



# **FCC TEST REPORT**

Report No: STS1609054F02

Issued for

Premier Accessory Group LLC

305 Clearview Avenue, Edison, NJ 08837, USA

Product Name:	APP controlled Bluetooth FM transmitter+USB Car charger
Brand Name:	Premier
Model Name:	PWFMT8
Series Model:	N/A
FCC ID:	2AI8BPWFMT8
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: APP controlled Bluetooth FM transmitter+USB Car charger

Brand name : Premier

Model and/or type reference: PWFMT8

Standards : FCC Part15.239

Test procedure : ANSI C63.4-2014; ANSIC 63.10-2013

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: 06 Sep 2016 ~20 Sep 2016

Date of Issue: 21 Sep 2016

Test Result : Pass

Testing Engineer :

(Tony Liu)

Technical Manager:

Authorized Signatory:

(Vita Li)

12000

(Bovey Yang)





Table of Contents	Page
1. SUMMARY OF TEST RESULTS	5
1.1 TEST FACTORY	6
1.2 MEASUREMENT UNCERTAINTY	6
2. GENERAL INFORMATION	7
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 DESCRIPTION OF TEST MODES	8
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	9
2.4 DESCRIPTION OF SUPPORT UNITS	10
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	11
3. EMC EMISSION TEST	12
3.1 CONDUCTED EMISSION MEASUREMENT	12
3.2 RADIATED EMISSION MEASUREMENT	15
4. BANDWIDTH TEST	26
4.1 TEST PROCEDURE	26
4.2 TEST SETUP	26
4.3 EUT OPERATION CONDITIONS	26
4.4 TEST RESULTS	27
5. ANTENNA REQUIREMENT	29
5.1 STANDARD REQUIREMENT	29
5.2 EUT ANTENNA	29
APPENDIX- PHOTOS OF TEST SETUP	30



# **Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	21 Sep. 2016	STS1609054F02	ALL	Initial Issue





## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15.239 , Subpart C					
Standard Section	Test Item	Judgment	Remark		
15.207	Conducted Emission	N/A			
15.203	Antenna Requirement	Pass			
15.239	Radiated Spurious Emission	Pass			
15.205	Band Edge Emission	Pass			
15.215	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



## 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  $\mathbf{y} \pm \mathbf{U}$  where expended uncertainty  $\mathbf{U}$  is based on a standard uncertainty multiplied by a coverage factor of  $\mathbf{k=2}$  providing a level of confidence of approximately 95 %  $^{\circ}$ 

No.	Item	Uncertainty
1	Conducted Emission (9KHz-150KHz)	±2.88Db
2	Conducted Emission (150KHz-30MHz)	±2.67Db
3	RF power,conducted	±0.70Db
4	Spurious emissions,conducted	±1.19Db
5	All emissions,radiated(<1G) 30MHz-200MHz	±2.83Db
6	All emissions,radiated(<1G) 200MHz-1000MHz	±2.94Db
7	All emissions,radiated(>1G)	±3.03Db
8	Temperature	±0.5°C
9	Humidity	±2%



## 2. GENERAL INFORMATION

## 2.1 GENERAL DESCRIPTION OF EUT

Equipment	APP controlled Bluetooth FM transmitter+USB Car				
Equipment	charger				
Trade Name	Premier	Premier			
Model Name	PWFMT8				
Serial Model	N/A				
Model Difference	N/A				
Product Description	1 777				
Adapter	Input: DC 12-24V, 50/60 Hz Output: DC 5V, 3.1A				
Hardware version number	N/A				
Software version number	N/A	<i>-</i>			

## Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 2. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	Premier	PWFMT8	Spring loaded	NA	0	Antenna

The EUT antenna is Spring loaded 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.

Worst Mode	Description
Mode 1	88.1MHz
Mode 2	98.1MHz
Mode 3	107.9MHz

For Radiated Emission			
Final Test Mode	Description		
Mode 1	88.1MHz		
Mode 2	98.1MHz		
Mode 3	107.9MHz		

#### Note:

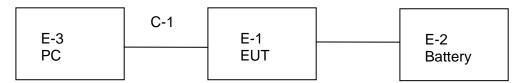
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) During testing, the EUT was actively playing music set to its maximum audio volume in order to generate the worst case emissions (e.g. to generate the maximum bandwidth during bandwidth test). No test tones 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 88.1-107.9MHz, 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	APP controlled Bluetooth FM transmitter+USB Car charger	Premier	PWFMT8	N/A	EUT
E-2	Battery	N/A	N/A	N/A	N/A
E-3	PC	4CV428DQXR	500-320cx	4CV428DQYN	N/A

Item	Shielded Type	Ferrite Core	Length	Note
C-1	USB Cable (FTP)	NO	90cm	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	15I00041SNO03	2015.10.25	2016.10.24

Conduction Test equipment

Conduction root oddipmont					
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 15.239.207(a) limit in the table below has to be followed.

FDEOLIENCY (MH-)	Class B (dBuV)		Ctondord
FREQUENCY (MHz)	Quasi-peak	Average	Standard
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

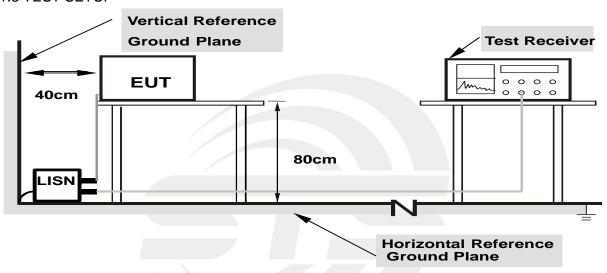
Receiver Parameters	Setting	
Attenuation	10 dB	
Start Frequency	0.15 MHz	
Stop Frequency	30 MHz	
IF Bandwidth	9 kHz	



#### 3.1.2 TEST PROCEDURE

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

## 3.1.3 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

#### 3.1.4 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 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	L/N
Test Voltage:	DC 24V	Test Mode:	N/A

Note: The product is a battery-powered device, AC conducted emission test is not applicable.





#### 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 15.239(b) limit in the table below has to be followed.

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

THE STATE DEVINE CONTROL (S. SCOTTILL)				
Frequencies	Field Strength	Measurement Distance		
(MHz)	(micorvolts/meter)	(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		
108~216	150	3		
216~960	200	3		
Above 960	500	3		

## LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)

EDEOLIENCY (MHz)	Class B (dBuV/m) (at 3M)	
FREQUENCY (MHz)	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).

## LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.239)

Frequency of Emission	Field Strength of fundamental		
(MHz)	(dBµV/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	1 MHz / 3 MHz	
band)		

Receiver Parameter	Setting	
Attenuation	Auto	
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV	
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP	
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV	
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP	
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP	

#### 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 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  $-\mathsf{EUT}$  Test Photos.

Note

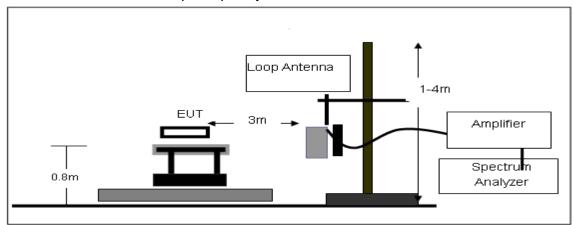
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

# 3.2.3 DEVIATION FROM TEST STANDARD No deviation

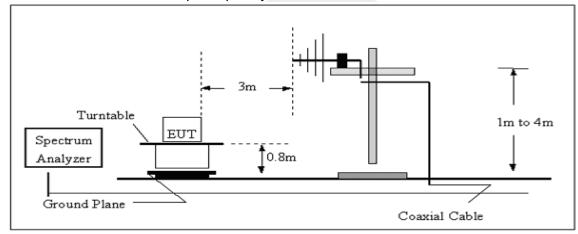


## 3.2.4 TEST SETUP

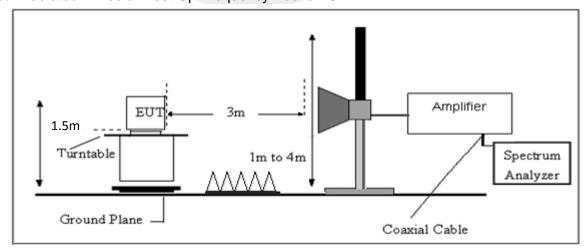
## (A) Radiated Emission Test-Up Frequency Below 30MHz



## (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 :	23 ℃	Relative Humidity:	50%
Pressure :	1010 hPa	Polarization :	
Test Voltage:	DC 24V		
Test Mode :	TX Mode		

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.

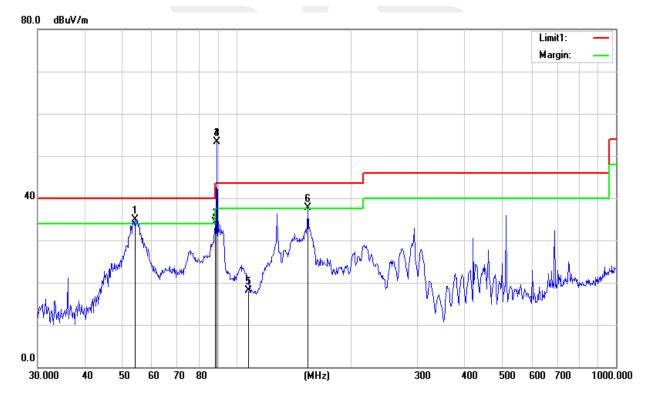


## Between 30MHz - 1000 MHz

Temperature :	20 ℃	Relative Humidity:	48%
Pressure :	1010 hPa	Test Voltage :	DC 24V
Test Mode :	Mode 1	Polarization :	Horizontal

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
54.0711	61.71	-26.76	34.95	40.00	-5.05	QP
88.0000	59.27	-24.87	34.40	40.00	-5.60	QP
88.1000	87.92	-24.63	63.29	68.00	-4.71	PK
88.1000	65.15	-24.63	40.52	48.00	-7.48	AV
108.0000	40.91	-22.85	18.06	43.50	-25.44	QP
154.2786	60.00	-22.24	37.76	43.50	-5.74	QP

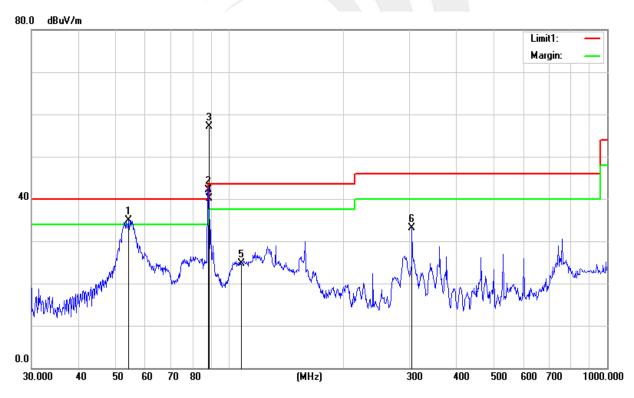
## Remark:





Temperature :	20 ℃	Relative Humidity:	48%
Pressure :	1010 hPa	Test Voltage :	DC 24V
Test Mode :	Mode 1	Polarization :	Vertical

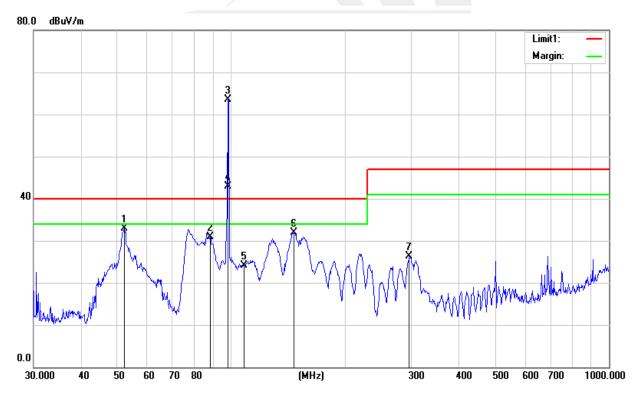
Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
54.0711	61.60	-26.76	34.84	40.00	-5.16	QP
88.0000	60.98	-24.87	36.11	40.00	-3.89	QP
88.1000	86.01	-24.85	61.16	68.00	-6.84	PK
88.1000	65.01	-24.84	40.17	48.00	-7.83	AV
108.0000	47.60	-22.85	24.75	43.50	-18.75	QP
304.6100	51.90	-18.71	33.19	46.00	-12.81	QP





Temperature :	20 ℃	Relative Humidity:	48%
Pressure :	1010 hPa	Test Voltage :	DC 24V
Test Mode :	Mode 2	Polarization :	Horizontal

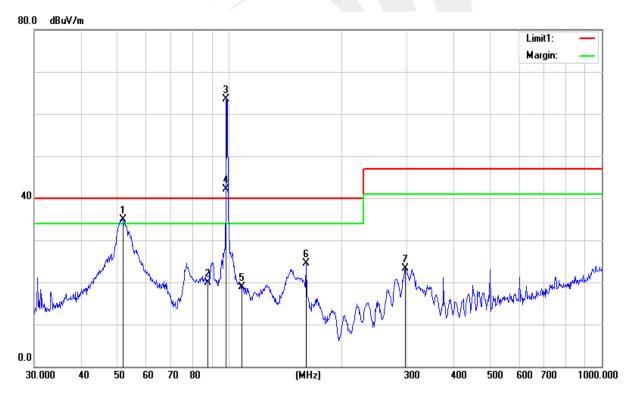
Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
52.2080	59.11	-26.26	32.85	40.00	-7.15	QP
88.0000	55.72	-24.87	30.85	40.00	-9.15	QP
98.1000	87.26	-23.66	63.60	68.00	-4.40	PK
98.1000	66.64	-23.66	42.98	48.00	-5.02	AV
108.0000	46.95	-22.85	24.10	43.50	-19.40	QP
146.8874	53.86	-21.91	31.95	43.50	-11.55	QP





Temperature :	20 ℃	Relative Humidity:	48%
Pressure :	1010 hPa	Test Voltage :	DC 24V
Test Mode :	Mode 2	Polarization :	Vertical

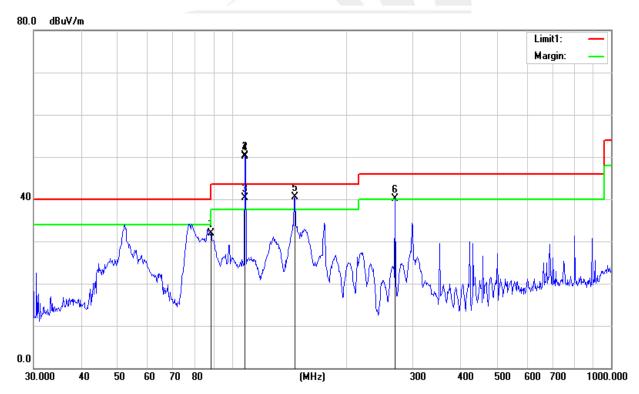
Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
51.8430	61.14	-26.14	35.00	40.00	-5.00	QP
88.0000	44.73	-24.87	19.86	40.00	-20.14	QP
98.1000	87.24	-23.66	63.58	68.00	-4.42	PK
98.1000	65.68	-23.66	42.02	48.00	-5.98	AV
108.0000	41.68	-22.85	18.83	43.50	-24.67	QP
160.9088	47.07	-22.58	24.49	43.50	-19.01	QP





Temperature :	20 ℃	Relative Humidity:	48%
Pressure :	1010 hPa	Test Voltage :	DC 24V
Test Mode :	Mode 3	Polarization :	Horizontal

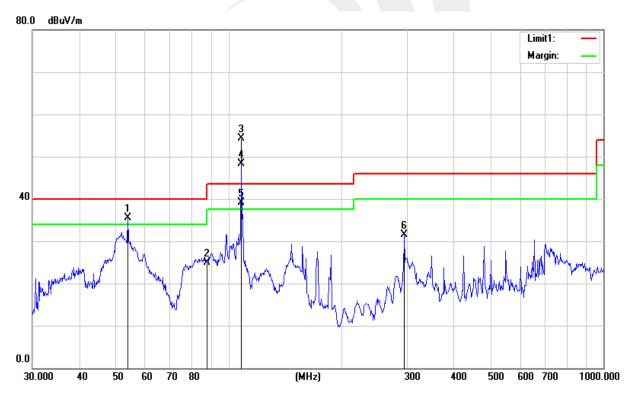
Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
88.0000	56.72	-24.87	31.85	40.00	-8.15	QP
107.9000	83.08	-22.86	60.22	68.00	-7.78	PK
107.9000	65.22	-22.85	42.37	48.00	-5.63	AV
108.0000	62.95	-22.85	40.10	43.50	-3.40	QP
146.8874	62.36	-21.91	40.45	43.50	-3.05	QP
269.4284	59.67	-19.49	40.18	46.00	-5.82	QP





Temperature :	20 ℃	Relative Humidity:	48%
Pressure :	1010 hPa	Test Voltage :	DC 24V
Test Mode :	Mode 3	Polarization :	Vertical

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
53.8817	62.23	-26.72	35.51	40.00	-4.49	QP
88.0000	49.73	-24.87	24.86	40.00	-15.14	QP
107.9000	87.19	-22.86	64.33	68.00	-3.67	PK
107.9000	65.99	-22.83	43.16	48.00	-4.84	AV
108.0000	63.18	-22.85	40.33	43.50	-3.17	QP
294.1136	50.65	-19.19	31.46	46.00	-14.54	QP





# Above 1000 MHz

	Meter			Antenna	Orrected	Emission				
Frequency	Reading	Amplifier	Loss	Factor	Factor	Level	Limits	Margin	Detector	
(MHz)	(dBµV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	Comment
107.9MHz										
1011.23	57.10	46.30	3.70	24.30	-18.30	38.80	74	-35.20	PK	Vertical
1011.23	46.09	46.30	3.70	24.30	-18.30	27.79	54	-26.21	AV	Vertical
1032.54	55.07	46.30	3.70	24.30	-18.30	36.77	74	-37.23	PK	Horizontal
1032.54	46.10	46.30	3.70	24.30	-18.30	27.80	54	-26.20	AV	Horizontal
1044.21	57.85	44.90	3.70	24.30	-16.90	40.95	74	-33.05	PK	Vertical
1044.21	48.86	44.90	3.70	24.30	-16.90	31.96	54	-22.04	AV	Vertical
1053.36	56.90	44.90	3.70	24.30	-16.90	40.00	74	-34.00	PK	Horizontal
1053.36	48.89	44.90	3.70	24.30	-16.90	31.99	54	-22.01	AV	Horizontal

Not:Only worse case is reported



## 4. BANDWIDTH TEST

## 4.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW= 30KHz, VBW=100 KHz, Sweep time = Auto.Peak detector is used

## 4.2 TEST SETUP

EUT SPECTRUM ANALYZER

4.3 EUT OPERATION CONDITIONS

TX mode.

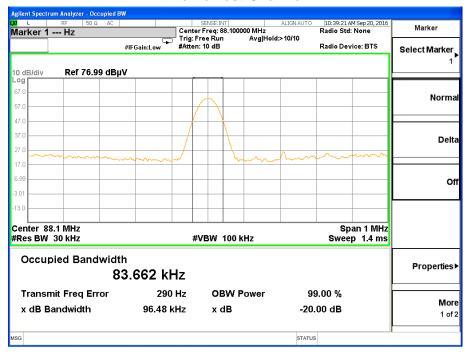


## 4.4 TEST RESULTS

Temperature :	25 ℃	Relative Humidity:	50%
Pressure :	1012 hPa	Test Voltage :	DC 24V
Test Mode :	TX Mode		

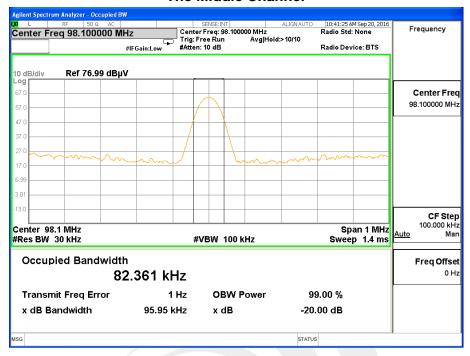
Test Channel	Frequency	20 dBc Bandwidth	Limit	
TOST OTIGITIES	(MHz)	(KHz)	(KHz)	
Low	88.1	96.48	200	
Mid	98.1	95.95	200	
High	107.9	96.33	200	

## **The Lowest Channel**

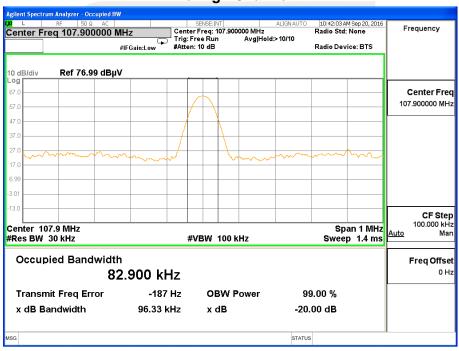




## The Middle Channel



## The High Channel





## 5. ANTENNA REQUIREMENT

## 5.1 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.

## **5.2 EUT ANTENNA**

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

