RF TEST REPORT

Report No.: SET2015-06771

Product Name: SECRET AGENT WALKIE TALKIES

FCC ID: 2AB4XAMP10522

Model No. : 10522

Applicant: Atomic Monkey Products Ltd.

Applicant Address: Room 811, 8/F., Corporation Park, No.11 On Lai Street, Shatin, N. T.,HongKong

Issued by: CCIC-SET

Lab Location: Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055, P. R. China

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Test Report

Product Name ..... :	SECRET AGENT WALKIE TALKIES
Trade Name ..... :	N/A
Brand Name ..... :	N/A
Applicant ..... :	Atomic Monkey Products Ltd.
Applicant Address ..... :	Room 811, 8/F., Corporation Park, No.11 On Lai Street, Shatin, N.T.,HongKong
Manufacturer..... :	Atomic Monkey Products Ltd.
Manufacturer Address..... :	Room 811, 8/F., Corporation Park, No.11 On Lai Street, Shatin, N.T.,HongKong
Test Standards ..... :	47 CFR Part 15 Subpart C(Section 15.239)：Radio Frequency Devices ANSI C63.10:2009 ANSI C63.4:2009
Test Result ..... :	PASS
Tested by ..... :	Haigang He 2015.05.06 Haigang He，Test Engineer
Reviewed by..... :	Zhu Qi 2015.05.06 Zhu Qi, Senior Engineer
Approved by..... :	Wu Li'an 2015.05.06 Wu Li'an，Manager

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Change History		
Issue	Date	Reason for change
1.0	2015.05.06	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type ..... : SECRET AGENT WALKIE TALKIES
Hardware Version..... : N/A
Software Version ..... : N/A

Carrier Frequencies……: 103MHz
Modulation Type ..... : FM
Antenna Type ..... : PIFA
Antenna Gain ..... : 1.5dBi
Power supply..... : DC 3V(battery)

Note 1: The EUT is a FM transmitter, it operating at 103MHz.

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.2 Support Equipment

N/A

1.3 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart C 2014	Radio Frequency Devices
2	ANSI C63.10 2009	American National Standard for Testing Unlicensed Wireless Devices

Test detailed items/section required by FCC rules and results are as below:

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207	Conduction Emission	N/A
§15.239(a)	20 dB Occupied Bandwidth	Compliant
§15.239	Field strength of the fundamental signal	Compliant
§15.239 §15.209	Radiated Spurious Emission	Compliant

NOTE:

"N/A" denotes test is not applicable in this test report.

Remark:

New battery is used during whole test

1.4 Facilities and Accreditations

1.4.1 Facilities

CNAS-Lab Code: L1659

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659. A 12.8*6.8*6.4 (m) fully anechoic chamber was used for the radiated spurious emissions test.

FCC-Registration No.: 406086

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 406086, valid time is until October 28, 2017.

IC-Registration No.: 11185A-1

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on July. 15, 2013, valid time is until July. 15, 2016.

1.4.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15°C - 35°C
Relative Humidity (%):	30% -60%
Atmospheric Pressure (kPa):	86KPa-106KPa

2. 47 CFR PART 15C REQUIREMENTS

2.1 Antenna requirement

2.1.1 Applicable Standard

According to FCC 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 or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

2.1.2 Antenna Information

Antenna Category: Integral antenna

Antenna General Information:

No.	EUT Model	Ant. Cat.	Gain(dBi)
1	10522	PIFA antenna	1.5

2.1.3 Result: comply

The EUT has a permanently antenna which complies with the Part 15.203. Please refer to the EUT internal photos.

2.2 20 dB Bandwidth

2.2.1 Requirement

As per 15.239 (a) 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.

2.2.2 Test Description

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

(2) Spectrum Setting:
Bandwidth: RBW=10 kHz, VBW=30 kHz, detector= Peak

(3) A continuously playing MP3 audio source was connected during the test. The volume of the audio source was set to maximum to represent the worst case. The transmitter was transmitting continuously.
For all test modes, The volume of the audio source was set to maximum.

Equipments List:

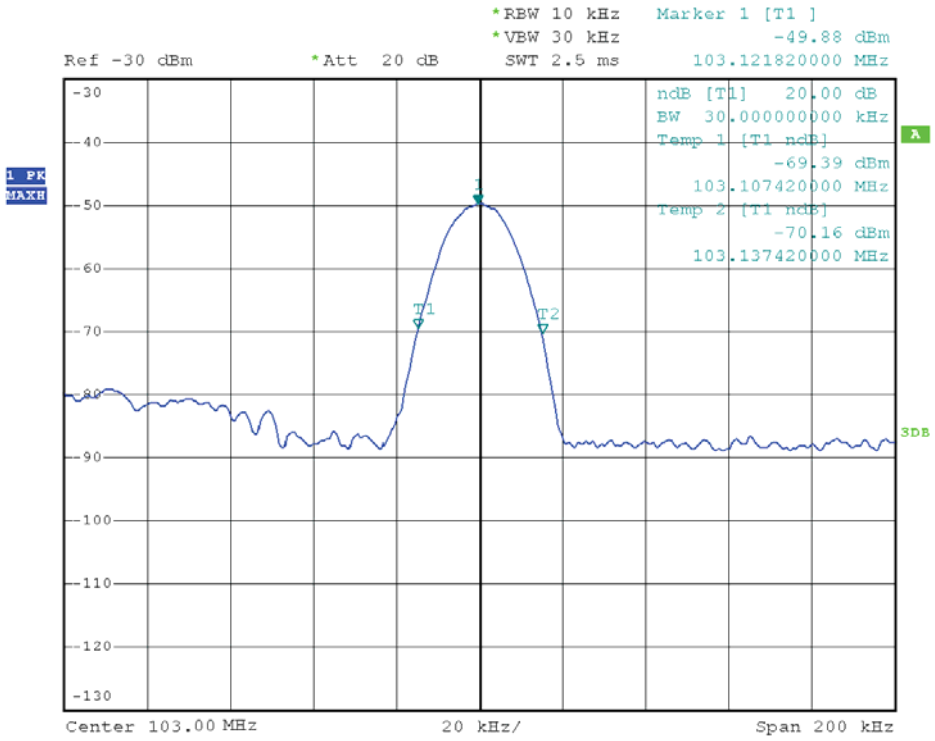
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal.Due Date
Spectrum Analyzer	R&S	FSP40	1164.4391.40	2014.06.11	2015.06.10

2.2.3 Test limit

FCC Part 15 Subpart C(15.239)		
Test item	Limit	Frequency Range(MHz)
Bandwidth	200kHz	88~108

2.2.4 Test Result

Mode	Frequency(MHz)	20dB Bandwidth(kHz)	Conclusion
FM	103	30.00	PASS



2.3 Conducted Emission

2.3.1 Requirement

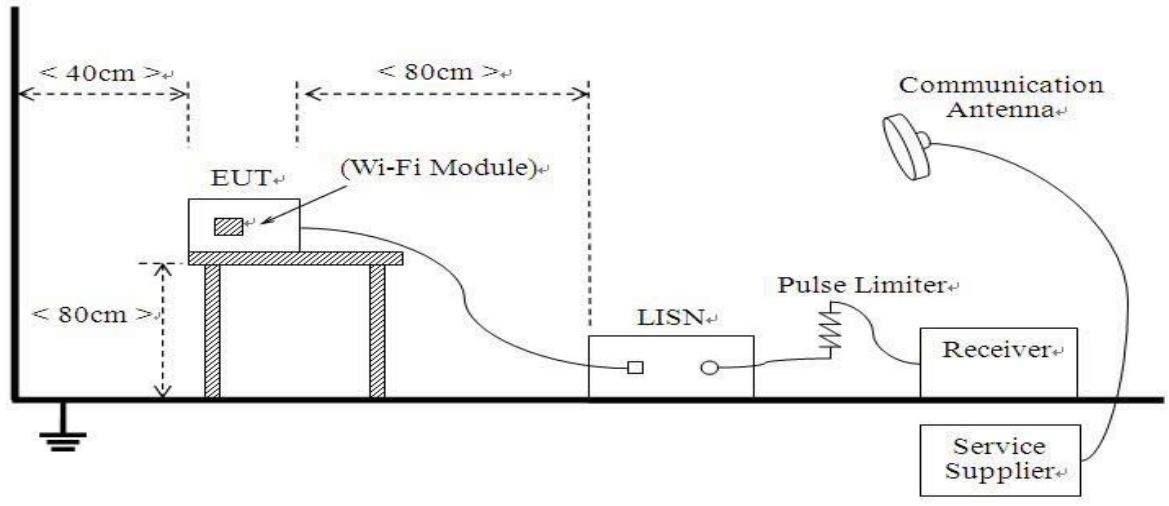
According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:
(a) The lower limit shall apply at the band edges.
(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

2.3.2 Test Description

A. Test Setup:



The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10:2009

The EUT is powered by Battery. The factors of the site are calibrated to correct the reading. During the measurement.

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due Date
Test Receiver	ROHDE&SCHWARZ	ESCS30	A0304260	2014.06.11	2015.06.10
LISN	ROHDE&SCHWARZ	ESH2-Z5	A0304221	2014.06.11	2015.06.10

2.3.3 Test Result

Not apply for products powered by DC systems.

2.4 Radiated Emission

2.4.1 Limits

According to FCC section 15.209, except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	20log(2400/F(KHz))+80	300
0.490 - 1.705	24000/F(kHz)	20log(24000/F(KHz))+40	30
1.705 - 30.0	30	20log(30)+40	30
30 - 88	100	40.0	3
88 - 216	150	43.5	3
216 - 960	200	46.0	3
Above 960	500	54.0	3

Note:

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

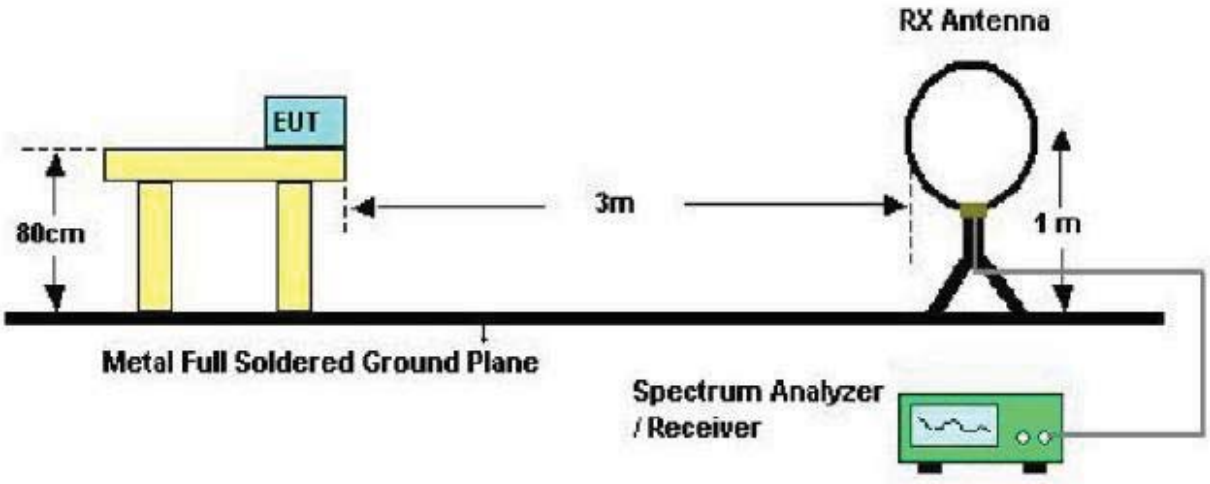
Limits of Radiated Emission measurement (FCC 15.239)

Frequency of Emission(MHz)	Field Strength of fundamental(dBuV/m)	
88~108	Peak	Average
	68	48

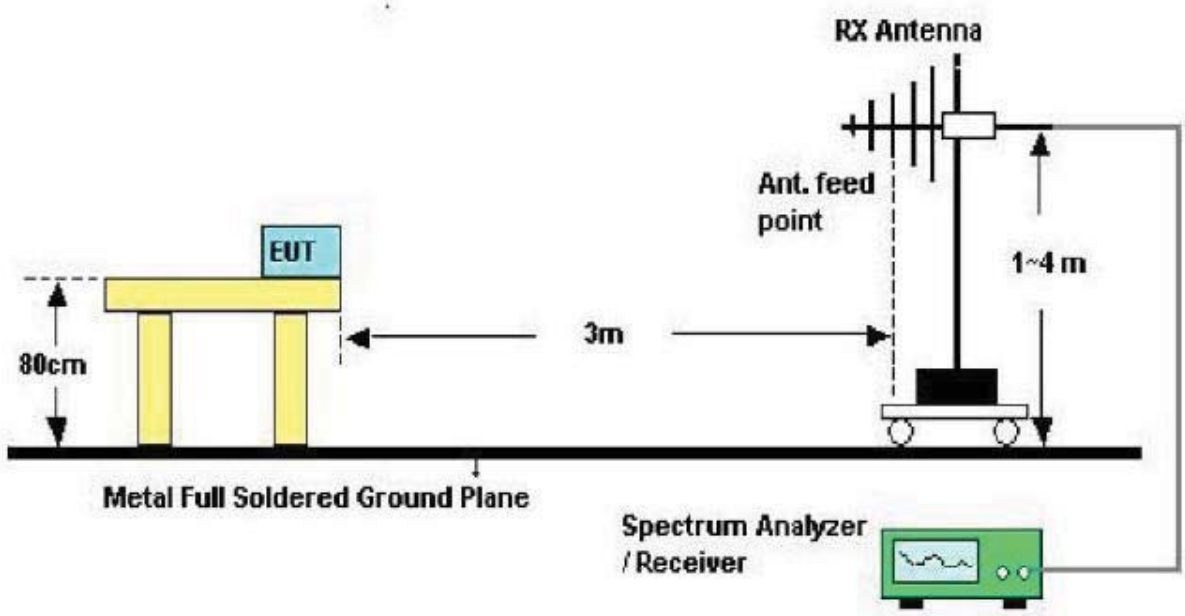
Note:

(1) FCC part15.239(b) the field strength of any emissions within the permitted 200kHz 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.

2.4.2 Test Description



Radiated emissions from 9kHz to 30MHz



Radiated emissions from 30MHz to1GHz

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal.Date	Cal.Due Date
Receiver	R&S	ESIB26	A0304218	2014.06.08	2015.06.07
Full-Anechoic Chamber	Albatross	12.8m*6.8m* 6.4m	A0412372	2014.06.08	2015.06.07
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2014.06.10	2015.06.09
Passive Loop Antenna	Schwarzbeck	HFH2-Z6	0837.1866.54	2014.06.11	2015.06.10
amplifier 20M~3GHz	R&S	PAP-0203H	22018	2014.06.10	2015.06.09

2.4.3 Test Procedure

a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz; The EUT was placed on a rotating 0.8 m high above ground. The table was rotated 360 degrees to determine the position of the highest radiation

b) The Test antenna shall vary between 1m and 4m. Both Horizontal and Vertical antenna are set to make measurement.

c) 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 Quist Peak Detector mode premeasured

d) If Peak values comply with QP limit below 1GHz.The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.

e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produce highest emissions.

f) For the actual test configuration, please see the test setup photo.

Test Equipment Setting for emission test

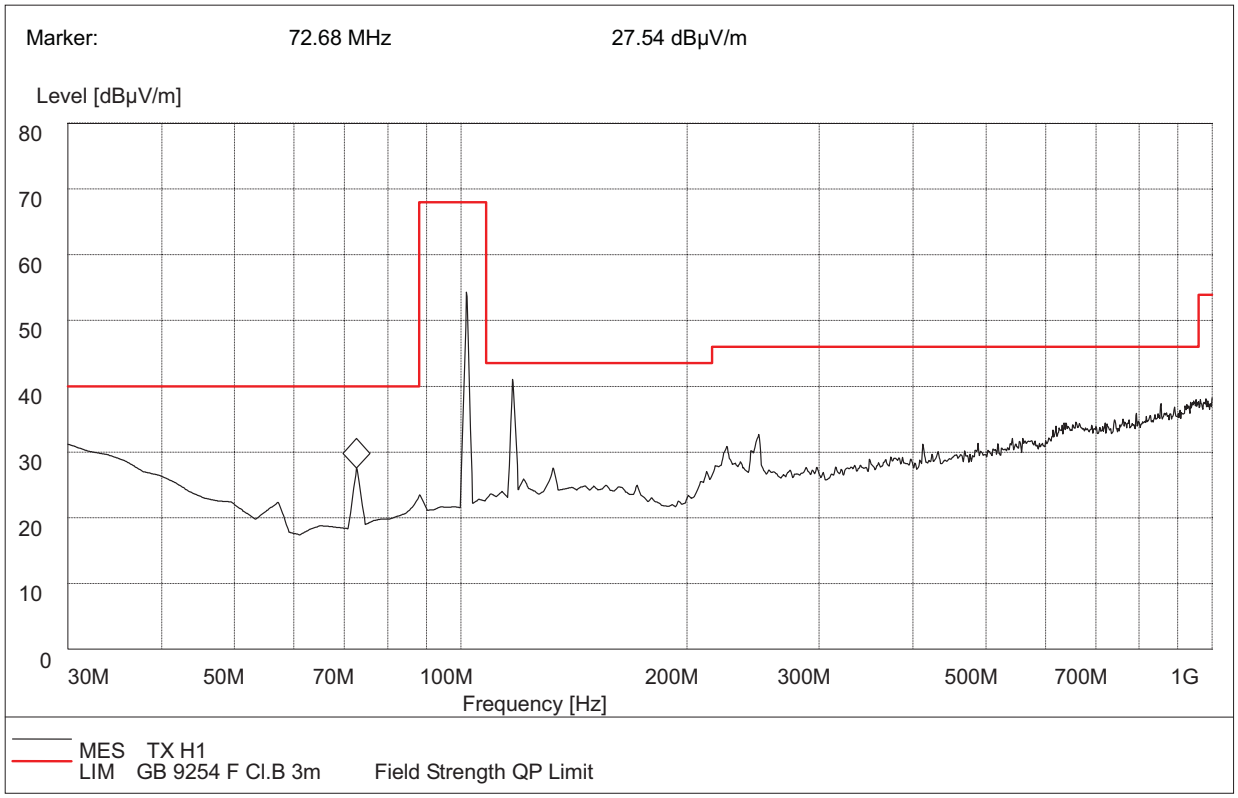
Frequency(MHz)	RBW	VBW
9KHz~150KHz	200Hz	1KHz
150KHz~30MHz	9KHz	30KHz
30MHZ~1GHz	120KHz	300KHz
Above 1GHz	1MHz	3MHz

2.4.4 Test Result

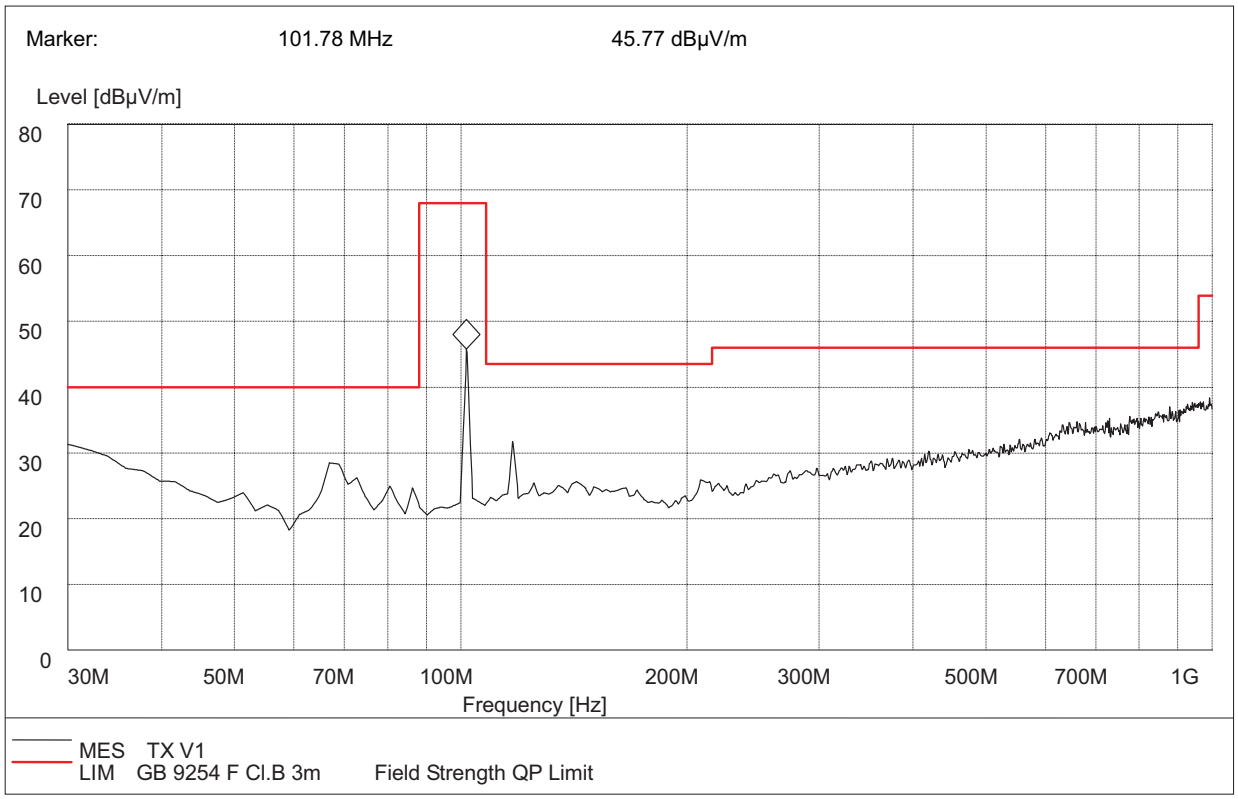
For 9 kHz to 30 MHz

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

For 30MHz to 1000 MHz



(Plot A: 30MHz to 1GHz, Antenna Horizontal)



(Plot B: 30MHz to 1GHz, Antenna Vertical)

Frequency (MHz)	Ant. Pol. H/V	Reading		Correction Factor(dB)	Level (dBuV/m)		Limit (dBuV/m)	
		Peak (dBμV/m)	AV (dBμV/m)		Peak (dBμV/m)	AV (dBμV/m)	Peak (dBμV/m)	AV (dBμV/m)
88	H	25.35	/	9.19	34.54	/	43.5QP	/
	V	26.57	/	9.19	35.76	/	43.5QP	/
103	H	54.29	28.46	9.21	63.50	37.67	68.00	48.00
	V	45.77	24.64	9.21	54.98	33.85	68.00	48.00
108	H	23.24	/	9.22	32.46	/	43.5QP	/
	V	22.59	/	9.22	31.81	/	43.5QP	/

Frequency (MHz)	QuasiPeak (dBμ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBμ V/m)	Antenna	Verdict
66.39	29.47	120.000	100.0	40.00	Vertical	Pass
119.4188	32.16	120.000	100.0	43.50	Vertical	Pass

Frequency (MHz)	Quasi Peak (dBμ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBμ V/m)	Antenna	Verdict
117.300	41.39	120.000	100.0	43.5	Horizontal	Pass
249.020	30.29	120.000	100.0	46.0	Horizonta	Pass

** END OF REPORT **