



FCC Test Report

Report No: FCS202009013W01

Issued for

Applicant:	Enping City JINGHUA Audio Equipment Factory
Address:	No.25,North xinping Road,enping city,guangdong,china
Product Name:	wireless microphone
Brand Name:	NA
Model Name:	MV6
Series Model:	MV6 PRO, ZM6, ZM6 PRO, MV8, MV8 PRO, WM4, WM4 PRO, WM8, WM8 PRO, V6, X6, M1, MM1, G1, G2, D11, D21, MV8, MV8 PRO, UP-T16, UP-T17, UP-T02, UP-T20, M20, M40, M60, M80, P20, P40, P60, P80
FCC ID:	2AXMH-AILSHCN
Issued By: Flux Compliance Service Laboratory Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan Tel: 769-27280901 Fax:769-27280901 http://www.fcs-lab.com	

TEST RESULT CERTIFICATION

Applicant's Name: Enping City JINGHUA Audio Equipment Factory

Address.....: No.25,North xiping Road,enping city,guangdong,china

Manufacture's Name: Enping City JINGHUA Audio Equipment Factory

Address.....: No.25,North xiping Road,enping city,guangdong,china

Product Description

Product Name: wireless microphone

Brand Name: NA

Model Name.....: MV6

Series Model: MV6 PRO, ZM6, ZM6 PRO, MV8, MV8 PRO, WM4, WM4 PRO, WM8, WM8 PRO, V6, X6, M1, MM1, G1, G2, D11, D21, MV8, MV8 PRO, UP-T16, UP-T17, UP-T02, UP-T20, M20, M40, M60, M80, P20, P40, P60, P80

Test Standards: FCC Rules and Regulations Part 15 Subpart C, Section 249

Test Procedure: ANSI C63.10:2013

This device described above has been tested FCS, 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 : 10 Sep, 2020 ~ 22 Sep, 2020

Date of Issue.....: 22 Sep, 2020

Test Result.....: Pass

Tested by : Scott Shen
(Scott Shen)

Reviewed by : Duke Qian
(Duke Qian)

Approved by : Kait Chen
(Kait Chen)

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Revision History

Rev.	Issue Date	Effect Page	Contents
00	22 Sep, 2020	All	Initial Issue

1. SUMMARY OF TEST RESULTS

FCC Part 15.249,Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	--
15.205(a), 15.209(a), 15.249(a), 15.249(c)	Radiated Spurious Emission	PASS	--
15.209	Field strength of fundamental	PASS	
15.249(d)	Band Edge Emission	PASS	--
15.215(c)	20dB Bandwidth	PASS	--
15.203	Antenna Requirement	PASS	--

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) All tests are according to ANSI C63.10-2013

1.1 TEST FACTORY

Company Name:	Flux Compliance Service Laboratory
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Telephone:	+86-769-27280901
Fax:	+86-769-27280901
FCC Test Firm Registration Number: 514908 Designation number: CN0127 A2LA accreditation number: 5545.01	

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	RF output power, conducted	$\pm 0.71\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.98\text{ dB}$
3	Conducted Emission (9KHz-150KHz)	$\pm 4.13\text{ dB}$
4	Conducted Emission (150KHz-30MHz)	$\pm 4.74\text{ dB}$
5	All emissions, radiated (<1G) 30MHz-1000MHz	$\pm 3.2\text{ dB}$
6	All emissions, radiated (1GHz -18GHz)	$\pm 3.66\text{ dB}$
7	All emissions, radiated (18GHz -40GHz)	$\pm 4.31\text{ dB}$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	wireless microphone
Trade Name	NA
Model Name	MV6
Series Model	MV6 PRO, ZM6, ZM6 PRO, MV8, MV8 PRO, WM4, WM4 PRO, WM8, WM8 PRO, V6, X6, M1, MM1, G1, G2, D11, D21, MV8, MV8 PRO, UP-T16, UP-T17, UP-T02, UP-T20, M20, M40, M60, M80, P20, P40, P60, P80
Model Difference	The above product with same circuit, PCB layout, electrical parts, materials and wiring structures, Appearance shape, the materials of decorative accessories is same, only different color
Channel List	Please refer to the Note 2.
Frequency Range	902-928MHz
Operating Frequency	902.5MHz-927.5MHz
Modulation:	ASK
Channel number:	51CH
Power Supply	DC 3.7V from battery
Hardware version number	V1.1
Software version number	V1.1
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 List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	902.5	15	909.5	29	916.5	43	923.5
2	903.0	16	910.0	30	917.0	44	924.0
3	903.5	17	910.5	31	917.5	45	924.5
4	904.0	18	911.0	32	918.0	46	925.0
5	904.5	19	911.5	33	918.5	47	925.5
6	905.0	20	912.0	34	919.0	48	926.0
7	905.5	21	912.5	35	919.5	49	926.5
8	906.0	22	913.0	36	920.0	50	927.0
9	906.5	23	913.5	37	920.5	51	927.5
10	907.0	24	914.0	38	921.0		
11	907.5	25	914.5	39	921.5		
12	908.0	26	915.0	40	922.0		
13	908.5	27	915.5	41	922.5		
14	909.0	28	916.0	42	923.0		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	MN73AH	Diople Antenna	N/A	1.00dBi	Antenna

2.2 DESCRIPTION OF THE TEST MODES

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

Test software: FCC tool

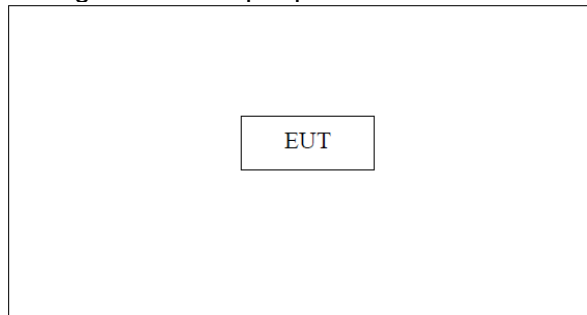
The test software was used to control EUT work in continuous TX mode, and select test channel, Wireless mode as below table

No.	Test model description
1	Low channel 902.5MHZ ASK
2	Middle channel 915MHZ ASK
3	High channel 927.5MHZ ASK

Note:

1. All the test modes can be supplied by AC supply, only the result of the worst case recorded in the report..
2. For radiated emission, 3 axes were chosen for testing for each applicable mode.
3. The EUT used fully charged battery when tested.
4. During the test, the duty cycle > 98%, the test voltage was tuned from 85% to 115% of the Nominal rated supply voltage, and found that the worst case was the nominal rated supply condition, So the report just shows that condition's data

Configuration and peripherals



2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
1					
2					

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note

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.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.4 EQUIPMENTS LIST

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESRP 3	FCS-E001	2019.10.11	2020.10.10
Signal Analyzer	R&S	FSV40-N	FCS-E012	2019.10.11	2020.10.10
Active loop Antenna	ZHINAN	ZN30900C	FCS-E013	2019.10.11	2020.10.10
Bilog Antenna	SCHWARZBECK	VULB 9168	FCS-E002	2019.10.26	2020.10.25
Horn Antenna	SCHWARZBECK	BBHA 9120D	FCS-E003	2019.10.11	2020.10.10
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	FCS-E018	2019.10.11	2020.10.10
Pre-Amplifier(0.1M-3G Hz)	EMCI	EM330N	FCS-E004	2019.10.11	2020.10.10
Pre-Amplifier (1G-18GHz)	N/A	TSAMP-0518SE	FCS-E014	2019.10.03	2020.10.02
Pre-Amplifier (18G-40GHz)	TERA-MW	TRLA-0400	FCS-E019	2019.10.08	2020.10.07
Temperature & Humidity	HTC-1	victor	FCS-E005	2019.10.11	2020.10.10

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	FCS-E020	2019.10.11	2020.10.10
LISN	R&S	ENV216	FCS-E007	2019.10.11	2020.10.10
LISN	ETS	3810/2NM	FCS-E009	2019.10.15	2020.10.14
Temperature & Humidity	HTC-1	victor	FCS-E008	2019.10.11	2020.10.10

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
Spectrum Analyzer	Keysight	N9020A	FCS-E015	2019.10.02	2020.10.01
Spectrum Analyzer	Agilent	E4447A	MY50180039	2019.11.08	2020.11.07
Spectrum Analyzer	R&S	FSV-40	101499	2019.10.10	2020.10.09

3 CONDUCTED EMISSION MEASUREMENT

3.1 LIMIT

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Conducted Emissionlimit (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

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.

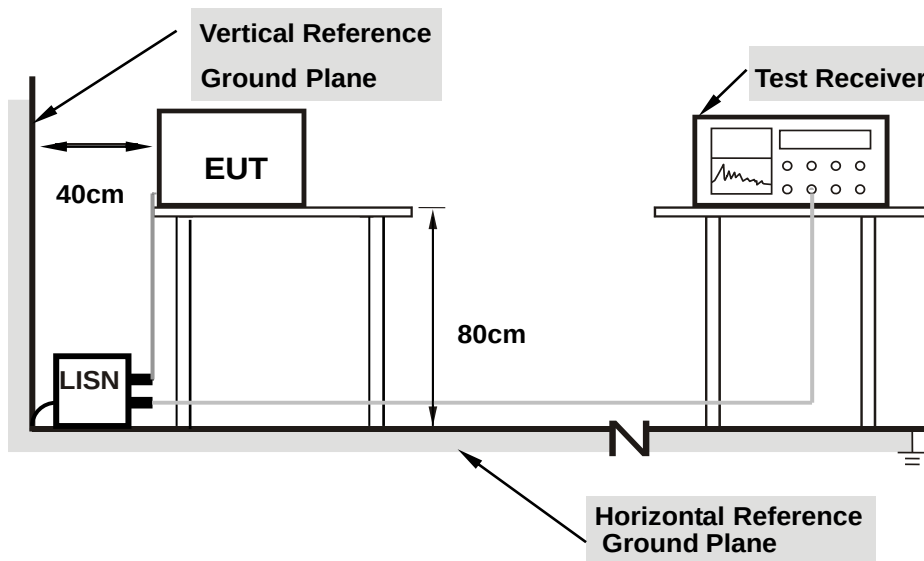
3.2 TEST PROCEDURE

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

- a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical 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.

3.3 TEST SETUP



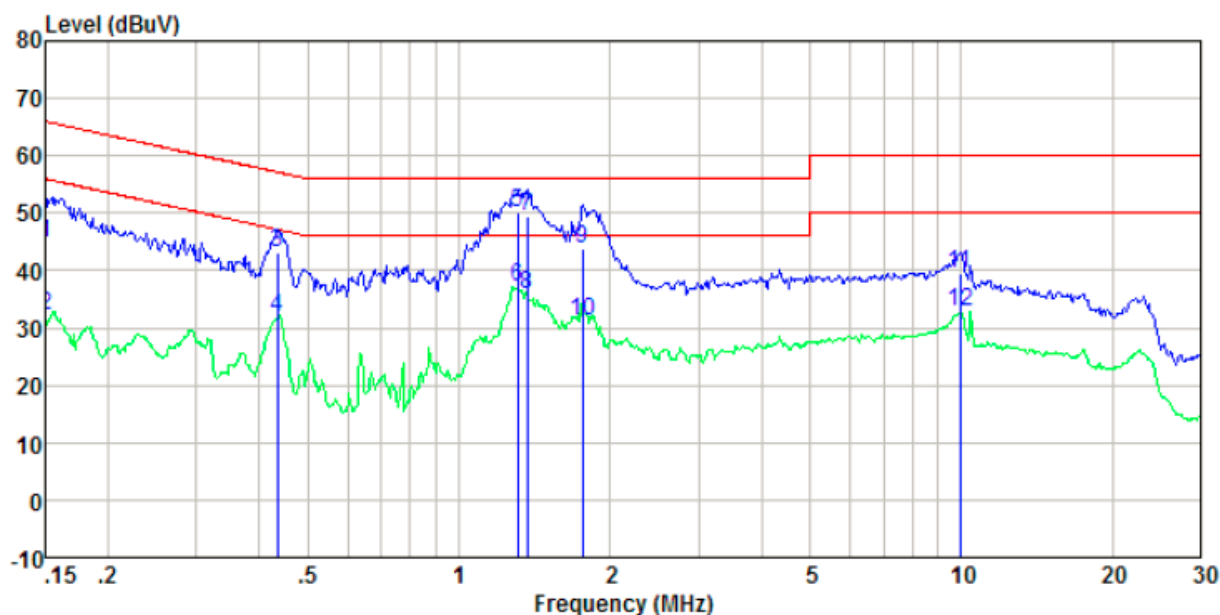
Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.4 TEST RESULTS

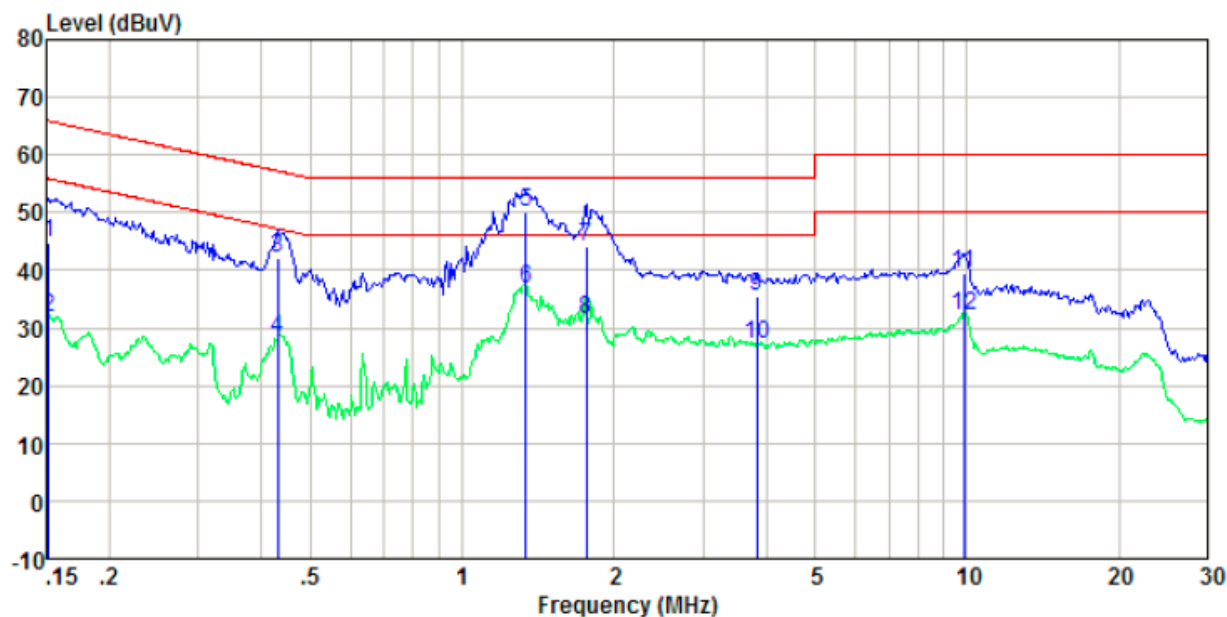
Temperature:	25℃	Relative Humidity:	50%
Test Mode:	ASK	Test Voltage:	AC 120V/60Hz
Result:	Pass		

L-Line



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.15	44.34	0.40	0.07	44.81	66.00	-21.19	QP
0.15	31.63	0.40	0.07	32.10	56.00	-23.90	Average
0.44	42.83	0.34	0.11	43.28	57.15	-13.87	QP
0.44	31.39	0.34	0.11	31.84	47.15	-15.31	Average
1.31	49.62	0.20	0.16	49.98	56.00	-6.02	QP
1.31	36.82	0.20	0.16	37.18	46.00	-8.82	Average
1.37	49.22	0.20	0.16	49.58	56.00	-6.42	QP
1.37	35.53	0.20	0.16	35.89	46.00	-10.11	Average
1.76	43.53	0.20	0.17	43.90	56.00	-12.10	QP
1.76	30.81	0.20	0.17	31.18	46.00	-14.82	Average
9.97	39.25	0.20	0.20	39.65	60.00	-20.35	QP
9.97	32.40	0.20	0.20	32.80	50.00	-17.20	Average

N-Line



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.15	44.34	0.40	0.07	44.81	65.91	-21.10	QP
0.15	31.39	0.40	0.07	31.86	55.91	-24.05	Average
0.43	41.71	0.34	0.11	42.16	57.24	-15.08	QP
0.43	27.80	0.34	0.11	28.25	47.24	-18.99	Average
1.34	49.66	0.20	0.16	50.02	56.00	-5.98	QP
1.34	36.34	0.20	0.16	36.70	46.00	-9.30	Average
1.76	43.70	0.20	0.17	44.07	56.00	-11.93	QP
1.76	31.07	0.20	0.17	31.44	46.00	-14.56	Average
3.84	35.27	0.20	0.18	35.65	56.00	-20.35	QP
3.84	26.75	0.20	0.18	27.13	46.00	-18.87	Average
9.86	39.05	0.20	0.20	39.45	60.00	-20.55	QP
9.86	31.86	0.20	0.20	32.26	50.00	-17.74	Average

Note:

1. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
2. Final Level =Receiver Read level + LISN Factor + Cable Loss

4. RADIATED EMISSION MEASUREMENT

4.1 LIMIT

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009mhz - 1000mhz)

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 (1GHz-25 GHz)

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

LIMITS OF FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL

FREQUENCY (MHz)	Limit
	(dBuV/m) (at 3M)
902-928	94

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).

4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	PK=1MHz / 1MHz, AV=1 MHz /10 Hz PK detector is used

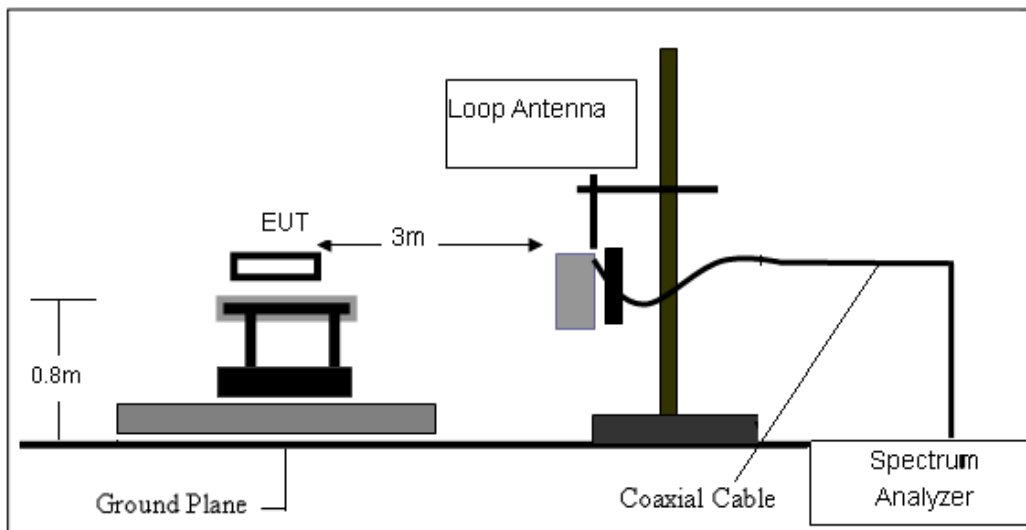
- The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
- 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 QuasiPeak detector mode re-measured.
- 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.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

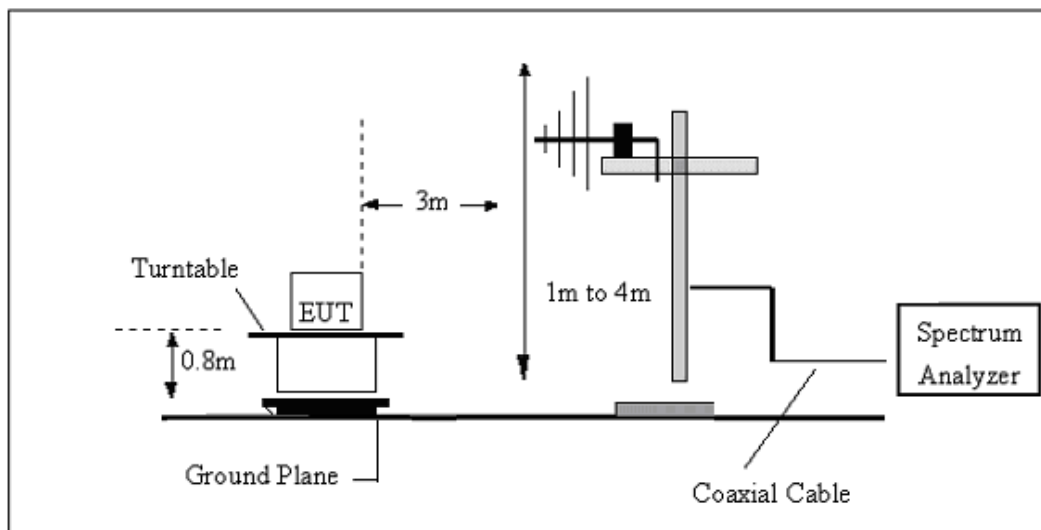
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.3 TEST SETUP

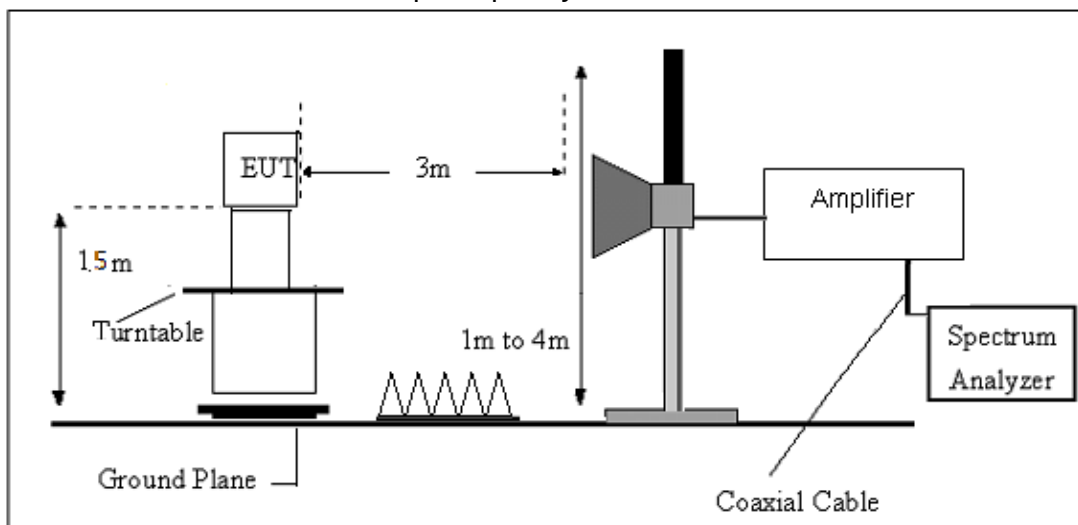
(A) Radiated Emission Test-Up Frequency Below 30MHz



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



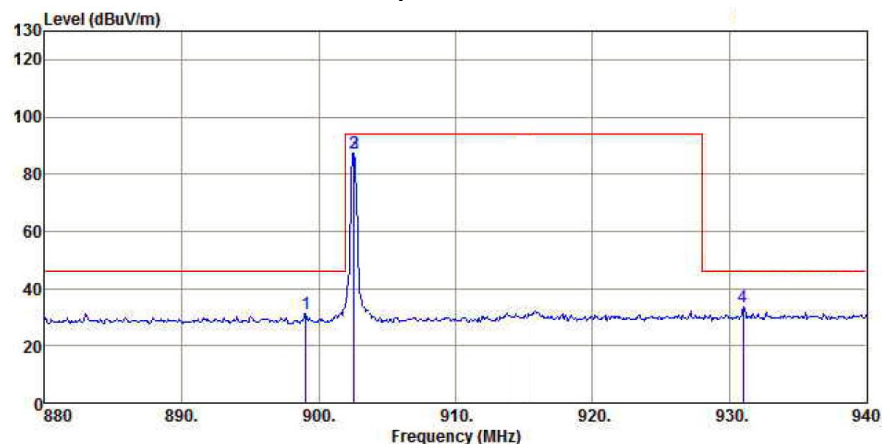
(C) Radiated Emission Test-Up Frequency Above 1GHz



4.4 TEST RESULTS

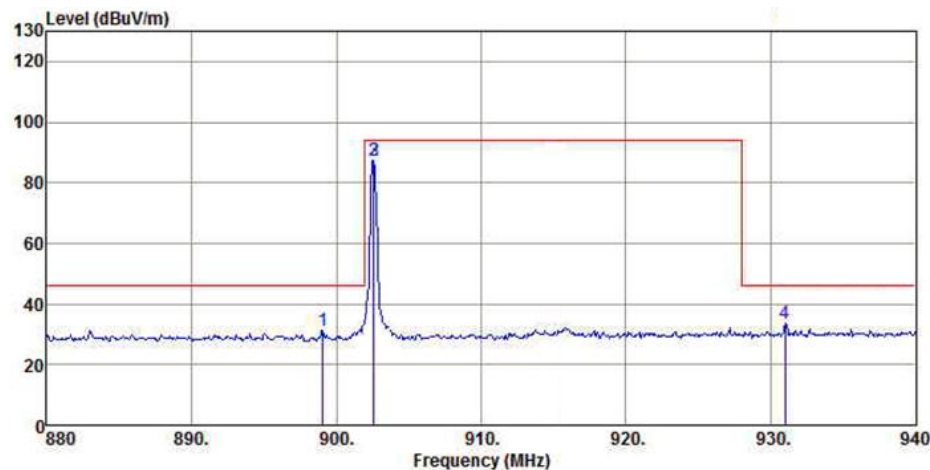
FUNDAMENTAL SIGNAL

V



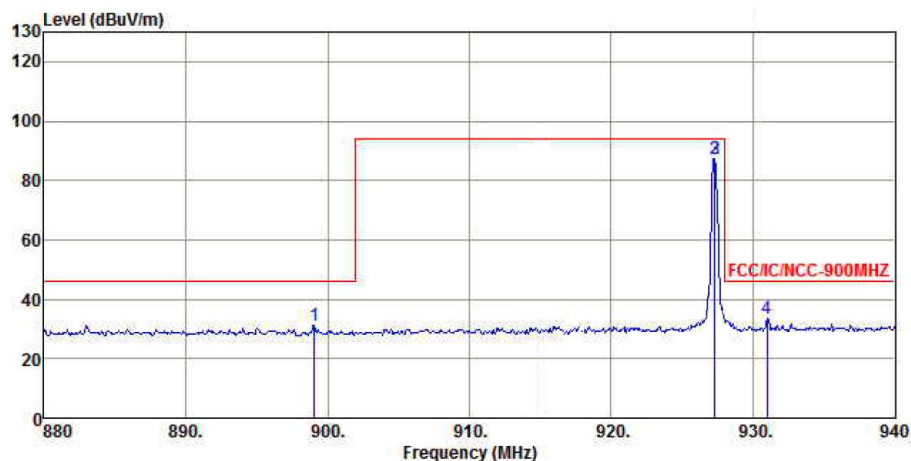
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	899.080	31.09	-14.91	46.00	35.80	27.76	5.06	37.53 Peak
2	902.500	87.46	-6.54	94.00	91.49	28.27	5.17	37.47 Peak
3	902.500	87.32	-6.68	94.00	91.35	28.27	5.17	37.47 QP
4	931.000	33.40	-12.60	46.00	36.69	28.83	5.29	37.41 Peak

H



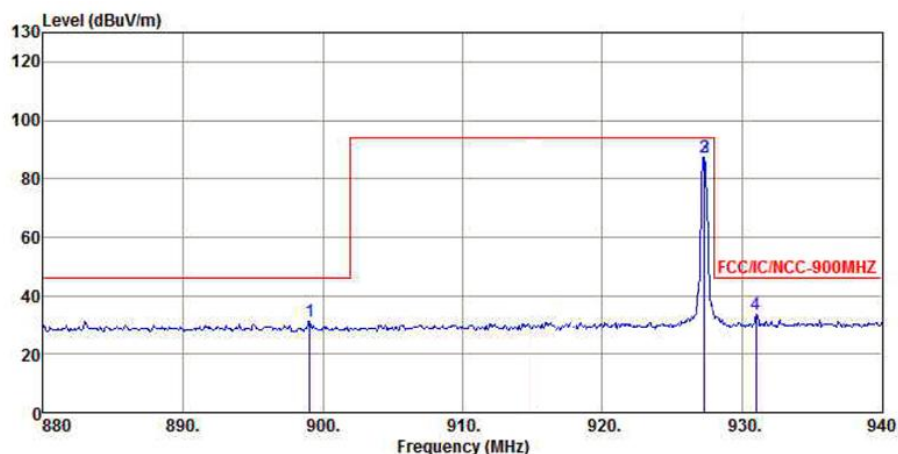
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	899.089	30.09	-15.91	46.00	35.80	27.76	5.06	37.53 Peak
2	902.500	87.46	-6.54	94.00	91.49	28.27	5.17	37.47 Peak
3	902.500	87.32	-6.68	94.00	91.35	28.27	5.17	37.47 QP
4	931.090	34.40	-11.60	46.00	36.69	28.83	5.29	37.41 Peak

H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	899.080	31.09	-14.91	46.00	35.80	27.76	5.06	37.53 Peak
2	927.540	85.46	-8.54	94.00	89.49	28.27	5.17	37.47 Peak
3	927.540	85.32	-8.68	94.00	89.35	28.27	5.17	37.47 QP
4	931.000	33.40	-12.60	46.00	36.69	28.83	5.29	37.41 Peak

V



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	899.081	30.09	-15.91	46.00	35.80	27.76	5.06	37.53 Peak
2	927.540	85.46	-8.54	94.00	89.49	28.27	5.17	37.47 Peak
3	927.540	85.32	-8.68	94.00	89.35	28.27	5.17	37.47 QP
4	931.120	32.40	-12.60	46.00	36.69	28.83	5.29	37.41 Peak

For spurious emission

(9KHz-30MHz)

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

Note:

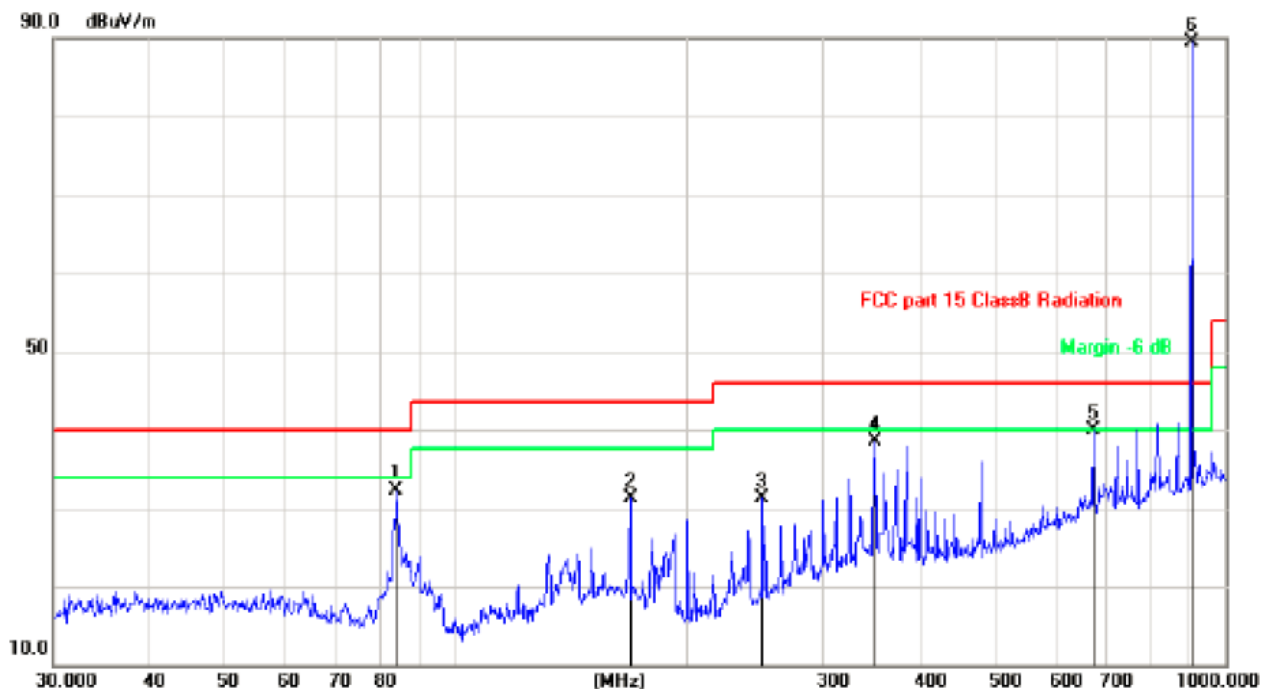
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

(30MHZ-1000MHZ)

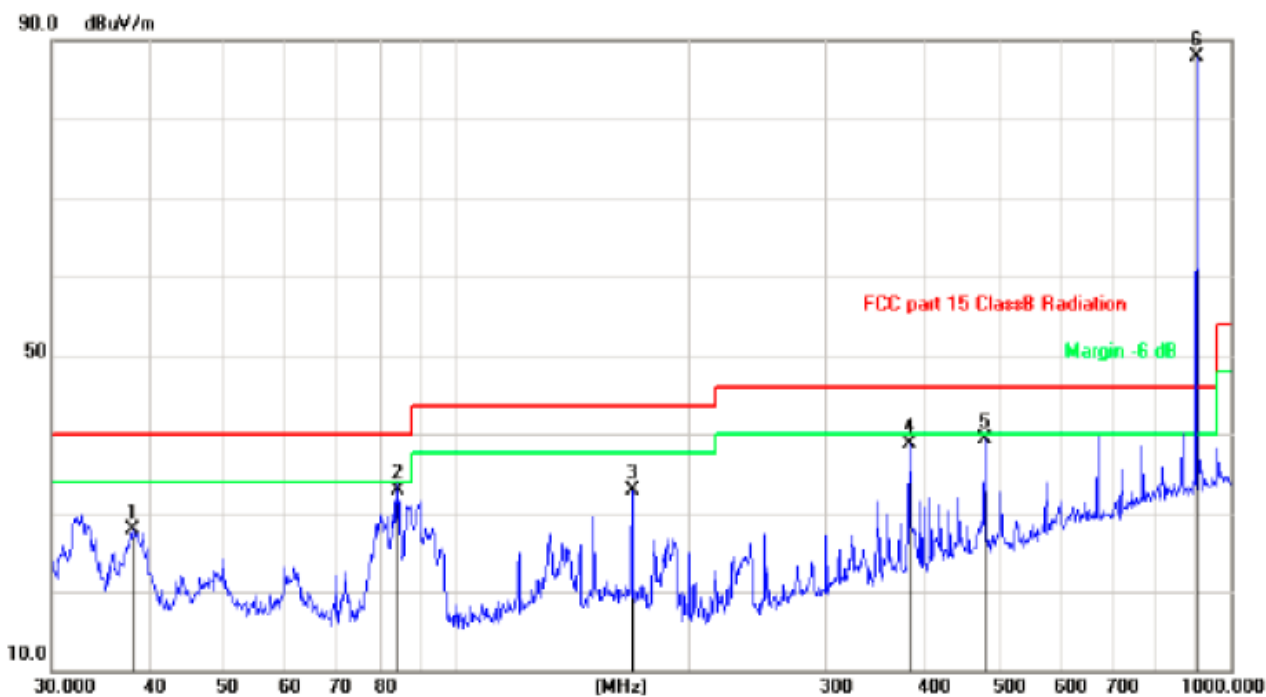
Temperature:	23.7°C	Relative Humidity:	61%
Test Voltage:	DC 3.7V	Phase:	Horizontal
Test Mode:	ASK Low CH		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree
1		83.8156	49.24	-16.92	32.32	40.00	-7.68	QP	129	26
2		168.4138	43.63	-12.26	31.37	43.50	-12.13	QP	333	253
3		250.3009	45.05	-13.77	31.28	46.00	-14.72	QP	254	35
4		350.4768	48.57	-10.12	38.45	46.00	-7.55	QP	296	89
5		672.8444	42.00	-2.12	39.88	46.00	-6.12	QP	135	159
6	*	902.5000	88.40	1.12	89.52	94.00	-4.48	QP	189	99

Remark: measurement= reading level+ correct factor, over=limit- measurement
The frequency 902.5MHZ is fundamental signal

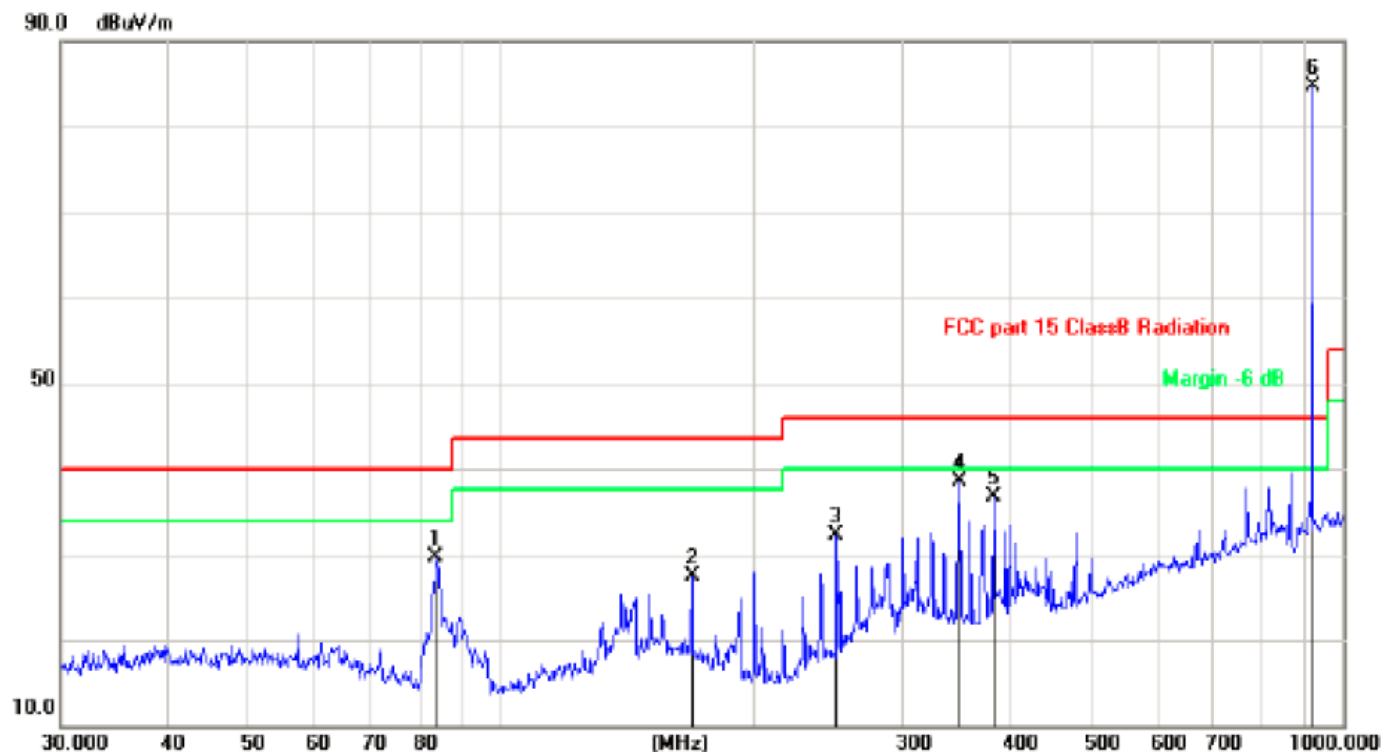
Temperature:	22.7°C	Relative Humidity:	61%
Test Voltage:	DC 3.7V	Phase:	Vertical
Test Mode:	ASK Low CH		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree	Comment
1		38.0782	40.73	-12.76	27.97	40.00	-12.03	QP	100	122
2		84.1100	49.78	-16.93	32.85	40.00	-7.15	QP	100	236
3		168.4138	45.23	-12.26	32.97	43.50	-10.53	QP	100	89
4		383.9318	47.82	-9.15	38.67	46.00	-7.33	QP	100	35
5		480.5276	46.04	-6.71	39.33	46.00	-6.67	QP	100	158
6	*	902.5000	86.86	1.09	87.95	94.00	-6.05	QP	100	165

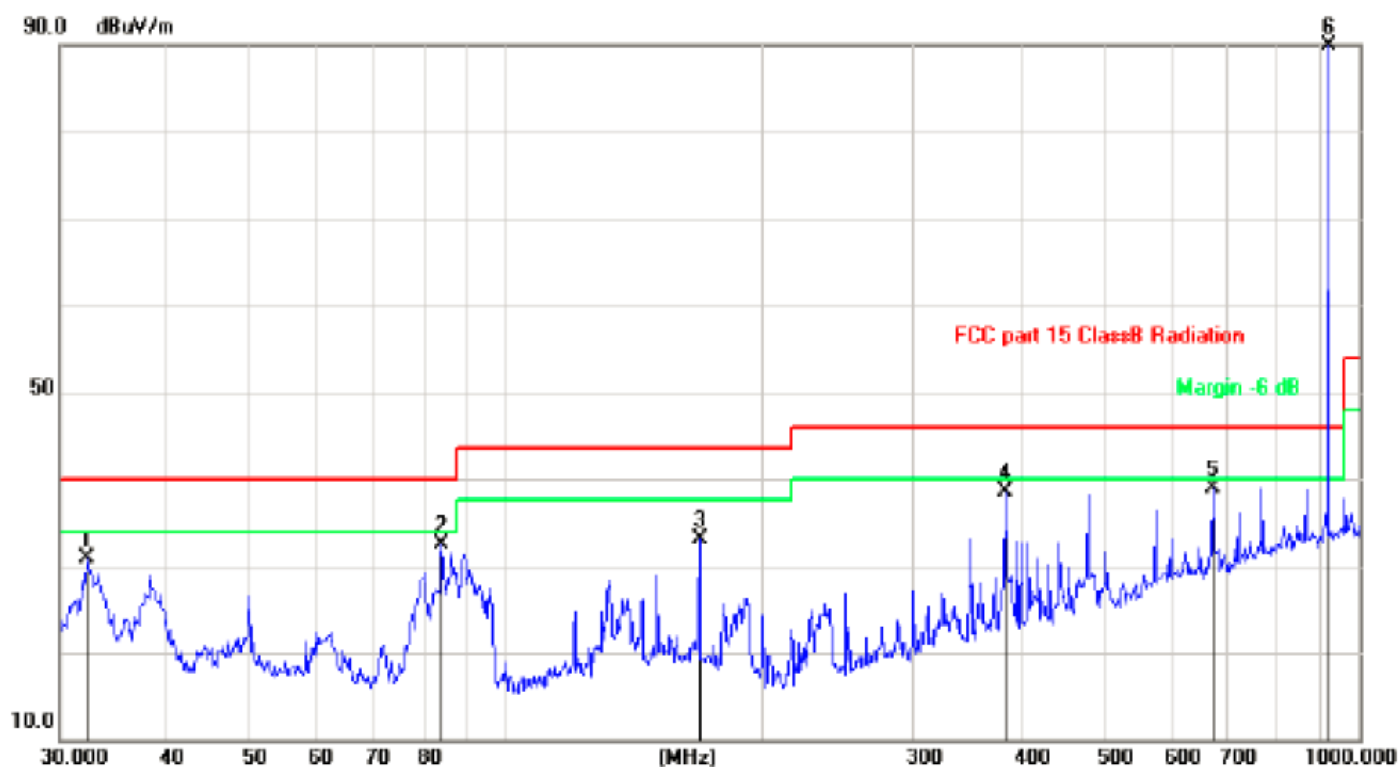
Remark: measurement= reading level+ correct factor, over=limit- measurement
The frequency 902.5MHZ is fundamental signal

Temperature:	23.7°C	Relative Humidity:	61%
Test Voltage:	DC 3.7V	Phase:	Horizontal
Test Mode:	ASK Middle CH		



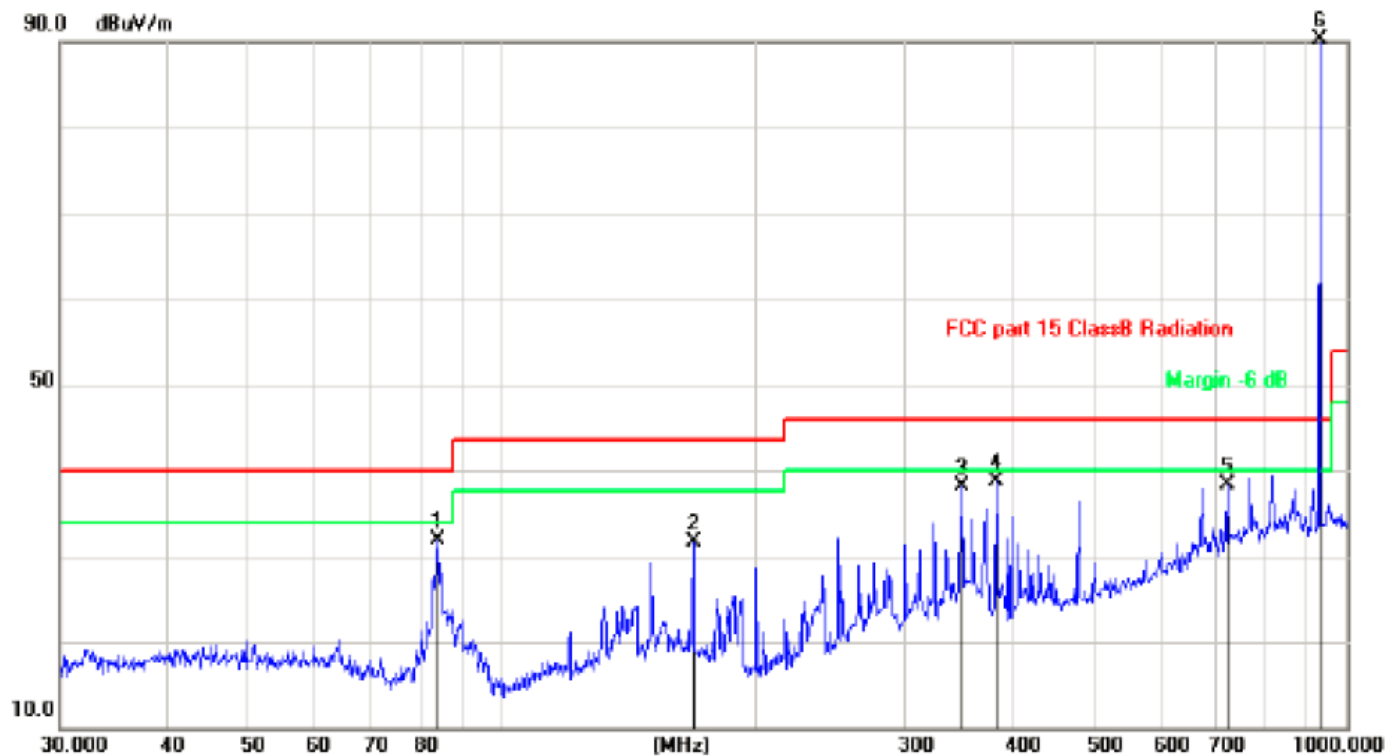
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree
1		83.8156	46.67	-16.92	29.75	40.00	-10.25	QP	125	45
2		168.4138	39.72	-12.26	27.46	43.50	-16.04	QP	169	98
3		250.3010	46.04	-13.77	32.27	46.00	-13.73	QP	188	128
4		350.4768	48.62	-10.12	38.50	46.00	-7.50	QP	265	355
5		383.9318	45.79	-9.15	36.64	46.00	-9.36	QP	356	154
6	*	915.0000	83.29	1.41	84.70	94.00	-9.30	QP	289	235

Temperature:	22.7°C	Relative Humidity:	61%
Test Voltage:	DC 3.7V	Phase:	Vertical
Test Mode:	ASK Middle CH		



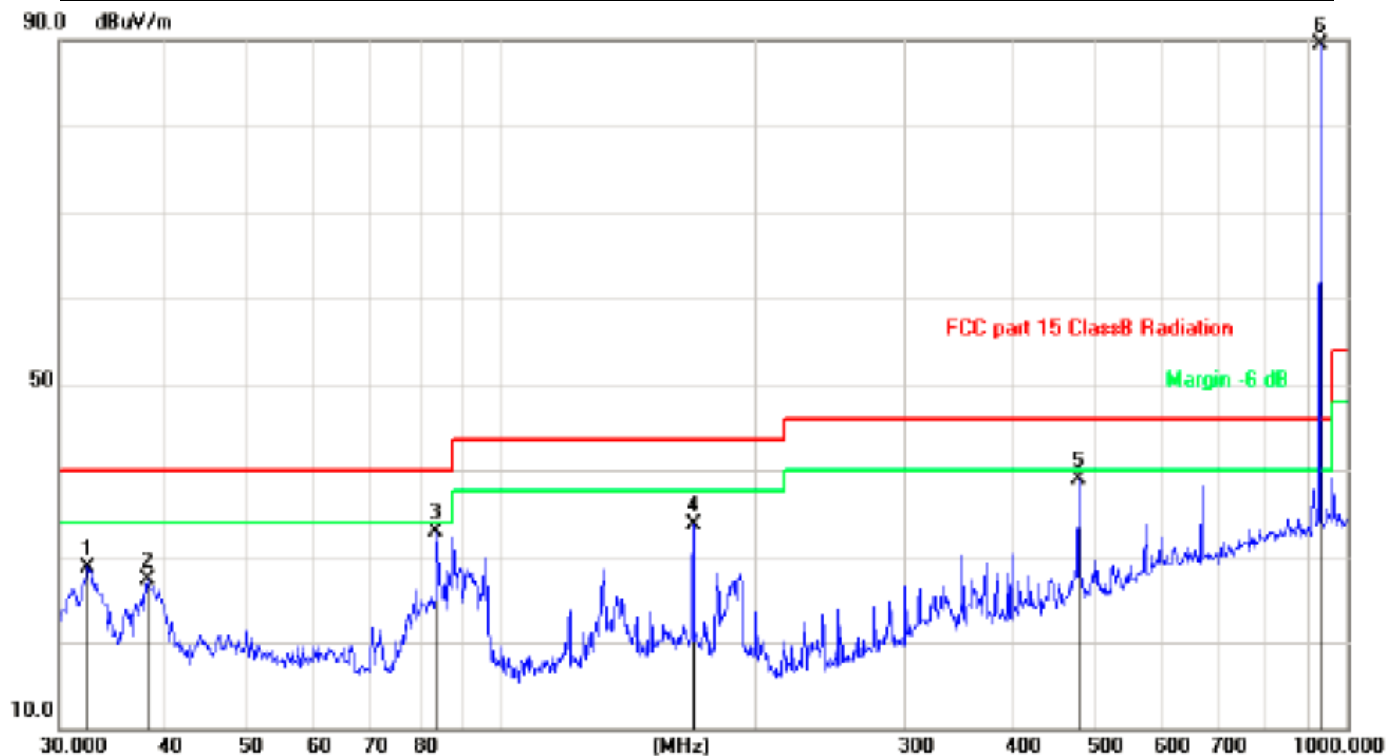
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		32.2924	44.46	-13.54	30.92	40.00	-9.08	QP	100	260
2		84.1100	49.47	-16.93	32.54	40.00	-7.46	QP	100	78
3		168.4138	45.39	-12.26	33.13	43.50	-10.37	QP	100	154
4		383.9318	47.67	-9.15	38.52	46.00	-7.48	QP	100	133
5		672.8444	41.03	-2.12	38.91	46.00	-7.09	QP	100	69
6	*	915.0000	88.48	1.47	89.95	94.00	-4.05	QP	100	324

Temperature:	23.7°C	Relative Humidity:	61%
Test Voltage:	DC 3.7V	Phase:	Horizontal
Test Mode:	ASK High CH		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1		84.1100	48.83	-16.93	31.90	40.00	-8.10	QP	100	20
2		168.4138	43.88	-12.26	31.62	43.50	-11.88	QP	259	36
3		350.4768	48.21	-10.12	38.09	46.00	-7.91	QP	299	189
4		383.9318	47.94	-9.15	38.79	46.00	-7.21	QP	233	355
5		721.7259	39.42	-1.13	38.29	46.00	-7.71	QP	185	50
6	*	927.5000	87.54	1.67	89.21	94.00	-4.79	QP	165	97

Temperature:	23.7°C	Relative Humidity:	61%
Test Voltage:	DC 3.7V	Phase:	Vertical
Test Mode:	ASK High CH		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		32.4059	42.33	-13.53	28.80	40.00	-11.20	QP	100	55	
2		38.2120	40.09	-12.74	27.35	40.00	-12.65	QP	100	135	
3		83.8156	49.92	-16.92	33.00	40.00	-7.00	QP	100	74	
4		168.4138	45.91	-12.26	33.65	43.50	-9.85	QP	100	359	
5		480.5276	45.61	-6.71	38.90	46.00	-7.10	QP	100	222	
6	*	927.5000	87.84	1.67	89.51	94.00	-4.49	QP	100	65	

(1GHZ~25GHZ)

LOW CH

PEAK/AV HOR.

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1805	58.58	-5.82	52.76	74	-21.24	peak
1805	47.65	-5.82	41.83	54	-12.17	AVG
2707.5	56.02	-3.63	52.39	74	-21.61	peak
2707.5	46.83	-3.63	43.20	54	-10.80	AVG
3610	58.04	-0.96	57.08	74	-16.92	peak
3610	48.00	-0.96	47.04	54	-6.96	AVG

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

PEAK/AV VER.

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1805	58.69	-5.82	52.87	74	-21.13	peak
1805	47.71	-5.82	41.89	54	-12.11	AVG
2707.5	56.30	-3.63	52.67	74	-21.33	peak
2707.5	47.06	-3.63	43.43	54	-10.57	AVG
3610	58.25	-0.96	57.29	74	-16.71	peak
3610	48.18	-0.96	47.22	54	-6.78	AVG

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

MIDDLE CH

PEAK/AV HOR.

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1830	56.58	-5.72	50.86	74	-23.14	peak
1830	47.49	-5.72	41.77	54	-12.23	AVG
2745	55.96	-3.49	52.47	74	-21.53	peak
2745	46.83	-3.49	43.34	54	-10.66	AVG
3660	57.95	-0.81	57.14	74	-16.86	peak
3660	47.87	-0.81	47.06	54	-6.94	AVG

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

PEAK/AV VER.

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1830	108.11	-5.72	52.69	74	-21.31	peak
1830	93.13	-5.72	42.68	54	-11.32	AVG
2745	56.11	-3.49	52.62	74	-21.38	peak
2745	46.99	-3.49	43.50	54	-10.50	AVG
3660	57.99	-0.81	57.18	74	-16.82	peak
3660	47.76	-0.81	46.95	54	-7.05	AVG

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

HIGHT CH

PEAK/AV HOR.

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1855	56.42	-5.62	50.80	74	-23.20	peak
1855	47.29	-5.62	41.67	54	-12.33	AVG
2782.5	56.26	-3.41	52.85	74	-21.15	peak
2782.5	47.46	-3.41	44.05	54	-9.95	AVG
3710	57.34	-0.74	56.60	74	-17.40	peak
3710	47.57	-0.74	46.83	54	-7.17	AVG

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

PEAK/AV VER.

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1855	56.77	-5.62	53.66	74	-20.34	peak
1855	47.88	-5.62	45.62	54	-8.38	AVG
2782.5	55.96	-3.41	52.55	74	-21.45	peak
2782.5	47.52	-3.41	44.11	54	-9.89	AVG
3710	56.90	-0.74	56.16	74	-17.84	peak
3710	47.44	-0.74	46.70	54	-7.30	AVG

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

5. BAND EDGE TEST

5.1 LIMIT

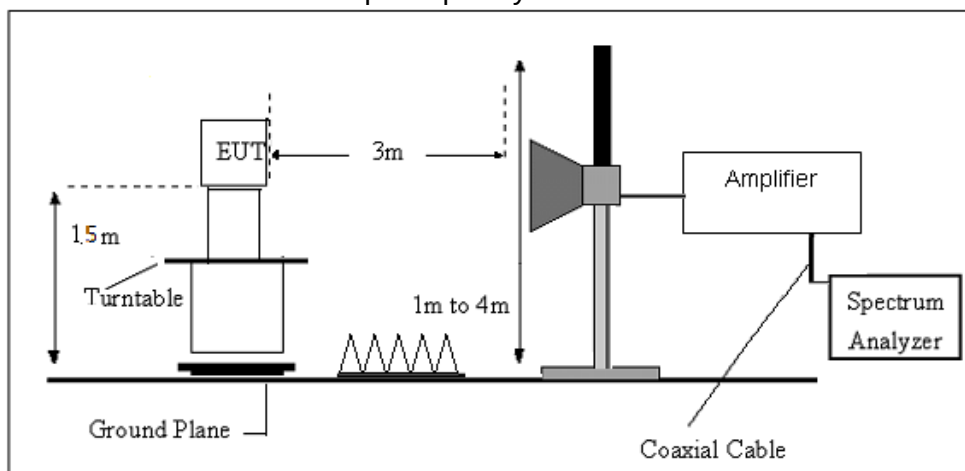
According to §15.249(d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

5.2 TEST PROCEDURE

- a. The EUT is placed on a turntable, which is 1.5m above ground plane.
- b. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
Use the following spectrum analyzer settings:
 - c. Span = wide enough to fully capture the emission being measured, RBW = 1 MHz, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold
Follow the guidelines in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc.
- d. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. Set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the duty cycle per channel of the hopping signal is less than 100 ms, then the reading obtained with
- e. the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from $20\log(\text{duty cycle}/100 \text{ ms})$, in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

5.3 TEST SETUP

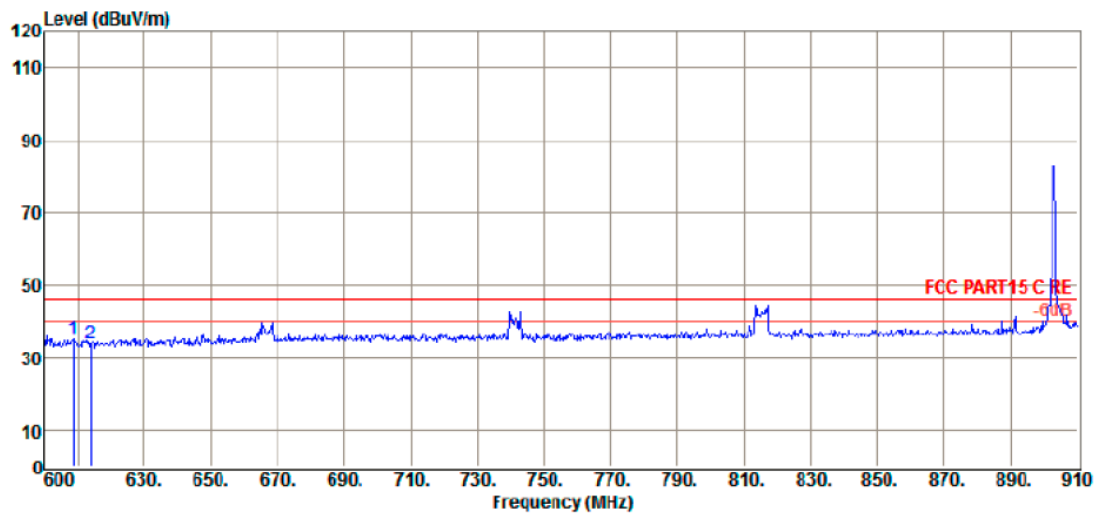
Radiated Emission Test-Up Frequency Above 1GHz



5.4 TEST RESULTS

Low CH (ASK)

Polarization: Horizontal



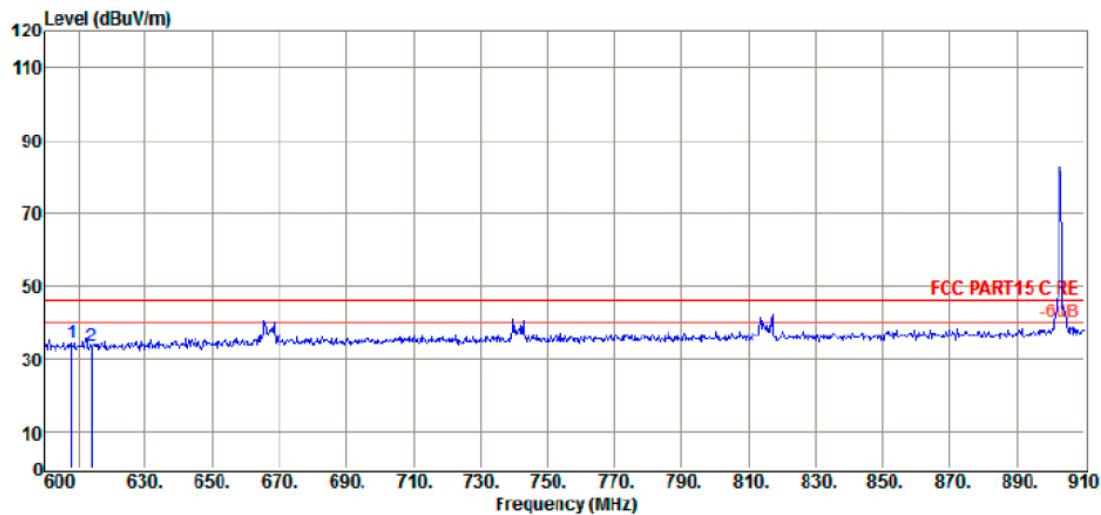
Item (Mark)	Freq. (MHz)	Read Level (dBUV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Detector	Polarization
1	608.68	10.35	18.65	0.00	6.12	35.12	46.00	-10.88	Peak	HORIZONTAL
2	614.00	9.10	18.74	0.00	6.13	33.97	46.00	-12.03	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

Polarization: Vertical



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	608.06	9.61	18.64	0.00	6.12	34.37	46.00	-11.63	Peak	VERTICAL
2	614.00	8.56	18.74	0.00	6.13	33.43	46.00	-12.57	Peak	VERTICAL

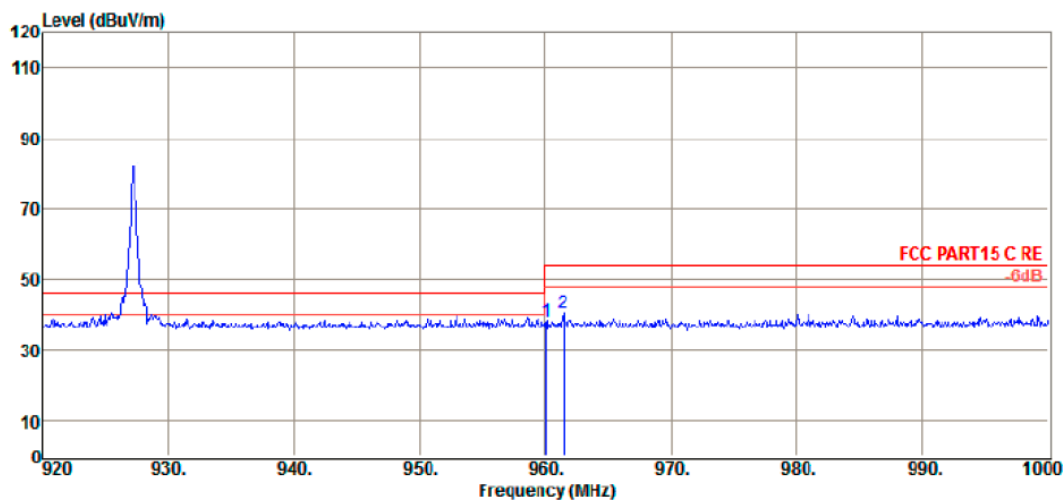
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

High CH(ASK)

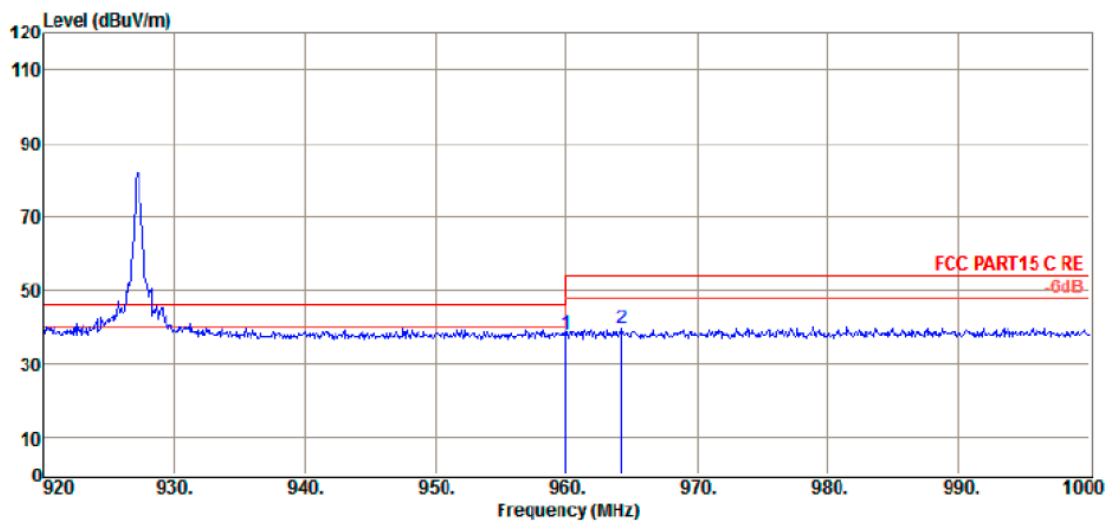
Polarization: Vertical



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	960.08	8.70	22.37	0.00	7.06	38.13	54.00	-15.87	Peak	VERTICAL
2	961.44	11.03	22.39	0.00	7.06	40.48	54.00	-13.52	Peak	VERTICAL

- Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

Polarization: Horizontal



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	960.00	8.63	22.37	0.00	7.06	38.06	46.00	-7.94	Peak	HORIZONTAL
2	964.24	9.98	22.42	0.00	7.06	39.46	54.00	-14.54	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

6. 20 DB BANDWIDTH TEST

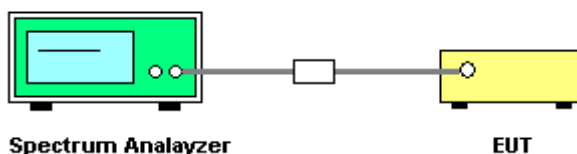
6.1 LIMIT

According to 15.215 (c) 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. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation

6.2 TEST PROCEDURE

- Check the calibration of the measuring instrument using either an internal calibrator or a
- known signal from an external generator
 - Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
 - Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.

6.3 TEST SETUP



6.4 TEST RESULTS

Temperature:	25°C	Relative Humidity:	50%
Test Mode:	ASK	Test Voltage:	DC 3.7V

Frequency	20dB Bandwidth (MHz)	Result
902.5 MHz	0.0407	PASS
915 MHz	0.0437	PASS
927.5 MHz	0.0384	PASS





7. ANTENNA REQUIREMENT

7.1 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.

7.2 EUT ANTENNA

The antennas used for this product are Dipole antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 1.0dBi.

※※※※※END OF THE REPORT※※※※※