



**FCC 47 CFR PART 15 SUBPART C
TEST REPORT**

FOR

FM TRANSMITTER

Model : ISFM75

Issued to

AAMP of Florida, Inc. dba AAMP Global
15500 Lightwave Dr. Suite 202 Clearwater Florida
United States

Issued by
WH Technology Corp.



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1. GENERAL INFORMATION

Applicant : AAMP of Florida, Inc. dba AAMP Global
Address : 15500 Lightwave Dr. Suite 202 Clearwater Florida United States
Manufacturer : Wencoglobal Co., Ltd.
Address : Unit B,3/F., Fok Who Factory Building, 5 Sheung Hei Street, San Po Kong,Kowloon, Hong Kong
Factory : Ablelink Electronics Ltd
Address : 182 Qingzhang Road, Chang Shan Tou, QingXi Town, Dongguan, China
EUT : FM transmitter
Model Name : ISFM75
FCC ID : XBD-FM75B
Trade Name : N/A
Model Differences : N/A

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.10-2013. The said equipment in the configuration described in this report shows the maximum emission levels emanating

FCC part 15 Subpart C

Receipt Date : 07/06/2018

Final Test Date :08/26/2018

Tested By:


July 06, 2018
(Date)


Bing Chang/ Engineer

August 26, 2018
(Date)



Reviewed by:


Bell Wei / Manager
Designation Number: TW2954



2. REPORT OF MEASUREMENTS AND EXAMINATIONS

2.1 LIST OF MEASUREMENTS AND EXAMINATIONS

FCC Rule	Item	Result
15.207	Conducted Emission	N/A
15.209 15.239(b) (c)	Radiated Emission	PASS
15.239(a)	20dB Bandwidth	PASS
15.203	Antenna Requirement	PASS



3. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

3.1 DESCRIPTION OF THE TESTED SAMPLES

EUT Name	:	FM transmitter
Model Number	:	ISFM75
FCC ID	:	XBD-FM75B
Input Voltage	:	DC 12V
Output	:	5V/2.4A For USB Port 5V/2.4A For Lightning Port
Operate Frequency	:	88.1MHz ~ 107.9MHz
Antenna Type	:	Wire Antenna
Antenna gain	:	0dBi

3.3 TEST MODE AND TEST SOFTWARE

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10-2013.
- b. The complete test system included Iphone 6 and EUT for RF test.
- c. only the worst case was recorded in this report



3.4 TEST METHODOLOGY & GENERAL TEST PROCEDURES

All testing as described bellowed were performed in accordance with ANSI C63.10:2013 and FCC CFR 47 Part 15 Subpart C .

Conducted Emissions

The EUT is placed on a wood table, which is at 0.8 m above ground plane acceding to clause 15.207 and requirements of ANSI C63.10:2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz are using CISPR Quasi-Peak / Average detectors.

Radiated Emissions

The EUT is a placed on a turn table, which is 0.8 m above ground plane. The turntable was rotated through 360 degrees to determine the position of maximum emission level. The EUT is placed at 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

- 1)Putting the EUT on the platform and turning on the EUT (on/off button on the bottom of the EUT).
- 2)Setting test channel described as “Channel setting and operating condition” , and testing channel by channel.
- 3)For the maximum output power measurement, we followed the method of measurement ANSI C63.10.
- 4)For the spurious emission test based on ANSI C63.10, at the frequency where below 1GHz used quasi-peak detector mode; where above 1GHz used the peak and average detector mode. IF the peak value may be under average limit, the average mode will not be performed.

3.5 MEASUREMENT UNCERTAINTY

Measurement Item	Uncertainty
Radiated emission	±4.11dB
Peak Output Power(conducted)	±1.38dB
Peak Output Power(Radiated)	±1.70dB
Power Spectral Density	±1.39dB
Radiated emission(3m)	±4.11dB
Radiated emission(10m)	±3.89dB



3.6 DESCRIPTION OF THE SUPPORT EQUIPMENTS

Setup Diagram

See test photographs attached in appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Peripherals Devices:

Description	Manufacturer	Model No.	Serial No.
iPhone 6	Apple	iPhone 6	354433064030856

USB Line : Unshielded ,Detachable, 1.2m

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test

Grounding: Grounding was in accordance with the manufacturer' s requirement and conditions for the intended use.



4. TEST AND MEASUREMENT EQUIPMENT

4.1 CALIBRATION

The measuring equipment utilized to perform the tests documented in the report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2 EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other required standards. Calibration of all test and measurement, including any accessories that may affect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective.



TABLELIST OF TEST AND MEASUREMENT EQUIPMENT

Instrument	Manufacturer	Model No.	S/N	Next Cal. Date
EMI Receiver	R&S	ESHS10	830223/008	2019/06/05
LISN	Rolf Heine Hochfrequenztechnik	NNB-2/16z	98062	2019/06/10
ISN	Schwarzbeck	8-Wire ISN CAT5	CAT5-8158- 0094	2018/09/21
RF Cable	N/A	N/A	EMI-3	2018/10/19
Bilog antenna(30M-1G)	ETC	MCTD2786 B	BLB16M040 04/JB-5-004	2019/05/17
Double Ridged Guide Horn antenna(1G-18G)	ETC	MCTD 1209	DRH15N020 09	2018/11/23
Horn antenna (18G-26G)	com-power	AH-826	81000	2019/08/16
LOOP Antenna (Below 30M)	com-power	AL-130	17117	2018/10/04
Pre amplifier (30M-1G)	EMC INSTRUMENT	EMC9135	980334	2019/05/02
Microwave Preamplifier (1G-18G)	EMC INSTRUMENT	EMC05184 5	980108&AT -18001	2018/10/23
Pre amplifier (18G~26G)	MITEQ	JS4-180026 00-30-5A	808329	2019/08/09
EMI Test Receiver	R&S	ESVS30 (20M-1000 MHz)	826006/002	2018/11/28
RF Cable (open site)	EMCI	N male on end of both sides (EMI4)	30m	2018/10/19
RF CABLE (1~26G)	HARBOUT INDUSTRIES	LL142MI(4 M+4M)	NA	2019/04/16
RF CABLE (1~26G)	HARBOUT INDUSTRIES	LL142MI(7 M)	NA	2019/08/09
Spectrum (9K--7GHz)	R&S	FSP7	830180/006	2019/04/13
Spectrum (9K--40GHz)	AGILENT	8564EC	4046A0032	2019/03/01
e3	AUDIX	N/A	N/A	N/A
SINGAL GENERATOR (100k-1GHz)	HP	8648A	3619U0042 6	N/A
Power Meter	ANRITSU	ML2487	6K00001574	2019/08/09

***CALIBRATION INTERVAL OF INSTRUMENTS LISTED ABOVE IS ONE YEAR**



5. ANTENNA REQUIREMENTS

5.1 STANDARD APPLICABLE

According to the FCC Part 15 Paragraph 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 ANTENNA CONSTRUCTION AND DIRECTIONAL GAIN

FM Antenna		
Antenna Type	:	Wire Antenna
Antenna Gain	:	0 dBi

Ten EUT antenna is Wire Antenna. it comply with the standard requirement.



6. TEST OF CONDUCTED EMISSION

6.1 TEST LIMIT

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013 The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

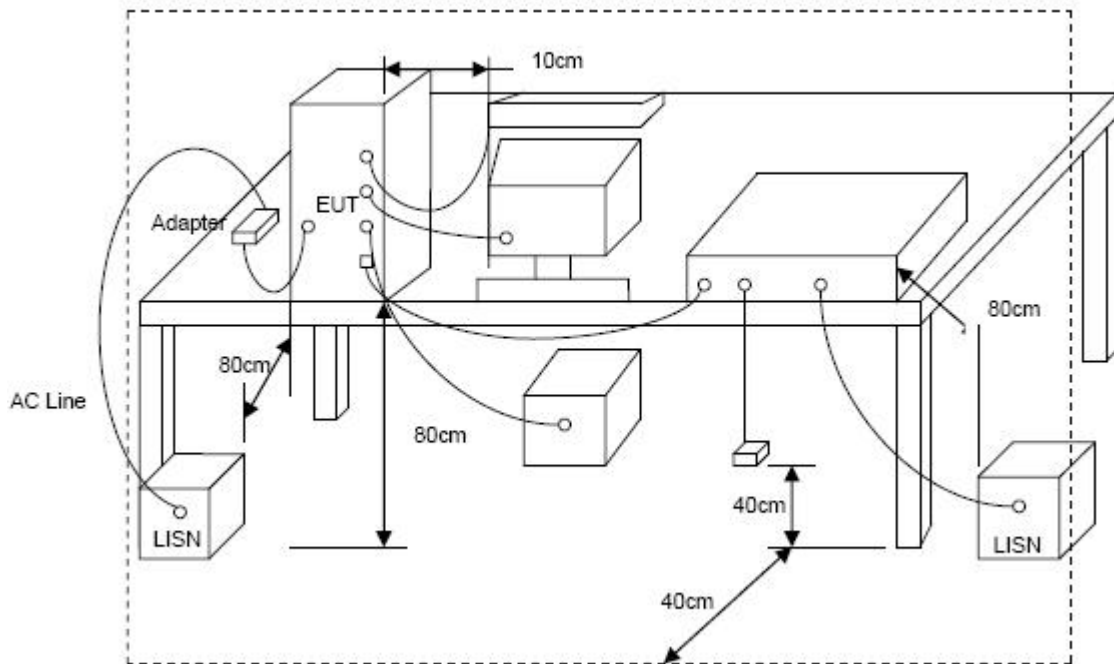
*Decreases with the logarithm of the frequency.

6.2 TEST PROCEDURES

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



6.3 TYPICAL TEST SETUP



Note.:The EUT is powered by a DC 12V battery, so no testing is required.

6.4 TEST RESULT

N/A,EUT is DC input, DC 12V From Battery, so this project is not applicable.



7. TEST OF RADIATED EMISSION

7.1 TEST LIMIT (15.209)

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other 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 comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolts/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
960~1000	500	3

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m)=20log Emission level (uV/m).

7.2 TEST LIMIT (15.239)

According to 15.239 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m)	
88 to 108	Peak	Average
	67.96	47.96

Band edge emissions outside of the frequency bands shown in below table.

Outside Frequency Band Edge	Limit (dBuV/m) at 3m
Below 88 MHz	40.0 (QP)
Above 108 MHz	43.5 (QP)



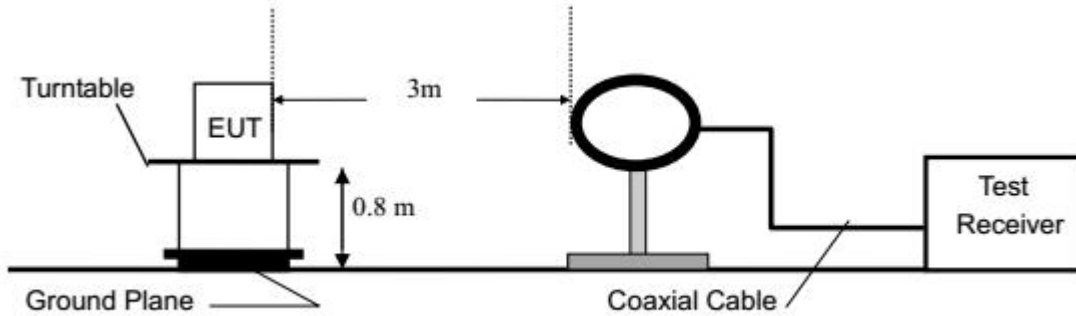
7.3 TEST PROCEDURES

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. “ Cone of radiation ” has been considered to be 3dB bandwidth of the measurement antenna.

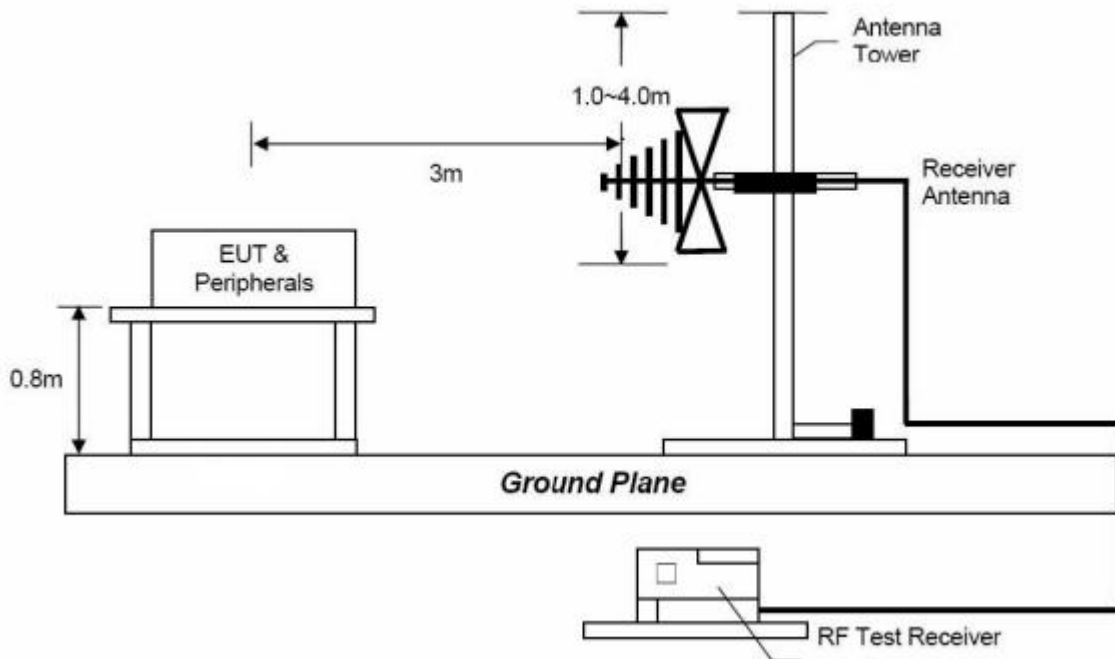


7.4 TYPICAL TEST SETUP

Radiated Emission Test Set-Up, Frequency Below 30MHz



Radiated Emission Test Set-Up, Frequency 30MHz-1000MHz



7.5 TEST RESULT AND DATA (9KHZ ~ 30MHZ)

PASS

The 9kHz - 30MHz spurious emission is under limit 20dB more.



7.6 TEST RESULT AND DATA (30MHZ ~ 1GHZ, WORST EMISSIONS FOUND)

M/N :	ISFM75	Test Voltage:	DC 12V			
Test Date :	July 09, 2018	Test Mode:	88.1MHz			
Temperature:	20°C	Relative Humidity:	54%			
Pressure:	101.0KPa	Test by:	Bing			
Vertical						
Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
36.46	16.56	15.36	31.92	40	-9.29	QP
70.88	22.23	5.93	28.16	40	-10.85	QP
88.10	43.06	9.09	52.15	68	-15.12	Peak
88.10	33.23	9.09	42.32	48	-4.73	AVG
176.27	24.53	9.69	34.22	43.5	-5.55	QP
264.33	26.33	13.94	40.27	46	-9.93	QP
Horizontal						
Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
50.67	15.45	8.12	23.57	40	-16.43	QP
68.95	23.34	6.09	29.43	40	-10.57	QP
88.10	43.44	9.09	52.53	68	-15.47	Peak
88.10	33.34	9.09	42.43	48	-5.57	AVG
166.89	25.53	9.69	33.22	43.5	-10.28	QP
253.18	21.83	13.94	35.77	46	-10.23	QP
Remark:Factor=Antenna Factor + Cable Loss - Pre-amplifier. Level=Reading + Factor Margin=Level-Limits						



M/N :	ISFM75	Test Voltage:	DC 12V			
Test Date :	July 09, 2018	Test Mode:	98.1MHz			
Temperature:	20°C	Relative Humidity:	54%			
Pressure:	101.0KPa	Test by:	Bing			
Vertical						
Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
39.22	15.46	15.36	30.82	40	-9.18	QP
69.45	23.24	5.93	29.17	40	-10.83	QP
98.10	42.83	10.03	53.13	68	-14.87	Peak
98.10	32.39	10.03	42.69	48	-5.31	AVG
176.27	30.12	8.68	38.80	43.5	-4.70	QP
294.33	19.28	14.30	33.58	46	-12.42	QP
Horizontal						
Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
50.67	13.34	8.12	21.46	40	-18.54	QP
68.95	23.36	6.09	29.45	40	-10.55	QP
98.10	42.42	10.03	52.72	68	-15.28	Peak
98.10	32.23	10.03	42.53	48	-5.47	AVG
166.89	22.82	8.68	31.50	43.5	-12.00	QP
293.18	23.56	14.30	37.86	46	-8.14	QP
Remark:Factor=Antenna Factor + Cable Loss - Pre-amplifier. Level=Reading + Factor Margin=Level-Limits						



M/N :	ISFM75		Test Voltage:	DC 12V		
Test Date :	July 09, 2018		Test Mode:	107.9MHz		
Temperature:	20°C		Relative Humidity:	54%		
Pressure:	101.0KPa		Test by:	Bing		
Vertical						
Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
35.66	15.35	15.36	30.71	40	-9.29	QP
60.45	23.22	5.93	29.15	40	-10.85	QP
107.90	41.67	11.21	52.88	68	-15.12	Peak
107.90	32.06	11.21	43.27	48	-4.73	AVG
211.83	28.45	9.50	37.95	43.5	-5.55	QP
324.63	21.26	14.81	36.07	46	-9.93	QP
Horizontal						
Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
50.67	17.48	8.12	25.60	40	-14.40	QP
68.95	29.35	6.09	35.44	40	-4.56	QP
107.90	46.34	11.21	57.55	68	-10.45	Peak
107.90	32.35	11.21	43.56	48	-4.44	AVG
215.80	20.72	9.50	30.22	43.5	-13.28	QP
323.70	21.45	14.81	36.26	46	-9.74	QP
Remark:Factor=Antenna Factor + Cable Loss - Pre-amplifier. Level=Reading + Factor Margin=Level-Limits						



8. BANDWIDTH TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.239) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.239(b)	Bandwidth	Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.	88-108	PASS

8.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show
In the block diagram below,
- Spectrum Setting : RBW= 10KHz, VBW=30KHz, Sweep time = Auto.

8.3 TEST SETUP



8.4 TEST RESULT AND DATA

PASS

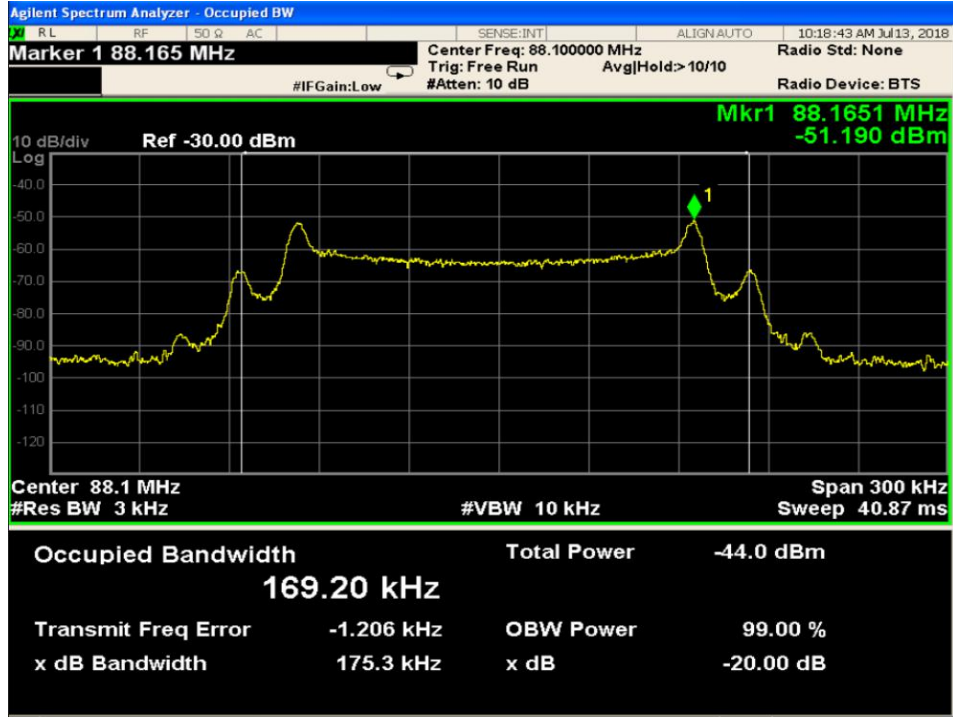
Please refer to following table.



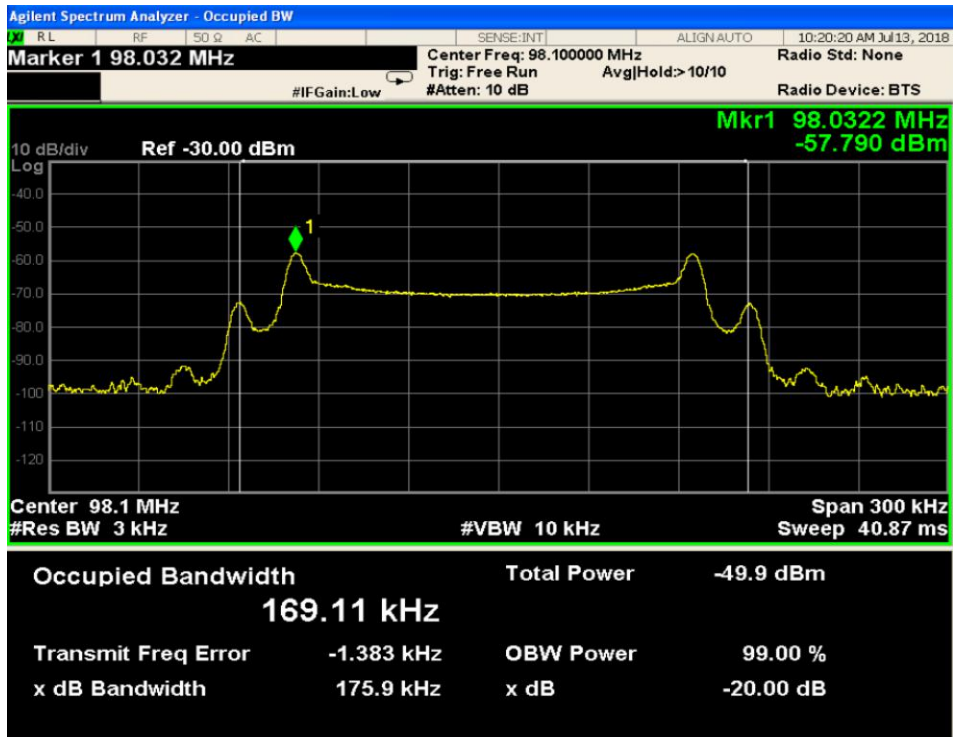
Temperature :	22 °C	Humidity:	56%	Pressure:	101.45KPa
Test By:	Bing	Test Date :	July 13, 2018		
Frequency MHz	20dB Bandwidth (KHz)	99 % Occupied Bandwidth (KHz)	Limit (KHz)		
FM					
Low Channel: 88.1	175.3	169.20	200		
Middle Channel: 98.1	175.9	169.11	200		
High Channel: 107.9	175.8	139.10	200		



Low Channel

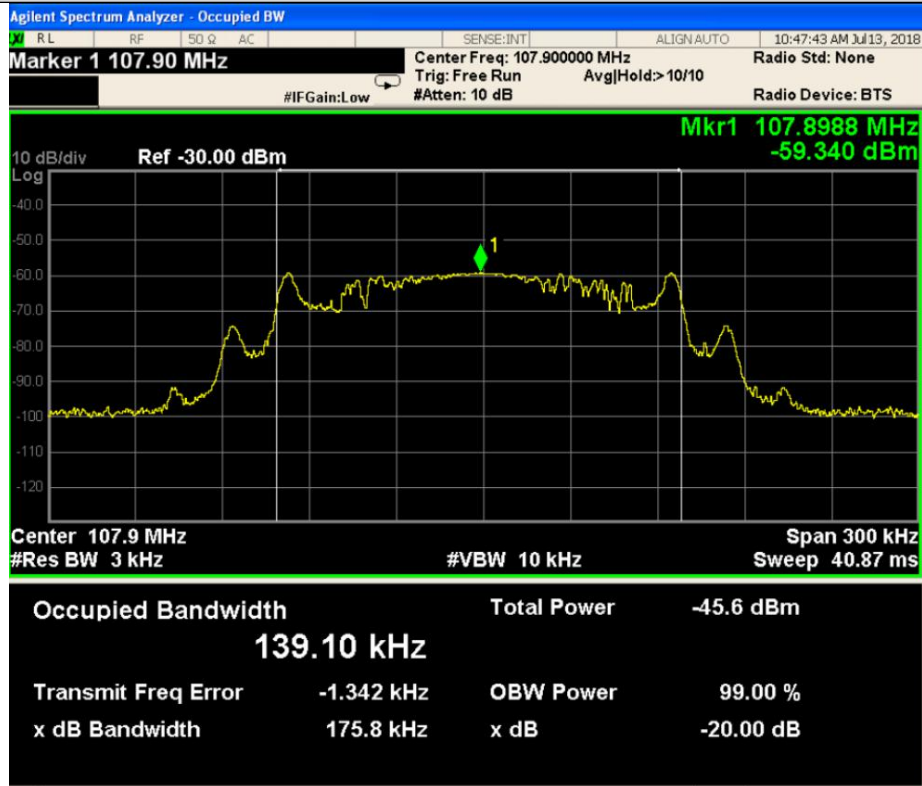


Middle Channel





High Channel





9. RESTRICTED BANDS OF OPERATION

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

9.1 LABELING REQUIREMENT

The device shall bear the following statement in a conspicuous location on the device: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

--END---