



Report No.: SZ12120168E01



FCC/IC TEST REPORT

Issued to

SHENZHEN SANGFEI CONSUMER COMMUNICATIONS CO., LTD.

For

Mobile Phone

Model Name: SAF3011
Trade Name: N/A
Brand Name: N/A
FCC ID: VQR-SAF3011
IC Number: 10881A-SAF3011
Standard: 47 CFR Part 15 Subpart B
ICES-003
Test date: January 5, 2013 – January 17, 2013
Issue date: February 20, 2013

Shenzhen Morlab Communications Technology Co., Ltd.

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Date 2013.2.20

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Wu Xuewen
(Department Manager)

Date 2013.2.20

Review by Huang Pulong
Huang Pulong
(EMC Manager)

Date 2013.2.20

CTIA Authorized Test Lab
LAB CODE 20081223-00
IEEE 1725

OFTA
電訊管理局



GCF
Official Observer of
Global Certification Forum

Bluetooth
BQTF

FCC
Reg. No.
695796

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Change History		
Issue	Date	Description
1.0	February 20, 2013	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type: Mobile Phone
Serial No.....: (n.a., marked #1 by test site)
Hardware Version: SAF3011_ V3.0
Software Version: SAF3011_0.0.1075.0079_20121220_SHIP.bin
Applicant: SHENZHEN SANGFEI CONSUMER COMMUNICATIONS CO., LTD.
11 Science and Technology Road, Shenzhen Hi-tech industrial Park
Nanshan District. Shenzhen, PRC
Manufacturer: SHENZHEN SANGFEI CONSUMER COMMUNICATIONS CO., LTD.
11 Science and Technology Road, Shenzhen Hi-tech industrial Park
Nanshan District. Shenzhen, PRC
Power supply Battery
Brand Name: COSLIGHT
Model No.: SAF3011
Serial No.: (n.a. marked #1 by test site)
Capacitance: 2000mAh
Rated Voltage: 3.8V
Charge Limit: 4.35V
Ancillary Equipment 1 AC Adapter (Charger for Battery)
Brand Name: SALCOMP
Model Name: 3202RF
Serial No.: (n.a. marked #1 by test site)
Rated Input: ~ 100-240V, 150mA, 50/60Hz
Rated Output: = 5V, 700mA

Note 1: The EUT is a CDMA Digital Mobile Phone which is contain a T-Flash card slot, and it is equipped with a USB port which can be connected to the ancillary equipments supplied by the manufacturer e.g. the AC Adapter and the USB Cable.

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

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15	Radio Frequency Devices
2	ICES-003 (Issue 5, August 2012)	Information Technology Equipment (ITE) – Limits and methods of measurement

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

Description	Result
Conducted Emission	PASS
Radiated Emission	PASS

NOTE: The tests were performed according to the method of measurements prescribed in ANSI C63.4 2009.

1.3 Facilities and Accreditations

1.3.1 Facilities

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L3572.

All measurement facilities used to collect the measurement data are located at FL.1, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China 518101. The test site is constructed in conformance with the requirements of ANSI C63.4(2009) and CISPR Publication 22(2010); the FCC registration number is 695796.

1.3.2 Test Environment Conditions

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

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

1.3.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission:	±1.8dB
Uncertainty of Radiated Emission:	±3.1dB

2. TEST CONDITIONS SETTING

2.1 The Test Mode

- (1) The test mode (Data Transmission)

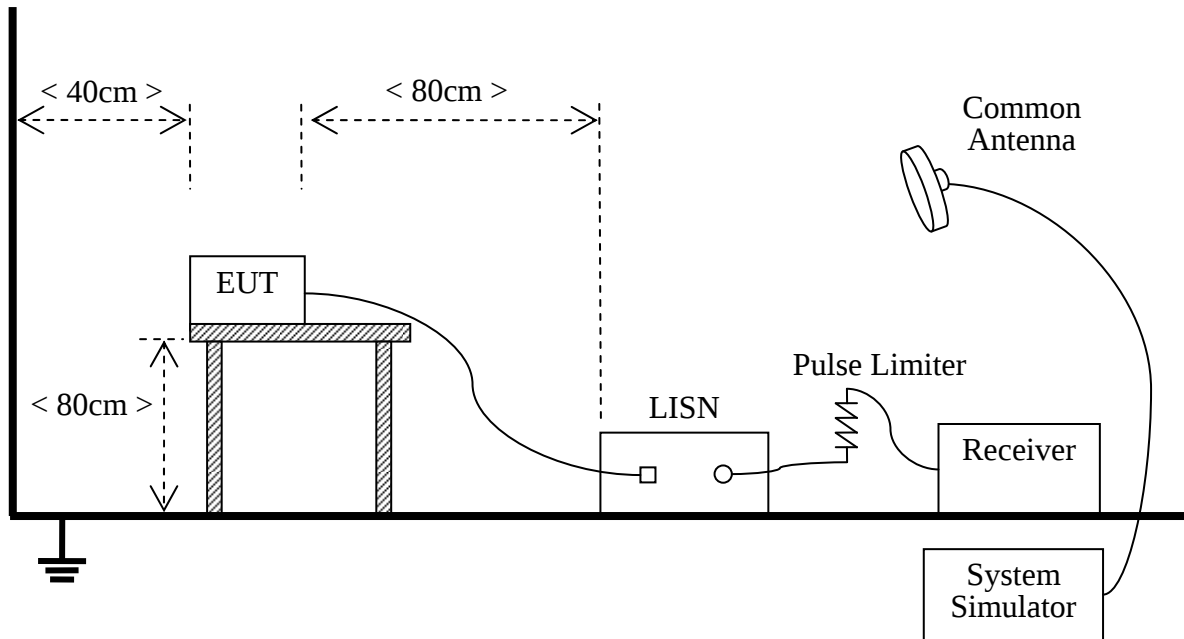
The EUT configuration of the emission tests is TransFlash Card +EUT + Battery + PC.

In this test mode, the EUT with a TransFlash Card embedded was connected with a PC via a USB cable supplied by applicant. During the measurement, the data is transmitting between the PC and the TransFlash Card of the EUT.

2.2 Test Setup and Equipments List

2.2.1 Conducted Emission

A. Test Setup:



The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. The Common Antenna is used for the call between the EUT and the System Simulator (SS). A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

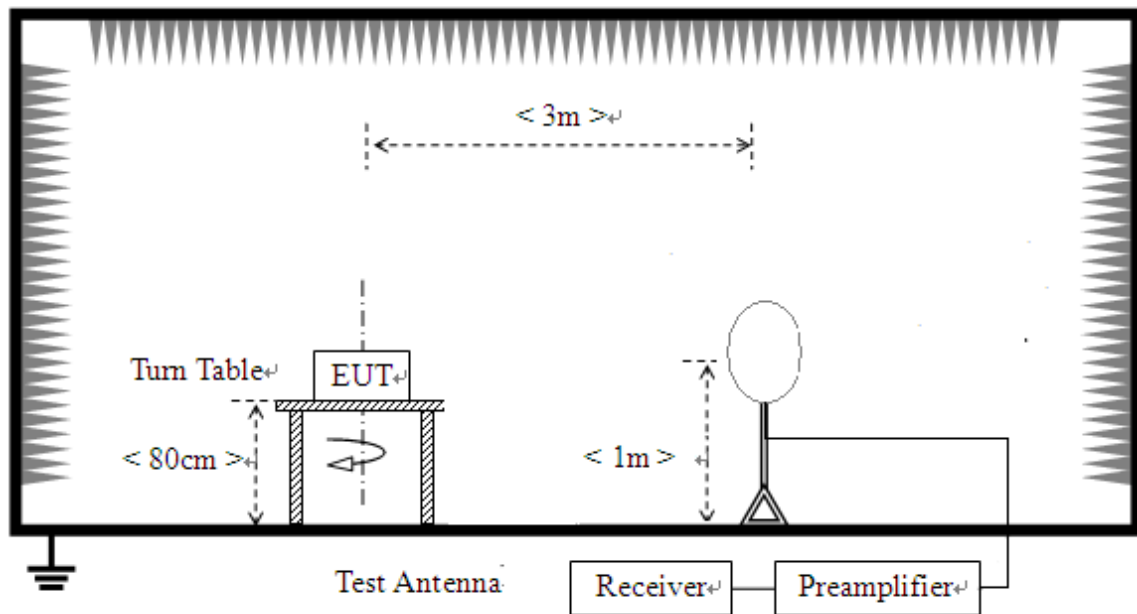
B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
EMC Analyzer	Agilent	E7405A	US44210471	2012.05	2013.05
Receiver	Narda	PMM 9060	001WX11001	2012.11	2013.11
Receiver	Narda	PMM 9010	595WX11007	2012.11	2013.11
LISN	Schwarzbeck	NSLK 8127	812744	2012.05	2013.05
Pulse Limiter (20dB)	Schwarzbeck	VTSD 9561-D	9391	(n.a.)	(n.a.)

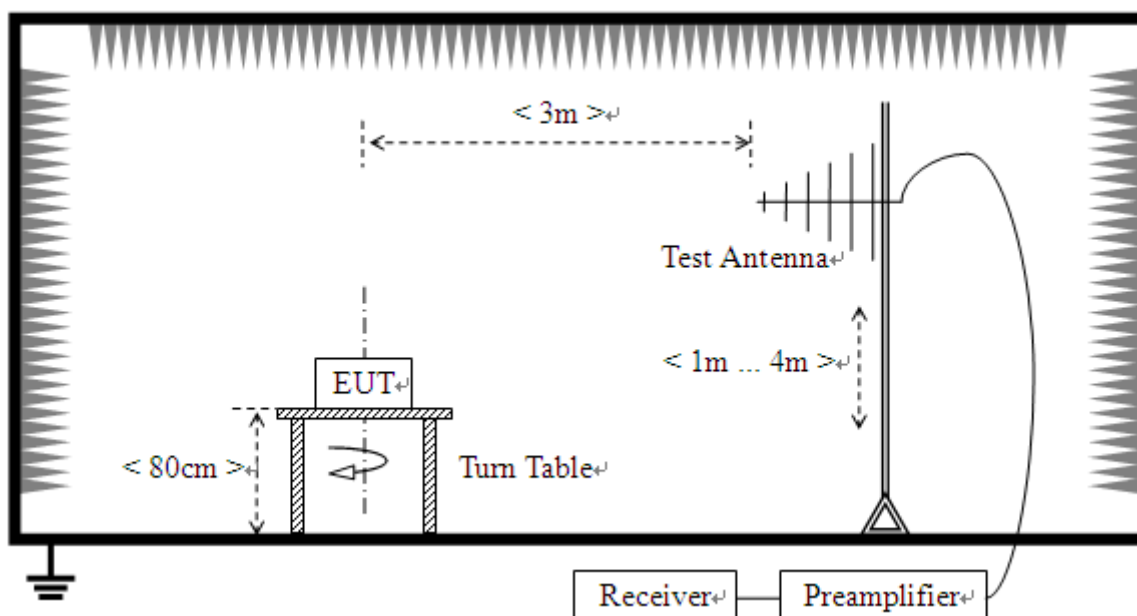
2.2.2 Radiated Emission

A. Test Setup:

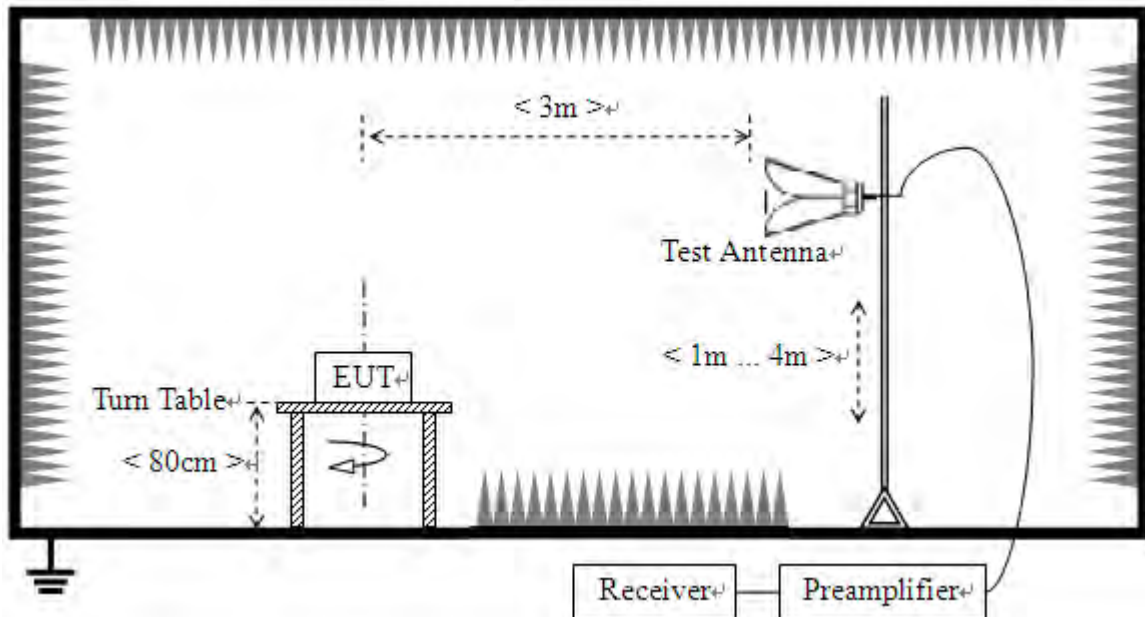
- 1) For radiated emissions from 9kHz to 30MHz



- 2) For radiated emissions from 30MHz to 1GHz



3) For radiated emissions above 1GHz



The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

- 1) In the frequency range of 9KHz to 30MHz, magnetic field is measured with Loop Test Antenna.

The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.

- 2) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
EMC Analyzer	Agilent	E7405A	US44210471	2012.05	2013.05
Receiver	Narda	PMM 9060	001WX11001	2012.11	2013.11
Receiver	Narda	PMM 9010	595WX11007	2012.11	2013.11
Semi-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2012.05	2014.05
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2012.05	2014.05



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Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Test Antenna - Horn	Schwarzbeck	BBHA 9120D	9120D-963	2012.05	2014.05
Test Antenna -Loop	Schwarzbeck	FMZB 1519	1519-022	2012.05	2014.05

3. 47 CFR PART 15B REQUIREMENTS

3.1 Conducted Emission

3.1.1 Requirement

According to FCC section 15.107 and ICES-003 §6.1, 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 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- a) The limit subjects to the Class B digital device.
- b) The lower limit shall apply at the band edges.
- c) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

3.1.2 Test Description

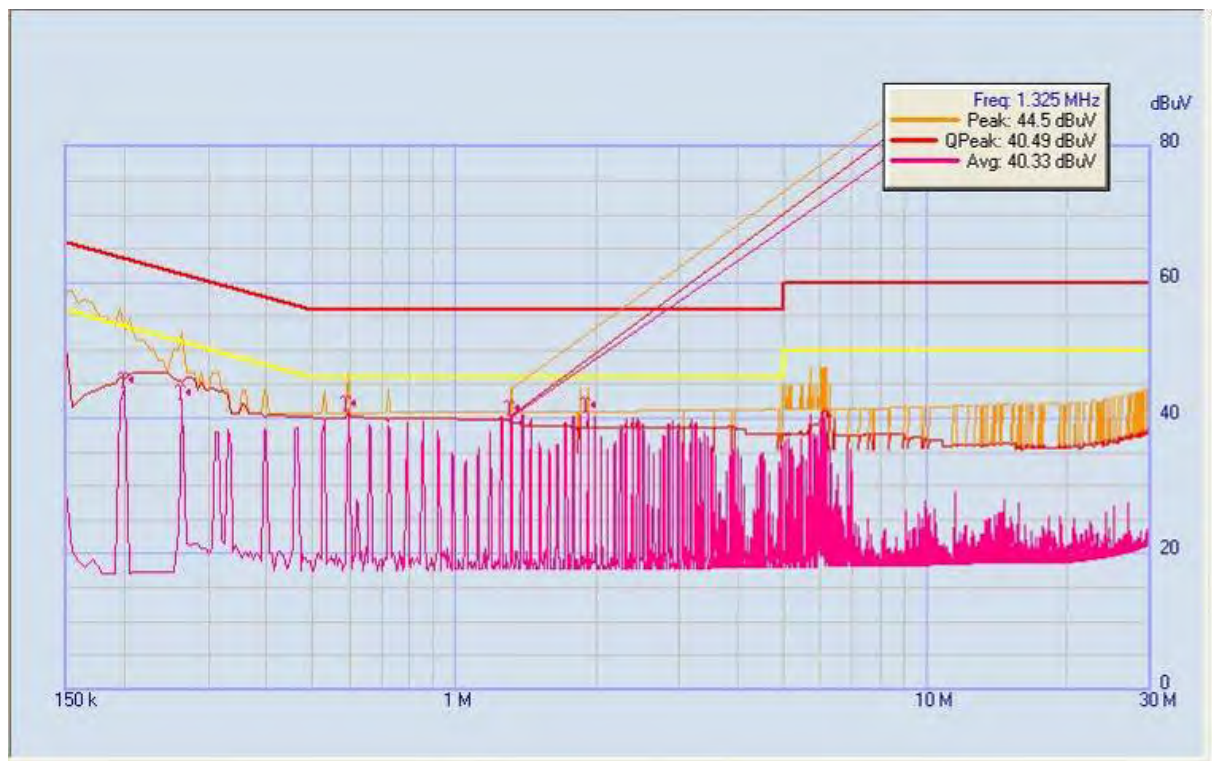
See section 2.2.1 of this report.

3.1.3 Test Result

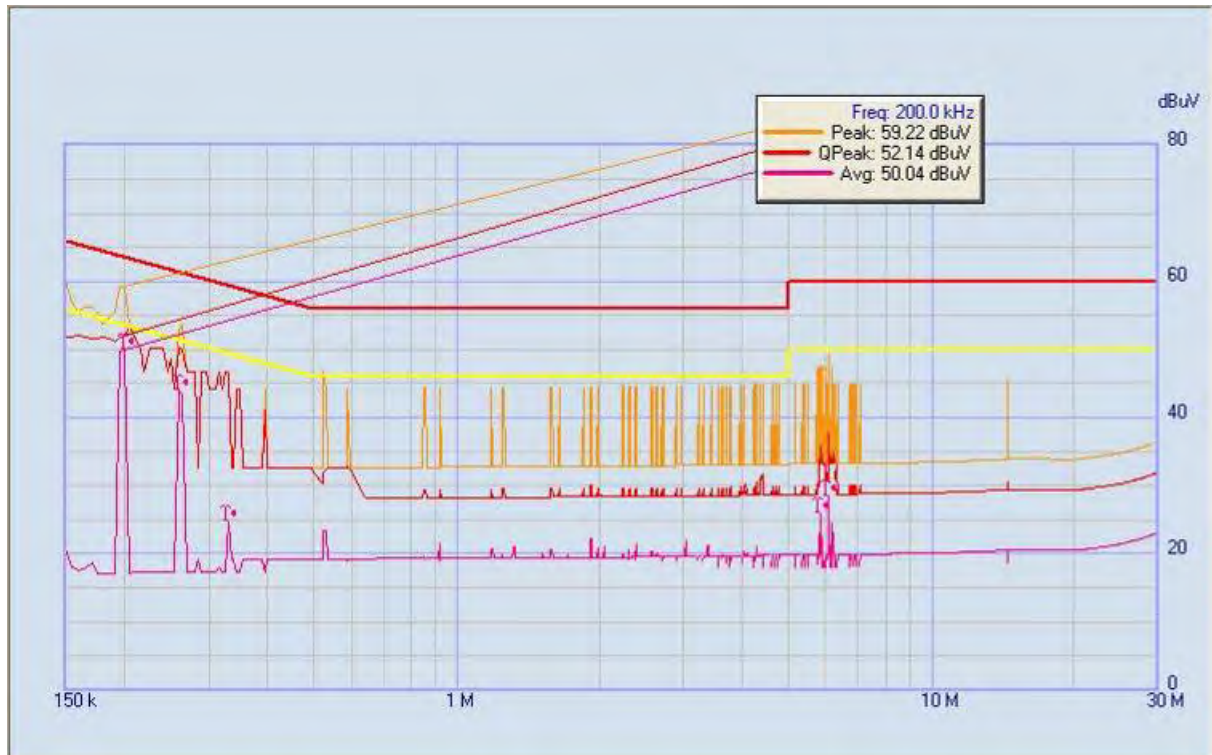
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

3.1.3.1 Test Mode

A. Test Plot and Suspicious Points:



(Plot A: L Phase)



(Plot B: N Phase)

Test Result: PASS

3.2 Radiated Emission

3.2.1 Requirement

- A. According to FCC requirements, the field strength of radiated emissions for frequencies below 30MHz shall not exceed the following values,

Frequency range (MHz)	Field Strength		Field Strength Limitation at 3m Measurement Dist	
	$\mu\text{V/m}$	Dist	($\mu\text{V/m}$)	($\text{dB}\mu\text{V/m}$)
0.009 - 0.490	$2400/F(\text{KHz})$	300m	$10000 * 2400/F(\text{KHz})$	$20\log 2400/F(\text{KHz}) + 80$
0.490 - 1.705	$2400/F(\text{KHz})$	30m	$100 * 2400/F(\text{KHz})$	$20\log 2400/F(\text{KHz}) + 40$
1.705 - 30.00	30	30m	$100 * 30$	$20\log 30 + 40$

There is no requirements for frequencies below 30MHz in ICES-003.

- B. According to FCC and IC requirements, the field strength of radiated emissions for frequencies above 30MHz at a distance of 3 meters shall not exceed the following values:

Frequency: 30M-1GHz

Frequency range (MHz)	Class B Radiated Limit ($\text{dB}\mu\text{V/m}$)
	Quasi-peak
30 to 88	40
88 to 216	43.5
216 to 960	46
960 to 1000	54

Frequency: above 1GHz

Frequency range (MHz)	Class B Radiated Limit ($\text{dB}\mu\text{V/m}$)	
	Linear Average Detector	Peak Detector
>1000	54	74

Note:

- 1) The tighter limit shall apply at the boundary between two frequency range.
- 2) Limitation expressed in $\text{dB}\mu\text{V/m}$ is calculated by $20\log$ Emission Level($\mu\text{V/m}$).
- 3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $L_{d1} = L_{d2} * (d_2/d_1)^2$.

Example:

F.S Limit at 30m distance is $30\mu\text{V/m}$, then F.S Limitation at 3m distance is adjusted as

$$L_{d1} = L_1 = 30\mu\text{V/m} * (10)^2 = 100 * 30\mu\text{V/m}$$

3.2.2 Test Description

See section 2.2.2 of this report.

3.2.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

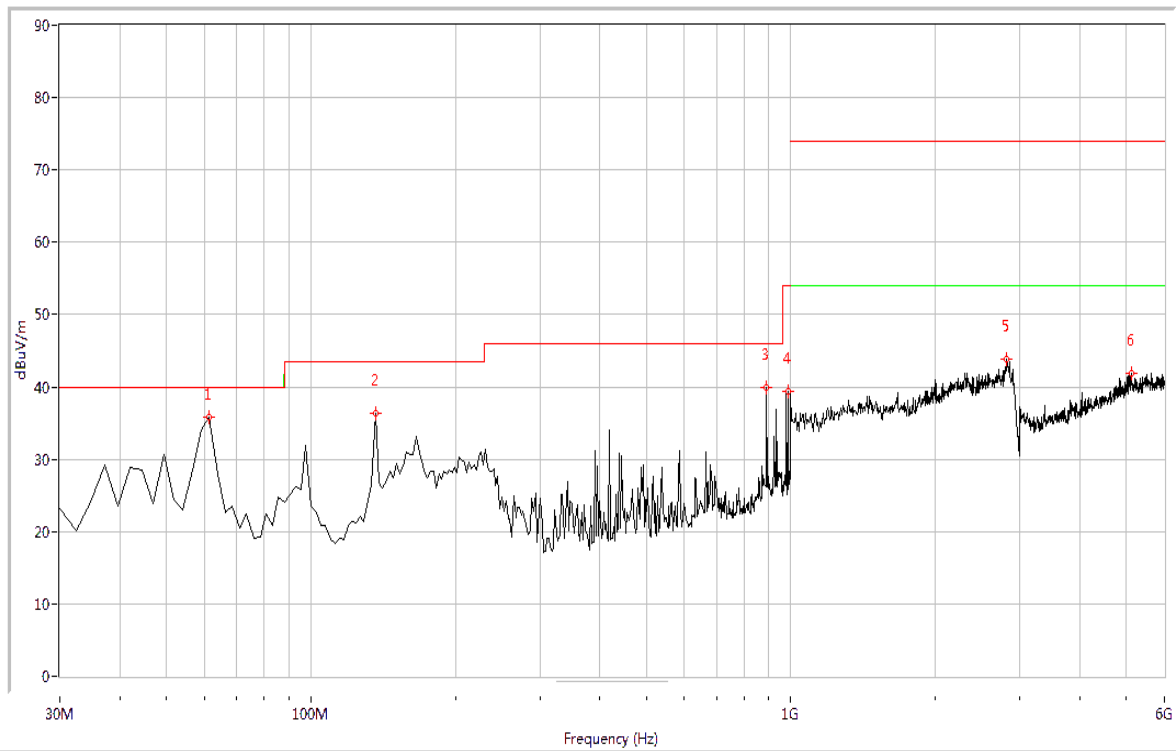
Note: All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.

A. Test Plots and Suspicious Points:

NOTE: The emissions are too small to be measured and are at least 6 dB below the limit, So all the data of marked are pass.

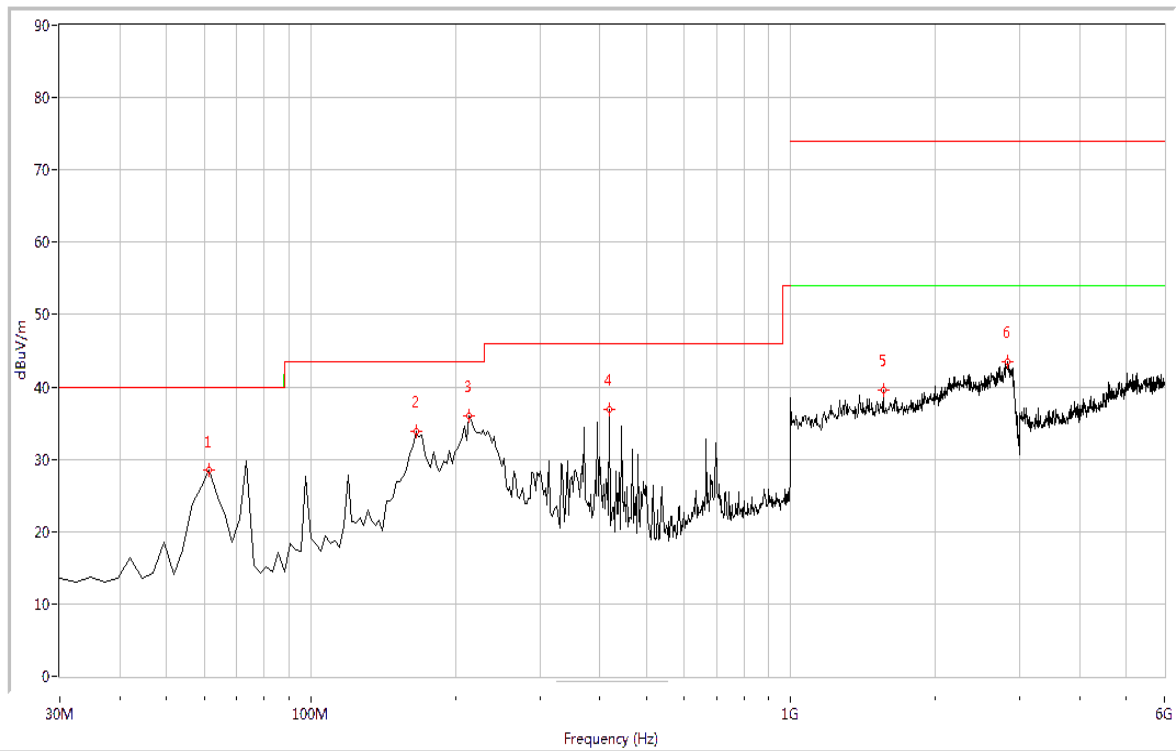


(Plot A: 9K – 30M)



(Plot A: Test Antenna Vertical)

NO.	Fre. (MHz)	PK	QP	AV	Limit- PK	Limit- QP	Limit- AV	Antenna	Verdict
1	61.446	35.82	26.91	24.51	N.A	40.0	N.A	Vertical	PASS
2	136.434	36.32	N.A	N.A	N.A	43.5	N.A	Vertical	PASS
3	888.728	39.99	N.A	N.A	N.A	46.0	N.A	Vertical	PASS
4	985.486	39.30	N.A	N.A	N.A	54.0	N.A	Vertical	PASS
5	2810.474	43.90	N.A	N.A	74.0	N.A	54.0	Vertical	PASS
6	5117.207	41.91	N.A	N.A	74.0	N.A	54.0	Vertical	PASS



(Plot B: Test Antenna Horizontal)

NO.	Fre. (MHz)	Pk	QP	AV	Limit- PK	Limit- QP	Limit- AV	Antenna	Verdit
1	61.446	28.54	21.12	4.58	N.A	40.0	N.A	Horizontal	Pass
2	165.461	33.85	N.A	N.A	N.A	43.5	N.A	Horizontal	Pass
3	213.840	35.92	N.A	N.A	N.A	43.5	N.A	Horizontal	Pass
4	419.451	36.92	N.A	N.A	N.A	46.0	N.A	Horizontal	Pass
5	1558.603	39.61	N.A	N.A	74.0	N.A	54.0	Horizontal	Pass
6	2825.436	43.44	N.A	N.A	74.0	N.A	54.0	Horizontal	Pass

Test Result: PASS

**** END OF REPORT ****