Test Report of FCC CFR 47 Part 15 Subpart B

On Behalf of

i-Mobile Technology Corporation

FCC ID:	**XZOIC-8**
Product Description:	**Tablet PC**
Model No.:	**IC-8**
Supplementary Model:	**N/A**
Brand Name:	**@MOBILE**
Prepared for:	**i-Mobile Technology Corporation** 3F #8 Alley 15 Lane 120 Sec.1 Neihu Road Neihu District, Taipei City 114, Taiwan
Prepared by:	**Bontek Compliance Testing Laboratory Co., Ltd** 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China Tel: 86-755-86337020 Fax: 86-755-86337028
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Tested by: Lion Cai

Reviewed by: Oweh Yang

Approved by: Kendy Wang

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

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

General Description of E.U.T

Items	**Description**
EUT Description:	Tablet PC
Trade Name:	@MOBILE
Model No.:	IC-8
Supplementary Model:	N/A
2G Module:	
Support Band:	GSM850/PCS1900
GPRS Type:	Class B
GPRS Class:	Class 12
Frequency Band:	Uplink: GSM 850: 824~849MHz, PCS 1900: 1850~1910MHz Downlink: GSM 850: 869~894MHz, PCS 1900: 1930~1990MHz
Type of Modulation:	GMSK for GSM/GPRS, 8PSK for EDGE
3G Module:	
Support Band:	WCDMA Band II
Frequency Band:	Uplink: WCDMA Band II: 1850~1910MHz WCDMA Band V: 824~849MHz Downlink: WCDMA Band II: 1930~1990MHz WCDMA Band V: 869~894MHz
Type of Modulation:	QPSK
WIFI Module:	
Frequency Band:	2412M~2462M
Type of Modulation:	IEEE 802.11b：DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g：OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20/40：OFDM (64QAM, 16QAM, QPSK, BPSK)

Bluetooth Module:	
Frequency Band:	2402 MHz ~ 2480 MHz
Type of Modulation:	GFSK, Pi/4 DAPSK, 8-DPSK
NFC Module:	
Frequency Band:	13.56MHz
Rated Voltage:	Input: 16VDC 4.0A from AC/DC adapter
Adapter Description:	Model:STD-16040 Input: AC 100-240V 47-63Hz 1.4A MAX Output: 16VDC 4.0A

* *The test data gathered are from the production sample provided by the manufacturer.*

1.2 Test Standards

The report of EUT is prepared in accordance with FCC Rules and Regulations Part 15 Subpart B 2006 The objective of the manufacturer is to demonstrate compliance with the described above standards.

1.3 Test Facility

All measurement required was performed at laboratory of Shenzhen CTL Testing Technology Co., Ltd. at Floor 1-A,Baisha Technology Park,No.3011,Shahexi Road, Nanshan District, Shenzhen, China 518055.

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

FCC – Registration No.: 970318

Shenzhen CTL Testing Technology 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 970318, December, 2013.

2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2 Support Equipments

The calibrated antennas used to sample the radiated field strength are mounted on a non-conductive, motorized antenna mast 3 or 10 meters from the leading edge of the turntable.

Support equipments or special accessories in test configuration：

AUX Description:	Manufacturer	Model No.	Certificate	CABLE
LCD COLOUR TV	SHARP	LCD-32Z330A	CE, FCC	1.5m Unshielded Power Cord
Load impedance	SAA	78MD82X	CE, FCC	N/A
Keyboard	Dell	L100	CE, FCC	1.8m shielded data Cable with core
Mouse	Dell	OCJ339	CE, FCC	1.8m shielded data Cable with core

2.3 General Test Procedures

Conducted Emissions:The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.1 of ANSI C63.4-2003 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak detector mode.

Radiated Emissions: The EUT is a placed on as turntable, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

2.4 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

2.5 List of Measuring Equipments Used

Test equipments list of Shenzhen CTL Testing Technology Co., Ltd

No.	Instrument no.	Equipment	Manufacturer	Model No.	S/N	Last Calculator	Due Calculator
1	BCT-EMC001	EMI Test Receiver	R&S	ESCI	100687	2013-4-25	2014-4-24
2	BCT-EMC002	EMI Test Receiver	R&S	ESPI	100097	2013-11-1	2014-10-31
3	BCT-EMC003	Amplifier	HP	8447D	1937A02492	2013-4-25	2014-4-24
4	BCT-EMC018	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9163	9163-324	2013-4-25	2014-4-24
5	BCT-EMC021	Triple-Loop Antenna	EVERFINE	LLA-2	711002	2013-11-1	2014-10-31
6	BCT-EMC026	RF POWER AMPLIFIER	FRANKONIA	FLL-75	1020A1109	2013-4-25	2014-4-24
7	BCT-EMC029	6DB Attenuator	FRANKONIA	N/A	1001698	2013-4-25	2014-4-24
8	BCT-EMC032	10dB attenuator	ELECTRO-METRICS	EM-7600	836	2013-4-25	2014-4-24
9	BCT-EMC036	Spectrum Analyzer	R&S	FSP	100397	2013-11-1	2014-10-31
10	BCT-EMC037	Broadband preamplifier	SCH WARZBECK	BBV9718	9718-182	2013-4-25	2014-4-24
11	BCT-EMC039	Horn Antenna	SCHWARZBECK	BBHA 9120D	0437	2013-4-25	2014-4-24
12	BCT-EMC038	Horn Antenna	SCHWARZBECK	BBHA9170	0483	2013-4-5	2014-4-4

3. SUMMARY OF TEST RESULTS

Standard	Test Items	Result
FCC Part 15 Subpart B	Conduction Emission, 0.15MHz to 30MHz	Pass
FCC Part 15 Subpart B	Radiation Emission, 30MHz to 1000MHz	Pass

4. TEST OF AC POWER LINE CONDUCTED EMISSION

4.1 Limit of AC Power Line Conducted Emission

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150～0.500	66～56	56～46
0.500～5.000	56	46
5.000～30.00	60	50

4.2 EUT Setup

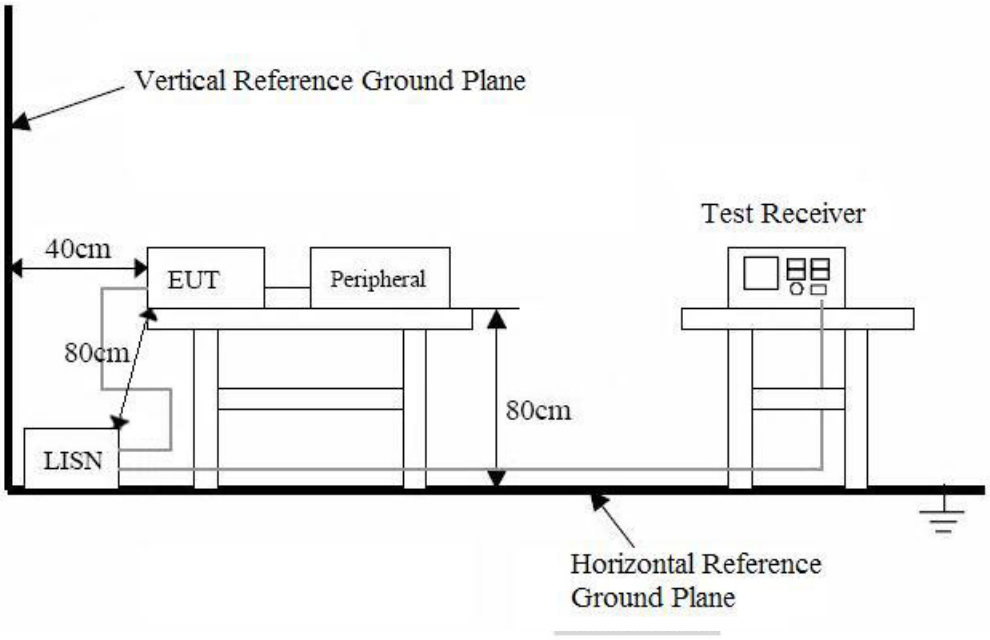
The setup of EUT is according with ANSI C63.4-2003 measurement procedure. The specification used was the FCC Rules and Regulations Part 15 Subpart B limits.

The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.



Remark: The EUT was connected to a 120VAC/ 60Hz power source.

4.3 Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range……150 KHz to 30 MHz
Detector……..Peak & Quasi-Peak & Average
Sweep Speed……Auto
IF Band Width……..9 KHz

4.4 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dBμV of specification limits). Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with a "AV".

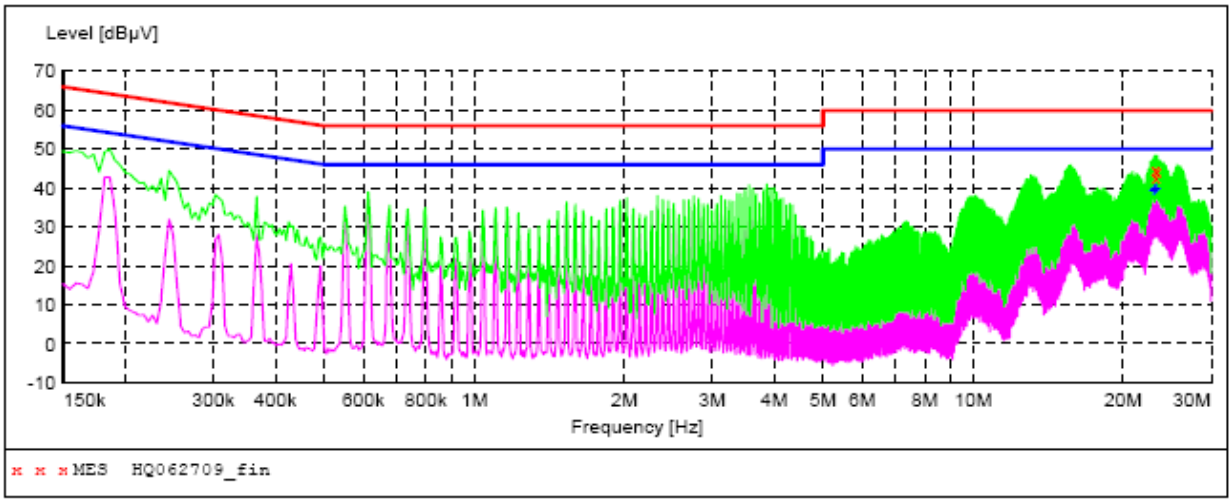
4.5 Test Result

Temperature (℃) : 22~23	EUT: Tablet PC
Humidity (%RH): 50~54	M/N: IC-8
Barometric Pressure (mbar): 950~1000	Operation Condition: Normal Operation

Conducted Emission:

EUT:	Tablet PC
M/N:	IC-8
Operating Condition:	Normal Operation
Test Site:	Shielded Room
Operator:	Yang
Test Specification:	AC 120V/60Hz for adapter
Comment:	L Line

SCAN TABLE: "Voltage(150K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HQ062709_fin"

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Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
23.208000	44.90	10.8	60	15.1	QP	L1	GND
23.257500	42.80	10.8	60	17.2	QP	L1	GND
23.392500	44.40	10.8	60	15.6	QP	L1	GND

MEASUREMENT RESULT: "HQ062709_fin2"

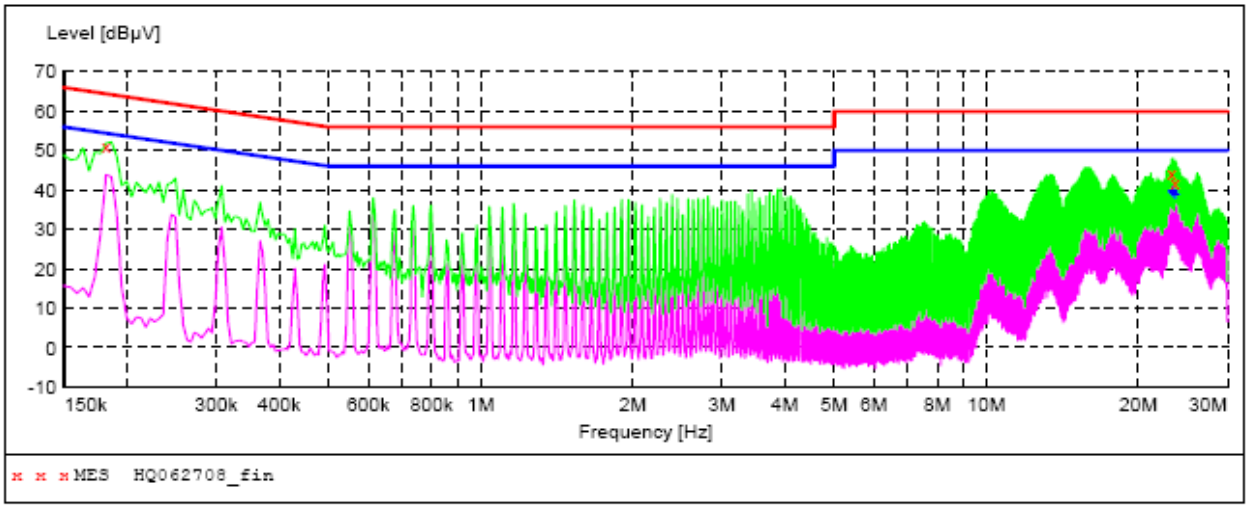
6/27/2013 14:58

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
23.086500	39.40	10.8	50	10.6	AV	L1	GND
23.203500	40.10	10.8	50	9.9	AV	L1	GND
23.208000	39.80	10.8	50	10.2	AV	L1	GND

Conducted Emission:

EUT:	Tablet PC
M/N:	IC-8
Operating Condition:	Normal Operation
Test Site:	Shielded Room
Operator:	Yang
Test Specification:	AC 120V/60Hz for adapter
Comment:	N Line

SCAN TABLE: "Voltage(150K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HQ062708_fin"

6/27/2013 14:56

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.181500	51.40	12.0	64	13.0	QP	N	GND
23.275500	44.50	10.8	60	15.5	QP	N	GND
23.590500	42.10	10.8	60	17.9	QP	N	GND

MEASUREMENT RESULT: "HQ062708_fin2"

6/27/2013 14:56

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
23.338500	39.70	10.8	50	10.3	AV	N	GND
23.397000	39.30	10.8	50	10.7	AV	N	GND
23.586000	38.70	10.8	50	11.3	AV	N	GND

5 - RADIATED DISTURBANCES

5.1 Limit of Radiated Disturbances

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)
30 ~ 88	3	40
88~216	3	43.5
216 ~ 960	3	46
960 ~ 1000	3	54

Note:
(1) The tighter limit shall apply at the edge between two frequency bands.
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

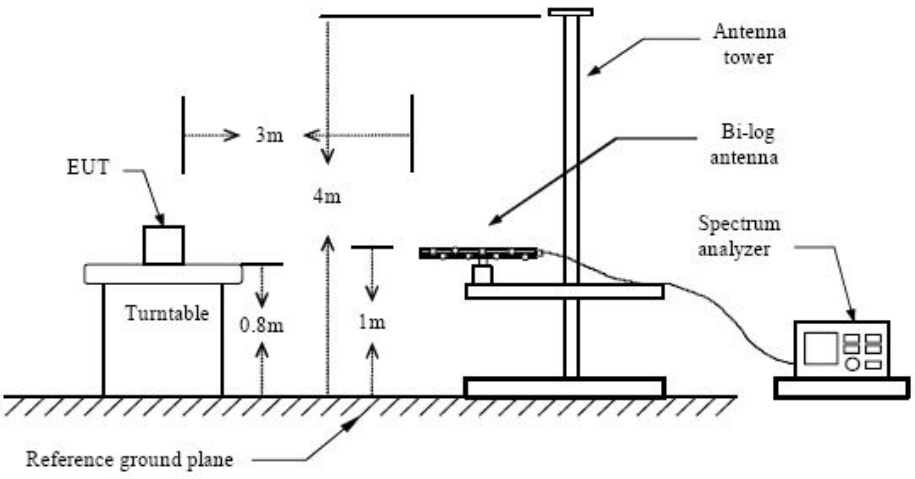
5.2 EUT Setup

The radiated emission tests were performed in the in the 3-meter anechoic chamber, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15 Subpart B limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

Below 1 GHz



5.3 Test Receiver Setup

According to FCC Part 15 rule, the frequency was investigated from 30 to 1000 MHz. During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Detector……..Peak & Quasi-Peak
IF Band Width……..120KHz
Frequency Range……30MHz to 1000MHz
Turntable Rotated……0 to 360 degrees

Antenna Position:

Height……1m to 4m
Polarity……...Horizontal and Vertical

5.4 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within -10 dBμV of specification limits), and are distinguished with a "QP" in the data table.

5.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Subpart B. The equation for margin calculation is as follows:

Margin = Limit – Corr. Ampl.

5.6 Radiated Emissions Test Result

Temperature (℃) : 22~23	EUT: Tablet PC
Humidity (%RH): 50~54	M/N: IC-8
Barometric Pressure (mbar): 950~1000	Operation Condition: Normal Operation

Note: In this testing, the EUT was respectively tested in three different orientations. That is:

1. EUT was lie vertically, and then its Antenna oriented upward
2. EUT was lie vertically, and then its Antenna oriented downward
3. EUT was lie flatwise, and then its Antenna oriented to the receiving antenna

The worst test data see following pages
When the EUT was lie flatwise, and its Antenna oriented to the receiving antenna, the worst test data was got as following table.

Worst case Spurious Emission (9k~30MHz)

EUT: Tablet PC
M/N: IC-8
Operating Condition: Normal Operation
Test Site: 3m CHAMBER
Operator: Chen
Test Specification: AC 120V/60Hz for adapter
Comment: Polarization: Horizontal

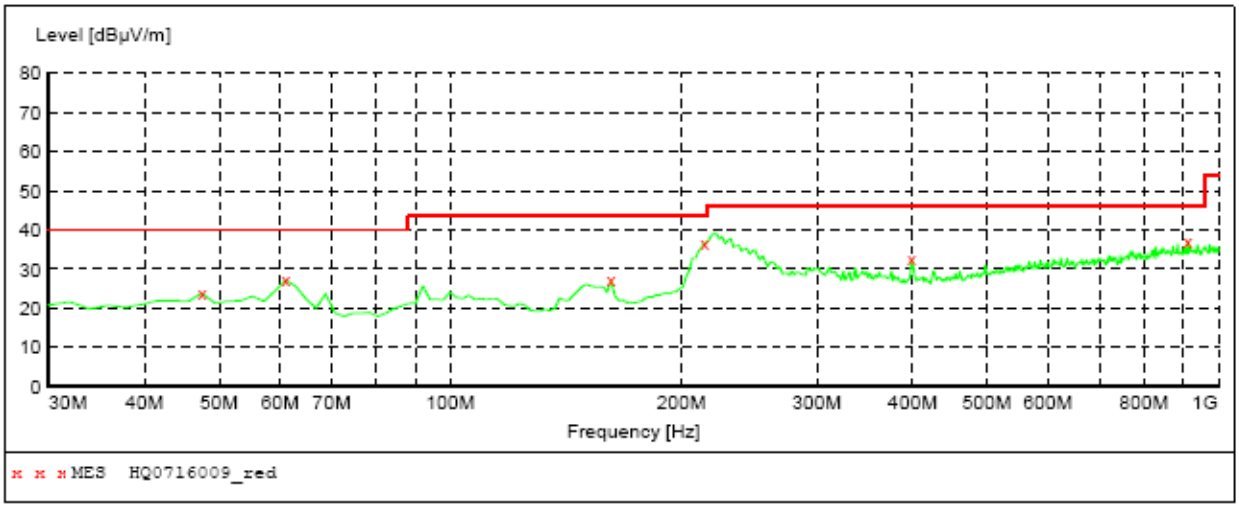
Frequency	Meter Reading	Antenna Factor	Cable Loss	Emission Levels	Limits	Margin	Detector Mode
(MHz)	(dBμV)	(dB/M)	(dB)	(dBμV/M)	(dB μ V/M)	(dB)	PK/QP
6.57	23.67	8.15	1.03	32.85	67	-34.15	QP
15.22	20.83	9.04	1.19	31.06	49.5	-18.44	QP
20.06	21.34	9.13	1.08	31.55	49.5	-17.95	QP
25.23	20.69	8.22	1.66	30.57	49.5	-18.93	QP

Radiated Emission Test Data(30~1000M):

EUT:	Tablet PC
M/N:	IC-8
Operating Condition:	Normal Operation
Test Site:	3m CHAMBER
Operator:	Chen
Test Specification:	AC 120V/60Hz for adapter
Comment:	Polarization: Horizontal

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW



MEASUREMENT RESULT: "HQ0716009_red"

7/16/2013 22:24

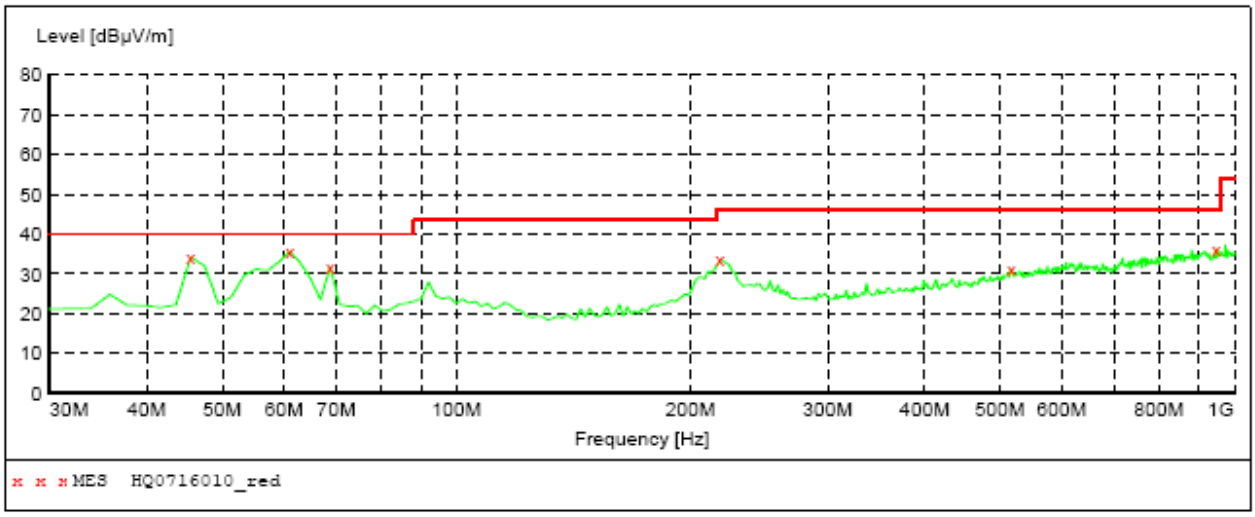
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
47.460000	23.90	15.8	40.0	16.1	QP	100.0	0.00	HORIZONTAL
61.040000	27.20	14.2	40.0	12.8	QP	100.0	0.00	HORIZONTAL
161.920000	27.20	12.8	43.5	16.3	QP	100.0	0.00	HORIZONTAL
214.300000	36.80	15.2	43.5	6.7	QP	100.0	0.00	HORIZONTAL
398.600000	32.50	21.4	46.0	13.5	QP	100.0	0.00	HORIZONTAL
912.700000	37.30	29.3	46.0	8.7	QP	100.0	0.00	HORIZONTAL

Radiated Emission Test Data(30~1000M):

EUT:	Tablet PC
M/N:	IC-8
Operating Condition:	Normal Operation
Test Site:	3m CHAMBER
Operator:	Chen
Test Specification:	AC 120V/60Hz for adapter
Comment:	Polarization: Vertical

SWEEP TABLE: "test (30M-1G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW



MEASUREMENT RESULT: "HQ0716010_red"

7/16/2013 22:26

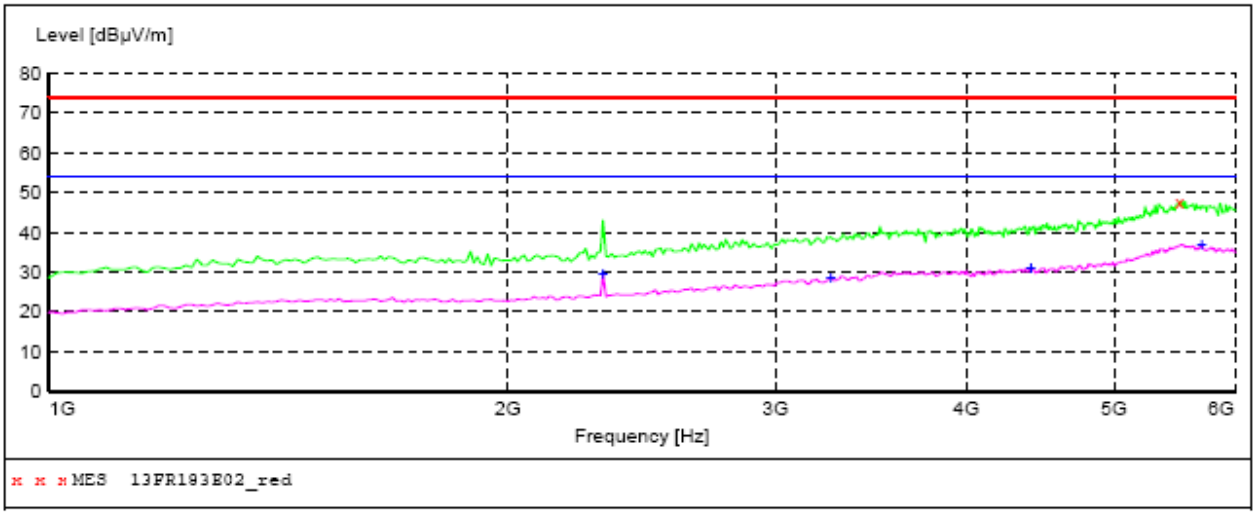
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
45.520000	34.20	15.9	40.0	5.8	QP	100.0	0.00	VERTICAL
61.040000	35.70	14.2	40.0	4.3	QP	100.0	0.00	VERTICAL
68.800000	31.80	12.7	40.0	8.2	QP	100.0	0.00	VERTICAL
218.180000	33.50	15.3	46.0	12.5	QP	100.0	0.00	VERTICAL
516.940000	31.30	24.2	46.0	14.7	QP	100.0	0.00	VERTICAL
947.620000	36.20	29.5	46.0	9.8	QP	100.0	0.00	VERTICAL

Radiated Emission Test Data above 1GHz:

EUT:	Tablet PC
M/N:	IC-8
Operating Condition:	Normal Operation
Test Site:	3m CHAMBER
Operator:	Chen
Test Specification:	AC 120V/60Hz for adapter
Comment:	Polarization: Horizontal

SWEEP TABLE: "test (1G-7G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	7.0 GHz	MaxPeak Average	Coupled	1 MHz	BBHA 9120 A-0315



MEASUREMENT RESULT: "13FR183E02_red"

10/25/2013 15:07

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
5520.000000	47.70	3.9	74.0	26.3	PK	100.0	0.00	HORIZONTAL

MEASUREMENT RESULT: "13FR183E02_red2"

10/25/2013 15:08

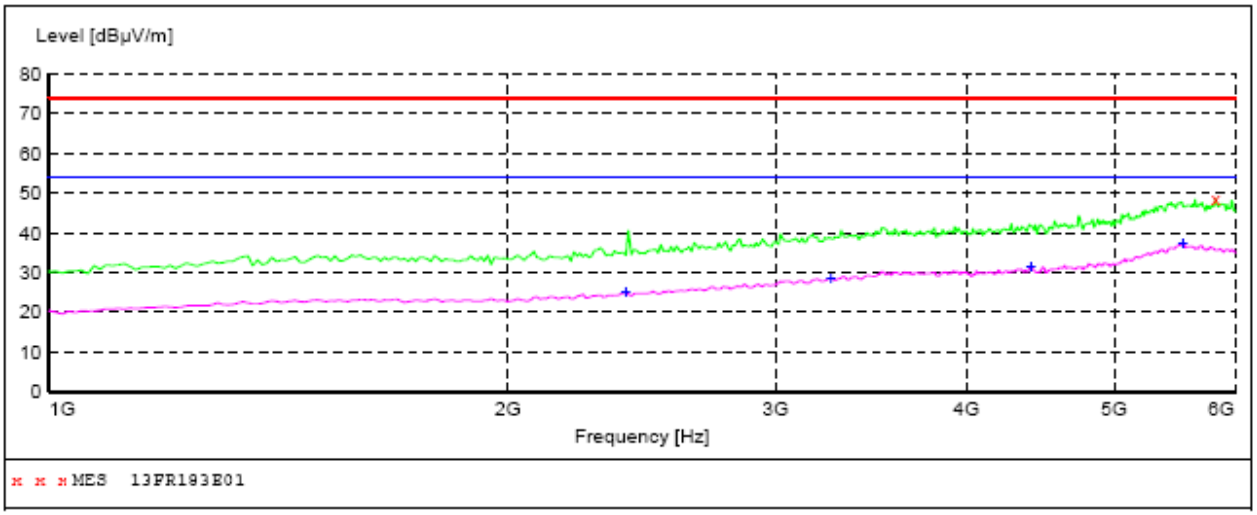
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
2310.000000	29.40	-10.2	54.0	24.6	AV	100.0	0.00	HORIZONTAL
3260.000000	28.80	-6.1	54.0	25.2	AV	100.0	0.00	HORIZONTAL
4410.000000	31.10	-3.0	54.0	22.9	AV	100.0	0.00	HORIZONTAL
5710.000000	37.00	3.4	54.0	17.0	AV	100.0	0.00	HORIZONTAL

Radiated Emission Test Data above 1GHz:

EUT:	Tablet PC
M/N:	IC-8
Operating Condition:	Normal Operation
Test Site:	3m CHAMBER
Operator:	Chen
Test Specification:	AC 120V/60Hz for adapter
Comment:	Polarization: Vertical

SWEEP TABLE: "test (1G-7G)"

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	7.0 GHz	MaxPeak Average	Coupled	1 MHz	BBHA 9120 A-0315



MEASUREMENT RESULT: 13FR183E01

10/25/2013 15:04

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
5830.000000	48.50	3.2	74.0	25.5	PK	100.0	0.00	VERTICAL

MEASUREMENT RESULT: 13FR183E01

10/25/2013 15:04

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
2390.000000	25.20	-9.8	54.0	28.8	AV	100.0	0.00	VERTICAL
3260.000000	28.70	-6.1	54.0	25.3	AV	100.0	0.00	VERTICAL
4410.000000	31.30	-3.0	54.0	22.7	AV	100.0	0.00	VERTICAL
5550.000000	37.30	3.8	54.0	16.7	AV	100.0	0.00	VERTICAL