWER SENSOR	Agilent	U2021XA	MY53260020	2015/03/27	2016/03/26
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-003	2015/03/31	2016/03/30



6.5 Test Result and Data

Test Item	Output Power
Test Mode	Transmit by BLE
Test Date	2016-03-01

Channel No.	Frequency (MHz)	Peak Power (dBm)	Average Power (dBm)	Required Limit (dBm)	Result
00	2402	-7.47	-9.59	30	Pass
19	2440	-9.23	-11.41	30	Pass
39	2480	-11.11	-13.23	30	Pass



7. Band Edges Measurement

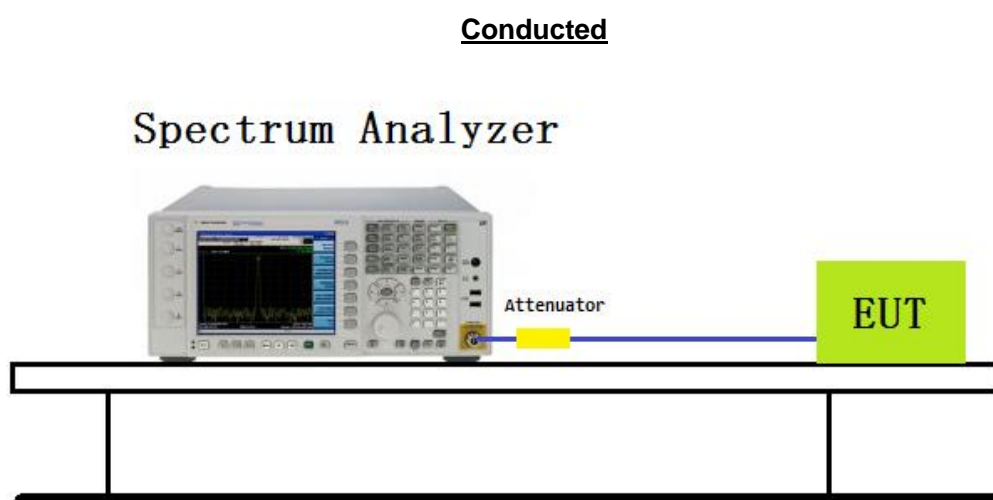
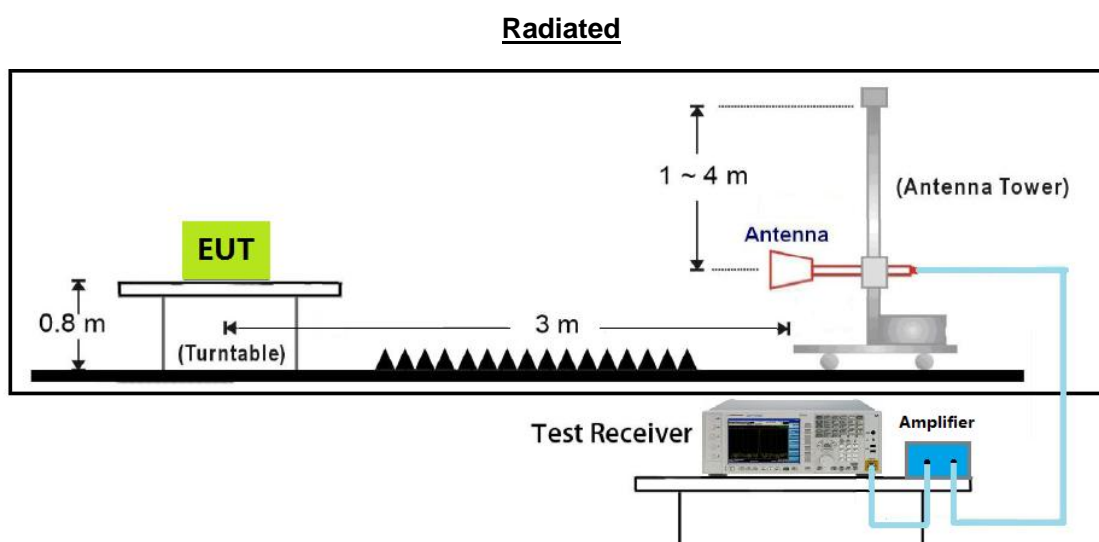
7.1 Test Limit

Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

7.2 Test Procedure

- The transmitter output was connected to the spectrum analyzer via a low lose cable.
- Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- The band edges was measured and recorded.

7.3 Test Setup Layout



**7.4 Measurement Equipment**

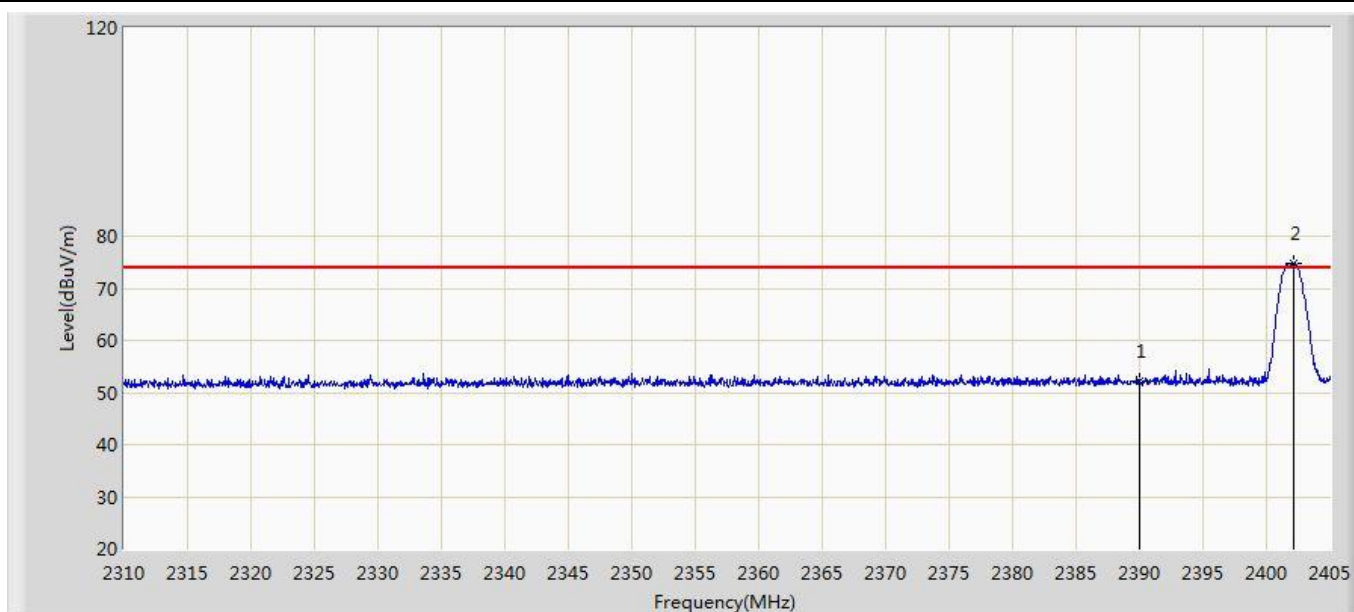
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2016.02.10	2017.02.09
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015.11.03	2016.11.03
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30



Test Result and Data

Radiated

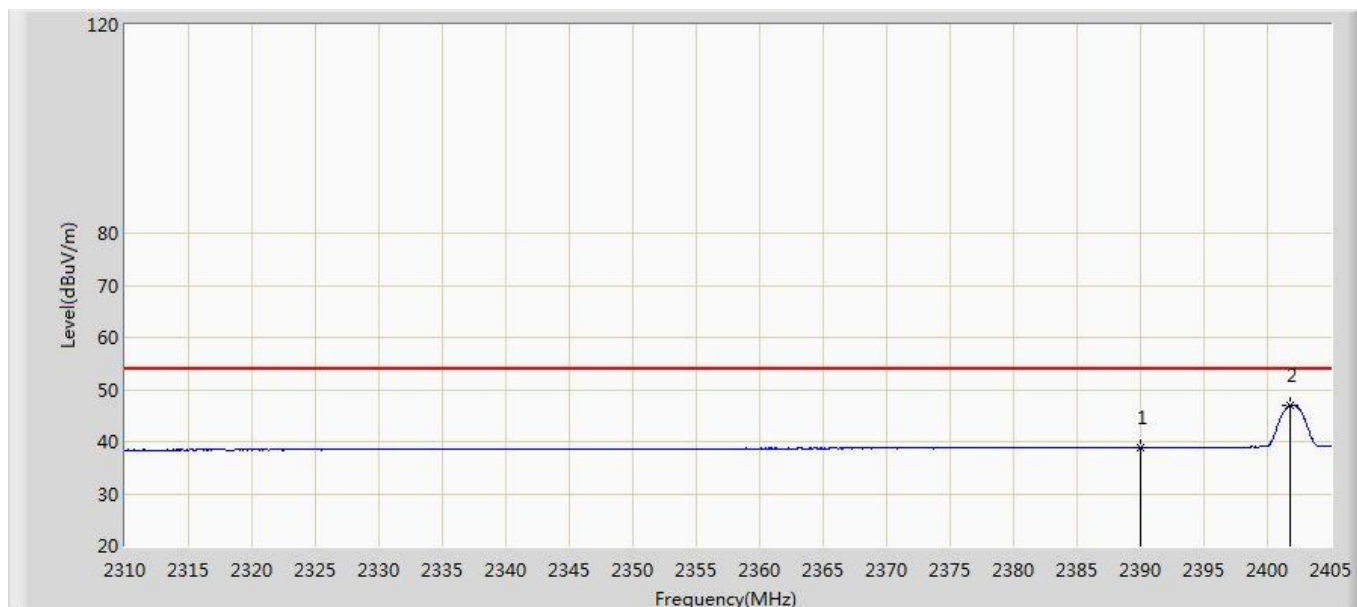
Site: AC102	Time: 2016/03/02 - 11:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Horizontal
EUT: Cricket	Power: DC
Note: Transmit at 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.268	28.688	-21.732	74.000	23.580	PK
2	*	2402.198	74.820	51.212	N/A	N/A	23.609	PK



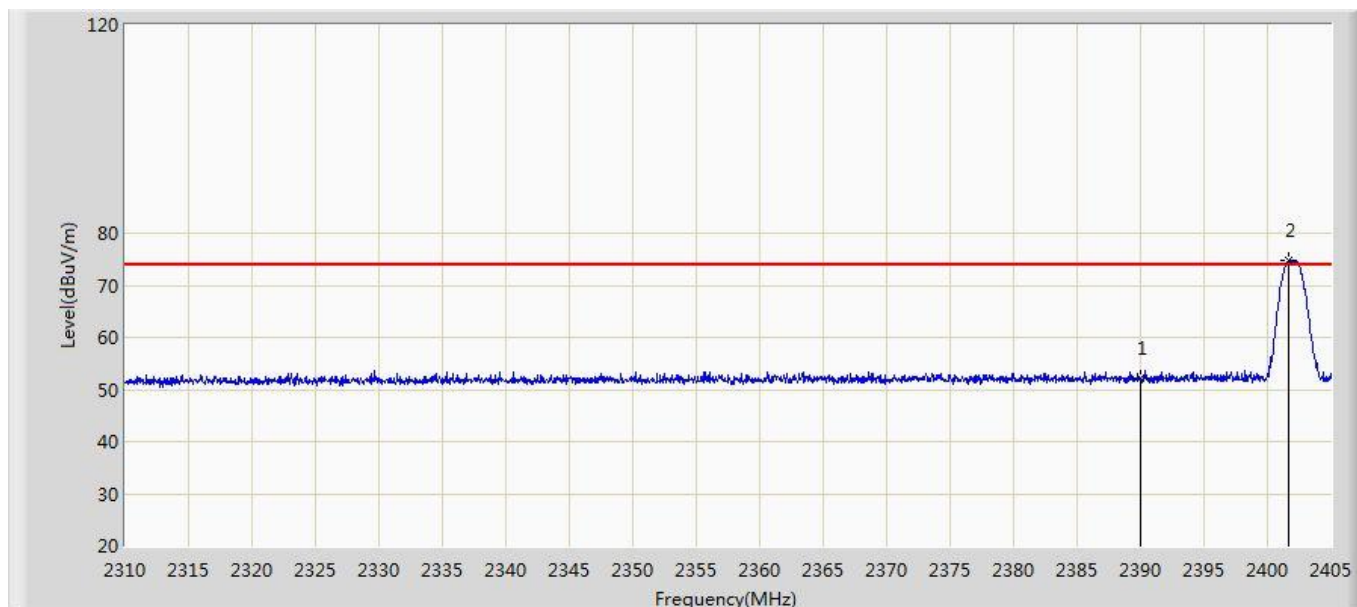
Site: AC102	Time: 2016/03/02 - 11:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Horizontal
EUT: Cricket	Power: DC
Note: Transmit at 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.896	15.316	-15.104	54.000	23.580	AV
2	*	2401.770	46.897	23.290	N/A	N/A	23.607	AV



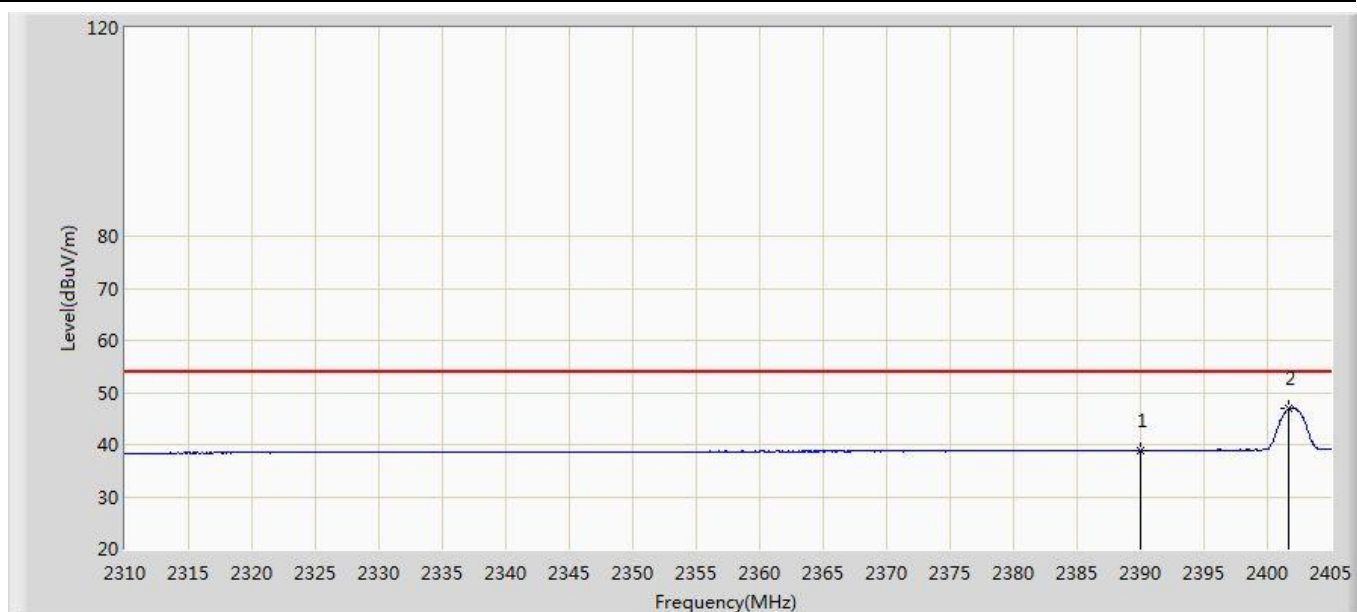
Site: AC102	Time: 2016/03/02 - 11:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Vertical
EUT: Cricket	Power: DC
Note: Transmit at 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.068	28.488	-21.932	74.000	23.580	PK
2	*	2401.627	74.696	51.089	N/A	N/A	23.607	PK



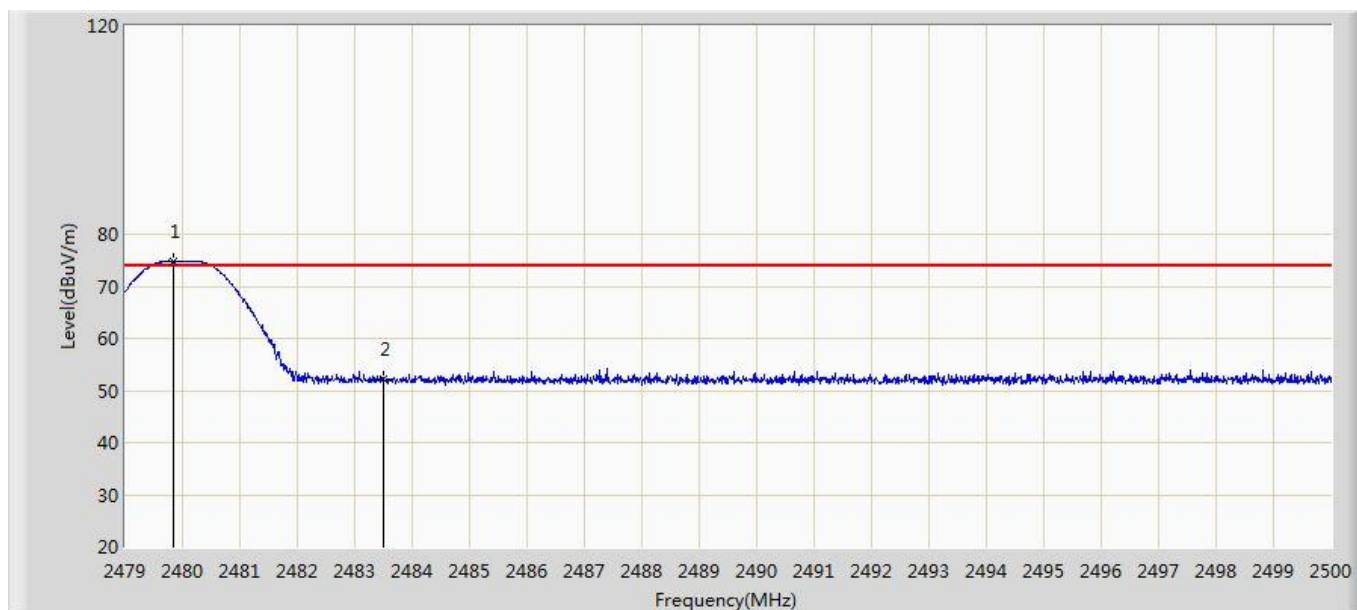
Site: AC102	Time: 2016/03/02 - 11:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Vertical
EUT: Cricket	Power: DC
Note: Transmit at 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.856	15.276	-15.144	54.000	23.580	AV
2	*	2401.675	46.931	23.324	N/A	N/A	23.607	AV



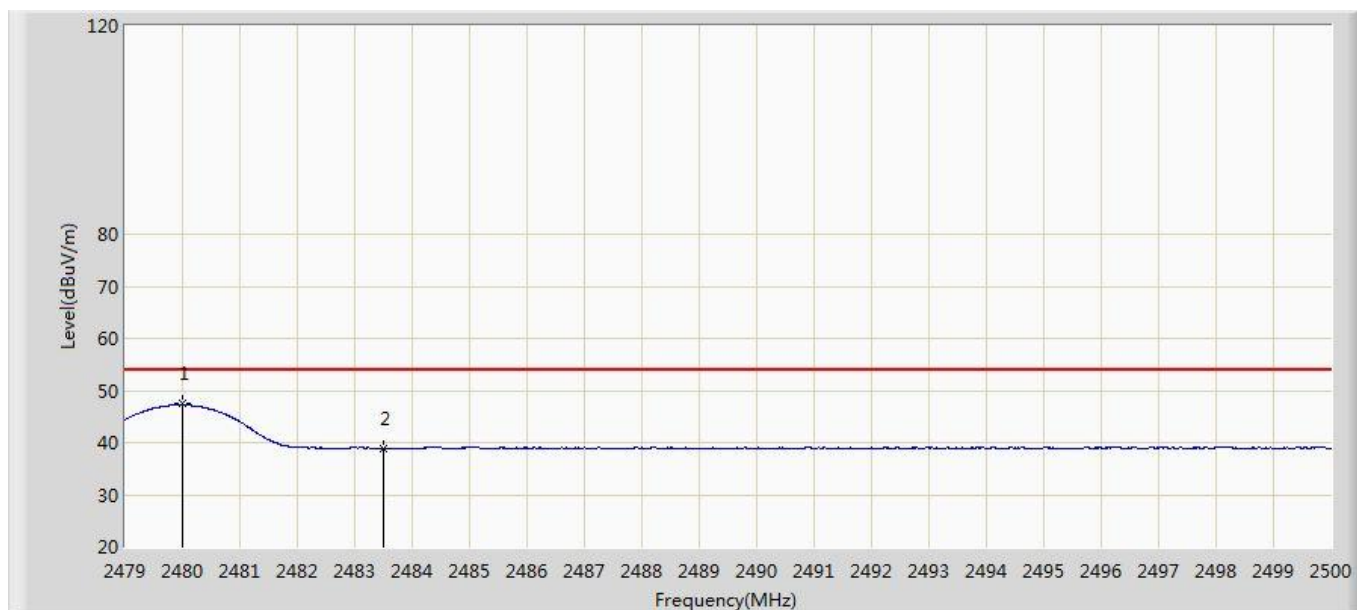
Site: AC102	Time: 2016/03/02 - 13:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Horizontal
EUT: Cricket	Power: DC
Note: Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.840	74.764	50.898	N/A	N/A	23.866	PK
2		2483.500	52.295	28.415	-21.705	74.000	23.880	PK



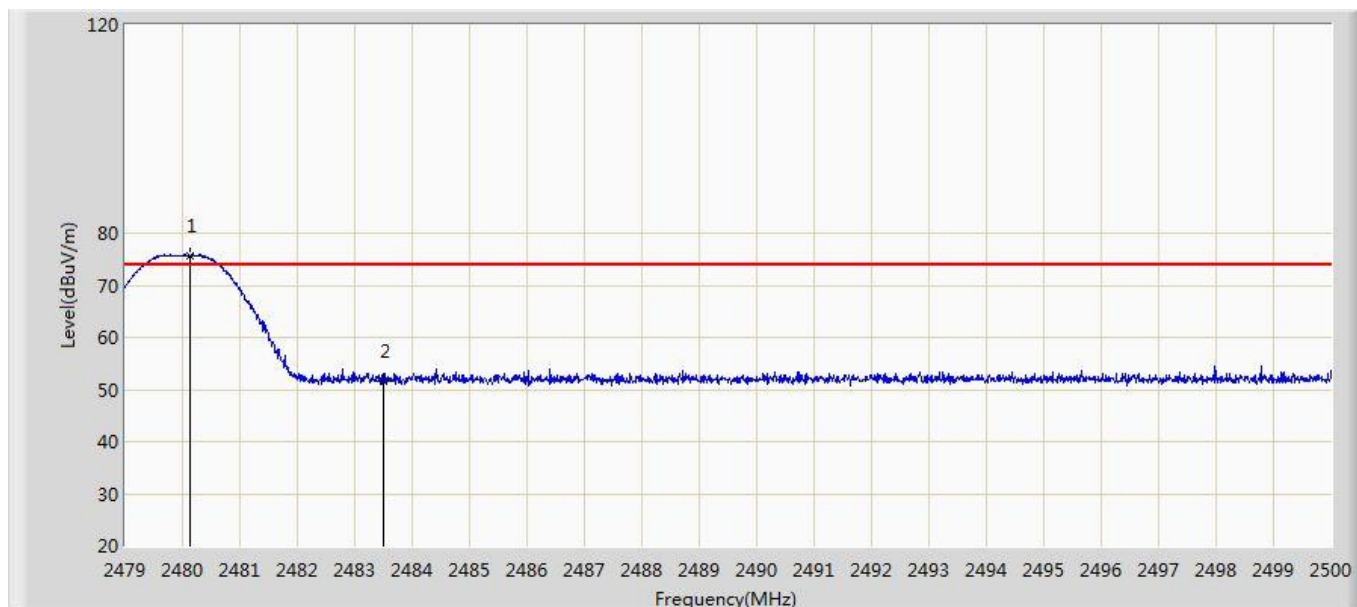
Site: AC102	Time: 2016/03/02 - 13:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Horizontal
EUT: Cricket	Power: DC
Note: Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.008	47.503	23.636	N/A	N/A	23.867	AV
2		2483.500	38.981	15.101	-15.019	54.000	23.880	AV



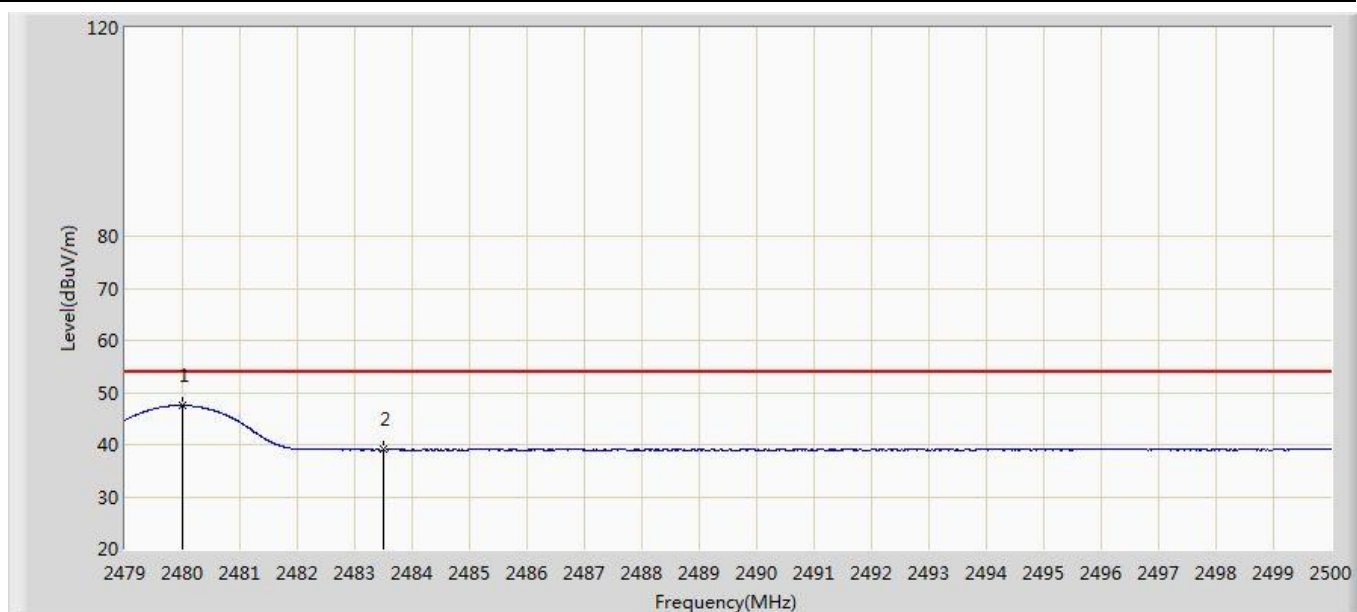
Site: AC102	Time: 2016/03/02 - 11:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Vertical
EUT: Cricket	Power: DC
Note: Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.124	75.759	51.892	N/A	N/A	23.867	PK
2		2483.500	51.718	27.838	-22.282	74.000	23.880	PK



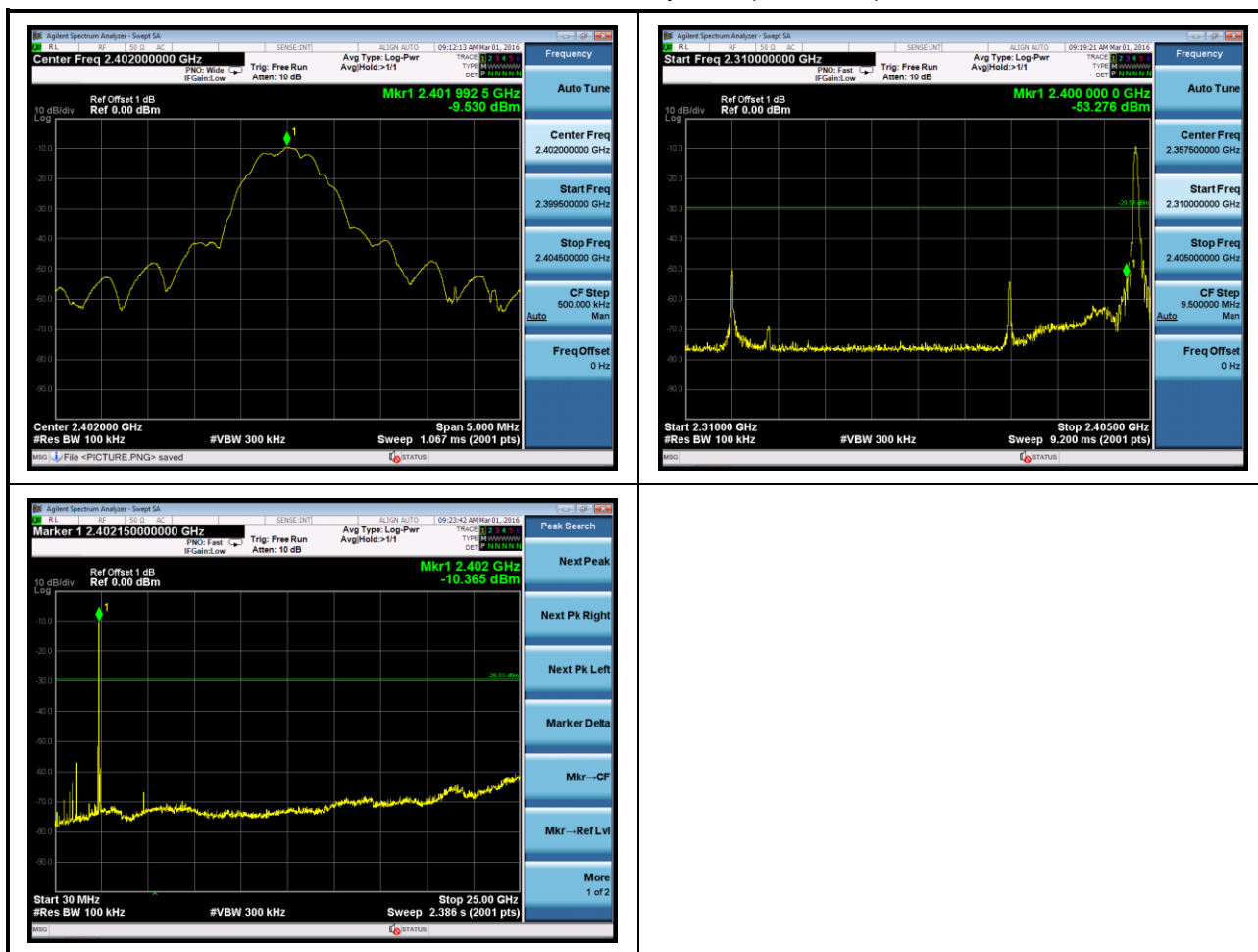
Site: AC102	Time: 2016/03/02 - 13:26
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: DRH (1-18GHz) -2015-11-05-CERPASS	Polarity: Vertical
EUT: Cricket	Power: DC
Note: Transmit at 2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.008	47.503	23.636	N/A	N/A	23.867	AV
2		2483.500	38.986	15.106	-15.014	54.000	23.880	AV

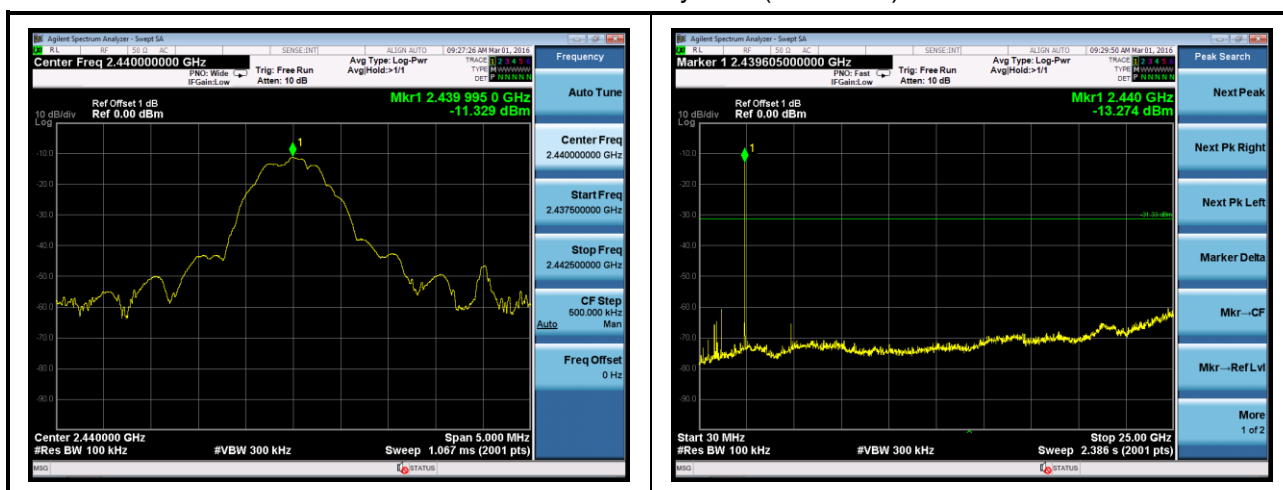
**Band Edge (20dBc RF Conducted Measurement)**

Mode 1: Transmit by BLE (2402MHz)

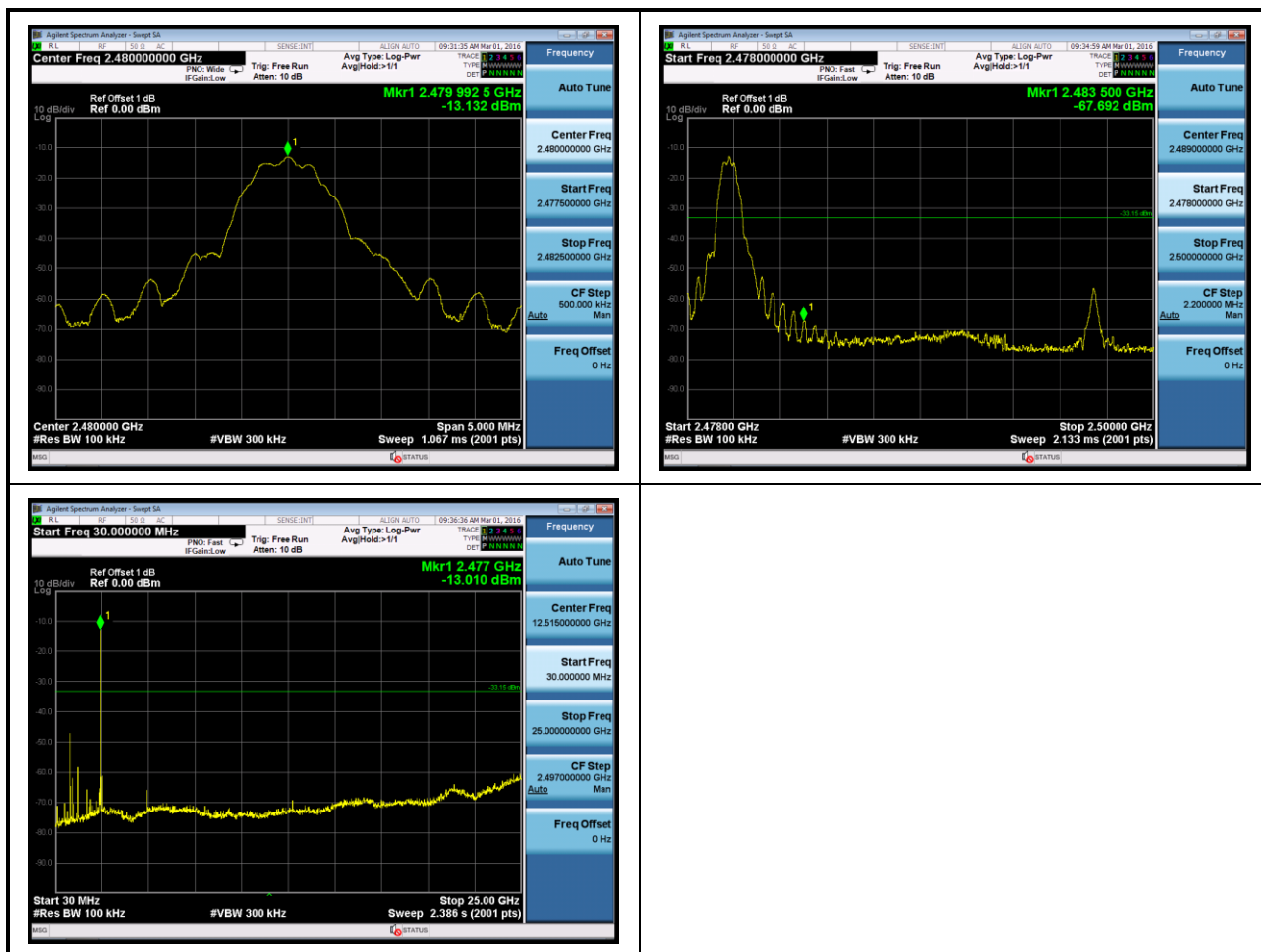




Mode 1: Transmit by BLE (2440MHz)



Mode 1: Transmit by BLE (2480MHz)





8. Power Spectral Density

8.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

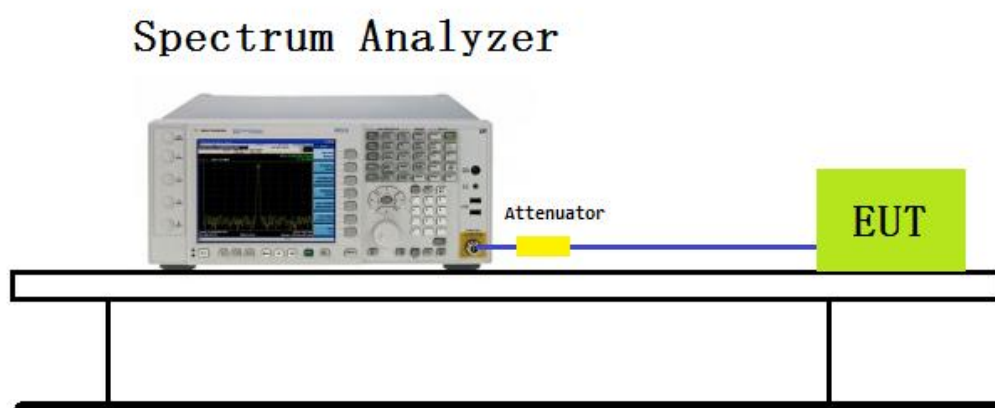
8.2 Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$. (Actually we use 3kHz RBW)
- Set the VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the band.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.3 Test Setup Layout



8.4 Measurement Equipment

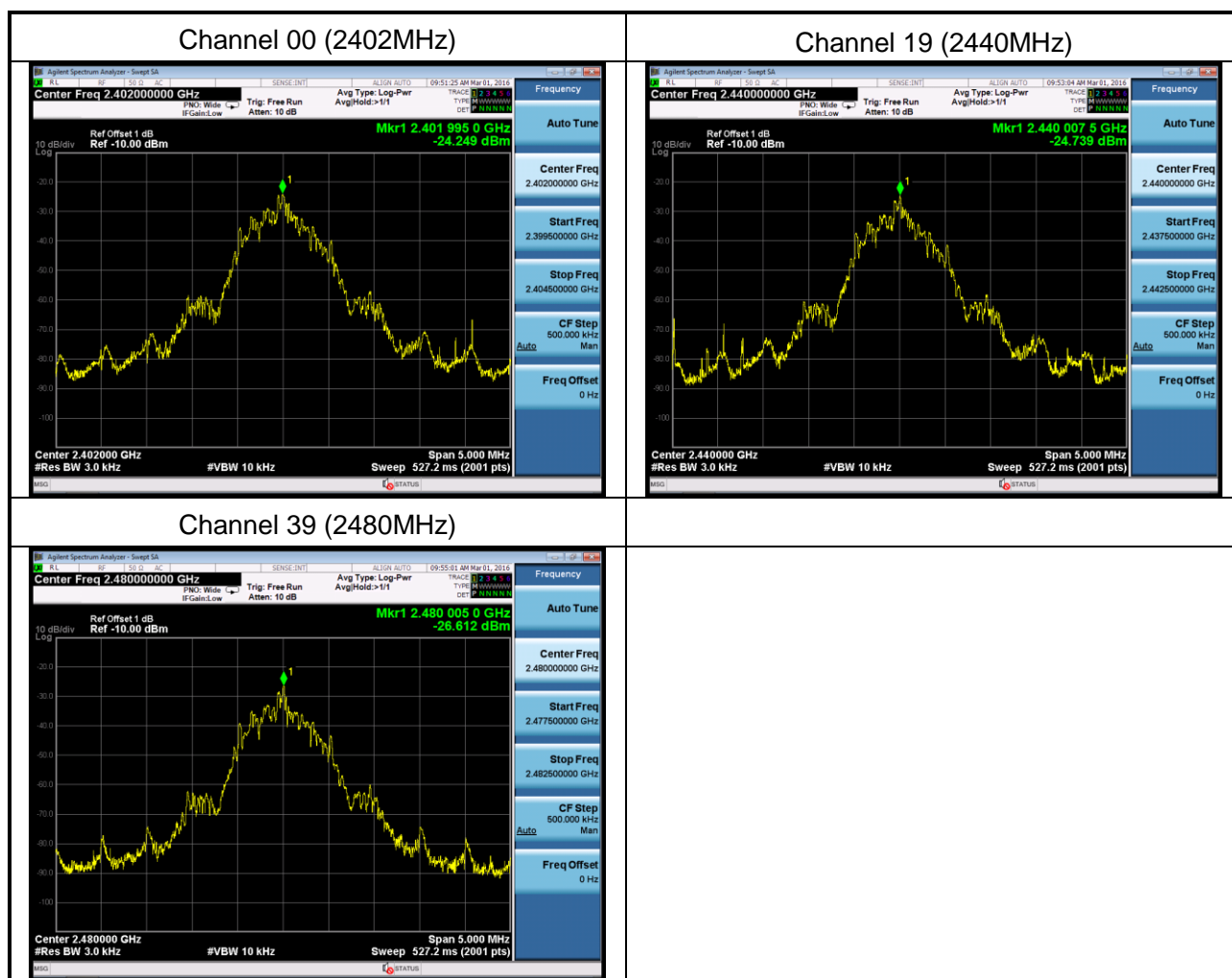
Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	N9010A	Agilent	MY53400169	2015.11.03	2016.11.03



8.5 Test Result and Data

Test Item	Power Spectral Density
Test Mode	Transmit by BLE

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
00	2402	-24.249	8	Pass
19	2440	-24.739	8	Pass
39	2480	-26.612	8	Pass





9. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

9.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.