STSLAB-FCC Radio Test Report

FCC RADIO TEST REPORT

FCC ID: 2ADGSLCD-WI-DMX

Of

Product Name:	**2.4 G wireless DMX transceiver**
Brand Name:	**DAISEYA**
Model No.:	**LCD-WI-DMX**
Series Model:	**XLR-WI-DMX, PCB-WI-DMX, XXLR-WI-DMX**
Test Report Number:	**STS1410031F01**

Issued for

DAISY GROUP CO., LTD

Units A-B, 15/F, Neich Tower, 128 Gloucester Road, Wanchai, Hongkong

Issued by

Shenzhen STS Test Services Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant's name	DAISY GROUP CO., LTD
Address	Units A-B, 15/F, Neich Tower, 128 Gloucester Road, Wanchai, Hongkong
Manufacture's Name	GUANGZHOU XINGYU LIGHT EQUIPMENT CO.,LTD
Address	BLDG A3, NO. 11 INDUSTRIAL AREA, YAGANG, SHIJING STREET, BAIYUN DISTRICT, CHINA

Product description

Product name	2.4 G wireless DMX transceiver
Band name	DAISEYA
Model and/or type reference	LCD-WI-DMX
Ratings	AC 100V-240V 50HZ/60HZ
Output	DC 9V 1A
Standards	FCC Part15.249
Test procedure	ANSI C63.10-2009

This device described above has been tested by STS, 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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Date of Test

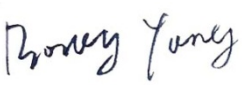
Date (s) of performance of tests	15 Oct. 2014 ~23 Oct. 2014
Date of Issue	24 Oct. 2014
Test Result	**Pass**

Testing Engineer : 

(Tony Liu)

Technical Manager : 

(Vita Li)

Authorized Signatory : 

(Bovey Yang)

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1. GENERAL INFORMATION

1.1 PRODUCT INFORMATION

Product	2.4 G wireless DMX transceiver
Trade Name	DAISEYA
Model Number	LCD-WI-DMX
internal Antenna	2.5 dBi
Power Supply	AC 100-240V, 50-60Hz
Frequency Range	2402MHz -2480MHz
Modulation Type	GFSK
Antenna Type:	Dipole ANT
Channel Spacing:	1MHz
Channel Number	79(CH Low: 2402MHz, CH Mid: 2441MHz, CH High: 2480MHz)
Temperature Range	-10°C ~ 50°C

NOTE:

1. *Please refer to Appendix I for the photographs of the EUT. For a more detailed features description about,and* Dipole ANT （non standard, inverse spiral interface.）
the EUT, please refer to User's Manual.

1.2 OBJECTIVE

The objective of the report is to perform tests according to 47 CFR Part 15 Subpart C for the EUT FCC ID and IC Certification:

No.	Identity	Document Title
1	47 CFR Part 15(10-1-05 Edition)	Radio Frequency Devices

1.2 TEST STANDARDS AND RESULTS

Test items and the results are as bellow:

FCC Rules	Description	Result	Date of Test
15.249(a)	Spurious Emission	PASS	Oct 24, 2014
15.249(a)	Band Edge	PASS	Oct 24, 2014
15.249(a)	20 dB Bandwidth	PASS	Oct 24, 2014
15.203	Antenna requirement	PASS	Oct 24, 2014
15.207	Power Line Conducted Emission Test	PASS	Oct 24, 2014

Note: 1. The test result judgment is decided by the limit of measurement standard
2. The information of measurement uncertainty is available upon the customer's request.

1.2.1 ANTENNA REQUIREMENT

1.2.1.1 DEFINITION

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

1.2.1.2 TEST RESULT

The is a non standard, inverse spiral interface.

1.3 ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:
- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

2. TEST FACILITY

2.1 TEST FACILITY

Shenzhen STS Test Services Co., Ltd.
Add. : 1/F, Building 2, Zhuoke Science Park, Chongqing Road, Fuyong, Baoan District, Shenzhen, China.
FCC Registration No.: 842334

2.2MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2.3 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 3

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements

3.SETUP OF EQUIPMENT UNDER TEST

3.1 SUPPORT EQUIPMENT

Remark:

Device Type	Brand	Model	Series No.	Note
Wireless transmitter receiver	DAISEYA	LCD-WI-DMX	N/A	

All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipment used at Most for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2014.07.06	2015.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2014.06.08	2015.06.07	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2014.07.06	2015.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2014.06.06	2015.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2014.06.06	2015.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2014.07.06	2015.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2014.07.06	2015.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2013.12.22	2014.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2014.06.08	2015.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2014.07.06	2015.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2014.07.06	2015.07.05	1 year

Conduction Test equipmen

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2014.06.06	2015.06.05	1 year
2	LISN	R&S	ENV216	101313	2014.08.24	2015.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2014.08.24	2015.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2014.06.06	2015.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2014.06.06	2015.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2014.06.08	2015.06.07	1 year

NOTE: Equipments listed above have been calibrated and are in the period of validation.

4. 47 CFR PART 15C 15.249 REQUIREMENTS

4.1 CONDUCTION EMISSION TEST LIMIT

According to FCC section 15.249(a):

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μV/m)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

In the above emission table, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

5. CONDUCTED EMISSION TEST DESCRIPTION

5.1. POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)
operating frequency band. In case the emission fall within the restricted band specified on Part 15.247&207(a) limit in the table below has to be followed.

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

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	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

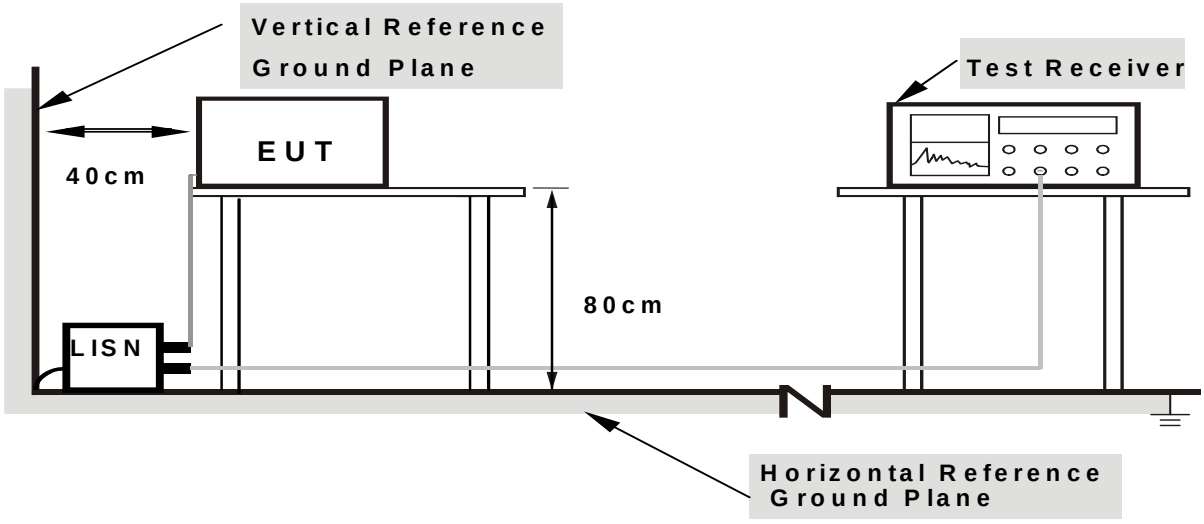
5.2. TEST PROCEDURE

a. The EUT was placed 0.4 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.

5.3. DEVIATION FROM TEST STANDARD

No deviation

5.4.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 from other units and other metal planes

5.5.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.

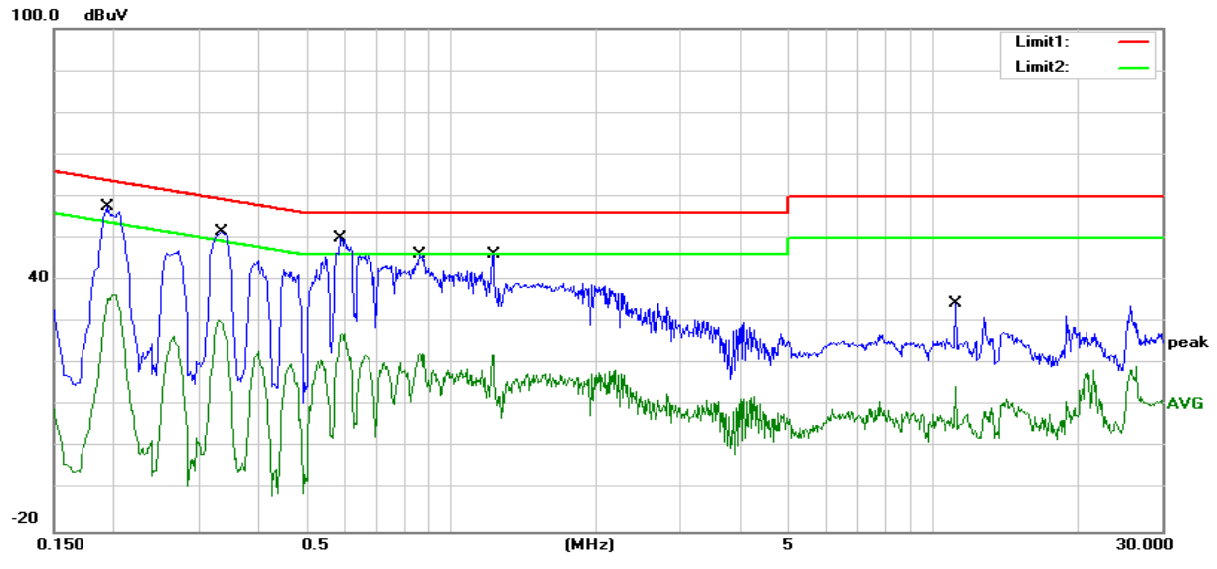
5.6 TEST RESULT

Form 150KHz to 30MHz Conducted emission)

EUT：	2.4 G wireless DMX transceiver	Model Name. ：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 9V from Adapter AC 120V/60Hz	Test Mode：	TX Mode

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1940	46.99	10.44	57.43	63.86	-6.43	QP
0.1940	26.03	10.44	36.47	53.86	-17.39	AVG
0.3340	41.09	10.42	51.51	59.35	-7.84	QP
0.3340	20.22	10.42	30.64	49.35	-18.71	AVG
0.5900	39.80	10.40	50.20	56.00	-5.80	QP
0.5900	16.91	10.40	27.31	46.00	-18.69	AVG
0.8620	35.86	10.41	46.27	56.00	-9.73	QP
0.8620	12.13	10.41	22.54	46.00	-23.46	AVG
1.2260	35.67	10.41	46.08	56.00	-9.92	QP
1.2260	11.78	10.41	22.19	46.00	-23.81	AVG
11.2460	23.64	10.69	34.33	60.00	-25.67	QP
11.2460	4.05	10.69	14.74	50.00	-35.26	AVG

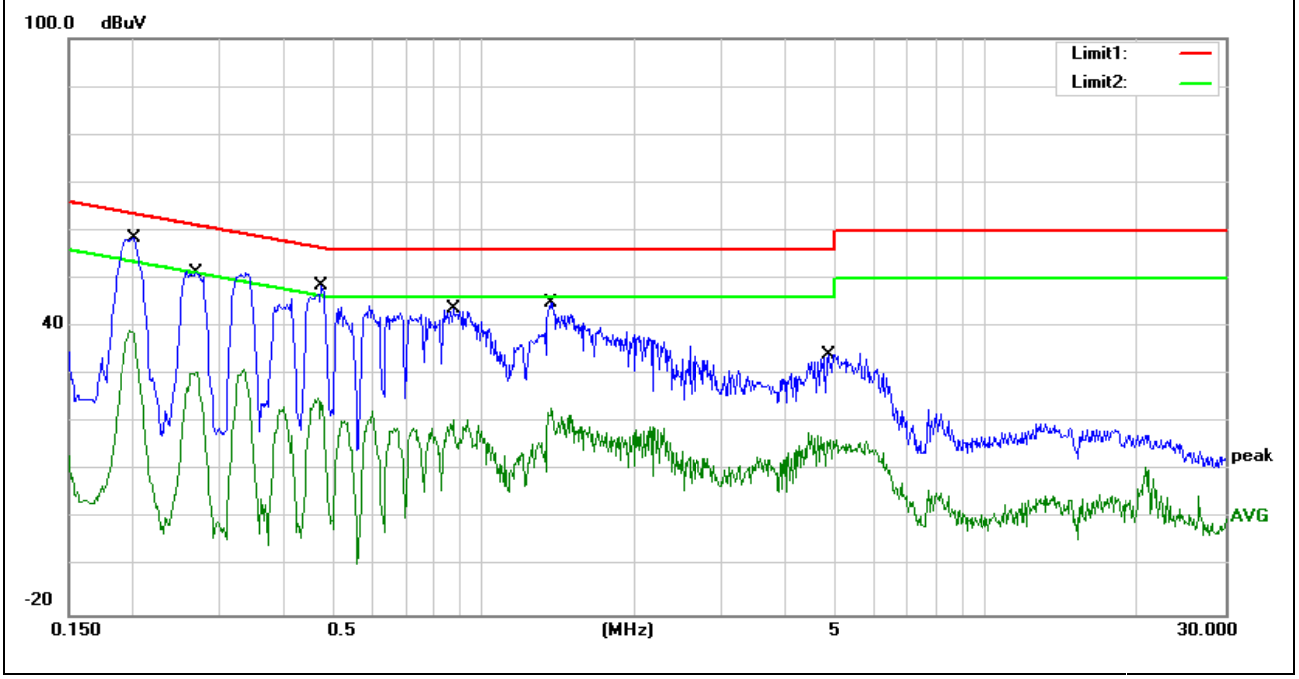
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	2.4 G wireless DMX transceiver	Model Name. ：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 9V from Adapter AC 120V/60Hz	Test Mode：	TX Mode

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.2020	48.12	10.43	58.55	63.53	-4.98	QP
0.2020	28.73	10.43	39.16	53.53	-14.37	AVG
0.2700	40.94	10.43	51.37	61.12	-9.75	QP
0.2700	20.12	10.43	30.55	51.12	-20.57	AVG
0.4780	38.25	10.41	48.66	56.37	-7.71	QP
0.4780	14.85	10.41	25.26	46.37	-21.11	AVG
0.8740	33.28	10.43	43.71	56.00	-12.29	QP
0.8740	10.25	10.43	20.68	46.00	-25.32	AVG
1.3660	34.53	10.45	44.98	56.00	-11.02	QP
1.3660	12.59	10.45	23.04	46.00	-22.96	AVG
4.8500	23.37	10.67	34.04	56.00	-21.96	QP
4.8500	6.34	10.67	17.01	46.00	-28.99	AVG

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



6. RADIATION EMISSION TEST DESCRIPTION

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

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15249&205(a), then the Part 15 249&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).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

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

6.2. TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

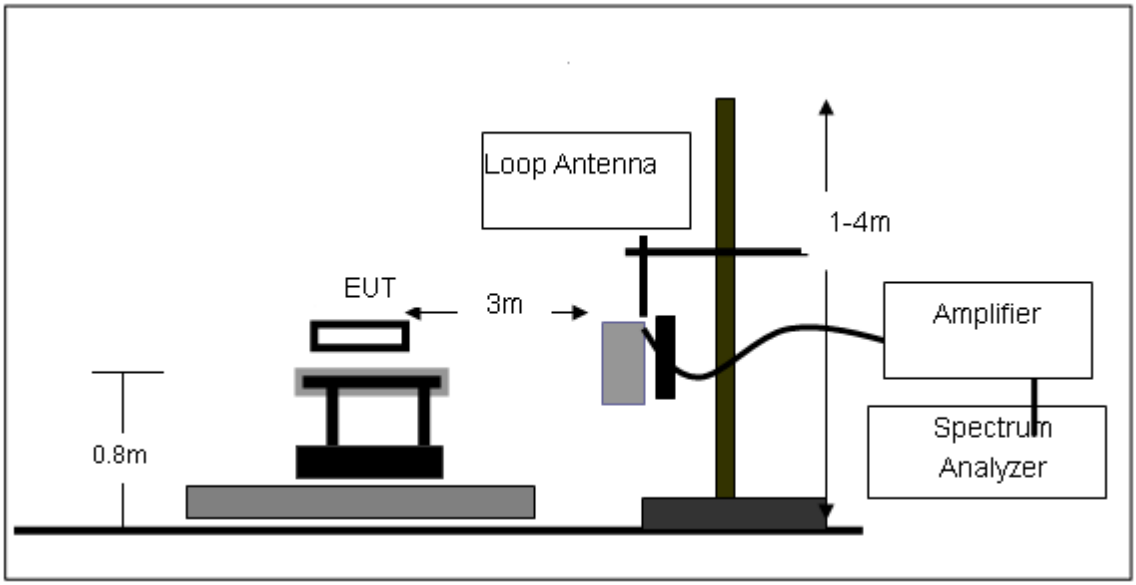
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

6.3. DEVIATION FROM TEST STANDARD

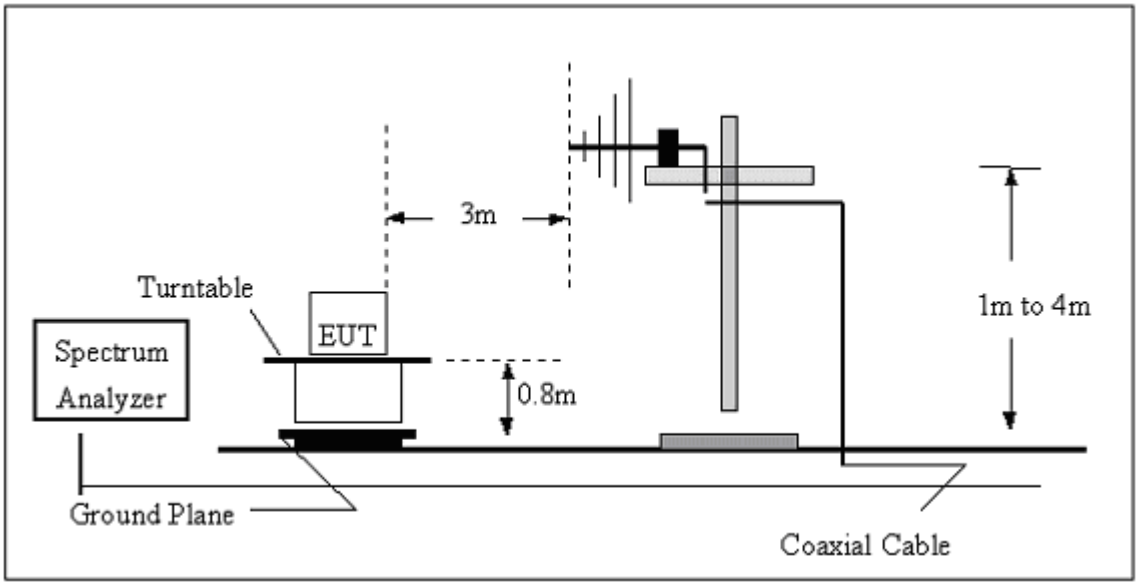
No deviation

6.4. TEST SETUP

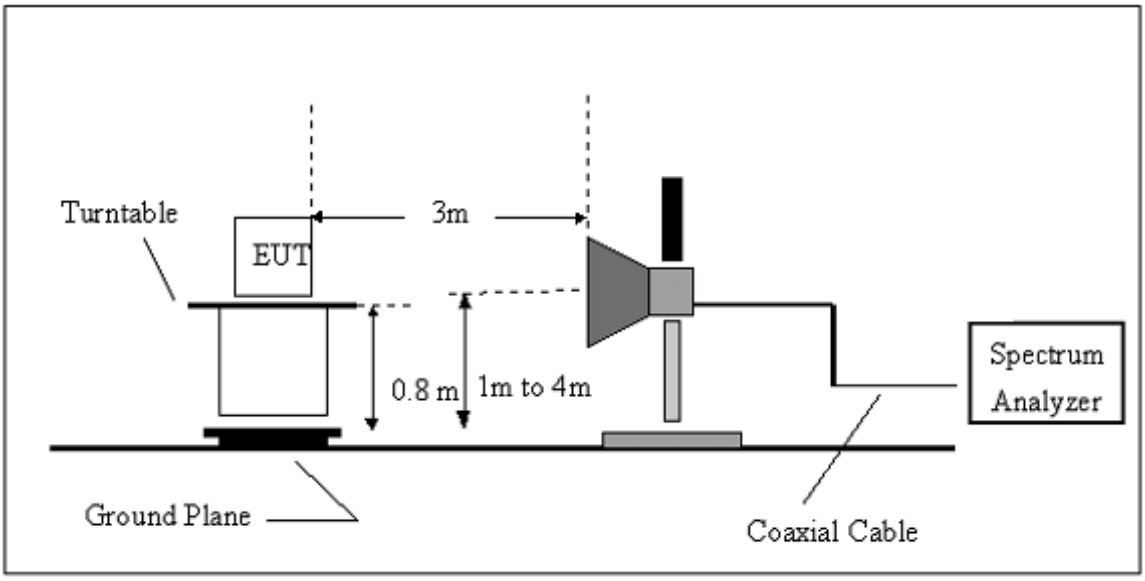
（A）Radiated Emission Test-Up Frequency Below 30MHz



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



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



6.5. EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6. TEST RESULTS (BELOW 30 MHZ)

EUT：	2.4 G wireless DMX transceiver	Model Name. ：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Test Mode：	TX Mode
Test Voltage ：	DC 9V from Adapter AC 120V/60Hz		

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

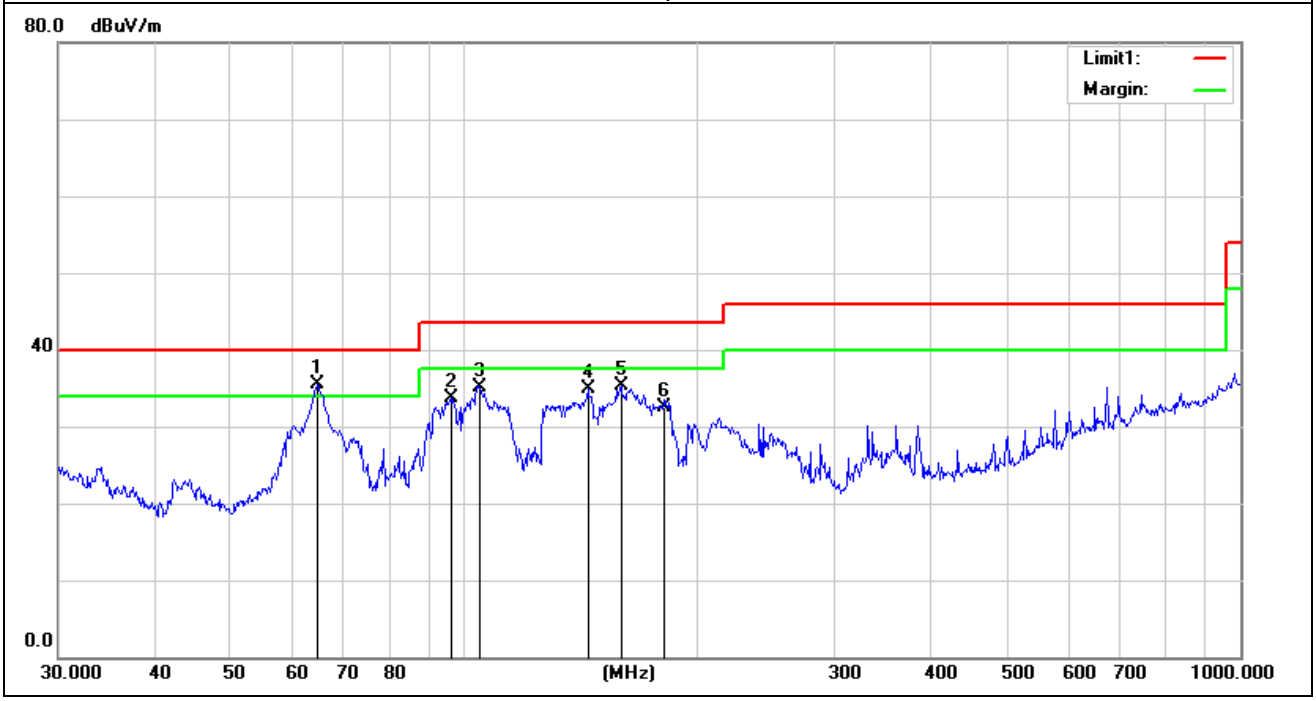
NOTE:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

6.7. TEST RESULTS (BETWEEN 30M – 1000 MHZ)

EUT：	2.4 G wireless DMX transceiver	Model Name.：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010 hPa	Polarization：	Horizontal
Test Voltage：	DC 9V from Adapter AC 120V/60Hz		
Test Mode：	TX Mode		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
64.6594	29.74	5.82	35.56	40.00	-4.44	QP
96.0986	23.30	10.42	33.72	43.50	-9.78	QP
104.5501	23.63	11.40	35.03	43.50	-8.47	QP
144.3348	22.38	12.61	34.99	43.50	-8.51	QP
159.2251	23.28	11.96	35.24	43.50	-8.26	QP
181.2834	22.02	10.41	32.43	43.50	-11.07	QP

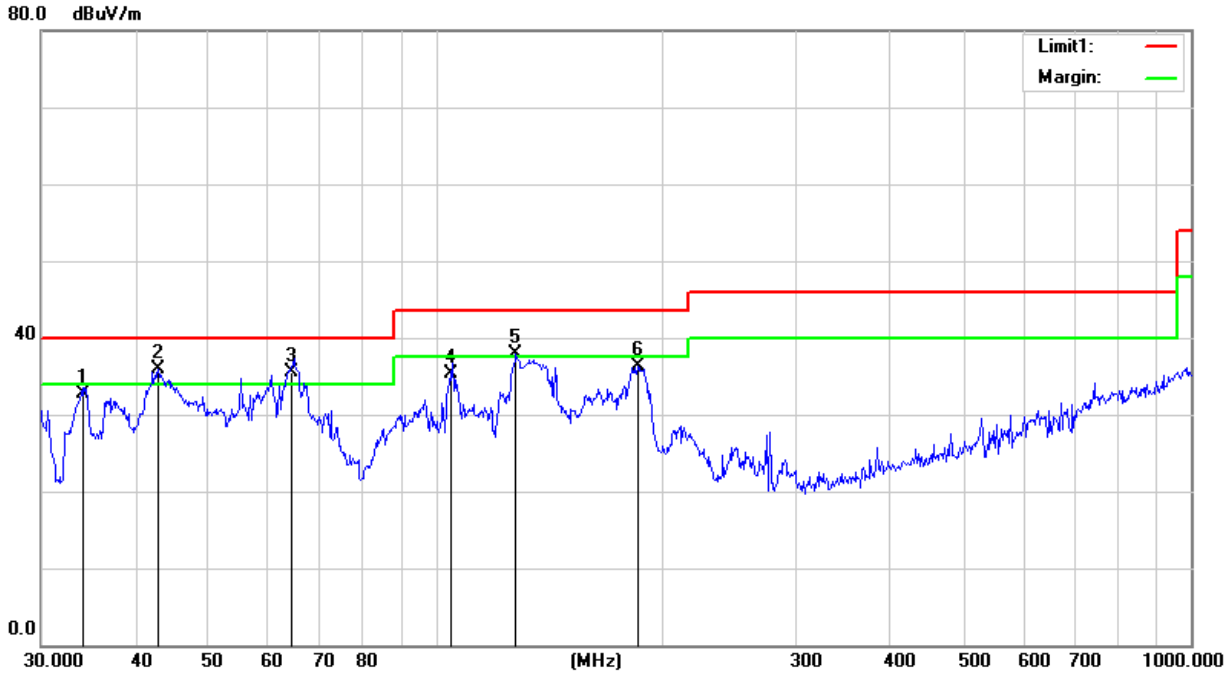
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	2.4 G wireless DMX transceiver	Model Name.：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010 hPa	Polarization：	Vertical
Test Voltage：	DC 9V from Adapter AC 120V/60Hz		
Test Mode ：	TX Mode		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
34.0365	15.68	16.93	32.61	40.00	-7.39	QP
42.8998	23.68	12.18	35.86	40.00	-4.14	QP
64.3794	29.62	5.82	35.44	40.00	-4.56	QP
104.7318	23.94	11.41	35.35	43.50	-8.15	QP
127.6645	25.10	12.73	37.83	43.50	-5.67	QP
185.1380	26.30	10.09	36.39	43.50	-7.11	QP

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



6.8. ABOVE 1 GHZ

EUT：	2.4 G wireless DMX transceiver	Model Name. ：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Test Mode：	TX Mode
Test Voltage ：	DC 9V from Adapter AC 120V/60Hz		

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	Peak	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	Limit	Limit	(dB)	(dB)
					(dBuV/m)	(dBuV/m)				
2402.00	H	86.45	63.85	9.43	95.88	73.28	114.00	94.00	-18.12	-20.72
4815.00	H	59.43	33.75	-3.64	55.79	30.11	74.00	54.00	-18.21	-23.89
N/A										>20
2402.00	V	76.75	59.64	9.43	86.18	69.07	114.00	94.00	-27.82	-24.93
4815.00	V	57.26	36.60	-3.64	53.62	32.96	74.00	54.00	-20.38	-21.04
N/A										>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
   a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.
   b. AV 1GHz- 26GHz = Peak Setting, RBW = 1MHz, VBW = 10Hz, Sweep time = *auto*.

EUT：	2.4 G wireless DMX transceiver	Model Name. ：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Test Mode：	TX Mode
Test Voltage ：	DC 9V from Adapter AC 120V/60Hz		

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	Peak	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)	(dB)
					(dBuV/m)	(dBuV/m)				
2441.00	H	87.57	69.38	9.45	97.02	78.83	114.00	94.00	-16.98	-15.17
4885.00	H	61.93	36.16	-3.60	32.56	32.56	74.00	54.00	-41.44	-21.44
N/A										>20
2441.00	V	88.92	70.83	9.45	98.37	80.28	114.00	94.00	-15.63	-13.72
4885.00	V	58.03	37.27	-3.60	54.43	33.67	74.00	54.00	-19.57	-20.33
N/A										>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:

   a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.
   b. AV 1GHz- 26GHz = Peak Setting, RBW = 1MHz, VBW = 10Hz, Sweep time = *auto*.

EUT：	2.4 G wireless DMX transceiver	Model Name. ：	LCD-WI-DMX
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Test Mode：	TX Mode
Test Voltage ：	DC 9V from Adapter AC 120V/60Hz		

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AVG	Peak	AVG
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)	(dB)
					(dBuV/m)	(dBuV/m)				
2480.00	H	85.31	60.57	9.48	94.79	70.05	114.00	94.00	-19.21	-23.95
4955.00	H	54.72	37.97	-3.49	51.23	34.48	74.00	54.00	-22.77	-19.52
N/A										>20
2480.00	V	84.80	61.95	9.48	94.28	71.43	114.00	94.00	-19.72	-22.57
4955.00	V	57.06	35.57	-3.49	53.57	32.08	74.00	54.00	-20.43	-21.92
N/A										>20

Notes:

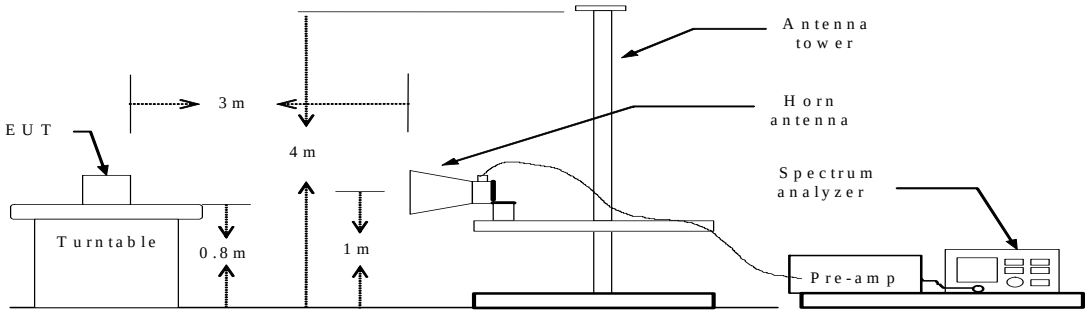
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
   a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.
   b. AV 1GHz- 26GHz = Peak Setting, RBW = 1MHz, VBW = 10Hz, Sweep time = *auto*.

7. BAND EDGE

7.1 REQUIREMENT

According to FCC section 15.249(a), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

7.2 TEST DESCRIPTION



7.3 TEST RESULT

The EUT operates at hopping-off test mode. The lowest and highest channels are tested to verify the band edge emissions.

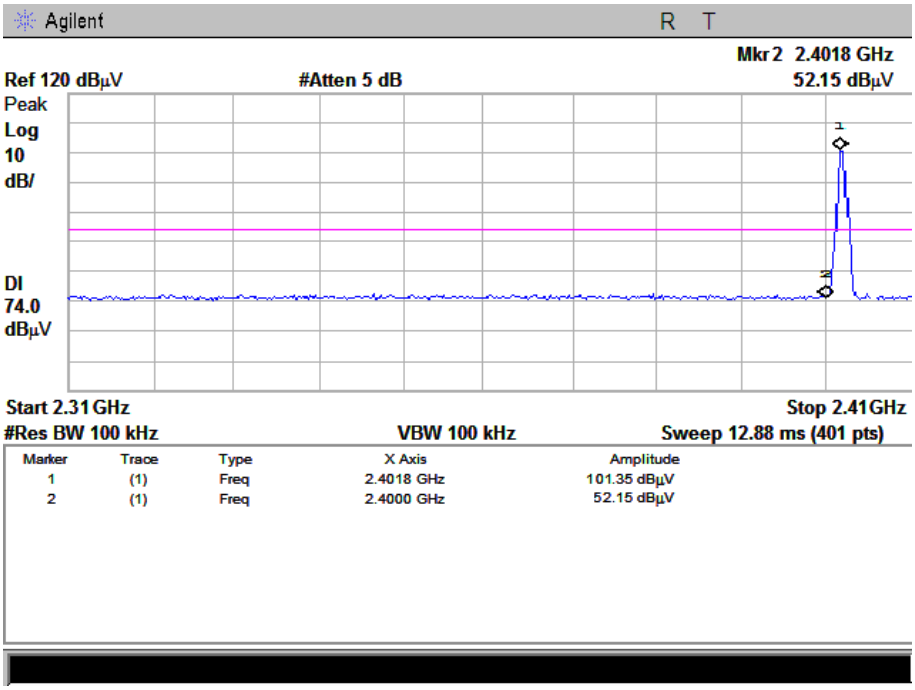
Test Channel	Frequency(MHz)	Peak Reading （dBuV）	Av Reading （dBuV）	Peak Limit (dBuV/m)	Av Limit (dBuV/m)
CH00	2402	52.15	N/A	74	54
CH78	2480	49.50	N/A	**74**	54

Note：1. Every data is test both vertical and horizontal polarization and Spectrum Analyzer is max hold.

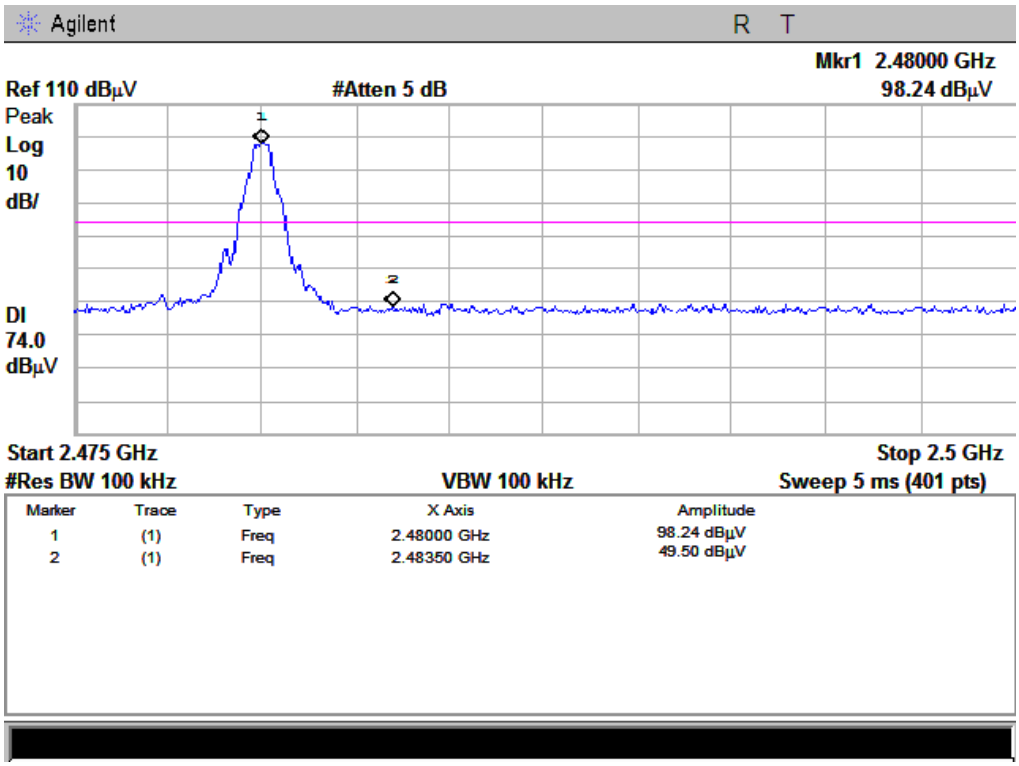
2. Peak Reading test data is lower Av Limit

Test Plot:

(CH Low)



(CH HIGH)


Agilent
R T
Mkr1 2.48000 GHz
98.24 dBµV
Ref 110 dBµV
#Atten 5 dB
Peak
Log
10
dB/
Dl
74.0
dBµV
Start 2.475 GHz
Stop 2.5 GHz
#Res BW 100 kHz
VBW 100 kHz
Sweep 5 ms (401 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.48000 GHz 98.24 dBµV
2 (1) Freq 2.48350 GHz 49.50 dBµV

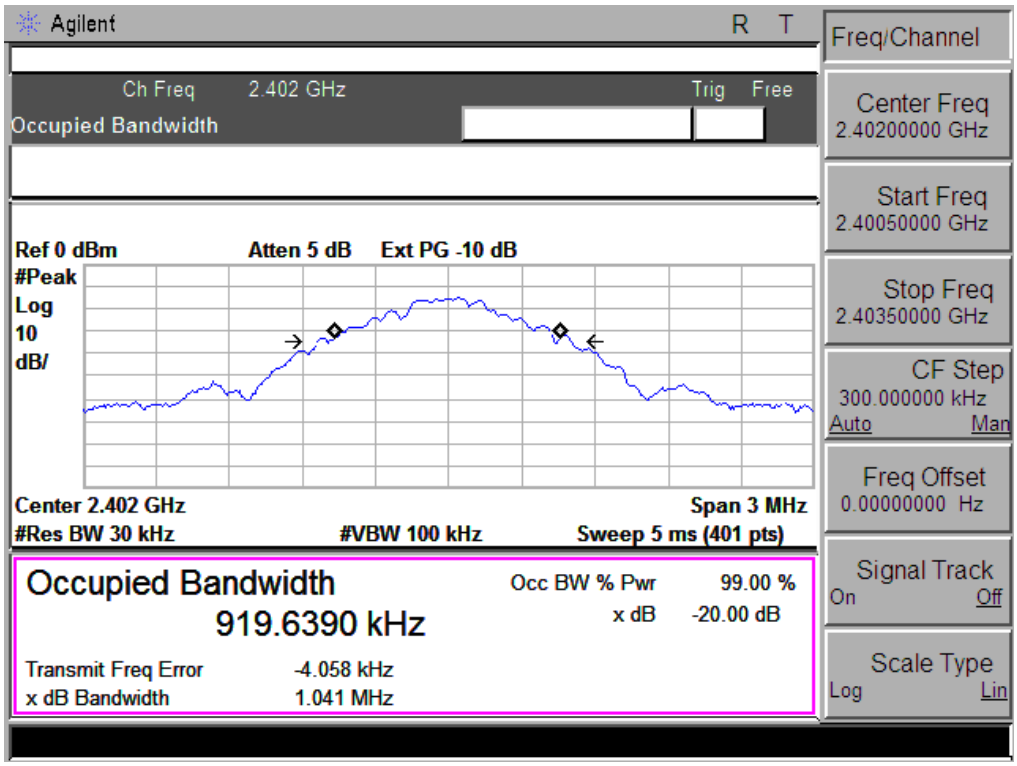
8. 20DB BANDWIDTH

8.1 DEFINITION

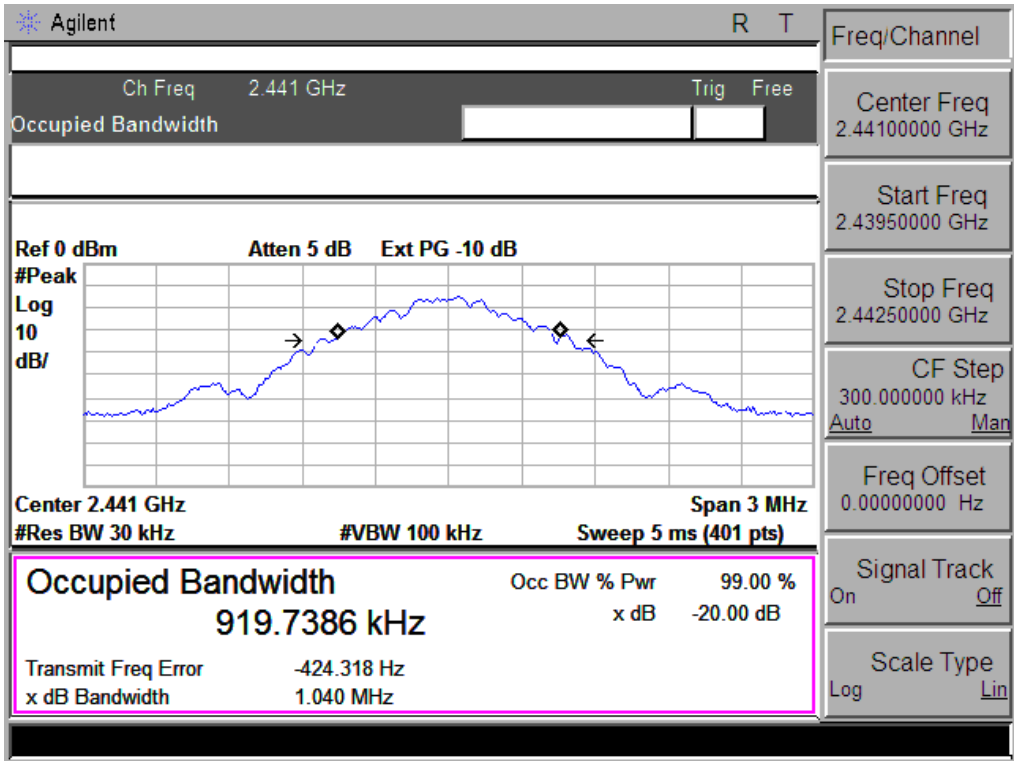
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

8.2 TEST RESULT

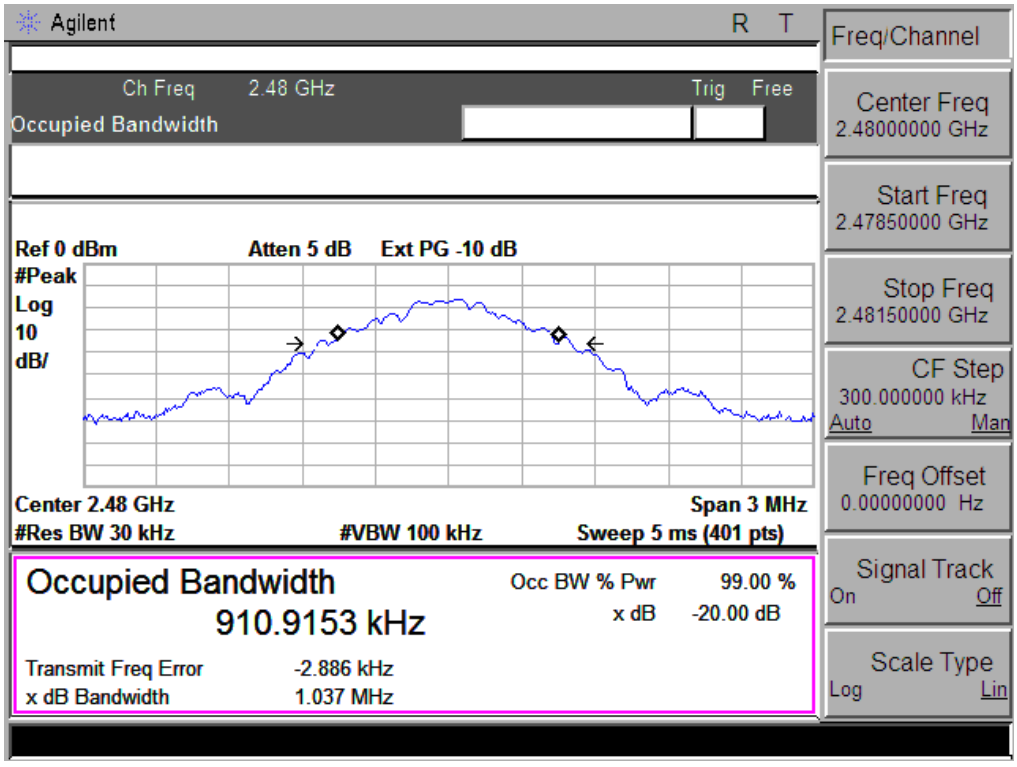
(CH Low)



(CH MID)

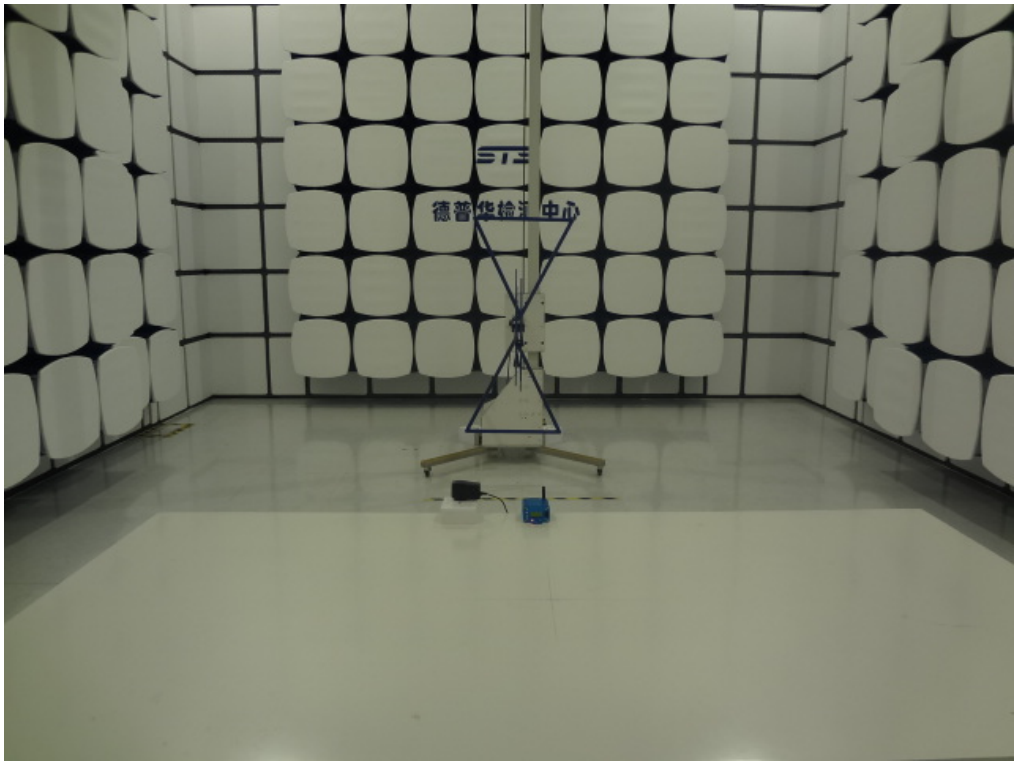


(CH HIGH)



APPENDIX 1
PHOTOGRAPHS OF TEST SETUP
CE TEST SETUP

RE TEST SETUP
BLOW 1G



ABOVE 1G