



FCC TEST REPORT

Report No: STS1607167F01

Issued for

Premier Accessory Group LLC

305 Clearview Avenue, Edison, NJ 08837, USA

Product Name:	FM transmitter
Brand Name:	N/A
Model name:	PWFMT7
Series Model:	N/A
FCC ID:	2AI8B-PWFMT7
Test Standard:	FCC Part 15.239

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**TEST RESULT CERTIFICATION**

Applicant's name : Premier Accessory Group LLC

Address : 305 Clearview Avenue, Edison, NJ 08837, USA

Manufacture's Name : Premier Accessory Group LLC

Address : 305 Clearview Avenue, Edison, NJ 08837, USA

Product description

Product name : FM transmitter

Brand name : N/A

Model and/or type reference : PWFMT7

Standards : FCC Part15.239

Test procedure : ANSI C63.10-2013

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 of performance of tests : 19 July. 2016~25 July. 2016

Date of Issue : 26 July. 2016

Test Result : **Pass**

Testing Engineer :

(Tony Liu)

Technical Manager :

(Vita Li)

Authorized Signatory :

(Bovey Yang)





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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	25 July. 2016	STS1607167F01	ALL	Initial Issue





1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 15.239 , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	
15.203	Antenna Requirement	Pass	
15.249	Radiated Spurious Emission	Pass	
15.205	Band Edge Emission	Pass	
15.249	Occupied Bandwidth	Pass	

NOTE:

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

(2)All tests are according to ANSI C63.4-2014 and ANSI C63.10-2013



1.1 TEST FACTORY

Shenzhen STS Test Services Co., Ltd.

Add. : 1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road,
Fuyong Street, Bao'an District, Shenzhen, Guangdong, China

CNAS Registration No.: L7649;

FCC Registration No.: 842334; IC Registration No.: 12108A-1

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 (9KHz-150KHz)	$\pm 2.88\text{Db}$
2	Conducted Emission (150KHz-30MHz)	$\pm 2.67\text{Db}$
3	RF power, conducted	$\pm 0.70\text{Db}$
4	Spurious emissions, conducted	$\pm 1.19\text{Db}$
5	All emissions, radiated(<1G) 30MHz-200MHz	$\pm 2.83\text{Db}$
6	All emissions, radiated(<1G) 200MHz-1000MHz	$\pm 2.94\text{Db}$
7	All emissions, radiated(>1G)	$\pm 3.03\text{Db}$
8	Temperature	$\pm 0.5^\circ\text{C}$
9	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	FM transmitter												
Trade Name	N/A												
Model Name	PWFMT7												
Serial Model	N/A												
Model Difference	N/A												
Product Description	<p>The EUT is a FM transmitter</p> <table border="1"><tr><td>Product Type</td><td>Low Power Communication Device Transmitter</td></tr><tr><td>Operation Frequency:</td><td>88.1-88.9MHz</td></tr><tr><td>Modulation Type:</td><td>FM</td></tr><tr><td>Number Of Channel</td><td>5CH.</td></tr><tr><td>Antenna Designation:</td><td>ceramic Antenna</td></tr><tr><td>Antenna Gain(Peak)</td><td>0 dBi</td></tr></table> <p>Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</p>	Product Type	Low Power Communication Device Transmitter	Operation Frequency:	88.1-88.9MHz	Modulation Type:	FM	Number Of Channel	5CH.	Antenna Designation:	ceramic Antenna	Antenna Gain(Peak)	0 dBi
Product Type	Low Power Communication Device Transmitter												
Operation Frequency:	88.1-88.9MHz												
Modulation Type:	FM												
Number Of Channel	5CH.												
Antenna Designation:	ceramic Antenna												
Antenna Gain(Peak)	0 dBi												
Battery	DC 3V												

Note:

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



2.

Channel	Frequency (MHz)
01	88.1
02	88.3
03	88.5
04	88.7
05	88.9

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	PWFMT7	ceramic	NA	0	Antenna

The EUT antenna is ceramic Antenna. No antenna other than that furnished by the responsible party shall be used with the device.





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	88.1 MHz
Mode 2	88.5 MHz
Mode 3	88.9 MHz

For Radiated Emission	
Final Test Mode	Description
Mode 1	88.1 MHz
Mode 2	88.5 MHz
Mode 3	88.9 MHz

Note:

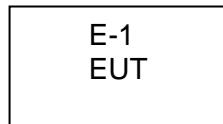
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The EUT use new battery.
- (3) During testing, the EUT was actively playing music set to its maximum audio volume in order to generate the worst case emissions (e.g. to generate the maximum bandwidth during bandwidth test). No test tones were used for testing. The tuning range of the EUT was manually verified and the conclusion is that it only works at selected channels within 88.1-88.9 MHz, not below and not above this range.



2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters

Radiated Spurious Emission Test





2.4 DESCRIPTION OF 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.

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-1	FM transmitter	N/A	PWFMT7	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
N/A	N/A	N/A	N/A	N/A

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

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2015.10.25	2016.10.24
Test Receiver	R&S	ESCI	101427	2015.10.25	2016.10.24
Bilog Antenna	TESEQ	CBL6111D	34678	2015.11.25	2016.11.24
Horn Antenna	Schwarzbeck	BBHA 9120D(1201)	9120D-1343	2016.03.06	2017.03.05
50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.06.06	2017.06.05
PreAmplifier	Agilent	8449B	60538	2015.10.25	2016.10.24
Loop Antenna	ARA	PLA-1030/B	1029	2016.06.08	2017.06.07
USB RF power sensor	DARE	RPR3006W	15I00041SNO0 3	2015.10.25	2016.10.24

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	102086	2015.11.20	2016.11.19
LISN	R&S	ENV216	101242	2015.10.25	2016.10.24
LISN	EMCO	3810/2NM	000-23625	2015.10.25	2016.10.24



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 15.231.207(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.

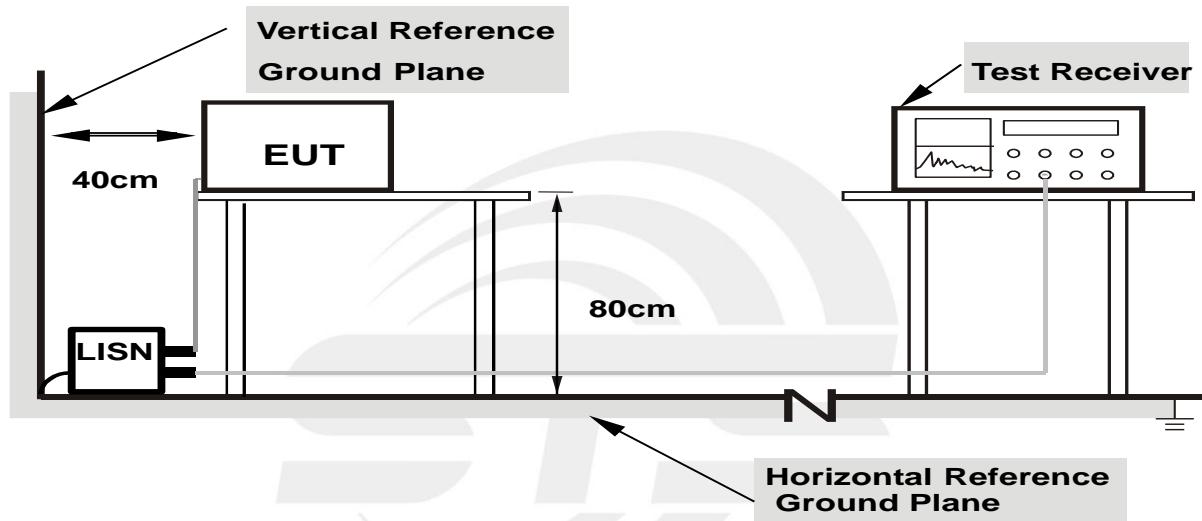
The following table is the setting of the receiver

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

3.1.2 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.

3.1.3 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 cm from other units and other metal planes

3.1.4 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.



3.1.5 TEST RESULTS

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	L/N
Test Voltage:	DC 3V from battery	Test Mode:	N/A

Do not apply





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15.205(a), then the Part 15.209(a) and Part 15.231(b) limit in the table 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
30~40.66	100	3
40.70~70	100	3

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.239)

Frequency of Emission (MHz)	Field Strength of fundamental (dB μ V/m)	
	Peak	Average
88-108	68	48

Notes:

- (1) Fcc part15.239 (b) The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

Spectrum Parameter	Setting
Detector	Peak
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 3 MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
	150kHz~30MHz / RB 9kHz for QP
	30MHz~1000MHz / RB 100kHz for PK
	Above 1GHz / RB 1MHz VB 1M for PK

3.2.2 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,
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

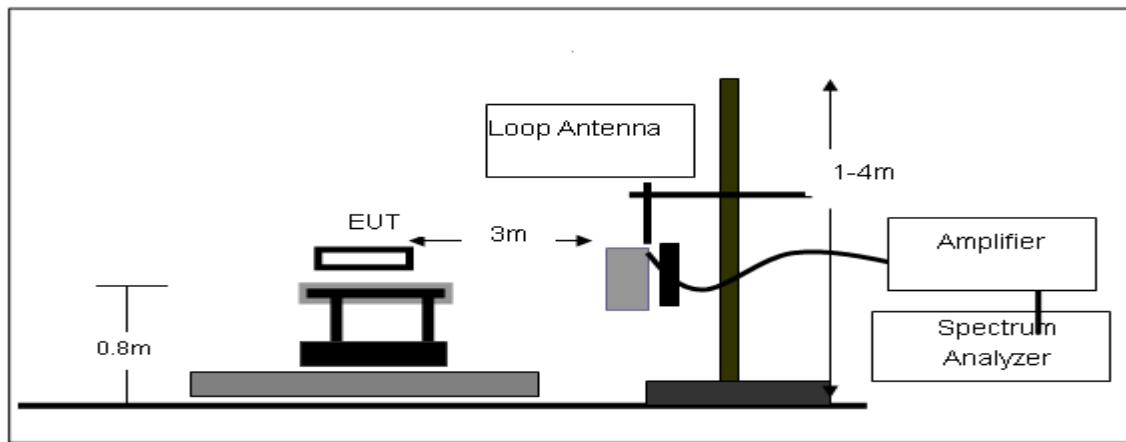
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

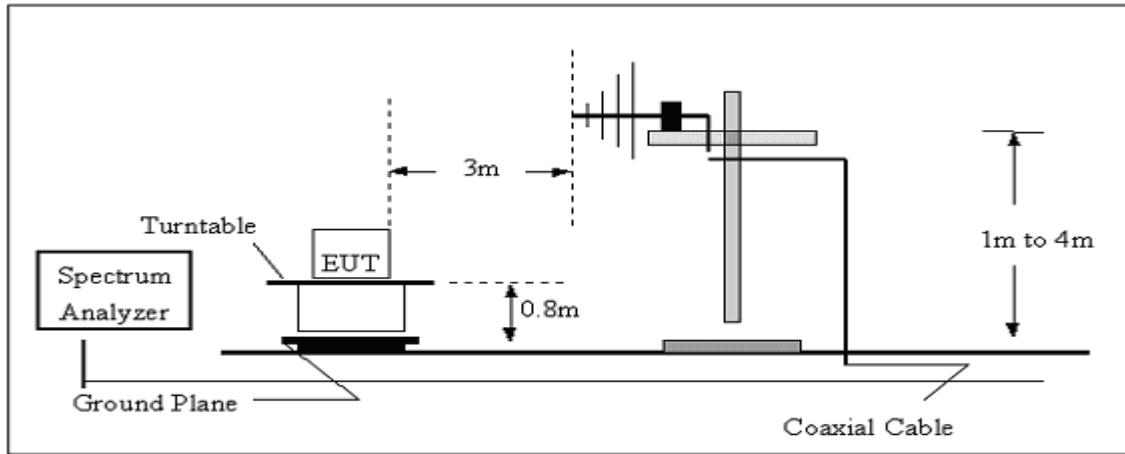
No deviation

3.2.4 TEST SETUP

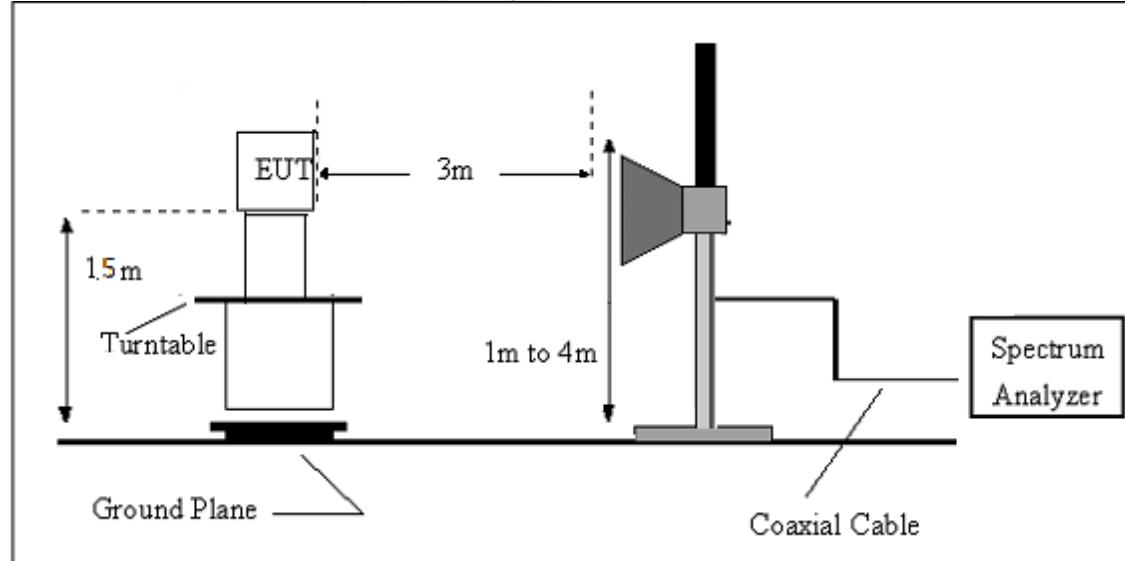
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

Below 30 MHz

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Test Mode:	TX Mode
Test Voltage:	DC 3V from battery		

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



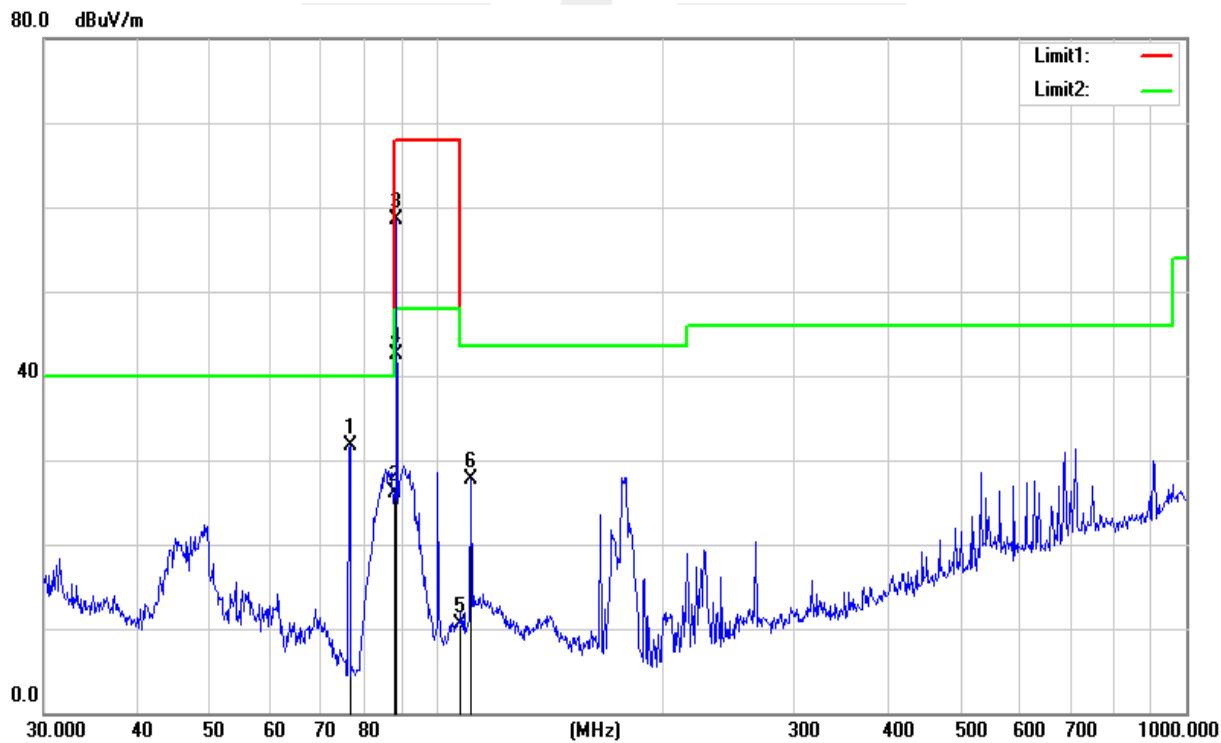
(30MHz-1000MHz)

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	Horizontal
Test Voltage:	DC 3V from battery	Test Mode:	Mode 1/2/3 (Mode 2 worst mode)

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
76.7808	54.92	-23.15	31.77	40.00	-8.23	QP
88.0000	46.87	-20.70	26.17	43.50	-17.33	QP
88.5000	79.10	-20.58	58.52	68.00	-9.48	PK
88.5000	63.10	-20.58	42.52	48.00	-5.48	AVG
108.0000	29.01	-18.51	10.50	43.50	-33.00	QP
111.3468	45.86	-18.25	27.61	43.50	-15.89	QP

Remark:

1. All readings are Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit

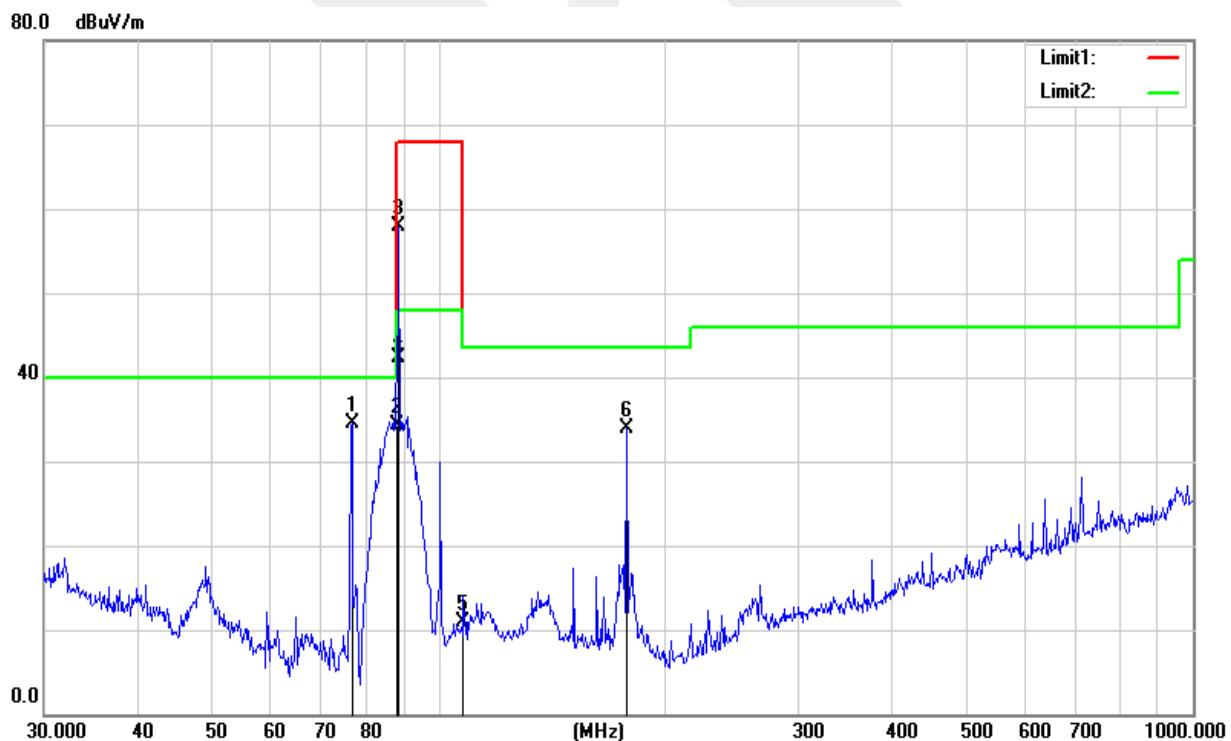


Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	Vertical
Test Voltage:	DC 3V from battery	Test Mode:	Mode 1/2/3 (Mode 2 worst mode)

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
76.7806	57.68	-23.15	34.53	40.00	-5.47	QP
88.0000	54.96	-20.70	34.26	43.50	-9.24	QP
88.5000	78.39	-20.58	57.81	68.00	-10.19	PK
88.5000	62.89	-20.58	42.31	48.00	-5.69	AVG
108.0000	29.38	-18.51	10.87	43.50	-32.63	QP
177.5090	53.35	-19.41	33.94	43.50	-9.56	QP

Remark:

1. All readings are Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit

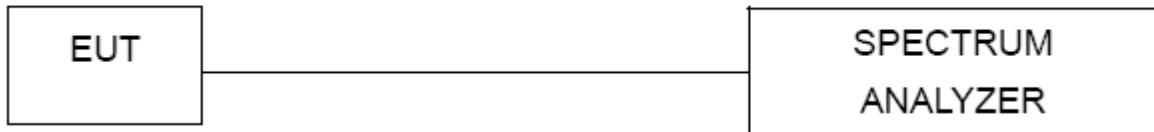


4. BANDWIDTH TEST

4.3 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 \geq RBW, Sweep time = Auto.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

TX mode.

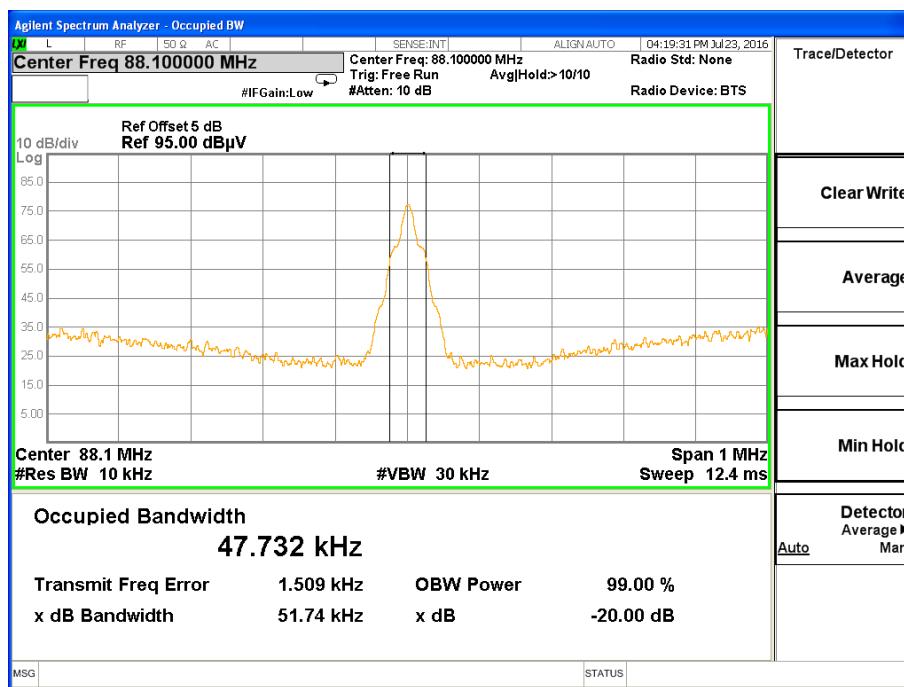


4.6 TEST RESULTS

Temperature :	25 °C	Relative Humidity :	50%
Pressure :	1012 hPa	Test Voltage :	DC 3V from battery
Test Mode :	TX Mode		

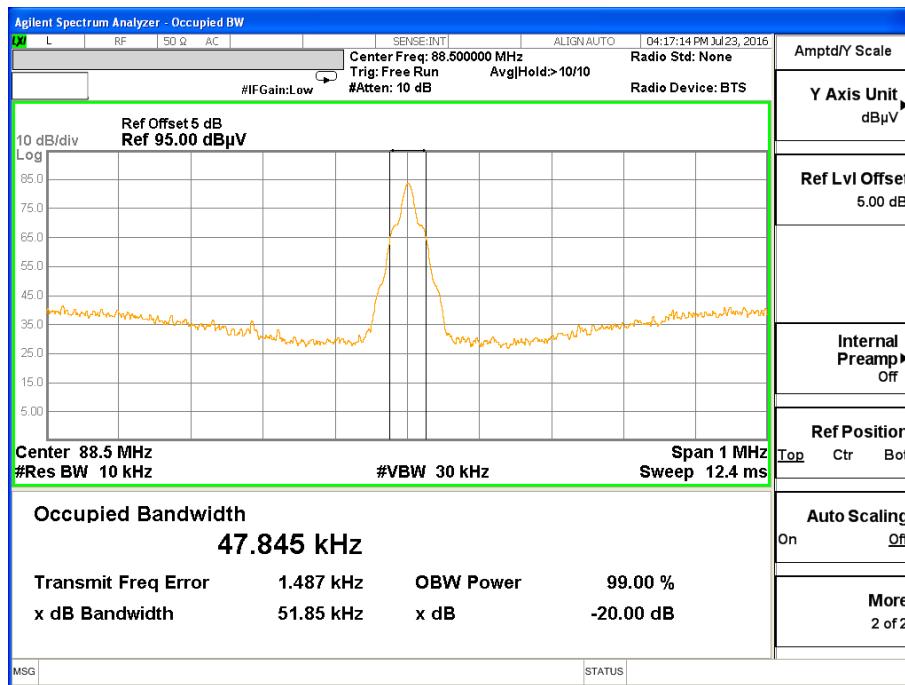
Test Channel	Frequency (MHz)	20 dB Bandwidth (KHz)	Limit (KHz)
Low	88.1	51.74	200
Mid	88.5	51.85	200
High	88.9	51.82	200

The Lowest Channel: 88.1 MHz

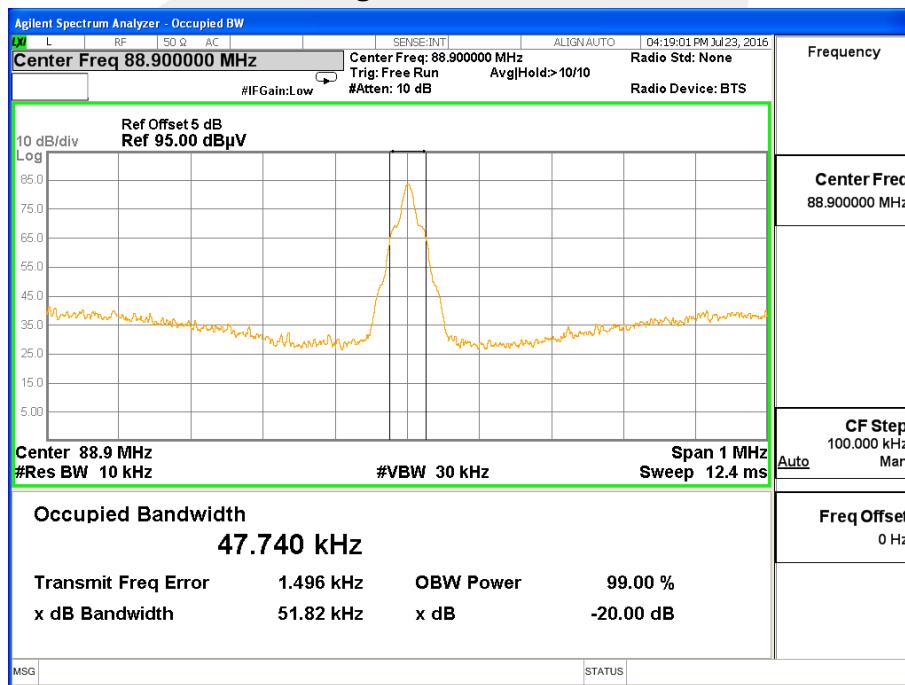




The Middle Channel: 88.5 MHz



The High Channel: 88.9 MHz





6. ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

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. The use of a permanently attached antenna to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product use a permanent ceramic printed antenna, fulfill the requirement of this section

6.2 EUT ANTENNA

The EUT antenna is ceramic Antenna. It conforms to the standard requirements.



APPENDIX- PHOTOS OF TEST SETUP**Radiated Measurement Photos**

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