EMC TEST REPORT

Report No.:	FCC2012-9477E
Product Name:	MID
FCC ID:	Q7Q-T017
Model No. :	StarTab 715
Brand Name:	TOUCH+
Applicant:	Shenzhen Skyworth Wireless Technology Co., Ltd.
Address:	Unit A, Rm 3A01,Skyworth Building, Gaoxin Ave 1S, Nanshan District, Shenzhen, China
Issued by:	CCIC-SET
Lab Location:	Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055, P. R. China
	Tel: 86 755 26627338 **Fax:** 86 755 26627238

Test Report

Product Name.....:	MID
Model No. .....:	StarTab 715
Applicant.....:	Shenzhen Skyworth Wireless Technology Co., Ltd.
Applicant Address .....:	Unit A, Rm 3A01,Skyworth Building, Gaoxin Ave 1S, Nanshan District, Shenzhen, China
Manufacturer .....:	Shenzhen Skyworth Wireless Technology Co., Ltd.
Manufacturer Address .....:	Skyworth Industrial Park, Tangtou Village, Shiyan Town, Baoan District, Shenzhen, Guangdong, China
Test Standards .....:	47 CFR Part 15 Subpart B: Radio Frequency Devices ANSI C63.4:2009:
Test Result.....:	PASS
Tested by .....:	lulei Jan 12, 2013 Signature, Date
Reviewed by .....:	Shuangwen Zhang Jan 12, 2013 Signature, Date
Approved by .....:	Jan 12, 2013 Signature, Date

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Change History		
Issue	Date	Reason for change
1.0	Jan 12, 2013	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type ..... :	MID	
Serial No..... :	(n.a, marked #1 by test site)	
FCC ID ..... :	Q7Q-T017	
Hardware Version..... :	V2.1	
Software Version ..... :	StarTab715_HW.V2.1_V2.0G_20121205	
Power Supply ..... :	Battery	
	Brand Name:	/
	Model No.:	WD4356156P
	Serial No.:	(n.a. marked #1 by test site)
	Capacitance:	4000mAh, 14.8Wh
	Rated Voltage:	3.7V
	Charge Limit:	4.2V
Ancillary Equipment 1 ..... :	AC Adapter (Charger for Battery)	
	Brand Name:	/
	Model Name:	SW-0983
	Serial No.:	(n.a. marked #1 by test site)
	Rated Input:	100-240V, 0.7A, 50/60Hz
	Rated Output:	⎓ 5V, 2A
Ancillary Equipment 2……..:	PC	
	Brand Name:ThinkPad	
	Model Name:E420	
	Serial No.:1141AH6	

Note 1: The EUT is a MID, it supports WIFI（b/g/n model）.

Note 2: The EUT is equipped with a T-Flash card slot; 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 3: 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 (10-1-09 Edition)	Radio Frequency Devices

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

No.	Section	Description	Result
1	15.107	Conducted Emission	PASS
2	15.109	Radiated Emission	PASS

NOTE: The EUT has been tested according to 47 CFR Part 15 Subpart B，Class B.The test procedure is according to ANSI C63.4:2009 and CISPR 22:2008.The test results are as following：

1.3 Facilities and Accreditations

1.3.1 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, Renewal date Nov. 19, 2011, valid time is until Nov. 18, 2014.

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):	86KPa-106KPa

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:	±4.8dB

2. TEST CONDITIONS SETTING

2.1 Test Mode

(1) The first test mode (USB)

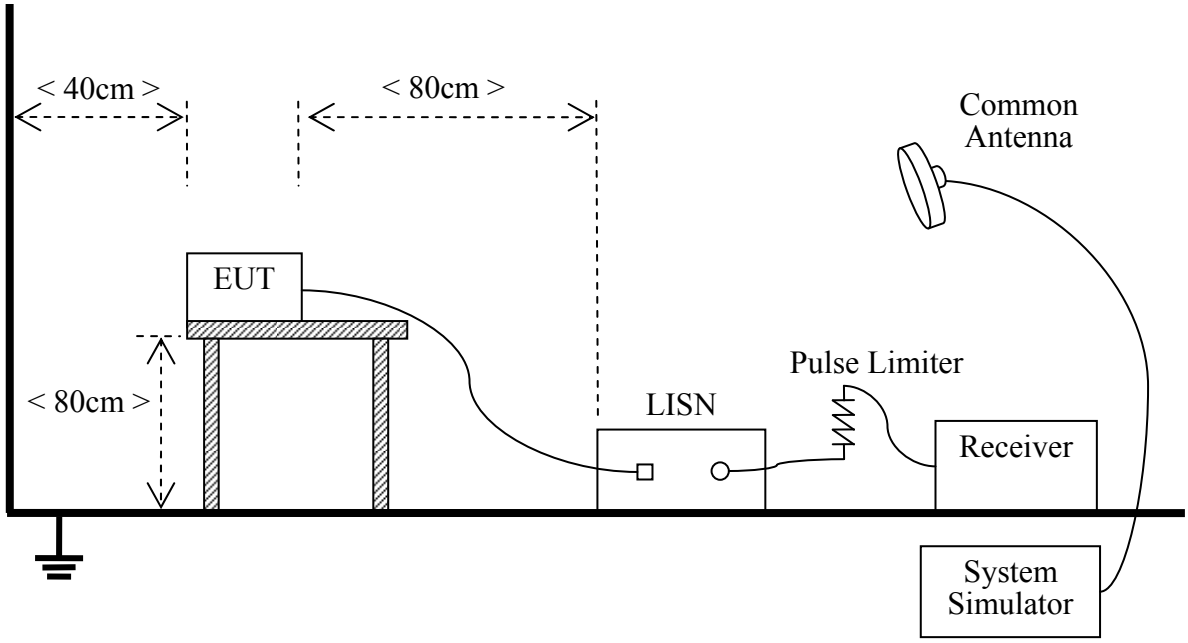
The EUT configuration of the emission tests is TransFlash Card + EUT + Battery + PC.

In this test mode, the EUT with a TransFlash Card embedded is 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:

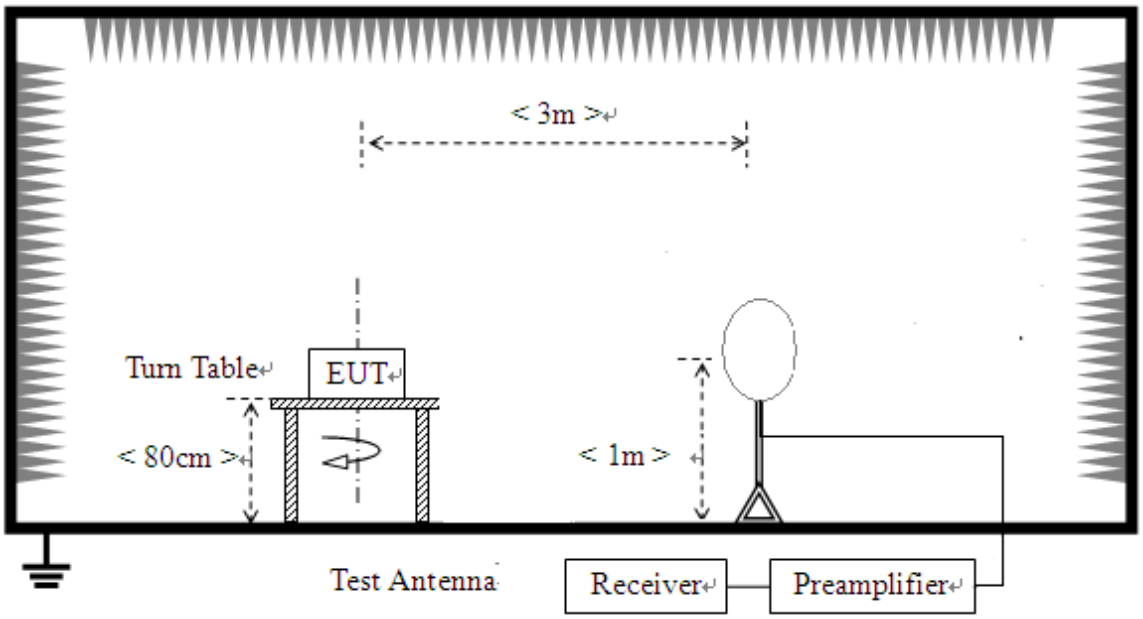
Description	Manufacturer	Model	Serial No.	Cal. Date
Test Receiver	ROHDE&SCHWARZ	ESCS30	A0304260	2012.06.10
LISN	ROHDE&SCHWARZ	ESH2-Z5	A0304221	2012.06.10
System Simulator	ROHDE&SCHWARZ	CMU200	A0304212	2012.06.10

The Cal. Interval was one year.

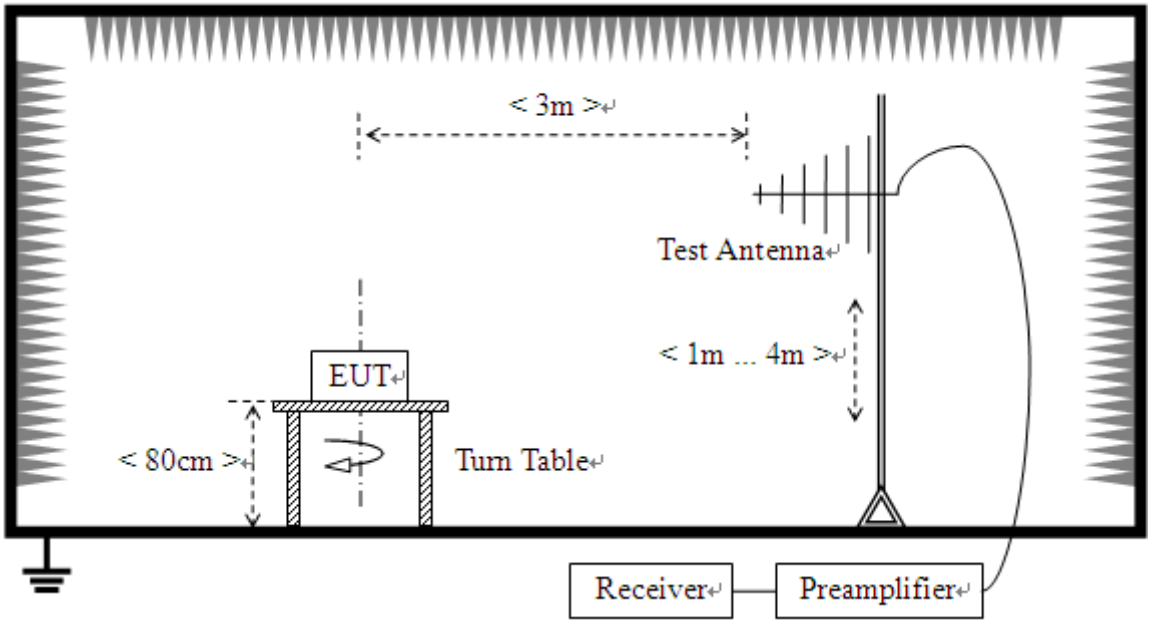
2.2.2 Radiated Emission

A. Test Setup:

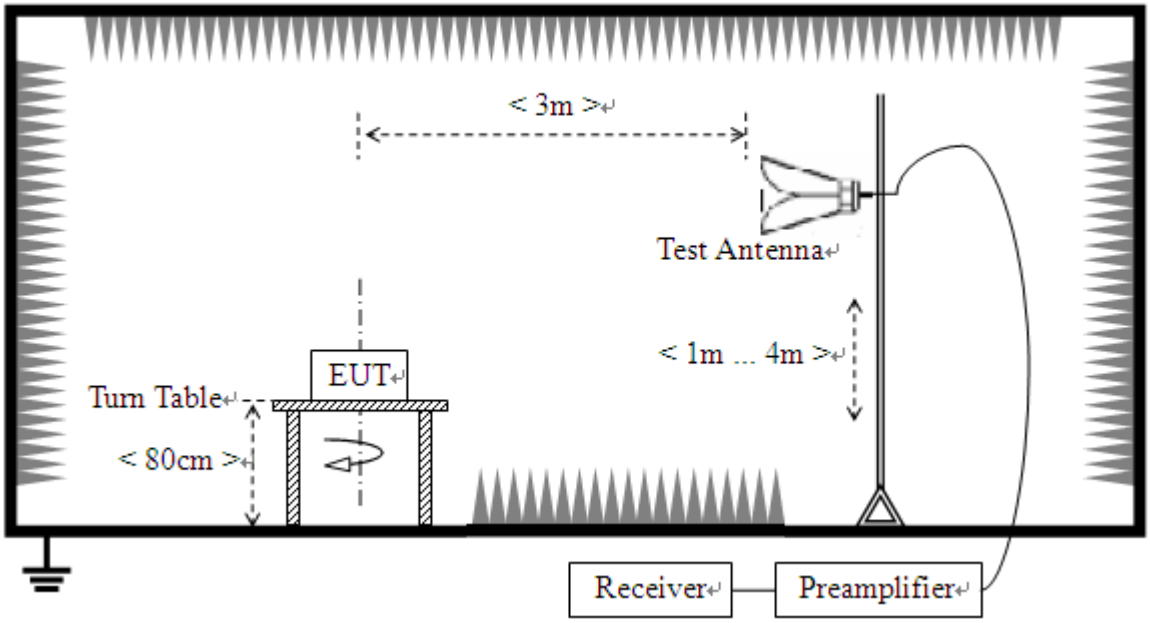
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



B. Test Procedure

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.

C. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date
Test Receiver	ROHDE&SCHWARZ	ESIB7	A0501375	2012.06.10
Test Receiver	ROHDE&SCHWARZ	ESIB26	A0304218	2012.06.10
Semi-Anechoic Chamber	Albatross	9m*6m*6m	A0412372	2012.01.04

Description	Manufacturer	Model	Serial No.	Cal. Date
Test Antenna - Bi-Log	HP	CBL6111A	A9704202	2012.06.10
Test Antenna - Horn	ROHDE&SCHWARZ	HF906	A0304225	2012.06.10
System Simulator	ROHDE&SCHWARZ	CMU200	A0304212	2012.06.10
Ampilier 1G~18GHz	ROHDE&SCHWARZ	MITEQ AFS42-0010 1800	25-S-42	2012.06.10
amplifier 20M~3GHz	Compliance Direction System	PAP-0203H	22018	2012.06.10

The Cal. Interval was one year.

3. 47 CFR PART 15B REQUIREMENTS

3.1 Conducted Emission

3.1.1 Requirement

According to FCC section 15.107, 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)	
	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.

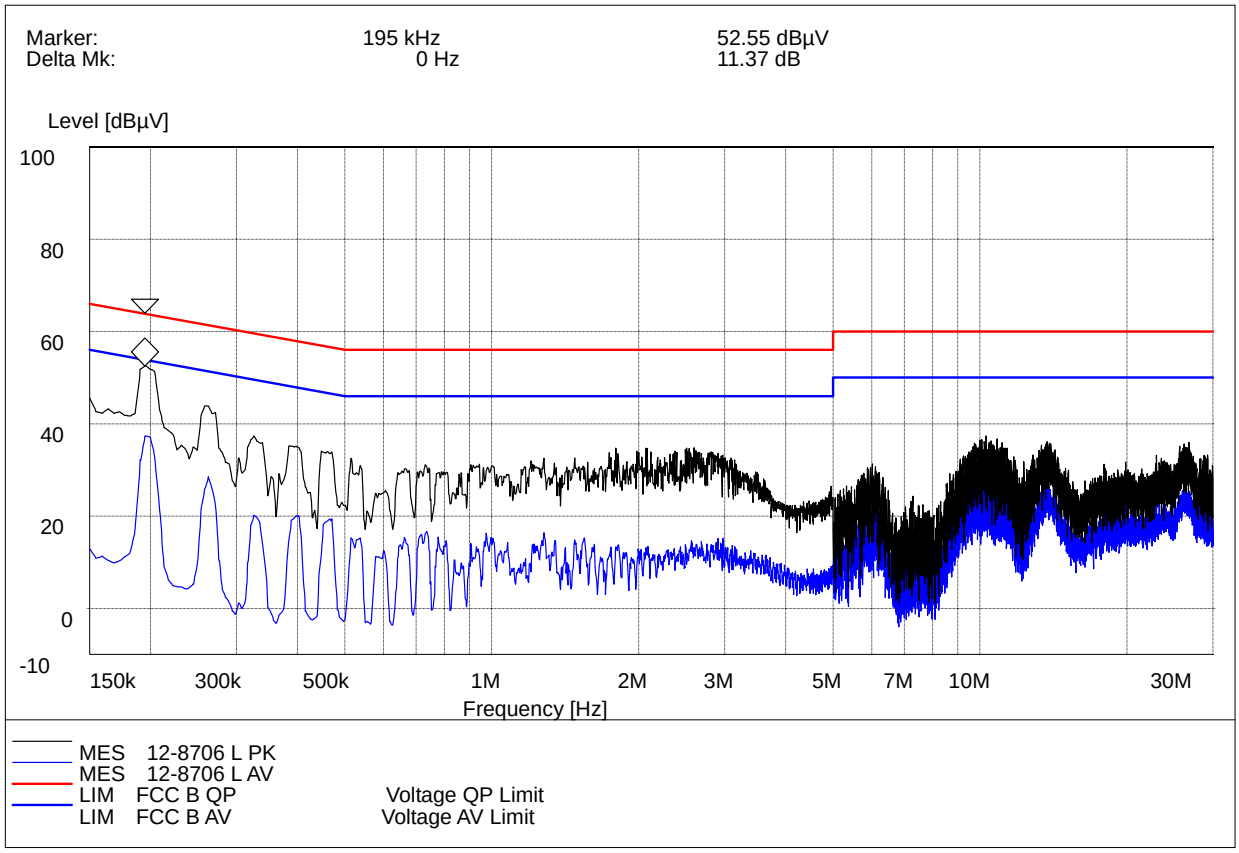
3.1.3 Test Result

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

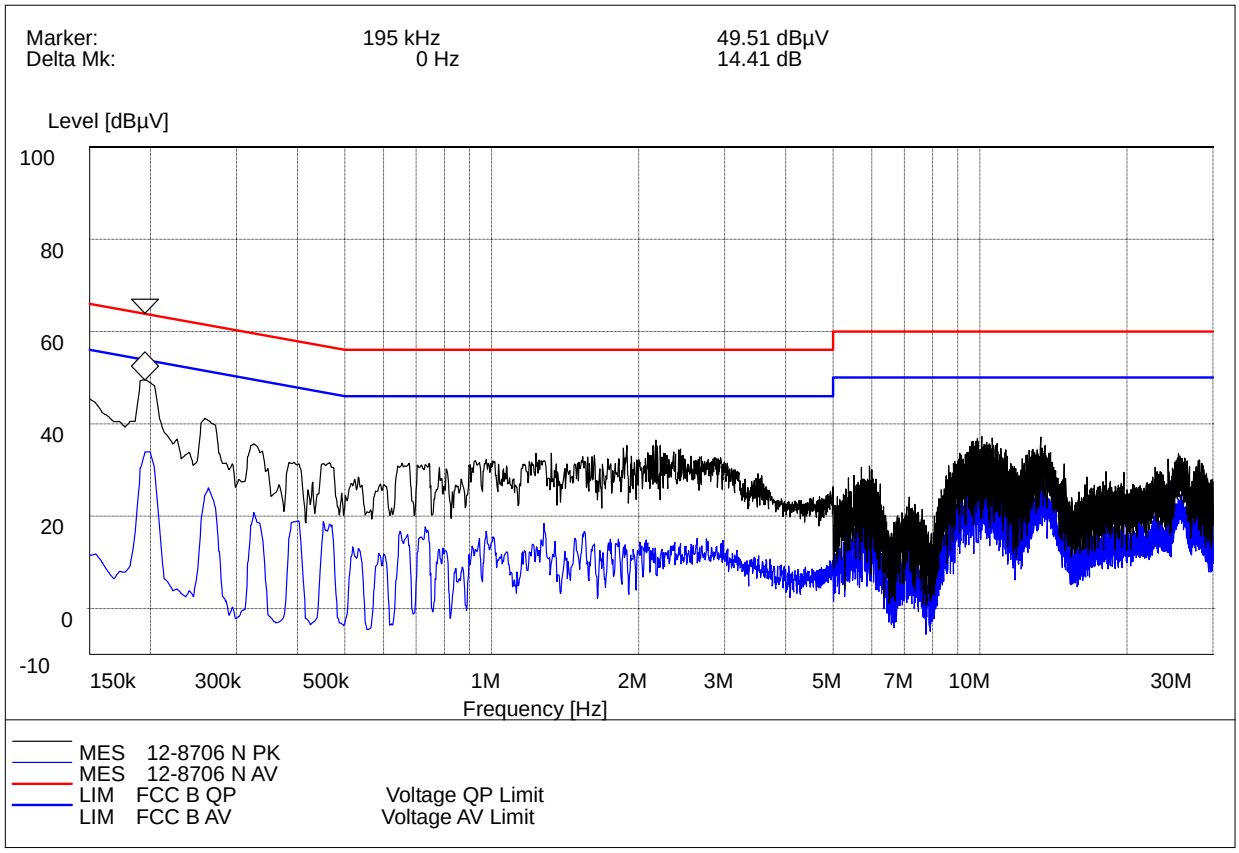
A. Test Plot and Suspicious Points:

Conducted Disturbance at Mains Terminals							
L Test Data							
QP				AV			
Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)	Margin (dB)	Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)	Margin (dB)
0.150000	66.00	39.40	26.60	0.150000	56.00	11.60	44.40
0.195000	63.80	49.80	14.00	0.195000	53.80	36.90	16.90
0.262500	61.40	41.80	19.60	0.262500	51.00	26.30	24.70
L Test Curve							



(Plot A: L Phase)

Conducted Disturbance at Mains Terminals							
N Test Data							
QP				AV			
Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)	Margin (dB)	Frequency (MHz)	Limits (dBμV)	Measurement Value (dBμV)	Margin (dB)
0.150000	66.00	40.10	25.90	0.150000	56.00	10.40	45.60
0.195000	63.80	47.90	15.90	0.195000	53.80	34.80	19.00
0.262500	61.40	39.00	22.40	0.262500	51.00	25.70	25.30
N Test Curve							



(Plot B: N Phase)

Test Result: PASS

3.2 Radiated Emission

3.2.1 Requirement

According to FCC section 15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency range (MHz)	Field Strength		Field Strength Limitation at 3m Measurement Dist	
	μV/m	Dist	(uV/m)	(dBuV/m)
0.009 - 0.490	2400/F(KHz)	300m	10000* 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 - 1.705	2400/F(KHz)	30m	100* 2400/F(KHz)	20log 2400/F(KHz) + 40
1.705 - 30.00	30	30m	100*30	20log 30 + 40
30.0 - 88.0	100	3m	100	20log 100
88.0 - 216.0	150	3m	150	20log 150
216.0 - 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Note:

1) The tighter limit shall apply at the boundary between two frequency range.
2) Limitation expressed in dBuV/m is calculated by 20log Emission Level(uV/m).
3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $Ld1 = Ld2 * (d2/d1)^{2.}$
   Example:
   F.S Limit at 30m distance is 30uV/m, then F.S Limitation at 3m distance is adjusted as
   $Ld1 = L1 = 30uV/m * (10)^2 = 100 * 30uV/m.$
4) The Highest frequency generated or used in the device or on which the device operates or tunes was 1.5GHz,so radiated emissions test frequency from 30MHz to 7.5GHz.

3.2.2 Test Description

See section 0 of this report.

3.2.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels

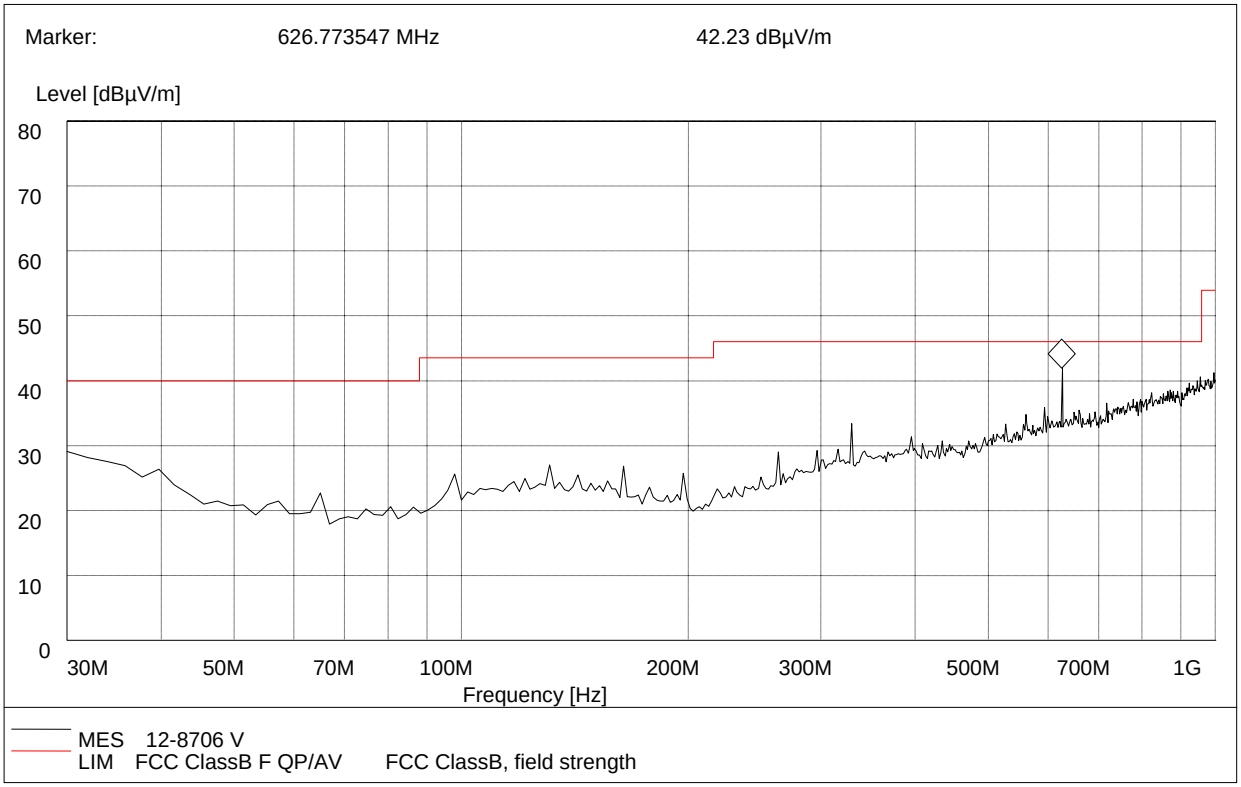
more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

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.

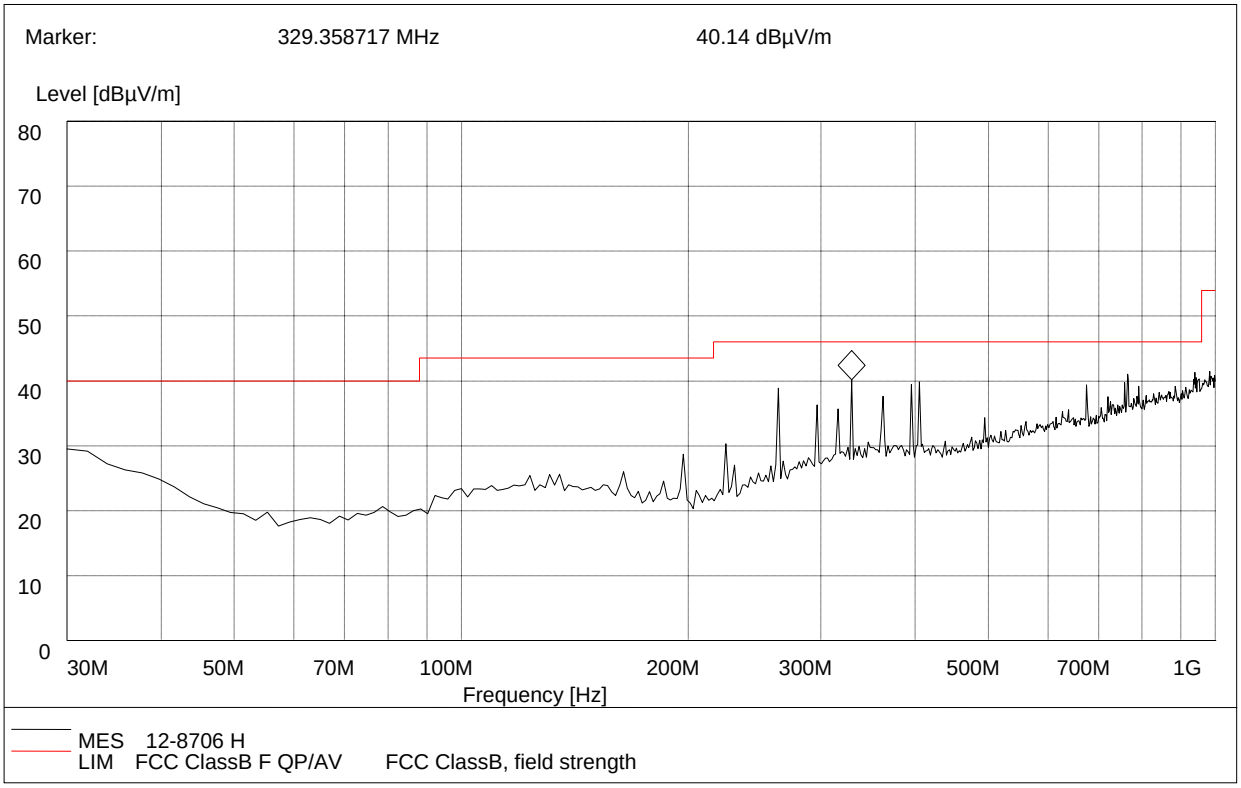
A. Test Plots and Suspicious Points:

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.



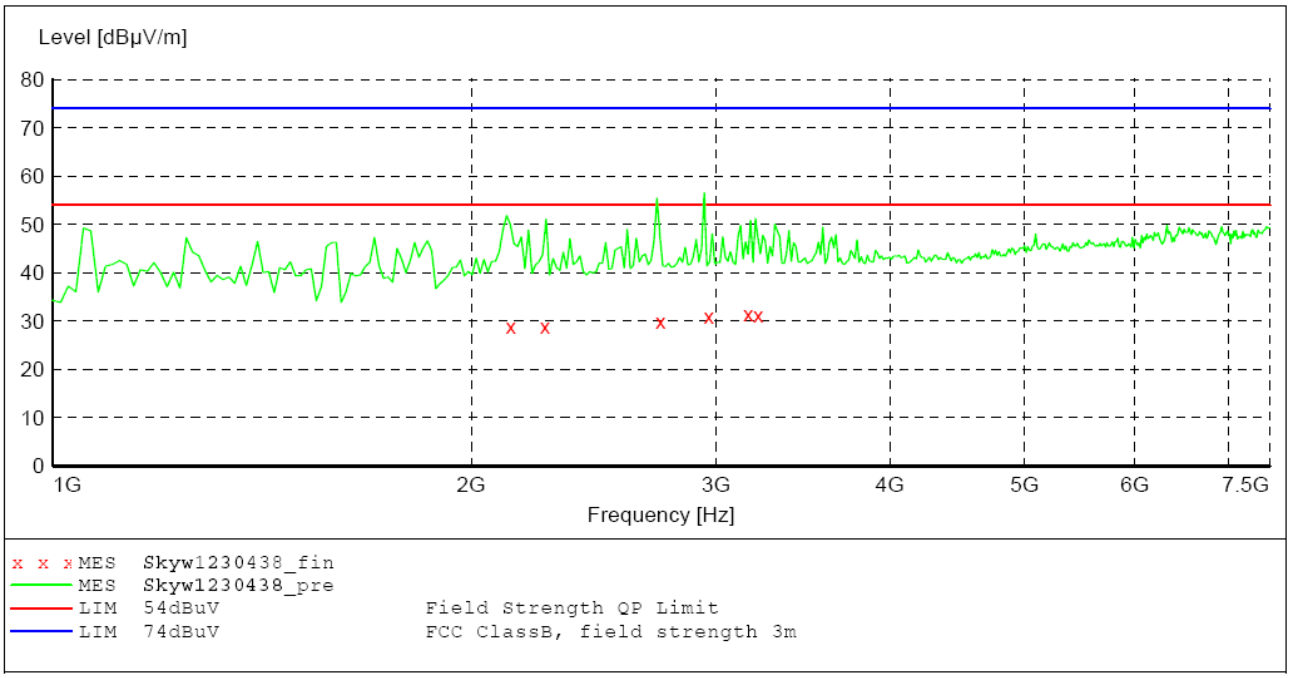
(Plot A: Test Antenna Vertical 30M - 1G)

Frequency (MHz)	QuasiPeak (dB µ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB µ V/m)	Margin (dB)	Antenna	Verdict
30.000000	**29.11**	**120.000**	**100.0**	**40.00**	**10.89**	**Vertical**	**Pass**
329.358717	**33.39**	**120.000**	**100.0**	**46.02**	**12.63**	**Vertical**	**Pass**
626.773547	**42.23**	**120.000**	**100.0**	**46.02**	**3.79**	**Vertical**	**Pass**



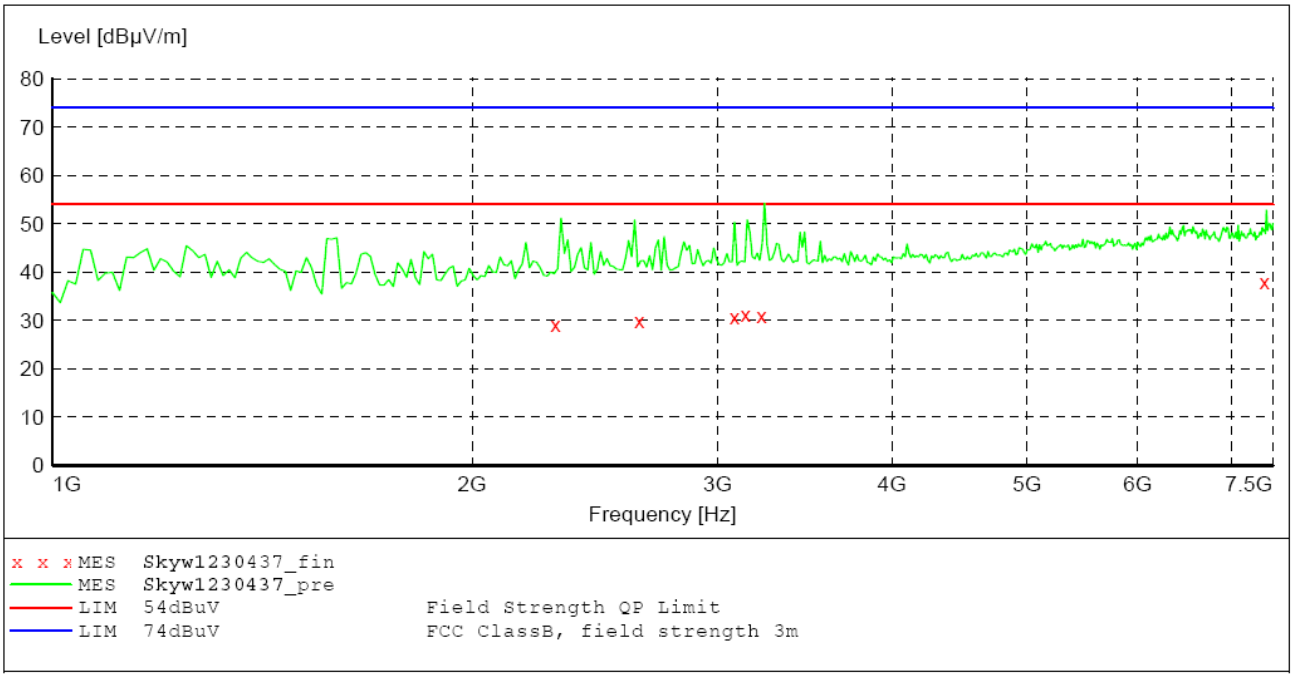
(Plot C: Test Antenna Horizontal 30M - 1G)

Frequency (MHz)	QuasiPeak (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Margin (dB)	Antenna	Verdict
268.295465	38.78	120.000	100.0	46.02	7.24	Horizontal	Pass
329.358717	40.14	120.000	100.0	46.02	5.88	Horizontal	Pass
398.642397	39.13	120.000	100.0	46.02	6.89	Horizontal	Pass
405.170341	39.84	120.000	100.0	46.02	6.18	Horizontal	Pass



(Plot D: Test Antenna Vertical 1G – 7.5G)

Frequency (MHz)	AV (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Margin (dB)	Antenna	Verdict
2135.50000	28.80	1000.000	143.0	54.00	25.20	Vertical	Pass
2260.00000	28.90	1000.000	100.0	54.00	25.10	Vertical	Pass
2736.50000	29.90	1000.000	131.0	54.00	24.10	Vertical	Pass
2964.00000	30.90	1000.000	122.0	54.00	23.10	Vertical	Pass
3164.00000	31.60	1000.000	143.0	54.00	22.40	Vertical	Pass
73218.0000	31.20	1000.000	100.0	54.00	22.80	Vertical	Pass



(Plot C: Test Antenna Horizontal 1G – 7.5G)

Frequency (MHz)	AV (dBµV/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµV/m)	Margin (dB)	Antenna	Verdict
2295.00000	29.10	1000.000	123.0	54.00	24.90	Horizontal	Pass
2635.50000	30.00	1000.000	147.0	54.00	24.00	Horizontal	Pass
3084.50000	30.70	1000.000	118.0	54.00	23.30	Horizontal	Pass
3142.00000	31.20	1000.000	100.0	54.00	22.80	Horizontal	Pass
3226.50000	31.00	1000.000	150.0	54.00	23.00	Horizontal	Pass
7400.00000	37.90	1000.000	150.0	54.00	16.10	Horizontal	Pass

Test Result: PASS

** END OF REPORT **