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FCC Part 15B TEST REPORT

Report No.: STS1811195E01

Issued for

SHANDONG KAER ELECTRIC CO.,LTD

NO.58, Dalian Road, Weihai, Shandong, China

Product Name:	WCDMA Fixed Wireless Phone
Brand Name:	KAER, Bind.u
Model Name:	KT1000(135)
Series Model:	KT1000, HD3010
FCC ID:	ZMX3GKT1000
Test Standard:	FCC 47 CFR Part 15: Subpart B

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**TEST RESULT CERTIFICATION****Applicant's Name**: SHANDONG KAER ELECTRIC CO.,LTD

Address: NO.58, Dalian Road, Weihai, Shandong, China

Manufacture's Name: SHANDONG KAER ELECTRIC CO.,LTD

Address: NO.58, Dalian Road, Weihai, Shandong, China

Product Description

Product Name: WCDMA Fixed Wireless Phone

Brand Name: KAER, Bind.u

Model Name: KT1000(135)

Series Model: KT1000, HD3010

Standards.....: FCC 47 CFR Part 15: Subpart B

Test Procedure.....: ANSI C63.4-2014

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.....: 20 Nov. 2018~02 Dec. 2018

Date of Issue: 03 Dec. 2018

Test Result.....: **Pass**

Compiled by

:

Mickey Deng

(Mickey Deng)

Technical Manager

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(Chopin Xiao)

Authorized Signatory :

Vita Li

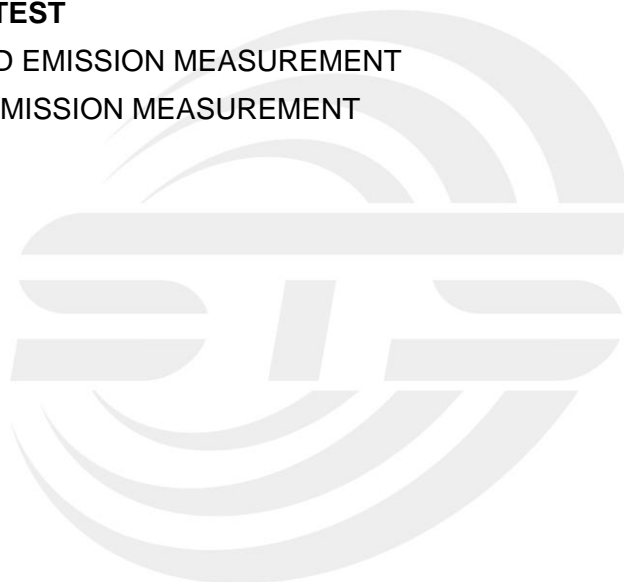
(Vita Li)





Table of Contents

1. SUMMARY OF THE TEST RESULTS	5
1.1 TEST FACTORY	5
1.2 MEASUREMENT UNCERTAINTY	5
2. GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF THE EUT	6
2.2 DESCRIPTION OF THE TEST MODES	7
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF THE SYSTEM TESTED	7
2.4 DESCRIPTION OF THE SUPPORT UNITS	8
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	9
3. EMC EMISSION TEST	10
3.1 CONDUCTED EMISSION MEASUREMENT	10
3.2 RADIATED EMISSION MEASUREMENT	14



**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	03 Dec. 2018	STS1811195E01	ALL	Initial Issue





1. SUMMARY OF THE TEST RESULTS

Test procedures according to the technical standards:

EMISSION			
Standard	Item	Result	Remarks
FCC 47 CFR Part 15 Subpart B	Conducted Emission	PASS	Meet Class B limit
	Radiated Emission	PASS	Meet Class B limit

NOTE:

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

1.1 TEST FACTORY

Company Name:	Shenzhen STS Test Services Co. Ltd.
Address:	1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	+86-755 3688 6288
Fax:	+86-755 3688 6277
Registration No.:	FCC Registration No.: 625569
	IC Registration No.: 12108A; A2LA Certificate No.: 4338.01;

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded 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 (9KHz-150KHz)	$\pm 3.18\text{dB}$
2	Conducted Emission (150KHz-30MHz)	$\pm 2.70\text{dB}$
3	All emissions, radiated (<1G) 30MHz-200MHz	$\pm 3.43\text{dB}$
4	All emissions, radiated (<1G) 200MHz-1000MHz	$\pm 3.57\text{dB}$
5	All emissions, radiated (>1G)	$\pm 4.13\text{dB}$
6	All emissions, radiated (<1G) 9KHz-30MHz	$\pm 2.50\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	WCDMA Fixed Wireless Phone	
Brand Name	KAER, Bind.u	
Model Name	KT1000(135)	
Series Model	KT1000, HD3010	
Model Difference	Only different in model name.	
Test Sample Number	181114017	
Frequency Bands	GSM	850: 824.2~848.8MHz 1900: 1850.2~1909.8MHz
	WCDMA	Band II: 1852.4~1907.6MHz
Modulation Mode	GSM	GMSK for GSM/GPRS
	WCDMA	QPSK
Adapter	Input: AC 100-240V, 150mA, 50/60Hz Output: DC 5.0V, 500mA	
Battery	Rated Voltage: 3.7V Capacity: 800mAh Charge Limit: 4.2V	
Hardware Version Number	03KTG135	
Software Version Number	KT1000(135)_FLY888R_CHILE_WI_G_COMMON_0_007	

Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly 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	Charge+GSM
Mode 2	Charge+WCDMA

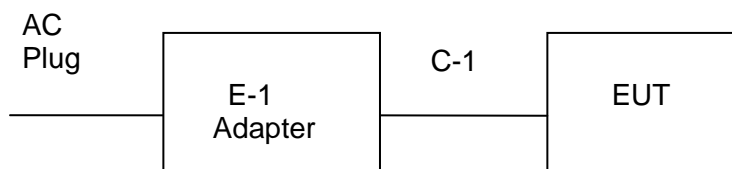
For Conducted Test	
Final Test Mode	Description
Mode 1	Charge+GSM

For Radiated Test	
Final Test Mode	Description
Mode 1	Charge+GSM

NOTE:

1. The test modes were carried out for all operation modes. Only worst case will be shown in this report.
2. We have been tested for all available U.S. voltage and frequencies (For 120V, 50/60Hz) for which the device is capable of operation.

2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF THE SYSTEM TESTED





2.4 DESCRIPTION OF THE 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.

Accessories equipment

Item	Equipment	Mfr/Brand	Model/Type No.
E-1	Adapter	N/A	SVH-006-050-050-A1

Auxiliary equipment

Item	Equipment	Mfr/Brand	Model/Type No.
N/A	N/A	N/A	N/A

Cable

Item	Type	Shielded Type	Ferrite Core	Length
C-1	USB Micro-B Plug Cable	Unshielded	NO	100cm

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.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

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.

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESCI	101427	2018.10.13	2019.10.12
Bilog Antenna	TESEQ	CBL6111D	45873	2017.11.02	2020.11.01
Horn Antenna	SCHWARZB ECK	BBHA 9120D	9120D-1343	2018.10.19	2021.10.18
Pre-mpifier(1G-18G)	SKET	LNPA-01018G- 45	SK2018080901	2018.10.13	2019.10.12
Pre-mpifier(0.1M-3G Hz)	EM	EM330	060665	2018.07.10	2019.07.09
Spectrum Analyzer	Agilent	N9020A	MY49100060	2018.10.13	2019.10.12
RE Cable (9K-1G)	N/A	R01	N/A	2018.10.13	2019.10.12
RE Cable (1G-18G)	N/A	R02	N/A	2018.10.13	2019.10.12
Temperature & Humidity	Mieo	HH660	N/A	2018.10.11	2019.10.10
Horn Antenna(18-40GHz)	A-INFO	LB-180400-KF	J211020657	2018.03.11	2021.03.10

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESCI	101427	2018.10.13	2019.10.12
LISN	R&S	ENV216	101242	2018.10.11	2019.10.10
LISN	ETS	3810/2NM	00023625	2018.10.11	2019.10.10
Absorbing Clamp	R&S	MDS-21	100668	2018.10.17	2019.10.16
CE Cable	N/A	C01	N/A	2018.10.13	2019.10.12
Temperature & Humidity	Mieo	HH660	N/A	2018.10.11	2019.10.10



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits

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

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

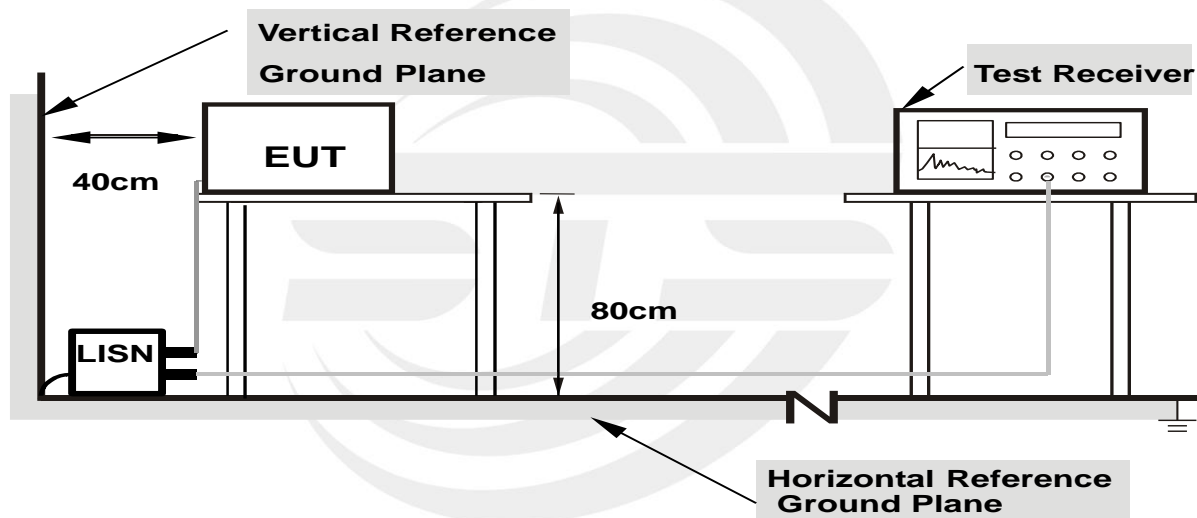
3.1.2 TEST PROCEDURE

- The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical 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.
- 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.
- 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.
- 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

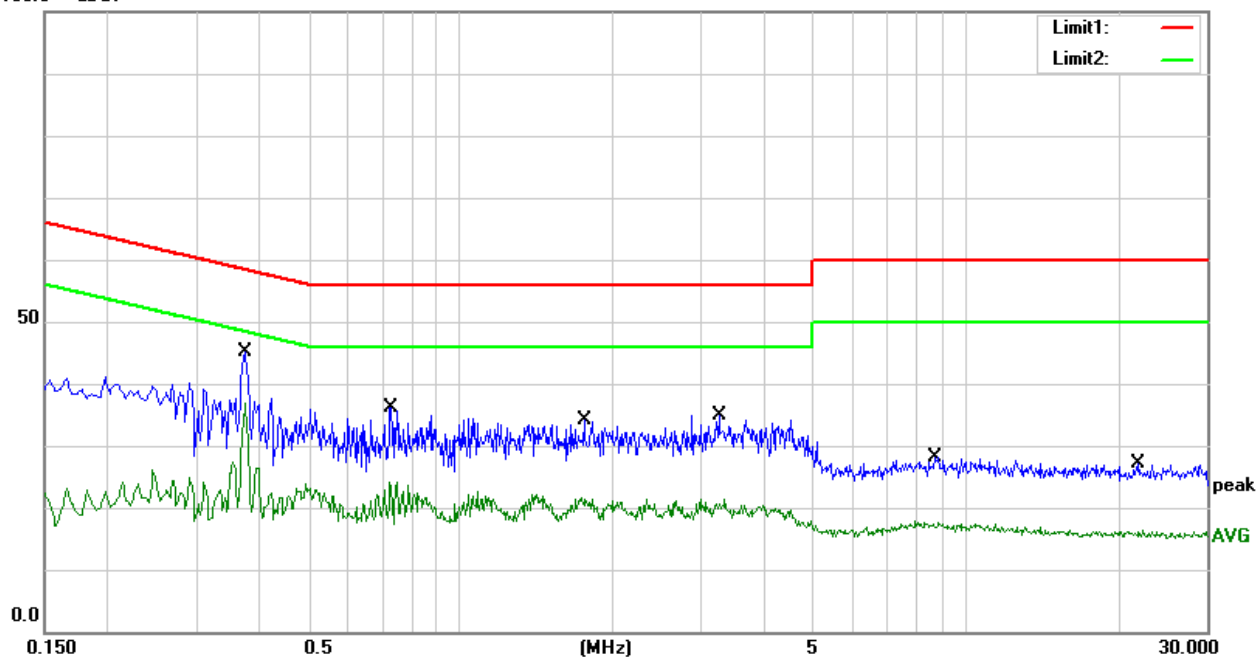
Temperature:	24.2 °C	Relative Humidity:	55%
Phase:	L	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3740	24.68	20.55	45.23	58.41	-13.18	QP
2	0.3740	16.23	20.55	36.78	48.41	-11.63	AVG
3	0.7300	15.82	20.24	36.06	56.00	-19.94	QP
4	0.7300	3.88	20.24	24.12	46.00	-21.88	AVG
5	1.7620	14.13	20.08	34.21	56.00	-21.79	QP
6	1.7620	1.46	20.08	21.54	46.00	-24.46	AVG
7	3.2420	14.98	19.97	34.95	56.00	-21.05	QP
8	3.2420	1.34	19.97	21.31	46.00	-24.69	AVG
9	8.6860	8.19	20.03	28.22	60.00	-31.78	QP
10	8.6860	-2.22	20.03	17.81	50.00	-32.19	AVG
11	21.9940	7.52	19.73	27.25	60.00	-32.75	QP
12	21.9940	-3.32	19.73	16.41	50.00	-33.59	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit
3. Factor = Cable Loss + Antenna Factor - Amplifier Gain

100.0 dBuV





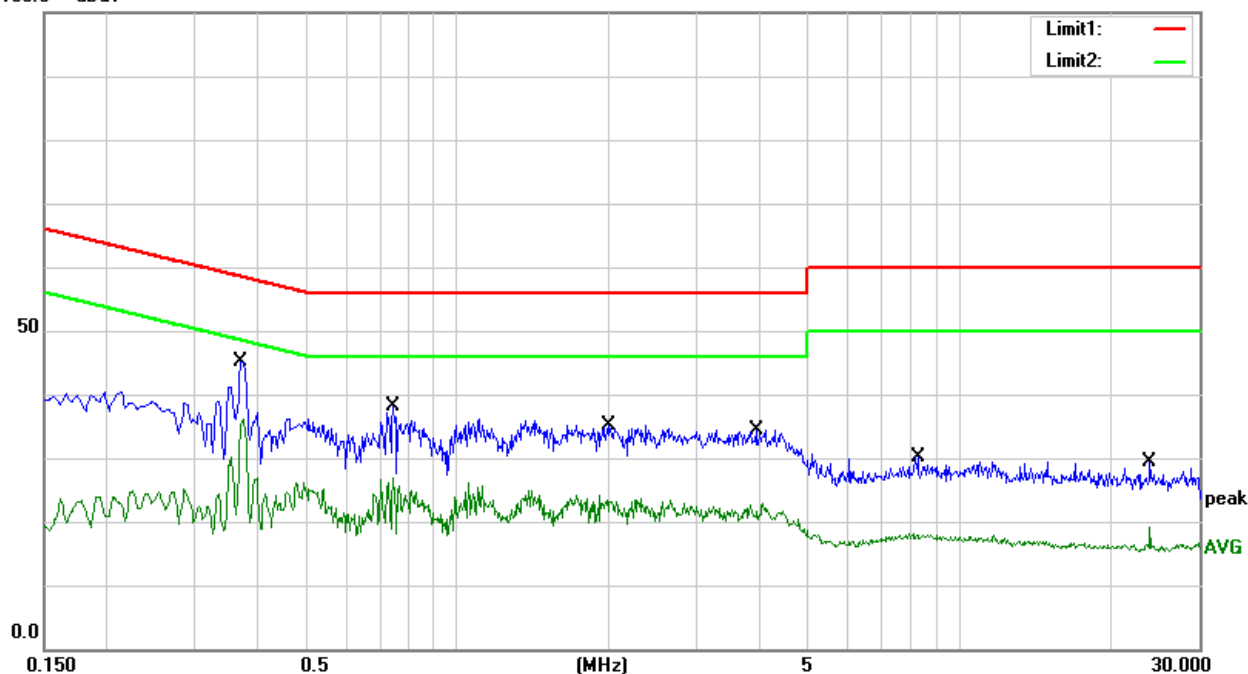
Temperature:	24.2℃	Relative Humidity:	55%
Phase:	N	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.3700	24.60	20.56	45.16	58.50	-13.34	QP
2	0.3700	15.50	20.56	36.06	48.50	-12.44	AVG
3	0.7460	17.84	20.24	38.08	56.00	-17.92	QP
4	0.7460	6.58	20.24	26.82	46.00	-19.18	AVG
5	2.0020	15.03	20.06	35.09	56.00	-20.91	QP
6	2.0020	3.98	20.06	24.04	46.00	-21.96	AVG
7	3.9340	14.54	19.95	34.49	56.00	-21.51	QP
8	3.9340	2.81	19.95	22.76	46.00	-23.24	AVG
9	8.2580	10.25	20.00	30.25	60.00	-29.75	QP
10	8.2580	-1.86	20.00	18.14	50.00	-31.86	AVG
11	24.0020	9.98	19.47	29.45	60.00	-30.55	QP
12	24.0020	-0.45	19.47	19.02	50.00	-30.98	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = Cable Loss + Antenna Factor - Amplifier Gain

100.0 dBuV



Note: The test voltage is 100-240V, both of which have assessment tests, and the worst test data is in the report.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 Radiated Emission Limits

In case the emission fall within the restricted band specified on 15.105(a)&109(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF THE RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Note:

- (1) The limit for radiated test was performed in the following: FCC PART 15B.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF THE RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower



Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	5th harmonic (Peak/AV)
RB / VB (emission in restricted band)	30MHz to 1000MHz: 100 KHz / 300 KHz Above 1000MHz: 1 MHz / 3 MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	30MHz to 1000MHz: 100 KHz / 300 KHz Above 1000MHz: 1 MHz / 3 MHz

3.2.2 TEST PROCEDURE

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

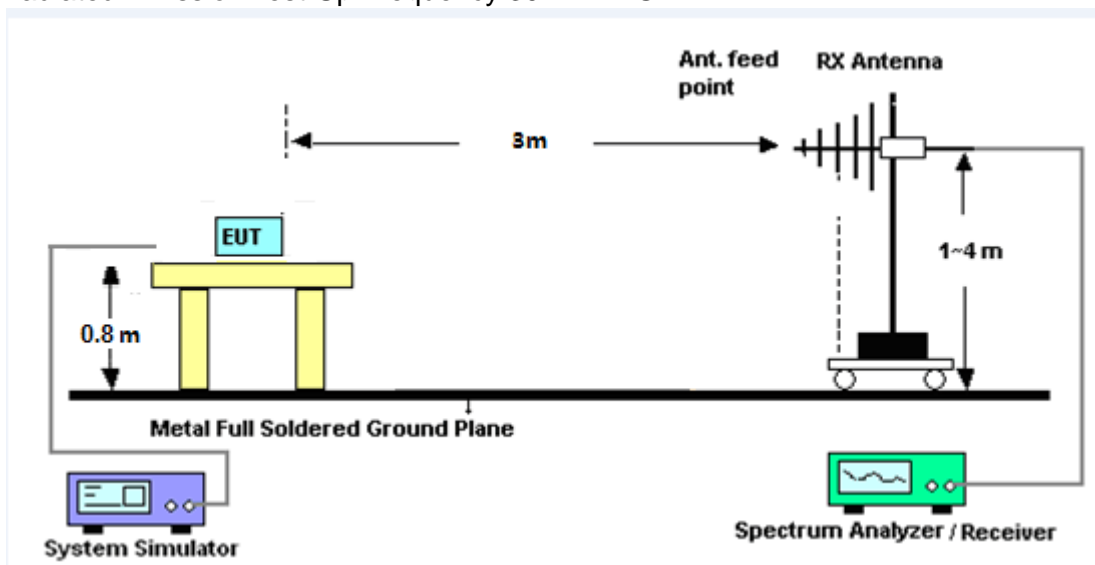
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

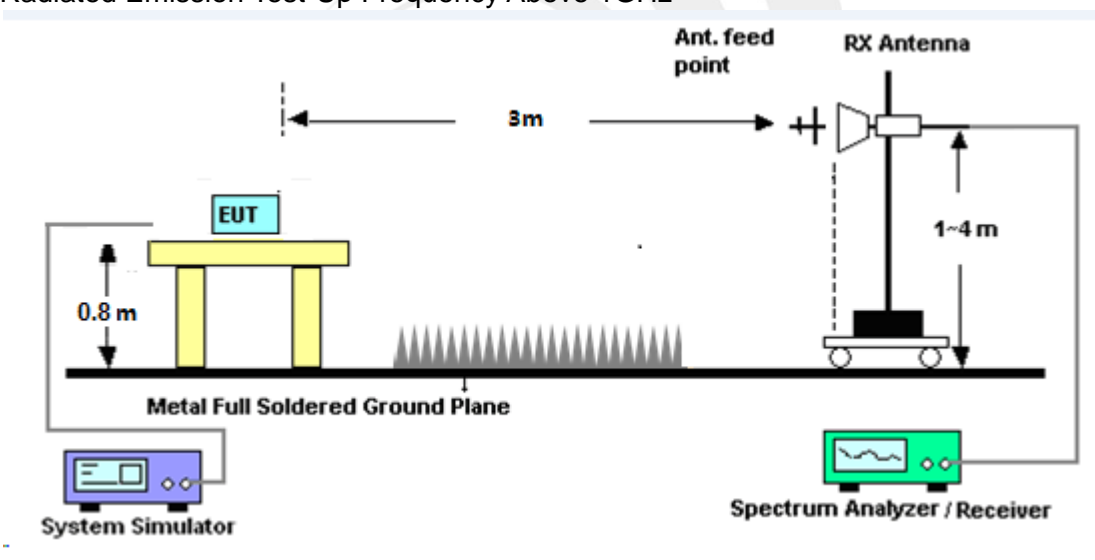
No deviation

3.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency 30MHz~1GHz



(B) 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 following during the testing.



3.2.6 TEST RESULTS

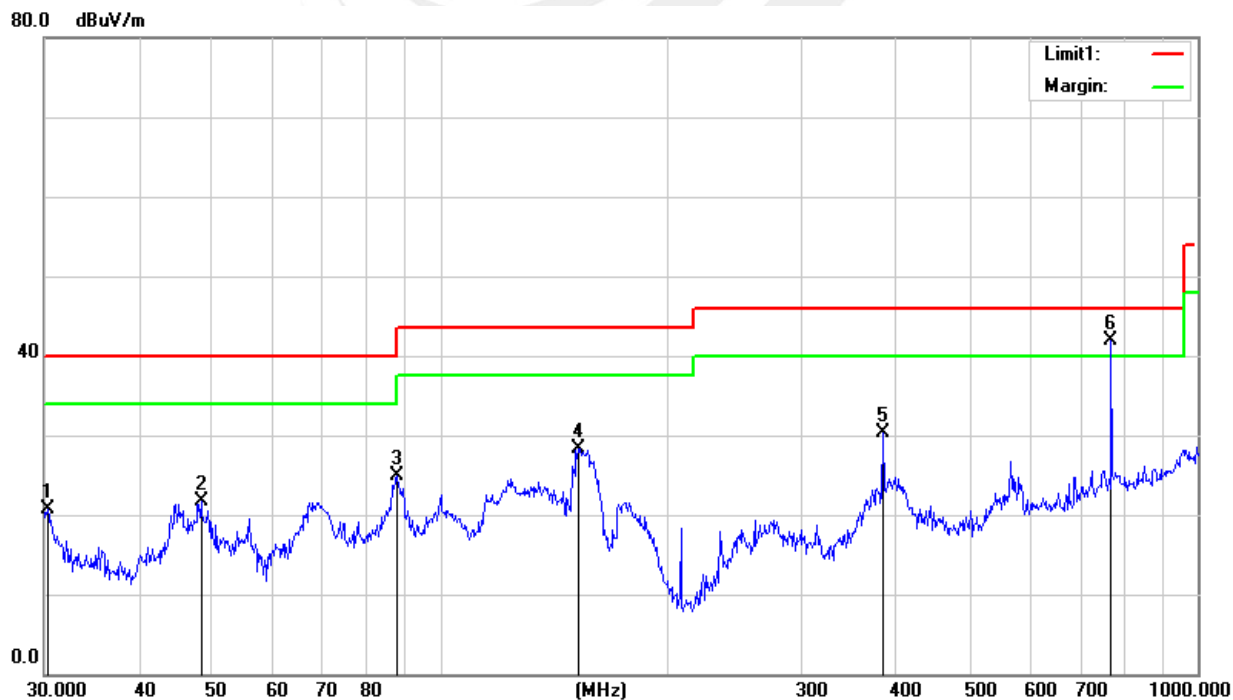
30MHz -1000MHz

Temperature:	23.9 °C	Relative Humidity:	54%
Phase:	Horizontal	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.3173	32.11	-11.35	20.76	40.00	-19.24	QP
2	48.3318	42.33	-20.62	21.71	40.00	-18.29	QP
3	87.7248	45.60	-20.77	24.83	40.00	-15.17	QP
4	152.1297	46.42	-18.08	28.34	43.50	-15.16	QP
5	383.9318	42.62	-12.35	30.27	46.00	-15.73	QP
6	768.7481	45.20	-3.39	41.81	46.00	-4.19	QP

Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result = Reading + Factor)-Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain





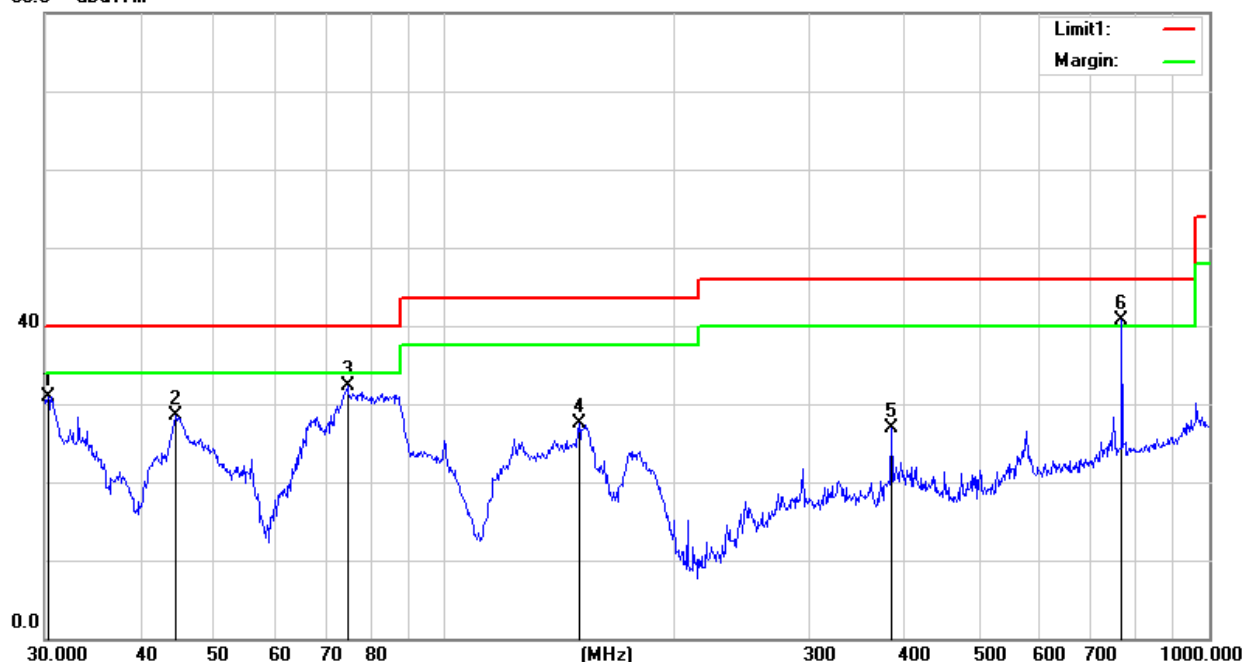
Temperature:	23.9 °C	Relative Humidity:	54%
Phase:	Vertical	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.3173	42.33	-11.35	30.98	40.00	-9.02	QP
2	44.5868	47.27	-18.70	28.57	40.00	-11.43	QP
3	74.6570	55.69	-23.44	32.25	40.00	-7.75	QP
4	150.0108	45.50	-17.97	27.53	43.50	-15.97	QP
5	383.9318	39.19	-12.35	26.84	46.00	-19.16	QP
6	768.7481	44.15	-3.39	40.76	46.00	-5.24	QP

Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result = Reading + Factor)-Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain

80.0 dBuV/m





(1 GHz to 25GHz.)

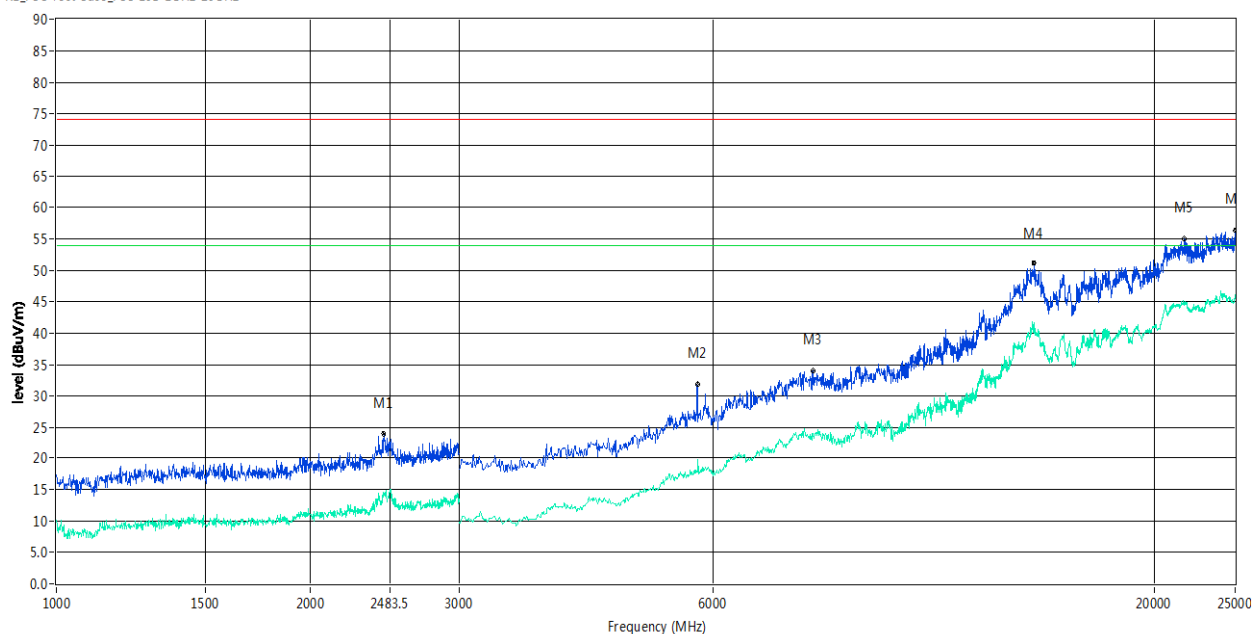
Temperature:	23.9 °C	Relative Humidity:	54%
Phase:	Horizontal	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector
1**	2444.000	14.23	-13.81	54.0	-39.77	AV
1	2444.000	23.88	-13.81	74.0	-50.12	Peak
2**	5750.000	17.81	3.80	54.0	-36.19	AV
2	5750.000	31.81	3.80	74.0	-42.19	Peak
3**	7880.000	23.91	9.91	54.0	-30.09	AV
3	7880.000	34.02	9.91	74.0	-39.98	Peak
4**	14428.000	40.98	25.10	54.0	-13.02	AV
4	14428.000	51.09	25.10	74.0	-22.91	Peak
5**	21760.000	44.89	23.94	54.0	-9.11	AV
5	21760.000	55.07	23.94	74.0	-18.93	Peak
6**	24975.999	45.73	23.02	54.0	-8.27	AV
6	24975.999	56.34	23.02	74.0	-17.66	Peak

Remark:

1. All readings are Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain

RE_FCC Test Case_FCC 15B 1GHz-25GHz





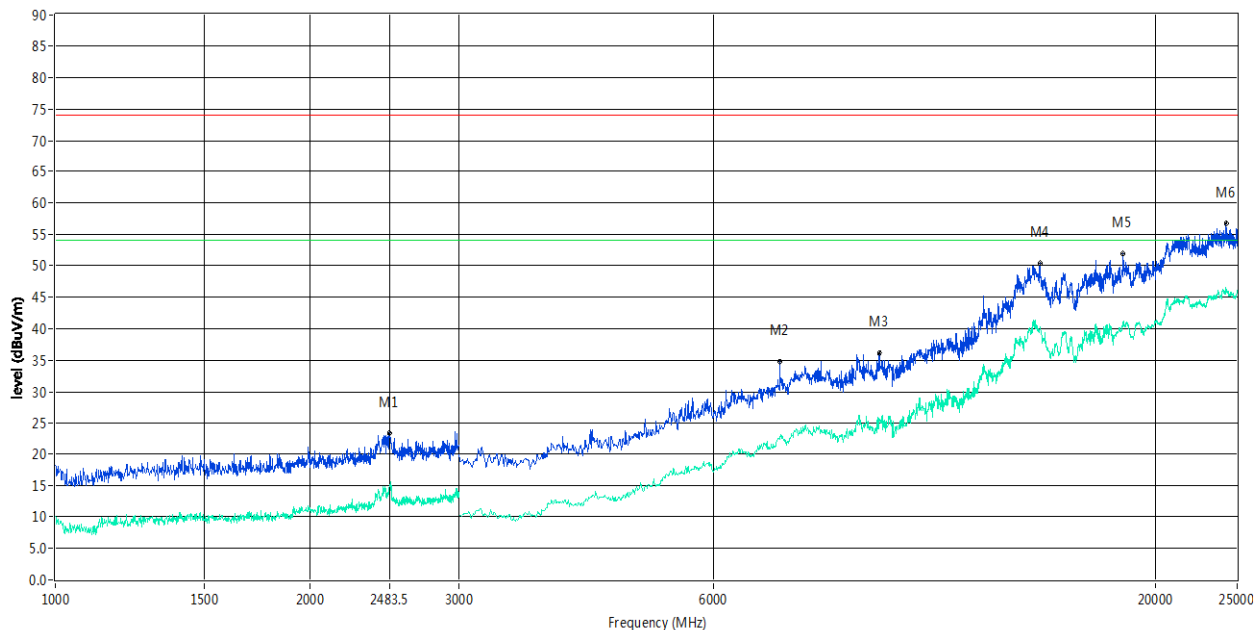
Temperature:	23.9 °C	Relative Humidity:	54%
Phase:	Vertical	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector
1**	2486.000	14.80	-13.50	54.0	-39.20	AV
1	2486.000	23.45	-13.50	74.0	-50.55	Peak
2**	7190.000	22.50	8.97	54.0	-31.50	AV
2	7190.000	34.71	8.97	74.0	-39.29	Peak
3**	9420.000	25.76	11.97	54.0	-28.24	AV
3	9420.000	36.17	11.97	74.0	-37.83	Peak
4**	14608.000	40.21	24.23	54.0	-13.79	AV
4	14608.000	50.43	24.23	74.0	-23.57	Peak
5**	18315.999	40.83	23.34	54.0	-13.17	AV
5	18315.999	51.98	23.34	74.0	-22.02	Peak
6**	24231.999	46.56	23.23	54.0	-7.44	AV
6	24231.999	56.79	23.23	74.0	-17.21	Peak

Remark:

1. All readings are Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit
3. Factor = Cable Loss + Antenna Factor - Amplifier Gain

RE_FCC Test Case_FCC 15B 1GHz-25GHz



Notes:

1. Measuring frequencies from 1 GHz to 25GHz.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode of the emission shown in Actual FS column.

END OF THE REPORT