Product Name:	RFLKT Bike Computer
Model No.:	WFBKCOMP
Applicant:	Wahoo Fitness 141 West Wieuca Road # 104B, Atlanta, GA 30342
Date of Receipt:	Jan. 10, 2013
Finished date of Test:	Feb. 22, 2013
Applicable Standards:	47 CFR Part 15, Subpart C 47 CFR Part 15, Subpart B ANSI C63.4: 2003 Public Notice DA 00-705 (March 2000)

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Tested By : Jeff Lo (Jeff Lo), Date: 02/25/2013

Approved By : (Johnson Ho, Director), Date: 2/25/2013

Revisions History

Report No.	Issue Date	Revisions
FCCA13011003	Feb. 25, 2013	Initial issue

Table of Contents

1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- DC power source from battery: DC power source 3V, was used during the test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.

2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	RFLKT Bike Computer
MODEL NO.	WFBKCOMP
POWER SUPPLY	DC power source battery : DC 3.0V
CABLE	NA
FREQUENCY BAND	2.4 GHz (Bluetooth V4.0 Low Energy, no BR/EDR)
CARRIER FREQUENCY	2.402 GHz ~ 2.480 GHz
NUMBER OF CHANNEL	40
RATED RF OUTPUT POWER	-10.06 dBm
MODULATION TYPE	GFSK
MODE OF OPERATION	Duplex
ANTENNA TYPE	Chip Antenna
ANTENNA GAIN	2 dBi
OPERATING TEMPERATURE RANGE	-10 ~ 50°C

NOTE:
The EUT operates in single mode Bluetooth Low Energy, therefore, no BR/EDR tests were performed. For more detailed information, please refer to the EUT's specification or user's manual provided by manufacturer.

2.2 DESCRIPTION OF EUT INTERNAL DEVICE

DEVICE	BRAND / MAKER	MODEL #	FCC ID / DOC	REMARK

2.3 EUT OPERATING CONDITION

1. Setup the EUT and all peripheral devices .
2. Turn on the power of all equipment and EUT.
3. Set the EUT under continuous transmission condition, standby and link mode.
4. The EUT was set to the highest available power level.

2.4 DESCRIPTION OF TEST MODE

Mode		Frequency
1	CH00 (Tx-1)	2402 MHz
2	CH20 (Tx-2)	2440 MHz
3	CH40 (Tx-3)	2480 MHz
4	Standby	NA
5	Link	NA

NOTE: The axis X,Y and Z we evaluate in chamber, the X axis is worst case.

X axis:

Y axis:

Z axis:

2.5 DESCRIPTION OF SUPPORT UNIT

The EUT was configured by the requirement of ANSI C63.4:2003. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

NO	DEVICE	BRAND	MODEL #	FCC ID/DOC	CABLE
1	iPad Wi-Fi 16G	Apple	A1458	BCGA1458	N/A

NOTE: For the actual test configuration, please refer to the photos of testing.

2.6 CHANNEL AND FREQUENCY TABLE

Channel	Frequency	Channel	Frequency
CH 01	2402 MHz	CH 21	2442 MHz
CH 02	2404 MHz	CH 22	2444 MHz
CH 03	2406 MHz	CH 23	2446 MHz
CH 04	2408 MHz	CH 24	2448 MHz
CH 05	2410 MHz	CH 25	2450 MHz
CH 06	2412 MHz	CH 26	2452 MHz
CH 07	2414 MHz	CH 27	2454 MHz
CH 08	2416 MHz	CH 28	2456 MHz
CH 09	2418 MHz	CH 29	2458 MHz
CH 10	2420 MHz	CH 30	2460 MHz
CH 11	2422 MHz	CH 31	2462 MHz
CH 12	2424 MHz	CH 32	2464 MHz
CH 13	2426 MHz	CH 33	2466 MHz
CH 14	2428 MHz	CH 34	2468 MHz
CH 15	2420 MHz	CH 35	2470 MHz
CH 16	2432 MHz	CH 36	2472 MHz
CH 17	2434 MHz	CH 37	2474 MHz
CH 18	2436 MHz	CH 38	2476 MHz
CH 19	2438 MHz	CH 39	2478 MHz
CH 20	2440 MHz	CH 40	2480 MHz

3. DESCRIPTION OF APPLIED STANDARDS

The EUT is a wireless product. According to the specifications provided by the applicant, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C

47 CFR Part 15, Subpart B

ANSI C63.4: 2003

Public Notice DA 00-705 (March 2000)

All tests have been performed and recorded as the above standards.

3.1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

STANDARD SECTION	TEST TYPE AND LIMIT RESULTS	RESULTS
15.247(a)	6 dB Bandwidth Limit: minimum of 500 kHz	PASS
15.247(b)	Peak Power Test: Limit: 21 dBm	PASS
15.247(d)	Band Edge Measurement: Limit: 20dB less than the peak value of fundamental frequency	PASS
15.247(e)	Power Density: Limit: 8dBm/3kHz	PASS
15.247(a)	Time of Occupancy (Dwell Time) Limit: less than 0.4 seconds	PASS
15.247(a)	Channel Separation Test Limit: minimum of 25 kHz or the 20 dB bandwidth	PASS
15.247(a)(b)	Quantity of Hopping Channel Test Limit: 15 non-overlapping hopping channels	PASS
15.33(a), 15.249	Transmitter Radiated Emissions Limit: Section 4.2.1	PASS
15.203	Antenna requirement Limit: max. 6dBi	PASS

4. TECHNICAL CHARACTERISTICS TEST

4.1 RADIATED EMISSION TEST

4.1.1 LIMIT

FCC Part15, Subpart C Section 15.209 limit of radiated emission for frequency below1000MHz. The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dBmV/m)
0.009 - 0.490	300	2400/F(KHz)
0.490 - 1.705	30	24000/F(KHz)
1.705 - 30	30	30
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

NOTE:

1. 30 dBuV (in 30m) = 70 dBuV (in 3m).
2. Transmitters that require Crystal Controlled Oscillators with values below 30 MHz requires the Test Report to show “Spurious Radiated Emissions” results below 30 MHz per FCC Part 15.33(a).

FCC Part15, Subpart C Section 15.249 limit of radiated emission for frequency below1000MHz (Average).

FREQUENCY (MHz)	FIELD STRENGTH OF FUNDAMENTAL (millivolts/meter)	FIELD STRENGTH OF HARMONICS (millivolts/meter)
902 - 928	50	500
2400 - 2483.5	50	500
5725 - 5875	50	500
24000 - 24250	250	2500

NOTE:

1. In the emission tables above , the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antemma, and the closest point of any part of the device or system.
3. 50mV = 94dBuV

FCC Part 15, Section15.35(b) limit of radiated emission for frequency above 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

4.1.2 TEST EQUIPMENT

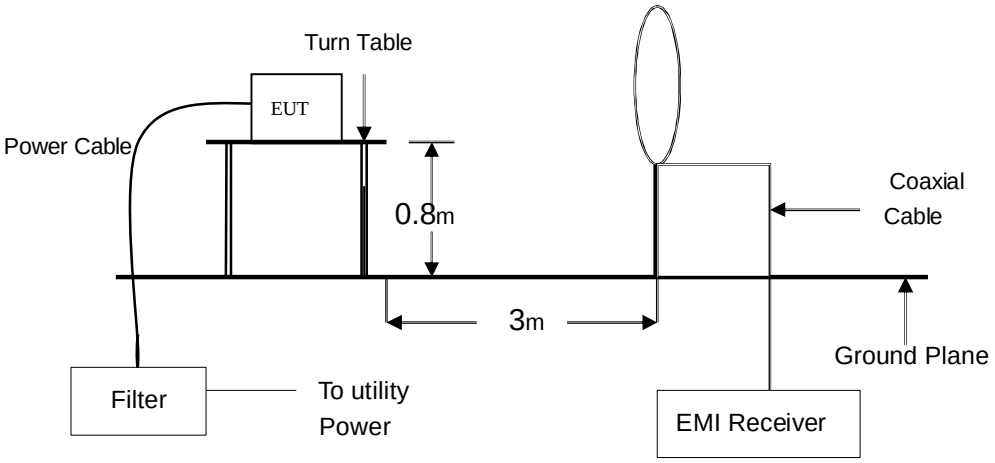
The following test equipment was used during the radiated emission test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz ~ 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 100376	DEC. 2013 ETC
EMI TEST RECEIVER	20 MHz ~ 1000 MHz	ROHDE & SCHWARZ	ESVS30 / 841977/003	DEC. 2013 ETC
SPECTRUM ANALYZER	9 kHz ~ 7GHz	ROHDE & SCHWARZ	FSP7 / 100289	APR. 2013 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC
LOOP ANTENNA	9 kHz ~ 30 MHz	ETS.LINDGREN	HFH2-Z2/ 860605/002 (1162 1/2)	MAR. 2013 ETC
BI-LOG ANTENNA	30 MHz ~ 2 GHz	SCHAFFNER	CBL6141A / 4181	JUN. 2013 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	DEC. 2013 ETC
HORN ANTENNA	18 GHz ~ 40 GHz	ETS-LINDGREN	3116/ 00032255	JUN. 2014 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 2013 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	APR. 2013 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	MAY. 2013 SRT
COAXIAL CABLE	30 M	TIMES	LMR-400 / #30M (L1TCAB014)	MAY. 2013 ETC
RF CABLE	UP TO 18 GHz	JYEBAO	A30A30-L 142 / EQF-0035(001)	DEC. 2013 ETC
RF CABLE	UP TO 18 GHz	JYEBAO	A30A30-L 142 / EQF-0036(002)	DEC. 2013 ETC
K-TYPE CABLE	UP TO 40 GHz	HUBER+SUHNER	SF 102-40/2*11/ 23934/2	OCT. 2013 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943 / 869	NCR

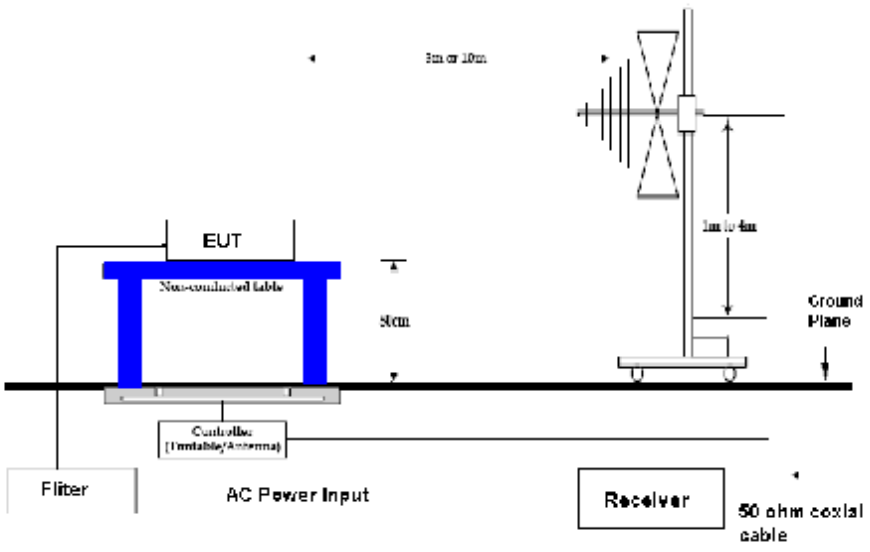
NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.1.3 TEST SET-UP

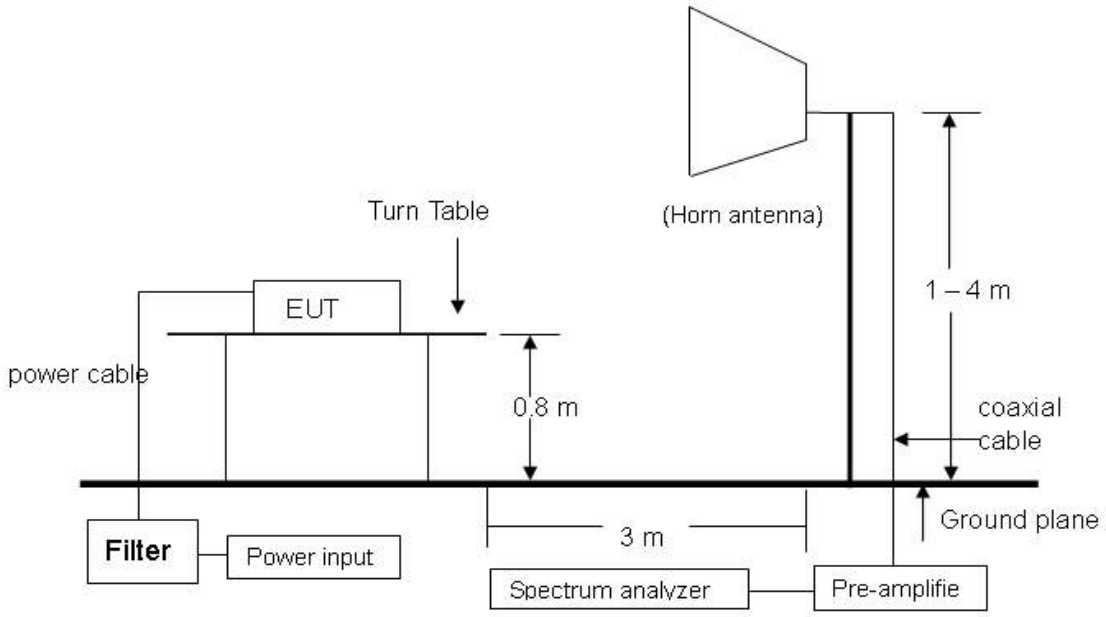
9KHz ~ 30MHz



30 MHz ~ 1 GHz



Above 1 GHz



NOTE: The EUT system was put on a wooden table with 0.8m heights above a ground plane. For the actual test configuration, please refer to the photos of testing.

4.1.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR 22:2003.

The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz.

The frequency spectrum measured started from 9kHz to 30MHz and 30 MHz to 1 GHz, all readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver.

Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak or average values with 1 MHz resolution bandwidth of the test receiver.

The EUT system was operated in all typical methods by users.

The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.

First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data.

The procedure is referred on the test procedure of SRT LAB.

4.1.5 TEST RESULT

Temperature:	22 °C	Humidity:	56 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	Q.P.	Tested Mode:	Tx-1
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
7.81	0.49	20.41	39.73	60.64	70.00	-9.36
9.55	0.55	20.48	30.01	51.04	70.00	-18.96
13.69	0.64	20.68	28.42	49.74	70.00	-20.26
21.18	0.78	21.06	27.71	49.55	70.00	-20.45
27.48	0.87	21.37	27.36	49.61	70.00	-20.39
28.68	0.89	21.43	28.17	50.50	70.00	-19.50

Temperature:	22 °C	Humidity:	56 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	Q.P.	Tested Mode:	Tx-2
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
4.75	0.40	20.29	26.67	47.35	70.00	-22.65
7.57	0.49	20.40	35.05	55.94	70.00	-14.06
19.62	0.75	20.98	26.94	48.67	70.00	-21.33
21.12	0.78	21.06	26.62	48.45	70.00	-21.55
24.90	0.84	21.24	25.88	47.96	70.00	-22.04
28.26	0.89	21.41	25.60	47.90	70.00	-22.10

Temperature:	22 °C	Humidity:	56 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	Q.P.	Tested Mode:	Tx-3
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
2.89	0.30	20.20	38.74	59.24	70.00	-10.76
7.75	0.49	20.41	36.42	57.32	70.00	-12.68
19.14	0.74	20.95	26.81	48.51	70.00	-21.49
2.70	0.30	20.20	25.91	46.41	70.00	-23.60
25.44	0.85	21.27	26.26	48.38	70.00	-21.62
28.74	0.89	21.44	28.13	50.46	70.00	-19.54

Temperature:	22 °C	Humidity:	56 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	Q.P.	Tested Mode:	Standby
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
4.45	0.38	20.27	27.45	48.10	70.00	-21.90
8.05	0.50	20.42	36.31	57.23	70.00	-12.77
14.94	0.67	20.75	26.56	47.97	70.00	-22.03
21.84	0.79	21.09	26.42	48.30	70.00	-21.70
27.48	0.87	21.37	26.37	48.62	70.00	-21.38
28.62	0.89	21.43	28.14	50.46	70.00	-19.54

Temperature:	22 °C	Humidity:	56 %RH
Frequency Range:	9KHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	Q.P.	Tested Mode:	Link
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
2.41	0.28	20.20	39.43	59.91	70.00	-10.09
6.73	0.46	20.37	30.23	51.06	70.00	-18.94
8.11	0.50	20.42	37.32	58.25	70.00	-11.75
15.12	0.67	20.75	26.14	47.57	70.00	-22.43
18.78	0.74	20.94	26.10	47.77	70.00	-22.23
27.30	0.87	21.36	25.76	48.00	70.00	-22.00

Temperature:	22 °C	Humidity:	56 %RH
Tested By:	Jeff Lo	Tested Mode:	Tx-1
Receiver Detector:	Q.P. or AV.	Modulation Type:	GFSK
Frequency Range:	30 M – 1 GHz	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
574.14	4.04	19.33	2.36	25.73	46.0	-20.27	204	2.32
727.40	4.67	21.39	2.58	28.65	46.0	-17.35	285	1.84
748.74	4.77	21.86	2.29	28.92	46.0	-17.08	133	1.78
833.16	5.12	22.89	2.45	30.46	46.0	-15.54	195	1.52
876.78	5.26	23.25	2.94	31.45	46.0	-14.55	117	1.38
948.56	5.52	24.36	3.52	33.40	46.0	-12.60	309	1.16

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.16	1.18	11.70	5.35	18.23	40.0	-21.77	259	1.08
69.74	1.29	8.28	8.85	18.42	40.0	-21.58	352	1.12
539.22	3.91	18.75	2.29	24.94	46.0	-21.06	170	2.57
723.52	4.66	21.31	2.56	28.52	46.0	-17.48	286	3.14
849.62	5.18	23.18	2.60	30.96	46.0	-15.04	239	3.53
958.26	5.56	24.46	4.38	34.40	46.0	-11.60	340	3.87

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	56 %RH
Tested By:	Jeff Lo	Tested Mode:	Tx-2
Receiver Detector:	Q.P. or AV.	Modulation Type:	GFSK
Frequency Range:	30 M – 1 GHz	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
54.22	1.17	12.60	3.48	17.25	40.0	-22.75	117	3.93
576.08	4.05	19.37	2.90	26.32	46.0	-19.68	316	2.31
645.92	4.34	20.34	2.85	27.53	46.0	-18.47	259	2.10
775.90	4.89	22.10	2.84	29.83	46.0	-16.18	308	1.69
818.58	5.06	22.62	2.38	30.06	46.0	-15.94	244	1.56
960.20	5.56	24.48	3.99	34.03	54.0	-19.97	25	1.12

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.16	1.18	11.70	4.28	17.16	40.0	-22.84	117	1.08
626.52	4.25	20.11	2.41	26.77	46.0	-19.23	200	2.84
719.64	4.64	21.22	2.32	28.18	46.0	-17.82	193	3.13
806.94	5.01	22.41	2.84	30.26	46.0	-15.74	305	3.40
898.18	5.32	23.30	3.07	31.69	46.0	-14.31	188	3.69
933.04	5.46	24.03	3.29	32.78	46.0	-13.22	144	3.79

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	56 %RH
Tested By:	Jeff Lo	Tested Mode:	Tx-3
Receiver Detector:	Q.P. or AV.	Modulation Type:	GFSK
Frequency Range:	30 M – 1 GHz	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
54.22	1.17	12.60	4.42	18.19	40.0	-21.81	263	3.93
519.82	3.81	18.47	3.18	25.45	46.0	-20.55	118	2.49
708.00	4.59	20.98	2.51	28.07	46.0	-17.93	259	1.90
753.66	4.79	21.92	2.48	29.20	46.0	-16.80	104	1.76
865.08	5.23	23.23	3.13	31.59	46.0	-14.42	312	1.42
923.34	5.42	23.81	2.91	32.14	46.0	-13.86	252	1.24

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.16	1.18	11.70	4.36	17.24	40.0	-22.76	77	1.08
622.64	4.23	20.06	2.24	26.54	46.0	-19.46	189	2.83
690.54	4.51	20.72	2.97	28.20	46.0	-17.80	178	3.04
754.56	4.80	21.93	3.52	30.25	46.0	-15.75	303	3.24
843.80	5.15	23.07	3.63	31.86	46.0	-14.14	241	3.52
915.58	5.39	23.63	4.13	33.15	46.0	-12.85	297	3.74

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	56 %RH
Tested By:	Jeff Lo	Tested Mode:	Standby
Receiver Detector:	Q.P. or AV.	Modulation Type:	GFSK
Frequency Range:	30 M – 1 GHz	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.37	1.18	11.70	4.11	16.99	40.0	-23.01	114	3.92
643.98	4.33	20.32	2.49	27.13	46.0	-18.87	58	2.10
737.10	4.72	21.61	2.26	28.59	46.0	-17.41	297	1.81
777.84	4.89	22.12	2.62	29.63	46.0	-16.37	309	1.69
847.68	5.17	23.15	3.02	31.33	46.0	-14.67	266	1.47
933.04	5.46	24.03	4.22	33.71	46.0	-12.29	317	1.21

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.35	1.18	11.70	5.23	18.11	40.0	-21.89	29	1.08
622.64	4.23	20.06	2.64	26.94	46.0	-19.06	12	2.83
704.12	4.57	20.89	2.87	28.33	46.0	-17.67	300	3.08
828.28	5.10	22.80	2.42	30.32	46.0	-15.68	256	3.47
902.00	5.34	23.34	3.42	32.10	46.0	-13.90	263	3.70
954.38	5.54	24.43	3.34	33.32	46.0	-12.68	199	3.86

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	56 %RH
Tested By:	Jeff Lo	Tested Mode:	Link
Receiver Detector:	Q.P. or AV.	Modulation Type:	GFSK
Frequency Range:	30 M – 1 GHz	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
91.08	1.46	9.00	10.91	21.37	43.5	-22.13	308	3.81
573.08	4.04	19.31	3.45	26.80	46.0	-19.20	109	2.32
680.84	4.47	20.64	2.59	27.70	46.0	-18.30	247	1.99
786.60	4.93	22.19	2.83	29.95	46.0	-16.05	134	1.66
841.86	5.15	23.04	2.35	30.53	46.0	-15.47	29	1.49
944.68	5.51	24.27	3.85	33.62	46.0	-12.38	306	1.17

Antenna Polarization：Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
56.61	1.18	11.70	5.89	18.77	40.0	-21.23	188	1.08
754.56	4.80	21.93	2.86	29.59	46.0	-16.41	206	3.24
793.36	4.96	22.24	2.69	29.89	46.0	-16.11	303	3.36
861.26	5.21	23.22	2.61	31.05	46.0	-14.96	222	3.57
878.72	5.26	23.26	2.83	31.35	46.0	-14.65	17	3.62
944.68	5.51	24.27	4.14	33.91	46.0	-12.09	294	3.83

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Tx-1
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2834.37	-30.80	29.94	45.45	34.86	44.58	33.99	74.00	54.00	-29.42	-20.01	244	1.95
3344.13	-30.05	31.29	44.44	33.17	45.68	34.41	74.00	54.00	-28.32	-19.59	328	1.80
3909.64	-29.38	32.58	43.81	32.28	47.01	35.48	74.00	54.00	-26.99	-18.52	300	1.63
4109.57	-29.17	32.80	44.10	33.59	47.73	37.22	74.00	54.00	-26.27	-16.78	209	1.57
5400.11	-27.11	34.56	42.52	31.51	49.97	38.96	74.00	54.00	-24.03	-15.04	117	1.18
5805.82	-27.47	34.64	41.98	30.82	49.14	37.98	74.00	54.00	-24.86	-16.02	302	1.06

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2000.13	-31.63	27.20	46.51	35.81	42.08	31.38	74.00	54.00	-31.92	-22.62	259	1.30
2974.38	-30.71	30.50	44.72	32.04	44.51	31.83	74.00	54.00	-29.49	-22.17	311	1.59
3449.72	-29.85	31.50	45.16	34.73	46.80	36.37	74.00	54.00	-27.20	-17.63	263	1.73
4074.38	-29.21	32.80	44.50	33.89	48.09	37.48	74.00	54.00	-25.91	-16.52	149	1.92
4509.91	-28.71	32.82	41.76	30.50	45.87	34.61	74.00	54.00	-28.13	-19.39	54	2.05
5404.38	-27.10	34.57	42.68	31.27	50.15	38.74	74.00	54.00	-23.85	-15.26	332	2.32

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Tx-1(Fundamental)
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2402.00	-31.15	28.33	80.41	68.95	77.59	66.13	114.0	94.00	-36.41	-27.87	214	2.08
4804.00	-28.48	33.53	41.63	30.44	46.68	35.49	74.00	54.00	-27.32	-18.51	322	1.99
7206.00	-27.05	36.59	39.92	29.38	49.46	38.92	74.00	54.00	-24.54	-15.08	87	1.84
9608.00	-25.66	38.21	36.06	25.42	48.60	37.96	74.00	54.00	-25.40	-16.04	92	1.75
12010.00	-23.89	39.30	34.08	23.67	49.49	39.08	74.00	54.00	-24.51	-14.92	137	1.61
14412.00	-21.16	40.91	43.15	30.12	62.90	49.87	74.00	54.00	-11.10	-4.13	259	1.59

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2402.00	-31.15	28.33	75.61	64.38	72.79	61.56	114.0	94.00	-41.21	-32.44	183	1.42
4804.00	-28.48	33.53	40.76	29.92	45.81	34.97	74.00	54.00	-28.19	-19.03	264	1.55
7206.00	-27.05	36.59	40.17	29.83	49.71	39.37	74.00	54.00	-24.29	-14.63	259	1.69
9608.00	-25.66	38.21	36.17	25.95	48.71	38.49	74.00	54.00	-25.29	-15.51	101	1.78
12010.00	-23.89	39.30	33.65	23.11	49.06	38.52	74.00	54.00	-24.94	-15.48	312	1.89
14412.00	-21.16	40.91	40.91	29.75	60.66	49.50	74.00	54.00	-13.34	-4.50	59	2.03

NOTE:

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Tx-2
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2839.11	-30.80	29.96	44.42	33.12	43.58	32.28	74.00	54.00	-30.42	-21.72	243	1.95
3209.85	-30.30	31.02	45.58	34.63	46.30	35.35	74.00	54.00	-27.70	-18.65	159	1.84
3994.13	-29.31	32.79	44.92	33.81	48.40	37.29	74.00	54.00	-25.60	-16.71	263	1.60
4370.62	-28.87	32.80	42.18	31.01	46.11	34.94	74.00	54.00	-27.89	-19.06	222	1.49
5309.24	-27.39	34.43	42.57	31.93	49.62	38.98	74.00	54.00	-24.38	-15.02	177	1.21
5629.78	-27.09	34.67	41.75	32.89	49.33	40.47	74.00	54.00	-24.67	-13.53	38	1.11

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2000.11	-31.63	27.20	46.10	35.10	41.67	30.67	74.00	54.00	-32.33	-23.33	259	1.30
3029.38	-30.64	30.66	45.91	34.36	45.93	34.38	74.00	54.00	-28.07	-19.62	188	1.61
3464.22	-29.83	31.53	44.16	33.89	45.86	35.59	74.00	54.00	-28.14	-18.41	256	1.74
3909.84	-29.38	32.58	43.89	32.28	47.09	35.48	74.00	54.00	-26.91	-18.52	144	1.87
4429.29	-28.80	32.80	41.73	31.41	45.73	35.41	74.00	54.00	-28.27	-18.59	309	2.03
5394.07	-27.13	34.55	42.64	31.11	50.06	38.53	74.00	54.00	-23.94	-15.47	224	2.32

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Tx-2(Fundamental)
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2440.00	-31.10	28.43	83.78	71.42	81.11	68.75	114.0	94.00	-32.89	-25.25	313	2.11
4880.00	-28.42	33.71	41.21	30.48	46.51	35.78	74.00	54.00	-27.49	-18.22	244	2.03
7320.00	-26.98	36.87	39.23	29.57	49.12	39.46	74.00	54.00	-24.88	-14.54	259	1.95
9760.00	-25.43	38.36	36.47	25.59	49.40	38.52	74.00	54.00	-24.60	-15.48	188	1.88
12200.00	-23.39	39.30	33.43	23.63	49.34	39.54	74.00	54.00	-24.66	-14.46	301	1.79
14640.00	-21.26	40.36	39.87	28.81	58.97	47.91	74.00	54.00	-15.03	-6.09	297	1.62

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2440.00	-31.10	28.43	83.28	70.92	80.61	68.25	114.0	94.00	-33.39	-25.75	23	1.53
4880.00	-28.42	33.71	40.95	29.89	46.25	35.19	74.00	54.00	-27.75	-18.81	119	1.69
7320.00	-26.98	36.87	40.11	30.11	50.00	40.00	74.00	54.00	-24.00	-14.00	264	1.75
9760.00	-25.43	38.36	38.58	28.79	51.51	41.72	74.00	54.00	-22.49	-12.28	222	1.82
12200.00	-23.39	39.30	33.86	23.43	49.77	39.34	74.00	54.00	-24.23	-14.66	315	1.96
14640.00	-21.26	40.36	39.73	29.54	58.83	48.64	74.00	54.00	-15.17	-5.36	8	2.04

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Tx-3
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2000.13	-31.63	27.20	46.11	35.85	41.68	31.42	74.00	54.00	-32.32	-22.58	47	2.20
3065.44	-30.57	30.73	45.58	34.22	45.74	34.38	74.00	54.00	-28.26	-19.62	213	1.88
3685.73	-29.59	32.04	45.11	34.79	47.56	37.24	74.00	54.00	-26.44	-16.76	255	1.69
4160.24	-29.11	32.80	43.93	32.92	47.62	36.61	74.00	54.00	-26.38	-17.39	156	1.55
4650.22	-28.60	33.16	43.21	32.15	47.77	36.71	74.00	54.00	-26.23	-17.29	312	1.40
5500.09	-26.81	34.70	42.23	31.45	50.12	39.34	74.00	54.00	-23.88	-14.66	244	1.15

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3140.44	-30.43	30.88	45.47	34.63	45.92	35.08	74.00	54.00	-28.08	-18.92	204	1.64
3525.85	-29.74	31.66	44.79	33.22	46.71	35.14	74.00	54.00	-27.29	-18.86	109	1.76
4095.43	-29.19	32.80	44.45	33.83	48.06	37.44	74.00	54.00	-25.94	-16.56	45	1.93
4665.12	-28.59	33.20	43.26	32.15	47.87	36.76	74.00	54.00	-26.13	-17.24	273	2.10
5425.76	-27.04	34.59	42.10	31.47	49.66	39.03	74.00	54.00	-24.34	-14.97	256	2.33
5800.14	-27.46	34.64	42.10	30.99	49.28	38.17	74.00	54.00	-24.72	-15.83	97	2.44

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Tx-3(Fundamental)
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2480.00	-31.05	28.54	84.07	71.41	81.56	68.90	114.0	94.00	-32.44	-25.10	123	2.03
4960.00	-28.35	33.90	40.52	30.59	46.07	36.14	74.00	54.00	-27.93	-17.86	5	1.94
7440.00	-26.90	37.16	37.30	26.53	47.56	36.79	74.00	54.00	-26.44	-17.21	18	1.88
9920.00	-25.18	38.52	35.50	24.84	48.84	38.18	74.00	54.00	-25.16	-15.82	229	1.76
12400.00	-22.86	39.30	31.87	21.43	48.31	37.87	74.00	54.00	-25.69	-16.13	278	1.69
14880.00	-21.45	39.79	41.74	30.99	60.07	49.32	74.00	54.00	-13.93	-4.68	316	1.50

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
2480.00	-31.05	28.54	83.60	71.49	81.09	68.98	114.0	94.00	-32.91	-25.02	215	1.41
4960.00	-28.35	33.90	41.05	30.88	46.60	36.43	74.00	54.00	-27.40	-17.57	305	1.59
7440.00	-26.90	37.16	37.24	26.83	47.50	37.09	74.00	54.00	-26.50	-16.91	44	1.67
9920.00	-25.18	38.52	36.36	25.59	49.70	38.93	74.00	54.00	-24.30	-15.07	117	1.78
12400.00	-22.86	39.30	34.20	23.34	50.64	39.78	74.00	54.00	-23.36	-14.22	341	1.82
14880.00	-21.45	39.79	41.94	30.78	60.27	49.11	74.00	54.00	-13.73	-4.89	109	1.99

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Standby
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3020.44	-30.65	30.64	47.76	37.47	47.75	37.46	74.00	54.00	-26.25	-16.54	213	1.89
3345.00	-30.05	31.29	46.40	35.85	47.64	37.09	74.00	54.00	-26.36	-16.91	248	1.80
3910.82	-29.38	32.58	45.21	34.12	48.41	37.32	74.00	54.00	-25.59	-16.68	104	1.63
4700.13	-28.56	33.28	43.30	32.33	48.02	37.05	74.00	54.00	-25.98	-16.95	338	1.39
5075.24	-28.09	34.10	42.84	31.51	48.85	37.52	74.00	54.00	-25.15	-16.48	259	1.28
5510.91	-26.83	34.70	42.92	31.29	50.79	39.16	74.00	54.00	-23.21	-14.84	105	1.15

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3325.24	-30.09	31.25	46.62	35.26	47.78	36.42	74.00	54.00	-26.22	-17.58	37	1.70
3895.47	-29.40	32.55	44.31	33.83	47.46	36.98	74.00	54.00	-26.54	-17.02	156	1.87
4255.61	-29.00	32.80	43.21	32.12	47.01	35.92	74.00	54.00	-26.99	-18.08	122	1.98
4705.38	-28.56	33.29	42.80	31.53	47.54	36.27	74.00	54.00	-26.46	-17.73	316	2.11
5345.73	-27.28	34.48	42.56	32.28	49.76	39.48	74.00	54.00	-24.24	-14.52	211	2.30
5830.09	-27.53	34.63	42.57	31.91	49.67	39.01	74.00	54.00	-24.33	-14.99	177	2.45

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	22 °C	Humidity:	56 %RH
Receiver Detector:	PK. or AV.	Tested Mode:	Link
Frequency Range:	1 GHz – 25 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 18, 2013

Antenna Polarization：Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3750.68	-29.53	32.20	44.93	34.38	47.60	37.05	74.00	54.00	-26.40	-16.95	124	1.67
3955.63	-29.34	32.69	45.22	34.12	48.57	37.47	74.00	54.00	-25.43	-16.53	138	1.61
4265.48	-28.99	32.80	43.83	32.29	47.64	36.10	74.00	54.00	-26.36	-17.90	259	1.52
4950.43	-28.36	33.88	42.85	31.51	48.37	37.03	74.00	54.00	-25.63	-16.97	163	1.31
5230.14	-27.63	34.32	43.82	33.86	50.52	40.56	74.00	54.00	-23.48	-13.44	117	1.23
5775.69	-27.41	34.65	43.45	32.57	50.69	39.81	74.00	54.00	-23.31	-14.19	25	1.07

Antenna Polarization：Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
3355.10	-30.03	31.31	45.52	34.38	46.80	35.66	74.00	54.00	-27.20	-18.34	105	1.71
4170.72	-29.10	32.80	43.71	32.12	47.41	35.82	74.00	54.00	-26.59	-18.18	312	1.95
4630.84	-28.62	33.11	44.09	32.93	48.59	37.43	74.00	54.00	-25.41	-16.57	266	2.09
5030.19	-28.23	34.04	43.79	31.41	49.60	37.22	74.00	54.00	-24.40	-16.78	188	2.21
5570.86	-26.96	34.69	42.56	32.79	50.28	40.51	74.00	54.00	-23.72	-13.49	141	2.37
5865.57	-27.61	34.63	43.30	33.01	50.32	40.03	74.00	54.00	-23.68	-13.97	327	2.46

NOTE :

1. Measurement uncertainty is +/- 4.73dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

4.2 6dB Bandwidth

4.2.1 LIMIT

FCC Part15, Subpart C Section 15.247 (a)(2). The minimum 6dB bandwidth shall be at least 500 kHz.

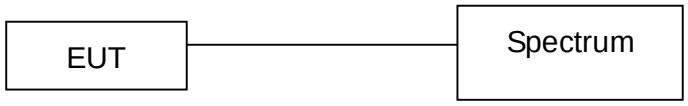
4.2.2 TEST EQUIPMENT

The following test equipment was used during the test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM ANALYZER	9 kHz ~ 40 GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC

NOTE : The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.2.4 TEST PROCEDURE

The EUT was operated in hopping mode or any specific channel.
Printed out the test result from the spectrum by hard copy function.

4.2.5 EUT OPERATING CONDITION

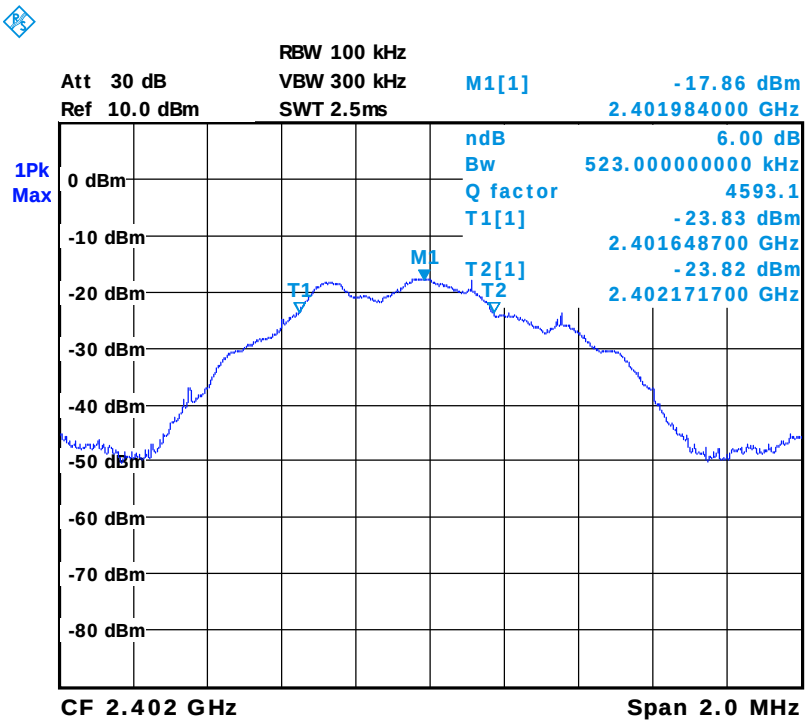
1. Set the EUT under continuous transmission condition.
2. The EUT was set to the highest available power level.

4.2.6 TEST RESULT

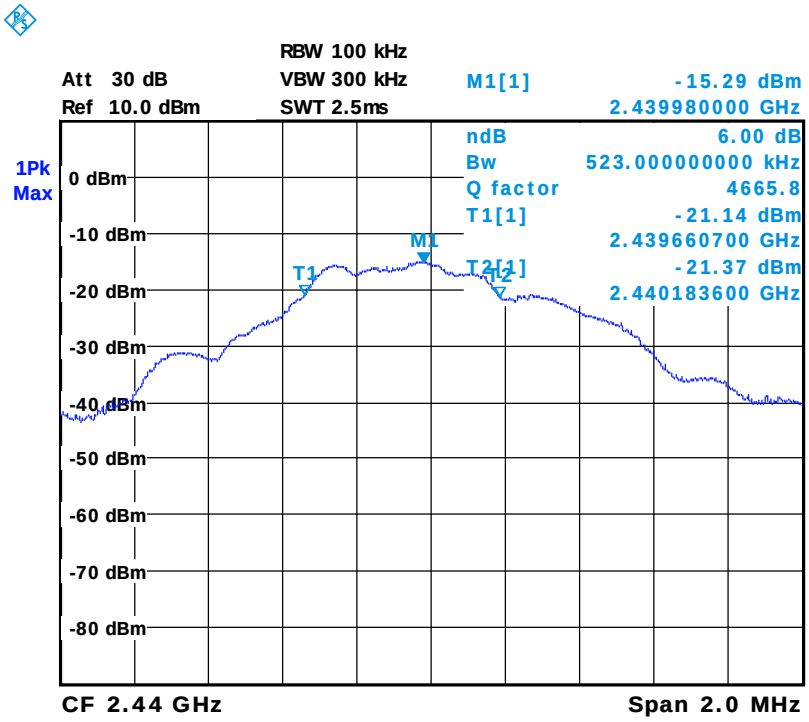
Temperature:	21°C	Humidity:	58%RH
Spectrum Detector:	PK	Tested by:	Jeff Lo
Test Result:	PASS	Tested Date:	Feb. 20, 2013

Channel Number	Channel Frequency (MHz)	6dB Down Bandwidth (KHz)	Limit	Pass/Fail
CH01	2402	523.0	>500	Pass
CH20	2440	523.0	>500	Pass
CH40	2480	582.8	>500	Pass

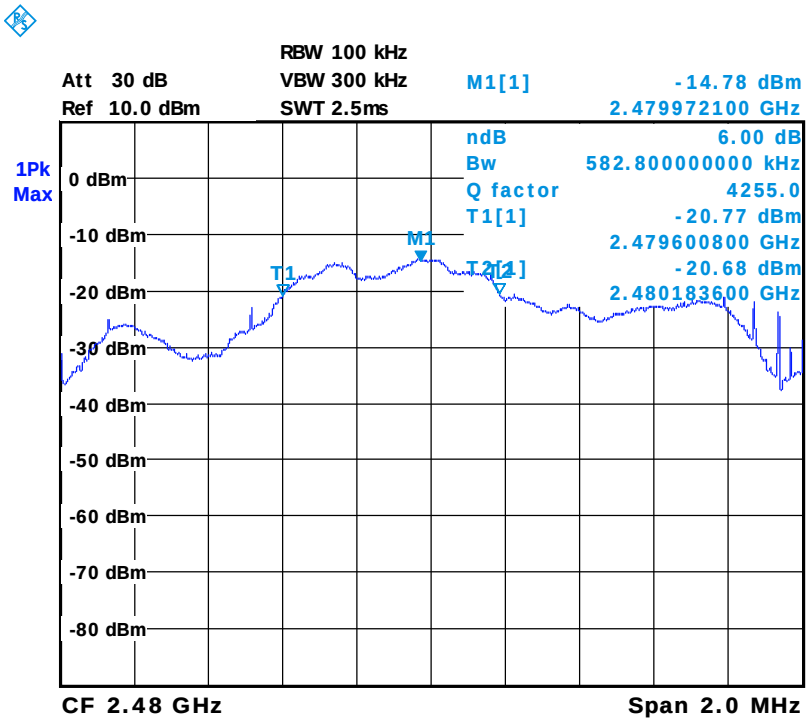
CH01：



CH20：


RBW 100 kHz
Att 30 dB
VBW 300 kHz
M1[1]
-15.29 dBm
Ref 10.0 dBm
SWT 2.5ms
2.439980000 GHz
ndB
6.00 dB
Bw
523.000000000 kHz
Q factor
4665.8
T1[1]
-21.14 dBm
2.439660700 GHz
T2[1]
-21.37 dBm
2.440183600 GHz
1Pk
Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
T1
T2
CF 2.44 GHz
Span 2.0 MHz

CH40：


RBW 100 kHz
Att 30 dB
VBW 300 kHz
M1[1]
-14.78 dBm
Ref 10.0 dBm
SWT 2.5ms
2.479972100 GHz
ndB
6.00 dB
Bw
582.800000000 kHz
Q factor
4255.0
T1[1]
-20.77 dBm
2.479600800 GHz
T2[1]
-20.68 dBm
2.480183600 GHz
1Pk
Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
T1
T2
CF 2.48 GHz
Span 2.0 MHz

4.3 PEAK POWER TEST

4.3.1 LIMIT

FCC Part15, Subpart C Section 15.247(b).

Frequency Range (MHz)	Limit(W)				
	Quantity of Hopping Channel	50	25	15	75
902-928		1(30 dBm)	0.125(21 dBm)	NA	NA
2400-2483.5		NA	NA	0.125(21dBm)	1(30 dBm)
5725-5850		NA	NA	NA	1(30 dBm)

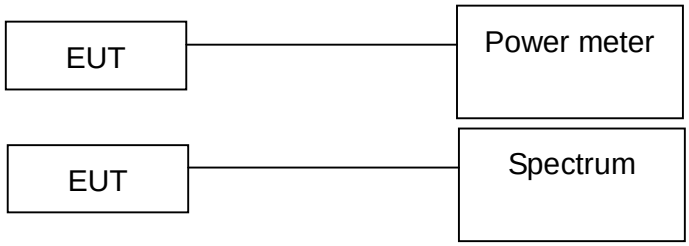
4.3.2 TEST EQUIPMENT

The following test equipment was used during the test：

Equipment/ Facilities	Specifications	Manufacturer	Model#/ Serial#	Due Date of Cal. & Cal. Center
SPECTRUM ANALYZER	9 kHz ~ 40 GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC
POWER SENSOR	100 kHz ~ 18 GHz	BOONTON	51015(5E) / 32966	MAR. 2013 ETC
POWER METER	10 kHz ~ 100 GHz	BOONTON	4232A / 115702	NOV. 2013 ETC

NOTE : The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.3.4 TEST PROCEDURE

The EUT was operating in hopping mode or could control its channel.
Printed out the test result from the spectrum by hard copy function.
Recorded the read value of the power meter.

4.3.5 EUT OPERATING CONDITION

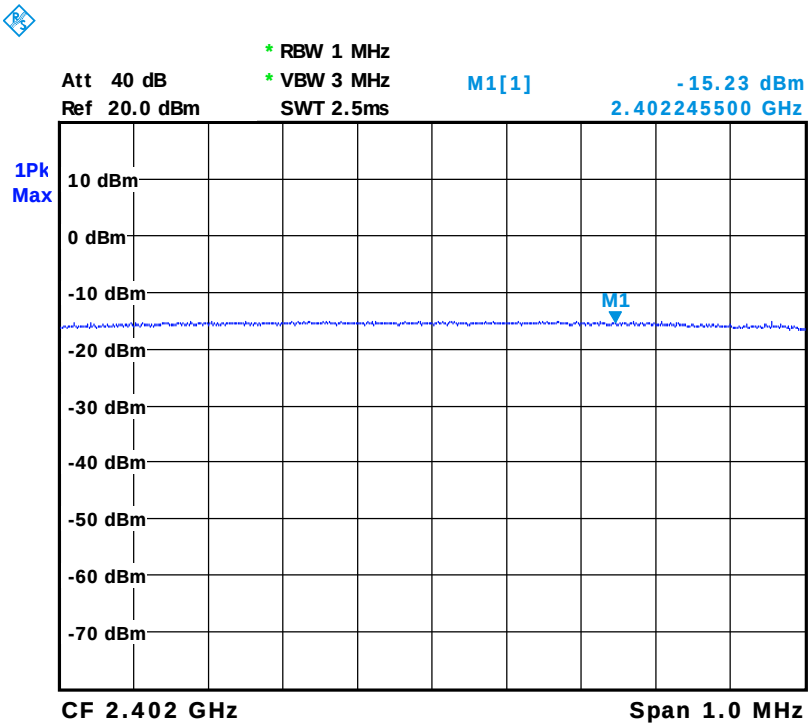
1. Set the EUT under frequency hopping transmission condition.
2. The EUT was set to the highest available power level.

4.3.6 TEST RESULT

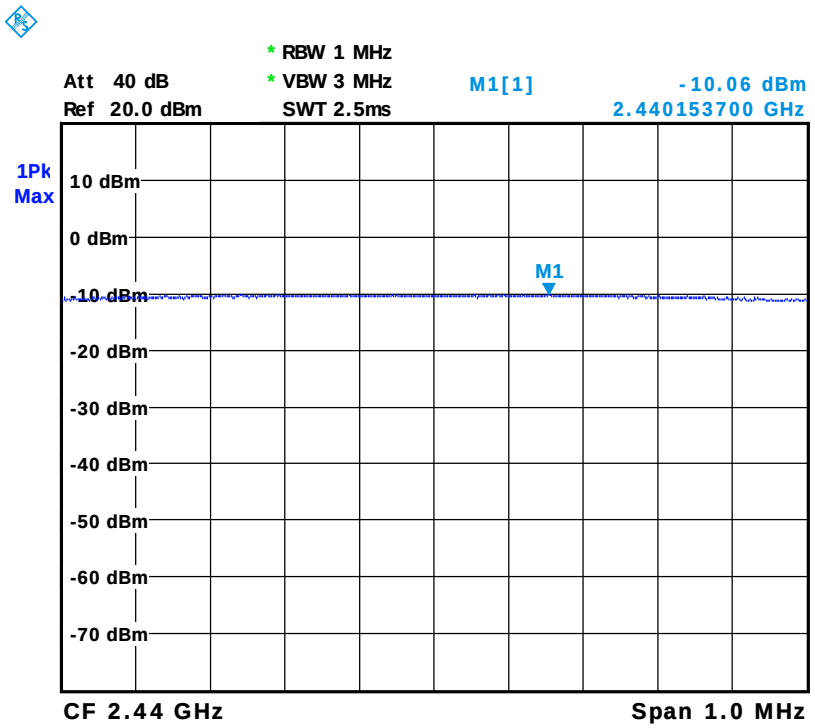
Temperature:	21°C	Humidity:	58%RH
Spectrum Detector:	PK	Tested by:	Jeff Lo
Test Result:	PASS	Tested Date:	Feb. 20, 2013

Channel Number	Channel Frequency (MHz)	Peak Output Power (dBm)	Peak Power Limit (dBm)
CH01	2402	-15.23	21
CH20	2440	-10.06	21
CH40	2480	-11.15	21

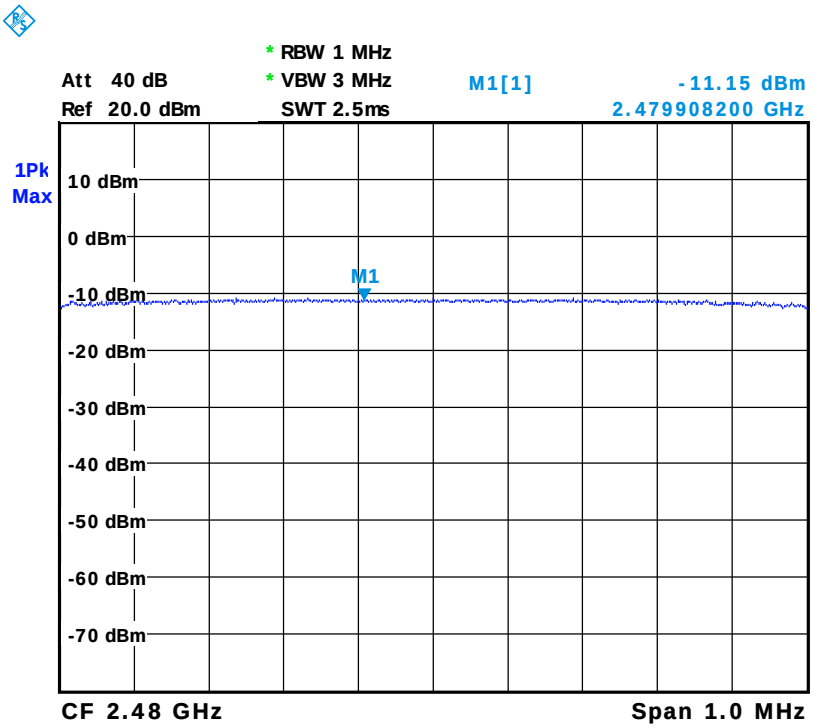
CH01：



CH20：


* RBW 1 MHz
Att 40 dB
* VBW 3 MHz
M1[1]
-10.06 dBm
Ref 20.0 dBm
SWT 2.5ms
2.440153700 GHz
1Pk
Max
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.44 GHz
Span 1.0 MHz

CH40：


* RBW 1 MHz
Att 40 dB
* VBW 3 MHz
M1[1]
-11.15 dBm
Ref 20.0 dBm
SWT 2.5ms
2.479908200 GHz
1Pk
Max
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.48 GHz
Span 1.0 MHz

4.4 BAND EDGE TEST

4.4.1 LIMIT

FCC Part15, Subpart C Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

OPERATING FREQUENCY RANGE (MHz)	SPURIOUS EMISSION FREQUENCY (MHz)	LIMIT	
		Peak power ration to emission(dBc)	Emission level(dBuV/m)
902 - 928	<902	>20	NA
	>928	>20	NA
	960-1240	NA	54
2400 - 2483.5	<2400	>20	NA
	>2483.5-2500	NA	54
5725 - 5850	<5350-5460	NA	54
	<5725	>20	NA
	>5850	>20	NA

4.4.2 TEST EQUIPMENT

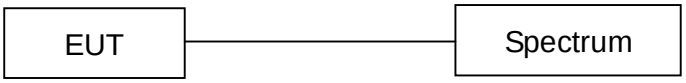
The following test equipment was used during the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM ANALYZER	9 kHz ~ 7GHz	ROHDE & SCHWARZ	FSP7 / 100289	APR. 2013 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	DEC. 2013 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 2013 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	APR. 2013 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	MAY. 2013 SRT
RF CABLE	UP TO 18 GHz	JYEBAO	A30A30-L 142 / EQF-0035(001)	DEC. 2013 ETC
RF CABLE	UP TO 18 GHz	JYEBAO	A30A30-L 142 / EQF-0036(002)	DEC. 2013 ETC
K-TYPE CABLE	UP TO 40 GHz	HUBER+SUHNER	SF 102-40/2*11/ 23934/2	OCT. 2013 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943/ 869	NCR

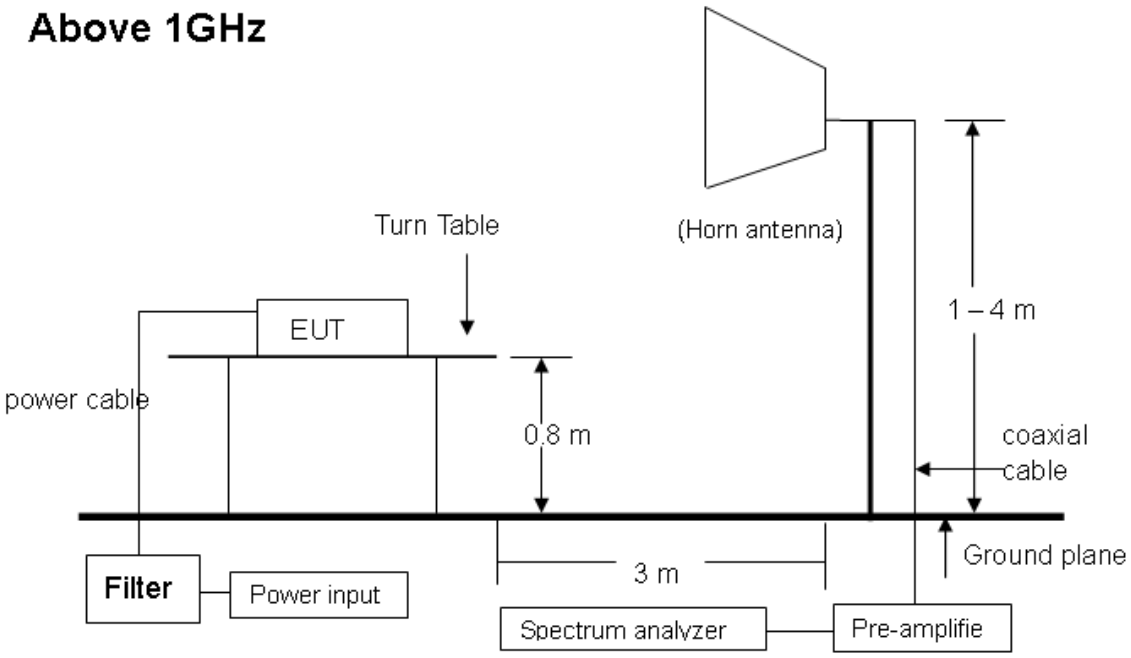
NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST SETUP

FOR RF CONDUCTED TEST (dBc)



The EUT was connected to a spectrum through a 50Ω RF cable.



NOTE: The EUT system was put on a wooden table with 0.8m heights above a ground plane. For the actual test configuration, please refer to the photos of testing.

4.4.4 TEST PROCEDURE

1. The EUT was operating in continuous transmission mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.
2. The EUT was tested according to the requirement of ANSI C63.4 and CISPR 22. The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz. All readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak and average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.

4.4.5 EUT OPERATING CONDITION

1. Set the EUT under continuous transmission condition.
2. The EUT was set to the highest available power level.

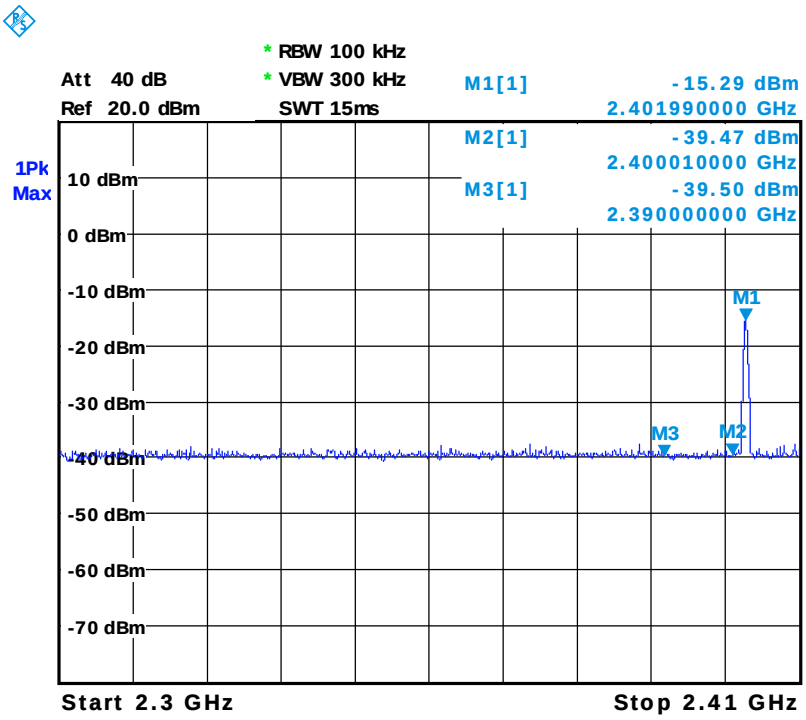
4.4.6 TEST RESULT

Temperature:	23 °C	Humidity:	60 %RH
Receiver Detector:	PK.	Tested Mode:	Tx-1, Tx-3
Frequency Range:	2.3 GHz – 2.5 GHz	Modulation Type:	GFSK
Tested By:	Jeff Lo	Tested Date:	Feb. 21, 2013

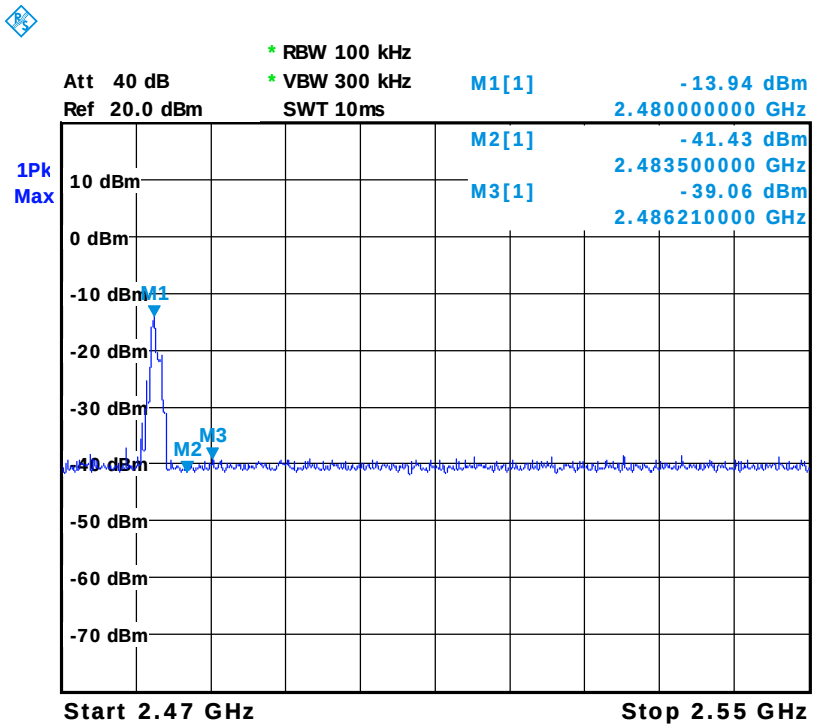
1. Conducted test

Frequency (MHz)	PEAK POWER OUTPUT (dBm)	Emission read Value(dBm)	Result of Band edge (dBc)	Band edge LIMIT (dBc)
<2400	-15.29	-39.50	24.21	>20dBc
>2483.5	-13.94	-39.06	25.12	>20dBc

Below 2400MHz：



Above 2483.5 MHz：

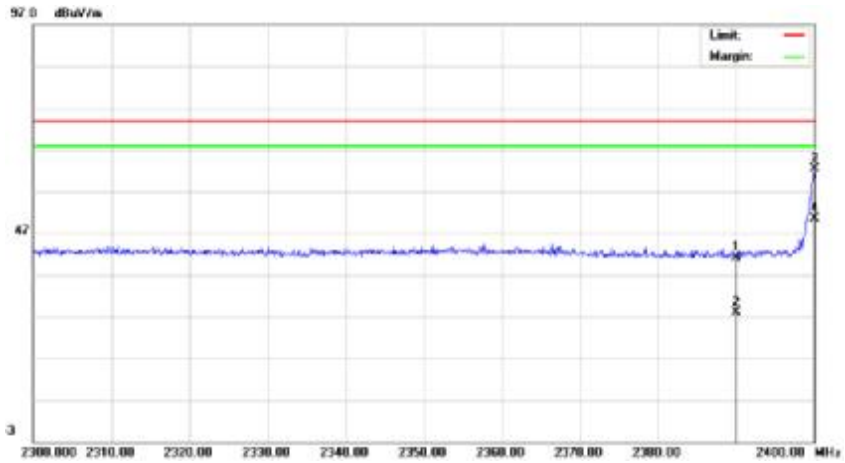


2. Radiated emission test：

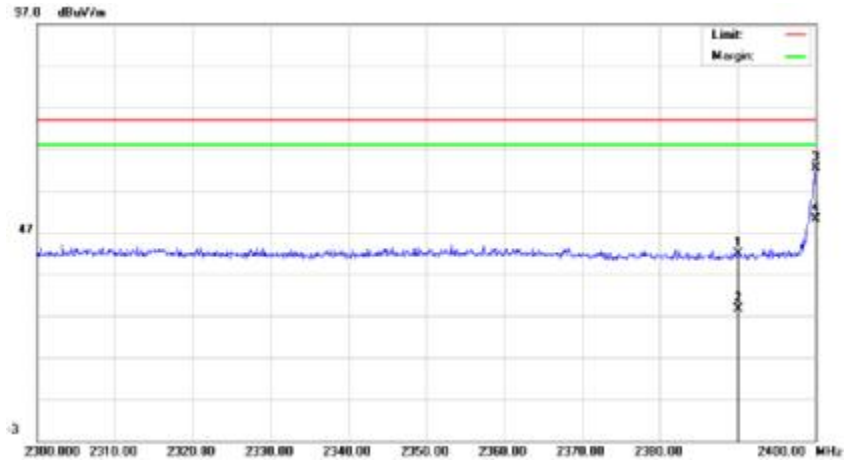
Below 2400MHz (mode 1 of 2402MHz emission)

Frequency (MHz)	Correct Factor (dB)	Ant. Fac. (dB)	Ant. Pol. (H/V)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Over Limit (dBuV/m)	
				PK	AV	PK	AV	PK	AV	PK	AV
2402.00	-31.15	28.33	H	80.41	68.95	77.59	66.13	114.00	94.00	-36.41	-27.87
2402.00	-31.15	28.33	V	75.61	64.38	72.79	61.56	114.00	94.00	-41.21	-32.44
2400.00	-31.15	28.32	H	65.04	53.01	62.21	50.18	74.00	54.00	-11.79	-3.82
2400.00	-31.15	28.32	V	65.15	52.91	62.32	50.08	74.00	54.00	-11.68	-3.92
2390.00	-31.16	28.29	H	43.87	30.53	41.00	27.66	74.00	54.00	-33.00	-26.34
2390.00	-31.16	28.29	V	44.70	31.33	41.83	28.46	74.00	54.00	-32.17	-25.54

Horizontal：



Vertical：

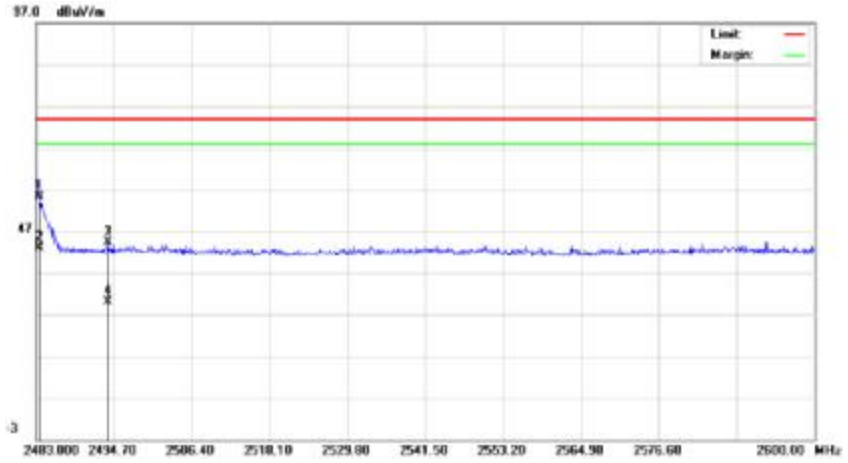


About 2483.5MHz (mode 3 of 2480MHz emission)

Frequency (MHz)	Correct Factor (dB)	Ant. Fac. (dB)	Ant. Pol. (H/V)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Over Limit (dBuV/m)	
				PK	AV	PK	AV	PK	AV	PK	AV
2480.00	-31.05	28.54	H	84.07	71.41	81.56	68.90	114.00	94.00	-32.44	-25.10
2480.00	-31.05	28.54	V	83.60	71.49	81.09	68.98	114.00	94.00	-32.91	-25.02
2483.50	-31.05	28.55	H	59.64	45.45	57.14	42.95	74.00	54.00	-16.86	-11.05
2483.50	-31.05	28.55	V	57.85	45.63	55.35	43.13	74.00	54.00	-18.65	-10.87
2491.78	-31.04	28.57	H	46.11	33.22	43.64	30.75	74.00	54.00	-30.36	-23.25
2493.88	-31.04	28.58	V	46.79	32.48	44.33	30.02	74.00	54.00	-29.67	-23.98

Horizontal：

Vertical：



4.5 POWER DENSITY TEST

4.5.1 LIMIT

FCC Part15, Subpart C Section 15.247(e)

FREQUENCY RANGE (MHz)	Limit (dBm / kHz)
902-928	8 dBm / 3 kHz
2400-2483.5	
5725-5850	

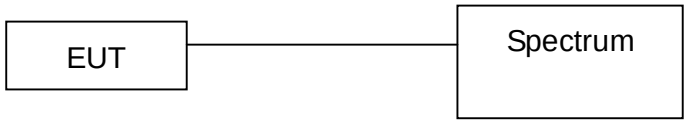
4.5.2 TEST EQUIPMENT

The following test equipment was used during the radiated emission test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM ANALYZER	9 kHz ~ 40 GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC

NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.5.4 TEST PROCEDURE

The EUT was operating in transmitter mode and could be controlled its channel.

Printed out the test result from the spectrum by hard copy function.

4.5.5 EUT OPERATING CONDITION

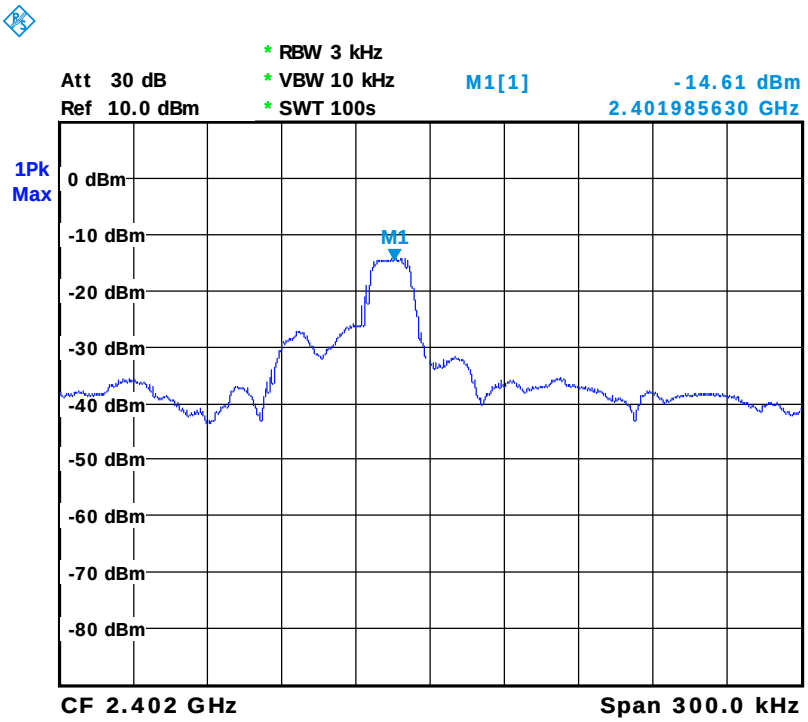
1. Set the EUT under continuous transmission condition.
2. The EUT was set to the highest available power level.

4.5.6 TEST RESULT

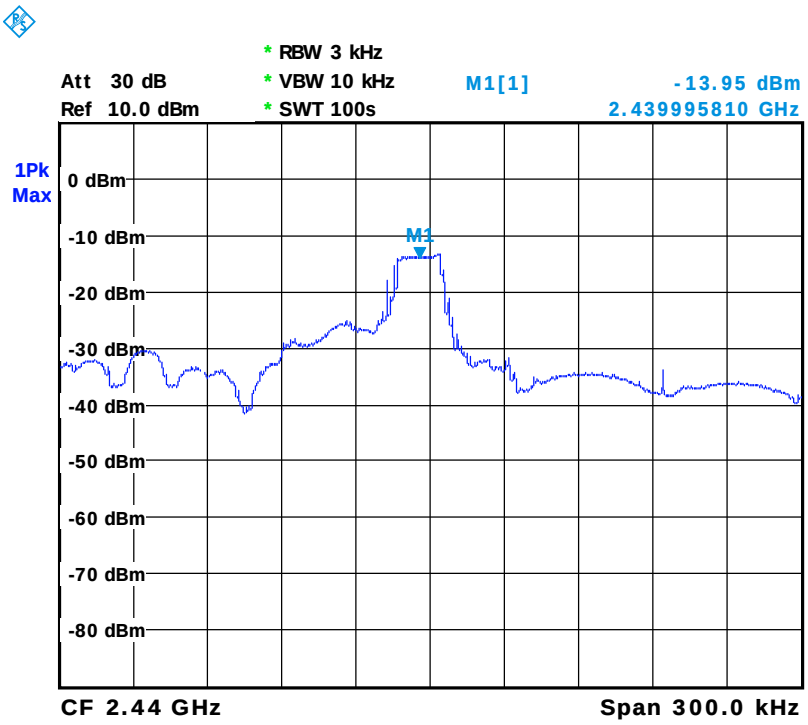
Temperature:	21°C	Humidity:	58%RH
Spectrum Detector:	PK.	Tesr Mode:	Tx-1, Tx-2, Tx-3
Tested By:	Jeff Lo	Modulation Type:	GFSK
Test Result:	PASS	Tested Date:	Feb. 20, 2013

Channel Number	Channel Frequency (MHz)	RF Power Level in 3 KHz BW (dBm/3kHz)	Maximum Limit (dBm/3kHz)
CH01	2402	-14.61	8
CH20	2440	-13.95	8
CH40	2480	-14.15	8

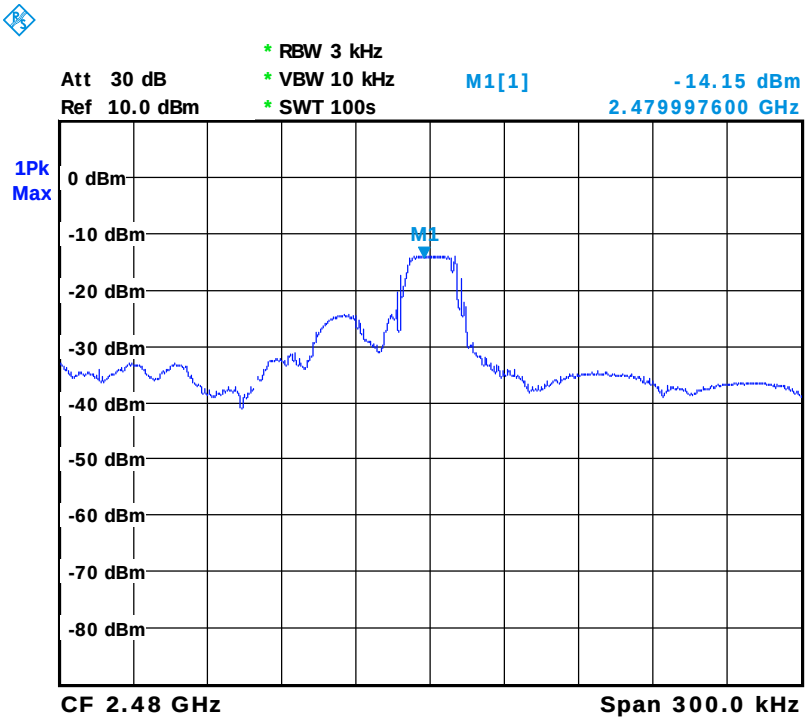
CH01：



CH20：


* RBW 3 kHz
Att 30 dB
* VBW 10 kHz
M1[1]
-13.95 dBm
Ref 10.0 dBm
* SWT 100s
2.439995810 GHz
1Pk
Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
CF 2.44 GHz
Span 300.0 kHz

CH40：


* RBW 3 kHz
Att 30 dB
* VBW 10 kHz
M1[1]
-14.15 dBm
Ref 10.0 dBm
* SWT 100s
2.479997600 GHz
1Pk
Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
CF 2.48 GHz
Span 300.0 kHz

4.6 20dB Bandwidth

4.6.1 LIMIT

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

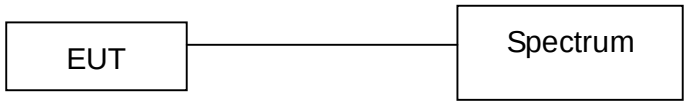
4.2.2 TEST EQUIPMENT

The following test equipment was used during the test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM ANALYZER	9 kHz ~ 40 GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC

NOTE： The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.6.4 TEST PROCEDURE

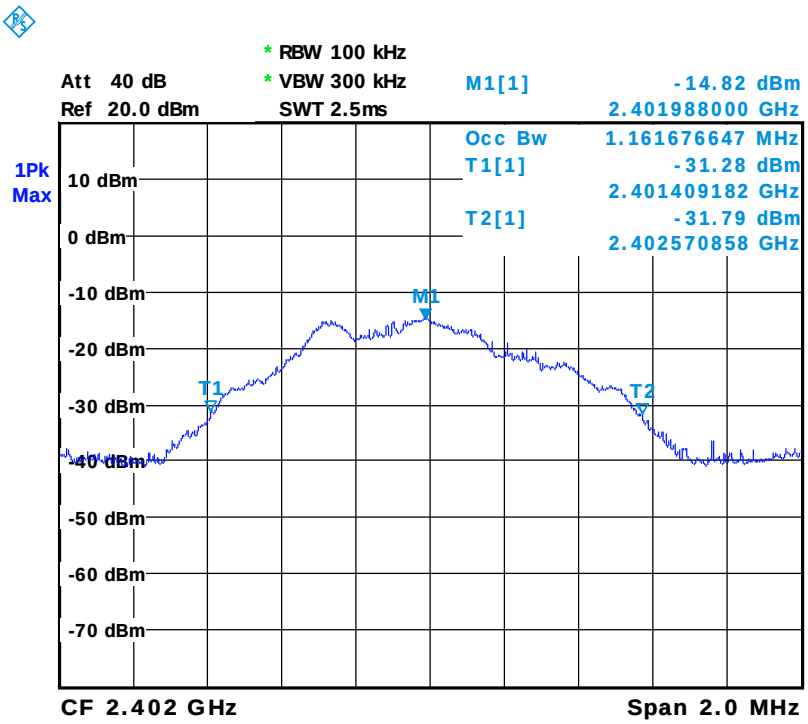
The EUT was operated in hopping mode or any specific channel.
Printed out the test result from the spectrum by hard copy function.

4.6.5 TEST RESULT

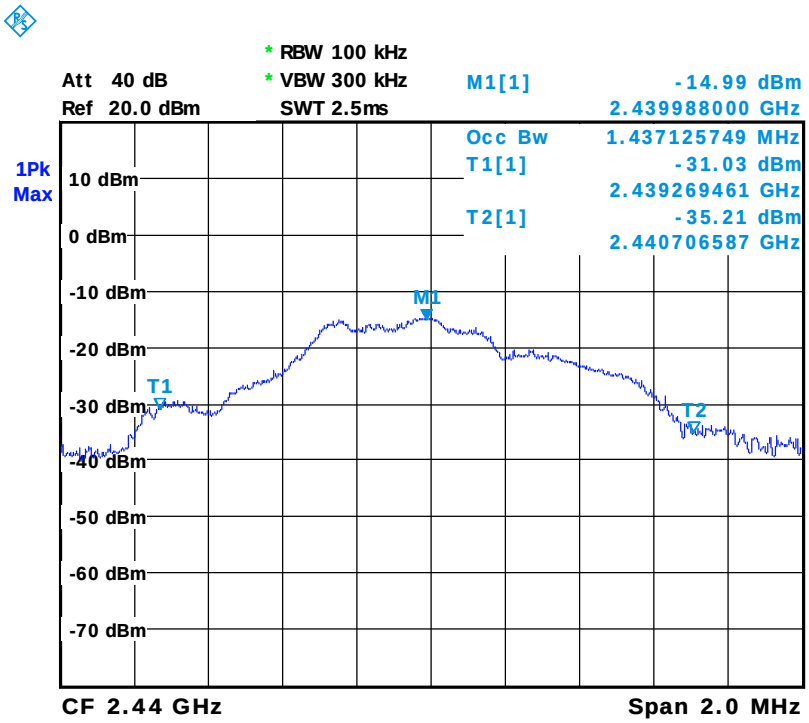
Temperature:	21°C	Humidity:	58%RH
Spectrum Detector:	PK	Tested by:	Jeff Lo
Test Result:	PASS	Tested Date:	Feb. 20, 2013

Channel Number	Channel Frequency (MHz)	20dB Down Bandwidth (KHz)
CH01	2402	1161.6
CH20	2440	1437.1
CH40	2480	1732.5

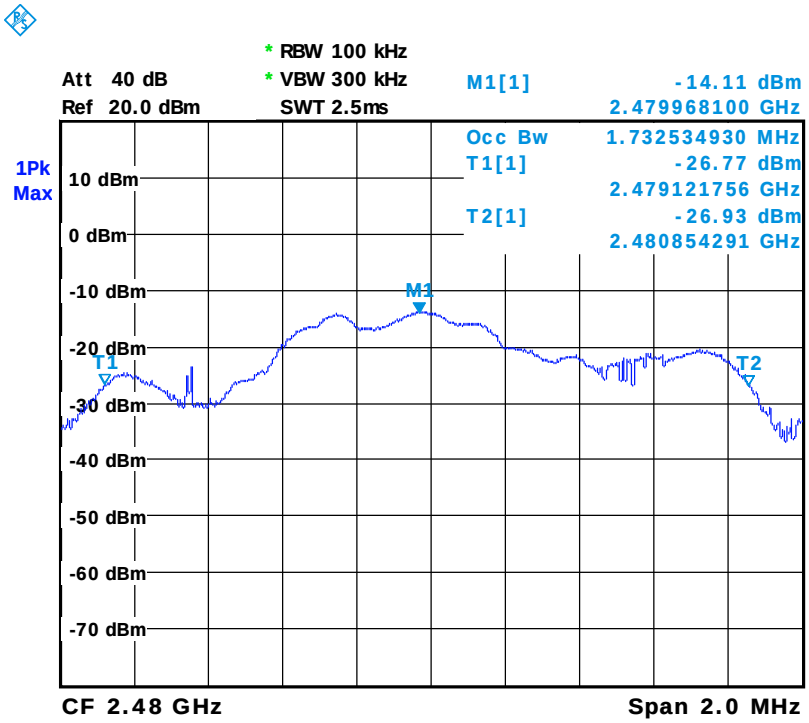
CH01：



CH20：


* RBW 100 kHz
Att 40 dB
* VBW 300 kHz
M1[1]
-14.99 dBm
Ref 20.0 dBm
SWT 2.5ms
2.439988000 GHz
Occ Bw
1.437125749 MHz
T1[1]
-31.03 dBm
2.439269461 GHz
T2[1]
-35.21 dBm
2.440706587 GHz
1Pk
Max
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 2.44 GHz
Span 2.0 MHz

CH40：


* RBW 100 kHz
Att 40 dB
* VBW 300 kHz
M1[1]
-14.11 dBm
Ref 20.0 dBm
SWT 2.5ms
2.479968100 GHz
Occ Bw
1.732534930 MHz
T1[1]
-26.77 dBm
2.479121756 GHz
T2[1]
-26.93 dBm
2.480854291 GHz
1Pk
Max
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 2.48 GHz
Span 2.0 MHz

4.7 TIME OF OCCUPANCY (DWELL TIME)

4.7.1 LIMIT

FCC Part15, Subpart C Section 15.247(a)(1)(iii).

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Frequency Range (MHz)	Limit (ms)		
	20dB Bandwidth <250kHZ(50Channel)	20dB Bandwidth >250kHZ(25Channel)	20dB Bandwidth <1MHz(75Channel)
902-928	400(20 s)	400(10 s)	NA
2400-2483.5	NA	NA	400(30 s)
5725-5850	NA	NA	400(30 s)

NOTE： The "()" is all channel's average time of occupancy.

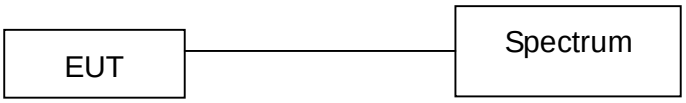
4.7.2 TEST EQUIPMENT

The following test equipment was used during the test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM ANALYZER	9 kHz ~ 40 GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC

NOTE： The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.7.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.7.4 TEST PROCEDURE

The EUT was operating in hopping mode or could be controlled its channel.

Printed out the test result from the spectrum by hard copy function.

4.7.5 EUT OPERATING CONDITION

1. Set the EUT under frequency hopping transmission condition.
2. The EUT was set to the highest available power level.

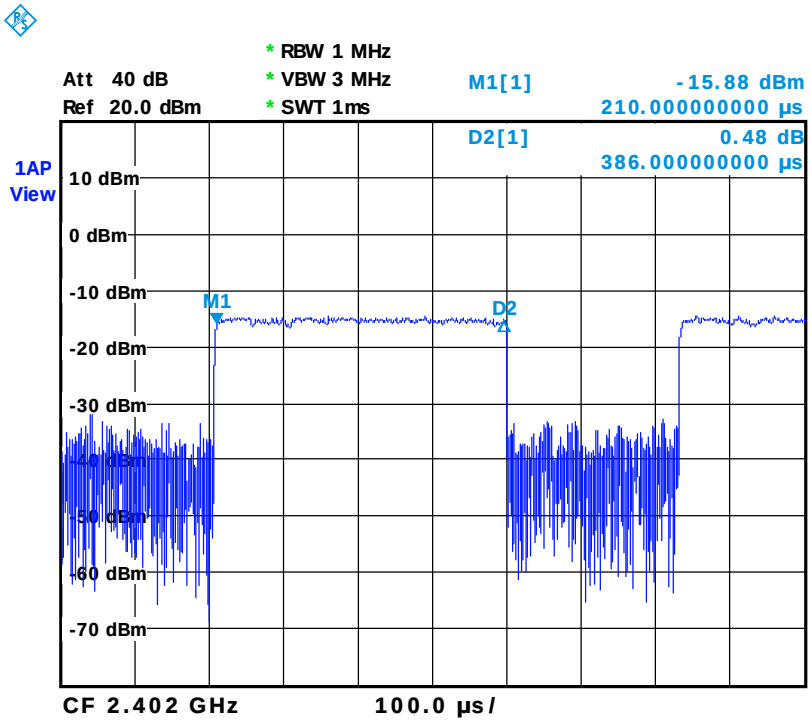
4.7.6 TEST RESULT

Temperature:	21°C	Humidity:	58%RH
Spectrum Detector:	PK	Tested by:	Jeff Lo
Test Result:	PASS	Tested Date:	Feb. 20, 2013

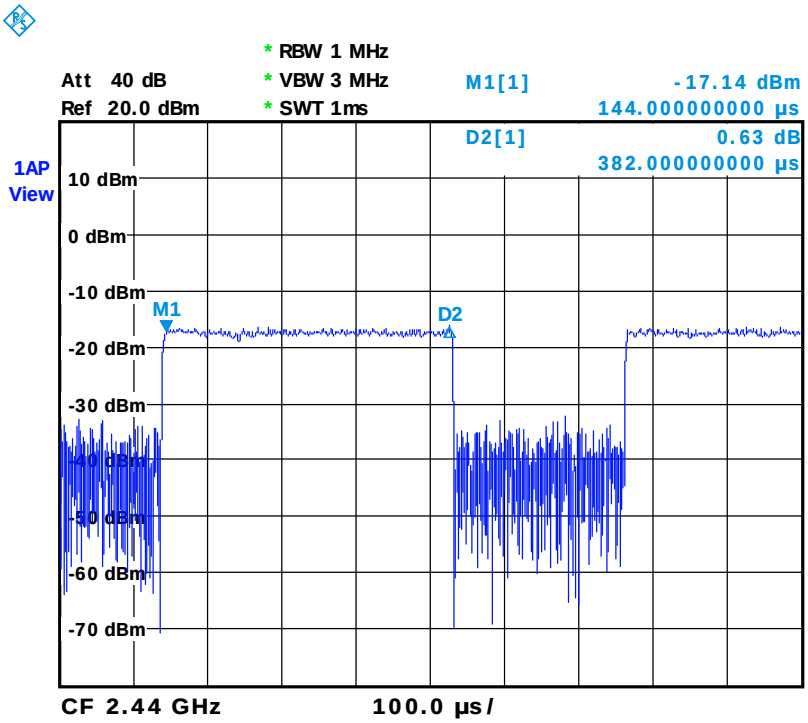
Channel Number	Channel Frequency (MHz)	Pulse Time (ms)	Period Time (s)	Time of Occupancy (Dwell Time) (ms)	Average Time of Occupancy Limit (ms)
CH01	2402	0.386	16	247.04	400
CH20	2440	0.382	16	244.48	400
CH40	2480	0.384	16	245.76	400

Note: Bluetooth Low Energy utilizes 40 channels
Period time = 0.4(ms) x 40 = 16 (s), Hopping number = 1600/s
CH01 = 0.386 (ms) x (1600 / 40) x 16 = 247.04 (ms)
CH20 = 0.382 (ms) x (1600 / 40) x 16 = 244.48 (ms)
CH40 = 0.384 (ms) x (1600 / 40) x 16 = 245.76 (ms)

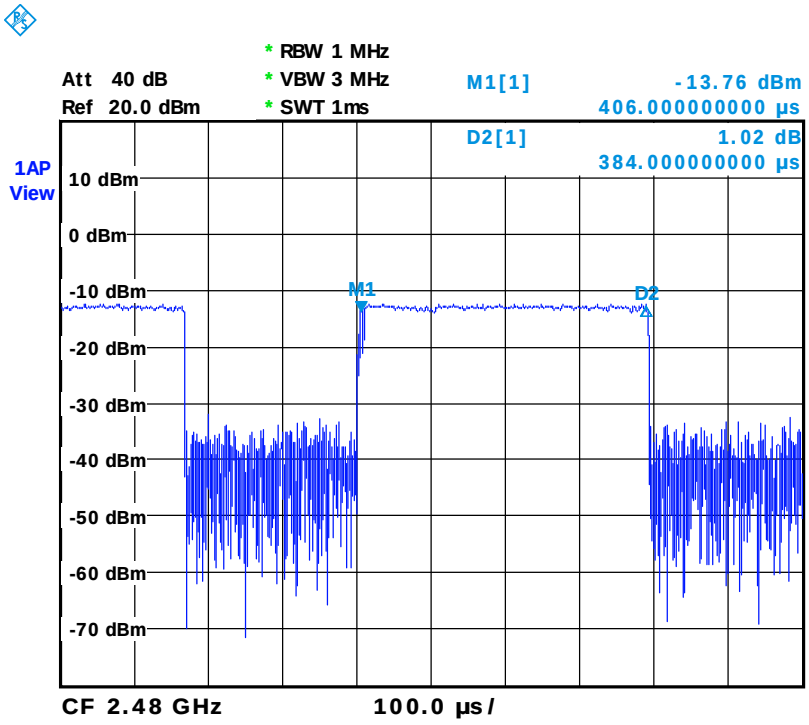
CH01：



CH20：


* RBW 1 MHz
Att 40 dB
* VBW 3 MHz
M1[1]
-17.14 dBm
Ref 20.0 dBm
* SWT 1ms
144.000000000 µs
D2[1]
0.63 dB
382.000000000 µs
1AP
View
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
CF 2.44 GHz
100.0 µs/

CH40：


* RBW 1 MHz
Att 40 dB
* VBW 3 MHz
M1[1]
-13.76 dBm
Ref 20.0 dBm
* SWT 1ms
406.000000000 µs
D2[1]
1.02 dB
384.000000000 µs
1AP
View
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
CF 2.48 GHz
100.0 µs/

4.8 QUANTITY OF HOPPING CHANNEL TEST

4.8.1 LIMIT

FCC Part15, Subpart C Section 15.247(a)(b).

Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels.

Frequency Range (MHz)	Limit (Quantity of Hopping Channel)			
	20dB Bandwidth < 250 kHz	20dB Bandwidth > 250 kHz	20dB Bandwidth < 1 MHz	20dB Bandwidth > 1 MHz
902-928	50	25	N/A	N/A
2400-2483.5	N/A	N/A	75	15
5725-5850	N/A	N/A	75	N/A

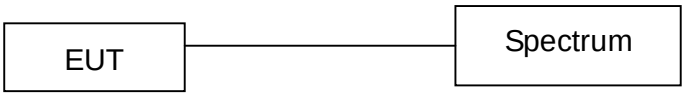
4.8.2 TEST EQUIPMENT

The following test equipment was used during the test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM ANALYZER	9 kHz ~ 40 GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC

NOTE : The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.8.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.8.4 TEST PROCEDURE

The EUT was operating in hopping mode or could be controlled its channel.
Printed out the test result from the spectrum by hard copy function.

4.8.5 EUT OPERATING CONDITION

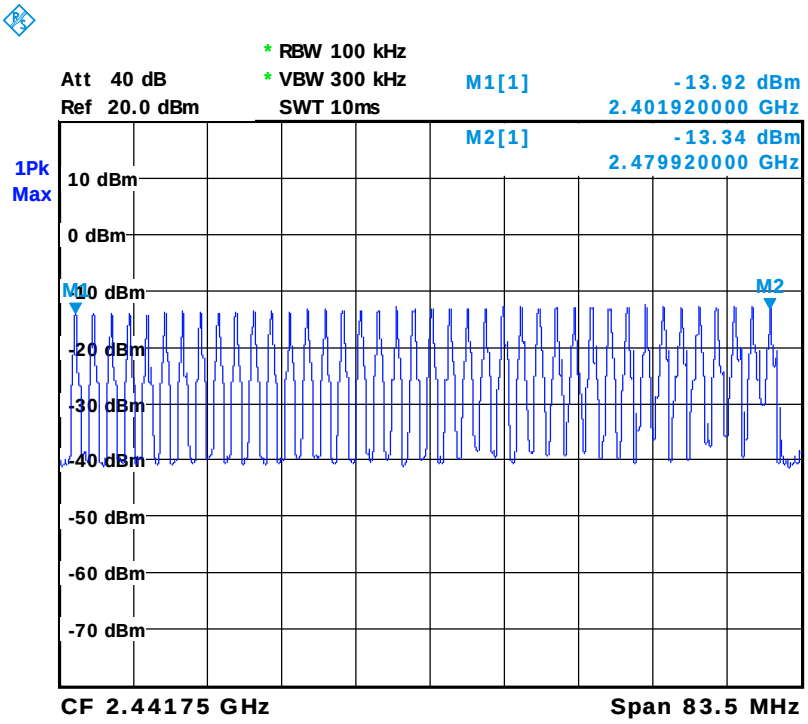
1. Set the EUT under frequency hopping transmission condition.
2. The EUT was set to the highest available power level.

4.8.6 TEST RESULT

Temperature:	21°C	Humidity:	58%RH
Spectrum Detector:	PK	Tested by:	Jeff Lo
Test Result:	PASS	Tested Date:	Feb. 20, 2013

Hopping Channel Frequency Range(MHz)	Quantity of Hopping Channel Read Value	Quantity of Hopping Channel Limit
2402~2480	40	> 15

CH01 ~ CH40：



4.1 CHANNEL SEPARATION TEST

4.1.1 LIMIT

FCC Part15, Subpart C Section 15.247(a)(1). Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Frequency Range (MHz)	Limit(kHz)
902-928	>25 kHz or 20 dB bandwidth
2400-2483.5	>25 kHz or 20 dB bandwidth
5725-5850	>25 kHz or 20 dB bandwidth

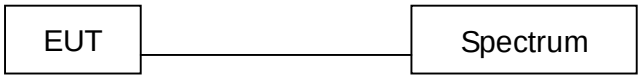
4.1.2 TEST EQUIPMENT

The following test equipment was used during the radiated emission test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM ANALYZER	9 kHz ~ 40 GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 2013 ETC

NOTE : The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.1.3 TEST SET-UP



The EUT was connected to a spectrum through a 50Ω RF cable.

4.1.4 TEST PROCEDURE

The EUT was operating in hopping mode or could be controlled its channel.
Printed out the test result from the spectrum by hard copy function.

4.1.5 EUT OPERATING CONDITION

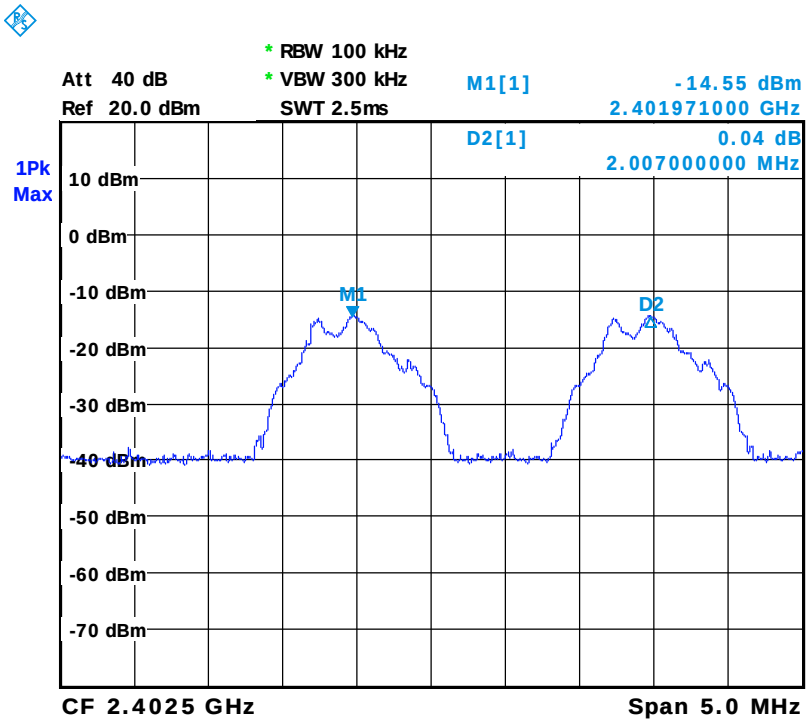
1. Set the EUT under transmission condition continuously at a specific channel frequency.
2. The EUT was set to the highest available power level.

4.1.6 TEST RESULT

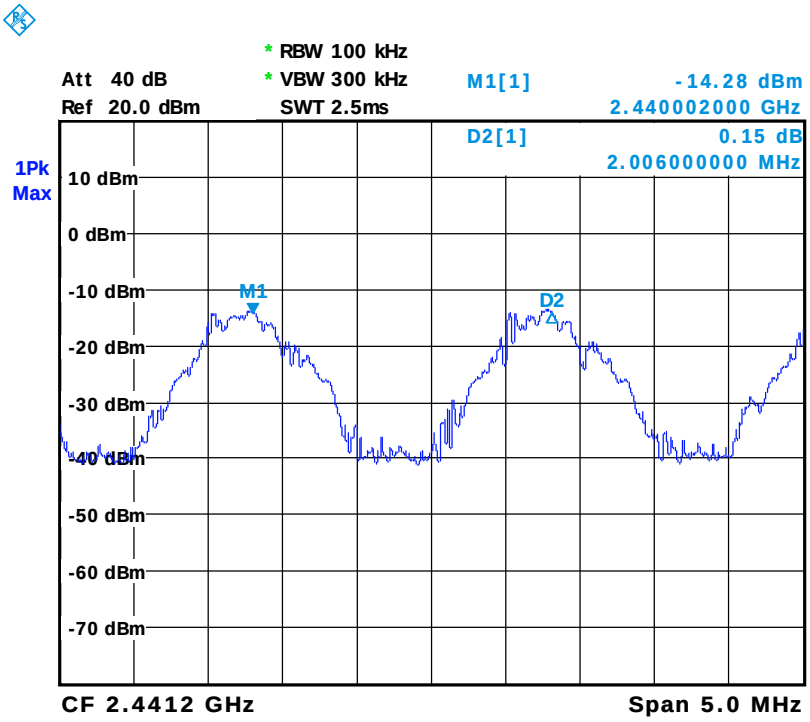
Temperature：	21°C	Humidity：	58%RH
Spectrum Detector：	PK	Tested by：	Jeff Lo
Test Result：	PASS	Tested Date：	Feb. 20, 2013

Channel Number	Channel Frequency (MHz)	Separation Read Value (kHz)	Minimum Limit(20dB Bandwidth) (kHz)
CH01	2402	2007.00	1161.6
CH20	2440	2006.00	1437.1
CH40	2480	2005.00	1732.5

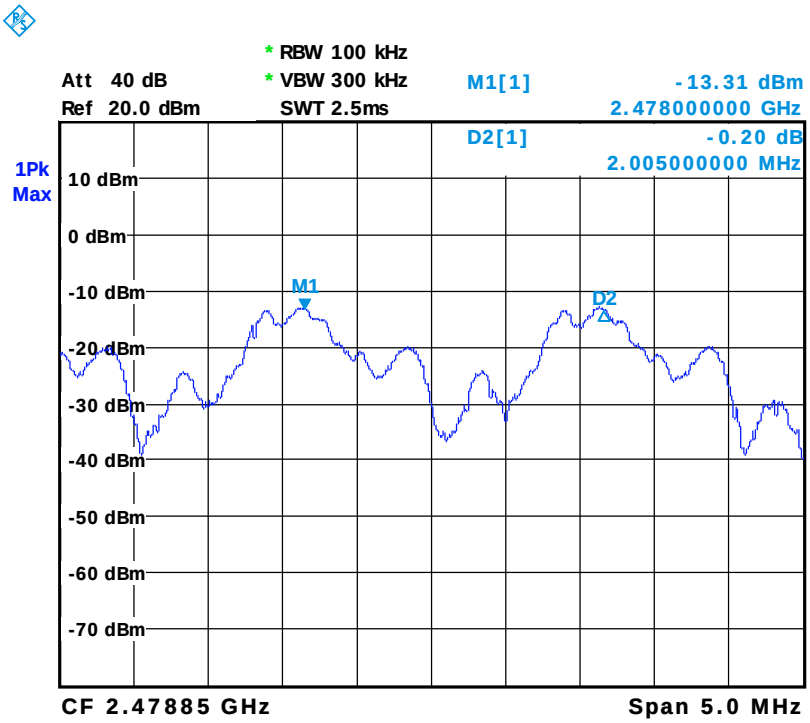
CH01：



CH20：


* RBW 100 kHz
Att 40 dB
* VBW 300 kHz
M1[1]
-14.28 dBm
Ref 20.0 dBm
SWT 2.5ms
2.440002000 GHz
D2[1]
0.15 dB
2.006000000 MHz
1Pk
Max
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
CF 2.4412 GHz
Span 5.0 MHz

CH40：


* RBW 100 kHz
Att 40 dB
* VBW 300 kHz
M1[1]
-13.31 dBm
Ref 20.0 dBm
SWT 2.5ms
2.478000000 GHz
D2[1]
-0.20 dB
2.005000000 MHz
1Pk
Max
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
CF 2.47885 GHz
Span 5.0 MHz

5. Antenna application

5.1 Antenna requirement

The EUT's antenna is met the requirement of FCC Part 15C section 15.203 and 15.204.

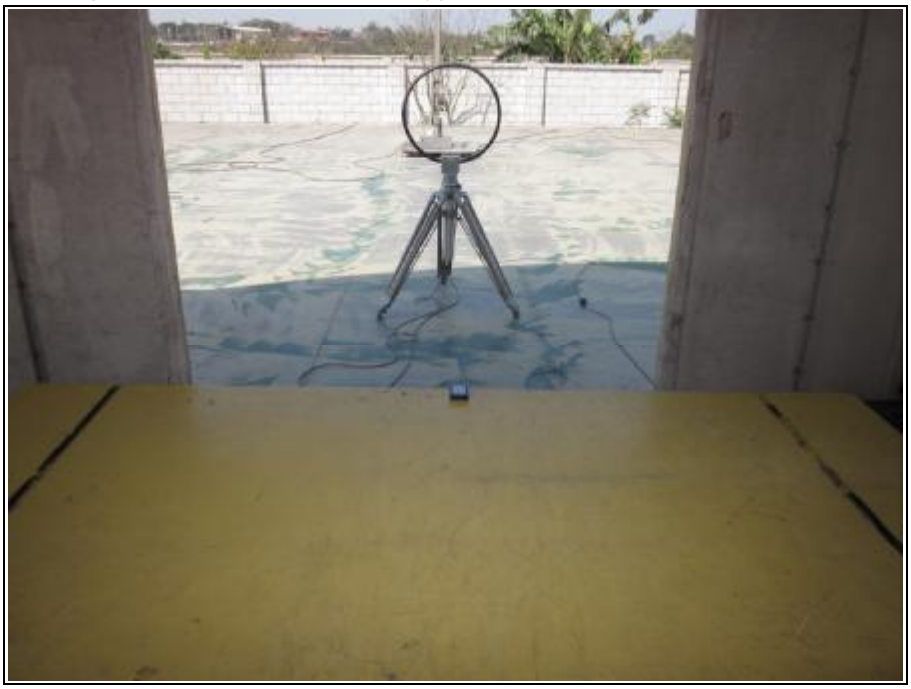
FCC part15C section15.247 requirement:
Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

5.2 Result

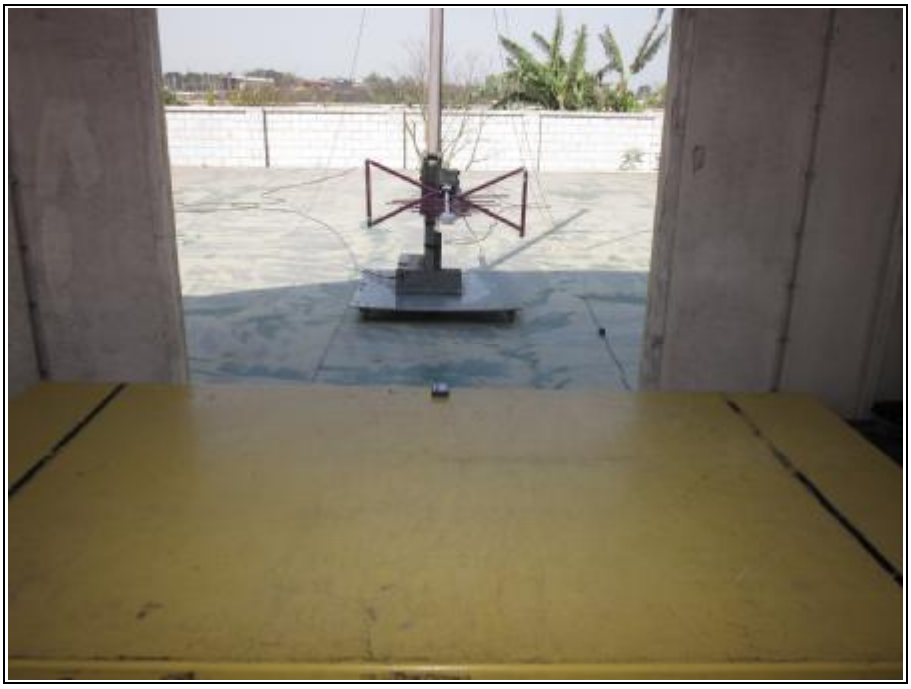
The EUT's antenna used a Chip antenna. Gain of antenna types is 2 dBi that meet the requirement.

6. PHOTOS OF TESTING

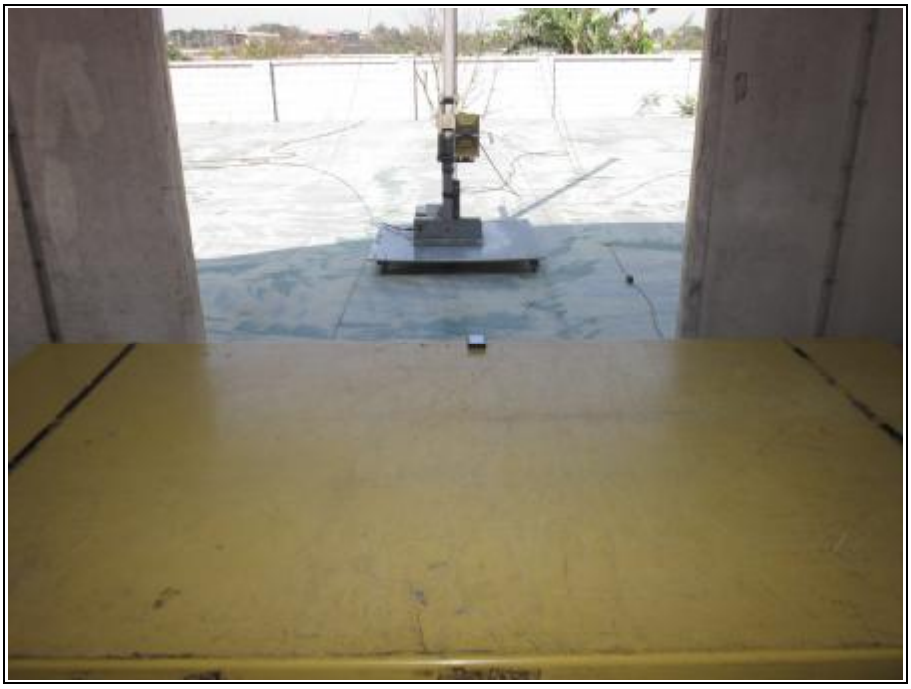
- Radiated test (below 30M, TX & Standby)



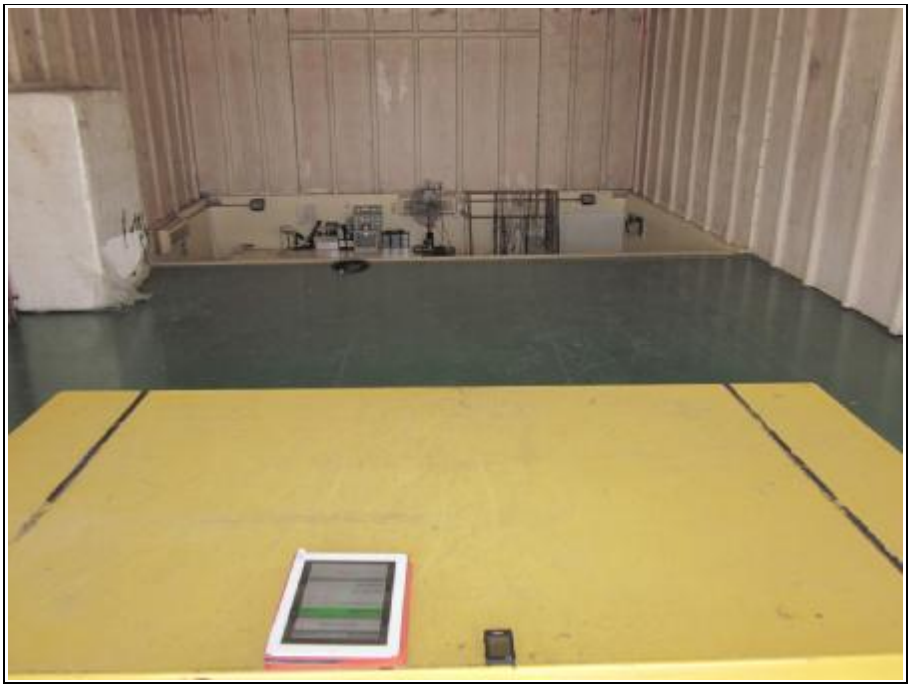
- Radiated test (below 1G, TX & Standby)



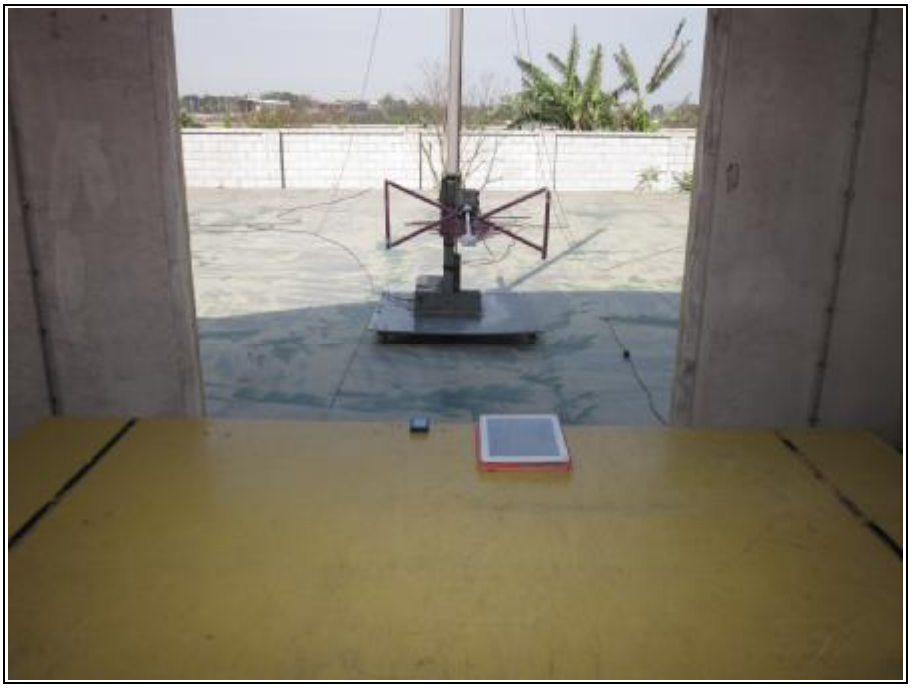
- Radiated test (above 1G, TX & Standby)

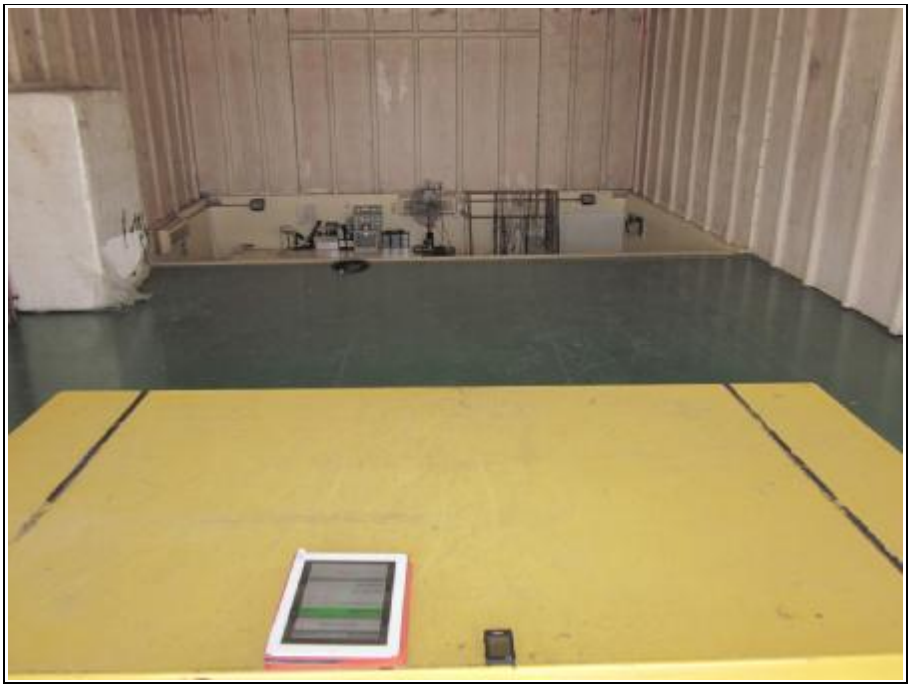


- Radiated test (below 30M, Link)

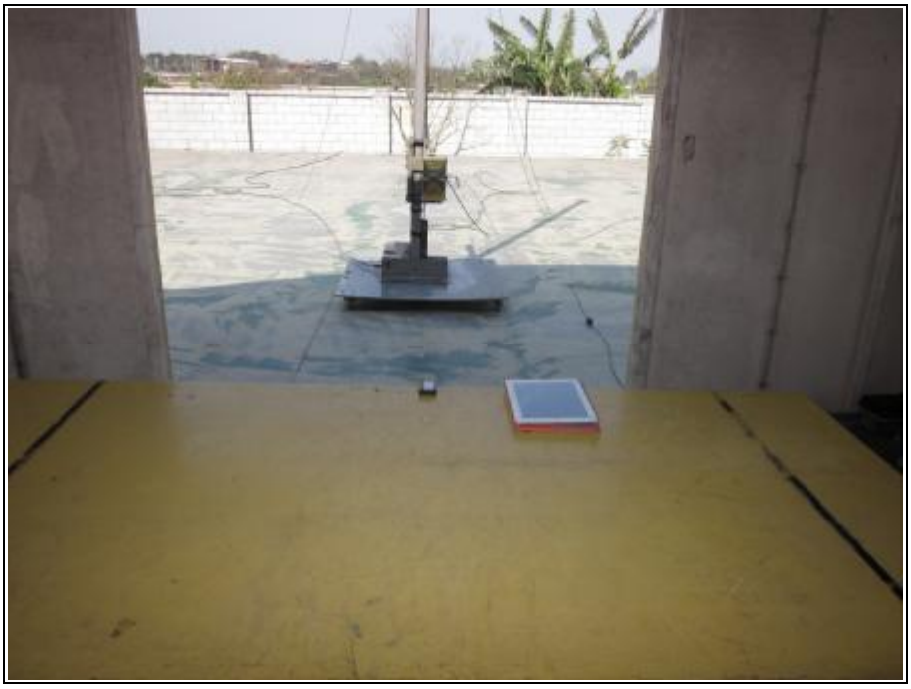


- Radiated test (below 1G, Link)





- Radiated test (above 1G, Link)



7. TERMS OF ABBREVIATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction