Product Name:	Bluetooth Mouse
Model No.:	NX-9000BT
Applicant:	KYE SYSTEMS CORP.(Genius) No.492, Sec. 5, Chongxin Rd., Sanchong Dist., New Taipei City 24160, Taiwan (R.O.C.)
Date of Receipt:	Dec. 31, 2015
Finished date of Test:	Jan. 08, 2016
Applicable Standards:	47 CFR Part 15, Subpart C, 15.247 ANSI C63.4: 2003 FCC publication KDB 558074 D01 v03r03 Measurement on Digital Transmission Systems (DTS) Operating under Section 15.247 June 9, 2015

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 : Mark Chang , Date: 1/13/2016

(Mark Chang)

Approved By : , Date: 1/13/2016

(Johnson Ho, Director)

Revisions History

Report No.	Issue Date	Revisions
FCCA15123101	Jan. 13, 2016	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.
- Voltage of 120V/60Hz was supplied for the Desktop PC

  EUT has a built-in internal Lithium Polymer battery (DC 3.7V / 320mAh)

1.3 EUT MODIFICATION

- No modification in SRT Lab.

2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Bluetooth Mouse
MODEL NO.	NX-9000BT
POWER SUPPLY	DC power source from Li-ion battery: 3.7V/320mAh
CABLE	1.0 m unshielded power cable
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	-9.52 dBm
MODULATION TYPE	GFSK
MODE OF OPERATION	Duplex
ANTENNA TYPE	Printed Antenna
ANTENNA GAIN	0 dBi
OPERATING TEMPERATURE RANGE	-20 ~ 55°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
Battery	Shenzhen	382533	N/A	3.7V,320mAh

2.3 DESCRIPTION OF TEST MODE

Mode		Frequency
1	Tx-1	2402 MHz
2	Tx-2	2440 MHz
3	Tx-3	2480 MHz
4	Standby	N/A
5	Link	N/A

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

X axis:

Y axis:

Z axis:

2.4 EUT OPERATING CONDITION

Tx-1, Tx-2, Tx3：

1. For use customer provided continuous transmission EUT.
2. Setup the EUT and all peripheral devices for testing.
3. Turn on the power of all equipments and the EUT.
4. Start continuous transmission mode on the EUT.

Standby, Link：

1. Setup the EUT and all peripheral devices for testing.
2. Turn on the power of all equipments and the EUT.

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	Keyboard	Microsoft	1136	DoC	1.5m unshielded data cable.
2	Mouse	ASUS	MOBTUO	DoC	1.5m unshielded data cable.
3	LCD Monitor	ASUS	VS228	DoC	1.8m unshielded power cable 1.5m shielded data cable.
4	Printer	HP	C8995A	DoC	1.5m unshielded power cord 1.2m shielded data cable.
5	PC	ASUS	CM6730	DoC	1.8m unshielded power cable
6	USB 2.0 HDD	Terasys	F-12U	DoC	1.5m unshielded data cable.
7	Bluetooth USB Adapter	Well-Whole	WED-210V4	DoC	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, 15.247

ANSI C63.4: 2003

FCC publication KDB 558074 D01 v03r03 Measurement on Digital Transmission Systems (DTS) Operating under Section 15.247 June 9, 2015

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
15.203	Antenna requirement	PASS
15.207	AC Power Line Conducted Emission	PASS
15.247(a)(2)	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(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS
15.247(e)	Power Density: Limit: 8dBm/3kHz	PASS

4. TECHNICAL CHARACTERISTICS TEST

4.1 CONDUCTED EMISSION TEST

4.1.1 LIMIT

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

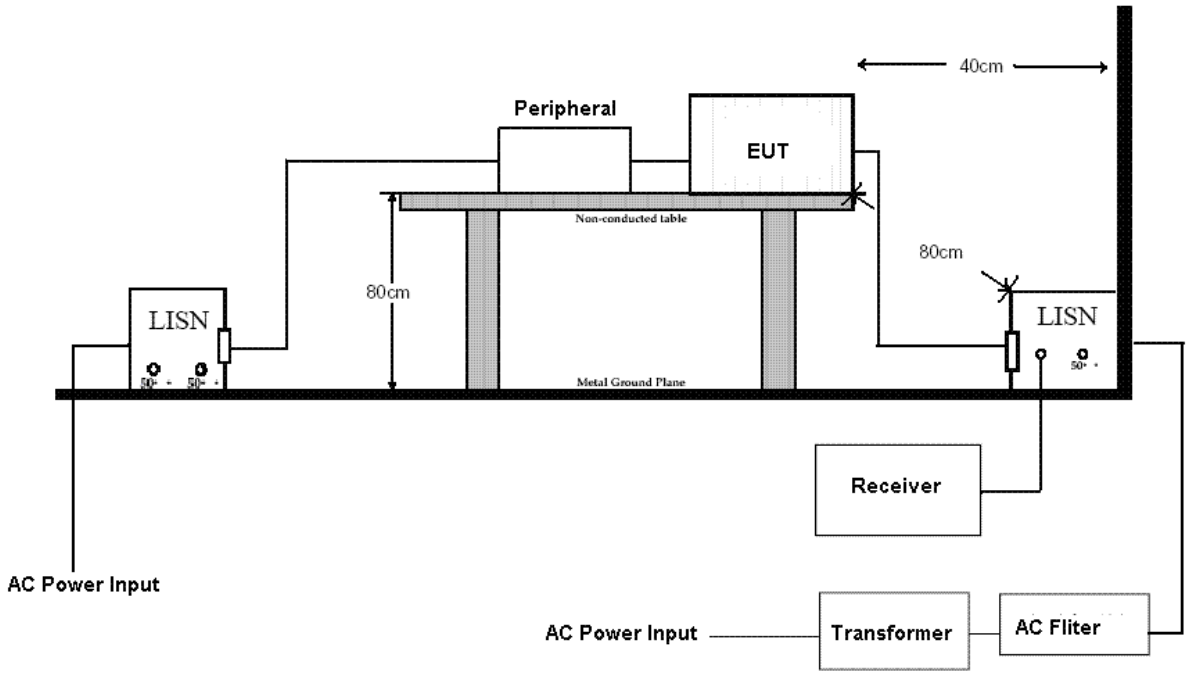
4.1.2 TEST EQUIPMENT

The following test equipment was used for the 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	JAN. 06, 2017 ETC
EMI TEST RECEIVER	9 kHz ~ 30 MHz	ROHDE & SCHWARZ	ESHS30 / 826003/008	JAN. 16, 2016 ETC
LISN	50 μH, 50 ohm	FCC	FCC-LISN-50-25-2 / 01017	MAY. 27, 2016 ETC
LISN	50 μH, 50 ohm	SOLAR	9252-50-R-24-BNC/ 951315	NOV. 05, 2016 ETC
LISN	50 μH, 50 ohm	EMCO	3825/2/ 9204-1952	MAY 26, 2016 ETC
50Ω BNC TYPE TERMINATOR	50 ohm	N/A	11593A/ L1TEQU005	NOV. 22, 2016 ETC
50Ω BNC TYPE TERMINATOR	50 ohm	N/A	B00-CD-357/ L1TEQU009	MAY. 28, 2016 ETC
COAXIAL CABLE	5 m	HUBER+SUHNER	RG214/U / #5M(L1TCAB013)	MAY. 10, 2016 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943 / 771	NCR
GROUND PLANE	2 m (H) x 3 m (W)	SRT	N/A	NCR
GROUND PLANE	2.5 m (H) x 3 m (W)	SRT	N/A	NCR
THERMO-HYGRO	15 – 40 °C, 0- 100% RH	TOP	20-A / 6644	DEC. 23, 2016 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 SETUP



NOTE :
1. The EUT was put on a wooden table with 0.8m heights above ground plane, and 0.4m away from reference ground plane (> 2mx2m).
2. 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 CISPR22:2003. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm/50µH as specified. All readings were quasi-peak and average values with 10 kHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. Both lines of the power mains of EUT were measured and 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:	21 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	TX-1
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

Power Line Measured：Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.453	-0.09	39.00	31.48	38.91	31.39	56.82	46.82	-17.91	-15.43
0.456	-0.09	38.25	30.82	38.16	30.73	56.77	46.77	-18.61	-16.04
0.932	-0.11	36.78	29.25	36.67	29.14	56.00	46.00	-19.33	-16.86
1.319	-0.09	30.80	24.31	30.71	24.22	56.00	46.00	-25.29	-21.78
1.418	-0.09	39.22	35.35	39.13	35.26	56.00	46.00	-16.87	-10.74
16.619	0.32	38.60	30.31	38.92	30.63	60.00	50.00	-21.08	-19.37

Power Line Measured：Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.453	-0.08	38.17	26.65	38.09	26.57	56.82	46.82	-18.73	-20.25
0.456	-0.08	37.30	26.62	37.22	26.54	56.77	46.77	-19.55	-20.23
0.606	-0.08	32.77	31.48	32.69	31.40	56.00	46.00	-23.31	-14.60
2.804	-0.04	31.73	25.95	31.69	25.91	56.00	46.00	-24.31	-20.09
4.467	0.00	29.90	28.64	29.90	28.64	56.00	46.00	-26.10	-17.36
15.820	0.27	36.60	28.83	36.87	29.10	60.00	50.00	-23.13	-20.90

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading valus + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
   Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

Temperature:	21 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	TX-2
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

Power Line Measured：Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.150	0.06	48.89	45.65	48.95	45.71	66.00	56.00	-17.05	-10.29
0.153	0.06	48.81	45.41	48.87	45.47	65.84	55.84	-16.97	-10.37
0.529	-0.09	37.58	29.88	37.49	29.79	56.00	46.00	-18.51	-16.21
1.418	-0.09	39.48	35.35	39.39	35.26	56.00	46.00	-16.61	-10.74
1.428	-0.09	35.10	26.76	35.01	26.67	56.00	46.00	-20.99	-19.33
8.278	0.09	34.39	30.66	34.48	30.75	60.00	50.00	-25.52	-19.25

Power Line Measured：Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.150	0.05	50.10	46.17	50.15	46.22	66.00	56.00	-15.85	-9.78
0.153	0.05	49.72	45.96	49.77	46.01	65.84	55.84	-16.07	-9.83
0.529	-0.08	36.82	28.95	36.74	28.87	56.00	46.00	-19.26	-17.13
2.952	-0.04	30.39	21.03	30.35	20.99	56.00	46.00	-25.65	-25.01
3.101	-0.03	40.47	28.13	40.44	28.10	56.00	46.00	-15.56	-17.90
17.706	0.32	40.22	29.40	40.54	29.72	60.00	50.00	-19.46	-20.28

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading valus + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
   Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

Temperature:	21 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	TX-3
Receiver Detector:	Q.P. and AV.	Modulation Type:	OFDM
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

Power Line Measured：Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.153	0.06	51.52	48.03	51.58	48.09	65.84	55.84	-14.26	-7.75
0.183	0.06	47.48	42.56	47.54	42.62	64.35	54.35	-16.81	-11.73
0.927	-0.11	37.46	27.68	37.35	27.57	56.00	46.00	-18.65	-18.43
1.388	-0.09	35.06	25.78	34.97	25.69	56.00	46.00	-21.03	-20.31
1.418	-0.09	40.17	36.01	40.08	35.92	56.00	46.00	-15.92	-10.08
17.634	0.34	36.59	27.20	36.93	27.54	60.00	50.00	-23.07	-22.46

Power Line Measured：Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.150	0.05	50.93	47.25	50.98	47.30	66.00	56.00	-15.02	-8.70
0.153	0.05	50.69	46.98	50.74	47.03	65.84	55.84	-15.10	-8.81
0.529	-0.08	36.19	28.93	36.11	28.85	56.00	46.00	-19.89	-17.15
3.002	-0.04	31.04	24.10	31.00	24.06	56.00	46.00	-25.00	-21.94
3.101	-0.03	31.50	28.52	31.47	28.49	56.00	46.00	-24.53	-17.51
16.968	0.30	36.67	29.18	36.97	29.48	60.00	50.00	-23.03	-20.52

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading valus + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
   Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

Temperature:	21 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	Standby
Receiver Detector:	Q.P. and AV.	Modulation Type:	GFSK
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

Power Line Measured：Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.153	0.06	43.53	38.92	43.59	38.98	65.84	55.84	-22.25	-16.86
0.456	-0.09	36.53	28.75	36.44	28.66	56.77	46.77	-20.33	-18.11
0.639	-0.10	31.02	27.67	30.92	27.57	56.00	46.00	-25.08	-18.43
4.477	-0.01	28.56	21.89	28.55	21.88	56.00	46.00	-27.45	-24.12
14.582	0.26	35.58	22.23	35.84	22.49	60.00	50.00	-24.16	-27.51
17.706	0.34	38.52	27.29	38.86	27.63	60.00	50.00	-21.14	-22.37

Power Line Measured：Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.378	-0.05	35.15	33.58	35.10	33.53	58.33	48.33	-23.23	-14.80
0.459	-0.08	29.69	18.50	29.61	18.42	56.72	46.72	-27.11	-28.30
0.606	-0.08	32.37	31.06	32.29	30.98	56.00	46.00	-23.71	-15.02
2.804	-0.04	31.14	28.71	31.10	28.67	56.00	46.00	-24.90	-17.33
3.635	-0.02	29.54	27.91	29.52	27.89	56.00	46.00	-26.48	-18.11
17.706	0.32	39.15	26.79	39.47	27.11	60.00	50.00	-20.53	-22.89

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading valus + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
   Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

Temperature:	21 °C	Humidity:	68 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	Link
Receiver Detector:	Q.P. and AV.	Modulation Type:	OFDM
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

Power Line Measured：Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.378	-0.06	35.91	27.75	35.85	27.69	58.33	48.33	-22.48	-20.64
0.456	-0.09	34.14	28.14	34.05	28.05	56.77	46.77	-22.72	-18.72
0.913	-0.11	31.16	26.59	31.05	26.48	56.00	46.00	-24.95	-19.52
1.418	-0.09	31.33	27.04	31.24	26.95	56.00	46.00	-24.76	-19.05
2.734	-0.05	29.65	26.27	29.60	26.22	56.00	46.00	-26.40	-19.78
15.236	0.28	35.11	24.94	35.39	25.22	60.00	50.00	-24.61	-24.78

Power Line Measured：Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.378	-0.05	34.06	32.58	34.01	32.53	58.33	48.33	-24.32	-15.80
0.381	-0.05	34.61	33.30	34.56	33.25	58.26	48.26	-23.70	-15.01
0.913	-0.09	31.24	28.66	31.15	28.57	56.00	46.00	-24.85	-17.43
4.259	0.00	28.33	22.06	28.33	22.06	56.00	46.00	-27.67	-23.94
4.942	0.01	29.26	22.90	29.27	22.91	56.00	46.00	-26.73	-23.09
14.602	0.24	35.06	23.08	35.30	23.32	60.00	50.00	-24.70	-26.68

NOTE :

1. Measurement uncertainty is 2.91 dB
2. Emission level = Reading valus + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
   Difference of Pulse Limiter Factor between EMI Test Receiver corrected 10dB insertion loss.
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

4.2 RADIATED EMISSION TEST

4.2.1 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)	FIELD STRENGTH (microvolts/meter)	DISTANCE (m)	FIELD STRENGTH (dBμV/m)
0.009 - 0.490	2400/F(kHz)	300	67.6-20log(kHz)
0.490 - 1.705	24000/F(kHz)	30	87.6-20log(kHz)
1.705 - 30	30	30	30
30 - 88	100	3	40.0
88 - 216	150	3	43.5
216 - 960	200	3	46.0
Above 960	500	3	54.0

NOTE:

1. 30 dBuV (in 30m) = 70 dBuV (in 3m).
2. In the emission tables above , the tighter limit applies at the band edges.
3. Distance refers to the distance between measuring instrument, antemma, and the closest point of any part of the device or system.

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

4.2.2 TEST EQUIPMENT

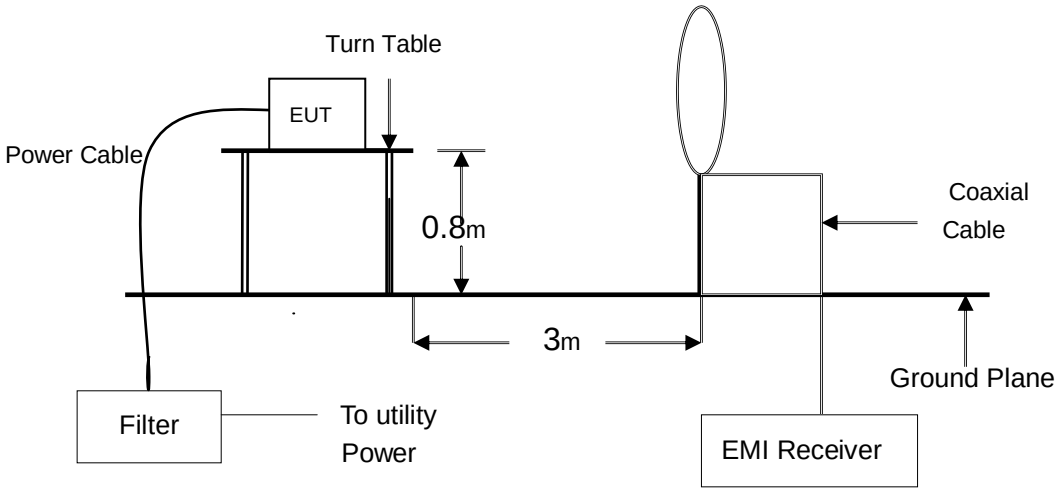
The following test equipment was used during the radiated emission test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz ~ 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 100376	JAN. 06, 2017 ETC
EMI TEST RECEIVER	20 MHz ~ 1000 MHz	ROHDE & SCHWARZ	ESVS30 / 841977/003	NOV. 18, 2016 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 23, 2016 ETC
LOOP ANTENNA	9 kHz ~ 30 MHz	ETS.LINDGREN	HFH2-Z2/ 860605/002 (1162 1/2)	MAR. 13, 2016 ETC
BI-LOG ANTENNA	30 MHz ~ 2 GHz	SCHAFFNER	CBL6141A / 4181	JUN. 15, 2016 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	NOV. 30, 2016 ETC
HORN ANTENNA	18 ~ 40 GHZ	ETS-LINDGREN	3116 /00032255	JAN. 06, 2017 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 23, 2016 ETC
PRE-AMPLIFIER	0.1 ~ 1300 MHz	HP	8447D / 2944A06746	NOV. 15, 2016 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	MAR. 06, 2016 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	NOV. 20, 2016 SRT
RF CABLE	UP TO 18 GHz 1.5 m	JYEBAO	A30A30-L 142 / EQF-0035(001)	NOV. 24, 2016 ETC
RF CABLE	UP TO 18 GHz 3.5 m	JYEBAO	A30A30-L 142 / EQF-0036(002)	JUN. 21, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz 3 m	HUBER+SUHNER	SF102-46/2*11SK 252 /MY2611/2	MAR. 03, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz, 1 m	HUBER+SUHNER	SF102/2*11SK252 /MY3331/2	OCT. 05, 2016 ETC
COAXIAL CABLE	30 M	TIMES	LMR-400 / #30M(L1TCAB014)	MAY. 17, 2016 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943 / 869	NCR
CDN	0.15 MHz ~ 300 MHz	LUTHI	CDN L-801 M2/M3 / 2790	MAY. 17, 2016 ETC

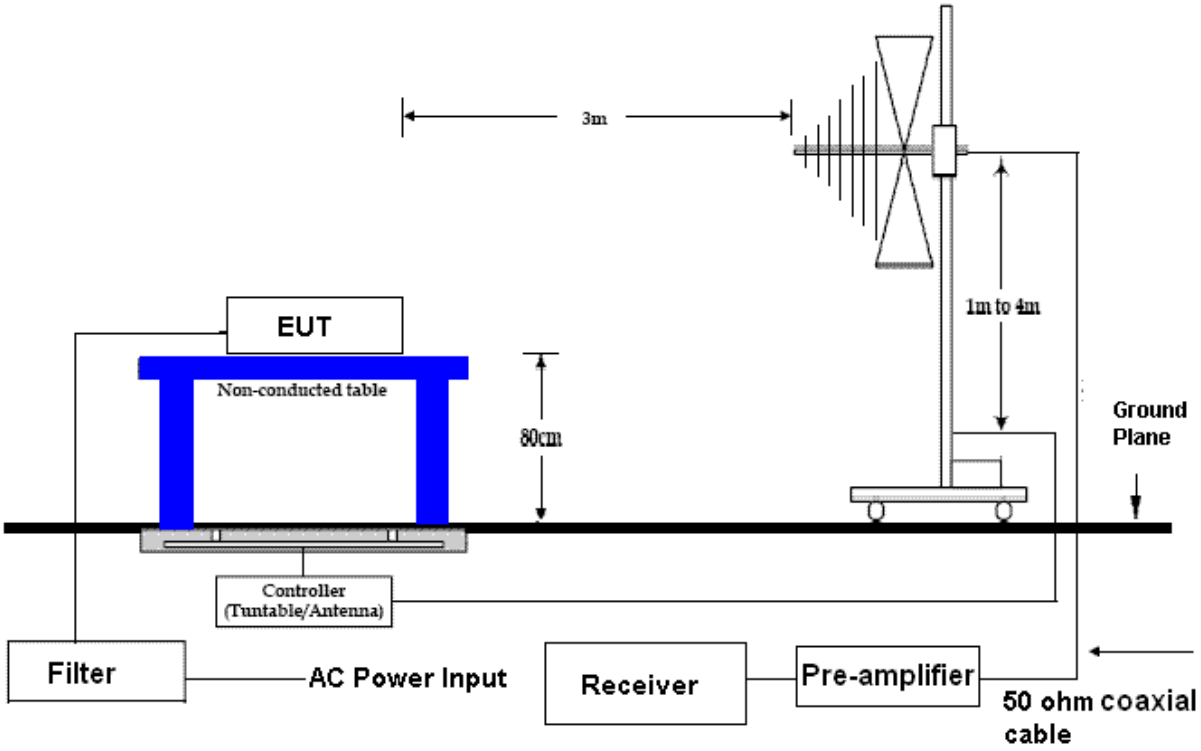
NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST SET-UP

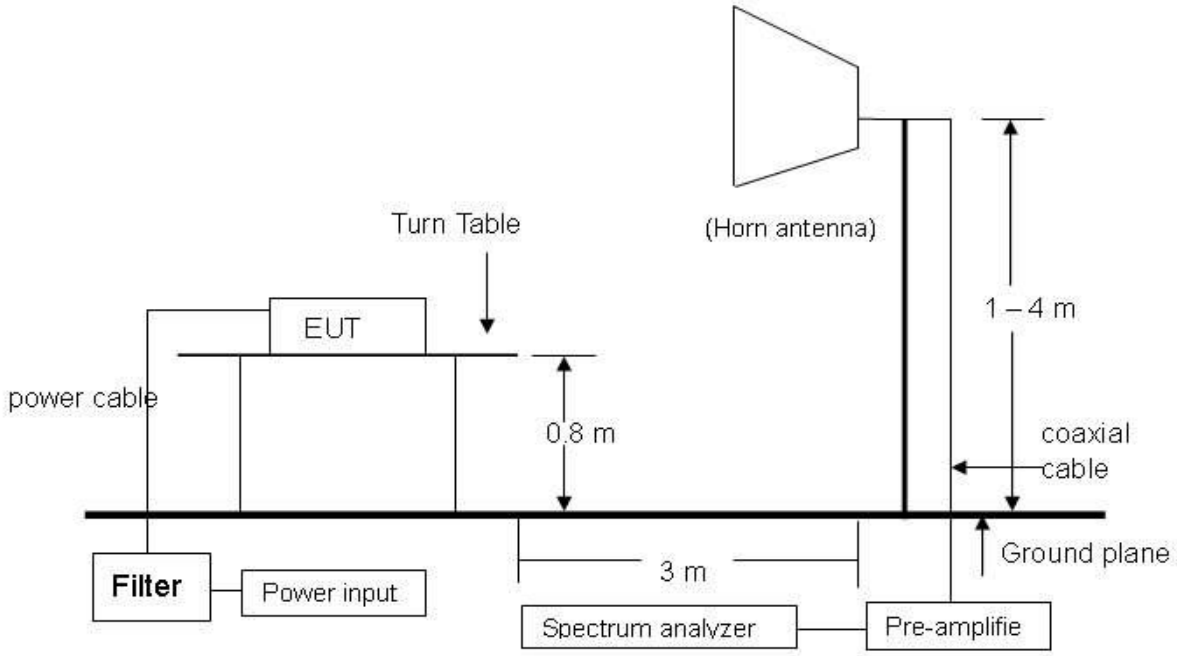
9KHz ~ 30MHz



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.

4.2.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR 22:2003. When the frequency spectrum measured started from 9 kHz to 30 MHz, then use antenna is a loop antenna. 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.

4.2.5 TEST RESULT

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	9kHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Tx-1
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2017

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
13.83	0.77	21.12	5.26	27.15	70.00	-42.85
17.85	0.88	21.56	4.61	27.05	70.00	-42.95
19.08	0.91	21.69	4.69	27.30	70.00	-42.70
24.12	1.06	21.84	5.00	27.90	70.00	-42.10
27.42	1.15	21.87	4.19	27.21	70.00	-42.79
28.74	1.18	21.89	4.88	27.95	70.00	-42.05

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	9kHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Tx-2
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBμV)	Emission (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)
3.94	0.41	19.94	6.12	26.46	70.00	-43.54
15.27	0.81	21.28	3.73	25.81	70.00	-44.19
16.84	0.85	21.45	4.74	27.04	70.00	-42.96
23.60	1.04	21.84	4.31	27.19	70.00	-42.81
27.73	1.16	21.88	5.76	28.79	70.00	-41.21
28.86	1.19	21.89	3.59	26.67	70.00	-43.33

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	9kHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Tx-3
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBµV)	Emission (dBµV/m)	Limit Line (dBµV/m)	Margin (dB)
9.92	0.66	20.69	5.56	26.91	70.00	-43.09
10.97	0.69	20.81	4.81	26.30	70.00	-43.70
16.40	0.84	21.40	5.27	27.51	70.00	-42.49
20.13	0.94	21.80	4.48	27.22	70.00	-42.78
22.01	1.00	21.82	4.13	26.95	70.00	-43.05
23.88	1.05	21.84	3.54	26.43	70.00	-43.57

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	9kHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Standby
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBµV)	Emission (dBµV/m)	Limit Line (dBµV/m)	Margin (dB)
3.91	0.41	19.93	6.57	26.91	70.00	-43.09
11.97	0.72	20.92	5.40	27.03	70.00	-42.97
19.20	0.92	21.71	5.70	28.32	70.00	-41.68
20.66	0.96	21.81	4.44	27.21	70.00	-42.79
27.37	1.15	21.87	4.84	27.86	70.00	-42.14
27.80	1.16	21.88	3.75	26.79	70.00	-43.21

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	9kHz – 30 MHz	Measured Distance:	3 m
Receiver Detector:	AV.	Tested Mode:	Link
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

Frequency (KHz)	Cable Loss (dB)	Ant. Fac. (dB)	Reading (dBµV)	Emission (dBµV/m)	Limit Line (dBµV/m)	Margin (dB)
10.88	0.68	20.80	5.41	26.89	70.00	-43.11
13.32	0.75	21.07	5.30	27.12	70.00	-42.88
17.91	0.88	21.56	4.87	27.31	70.00	-42.69
20.34	0.95	21.80	4.35	27.10	70.00	-42.90
26.83	1.13	21.87	4.35	27.35	70.00	-42.65
27.05	1.14	21.87	4.24	27.25	70.00	-42.75

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-1
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

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)
56.96	1.51	12.08	12.87	26.46	40	-13.54	251	3.40
87.76	1.70	8.76	11.20	21.66	40	-18.34	239	3.38
514.57	4.43	18.39	15.89	38.71	46	-7.29	68	2.53
673.40	5.20	20.79	3.91	29.90	46	-16.10	75	2.04
710.54	5.38	21.14	3.02	29.54	46	-16.46	344	1.97
752.44	5.61	22.11	6.20	33.92	46	-12.08	299	1.71

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)
56.08	1.51	12.08	18.04	31.63	40	-8.37	182	1.05
86.97	1.69	8.68	15.12	25.49	40	-14.51	162	1.16
400.78	3.81	16.50	4.72	25.03	46	-20.97	257	2.13
498.57	4.34	17.98	8.84	31.16	46	-14.84	327	2.44
514.49	4.43	18.39	11.32	34.14	46	-11.86	44	2.56
753.19	5.61	22.11	3.20	30.93	46	-15.07	164	3.29

NOTE :

1. Measurement uncertainty is 4.20dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss – Pre-Amplifier.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-2
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

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)
58.95	1.51	11.34	15.26	28.11	40	-11.89	202	3.45
86.11	1.69	8.68	11.68	22.05	40	-17.95	232	3.41
202.60	2.46	12.02	8.09	22.57	44	-20.93	184	3.40
514.81	4.43	18.39	14.31	37.13	46	-8.87	37	2.53
673.76	5.20	20.79	3.93	29.92	46	-16.08	174	2.04
752.46	5.61	22.11	5.75	33.47	46	-12.53	320	1.75

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)
60.97	1.52	10.60	19.25	31.37	40	-8.63	44	1.11
256.04	2.83	13.12	7.50	23.45	46	-22.55	280	1.73
315.06	3.21	14.26	6.91	24.38	46	-21.63	141	1.89
491.57	4.31	17.89	6.04	28.24	46	-17.76	206	2.45
695.41	5.30	20.88	3.57	29.75	46	-16.25	304	3.07
754.72	5.62	22.12	4.48	32.21	46	-13.79	58	3.26

NOTE :
1. Measurement uncertainty is 4.20dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Tx-3
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

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)
56.81	1.51	12.08	14.00	27.59	40	-12.41	104	3.47
157.71	2.19	12.26	10.34	24.79	44	-18.71	298	3.20
196.60	2.42	11.72	10.82	24.96	44	-18.54	156	3.05
400.40	3.81	16.50	5.09	25.40	46	-20.60	300	2.84
709.43	5.37	21.12	3.87	30.36	46	-15.64	208	1.93
753.44	5.61	22.11	3.43	31.16	46	-14.84	83	1.72

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)
57.41	1.51	11.71	18.15	31.37	40	-8.63	277	1.09
398.50	3.80	16.44	4.59	24.83	46	-21.17	33	2.11
499.37	4.35	17.99	13.08	35.41	46	-10.59	132	2.44
519.27	4.46	18.53	10.41	33.40	46	-12.60	212	2.53
671.48	5.19	20.78	3.15	29.12	46	-16.88	64	2.96
755.32	5.62	22.12	4.53	32.27	46	-13.73	260	3.25

NOTE :

1. Measurement uncertainty is 4.20dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Standby
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

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)
57.70	1.51	11.71	14.37	27.59	40	-12.41	160	3.47
155.77	2.18	12.30	8.26	22.74	44	-20.77	197	3.25
490.86	4.30	17.88	8.17	30.35	46	-15.65	328	2.54
673.56	5.20	20.79	3.71	29.70	46	-16.30	220	2.03
755.03	5.62	22.12	5.89	33.63	46	-12.37	65	1.71
789.57	5.77	22.26	6.65	34.68	46	-11.32	342	1.68

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)
56.64	1.51	12.08	16.80	30.39	40	-9.61	323	1.09
86.78	1.69	8.68	15.78	26.15	40	-13.85	270	1.20
514.03	4.43	18.39	14.72	37.54	46	-8.46	35	2.43
615.25	4.92	20.07	6.12	31.11	46	-14.89	287	2.84
672.80	5.19	20.79	3.54	29.52	46	-16.48	68	3.00
752.75	5.61	22.11	3.87	31.59	46	-14.41	166	3.26

NOTE :
1. Measurement uncertainty is 4.20dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	30 M – 1 GHz	Tested Mode:	Link
Detector Type:	Quasi-peak	IF Bandwidth:	120 kHz
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

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)
65.65	1.54	9.70	16.02	27.26	40	-12.74	253	3.45
86.74	1.69	8.68	9.35	19.72	40	-20.28	138	3.41
519.90	4.46	18.53	11.74	34.73	46	-11.27	281	2.49
672.92	5.19	20.79	3.58	29.56	46	-16.44	43	2.03
709.57	5.37	21.12	3.44	29.93	46	-16.07	100	1.94
756.72	5.63	22.12	6.63	34.38	46	-11.62	244	1.76

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)
40.04	1.44	19.30	10.53	31.27	40	-8.73	234	1.05
56.37	1.51	12.08	16.60	30.19	40	-9.81	170	1.09
491.74	4.31	17.89	5.52	27.72	46	-18.28	325	2.45
514.17	4.43	18.39	15.60	38.42	46	-7.58	199	2.53
710.30	5.38	21.14	3.55	30.07	46	-15.93	261	3.11
753.62	5.61	22.11	3.67	31.40	46	-14.60	25	3.25

NOTE :
1. Measurement uncertainty is 4.20dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-1
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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.		
2935.13	-31.40	30.07	43.57	31.90	42.24	30.57	74	54	-31.76	-23.43	298	1.94
3231.69	-31.03	30.53	43.32	33.28	42.82	32.78	74	54	-31.18	-21.22	310	1.85
3659.17	-30.53	31.28	44.11	34.19	44.86	34.94	74	54	-29.14	-19.06	115	1.69
3990.60	-30.30	32.27	43.07	32.75	45.04	34.72	74	54	-28.96	-19.28	30	1.61
4486.79	-29.78	32.11	42.67	32.54	44.99	34.86	74	54	-29.01	-19.14	135	1.44
4999.20	-29.15	33.40	40.86	31.03	45.11	35.28	74	54	-28.89	-18.72	174	1.32

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.		
2785.14	-31.48	29.53	43.08	32.38	41.12	30.42	74	54	-32.88	-23.58	248	1.56
2979.75	-31.37	30.22	42.41	33.16	41.26	32.01	74	54	-32.74	-21.99	304	1.60
3485.40	-30.66	30.79	43.75	33.20	43.87	33.32	74	54	-30.13	-20.68	285	1.77
4096.36	-30.19	32.26	42.49	31.59	44.56	33.66	74	54	-29.44	-20.34	220	1.95
4375.08	-29.90	32.15	43.65	34.13	45.90	36.38	74	54	-28.10	-17.62	54	2.02
5000.44	-29.15	33.40	40.09	30.56	44.34	34.81	74	54	-29.66	-19.19	134	2.23

NOTE:

1. Measurement uncertainty is 3.85dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-1 (Fundamental and Harmonics)
Detector:	PK. And AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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 (F)	-31.72	28.36	86.99	75.29	83.63	71.93	114	94	-30.37	-22.07	42	1.80
4804.00	-29.39	32.89	39.97	30.88	43.47	34.38	74	54	-30.53	-19.62	252	1.74
7206.00	-28.43	35.64	37.17	27.40	44.38	34.61	74	54	-29.62	-19.39	35	1.69
9608.00	-27.79	37.79	36.62	26.26	46.61	36.25	74	54	-27.39	-17.75	155	1.48
12010.00	-26.54	39.19	35.00	25.18	47.66	37.84	74	54	-26.34	-16.16	92	1.46
14412.00	-24.30	41.91	30.23	20.73	47.85	38.35	74	54	-26.15	-15.65	138	1.32

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 (F)	-31.72	28.36	79.82	69.56	76.46	66.20	114	94	-37.54	-27.80	161	1.48
4804.00	-29.39	32.89	42.35	32.36	45.85	35.86	74	54	-28.15	-18.14	239	1.60
7206.00	-28.43	35.64	37.21	27.06	44.42	34.27	74	54	-29.58	-19.73	343	1.62
9608.00	-27.79	37.79	37.81	26.34	47.80	36.33	74	54	-26.20	-17.67	151	1.78
12010.00	-26.54	39.19	35.69	24.81	48.35	37.47	74	54	-25.65	-16.53	110	1.86
14412.00	-24.30	41.91	32.02	21.25	49.64	38.87	74	54	-24.36	-15.13	40	1.92

NOTE:

1. Measurement uncertainty is 3.85dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-2
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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.		
2765.11	-31.50	29.45	43.49	33.40	41.45	31.36	74	54	-32.55	-22.64	100	1.99
3169.35	-31.12	30.47	44.93	33.70	44.28	33.05	74	54	-29.72	-20.95	331	1.83
3720.73	-30.49	31.46	42.93	33.32	43.90	34.29	74	54	-30.10	-19.71	265	1.67
4000.19	-30.29	32.30	42.58	31.34	44.59	33.35	74	54	-29.41	-20.65	125	1.58
4530.14	-29.73	32.18	42.71	31.33	45.16	33.78	74	54	-28.84	-20.22	300	1.42
5000.22	-29.15	33.40	39.69	29.62	43.94	33.87	74	54	-30.06	-20.13	70	1.31

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.		
2910.95	-31.41	29.98	42.55	32.29	41.11	30.85	74	54	-32.89	-23.15	85	1.56
3435.18	-30.73	30.74	43.42	32.79	43.42	32.79	74	54	-30.58	-21.21	116	1.74
4129.74	-30.16	32.25	43.72	34.44	45.81	36.53	74	54	-28.19	-17.47	307	1.95
4611.55	-29.63	32.39	42.29	31.86	45.05	34.62	74	54	-28.95	-19.38	118	2.09
5000.44	-29.15	33.40	38.98	29.98	43.23	34.23	74	54	-30.77	-19.77	110	2.21
5470.19	-29.10	33.96	40.06	28.09	44.92	32.95	74	54	-29.08	-21.05	340	2.33

NOTE:

1. Measurement uncertainty is 3.85dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-2 (Fundamental and Harmonics)
Detector:	PK. And AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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 (F)	-31.69	28.42	86.99	76.58	83.71	73.30	114	94	-30.29	-20.70	263	1.73
4880.00	-29.30	33.09	39.97	28.08	43.76	31.87	74	54	-30.24	-22.13	203	1.64
7320.00	-28.36	35.93	39.39	27.40	46.97	34.98	74	54	-27.03	-19.02	128	1.57
9760.00	-27.75	37.91	36.24	26.26	46.40	36.42	74	54	-27.60	-17.58	261	1.40
12200.00	-26.11	39.08	36.80	25.18	49.77	38.15	74	54	-24.23	-15.85	294	1.28
14640.00	-24.32	41.47	32.53	20.73	49.68	37.88	74	54	-24.32	-16.12	343	1.13

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 (F)	-31.69	28.42	79.82	68.80	76.54	65.52	114	94	-37.46	-28.48	295	1.65
4880.00	-29.30	33.09	42.35	33.10	46.14	36.89	74	54	-27.86	-17.11	126	1.72
7320.00	-28.36	35.93	38.56	27.06	46.14	34.64	74	54	-27.86	-19.36	292	1.89
9760.00	-27.75	37.91	35.71	26.34	45.87	36.50	74	54	-28.13	-17.50	303	1.94
12200.00	-26.11	39.08	36.65	24.81	49.62	37.78	74	54	-24.38	-16.22	89	2.08
14640.00	-24.32	41.47	30.77	21.25	47.92	38.40	74	54	-26.08	-15.60	47	2.33

NOTE:

1. Measurement uncertainty is 3.85dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-3
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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.		
2999.93	-31.36	30.30	43.89	34.60	42.83	33.54	74	54	-31.17	-20.46	214	1.92
3316.17	-30.90	30.62	43.24	32.74	42.95	32.45	74	54	-31.05	-21.55	299	1.80
3786.54	-30.44	31.66	42.47	30.81	43.69	32.03	74	54	-30.31	-21.97	85	1.63
4200.84	-30.08	32.22	41.58	30.38	43.72	32.52	74	54	-30.28	-21.48	332	1.52
4595.79	-29.65	32.35	41.82	30.42	44.51	33.11	74	54	-29.49	-20.89	143	1.41
5000.78	-29.15	33.40	40.05	29.13	44.30	33.38	74	54	-29.70	-20.62	68	1.35

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.		
3084.83	-31.24	30.38	44.79	34.04	43.93	33.18	74	54	-30.07	-20.82	344	1.64
3565.45	-30.59	31.00	43.48	33.61	43.88	34.01	74	54	-30.12	-19.99	171	1.79
4015.92	-30.27	32.29	42.85	32.71	44.87	34.73	74	54	-29.13	-19.27	74	1.88
4136.15	-30.15	32.25	42.70	33.32	44.80	35.42	74	54	-29.20	-18.58	235	1.96
4571.39	-29.68	32.28	42.34	31.07	44.94	33.67	74	54	-29.06	-20.33	196	2.05
5000.63	-29.15	33.40	39.51	29.45	43.76	33.70	74	54	-30.24	-20.30	96	2.21

NOTE:

1. Measurement uncertainty is 3.85dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Tx-3 (Fundamental and Harmonics)
Detector:	PK. And AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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 (F)	-31.66	28.47	86.99	76.13	83.80	72.94	114	94	-30.20	-21.06	76	1.84
4960.00	-29.20	33.30	39.97	28.37	44.07	32.47	74	54	-29.93	-21.53	199	1.72
7440.00	-28.28	36.24	38.50	27.40	46.47	35.37	74	54	-27.53	-18.63	309	1.65
9920.00	-27.71	38.04	36.61	26.26	46.94	36.59	74	54	-27.06	-17.41	52	1.53
12400.00	-25.66	38.96	36.04	25.18	49.34	38.48	74	54	-24.66	-15.52	315	1.47
14880.00	-24.35	40.56	30.87	20.73	47.08	36.94	74	54	-26.92	-17.06	218	1.33

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 (F)	-31.66	28.47	79.82	70.04	76.63	66.85	114	94	-37.37	-27.15	103	1.48
4960.00	-29.20	33.30	42.35	32.27	46.45	36.37	74	54	-27.55	-17.63	133	1.60
7440.00	-28.28	36.24	37.49	27.06	45.46	35.03	74	54	-28.54	-18.97	254	1.66
9920.00	-27.71	38.04	37.78	26.34	48.11	36.67	74	54	-25.89	-17.33	117	1.78
12400.00	-25.66	38.96	34.94	24.81	48.24	38.11	74	54	-25.76	-15.89	313	1.90
14880.00	-24.35	40.56	32.62	21.25	48.83	37.46	74	54	-25.17	-16.54	262	1.94

NOTE:

1. Measurement uncertainty is 3.85dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Standby
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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.		
2130.49	-31.92	27.98	46.22	35.22	42.29	31.29	74	54	-31.71	-22.71	63	2.18
3185.40	-31.09	30.49	43.47	33.78	42.86	33.17	74	54	-31.14	-20.83	226	1.87
3659.60	-30.53	31.28	42.97	31.77	43.72	32.52	74	54	-30.28	-21.48	159	1.69
4096.43	-30.19	32.26	42.63	32.38	44.70	34.45	74	54	-29.30	-19.55	174	1.55
4500.42	-29.77	32.10	42.52	31.29	44.85	33.62	74	54	-29.15	-20.38	287	1.43
5000.80	-29.15	33.40	39.54	30.08	43.79	34.33	74	54	-30.21	-19.67	318	1.31

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.		
2984.86	-31.37	30.24	43.23	32.67	42.10	31.54	74	54	-31.90	-22.46	62	1.62
3289.11	-30.94	30.59	43.98	34.00	43.63	33.65	74	54	-30.37	-20.35	240	1.70
3789.75	-30.44	31.67	42.43	33.03	43.66	34.26	74	54	-30.34	-19.74	307	1.85
4285.40	-29.99	32.19	42.15	32.37	44.34	34.56	74	54	-29.66	-19.44	128	2.00
4711.70	-29.51	32.65	41.79	32.37	44.93	35.51	74	54	-29.07	-18.49	264	2.16
4999.94	-29.15	33.40	39.93	30.22	44.18	34.47	74	54	-29.82	-19.53	200	2.23

NOTE:

1. Measurement uncertainty is 3.85dB.
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:	20 °C	Humidity:	61 %RH
Frequency Range:	1 GHz – 25 GHz	Tested Mode:	Link
Detector Type:	PK. and AV.	IF Bandwidth:	1 MHz
VBW:	3 MHz	Tested Date:	Jan. 07, 2016

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.		
3770.50	-30.45	31.61	46.22	36.94	47.38	38.10	74	54	-26.62	-15.90	322	1.66
4344.61	-29.93	32.16	44.26	33.92	46.49	36.15	74	54	-27.51	-17.85	40	1.51
4439.83	-29.83	32.12	46.41	34.94	48.70	37.23	74	54	-25.30	-16.77	189	1.44
4705.48	-29.52	32.63	45.75	34.23	48.87	37.35	74	54	-25.13	-16.65	95	1.37
4999.55	-29.15	33.40	42.87	33.62	47.12	37.87	74	54	-26.88	-16.13	206	1.32
5201.24	-29.13	33.64	44.57	35.53	49.08	40.04	74	54	-24.92	-13.96	76	1.25

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.		
3774.92	-30.45	31.62	45.09	34.97	46.26	36.14	74	54	-27.74	-17.86	121	1.84
4175.35	-30.11	32.23	45.67	35.98	47.79	38.10	74	54	-26.21	-15.90	335	1.96
4431.50	-29.84	32.13	44.87	32.90	47.16	35.19	74	54	-26.84	-18.81	176	2.04
4579.16	-29.67	32.31	45.57	34.74	48.20	37.37	74	54	-25.80	-16.63	148	2.08
5000.40	-29.15	33.40	43.79	32.74	48.04	36.99	74	54	-25.96	-17.01	255	2.19
5354.93	-29.11	33.82	44.40	33.46	49.11	38.17	74	54	-24.89	-15.83	93	2.33

NOTE:

1. Measurement uncertainty is 3.85dB.
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.

4.3 6dB Bandwidth

4.3.1 LIMIT

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

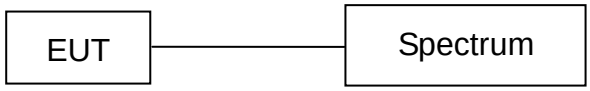
4.3.2 TEST EQUIPMENT

The following test equipment was used during the test：

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAY 24, 2016 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 operated in hopping mode or any specific channel.

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

4.3.5 EUT OPERATING CONDITION

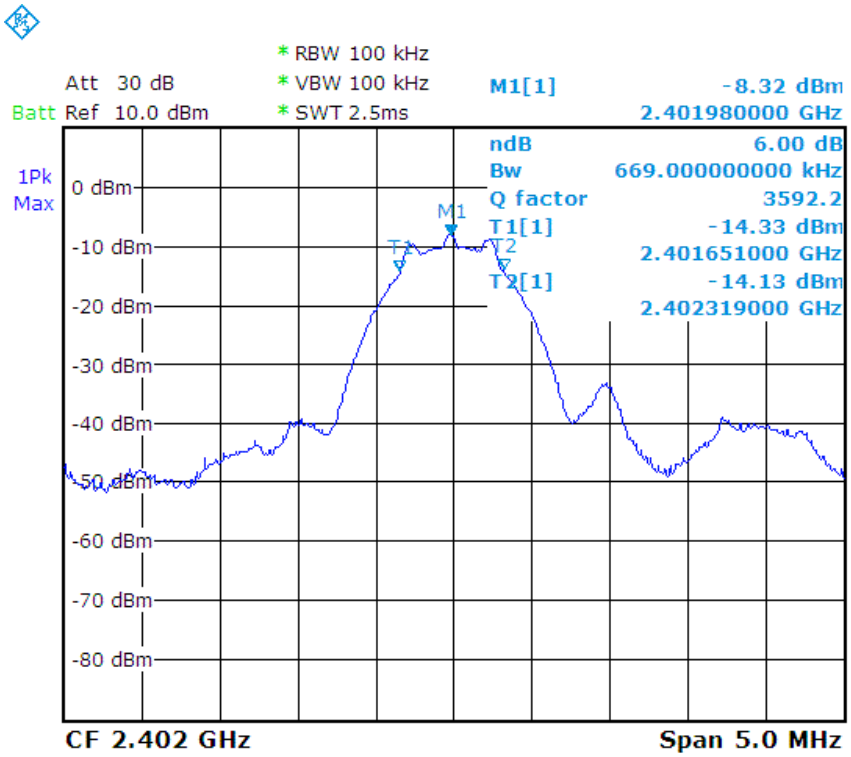
1. Set the EUT under continuous transmission condition.
2. The EUT was set to the highest available power level.

4.3.6 TEST RESULT

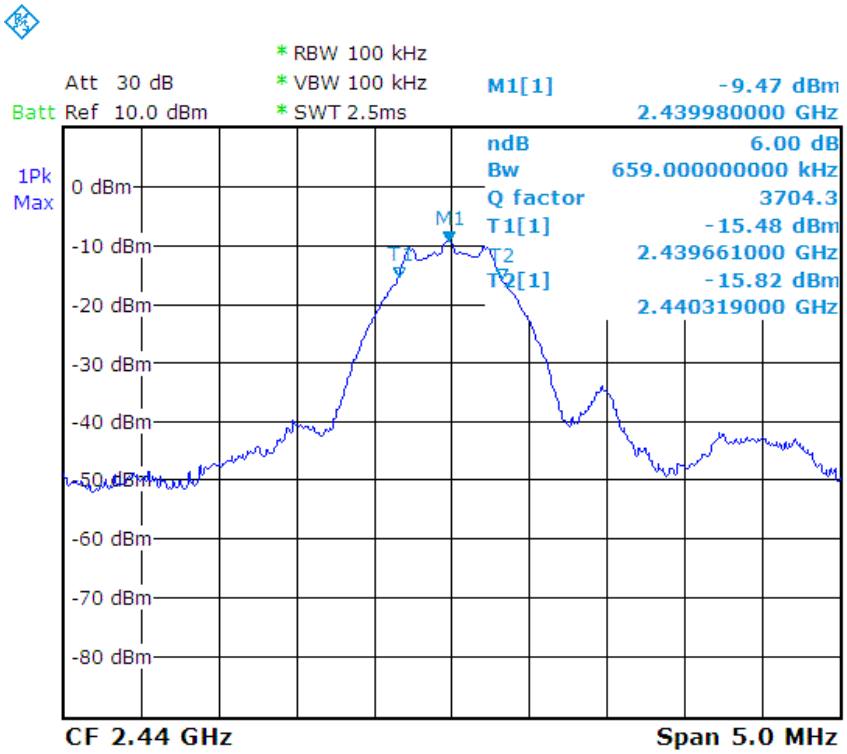
Temperature:	25 °C	Humidity:	69 %RH
Detector:	Peak	Tesr Mode:	Tx-1, Tx-2, Tx-3
RBW:	100 kHz	VBW:	300 kHz
Tested By:	Mark Chang	Tested Date:	Jun. 09, 2014

Channel Number	Channel Frequency (MHz)	6dB Down Bandwidth (kHz)	Limit (kHz)	Pass/Fail
CH01	2402	669	> 500	Pass
CH20	2440	659	> 500	Pass
CH40	2480	699	> 500	Pass

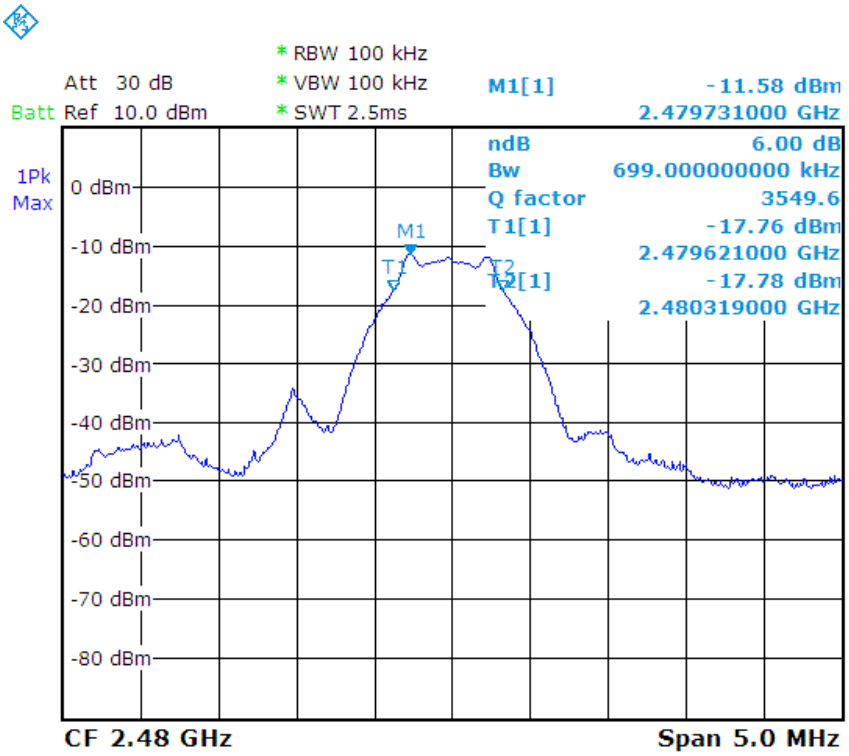
CH01：



CH20：


* RBW 100 kHz
Att 30 dB
* VBW 100 kHz
M1[1]
-9.47 dBm
Batt Ref 10.0 dBm
* SWT 2.5ms
2.439980000 GHz
ndB
6.00 dB
Bw
659.000000000 kHz
1Pk
Max
Q factor
3704.3
T1[1]
-15.48 dBm
2.439661000 GHz
T2[1]
-15.82 dBm
2.440319000 GHz
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 5.0 MHz

CH40：


* RBW 100 kHz
Att 30 dB
* VBW 100 kHz
M1[1]
-11.58 dBm
Batt Ref 10.0 dBm
* SWT 2.5ms
2.479731000 GHz
ndB
6.00 dB
Bw
699.000000000 kHz
1Pk
Max
Q factor
3549.6
T1[1]
-17.76 dBm
2.479621000 GHz
T2[1]
-17.78 dBm
2.480319000 GHz
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 5.0 MHz

4.4 PEAK POWER TEST

4.4.1 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)

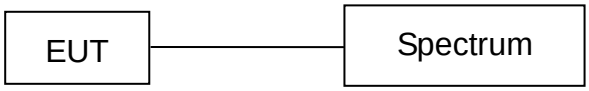
4.4.2 TEST EQUIPMENT

The following test equipment was used during the test：

Equipment/ Facilities	Specifications	Manufacturer	Model#/ Serial#	Due Date of Cal. & Cal. Center
EMI TEST RECEIVER (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAR. 24, 2016 ETC

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

4.4.3 TEST SET-UP



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

4.4.4 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.

4.4.5 EUT OPERATING CONDITION

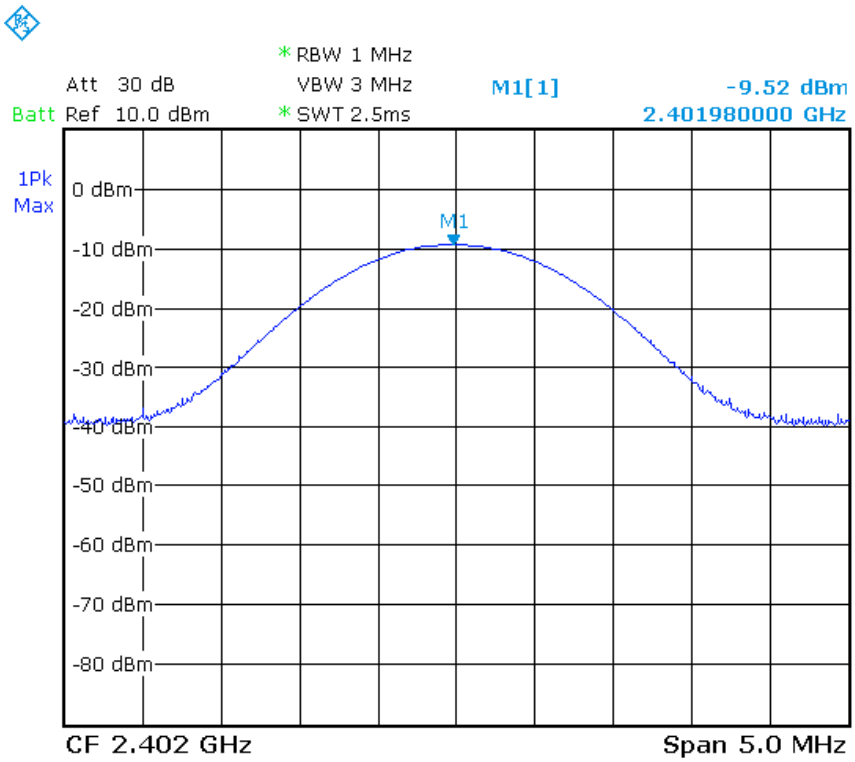
1. Set the EUT under frequency hopping transmission condition.
2. The EUT was set to the highest available power level.

4.4.6 TEST RESULT

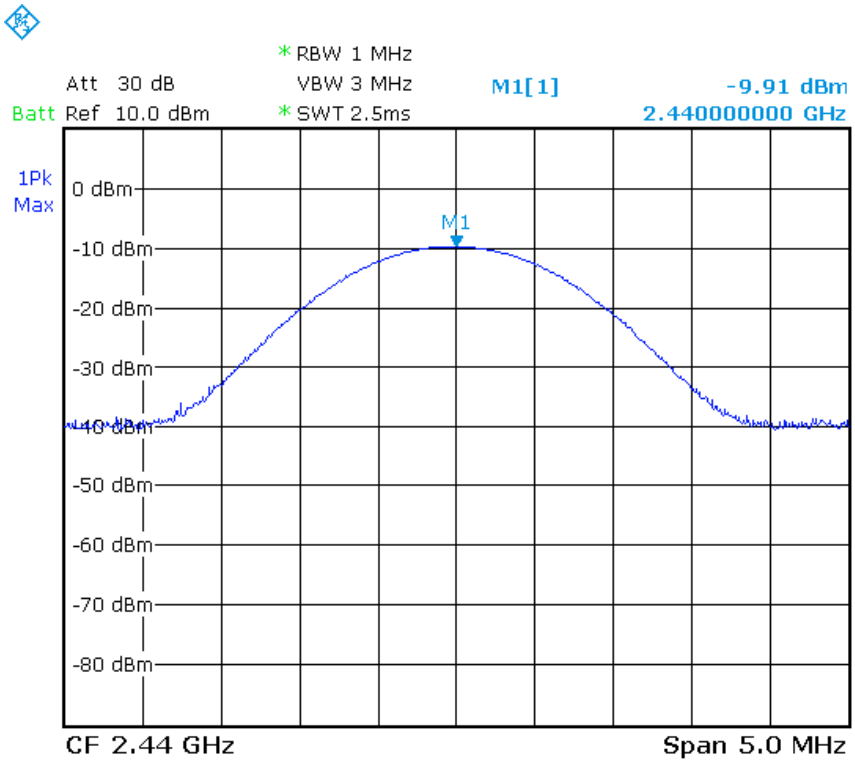
Temperature:	25 °C	Humidity:	69 %RH
Spectrum Detector:	PK.	Tesr Mode:	Tx-1, Tx-2, Tx-3
RBW:	1 MHz	VBW:	3 MHz
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

Channel Number	Channel Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
CH01	2402	-9.52	21
CH20	2440	-9.91	21
CH40	2480	-11.26	21

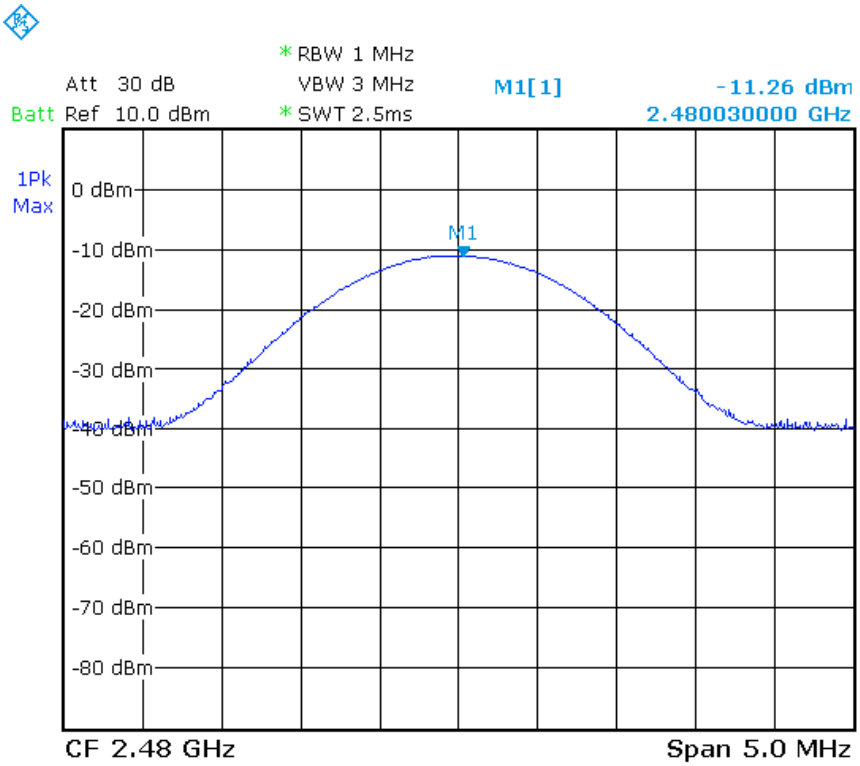
CH01：



CH20：


RBW 1 MHz
Att 30 dB
VBW 3 MHz
M1[1]
-9.91 dBm
Batt Ref 10.0 dBm
SWT 2.5ms
2.440000000 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 5.0 MHz

CH40：


RBW 1 MHz
Att 30 dB
VBW 3 MHz
M1[1]
-11.26 dBm
Batt Ref 10.0 dBm
SWT 2.5ms
2.480030000 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 5.0 MHz

4.5 BAND EDGE TEST

4.5.1 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	N/A
	> 928	> 20	N/A
	960-1240	N/A	54
2400 - 2483.5	< 2400	> 20	N/A
	> 2483.5-2500	N/A	54
5725 - 5850	< 5350-5460	N/A	54
	< 5725	> 20	N/A
	> 5850	> 20	N/A

4.5.2 TEST EQUIPMENT

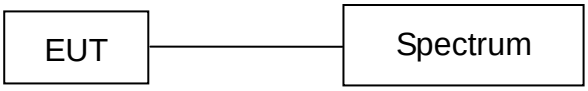
The following test equipment was used during the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAR. 28, 2015 ETC
SPECTRUM ANALYZER	9 kHz ~ 40GHz	ROHDE & SCHWARZ	FSP40 / 100093	DEC. 23, 2016 ETC
HORN ANTENNA	1 GHz ~ 18 GHz	EMCO	3115/ 9602-4681	NOV. 30, 2016 ETC
PRE-AMPLIFIER	1 GHz ~ 26.5 GHz	AGILENT	8449B/ 3008A01995	DEC. 23, 2016 ETC
OPEN AREA TEST SITE	3 – 10 M MEASUREMENT	SRT	A02 / SRT002	MAR. 06, 2016 SRT
ANECHOIC CHAMBER	3 M MEASUREMENT	SRT	A01 / SRT001	NOV. 20, 2016 SRT
RF CABLE	UP TO 18 GHz 1.5 m	JYEBAO	A30A30-L 142 / EQF-0035(001)	NOV. 24, 2016 ETC
RF CABLE	UP TO 18 GHz 3.5 m	JYEBAO	A30A30-L 142 / EQF-0036(002)	JUN. 21, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz 3 m	HUBER+SUHNER	SF102-46/2*11SK 252 /MY2611/2	MAR. 03, 2016 ETC
K-TYPE CABLE	UP TO 40 GHz, 1 m	HUBER+SUHNER	SF 102-40/2*11 /23934/2	OCT. 05, 2016 ETC
FILTER	2 LINE, 30 A	FIL.COIL	FC-943/ 869	NCR

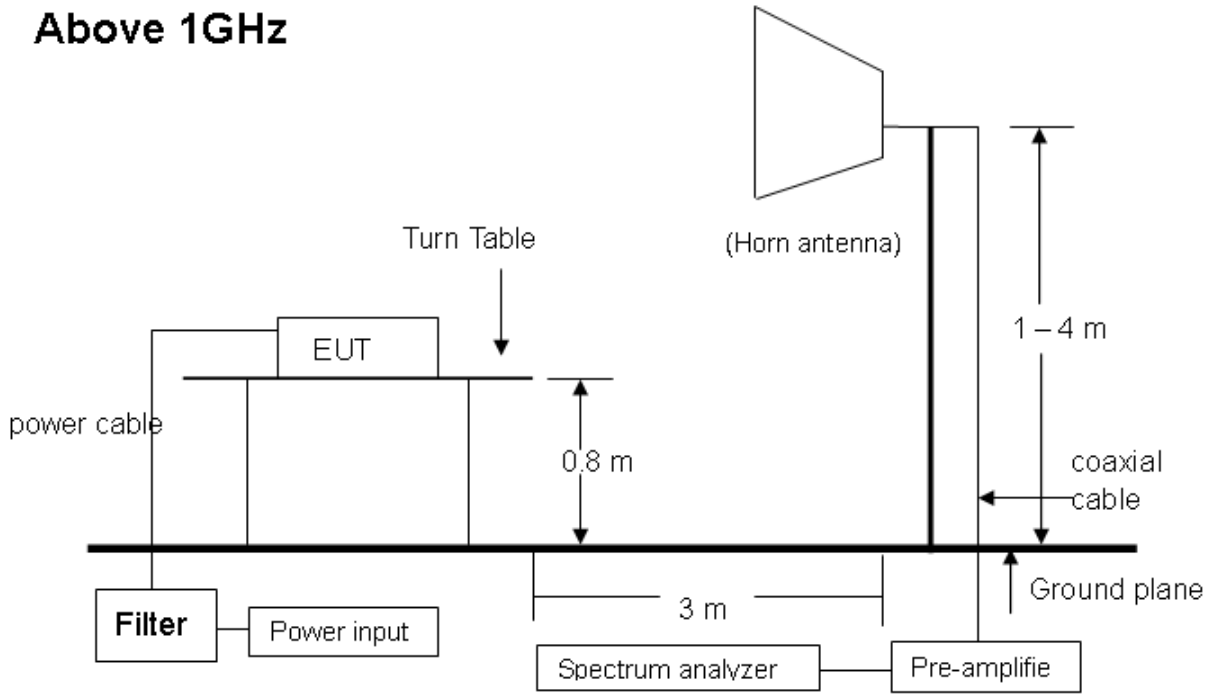
NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 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.

4.5.4 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.

4.5.5 EUT OPERATING CONDITION

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

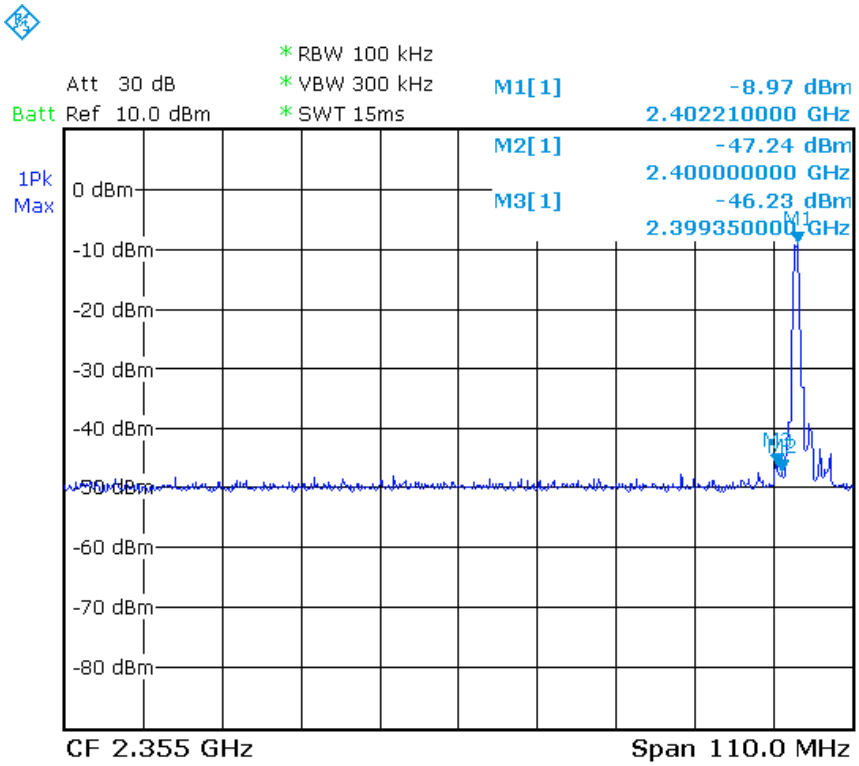
4.5.6 TEST RESULT

Temperature:	25 °C	Humidity:	69 %RH
Spectrum Detector:	PK.	Tesr Mode:	Tx-1, Tx-3
RBW:	100 kHz	VBW:	300 kHz
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

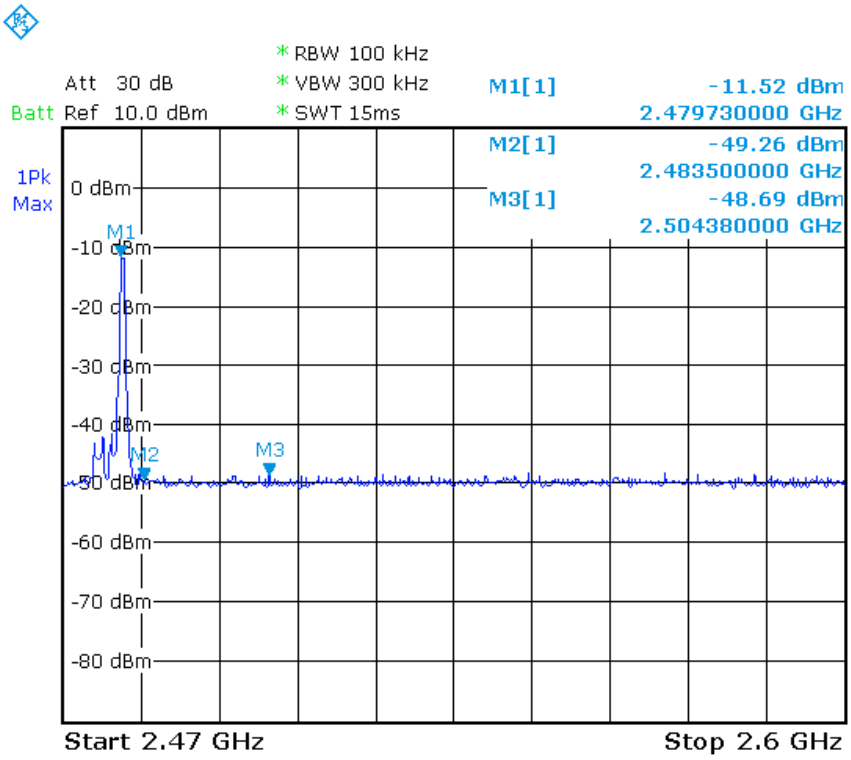
1. Conducted test

Frequency (MHz)	PEAK POWER OUTPUT (dBm)	Emission read Value(dBm)	Result of Band edge (dBc)	Band edge LIMIT (dBc)
< 2400	-8.97	-46.23	37.26	> 20 dBc
> 2483.5	-11.52	-48.69	37.17	> 20 dBc

Below 2400MHz (CH01)：



Above 2483.5 MHz (CH40)：



2. Radiated emission test：

Below 2400MHz (CH01)

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	2.31 GHz – 2.41 GHz	Tested Mode:	Tx-1
Receiver Detector:	PK. and AV.	IF Bandwidth:	1 MHz
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

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
2399.63	-31.72	28.36	H	60.16	50.36	56.80	47.00	74.00	54.00	-17.20	-7.00
2399.27	-31.72	28.36	V	54.52	45.55	51.16	42.19	74.00	54.00	-22.84	-11.81
2400.00	-31.72	28.36	H	62.18	52.12	58.82	48.76	74.00	54.00	-15.18	-5.24
2400.00	-31.72	28.36	V	57.06	46.93	53.70	43.57	74.00	54.00	-20.30	-10.43

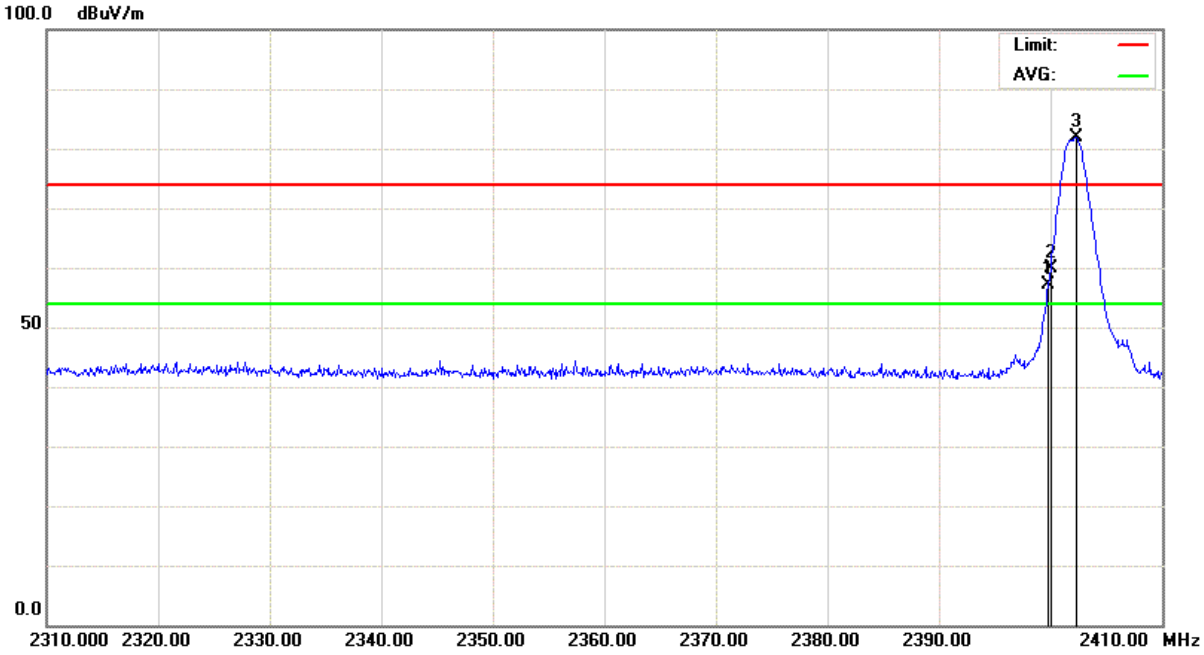
Above 2483.5MHz (CH40)

Temperature:	20 °C	Humidity:	61 %RH
Frequency Range:	2.475 GHz – 2.575 GHz	Tested Mode:	Tx-3
Receiver Detector:	PK. and AV.	IF Bandwidth:	1 MHz
Tested By:	Mark Chang	Tested Date:	Jan. 07, 2016

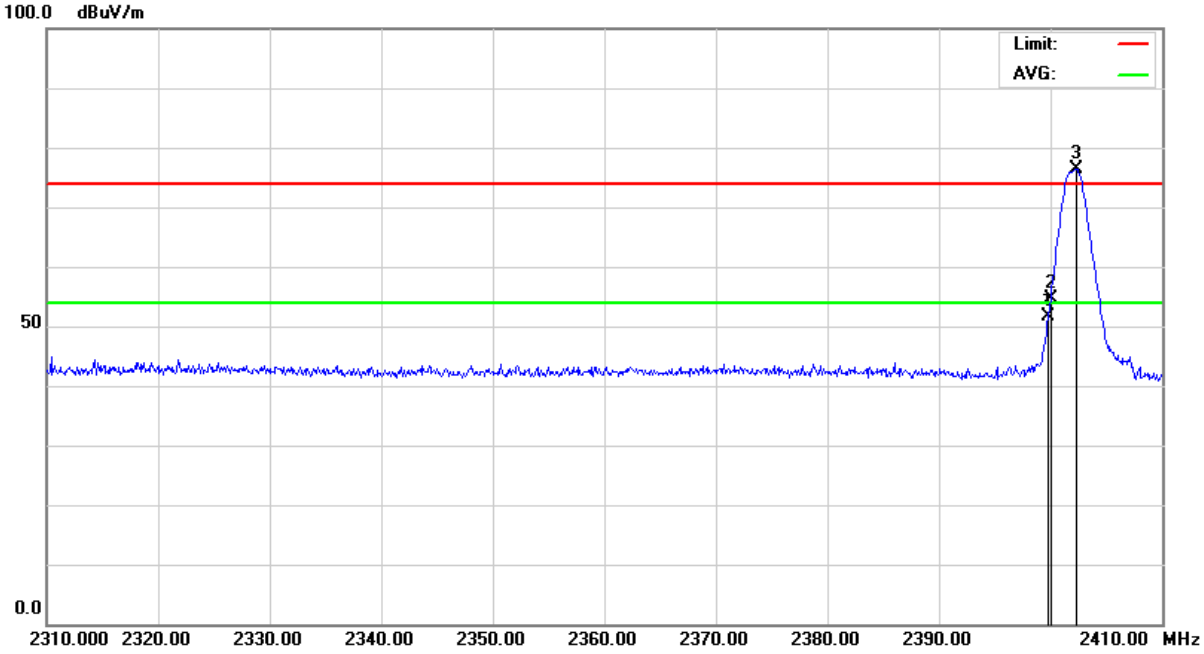
Frequency (MHz)	Correct Factor (dB)	Ant. Fac. (dB)	Ant. Pol. (H/V)	Reading (dBuV)		Emission (dBuV/m)		Limit Line (dBuV/m)		Over Limit (dBuV/m)	
				PK	AV	PK	AV	PK	AV	PK	AV
2483.50	-31.66	28.48	H	46.14	34.52	42.95	31.33	74.00	54.00	-31.05	-22.67
2483.50	-31.66	28.48	V	45.35	34.86	42.16	31.67	74.00	54.00	-31.84	-22.33
2531.60	-31.63	28.61	H	46.69	34.96	43.67	31.94	74.00	54.00	-30.33	-22.06
2524.67	-31.64	28.59	V	46.35	37.12	43.30	34.07	74.00	54.00	-30.70	-19.93

Below 2400MHz (CH01)

Antenna Polarization：Horizontal

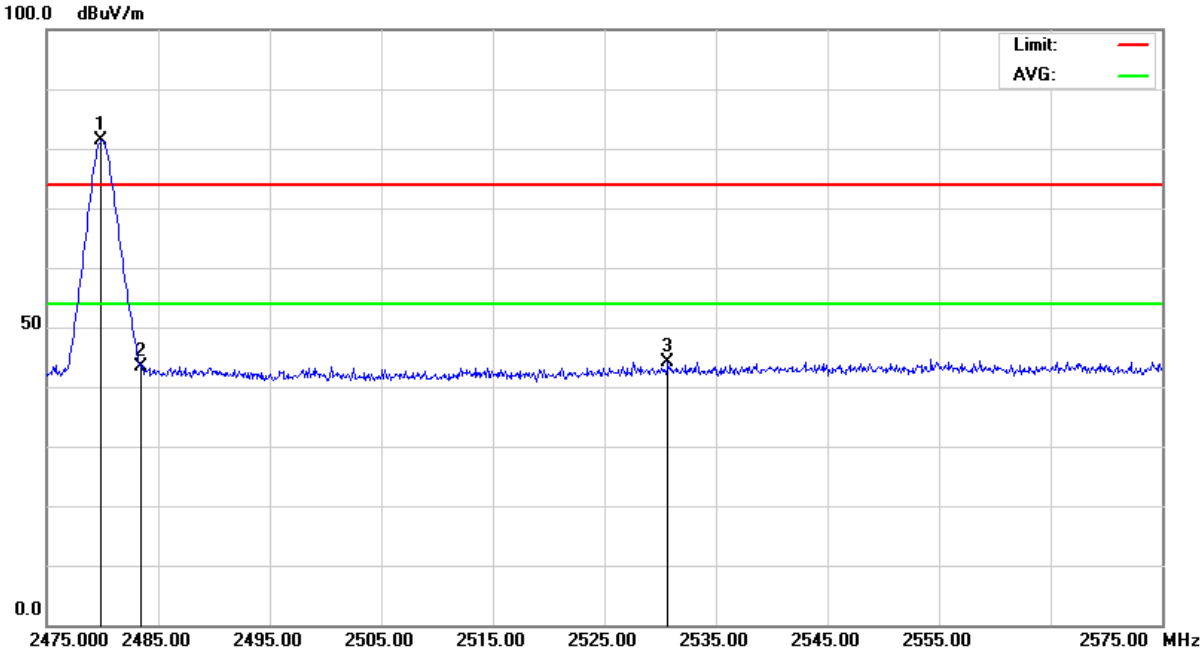


Antenna Polarization：Vertical

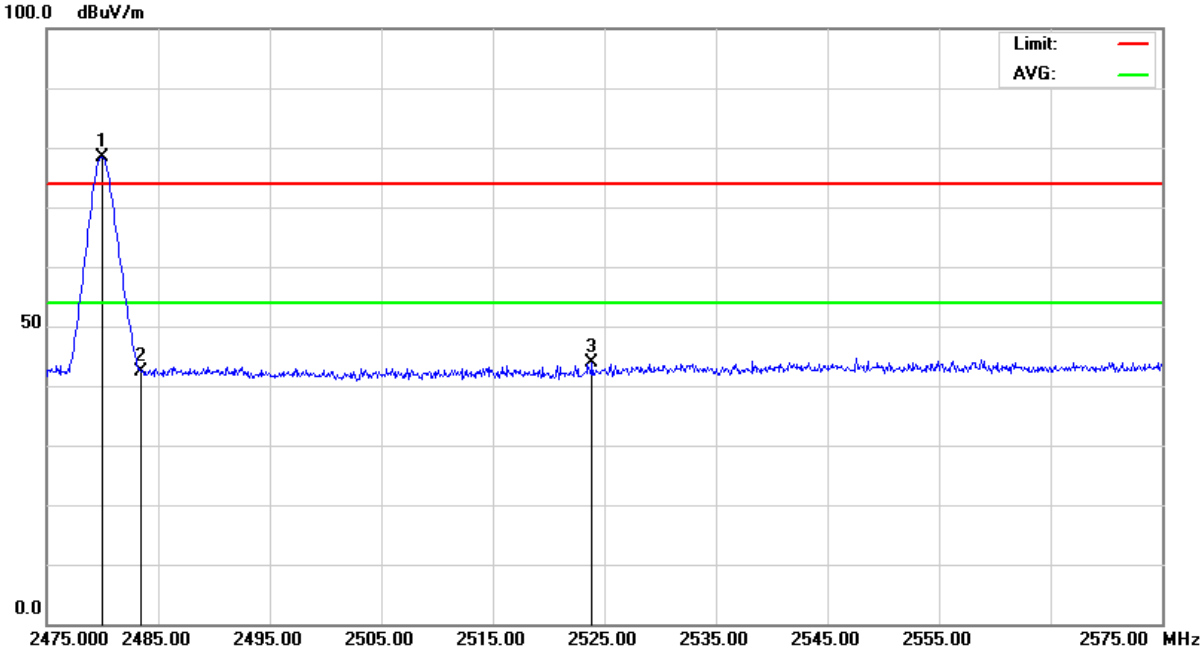


Above 2483.5MHz (CH40)

Antenna Polarization：Horizontal



Antenna Polarization：Vertical



4.6 POWER DENSITY TEST

4.6.1 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	

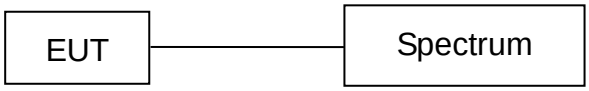
4.6.2 TEST EQUIPMENT

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 (INCLUDE SPECTRUM ANALYZER)	9 KHz ~ 6 GHz	ROHDE & SCHWARZ	ESL /100176	MAR. 24, 2016 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 operating in transmitter mode and could be controlled its channel.

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

4.6.5 EUT OPERATING CONDITION

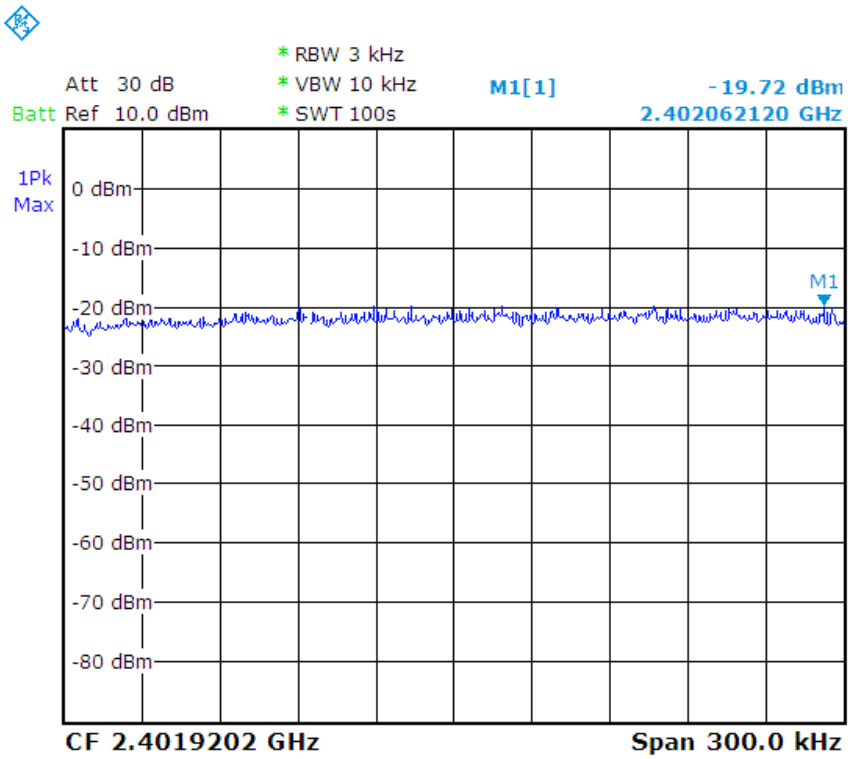
1. Set the EUT under continuous transmission condition.
2. The EUT was set to the highest available power level.

4.6.6 TEST RESULT

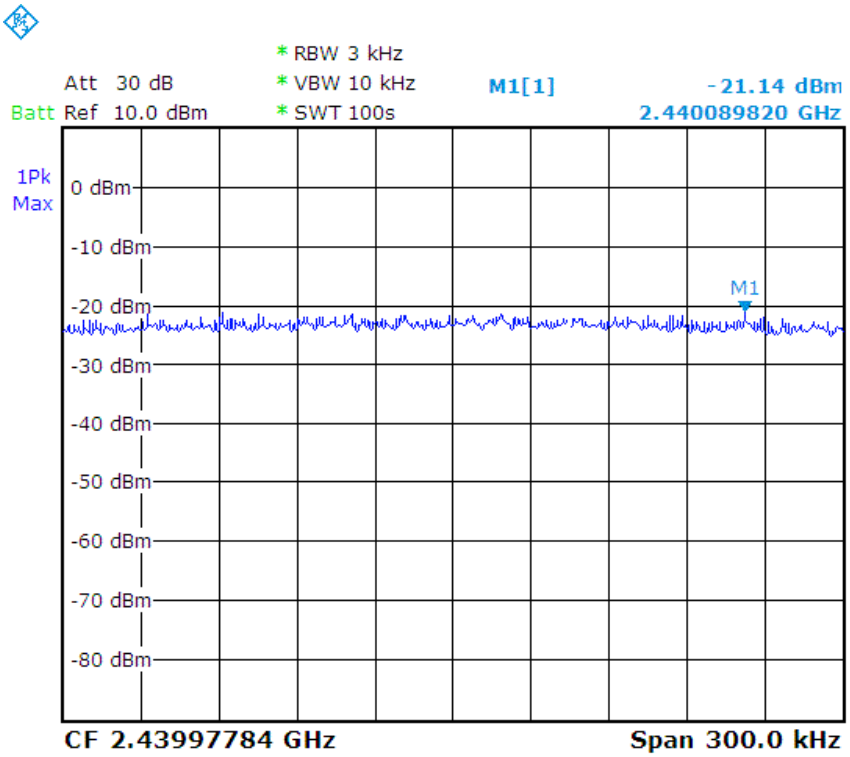
Temperature:	25 °C	Humidity:	69 %RH
Spectrum Detector:	PK.	Tesr Mode:	Tx-1, Tx-2, Tx-3
RBW:	3 kHz	VBW:	10 kHz
Tested By:	Mark Chang	Tested Date:	Jan. 08, 2016

Channel Number	Channel Frequency (MHz)	RF Power Level in 3 KHz BW (dBm/3kHz)	Maximum Limit (dBm/3kHz)
CH01	2402	-19.72	8
CH20	2440	-21.14	8
CH40	2480	-22.92	8

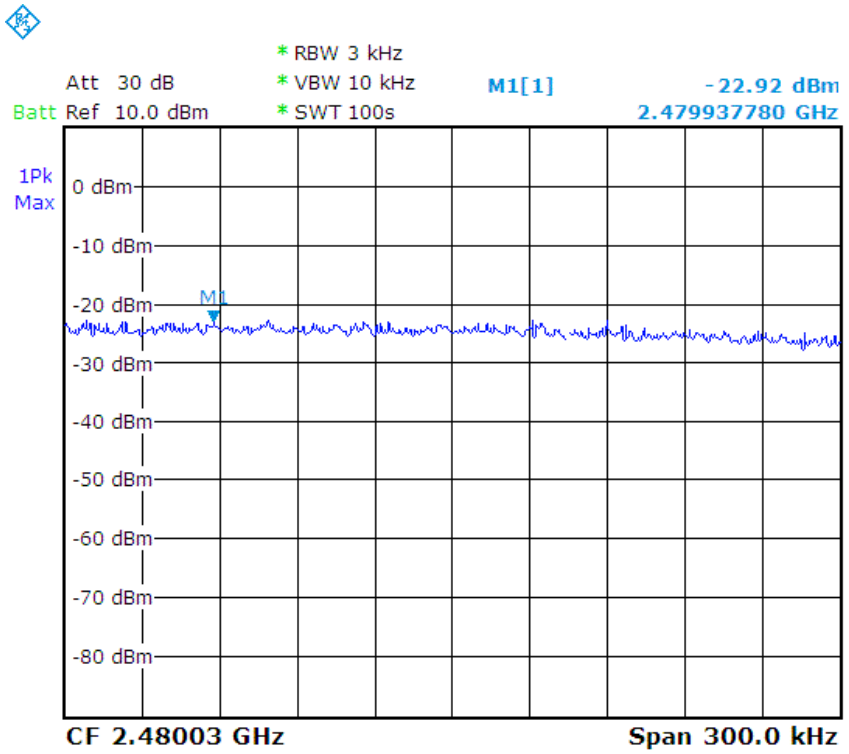
CH01：



CH20：


* RBW 3 kHz
Att 30 dB
* VBW 10 kHz
M1[1]
-21.14 dBm
Batt Ref 10.0 dBm
* SWT 100s
2.440089820 GHz
1Pk
Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
CF 2.43997784 GHz
Span 300.0 kHz

CH40：


* RBW 3 kHz
Att 30 dB
* VBW 10 kHz
M1[1]
-22.92 dBm
Batt Ref 10.0 dBm
* SWT 100s
2.479937780 GHz
1Pk
Max
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
CF 2.48003 GHz
Span 300.0 kHz

5. Antenna application

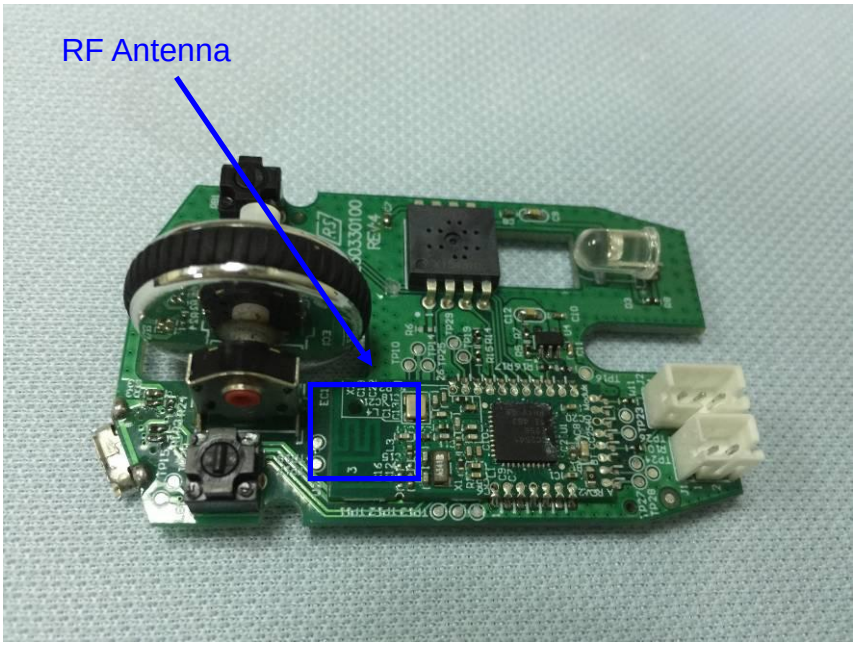
5.1 Antenna requirement

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

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 Printed Antenna. Gain of antenna types is 0 dBi that meet the requirement.



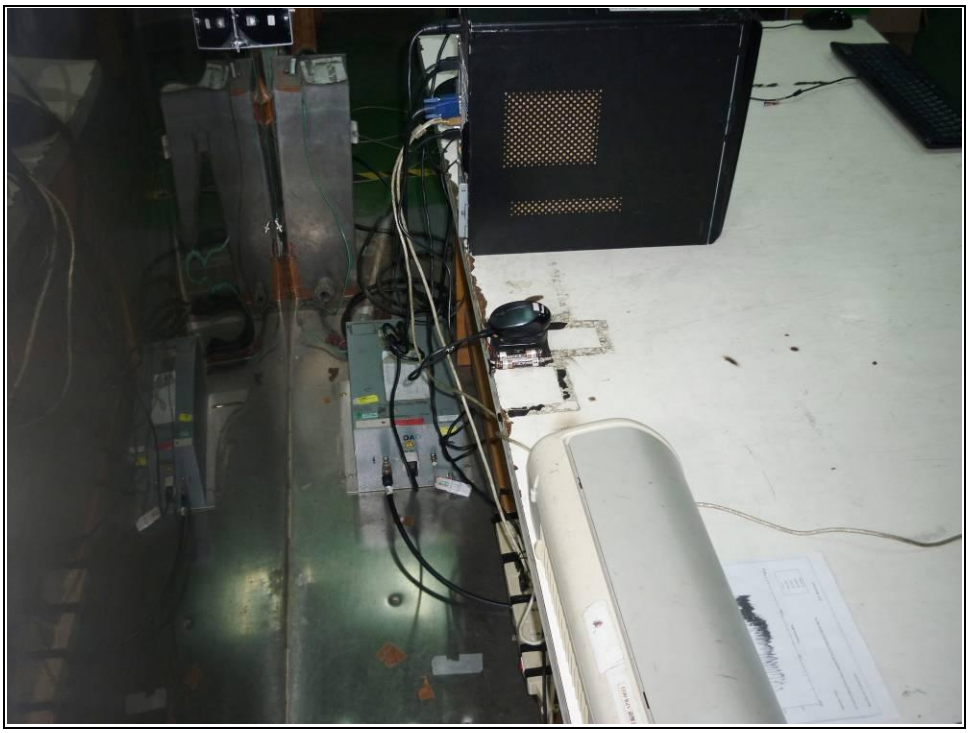
6. Description of RF Exposure

SAR compliance has been evaluated in the product(s), and con be used in host product(s) with substantially similar physical dimensions, construction, and electrical and RF characteristics. End-users must be provided with specific information required to satisfy RF exposure compliance for all final host devices. Compliance of this device in all final host configurations is the responsibility of the Grantee.

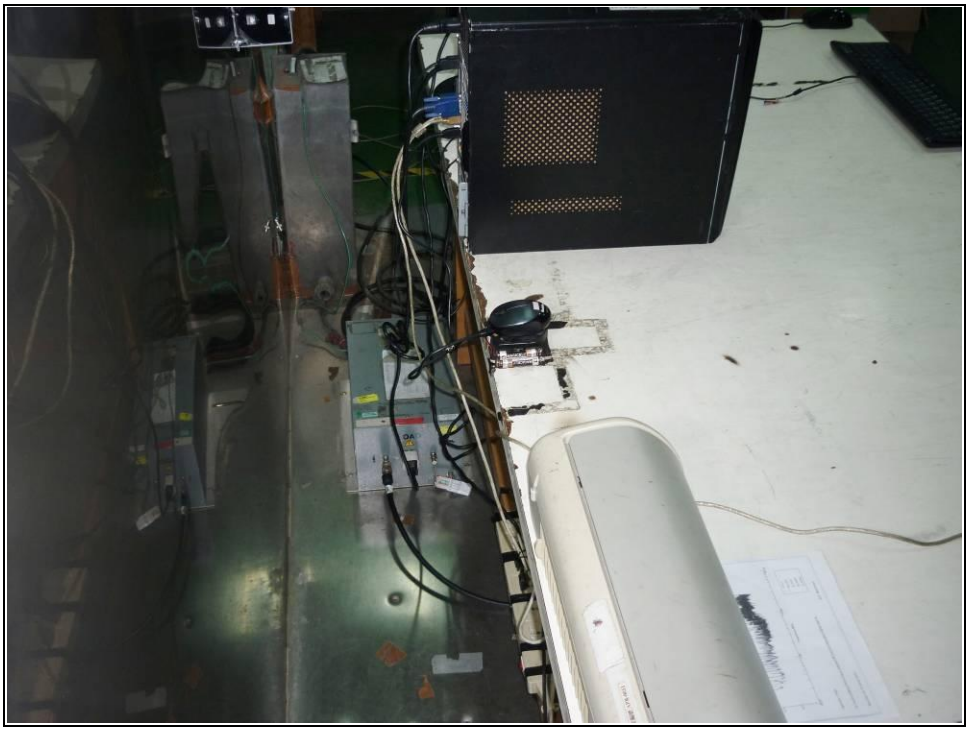
- The separation distance -20 cm must be clearly stated in the operating and/or installation manual that is supplied to the User.
- This application is being made on behalf of the “Grantee”.

7. PHOTOS OF TESTING

- Conducted emission test(Tx-1, Tx-2, Tx-3, Standby)



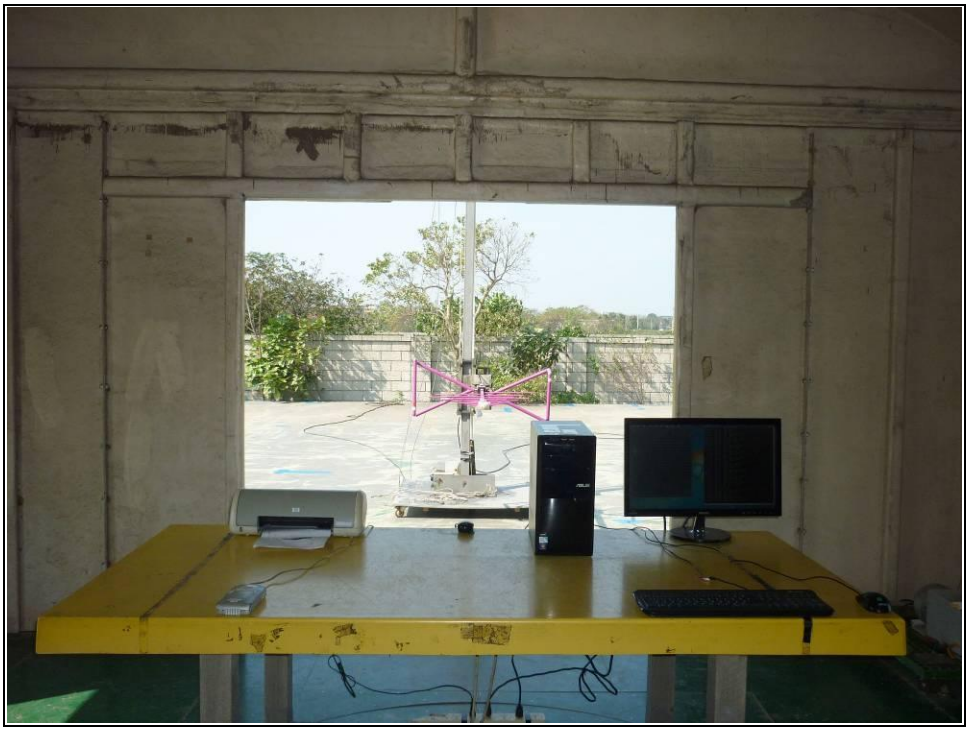
- Conducted emission test(Link)



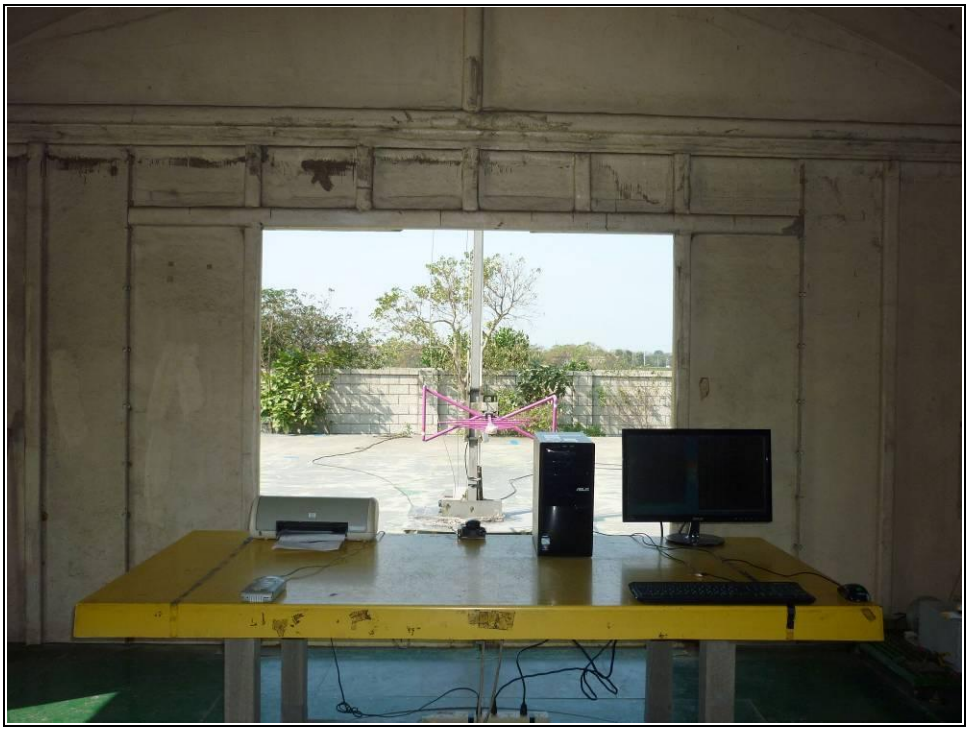
- Radiated test (below 30M , Tx-1, Tx-2, Tx-3, Standby)

- Radiated test (below 30M , Link)

- Radiated test (below 1G , Tx-1, Tx-2, Tx-3, Standby)



- Radiated test (below 1G , Link)



- Radiated test (above 1G , Tx-1, Tx-2, Tx-3, Standby)

- Radiated test (above 1G , Link)

8. TERMS OF ABBREVIATION

AV.	Average detection
AZ(º)	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