

FCC REPORT

Applicant: i-Mobile Technology corporation

Address of Applicant: 3F #8 Alley 15 Lane 120 Sec. 1 Neihu Road , Neihu District,
Taipei City 114 ,Taiwan

Equipment Under Test (EUT)

Product Name: Tablet PC

Model No.: IB-8

Trade mark: @mobile

FCC ID: XZO-IB8

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.225

Date of sample receipt: 26 Jun., 2014

Date of Test: 27 Jun., to 05 Aug., 2014

Date of report issue: 06 Aug., 2014

Test Result: PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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.

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2 Version

Version No.	Date	Description
00	06 Aug., 2014	Original

Prepared By:

Sera Xiang

Date:

06 Aug., 2014

Report Clerk

Check By:

Wimmer Zhang

Date:

06 Aug., 2014

Project Engineer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
Field strength of the fundamental signal	15.225 (a),(b),(c)	Pass
Spurious emissions	15.225 (d) & 15.209	Pass
20dB Bandwidth	15.215 (c)	Pass
Frequency tolerance	15.225 (e)	Pass
Conducted Emission	15.207	Pass

Remarks:

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	i-Mobile Technology corporation
Address of Applicant:	3F #8 Alley 15 Lane 120 Sec. 1 Neihu Road , Neihu District ,Taipei City 114 ,Taiwan
Manufacturer/Factory:	i-Mobile Technology corporation
Address of Manufacturer/Factory:	3F #8 Alley 15 Lane 120 Sec. 1 Neihu Road , Neihu District ,Taipei City 114 ,Taiwan

5.2 General Description of E.U.T.

Product Name:	Tablet PC
Model No.:	IB-8
Operation Frequency:	13.56MHz
Channel numbers:	1
Modulation type:	ASK
Antenna Type:	Internal antenna
Power supply:	Rechargeable Li-ion Battery DC10.8V-6200mAh
AC adapter:	MODEL:ATS065S-P160 Input: AC 100-240V 50/60Hz 1.4A Output: DC 16V, 4.07A

5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation		
Pre-Test Mode:			
CCIS has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:			
Axis	X	Y	Z
Field Strength(dBuV/m)	47.20	46.95	45.78
Final Test Mode:			
According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”: X axis (see the test setup photo).			

5.4 Description of Support Units

N/A

5.5 Laboratory Facility

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

● **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing 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 817957, February 27, 2012.

● **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282
Fax: +86-755-23116366

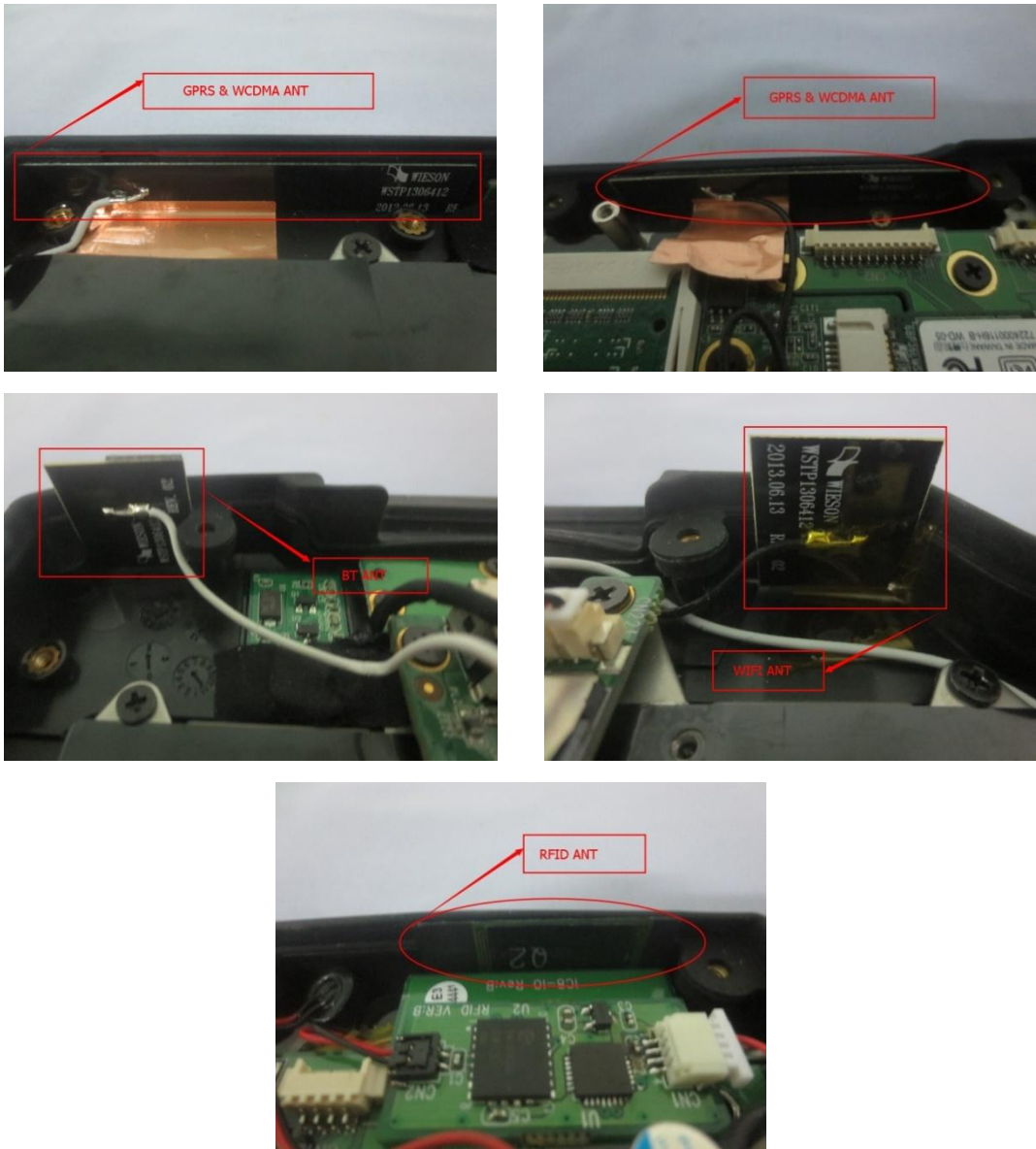
5.7 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	04-10-2014	04-10-2015
2	Loop Antenna	Com-power	AL-130	CCS078	12-10-2013	12-10-2014
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	04-19-2014	04-19-2015
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	04-19-2014	04-19-2015
4	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	03-31-2014	03-30-2015
5	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	03-31-2014	03-30-2015
6	Spectrum analyzer	Rohde & Schwarz	FSP30	CCIS0023	04-10-2014	04-10-2015

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Date (mm-dd-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	06-09-2014	06-08-2015
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	04-10-2014	04-10-2015
3	LISN	CHASE	MN2050D	CCIS0074	04-10-2014	04-10-2015
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

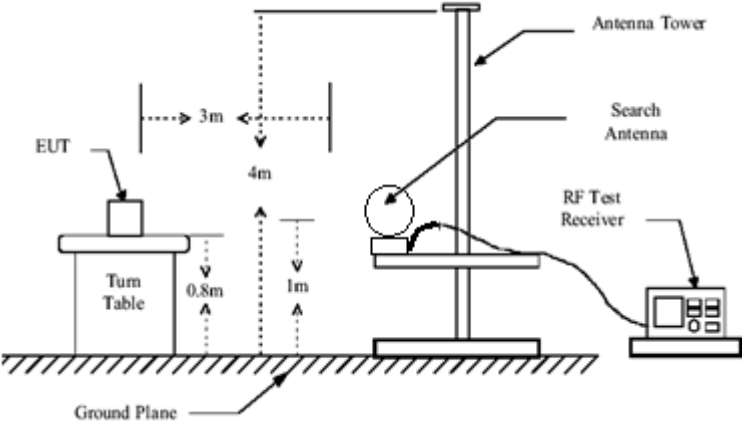
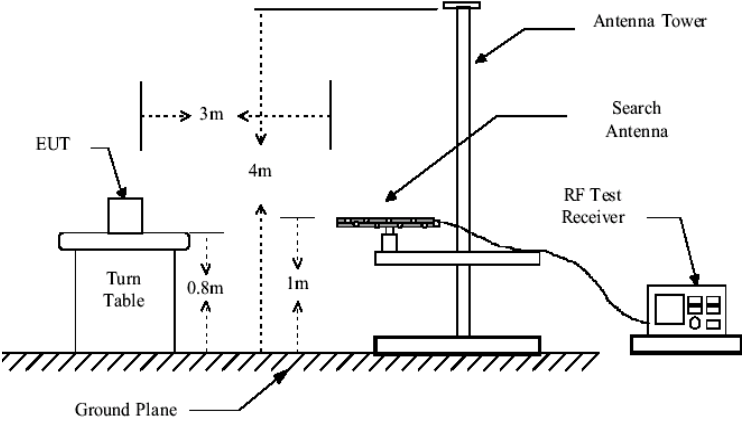
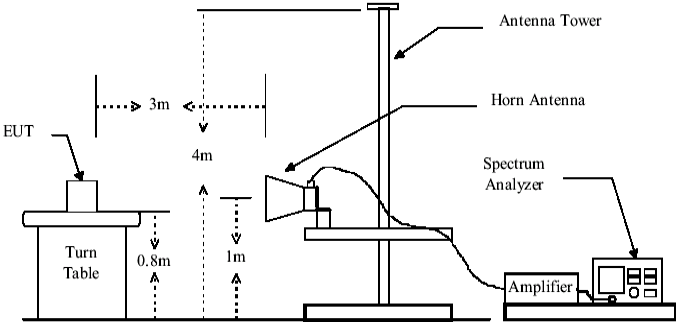
6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
<p>15.203 requirement: 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>	
E.U.T Antenna:	
The EUT make use of an integrated antenna, The typical gain of the antenna is 2.15 dBi.	
 <p>The table contains five photographs of the device's internal components, specifically the antennas. Each photograph has a red box and a red arrow pointing to the antenna. The labels are: 'GPRS & WCDMA ANT' (top-left and top-right), 'BT ANT' (middle-left), 'WCDMA ANT' (middle-right), and 'RFID ANT' (bottom). The photographs show the physical components and their connection to the circuit board.</p>	

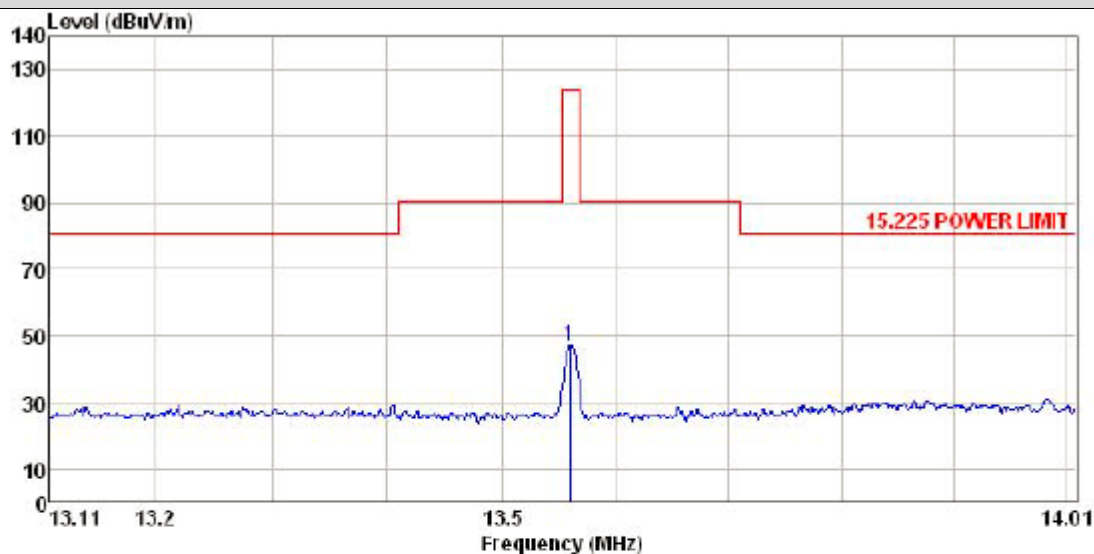
6.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.225(a),(b),(c),(d) and 15.209				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	9 kHz to 1000MHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz-150kHz	Quasi-peak	200Hz	600Hz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120kHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Limit: (Field strength of the fundamental signal)	Frequency		Limit (uV/m @30m)		Limit (dBuV/m @3m)
	13.553MHz-13.567MHz		15848		124.0
	13.410MHz-13.553MHz & 13.567MHz-13.710MHz		334		90.5
	13.110MHz-13.410MHz & 13.710MHz-14.010MHz		106		80.5
	Remark: Per FCC part 15.31, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).				
Limit: (Spurious Emissions)	Frequency (MHz)		Limit (uV/m @3m)		Distance (m)
	0.009-0.490		2400/F(kHz)		300
	0.490-1.705		24000/F(kHz)		30
	1.705-30		30		30
	30-88		100		3
	88-216		150		3
	216-960		200		3
	Above 1GHz		500		3
Test Procedure:	<p>a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four 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.</p> <p>d. 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.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p>				

Test setup:	<div>9kHz-30MHz</div>  <div>30MHz-1GHz</div>  <div>Above 1GHz</div> 
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Measurement Record:	Uncertainty:±4.88 dB
Test results:	Pass

Measurement Data

6.2.1 Field Strength Of The Fundamental Signal



Site : 3m chamber
 Condition : 15.225 POWER LIMIT 3m AL-130 LOOP ANTENNA HORIZONTAL
 EUT : Tablet PC
 Model : IB-8
 Test mode : Charging & RFID mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Garen
 REMARK :

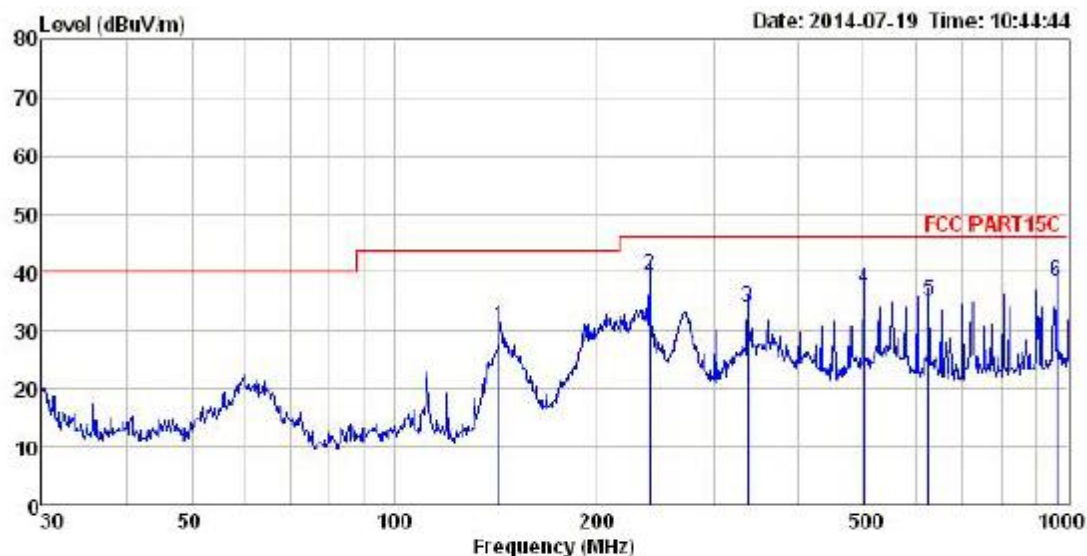
	Freq	ReadAntenna	Cable	Preamp		Limit	Over	
	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	13.560	33.20	13.36	0.64	0.00	47.20	124.00	-76.80

6.2.2 Spurious Emissions

9kHz-30MHz:						
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)
4.45	26.95	14.99	0.62	42.56	72.49	-29.93
15.80	27.99	13.22	0.68	41.89	70.51	-28.62

30MHz-1000MHz

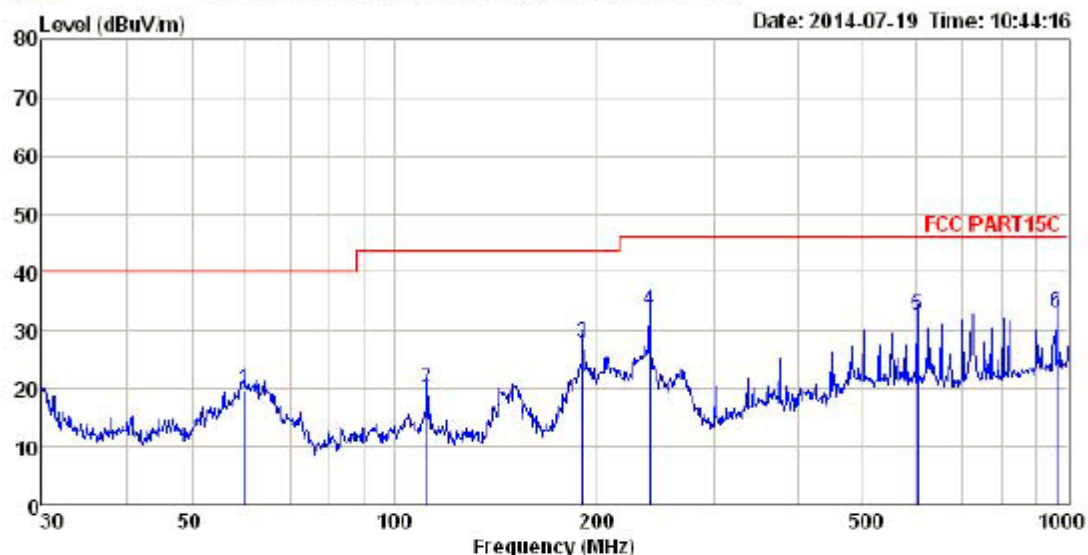
Horizontal:



Site : 3m chamber
 Condition : FCC PART15C 3m VULB9163(30M1G) HORIZONTAL
 EUI : Tablet PC
 Model : IB-8
 Test mode : Charging & RFID mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Garen
 REMARK :

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	143.830	50.31	8.22	1.28	29.25	30.56	43.60	-13.04 QP
2	239.987	54.36	12.09	1.58	28.59	39.44	46.00	-6.56 QP
3	336.035	46.71	13.99	1.89	28.53	34.06	46.00	-11.94 QP
4	501.179	47.03	16.63	2.41	28.96	37.11	46.00	-8.89 QP
5	625.078	42.69	18.54	2.71	28.86	35.08	46.00	-10.92 QP
6	962.162	40.99	21.49	3.47	27.65	38.30	46.00	-7.70 QP

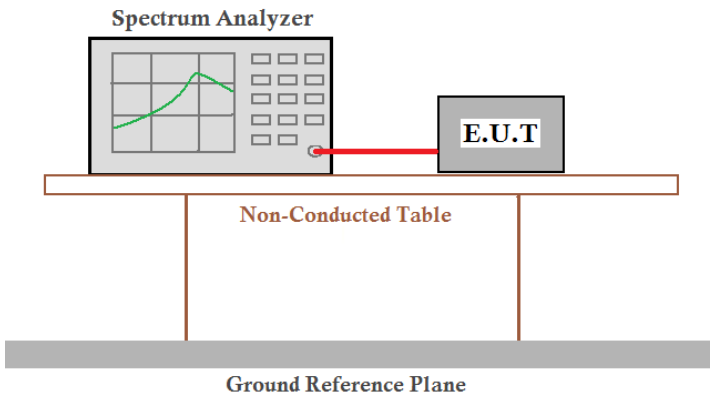
Vertical:



Site : 3m chamber
 Condition : FCC PART15C 3m VULB9163(30M16) VERTICAL
 EUT : Tablet PC
 Model : IB-8
 Test mode : Charging & RFID mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Garen
 REMARK :

	Freq	ReadAntenna	Cable Preamp		Limit	Over	
	MHz	Level	Factor	Loss Factor	Level	Line	Limit Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	59.859	36.15	12.71	0.69	29.77	19.78	40.00 -20.22 QP
2	112.131	36.75	11.83	1.06	29.44	20.20	43.60 -23.40 QP
3	190.406	44.57	10.56	1.37	28.90	27.60	43.60 -16.00 QP
4	239.987	48.16	12.09	1.58	28.59	33.24	46.00 -12.76 QP
5	601.427	40.43	18.46	2.63	28.93	32.59	46.00 -13.41 QP
6	962.162	35.81	21.49	3.47	27.65	33.12	46.00 -12.88 QP

6.3 20dB Bandwidth

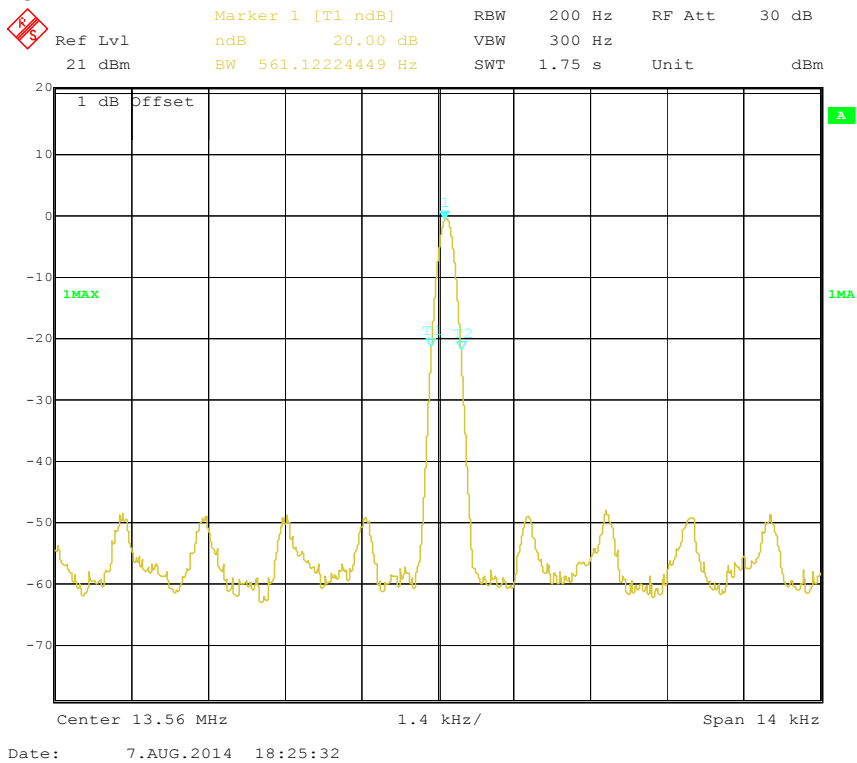
Test Requirement:	FCC Part15 C Section 15.215 (c)
Test Method:	ANSI C63.4:2003
Receiver setup:	RBW=200Hz, VBW=300Hz, detector: Peak
Limit:	The fundamental emission be kept within at least the central 80% of the permitted band
Test Procedure:	<ol style="list-style-type: none"> 1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. 4. Read 20dB bandwidth.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

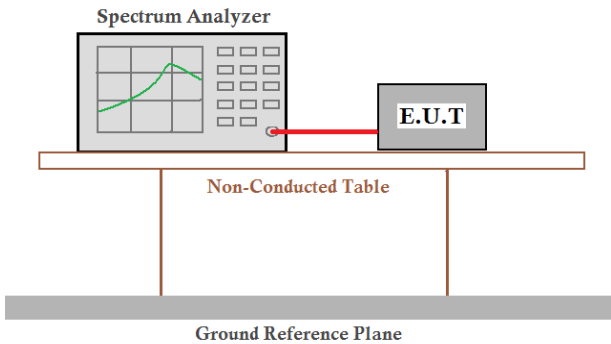
20dB bandwidth (kHz)	Limit (kHz)	Results
0.56	11.2	Passed

Note: For 13.56MHz, permitted Band is 14 kHz, so the Limit is 11.2 kHz.

Test plot as follows:



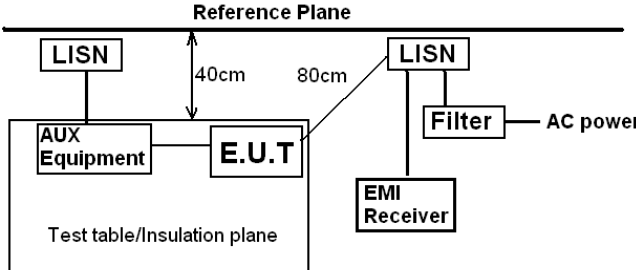
6.4 Frequency Tolerance

Test Requirement:	FCC Part15 C Section 15.225 (e)
Test Method:	ANSI C63.4:2003
Receiver setup:	RBW=200Hz, VBW=300Hz, span=14kHz, detector: Peak
Limit:	±0.01% of the operating frequency
Test mode:	Transmitting mode
Test Procedure:	<p>Frequency stability V.S. Temperature measurement</p> <ol style="list-style-type: none"> 1. The equipment under test was powered by a fresh battery. 2. RF output was connected to spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached <p>Frequency stability V.S. Voltage measurement</p> <ol style="list-style-type: none"> 1. Set chamber temperature to 20°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. <p>Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.</p>
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a feed through attenuator. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

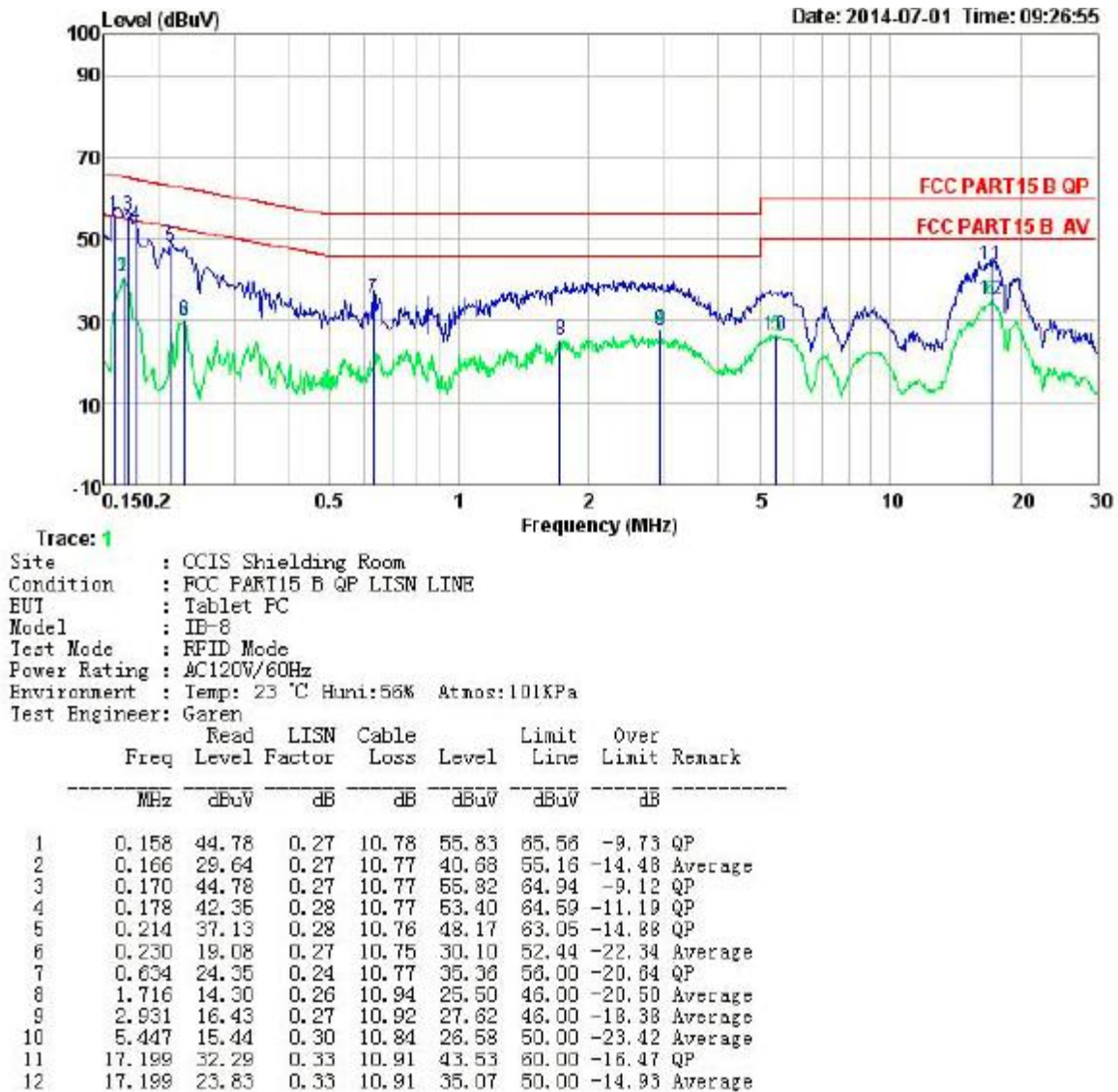
Temperature (°C)	Voltage (Vdc)	Frequency Tolerance (MHz)	Frequency Error (%)	Limit (%)
-20	3.7	13.56014	0.001	±0.01
+50	3.7	13.56016	0.001	±0.01
+20	3.2	13.56015	0.001	±0.01
+20	4.2	13.56015	0.001	±0.01

6.5 Conducted Emission

Test Requirement:	FCC Part15 B Section 15.207		
Test Method:	ANSI C63.4:2003		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9 kHz, VBW=30 kHz		
Limit:	Frequency range (MHz)	Limit (dB μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	0.5-30	60	50
* Decreases with the logarithm of the frequency.			
Test setup:	 <p>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>		
Test procedure	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.).It provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement. 		
Test environment:	Temp.:	23 °C	Humid.: 56% Press.: 1 01kPa
Measurement Record:	Uncertainty: 3.28 dB		
Test Instruments:	Refer to section 5.7 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

Measurement Data:

Line:



Neutral:

