



FCC Part 15C Test Report

FCC ID:2AJKG2263R

Product Name:	The receiver of the wireless mouse
Trademark:	
Model Name :	2263-Mouse-Wireless-BK/SY
Prepared For :	Sourceway Technology Co.,LTD
Address :	Room 1105, Qingqua Building, Qingquan Road, Longhua District, Shenzhen, Guangdong, China
Prepared By :	Shenzhen BCTC Technology Co., Ltd.
Address :	No.101, Yousong Road, Longhua New District, Shenzhen, China
Test Date:	Aug. 11 - Aug. 18, 2016
Date of Report :	Aug. 18, 2016
Report No.:	BCTC-160709535-1E



TEST RESULT CERTIFICATION

Applicant's name : Sourceway Technology Co.,LTD

Address : Room 1105, Qingqua Building, Qingquan Road, Longhua District, Shenzhen, Guangdong, China

Manufacture's Name : Sourceway Technology Co.,LTD

Address : Room 1105, Qingqua Building, Qingquan Road, Longhua District, Shenzhen, Guangdong, China

Product description

Product name : The receiver of the wireless mouse

Trademark :

Model and/or type reference : 2263-Mouse-Wireless-BK/SY

Standards : FCC Part15.249

ANSI C63.10-2013

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Testing Engineer :

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Reviewer (Supervisor) :

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Approved & Authorized Signer(Manager) :



**Table of Contents**

	Page
1 . SUMMARY OF TEST RESULTS	5
1.1 TEST FACILITY	5
1.2 MEASUREMENT UNCERTAINTY	5
2 . GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 DESCRIPTION OF TEST MODES	7
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	8
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	8
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	9
3 . EMC EMISSION TEST	10
3.1 CONDUCTED EMISSION MEASUREMENT	10
3.1.1 POWER LINE CONDUCTED EMISSION LIMITS	10
3.1.2 TEST PROCEDURE	10
3.1.3 DEVIATION FROM TEST STANDARD	10
3.1.4 TEST SETUP	11
3.1.5 EUT OPERATING CONDITIONS	11
3.1.6 TEST RESULTS	12
3.2 RADIATED EMISSION MEASUREMENT	14
3.2.1 RADIATED EMISSION LIMITS	14
3.2.2 TEST PROCEDURE	15
3.2.3 DEVIATION FROM TEST STANDARD	15
3.2.4 TEST SETUP	15
3.2.5 EUT OPERATING CONDITIONS	16
3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)	17
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)	18
3.2.8 TEST RESULTS (1GHZ~25GHZ)	20
3.3 RADIATED BAND EMISSION MEASUREMENT	22
3.3.1 TEST REQUIREMENT:	22
3.3.2 TEST PROCEDURE	22
3.3.3 DEVIATION FROM TEST STANDARD	23
3.3.4 TEST SETUP	23
3.3.5 EUT OPERATING CONDITIONS	23
4 . BANDWIDTH TEST	25
4.1 APPLIED PROCEDURES / LIMIT	25
4.1.1 TEST PROCEDURE	25

**Table of Contents**

	Page
4.1.2 DEVIATION FROM STANDARD	25
4.1.3 TEST SETUP	25
4.1.4 EUT OPERATION CONDITIONS	25
4.1.5 TEST RESULTS	26
5 . ANTENNA REQUIREMENT	28
5.1 STANDARD REQUIREMENT	28
5.2 EUT ANTENNA	28
6 . TEST SEUUP PHOTO	29
7 . EUT PHOTO	32



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.249) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.249	Radiated Spurious Emission	PASS	
15.249	Bandwidth	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

Shenzhen BCTC Technology Co., Ltd.

Add. : No.101, Yousong Road, Longhua New District, Shenzhen, China

FCC Registered No.: 187086

1.2 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power, conducted	$\pm 0.16\text{dB}$
3	Spurious emissions, conducted	$\pm 0.21\text{dB}$
4	All emissions, radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^\circ\text{C}$
7	Humidity	$\pm 2\%$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	The receiver of the wireless mouse													
Trademark														
Model Name	2263-Mouse-Wireless-BK/SY													
Model Difference	N/A													
Product Description	<p>The EUT is a The receiver of the wireless mouse</p> <table border="1"><tr><td>Operation Frequency:</td><td>2408~2474MHz</td></tr><tr><td>Modulation Type:</td><td>GFSK</td></tr><tr><td>Bit Rate of Transmitter</td><td>2Mbps</td></tr><tr><td>Number Of Channel</td><td>34 CH</td></tr><tr><td>Antenna type:</td><td>PCB antenna</td></tr><tr><td>Antenna Gain (dBi)</td><td>-1.66dBi</td></tr></table>		Operation Frequency:	2408~2474MHz	Modulation Type:	GFSK	Bit Rate of Transmitter	2Mbps	Number Of Channel	34 CH	Antenna type:	PCB antenna	Antenna Gain (dBi)	-1.66dBi
Operation Frequency:	2408~2474MHz													
Modulation Type:	GFSK													
Bit Rate of Transmitter	2Mbps													
Number Of Channel	34 CH													
Antenna type:	PCB antenna													
Antenna Gain (dBi)	-1.66dBi													
Channel List	Please refer to the Note 2.													
Power	DC 5V From PC													
hardware version	--													
Software version	--													
Serial number	--													
Connecting I/O Port(s)	Please refer to the User's Manual													

Note:

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



2.

Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2408	/	/	/	/	28	2464
01	2410	/	/	/	/	29	2466
02	2412	/	/	/	/	30	2468
03	2414	/	/	/	/	31	2470
04	2416	/	/	/	/	32	2472
05	2418	/	/	/	/	33	2474
06	2420	16	2440	26	2460		
07	2422	17	2442	27	2462		

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH00
Mode 2	CH16
Mode 3	CH33
Mode 4	Link Mode

For Conducted & Radiated Emission	
Final Test Mode	Description
Mode 1	CH00
Mode 2	CH16
Mode 3	CH33
Mode 4	Link Mode

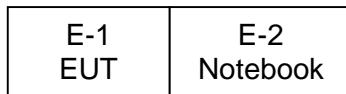
Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

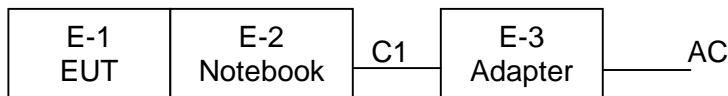


2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Emission Test



Conducted Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	The receiver of the wireless mouse	JETech®	2263-Mouse-Wire less-BK/SY	N/A	EUT
E-2	Notebook	Lenovo	ThinkPad S2	SL10K92342	N/A
E-3	Adapter	Lenovo	ADLX45NCC3A	5A10H03912	Input:100-240V~ 1.3A 50-60Hz Output: 20V---2.25A

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	1.5M	DC cable unshielded

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in『Length』 column.



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	1166.5950K 03-101165-ha	2016.06.06	2017.06.05	1 year
2	LISN	R&S	NSLK81 26	812646 6	2015.08.24	2016.08.23	1 year
3	LISN	R&S	NSLK81 26	812648 7	2015.08.24	2016.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	620026441 7	2016.06.07	2017.06.06	1 year
5	RF cables	R&S	R204	R20X	2016.07.06	2017.07.05	1 year

Radiation test, Band-edge test and 20db bandwidth test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY4510804 0	2016.07.06	2017.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2016.06.07	2017.06.06	1 year
3	Bilog Antenna	R&S	VULB 9168	VULB91 68-438	2016.07.06	2017.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	620026441 6	2016.06.07	2017.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2016.06.07	2017.06.06	1 year
6	Horn Antenna	R&S	HF906	10027	2016.07.06	2017.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2016.07.06	2017.07.05	1 year
8	Amplifier	R&S	BBV9743	9743-01 9	2015.08.25	2016.08.24	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2016.06.08	2017.06.07	1 year
10	RF cables	R&S	R203	R20X	2016.07.06	2017.07.05	1 year
11	Antenna connector	Florida RFLabs	Lab-Fle	RF 01#	2016.07.06	2017.07.05	1 year



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

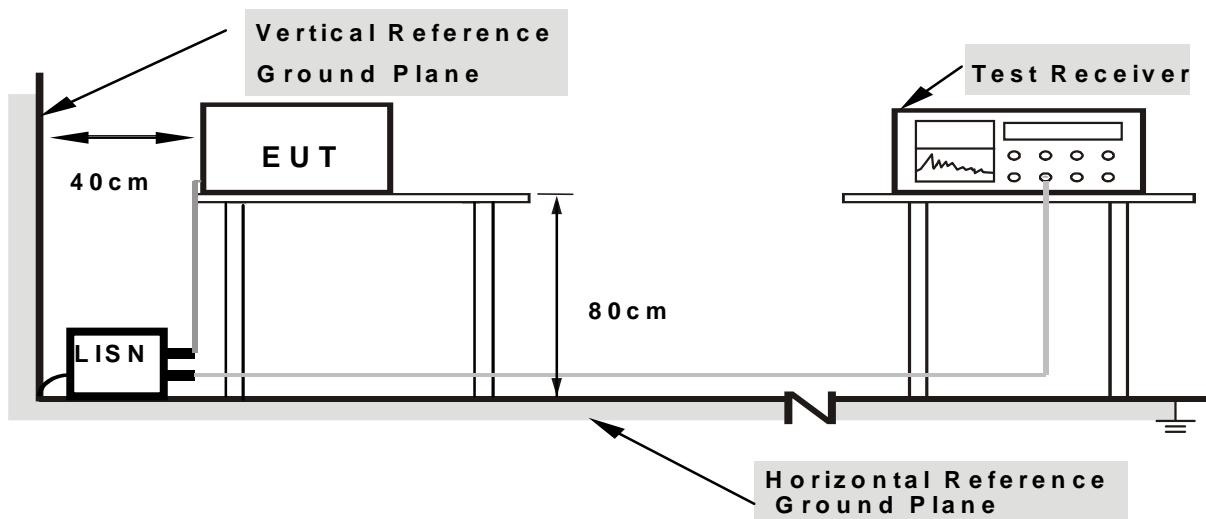
3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

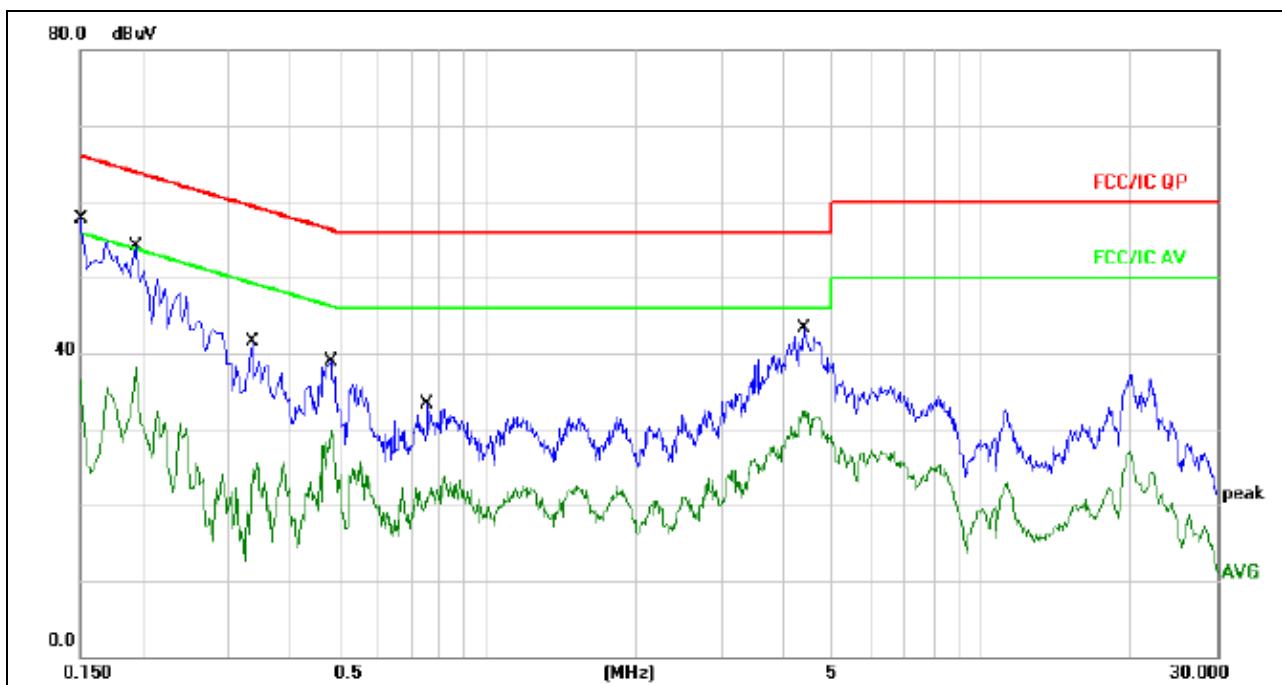
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.



3.1.6 TEST RESULTS

Temperature :	25°C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	AC120V/60Hz	Test Mode :	Mode 4



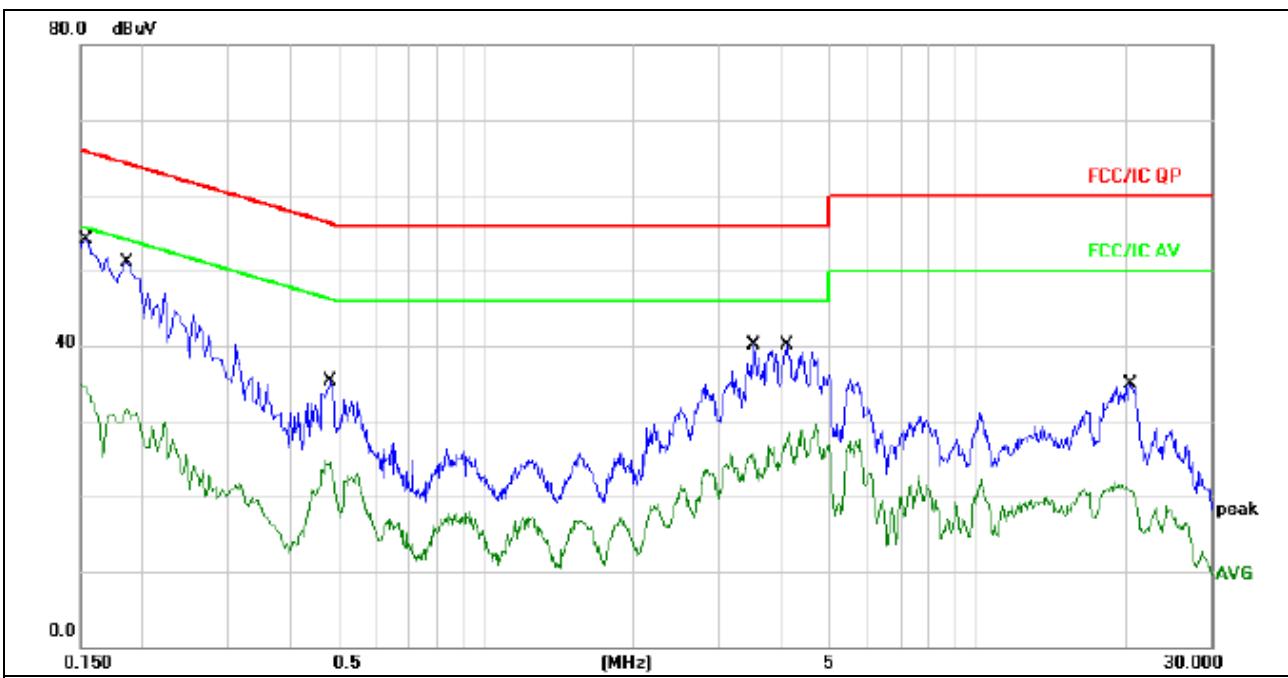
Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No. Mk.	Freq. MHz	Reading Level	Correct Factor	Measure- ment	Limit	Over	Comment
		dBuV	dB	dBuV	dB	Detector	
1 *	0.1500	48.04	9.74	57.78	65.99	-8.21	QP
2	0.1500	26.75	9.74	36.49	55.99	-19.50	AVG
3	0.1940	44.49	9.64	54.13	63.86	-9.73	QP
4	0.1940	28.41	9.64	38.05	53.86	-15.81	AVG
5	0.3339	31.76	9.65	41.41	59.35	-17.94	QP
6	0.3339	16.10	9.65	25.75	49.35	-23.60	AVG
7	0.4820	29.22	9.68	38.90	56.30	-17.40	QP
8	0.4820	20.18	9.68	29.86	46.30	-16.44	AVG
9	0.7580	23.71	9.68	33.39	56.00	-22.61	QP
10	0.7580	13.98	9.68	23.66	46.00	-22.34	AVG
11	4.3659	33.64	9.73	43.37	56.00	-12.63	QP
12	4.3659	22.61	9.73	32.34	46.00	-13.66	AVG



Temperature :	25°C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	AC120V/60Hz	Test Mode :	Mode 4

**Remark:**

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1	*	0.1500	44.60	9.67	54.27	65.99	-11.72	QP	
2		0.1500	25.26	9.67	34.93	55.99	-21.06	AVG	
3		0.1860	41.53	9.66	51.19	64.21	-13.02	QP	
4		0.1860	22.06	9.66	31.72	54.21	-22.49	AVG	
5		0.4860	25.53	9.68	35.21	56.24	-21.03	QP	
6		0.4860	15.00	9.68	24.68	46.24	-21.56	AVG	
7		3.5260	30.47	9.73	40.20	56.00	-15.80	QP	
8		3.5260	15.90	9.73	25.63	46.00	-20.37	AVG	
9		4.1060	30.36	9.73	40.09	56.00	-15.91	QP	
10		4.1060	19.77	9.73	29.50	46.00	-16.50	AVG	
11		20.6740	25.00	9.85	34.85	60.00	-25.15	QP	
12		20.6740	12.13	9.85	21.98	50.00	-28.02	AVG	



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	25GHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
- h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

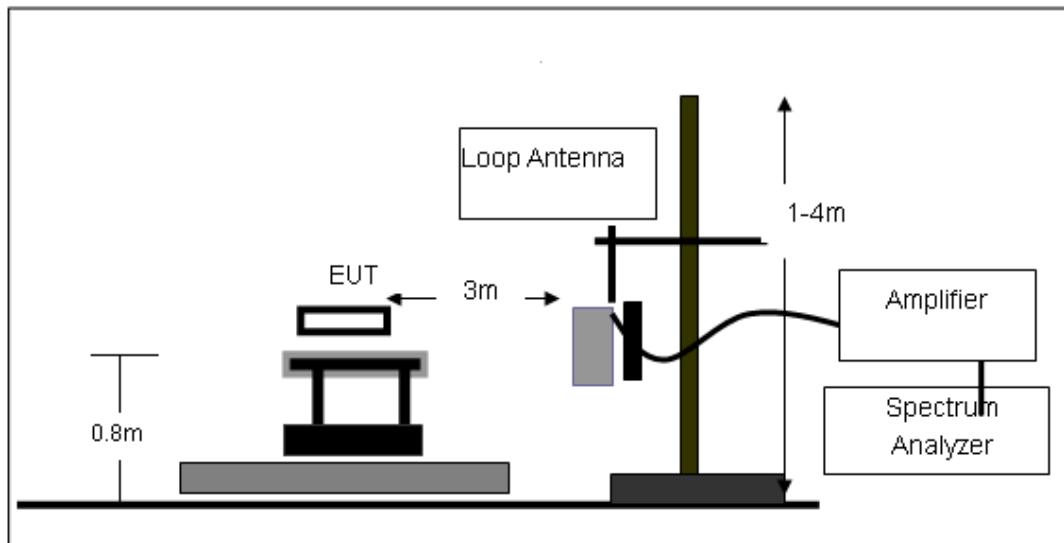
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

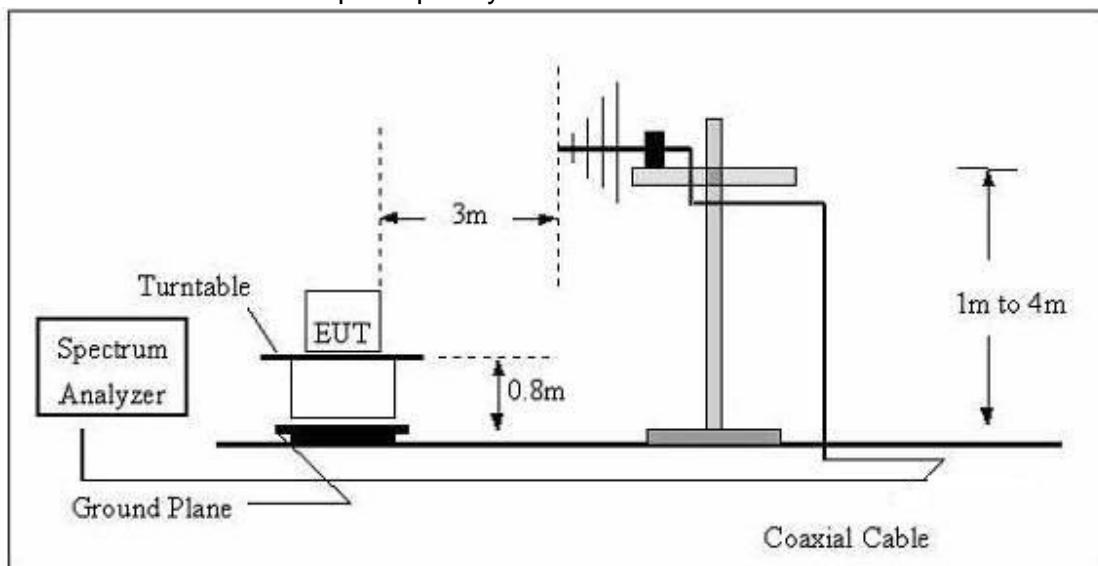
No deviation

3.2.4 TEST SETUP

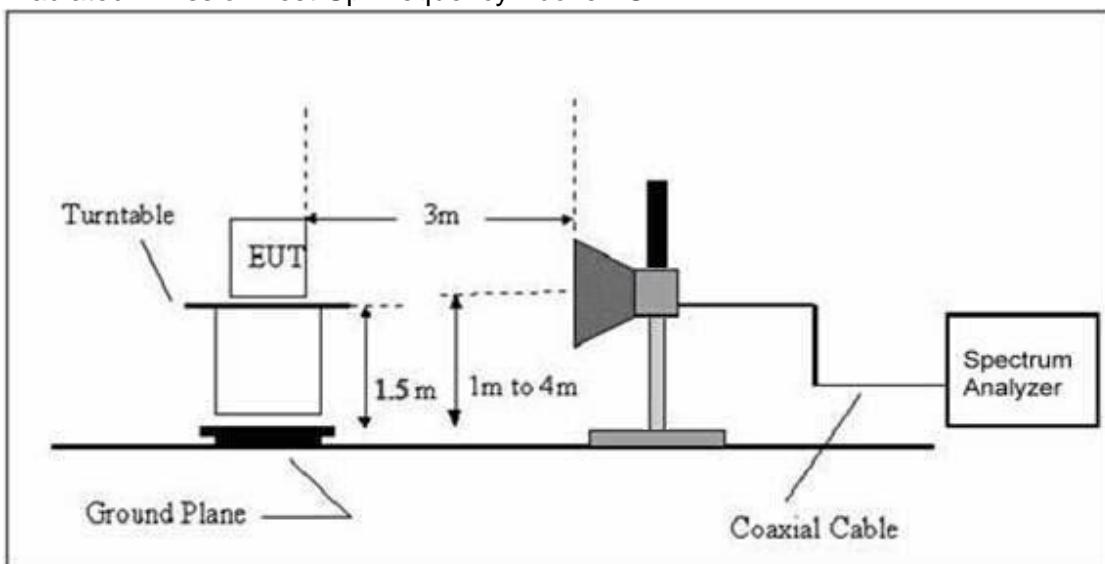
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

Temperature:	20°C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 5V From PC
Test Mode :	Mode 4	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

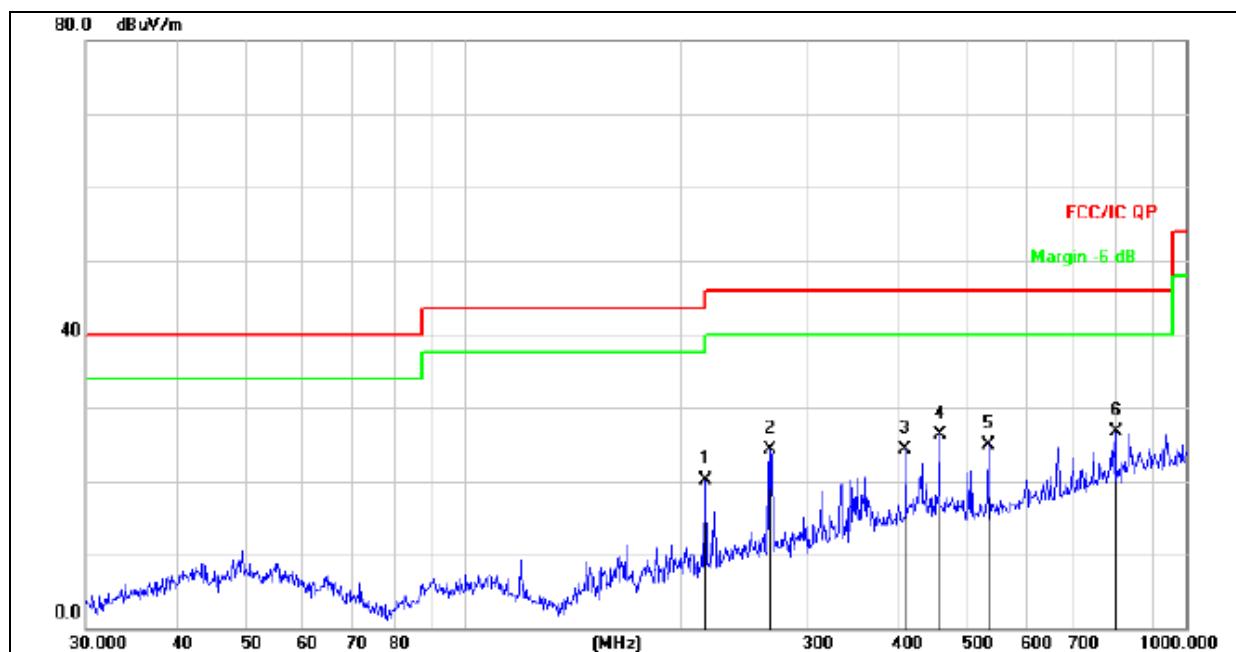
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);
Limit line = specific limits(dBuV) + distance extrapolation factor.



3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

Temperature :	26°C	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Horizontal
Test Voltage :	DC 5V From PC		
Test Mode :	Mode 4		



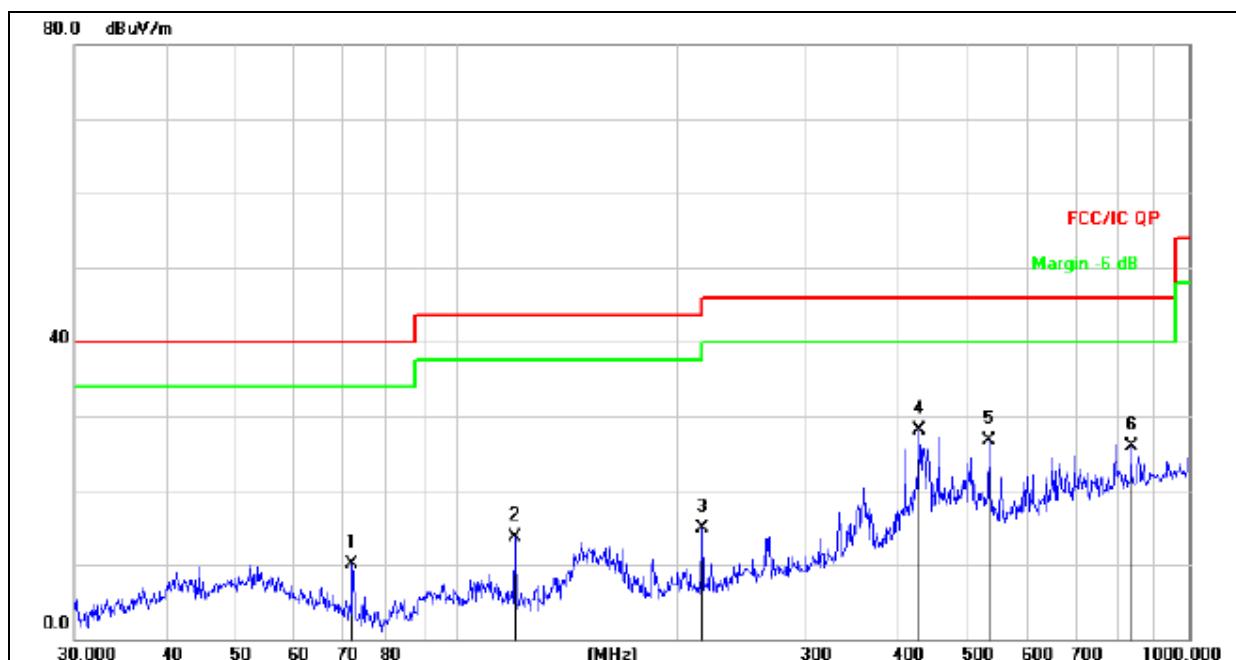
Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree
1	216.0240	35.63	-15.61	20.02	20.02	46.00	-25.98	QP		
2	265.6757	37.44	-13.21	24.23	24.23	46.00	-21.77	QP		
3	408.9460	33.38	-9.13	24.25	24.25	46.00	-21.75	QP		
4	455.9058	34.56	-8.33	26.23	26.23	46.00	-19.77	QP		
5	531.9635	31.44	-6.44	25.00	25.00	46.00	-21.00	QP		
6	*	798.9797	27.95	-1.17	26.78	46.00	-19.22	QP		



Temperature :	26°C	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Vertical
Test Voltage :	DC 5V From PC		
Test Mode :	Mode 4		

**Remark:**

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq. MHz	Reading Level	Correct Factor	Measure- ment	Limit dB/m	Over dB	Antenna Height cm	Table Degree	Comment
			dBuV	dB	dBuV/m					
1		71.8320	29.76	-19.62	10.14	40.00	-29.86	QP		
2		119.8556	31.83	-18.07	13.76	43.50	-29.74	QP		
3		216.0240	30.48	-15.61	14.87	46.00	-31.13	QP		
4	*	428.0193	36.84	-8.70	28.14	46.00	-17.86	QP		
5		533.8321	33.16	-6.40	26.76	46.00	-19.24	QP		
6		833.3171	26.44	-0.63	25.81	46.00	-20.19	QP		



3.2.8 TEST RESULTS (1GHZ~25GHZ)

GFSK

Lower Channel 2408MHz	Freq.	Receiver Reading	Detector	Polar	Corrected Factor	Emission Level	Limit	Result
	(MHz)	(dB μ V)	(PK/QP/Ave)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	
	2408.00	90.22	PK	H	13.85	104.07	114.00	Pass
Middle Channel 2440MHz	2408.00	72.37	Ave	H	13.85	86.22	94.00	Pass
	4816.00	50.47	PK	H	19.33	69.80	74.00	Pass
	4816.00	29.38	Ave	H	19.33	48.71	54.00	Pass
	12355.00	27.12	PK	H	17.81	44.93	74.00	Pass
	17850.00	20.44	PK	H	25.39	45.83	74.00	Pass
	2408.00	89.88	PK	V	13.85	103.73	114.00	Pass
	2408.00	72.56	Ave	V	13.85	86.41	94.00	Pass
	4816.00	47.36	PK	V	19.33	66.69	74.00	Pass
	4816.00	27.45	Ave	V	19.33	46.78	54.00	Pass
	12355.00	26.78	PK	V	17.81	44.59	74.00	Pass
	17850.00	20.36	PK	V	25.39	45.75	74.00	Pass
	2440.00	89.65	PK	H	13.94	103.59	114.00	Pass
Upper Channel 2474MHz	2440.00	71.54	Ave	H	13.94	85.48	94.00	Pass
	4880.00	47.33	PK	H	19.43	66.76	74.00	Pass
	4880.00	29.45	Ave	H	19.43	48.88	54.00	Pass
	12355.00	26.38	PK	H	17.81	44.19	74.00	Pass
	17850.00	19.41	PK	H	25.39	44.80	74.00	Pass
	2440.00	90.38	PK	V	13.94	104.32	114.00	Pass
	2440.00	72.22	Ave	V	13.94	86.16	94.00	Pass
	4880.00	48.33	PK	V	19.43	67.76	74.00	Pass
	4880.00	28.47	Ave	V	19.43	47.90	54.00	Pass
	12355.00	26.53	PK	V	17.81	44.34	74.00	Pass
	17850.00	19.15	PK	V	25.39	44.54	74.00	Pass
	2474.00	90.23	PK	H	14.02	104.25	114.00	Pass
	2474.00	71.76	Ave	H	14.02	85.78	94.00	Pass
	4948.00	45.33	PK	H	19.51	64.84	74.00	Pass
	4948.00	27.58	Ave	H	19.51	47.09	54.00	Pass



	12355.00	25.74	PK	H	17.81	43.55	74.00	Pass
	17850.00	19.86	PK	H	25.39	45.25	74.00	Pass
	2474.00	89.64	PK	V	14.02	103.66	114.00	Pass
	2474.00	72.05	Ave	V	14.02	86.07	94.00	Pass
	4948.00	44.18	PK	V	19.51	63.69	74.00	Pass
	4948.00	27.87	Ave	V	19.51	47.38	54.00	Pass
	12355.00	26.61	PK	V	17.81	44.42	74.00	Pass
	17850.00	19.37	PK	V	25.39	44.76	74.00	Pass

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Emission Level = Meter Reading + Factor

Margin = Emission Level - Limit

Other harmonics emissions are lower than 20dB below the allowable limit.



3.3 RADIATED BAND EMISSION MEASUREMENT

3.3.1 TEST REQUIREMENT:

FCC Part15 C Section 15.209 and 15.205

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

3.3.2 TEST PROCEDURE

Above 1GHz test procedure as below:

- a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the Highest channel

Note:

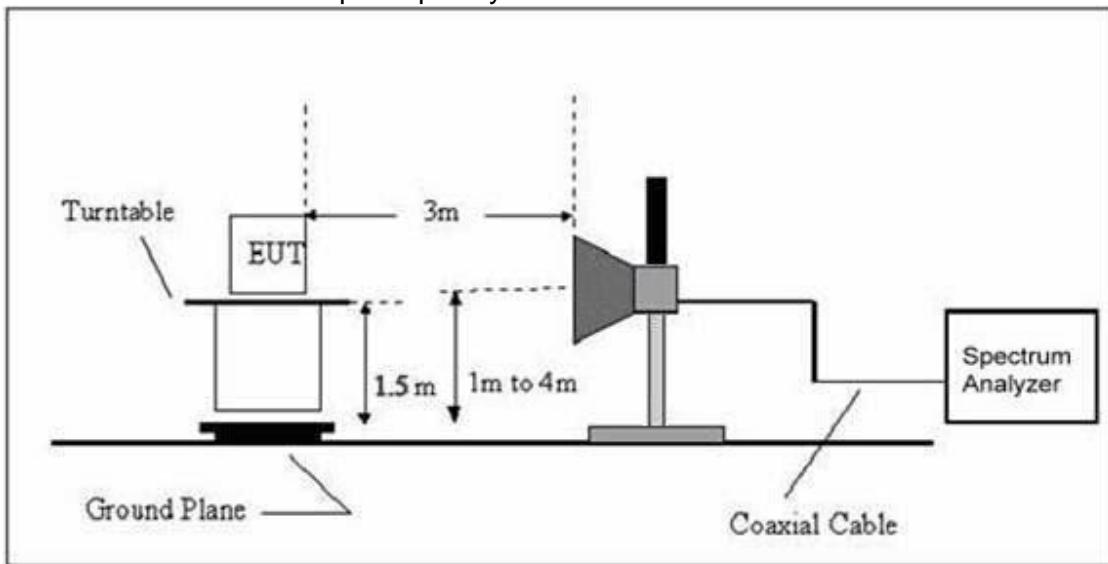
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



3.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



3.3.6 TEST RESULT

GFSK

Polar (H/V)	Frequency (MHz)	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
		(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2408							
V	2390.00	37.25	13.83	51.08	74.00	-22.76	PK
V	2390.00	25.78	13.83	39.61	54.00	-14.18	AV
V	2400.00	37.56	13.85	51.41	74.00	-22.54	PK
V	2400.00	25.64	13.85	39.49	54.00	-14.59	AV
H	2390.00	37.55	13.83	51.38	74.00	-22.47	PK
H	2390.00	26.11	13.83	39.94	54.00	-14.15	AV
H	2400.00	37.37	13.85	51.22	74.00	-22.59	PK
H	2400.00	25.79	13.85	39.64	54.00	-14.19	AV

Polar (H/V)	Frequency (MHz)	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
		(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
operation frequency:2474							
V	2483.50	37.78	14.02	51.8	74.00	-22.37	PK
V	2483.50	26.65	14.02	40.67	54.00	-13.74	AV
V	2500.00	37.82	14.06	51.88	74.00	-22.39	PK
V	2500.00	25.93	14.06	39.99	54.00	-14.28	AV
H	2483.50	37.76	14.02	51.78	74.00	-22.24	PK
H	2483.50	26.59	14.02	40.61	54.00	-13.7	AV
H	2500.00	37.67	14.06	51.73	74.00	-22.58	PK
H	2500.00	26.58	14.06	40.64	54.00	-13.42	AV

Remark:

1. Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



4. BANDWIDTH TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.249) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.249	Bandwidth	(20dB bandwidth)	2400-2483.5	PASS

4.1.1 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

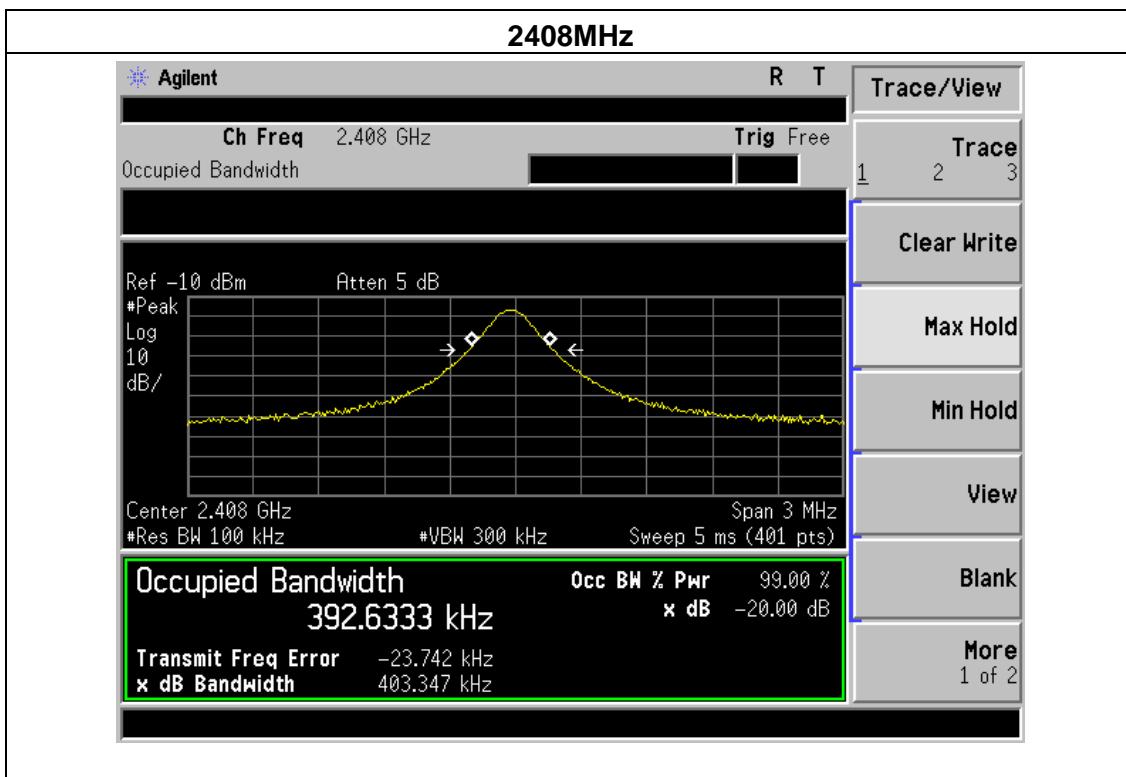


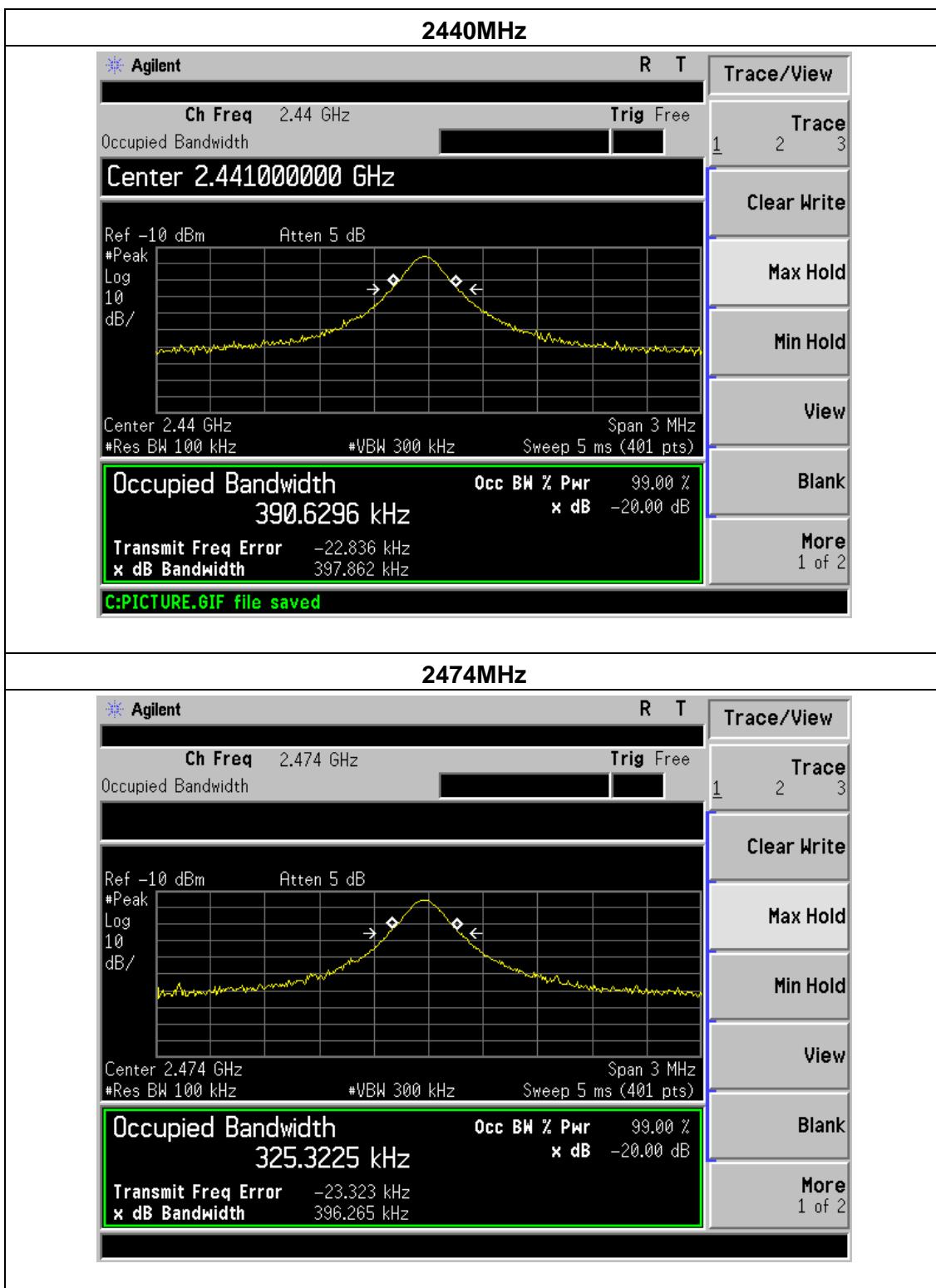
4.1.5 TEST RESULTS

Temperature :	25°C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V From PC
Test Mode :	TX Mode		

	Frequency (MHz)	20dB bandwidth (KHz)	Result
GFSK	2408	403.347	Pass
	2440	397.862	Pass
	2474	396.265	Pass

GFSK







5. ANTENNA REQUIREMENT

5.1 STANDARD REQUIREMENT

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

5.2 EUT ANTENNA

The EUT antenna is PCB antenna,. It comply with the standard requirement.



6. TEST SEUUP PHOTO

Conducted Measurement Photos



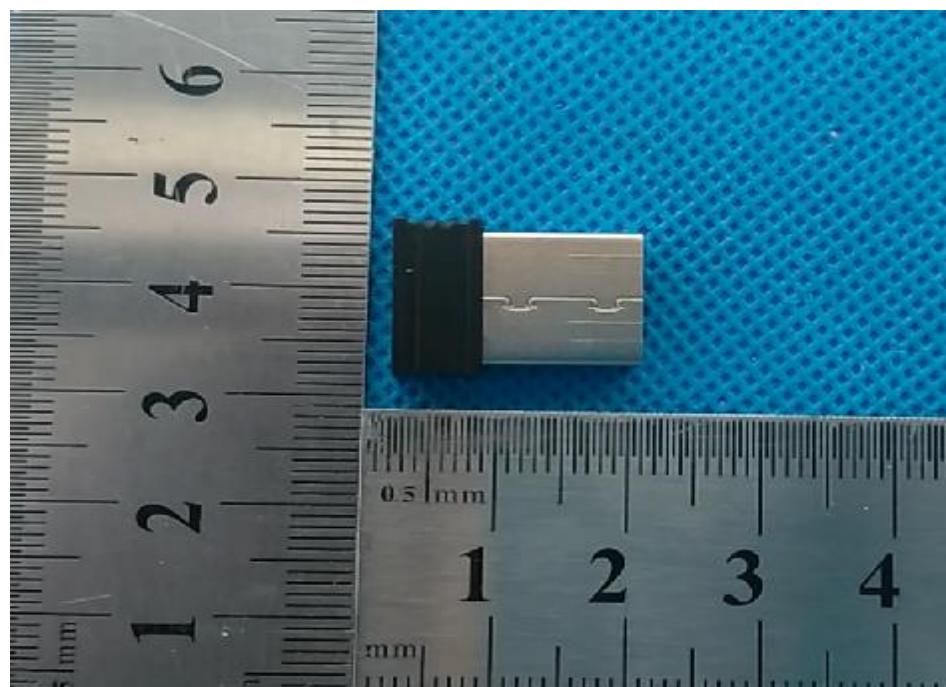
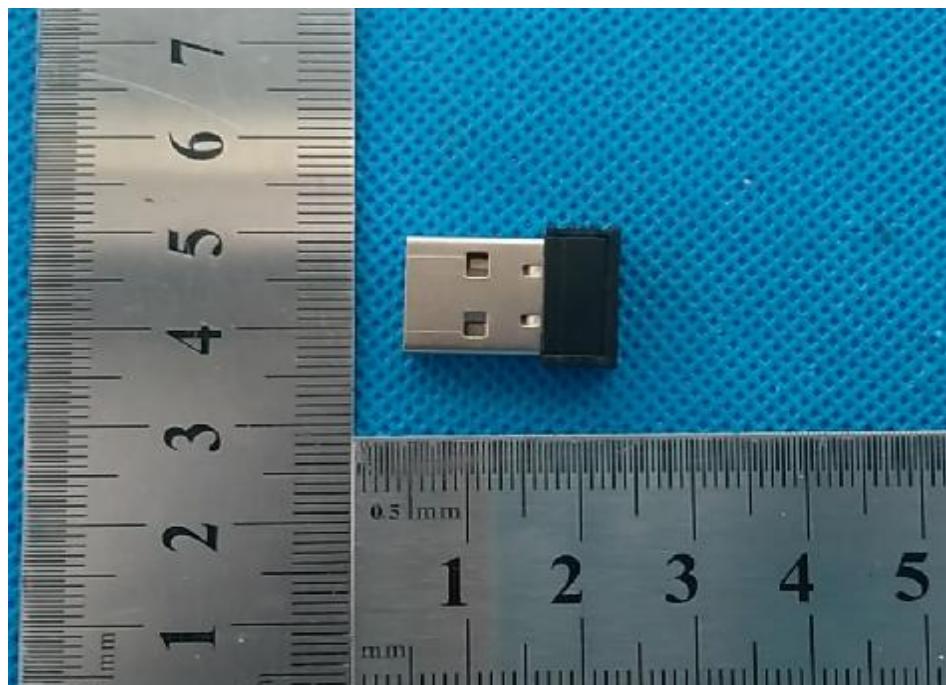


Radiated Measurement Photos





7. EUT PHOTO



***** END OF REPORT *****