Address: Units 303-305, 3/F., 31 Lok Yip Road, On Lok Tsuen, Fanling, N.T., Hong Kong
Telephone: +852 23052570
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FCC Test Report

Application No.: 57662

Applicant: RETINK (R & D) LTD.
Address: Unit 8, 15/F., Block E, Wah Lok Industrial Centre
31-35 Shan Mei Street, Fo Tan, Shatin, N.T.
Hong Kong

Product Information:

Product Description: USB Ionizer
Model: RT-100
Product Class : Part 18 Consumer Device
FCC ID number: QTJRT1002012

Requirement: CFR 47 FCC PART 18, 2011
- Industrial, Scientific, and Medical Equipment

Date of Receipt: July 31, 2012

Date of Test: October 09, 2012

Date of Issue: October 10, 2012

Test Result :	**PASS***

* In the configuration tested, the EUT complied with the requirements for the relevant clauses of Federal Communications Commission Rules as specified above.

Authorized Signature:

Stephen C.N. Wong
Technical Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS IECC Limited or testing done by SGS IECC Limited in connection with, distribution or use of the product described in this report must be approved by SGS IECC Limited in writing.

2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission (150KHz to 30MHz)	FCC PART 18, SUBPART C: 2011	FCC Measurement Procedure MP-5	FCC Part 18.307b	PASS
Radiated Emission below 30MHz	FCC PART 18, SUBPART C: 2011	FCC Measurement Procedure MP-5	FCC Part 18.305b	PASS
Radiated Emission (30MHz to 1GHz)	FCC PART 18, SUBPART C: 2011	FCC Measurement Procedure MP-5	FCC Part 18.305b	N/A[1)]
Radiated Emission above 1 GHz	FCC PART 18, SUBPART C: 2011	FCC Measurement Procedure MP-5	FCC Part 18.305b	N/A[1)]
Remark : 1) Please refer to section 6.3 & 6.4 of this report for explanation.				

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4 General Information

4.1 General Description of EUT

EUT Name:	USB Ionizer
Model:	RT-100
Serial No.:	--

4.2 Details of EUT

Power Supply:	AC/DC adaptor (not provided) :
	Output : DC 5V
Power Cord:	--

4.3 Conditions of EUT

The received sample was under good condition.

4.4 Description of Support Units

The EUT has been tested with a host notbook computer :

DELL model : INSPIRON 6400; S/N : 29824852317

4.5 Standards Applicable for Testing

CFR 47, FCC Part 18, Oct 2011
FCC Measurement Procedure MP-5

4.6 Test Location

All tests were performed at: -

SGS IECC Limited (Member of the SGS Group (SGS SA))

Units 303-305, 3/F., 31 Lok Yip Road, On Lok Tsuen, Fanling, N.T., Hong Kong

Tel: +852 2305 2570 Fax: +852 2756 4480.

No tests were sub-contracted.

4.7 Test Facility

Measurement facility located at Fanling (Hong Kong), placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules **(FCC Registration No. : 97774)**.

The test facility is recognized, certified, or accredited by the following organizations:

FCC – CAB Registration No.: 446297

Measurement facility located at Fanling (Hong Kong), accredited as a Conformity Assessment Body (CAB) and was designated by FCC to perform compliance testing on equipment subject to Declaration Of Conformity (DOC) and Certification under Part 15 and 18 of the Commission's Rules.

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.

4.10 Declaration of Family Grouping

None.

4.11 Abbreviations

N/A: Not Applicable
EUT: Equipment Under Test

5 Equipments Used during Test

Radiated Emission				
Equipment	**Manufacturer**	**Model / Serial No.**	**Cal. Date**	**Cal. Due Date**
3m Semi-Anechoic Chamber (pre-test)	--	--	--	--
3m / 10m Open Aera Test Site	--	--	2012-02-24	2015-02-23
Test Receiver	Rohde & Schwarz	ESCS 30 / 100388	2011-12-28	2012-12-27
Loop Antenna	Rohde & Schwarz	HFH2-Z2 / 871336/48	2009-11-17	2012-11-16
Coaxial Cable	--	E167	2012-08-01	2013-07-31
Antenna Mast System	Schwarzbeck	AM9104 / -	--	--
Turntable with Controller	Drehtisch	DT312 / -	--	--

General Use Equipment				
Equipment	**Manufacturer**	**Model / Serial No.**	**Cal. Date**	**Cal. Due Date**
Digital Multimeter	Fluke	189 / 83640020	2012-05-17	2013-05-16
Temperature / Humidity meter	-	E160	2011-10-11	2012-10-10

6 Test Results

6.1 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement: FCC Part 18 Subpart C Section 18.307b
Test Method: FCC Measurement Procedure MP-5
Test Date: October 09, 2012
Power Supply: DC 5V (from host PC)
Frequency Range: 150KHz to 30MHz
Detector: Peak for pre-scan
Resolution Band Width: 9 kHz (150 kHz to 30 MHz)
Limit: Table 18.307b of FCC Part 18 Subpart C (for consumer device)

Frequency range	At mains terminals	
MHz	dB (μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.
Note2: The lower limit is applicable at the transition frequency.

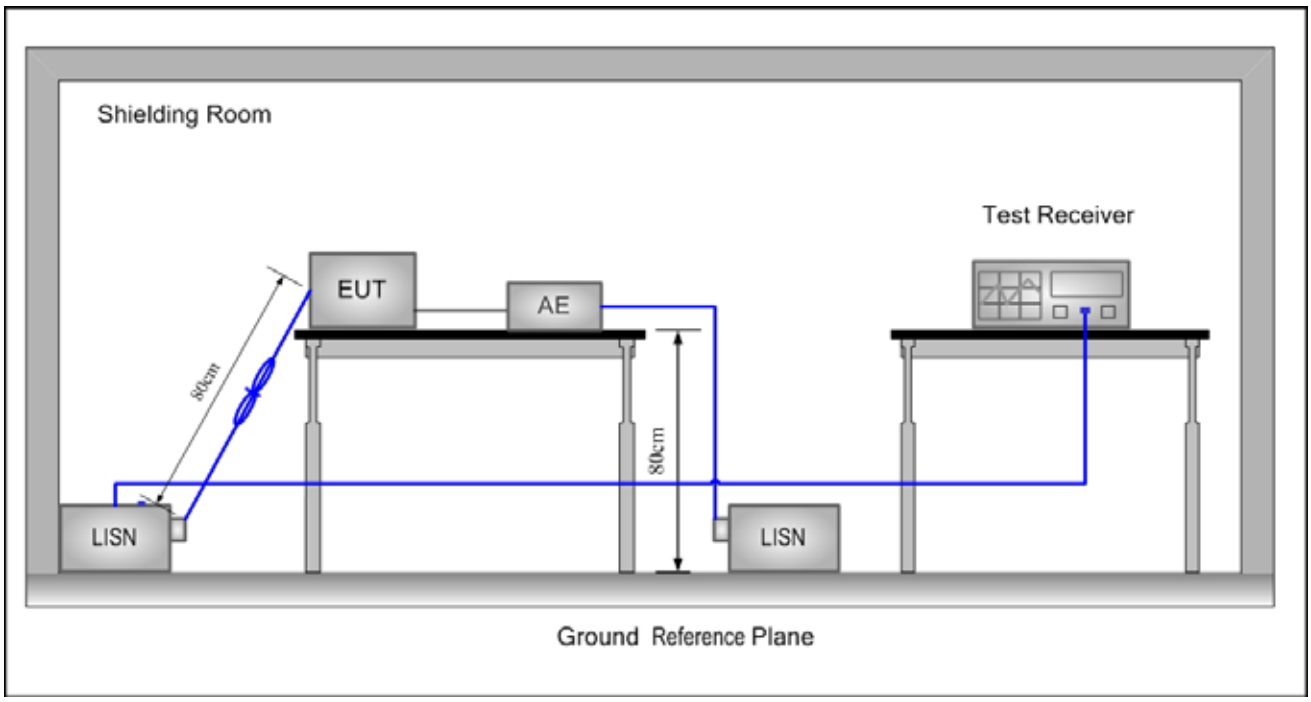
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity:45% RH Atmospheric Pressure:1006 mbar

EUT Operation: Test the EUT in power on mode.

6.1.2 Test Setup and Procedure

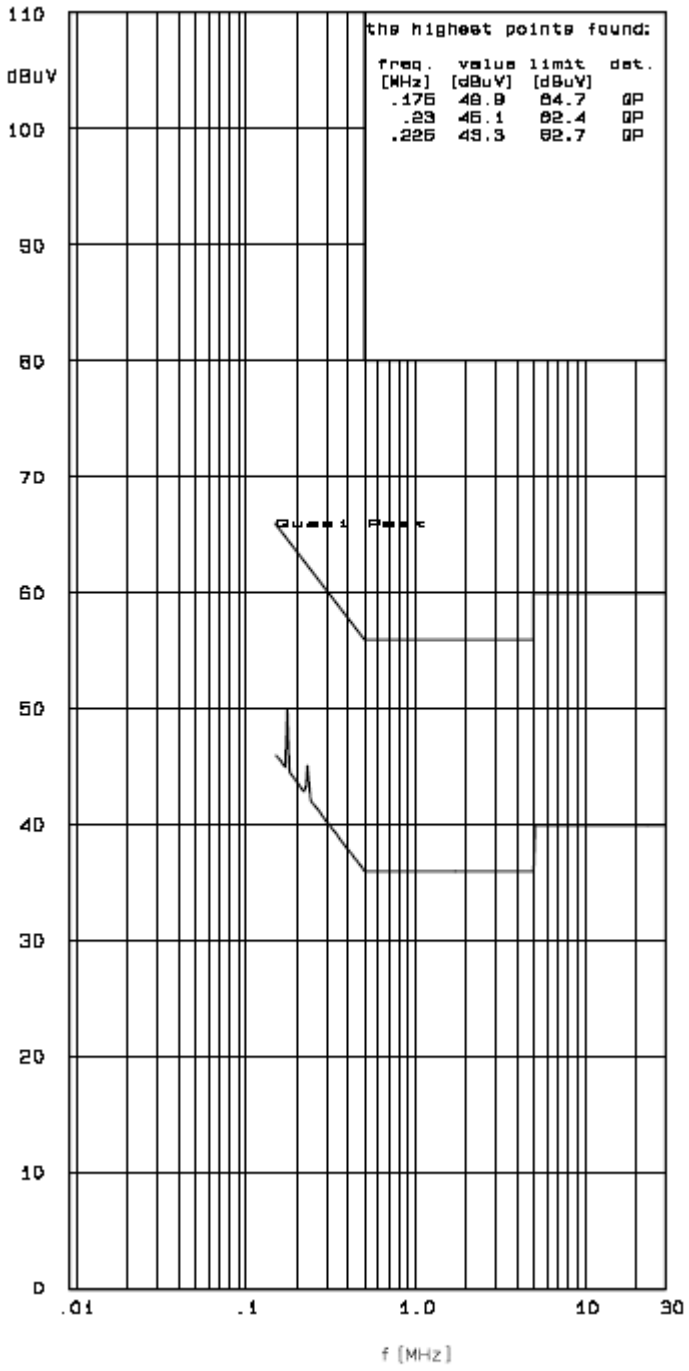


1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to AC power source through a LISN (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. For Load terminal voltage measurement, a voltage probe was used on the load terminals. Measurement at control terminals were carried out by means of an impedance stabilization network (ISN). The ISN was bounded to ground.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The EUT kept a distance of at least 0.8m from any other earthed conducting surface. The Artificial Mains Network was situated at a distance of 0.8m from the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

6.1.3 Measurement Data

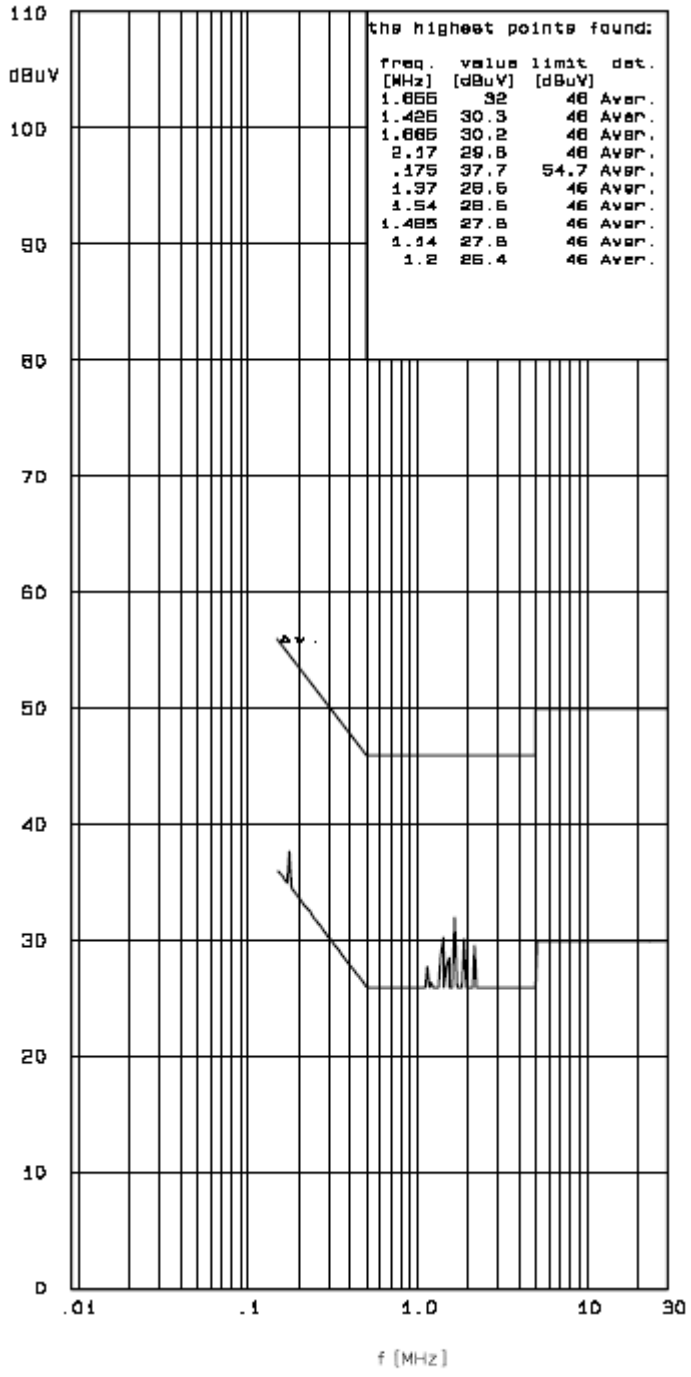
Live Line:

Quasi-peak measurement:



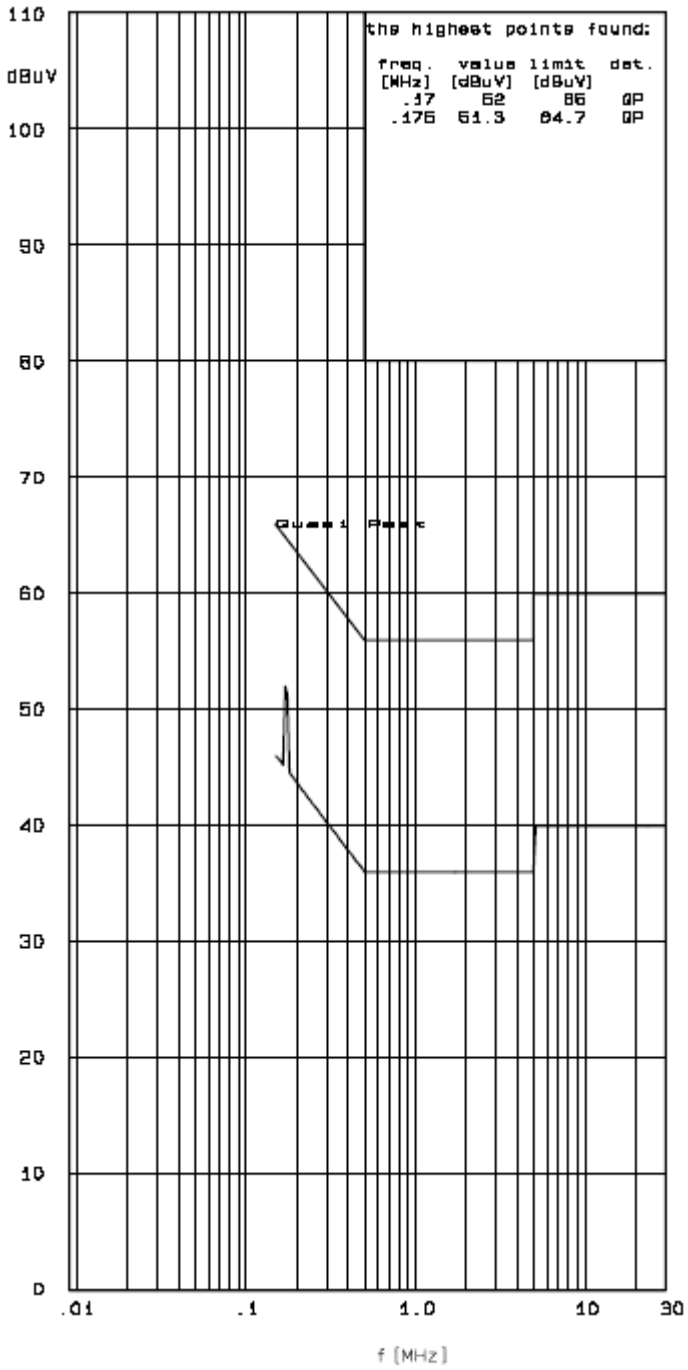
Live Line:

Average measurement:



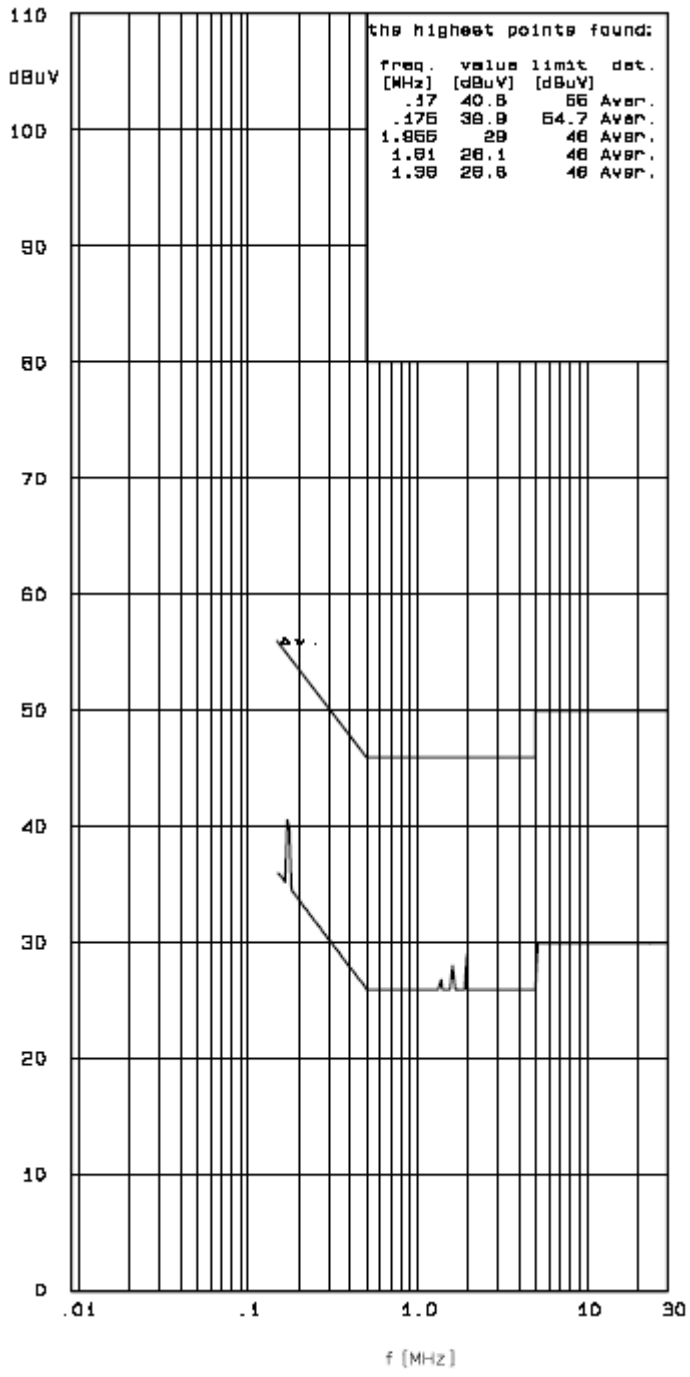
Neutral Line:

Quasi-peak measurement:



Neutral Line:

Average measurement:



6.2 Radiated Emissions below 30MHz

Test Requirement:	FCC Part18 Subpart C Section 18.305b
Test Method:	FCC Measurement Procedure MP-5
Test Date:	October 09, 2012
Power Supply:	DC 5V (from host PC)
Frequency Range:	9kHz to 30MHz
Measurement Distance:	3 m
Detector:	Peak for pre-scan (200Hz resolution bandwidth for measurement between 9kHz – 150kHz) (9kHz resolution bandwidth for measurement between 150kHz – 30MHz) Quasi-Peak for final measurement

Limits (RF power below 500W) :

Frequency range (MHz)	Field strength limits (μV/m)	Measurement distance (m)
0.009 to 30	15	300

6.2.1 EUT Operation

Operating Environment:

Temperature: 23 °C Humidity: 55 % Atmospheric Pressure: 1006 mbar

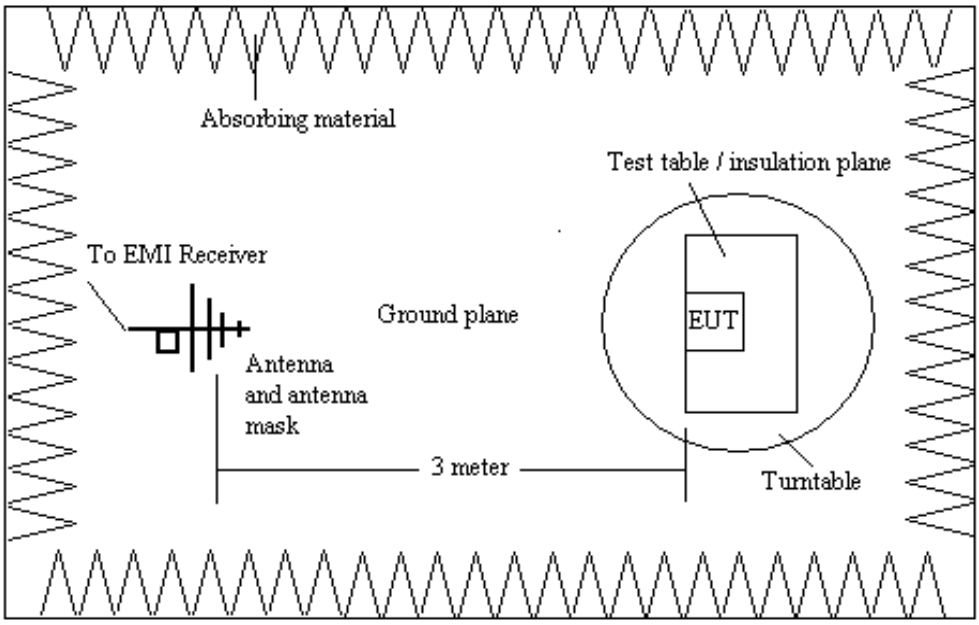
EUT Operation: Pre-test with Peak detector with the following mode(s):

1. Power on

Final test with Quasi-Peak detector with the following mode(s):

1. Power on

6.2.2 Test Setup and Procedure



1. The pre-test of the radiated emissions test was conducted in a semi-anechoic chamber and the final measurement was conducted in the open area test site.
2. The EUT was operated with the host PC. The EUT was placed upon a non-metallic table 0.8m above the floor.
3. A loop antenna for the frequency range 9kHz - 30MHz, connected with 10 meters coaxial cable to the test receiver was used for measurement. The center of the loop was 1 m above the floor, positioned with its plane vertical at the specified distance and rotated about its vertical axis and placed horizontal for maximum response at each azimuth about the EUT.
4. An initial pre-scan was performed to find out the maximum emission level of the sample placed at 3 orthogonal planes and with the turntable rotated 360°. Final measurement was then performed to record the data for fundamental emission within the operation band and spurious emissions outside the band under worst-case condition for combination of the antenna orientation and turntable position.

6.2.3 Measurement Data

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. The EUT was measured by loop antenna with 3 orthogonal polarities. Final measurement was conducted in the open area test site with data as follows:

Test results on operation with power on mode :

Frequency (MHz)	Antenna Polarization	Correction Factor (dB)	Receiver QP Reading (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)
0.009	H	26.1	- 62.6	-36.5	23.5	- 60.0
0.058	H	21.2	- 34.2	-13.0	23.5	- 36.5
0.175	H	21.2	- 44.5	-23.3	23.5	- 46.8
0.892	H	21.4	- 54.7	-33.3	23.5	- 56.8
10.000	H	21.6	- 75.1	-53.5	23.5	- 77.0
30.000	H	21.9	- 76.3	-54.4	23.5	- 77.9

Note:

1) All readings are Quasi-Peak values.

2) The shown receiver reading is the converted values for measurement distance of 300m.

3) Correction Factor = Antenna Factor + Cable Loss

4) The above results were the worst case results with the EUT positioned in all 3 axis during the test.

6.3 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	FCC Part 18
Test Method:	FCC Measurement Procedure MP-5
Test Date:	Not Applicable

Remark:

There is no need for Radiated Emissions (30MHz to 1GHz) test to be performed on this product in accordance with FCC Part 18: 2011 because the operation frequency of the EUT is 38.46 kHz.

For further details, please refer to Subpart C section 18.309 of FCC Part 18 which states:

The highest measurement frequency for EUT with operation frequency below 1.705MHz is 30MHz.

6.4 Radiated Emissions above 1 GHz

Test Requirement:	FCC Part 18
Test Method:	FCC Measurement Procedure MP-5
Test Date:	Not Applicable

Remark:

There is no need for Radiated Emissions (above 1GHz) test to be performed on this product in accordance with FCC Part 18: 2011 because the operation frequency of the EUT is 38.46 KHz.

For further details, please refer to Subpart C section 18.309 of FCC Part 18 which states:

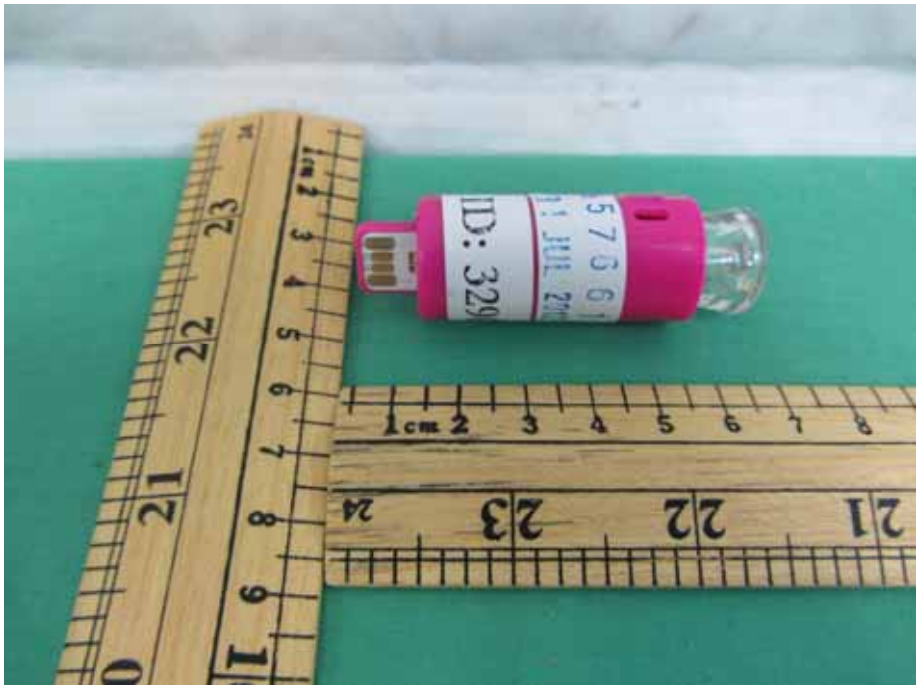
The highest measurement frequency for EUT with operation frequency below 1.705MHz is 30MHz.

7 Photographs

7.1 Conducted Emission Test Setup

7.2 Radiated Emission Test Setup

7. 3 EUT Constructional Details



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