Microtest
微测检测

Test Report

FCC ID:2ANKV-FK-M3

Date of issue: Jun. 30, 2017

Report Number:	MTi170829E180
Sample Description:	M3+ Internet Radio
Model(s):	M3+
Applicant:	Shenzhen lemega Technology Co., Ltd
Address:	Guan Li Da Building 301-31, Qianjin Road 1, Xin'an Ban, Bao An, Shenzhen city, Guangdong Province, China.
Date of Test:	Jun. 16, 2017 – Jun. 30, 2017

Shenzhen Microtest Co., Ltd.
http://www.mtitest.com

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TEST RESULT CERTIFICATION

Applicant's name .....:	**Shenzhen Iemega Technology Co., Ltd**
Address .....:	Guan Li Da Building 301-31, Qianjin Road 1, Xin'an Ban, Bao An, Shenzhen city, Guangdong Province, China.
Manufacture's Name .....:	**Shenzhen Iemega Technology Co., Ltd**
Address .....:	Guan Li Da Building 301-31, Qianjin Road 1, Xin'an Ban, Bao An, Shenzhen city, Guangdong Province, China.
Product name .....:	M3+ Internet Radio
Model and/or type reference :	M3+
Serial Model.....:	N/A
Standards .....:	FCC Part15.407
Test procedure.....	ANSI C63.10-2013

This device described above has been tested by Shenzhen Toby Technology Co., Ltd. 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.

Tested by: Amy Lu

Amy Lu Jun. 30, 2017

Reviewed by: Smith Chen

Smith Chen Jun. 30, 2017

Approved by: Tom Xue

Tom Xue Jun. 30, 2017

Table of Contents

	Page
1 . SUMMARY OF TEST RESULTS	**5**
1.1 TEST FACILITY	**6**
1.2 MEASUREMENT UNCERTAINTY	**6**
2 . GENERAL INFORMATION	**7**
2.1 GENERAL DESCRIPTION OF EUT	**7**
2.2 DESCRIPTION OF TEST MODES	**9**
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	**10**
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	**11**
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	**12**
3 . EMC EMISSION TEST	**13**
3.1 CONDUCTED EMISSION MEASUREMENT	**13**
3.1.1 POWER LINE CONDUCTED EMISSION LIMITS	**13**
3.1.2 TEST PROCEDURE	**14**
3.1.3 DEVIATION FROM TEST STANDARD	**14**
3.1.4 TEST SETUP	**14**
3.1.5 EUT OPERATING CONDITIONS	**14**
3.1.6 TEST RESULTS	**15**
3.2 RADIATED EMISSION MEASUREMENT(UNDESIRABLE EMISSION)	**17**
3.2.1 RADIATED EMISSION LIMITS	**17**
3.2.2 TEST PROCEDURE	**17**
3.2.3 DEVIATION FROM TEST STANDARD	**18**
3.2.4 TEST SETUP	**19**
3.2.5 EUT OPERATING CONDITIONS	**20**
3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)	**21**
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)	**22**
3.2.8 TEST RESULTS (1G-25GHZ)	**23**
4 . POWER SPECTRAL DENSITY TEST	**26**
4.1 APPLIED PROCEDURES / LIMIT	**26**
4.1.1 TEST PROCEDURE	**26**
4.1.2 DEVIATION FROM STANDARD	**26**
4.1.3 TEST SETUP	**26**
4.1.4 EUT OPERATION CONDITIONS	**26**
4.1.5 TEST RESULTS	**27**
5 . BANDWIDTH TEST	**31**

Table of Contents

Page

5.1 APPLIED PROCEDURES / LIMIT 31
5.1.1 TEST PROCEDURE 31
5.1.2 DEVIATION FROM STANDARD 31
5.1.3 TEST SETUP 31
5.1.4 EUT OPERATION CONDITIONS 31
5.1.5 TEST RESULTS 32

6 . PEAK OUTPUT POWER TEST 36

6.1 APPLIED PROCEDURES / LIMIT 36
6.1.1 TEST PROCEDURE 36
6.1.2 DEVIATION FROM STANDARD 36
6.1.3 TEST SETUP 36
6.1.4 EUT OPERATION CONDITIONS 36
6.1.5 TEST RESULTS 37

7 . FREQUENCY STABILITY 38

7.1 APPLIED PROCEDURES / LIMIT 38

7.1.1 TEST PROCEDURE 38
7.1.2 DEVIATION FROM STANDARD 38
7.1.3 TEST SETUP 38
7.1.4 EUT OPERATION CONDITIONS 38
7.1.5 TEST RESULTS 39

8 . ANTENNA REQUIREMENT 40

8.1 STANDARD REQUIREMENT 40

8.2 EUT ANTENNA 40

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.407(a)	Conducted Peak Output Power	PASS	
15.407(a)	Emission Bandwidth	PASS	
15.407(a)	Power Spectral Density	PASS	
15.407(b)&15.209	Spurious Emission	PASS	
15.407(b)	Undesirable emission	PASS	
15.407	Frequency stability	PASS	
15.203/15.407	Antenna Requirement	PASS	

NOTE:

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

1.1 TEST FACILITY

Shenzhen Toby Technology Co., Ltd.
Add.: 10/F.,A Block,Jiada R&D Bldg.,No.5 Songpingshan, Road, Science&Technology Park, Shenzhen, 518057
FCC Registration No.:811562

1.2 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>M3+ Internet Radio</td></tr>
<tr><td>Trade Name</td><td>LEMEGA</td></tr>
<tr><td>Model Name</td><td>M3+</td></tr>
<tr><td>Serial Model</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a M3+ Internet Radio
<table>
<tr><td>Operation Frequency:</td><td>802.11a:5180MHz~5240MHz
802.11n(H20):5180MHz~5240MHz</td></tr>
<tr><td>Modulation Type:</td><td>11n: BPSK, QPSK, 16QAM, 64QAM with OFDM
11a: BPSK, QPSK, 16QAM, 64QAM, OFDM</td></tr>
<tr><td>Bit Rate of Transmitter</td><td>802.11a: 6Mbps
802.11n(20): 6.5Mbps</td></tr>
<tr><td>Number Of Channel</td><td>4 for 802.11a/802.11n(H20)</td></tr>
<tr><td>Antenna Designation:</td><td>Please see Note 3.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Antenna Gain (dBi)</td><td>4dBi</td></tr>
</table>
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.</td></tr>
<tr><td>Channel List</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Adapter</td><td>Model:S030A 1202500M
AC Power Input:100-240V~50/60Hz Max.800mA
Output:12.0VDC 2.5A</td></tr>
<tr><td>Battery</td><td>N/A</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
</table>

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.
2.

For IEEE 802.11 a with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

For IEEE 802.11 n/HT20 with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

3.

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	N/A	N/A	internal antenna	N/A	4.0	Wifi Antenna

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	802.11a CH36/ CH40/ CH48
Mode 2	802.11n CH36/ CH40/ CH48
Mode 3	TX Mode

For Conducted Emission	
Final Test Mode	Description
Mode 3	TX Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a CH36/ CH40/ CH48
Mode 2	802.11n CH36/ CH40/ CH48
Mode 3	TX Mode

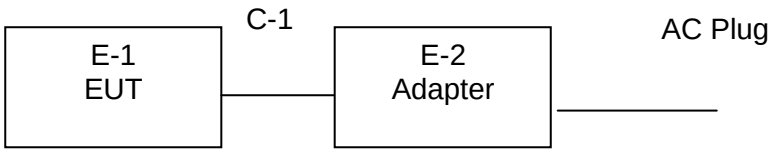
Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

(3) Duty cycle>98%

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Brand	Model/Type No.	Series No.	Note
E-1	M3+ Internet Radio	LEMEGA	M3+	N/A	EUT
E-2	Adapter	N/A	S030A 1202500M	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.0m	
C-2	NO	NO	0.8m	

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

For RF conducted test:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
Universal Radio Communication Tester	Rohde&schwarz	CMU200	114587	2017/11/4
Spectrum analyzer	Agilent	E4407B	MY41441082	2017/11/4
Dc Power Supply	GW	GPR-6030D	/	2017/11/4
Temperature & Humitidy Chamber	GIANT FORCE	GTH-056P	GF-94454-1	2017/11/14
Broadband TRILOG Antenna	Schwarabeck	VULB9163	9163-872	2017/11/14
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-1145	2017/11/14
Amplifier	HP	8447D	3113A06150	2017/11/4
Amplifier	Agilent	8449B	3008A02400	2018/7/4
Test Receiver	Schwarabeck	ESPI7	100314	2017/11/4
Spectrum analyzer	Agilent	E4407B	MY41441082	2017/11/4
Signal Generator	R&S	SMT 06	832080/007	2017/11/4
Broadband TRILOG Antenna	Schwarabeck	VULB9163	9163-872	2017/11/14
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-1145	2017/11/14
Amplifier	HP	8447D	3113A06150	2017/11/4
Amplifier	Agilent	8449B	3008A02400	2018/7/4
Test Receiver	Schwarabeck	ESPI	100314	2017/11/4
Spectrum analyzer	Agilent	E4407B	MY41441082	2017/11/4
LISN	R&S	ENV216	1001131	2017/9/25
Test Cable	United Microwave	57793	1m	2017.12.05
Test Cable	United Microwave	A30A30-5006	10m	2017.12.05

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	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

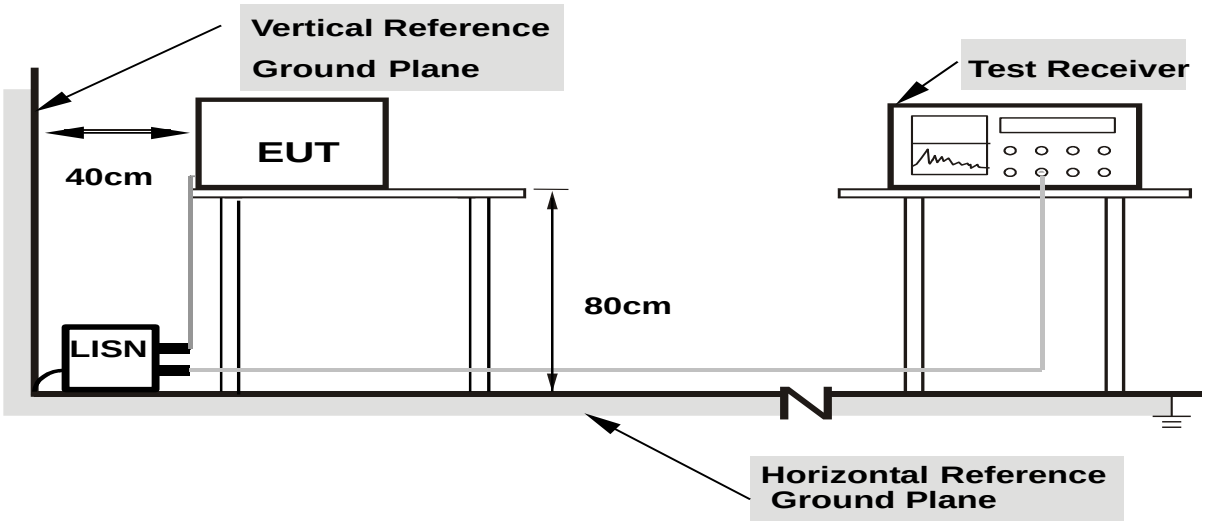
3.1.2 TEST PROCEDURE

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 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



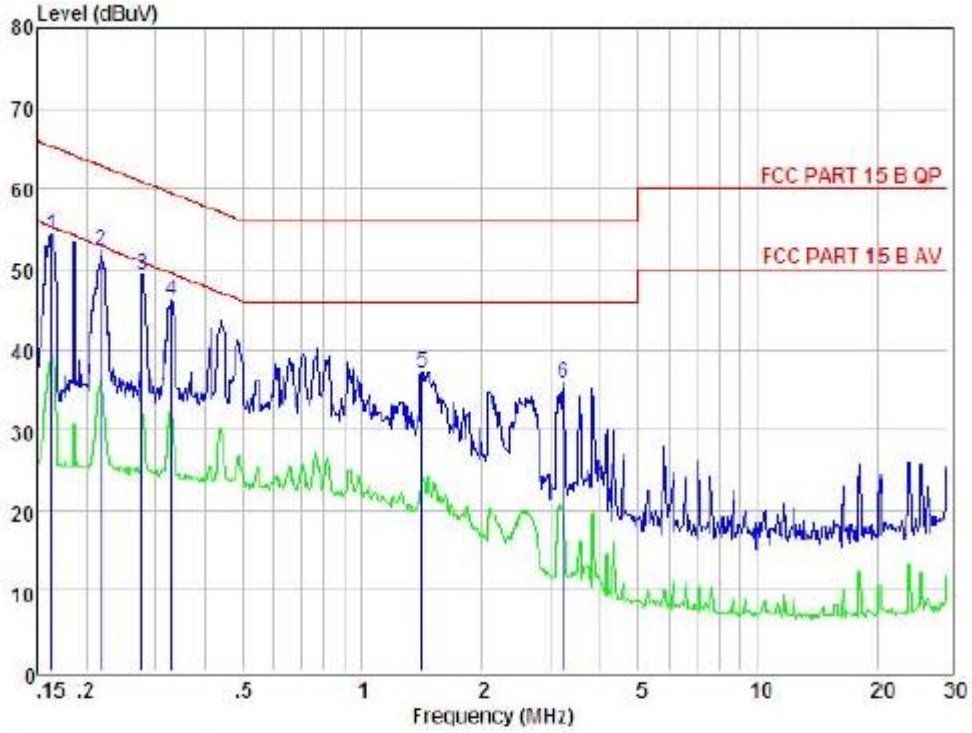
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

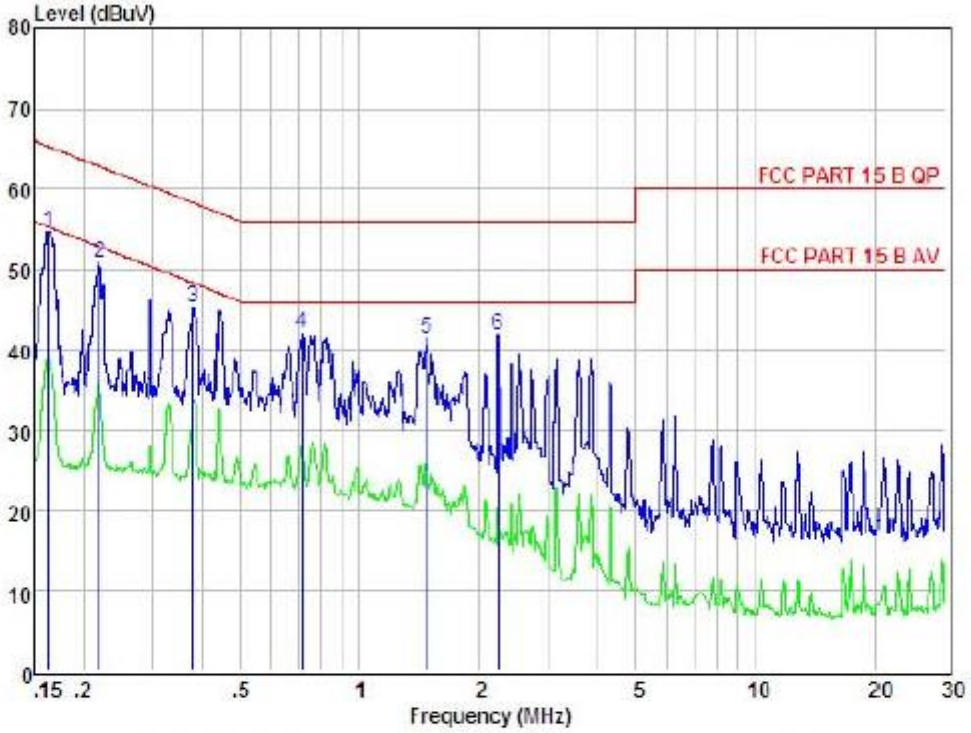
EUT：	M3+ Internet Radio	Model Name. ：	M3+
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 12V from adapter AC 120V/60Hz	Test Mode：	Mode 3



Item	Freq MHz	Read dBuV	LISN Factor dB	Preamp Factor dB	Cable Lose dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.163	44.51	0.03	-9.72	0.10	54.36	65.30	-10.94	Peak
2	0.219	42.40	0.03	-9.72	0.10	52.25	62.88	-10.63	Peak
3	0.277	39.42	0.03	-9.72	0.10	49.27	60.90	-11.63	Peak
4	0.329	36.27	0.03	-9.72	0.10	46.12	59.49	-13.37	Peak
5	1.418	27.28	0.05	-9.71	0.10	37.14	56.00	-18.86	Peak
6	3.224	25.92	0.07	-9.69	0.12	35.80	56.00	-20.20	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

EUT：	M3+ Internet Radio	Model Name. ：	M3+
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 12V from adapter AC 120V/60Hz	Test Mode：	Mode 3



Item	Freq MHz	Read dBuV	LISN Factor dB	Preamp Factor dB	Cable Lose dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.163	44.87	0.03	-9.72	0.10	54.72	65.30	-10.58	Peak
2	0.220	40.99	0.03	-9.72	0.10	50.84	62.83	-11.99	Peak
3	0.377	35.45	0.03	-9.72	0.10	45.30	58.34	-13.04	Peak
4	0.712	32.12	0.04	-9.72	0.10	41.98	56.00	-14.02	Peak
5	1.480	31.55	0.05	-9.71	0.10	41.41	56.00	-14.59	Peak
6	2.237	32.06	0.06	-9.70	0.10	41.92	56.00	-14.08	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

3.2 RADIATED EMISSION MEASUREMENT(UNDESIRABLE EMISSION)

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

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

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

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

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, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

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

Note:

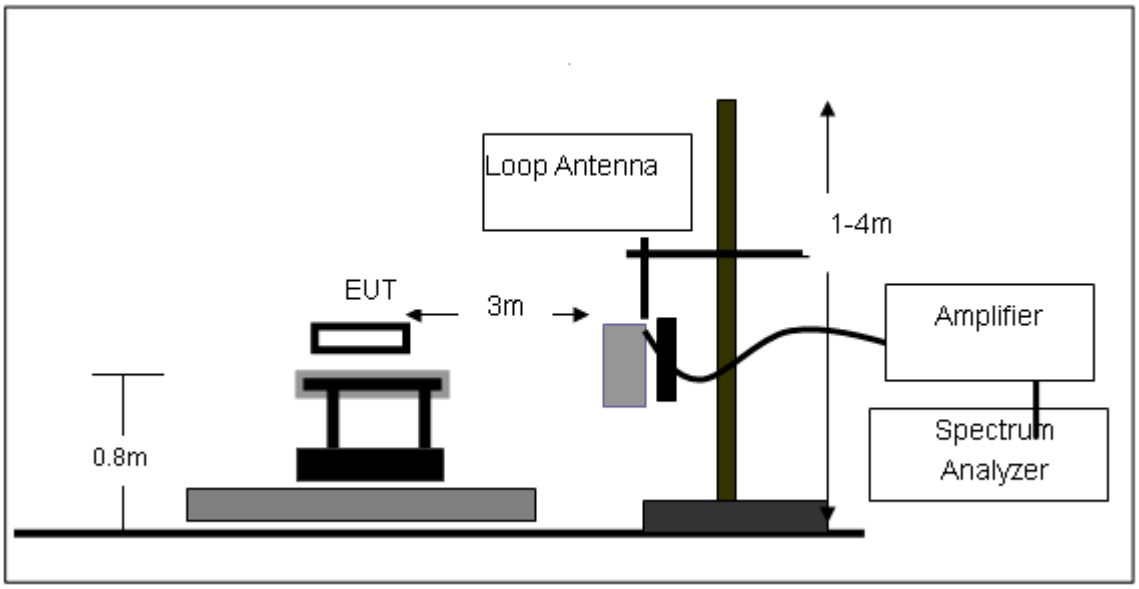
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

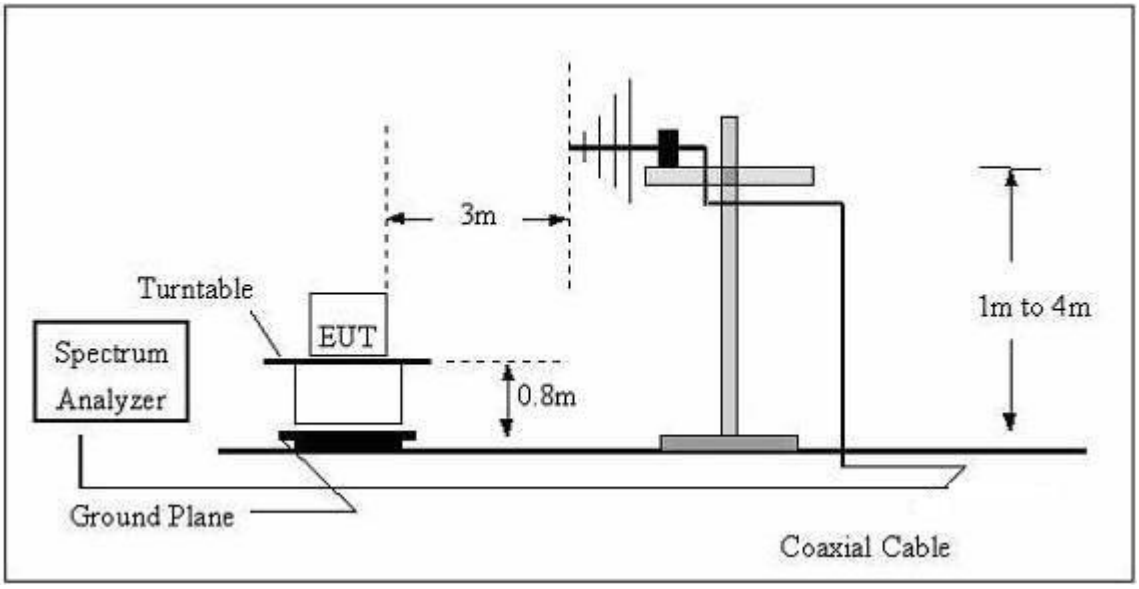
No deviation

3.2.4 TEST SETUP

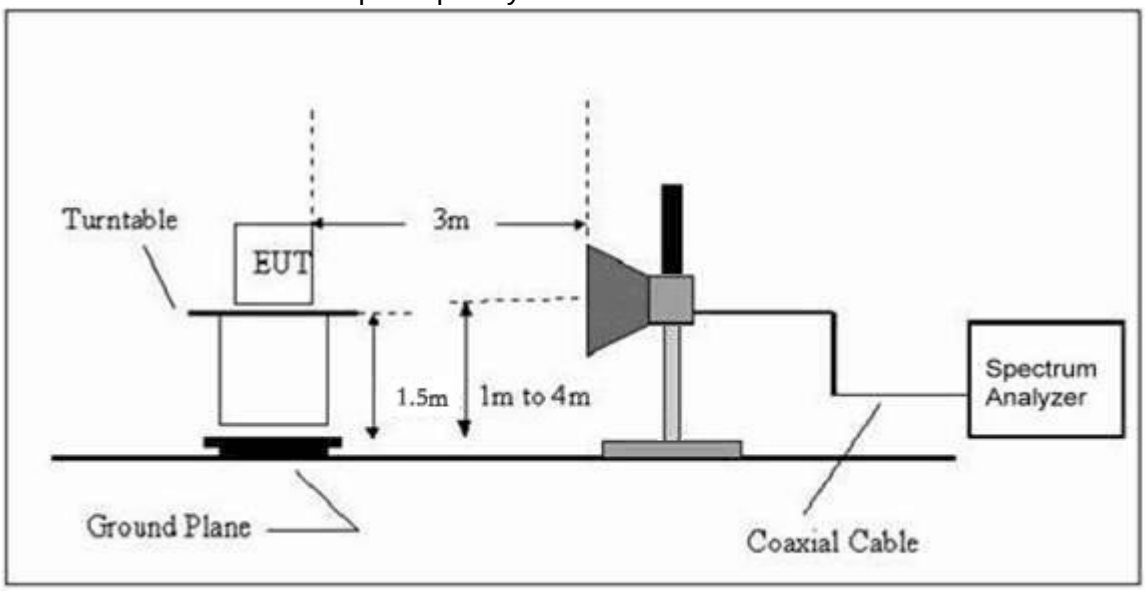
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT：	M3+ Internet Radio	Model Name. ：	M3+
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V from adapter AC 120V/60Hz
Test Mode ：	TX	Polarization :	--

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.

3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT：	M3+ Internet Radio	Model Name ：	M3+
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 12V from adapter AC 120V/60Hz
Test Mode ：	TX		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
V	119.4360	12.83	12.08	24.91	43.5	18.59	QP
V	128.1129	12.48	12.2	24.68	43.5	18.82	QP
V	170.7926	18.25	10.35	28.6	43.5	14.9	QP
V	341.9786	9.06	16.19	25.25	46	20.75	QP
V	468.8761	13.86	19.69	33.55	46	12.45	QP
V	935.5462	7.46	29.42	36.88	46	9.12	QP
H	170.7923	23.66	10.35	34.01	43.5	9.49	QP
H	341.9786	20.86	16.19	37.05	46	8.95	QP
H	468.8761	17.46	19.69	37.15	46	8.85	QP
H	726.8052	11.76	26	37.76	46	8.24	QP
H	813.1114	13.26	26.35	39.61	46	6.39	QP
H	854.0247	9.56	27.51	37.07	46	8.93	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level- Limit

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

Factor added by measurement software automatically

3.2.8 TEST RESULTS (1G-25GHZ)

802.11a

Normal Voltage

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)							
Vertical	2491.777	56.52	-11.65	44.87	74	29.13	Pk
Horizontal	2498.247	53.42	-12.73	40.69	74	33.31	Pk
Vertical	10360.112	53.41	-0.28	53.13	74	20.87	Pk
Horizontal	10360.112	53.73	-3.47	50.26	74	23.74	Pk
Vertical	1485.838	57.22	-17.1	40.12	74	33.88	Pk
Vertical	1636.784	56.91	-16.06	40.85	74	33.15	Pk
Vertical	2095.928	55.72	-11.88	43.84	74	30.16	Pk
Horizontal	1074.301	57.45	-19.69	37.76	74	36.24	Pk
Horizontal	1483.178	56.44	-17.09	39.35	74	34.65	Pk
Horizontal	1895.832	53.46	-14.25	39.21	74	34.79	Pk
Mid Channel (5200 MHz)							
Vertical	2474.777	53.3	-11.65	41.65	74	32.35	Pk
Horizontal	2474.144	53.83	-9.37	44.46	74	29.54	Pk
Vertical	10400.425	53.46	-1	52.46	74	21.54	Pk
Horizontal	10400.425	53.79	-1.88	51.91	74	22.09	Pk
Vertical	1433.535	60.2	-17.12	43.08	74	30.92	Pk
Vertical	1636.784	57.53	-16.06	41.47	74	32.53	Pk
Vertical	2284.166	51.27	-12.83	38.44	74	35.56	Pk
Horizontal	1280.515	56.93	-17.82	39.11	74	34.89	Pk
Horizontal	1636.784	55.76	-16.06	39.7	74	34.3	Pk
Horizontal	1892.438	55.88	-14.28	41.6	74	32.4	Pk
High Channel (5240 MHz)							
Vertical	2453.883	53.8	-12.91	40.89	74	33.11	Pk
Horizontal	2453.839	53.8	-11.59	42.21	74	31.79	Pk
Vertical	10480.325	50.72	2.69	53.41	74	20.59	Pk
Horizontal	10480.325	50.9	-0.67	50.23	74	23.77	Pk
Vertical	1187.688	54.83	-18.27	36.56	74	37.44	Pk
Vertical	1636.784	53.64	-16.06	37.58	74	36.42	Pk
Vertical	2084.693	51.23	-11.99	39.24	74	34.76	Pk
Horizontal	1534.540	53.89	-16.94	36.95	74	37.05	Pk
Horizontal	1786.985	53.6	-15.04	38.56	74	35.44	Pk
Horizontal	1892.438	53.48	-14.28	39.2	74	34.8	Pk

802.11n

Normal Voltage

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:5180							
V	10360.428	52.38	2.6	54.98	74	19.02	Pk
V	10360.428	31.92	5.23	37.15	54	16.85	AV
H	10360.529	51.29	2.6	53.89	74	20.11	Pk
H	10360.529	31.84	5.23	37.07	54	16.93	AV
operation frequency:5200							
V	10400.548	51.83	2.65	54.48	74	19.52	Pk
V	10400.548	32.38	5.33	37.71	54	16.29	AV
H	10400.279	51.83	2.65	54.48	74	19.52	Pk
H	10400.279	32.4	5.33	37.73	54	16.27	AV
operation frequency:5240							
V	10480.358	52.75	2.69	55.44	74	18.56	pk
V	10480.358	32.04	5.44	37.48	54	16.52	AV
H	10480.591	50.86	2.69	53.55	74	20.45	pk
H	10480.591	32.95	5.44	38.39	54	15.61	AV

Remark:

Absolute Level= Reading Level+ Factor, Margin= Absolute Level - Limit

BAND EDGE(Radiated)

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
LOW CH							
5150	53.66	-9.06	44.6	68.2	23.6	peak	Vertical
5150	53.53	-9.06	44.47	68.2	23.73	peak	Horizontal
--	--	--	--	--	--	peak	Vertical
--	--	--	--	--	--	peak	Horizontal
HIGH CH							
5350	50.99	-8.96	42.03	68.2	26.17	peak	Vertical
5350	54.57	-8.96	45.61	68.2	22.59	peak	Horizontal
--	--	--	--	--	--	peak	Vertical
--	--	--	--	--	--	peak	Horizontal

NOTE:The PK value is less than the AV value, AV value is not required.

802.11a & 802.11n(H20) all have been tested ,only worse case is reported.

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part 15 Subpart C(15.407)		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	11dBm(in any 1 megahertz)	5150-5250
Power Spectral Density	30dBm(in any 500KHz)	5725-5850

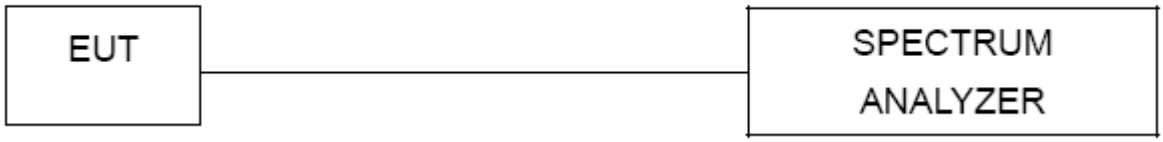
4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW =1MHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

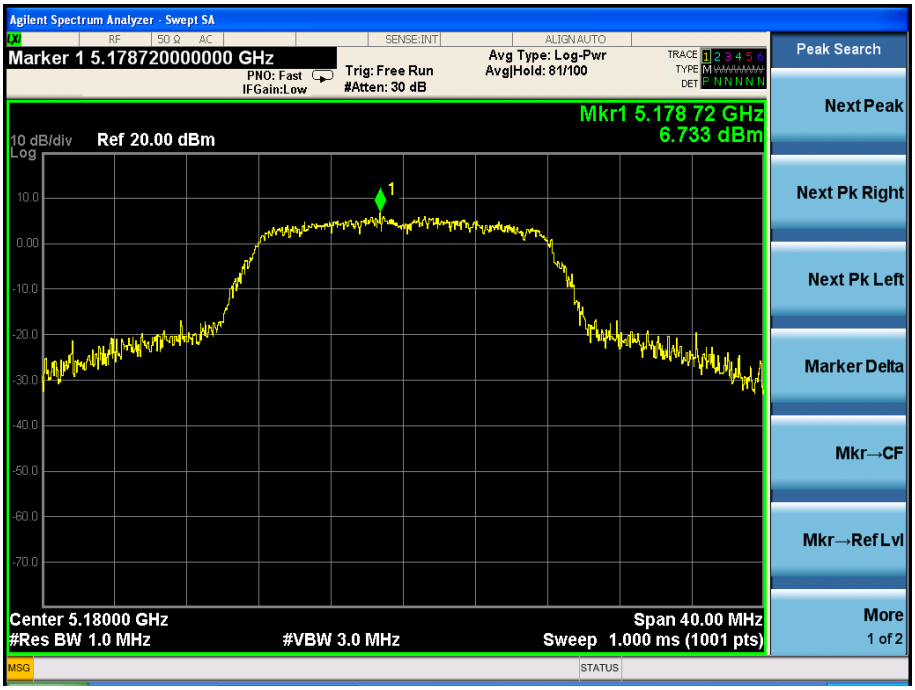
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

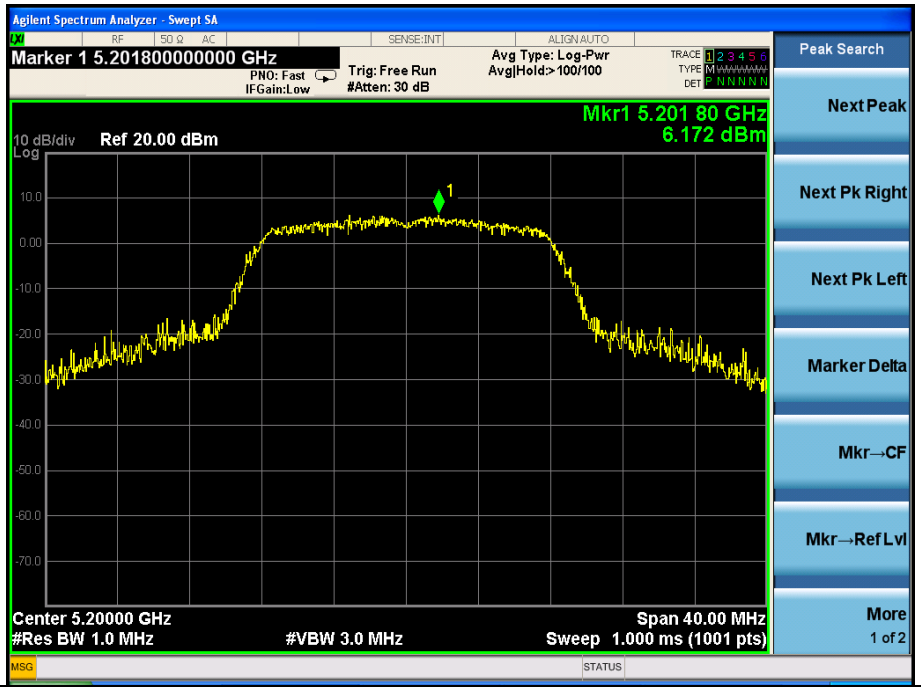
EUT :	M3+ Internet Radio	Model Name :	M3+
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX a Mode /CH36, CH40, CH48		

Frequency	Power Density (dBm)	Limit (dBm)	Result
5180 MHz	6.733	11	PASS
5200 MHz	6.172	11	PASS
5240 MHz	6.955	11	PASS

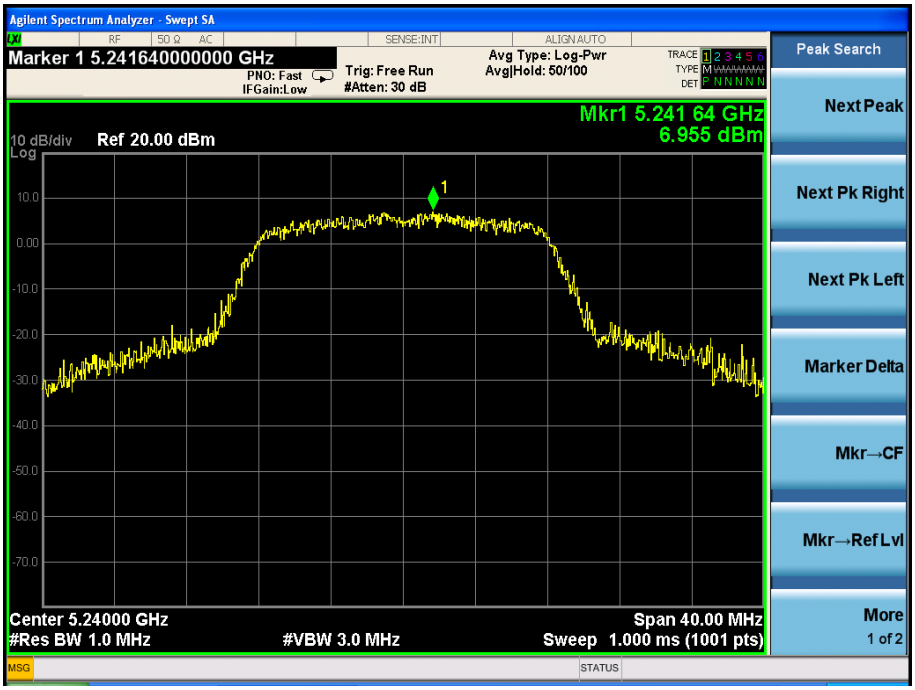
TX CH36



TX CH40



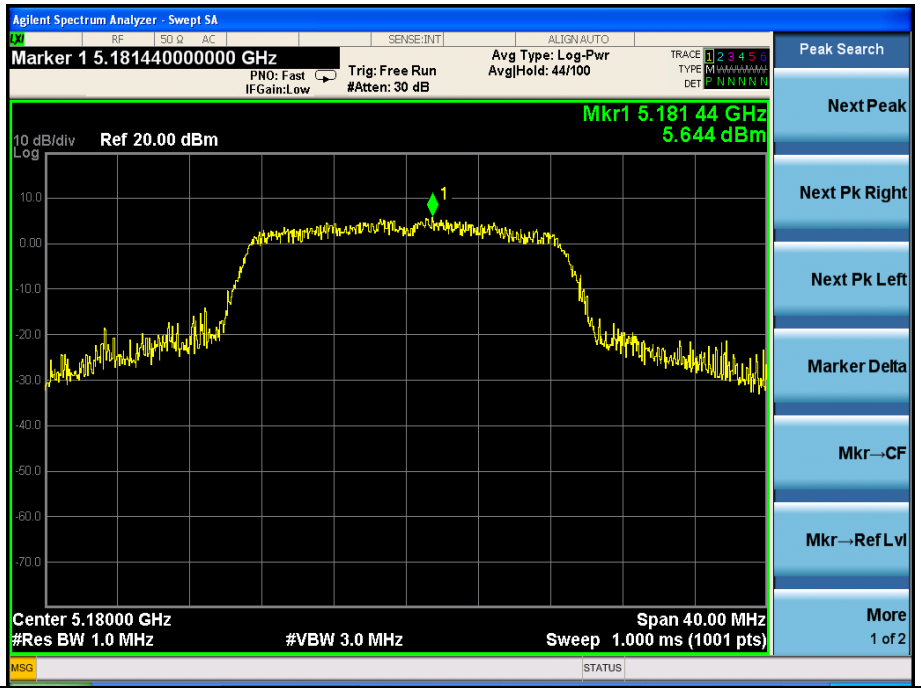
TX CH48



EUT :	M3+ Internet Radio	Model Name :	M3+
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX n Mode /CH36, CH40, CH48		

Frequency	Power Density (dBm)	Limit (dBm)	Result
5180 MHz	5.644	11	PASS
5200 MHz	5.62	11	PASS
5240 MHz	6.341	11	PASS

TX CH36



TX CH40

TX CH48

5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

5.1.1 TEST PROCEDURE

1. Set RBW= 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP

5.1.4 EUT OPERATION CONDITIONS

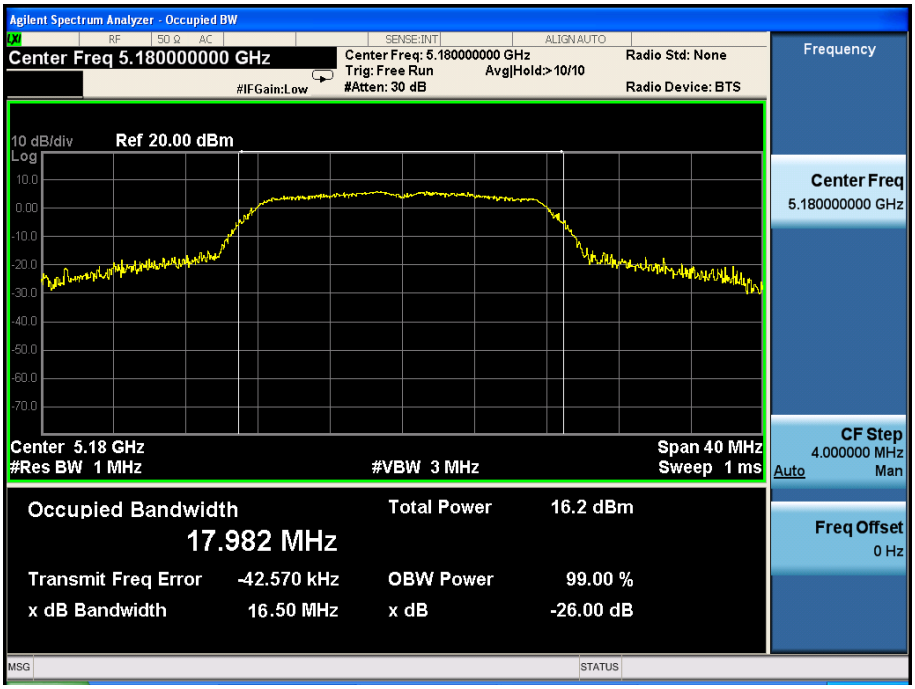
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

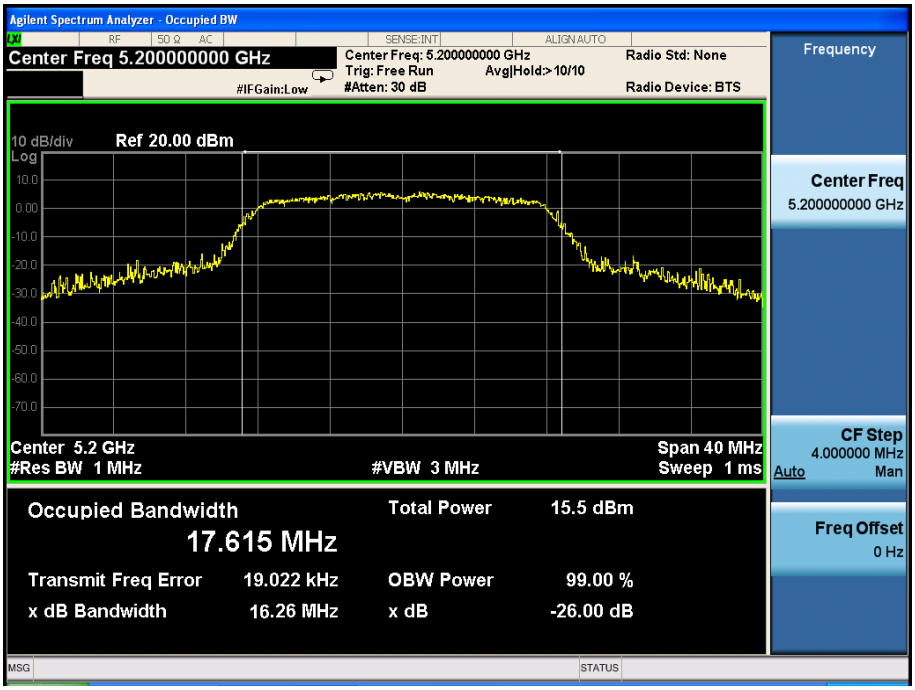
EUT :	M3+ Internet Radio	Model Name :	M3+
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX a Mode /CH36, CH40, CH48		

Channel	Frequency (MHz)	26dB bandwidth (MHz)	Limit (kHz)	Result
Low	5180	16.50	/	Pass
Middle	5200	16.26	/	Pass
High	5240	16.90	/	Pass

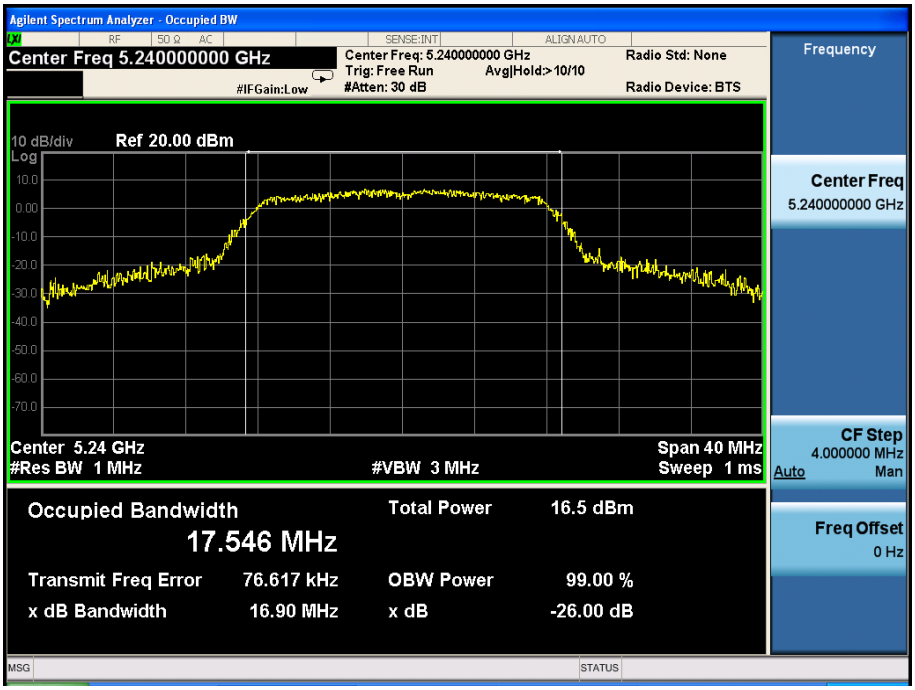
TX CH 36



TX CH 40



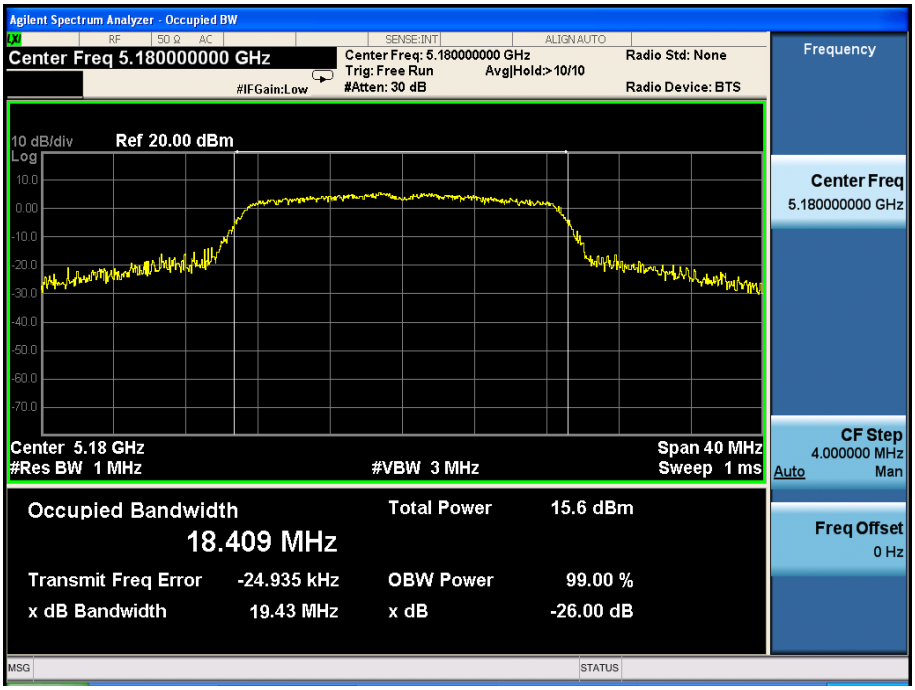
TX CH48



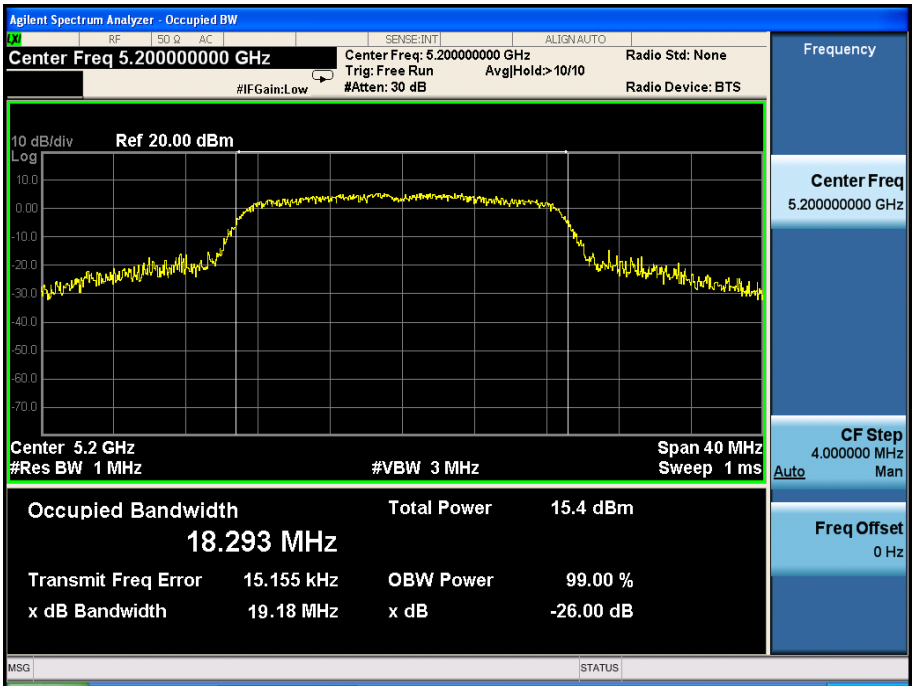
EUT :	M3+ Internet Radio	Model Name :	M3+
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX n Mode /CH36, CH40, CH48		

Channel	Frequency (MHz)	26dB bandwidth (MHz)	Limit (kHz)	Result
Low	5180	19.43	/	Pass
Middle	5200	19.18	/	Pass
High	5240	19.62	/	Pass

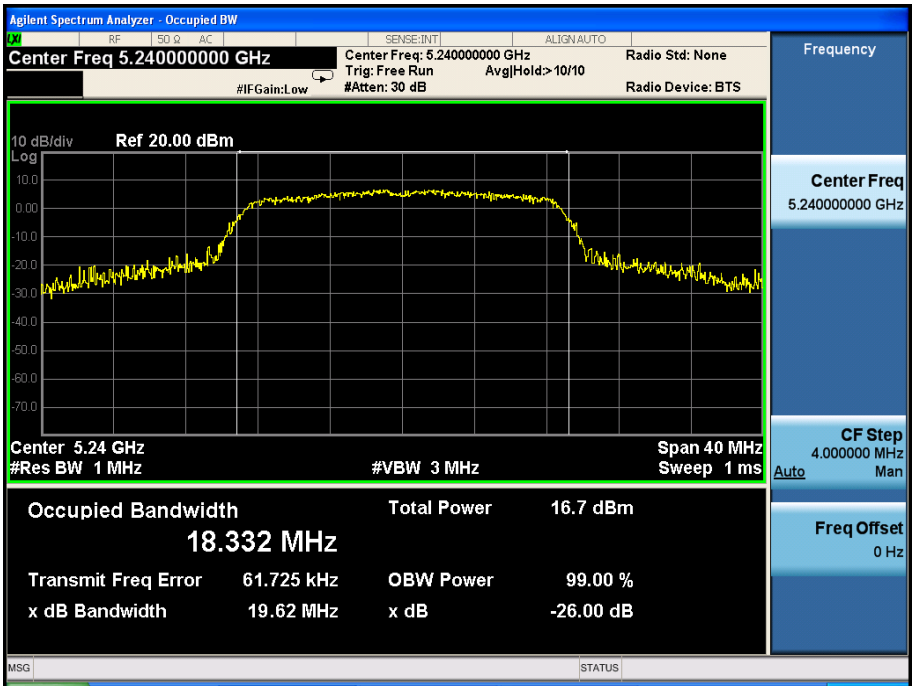
TX CH 36



TX CH 40



TX CH48



6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

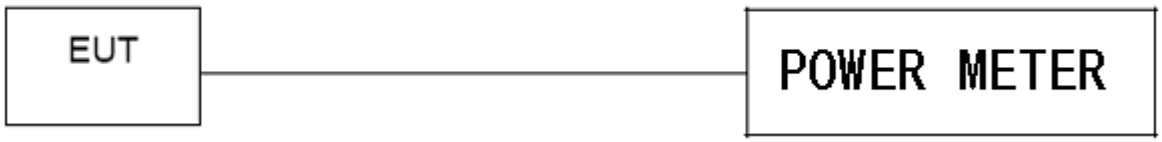
6.1.1 TEST PROCEDURE

a. The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

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

6.1.5 TEST RESULTS

EUT：	M3+ Internet Radio	Model Name ：	M3+
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 12V from adapter AC 120V/60Hz
Test Mode ：	TX a Mode /CH36, CH40, CH48		

Test Channe	Frequency	Maximum Conducted Output Power(PK) (dBm)	LIMIT
	(MHz)	**TX 802.11a Mode**	dBm
CH36	5180	18.46	30
CH40	5200	18.25	30
CH48	5240	18.38	30
TX 802.11n Mode			
CH36	5180	16.22	30
CH40	5200	16.32	30
CH48	5240	16.18	30

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7. FREQUENCY STABILITY

7.1 APPLIED PROCEDURES / LIMIT

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

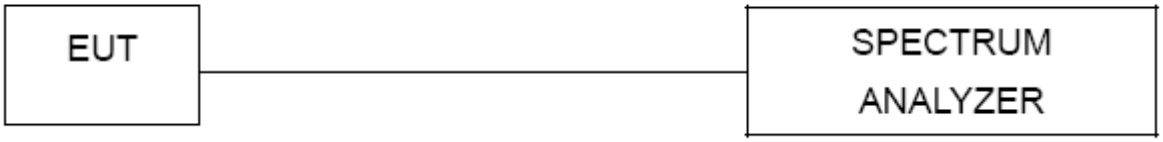
7.1.1 TEST PROCEDURE

a. The EUT was directly connected to the Spectrum Analyzer

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT OPERATION 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.

7.1.5 TEST RESULTS

EUT：	M3+ Internet Radio	Model Name ：	M3+
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 12V from adapter AC 120V/60Hz

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
5.2G Band	138V	5179.978	22	5239.978	22
	120V	5179.978	22	5239.978	22
	102V	5179.978	22	5239.978	22

Mode	Temperature (℃)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
5.2G Band	-30	5179.953	47	5239.954	46
	-20	5179.965	35	5239.931	69
	-10	5179.968	32	5239.946	54
	0	5179.961	39	5239.968	32
	10	5179.975	25	5239.975	25
	20	5179.959	41	5239.954	45
	30	5179.964	36	5239.939	61
	40	5179.954	46	5239.966	34
	50	5179.965	35	5239.941	59

8. ANTENNA REQUIREMENT

8.1 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.

8.2 EUT ANTENNA

The EUT antenna is internal antenna. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used.

----END OF REPORT----