

# Variant FCC Test Report

APPLICANT : Motorola Mobility, Inc.  
EQUIPMENT : Mobile Phone  
BRAND NAME : Motorola  
MODEL NAME : XT685  
MARKETING NAME : MOTOLUXE XT685  
GPPD NUMBER : 3402  
FCC ID : IHDP56MM5  
STANDARD : FCC 47 CFR FCC Part 15 Subpart B  
CLASSIFICATION : Certification

The product was received on Apr. 20, 2012 and completely tested on May 31, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager



## SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

SPORTON INTERNATIONAL INC.

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FCC ID : IHDP56MM5

Page Number : 1 of 30

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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	7.2.4	AC Conducted Emission	< 15.107 limits < RSS-Gen table 2 limits	PASS	Under limit 8.00 dB at 3.854 MHz
3.2	15.109	7.2.3.2	Radiated Emission	< 15.109 limits or < RSS-Gen table 1 limits (Section 6)	PASS	Under limit 7.63 dB at 32.970 MHz

# 1. General Description

## 1.1. Applicant

Motorola Mobility, Inc.  
8F., No. 9, Songgao Rd., Taipei 110, Taiwan, R.O.C.

## 1.2. Manufacturer

Chi Mei Communication Systems, Inc.  
No. 4, Mingsheng Street, Tucheng District, New Taipei City, 23678, Taiwan

## 1.3. Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile Phone
Brand Name	Motorola
Model Name	XT685
Marketing Name	MOTOLUXE XT685
FCC ID	IHDP56MM5
Tx Frequency Range	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz
Rx Frequency Range	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz GPS : 1.57542 GHz
Antenna Type	WWAN : Fixed Internal Antenna Bluetooth : PIFA Antenna WLAN : PIFA Antenna
HW Version	PR1
SW Version	SW2_170
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK Bluetooth (1Mbps) : GFSK Bluetooth 2.1 EDR (2Mbps) : $\pi$ /4-DQPSK Bluetooth 2.1 EDR (3Mbps) : 8-DPSK 802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) GPS : BPSK
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4. Test Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.		
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC/IC Registration No.</b>
	CO05-HY	03CH05-HY	722060/4086B-1

## 1.5. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003
- IC RSS-Gen Issue 3

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

## 1.6. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY70DA2029	N/A	N/A
5.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A

## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The EUT uses a USB interface and microprocessor operating 800MHz which is the maximum frequency used.

The following tables are showing the test modes as the worst cases and recorded in this report.

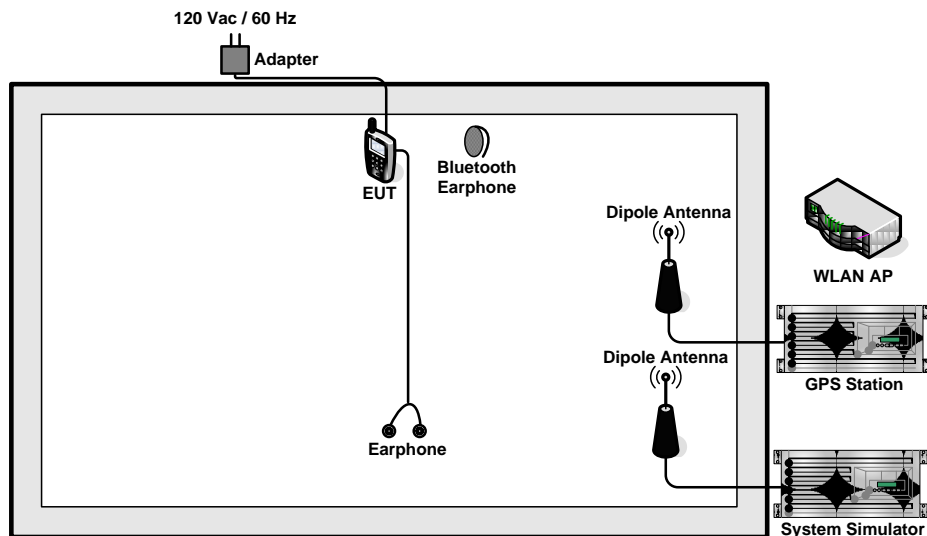
Item	EUT Configuration	Test Condition	
		EMI AC	EMI RE
1.	Charging Mode (EUT with adapter)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Data application transferred mode (EUT with notebook)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

#### Abbreviations:

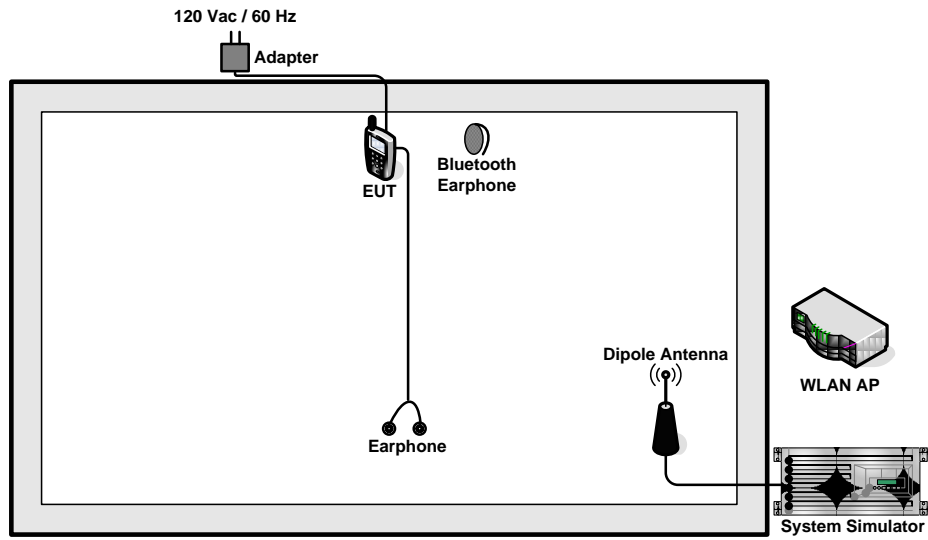
- EMI AC: AC conducted emissions
- EMI RE: EUT radiated emissions

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Adapter + Earphone + MP3 + Battery <Fig. 1> Mode 2: GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + Battery + USB Cable (Data Link with Notebook) <Fig. 3>
Radiated Emissions	1/2	Mode 1: GSM1900 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + Camera + Battery <Fig. 2> Mode 2: GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + Battery + USB Cable (Data Link with Notebook) <Fig. 3>
<b>Remark:</b> <ol style="list-style-type: none"> <li>The worst case of AC is mode 1; the test data of this mode was reported.</li> <li>The USB Link mode of AC Conducted Emission is mode 2; the test data of this mode was reported.</li> <li>The worst case of RE is mode 1; the test data of this mode was reported.</li> <li>The USB Link mode of Radiated Emissions is mode 2; the test data of this mode was reported.</li> <li>Link with Notebook means data application transferred mode between EUT and Notebook.</li> </ol>		

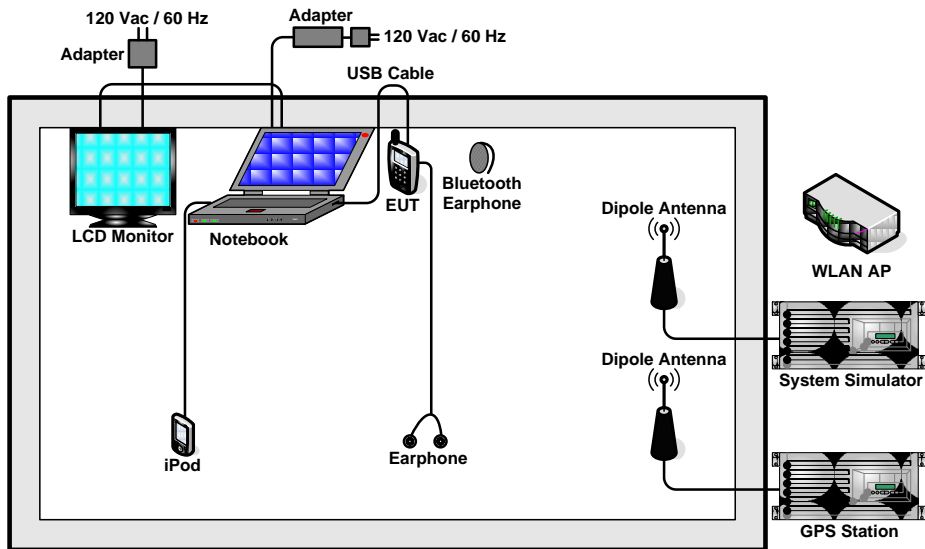
## 2.2. Connection Diagram of Test System



<Fig. 1>



<Fig. 2>



<Fig. 3>



## **2.3. Test Software**

The EUT was in GSM idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Execute the program, "Winthrax.exe", installed in notebook for active sync files transfer with EUT via USB cable.
2. Execute "GPS Test" to make the EUT receive signals from GPS station continuously.
3. Execute "Music Player" to play MP3 file.
4. Turn on camera to capture images.

### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

##### 3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

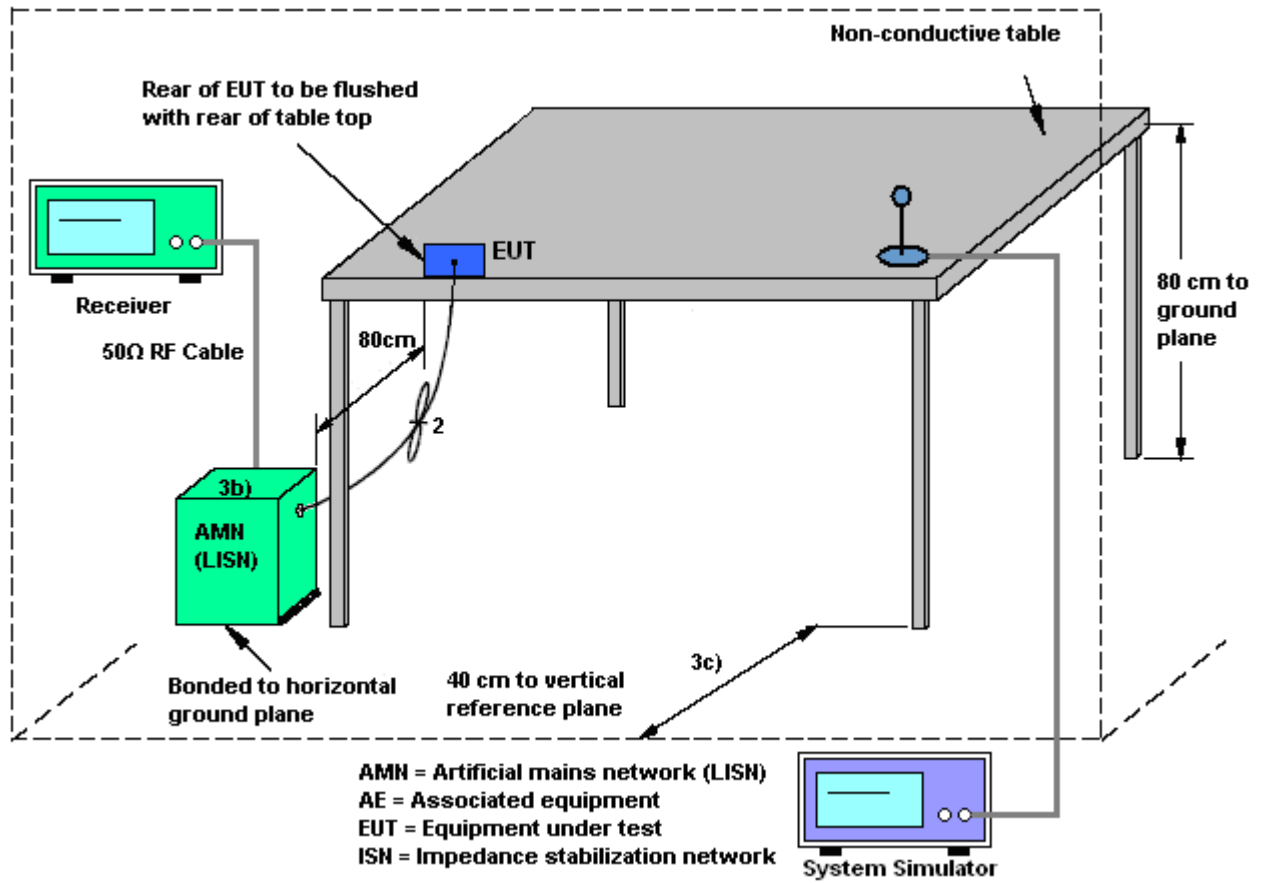
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedure

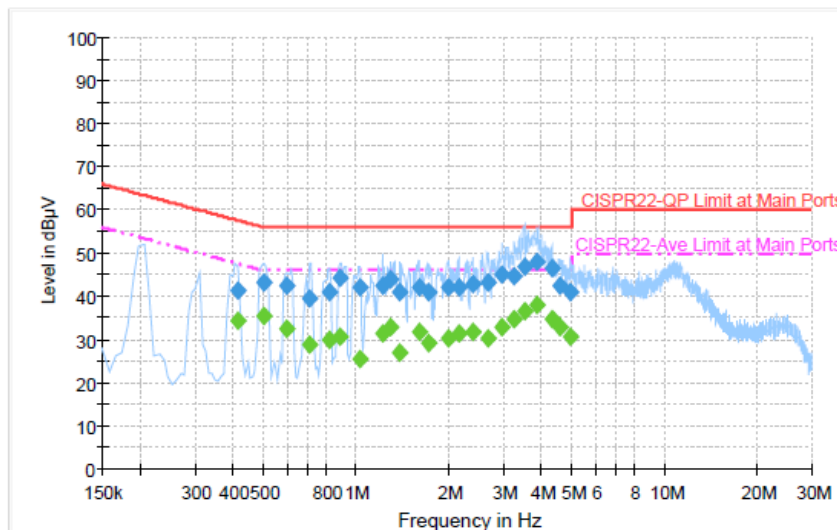
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 KHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### 3.1.4 Test Setup



### 3.1.5 Test Result of AC Conducted Emission

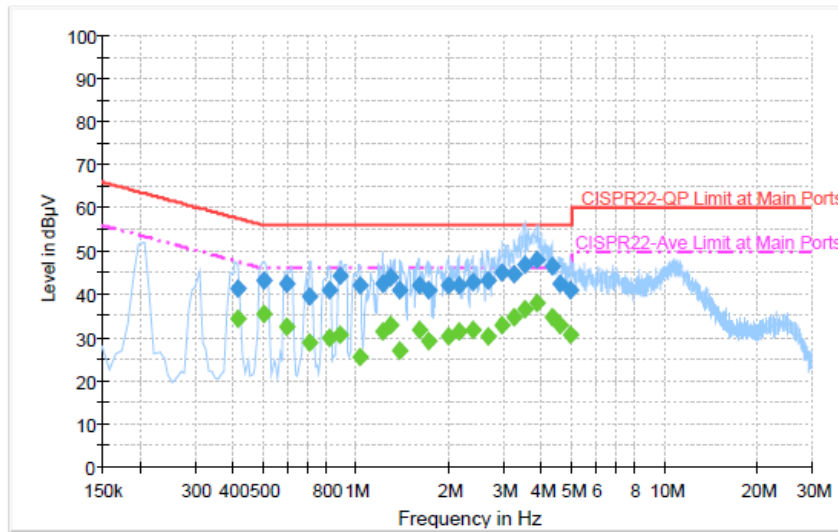
Test Mode :	Mode 1	Temperature :	20~21°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Adapter + Earphone + MP3 + Battery		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



#### Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.414000	41.3	Off	L1	19.5	16.3	57.6
0.502000	43.0	Off	L1	19.4	13.0	56.0
0.598000	42.6	Off	L1	19.4	13.4	56.0
0.710000	39.4	Off	L1	19.5	16.6	56.0
0.822000	40.8	Off	L1	19.4	15.2	56.0
0.886000	44.2	Off	L1	19.4	11.8	56.0
1.030000	42.2	Off	L1	19.4	13.8	56.0
1.214000	42.4	Off	L1	19.4	13.6	56.0
1.294000	43.9	Off	L1	19.4	12.1	56.0
1.390000	40.8	Off	L1	19.4	15.2	56.0
1.598000	42.1	Off	L1	19.4	13.9	56.0
1.726000	40.9	Off	L1	19.4	15.1	56.0
1.998000	41.9	Off	L1	19.4	14.1	56.0
2.150000	42.0	Off	L1	19.4	14.0	56.0
2.390000	42.9	Off	L1	19.5	13.1	56.0
2.686000	43.1	Off	L1	19.4	12.9	56.0

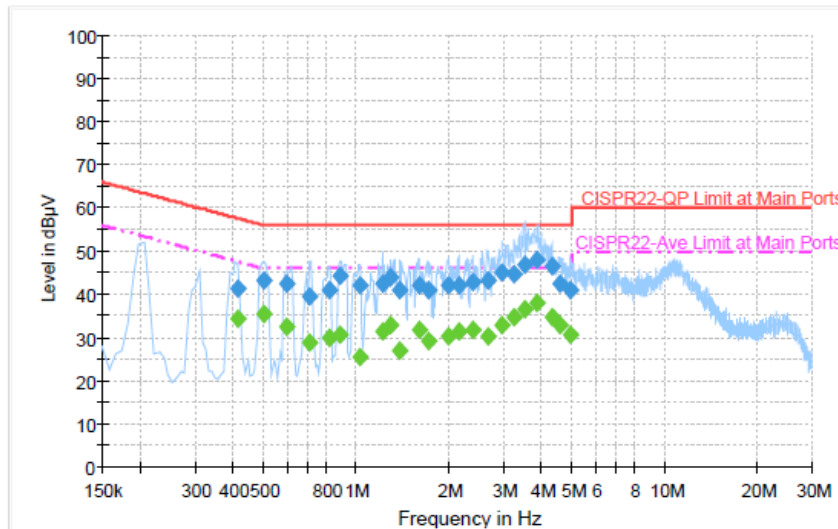
<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~21°C
<b>Test Engineer :</b>	Kai-Chun Chu	<b>Relative Humidity :</b>	50~51%
<b>Test Voltage :</b>	120Vac / 60Hz	<b>Phase :</b>	Line
<b>Function Type :</b>	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Adapter + Earphone + MP3 + Battery		
<b>Remark :</b>	All emissions not reported here are more than 10 dB below the prescribed limit.		



**Final Result : QuasiPeak**

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.974000	45.1	Off	L1	19.4	10.9	56.0
3.246000	44.6	Off	L1	19.5	11.4	56.0
3.510000	46.9	Off	L1	19.5	9.1	56.0
3.854000	47.9	Off	L1	19.5	8.1	56.0
4.302000	46.5	Off	L1	19.5	9.5	56.0
4.590000	42.6	Off	L1	19.5	13.4	56.0
4.982000	41.1	Off	L1	19.5	14.9	56.0

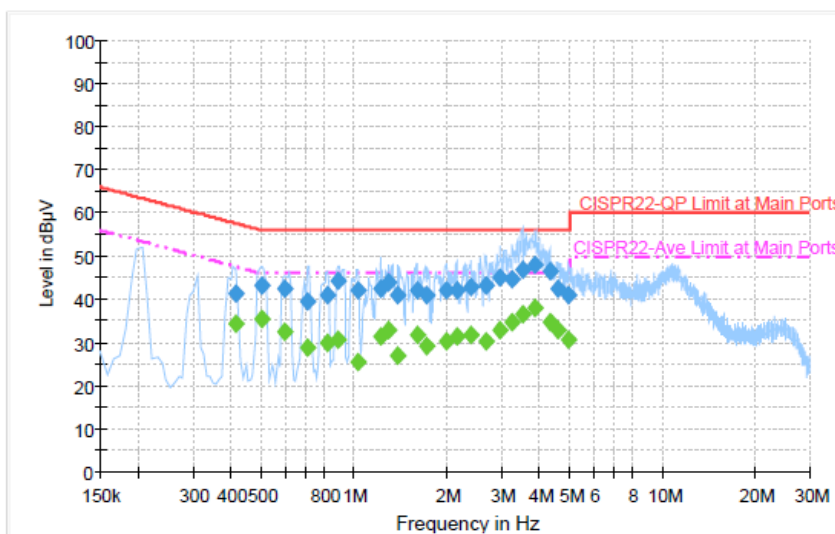
<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~21°C
<b>Test Engineer :</b>	Kai-Chun Chu	<b>Relative Humidity :</b>	50~51%
<b>Test Voltage :</b>	120Vac / 60Hz	<b>Phase :</b>	Line
<b>Function Type :</b>	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Adapter + Earphone + MP3 + Battery		
<b>Remark :</b>	All emissions not reported here are more than 10 dB below the prescribed limit.		



**Final Result : Average**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.414000	34.5	Off	L1	19.5	13.1	47.6
0.502000	35.5	Off	L1	19.4	10.5	46.0
0.598000	32.3	Off	L1	19.4	13.7	46.0
0.710000	28.6	Off	L1	19.5	17.4	46.0
0.822000	29.8	Off	L1	19.4	16.2	46.0
0.886000	30.8	Off	L1	19.4	15.2	46.0
1.030000	25.3	Off	L1	19.4	20.7	46.0
1.214000	31.4	Off	L1	19.4	14.6	46.0
1.294000	32.9	Off	L1	19.4	13.1	46.0
1.390000	26.8	Off	L1	19.4	19.2	46.0
1.598000	31.7	Off	L1	19.4	14.3	46.0
1.726000	29.2	Off	L1	19.4	16.8	46.0
1.998000	30.4	Off	L1	19.4	15.6	46.0
2.150000	31.4	Off	L1	19.4	14.6	46.0
2.390000	31.8	Off	L1	19.5	14.2	46.0
2.686000	30.1	Off	L1	19.4	15.9	46.0

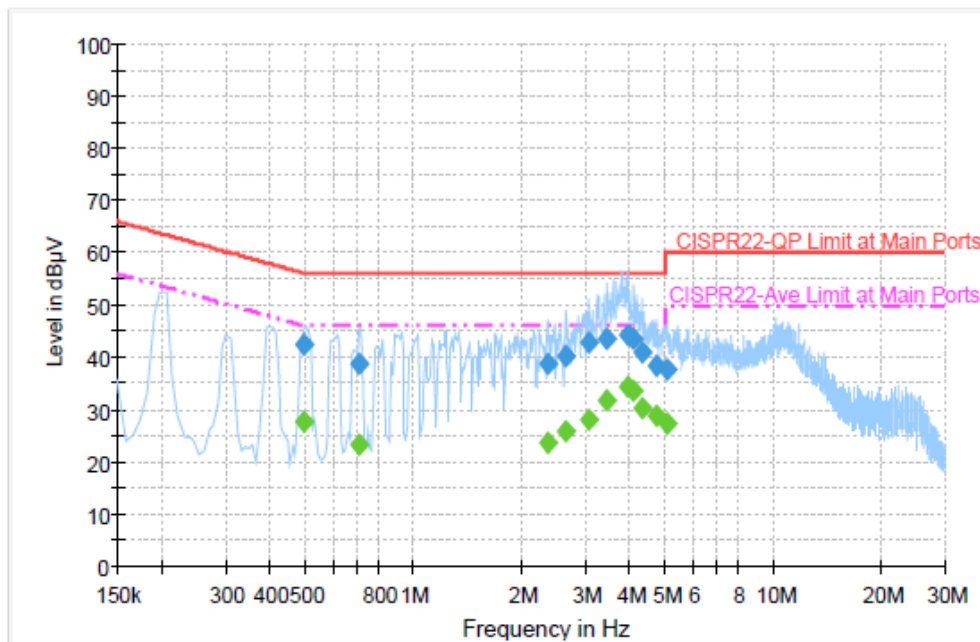
Test Mode :	Mode 1	Temperature :	20~21°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Adapter + Earphone + MP3 + Battery		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.974000	32.7	Off	L1	19.4	13.3	46.0
3.246000	34.8	Off	L1	19.5	11.2	46.0
3.510000	36.5	Off	L1	19.5	9.5	46.0
3.854000	38.0	Off	L1	19.5	8.0	46.0
4.302000	34.6	Off	L1	19.5	11.4	46.0
4.590000	32.7	Off	L1	19.5	13.3	46.0
4.982000	30.8	Off	L1	19.5	15.2	46.0

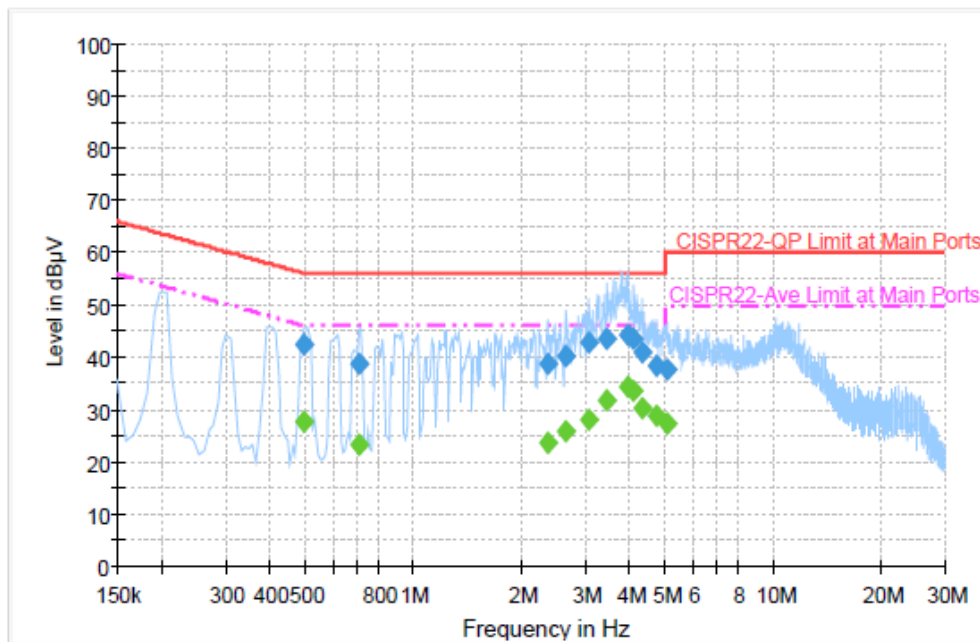
<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~21°C
<b>Test Engineer :</b>	Kai-Chun Chu	<b>Relative Humidity :</b>	50~51%
<b>Test Voltage :</b>	120Vac / 60Hz	<b>Phase :</b>	Neutral
<b>Function Type :</b>	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Adapter + Earphone + MP3 + Battery		
<b>Remark :</b>	All emissions not reported here are more than 10 dB below the prescribed limit.		



**Final Result : QuasiPeak**

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.494000	42.5	Off	N	19.4	13.6	56.1
0.710000	38.8	Off	N	19.5	17.2	56.0
2.358000	38.7	Off	N	19.5	17.3	56.0
2.662000	40.4	Off	N	19.5	15.6	56.0
3.070000	42.8	Off	N	19.5	13.2	56.0
3.462000	43.7	Off	N	19.5	12.3	56.0
3.926000	44.1	Off	N	19.5	11.9	56.0
4.102000	43.7	Off	N	19.5	12.3	56.0
4.326000	40.9	Off	N	19.5	15.1	56.0
4.718000	38.5	Off	N	19.5	17.5	56.0
5.078000	37.6	Off	N	19.5	22.4	60.0

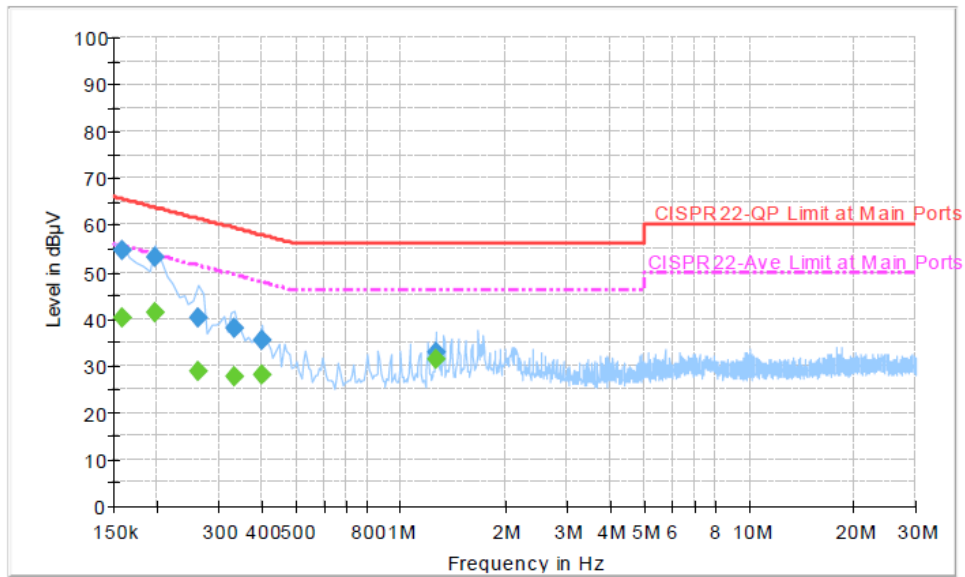
<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~21°C
<b>Test Engineer :</b>	Kai-Chun Chu	<b>Relative Humidity :</b>	50~51%
<b>Test Voltage :</b>	120Vac / 60Hz	<b>Phase :</b>	Neutral
<b>Function Type :</b>	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Adapter + Earphone + MP3 + Battery		
<b>Remark :</b>	All emissions not reported here are more than 10 dB below the prescribed limit.		



**Final Result : Average**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.494000	27.7	Off	N	19.4	18.4	46.1
0.710000	23.2	Off	N	19.5	22.8	46.0
2.358000	23.8	Off	N	19.5	22.2	46.0
2.662000	25.7	Off	N	19.5	20.3	46.0
3.070000	28.1	Off	N	19.5	17.9	46.0
3.462000	31.7	Off	N	19.5	14.3	46.0
3.926000	34.3	Off	N	19.5	11.7	46.0
4.102000	33.7	Off	N	19.5	12.3	46.0
4.326000	30.4	Off	N	19.5	15.6	46.0
4.718000	28.7	Off	N	19.5	17.3	46.0
5.078000	27.2	Off	N	19.5	22.8	50.0

Test Mode :	Mode 2	Temperature :	20~21°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + Battery + USB Cable (Data Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



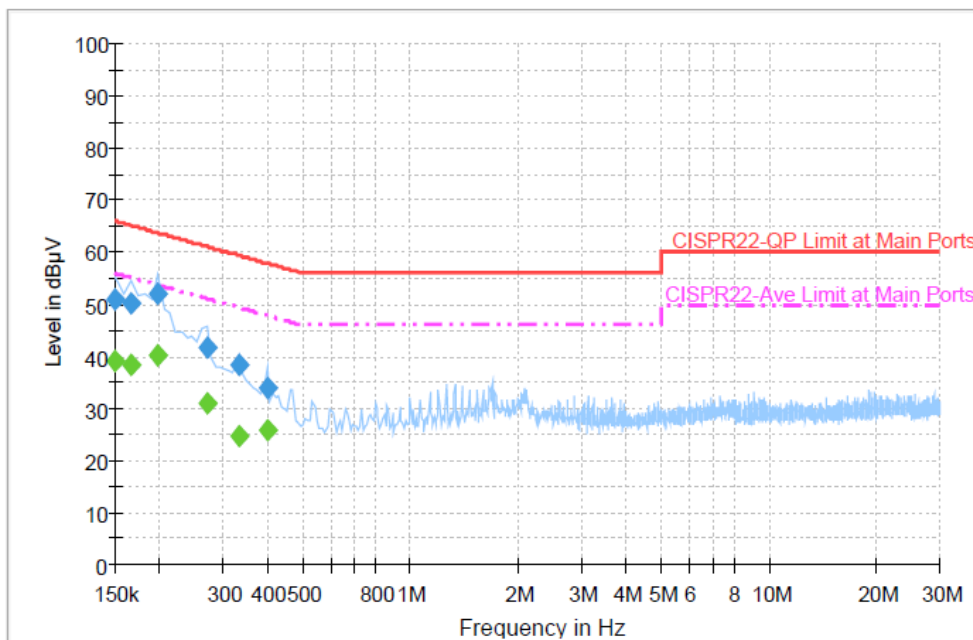
**Final Result : QuasiPeak**

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	54.8	Off	L1	19.3	10.8	65.6
0.198000	53.3	Off	L1	19.3	10.4	63.7
0.262000	40.2	Off	L1	19.4	21.2	61.4
0.334000	38.1	Off	L1	19.4	21.3	59.4
0.398000	35.3	Off	L1	19.5	22.6	57.9
1.262000	32.7	Off	L1	19.5	23.3	56.0

**Final Result : Average**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	40.3	Off	L1	19.3	15.3	55.6
0.198000	41.5	Off	L1	19.3	12.2	53.7
0.262000	28.8	Off	L1	19.4	22.6	51.4
0.334000	27.5	Off	L1	19.4	21.9	49.4
0.398000	28.2	Off	L1	19.5	19.7	47.9
1.262000	31.3	Off	L1	19.5	14.7	46.0

Test Mode :	Mode 2	Temperature :	20~21°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + Battery + USB Cable (Data Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.1	Off	N	19.4	14.9	66.0
0.166000	50.2	Off	N	19.4	15.0	65.2
0.198000	52.0	Off	N	19.3	11.7	63.7
0.270000	41.7	Off	N	19.4	19.4	61.1
0.334000	38.4	Off	N	19.4	21.0	59.4
0.398000	34.1	Off	N	19.5	23.8	57.9

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.1	Off	N	19.4	16.9	56.0
0.166000	38.2	Off	N	19.4	17.0	55.2
0.198000	40.1	Off	N	19.3	13.6	53.7
0.270000	30.9	Off	N	19.4	20.2	51.1
0.334000	24.7	Off	N	19.4	24.7	49.4
0.398000	25.7	Off	N	19.5	22.2	47.9



### 3.2. Test of Radiated Emission Measurement

#### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

#### 3.2.2. Measuring Instruments

See list of measuring instruments of this test report.

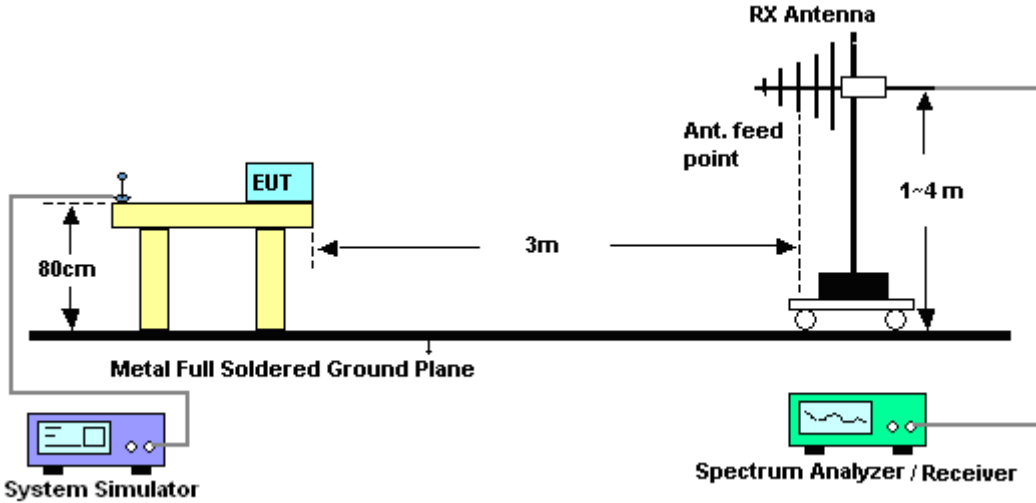


### **3.2.3. Test Procedures**

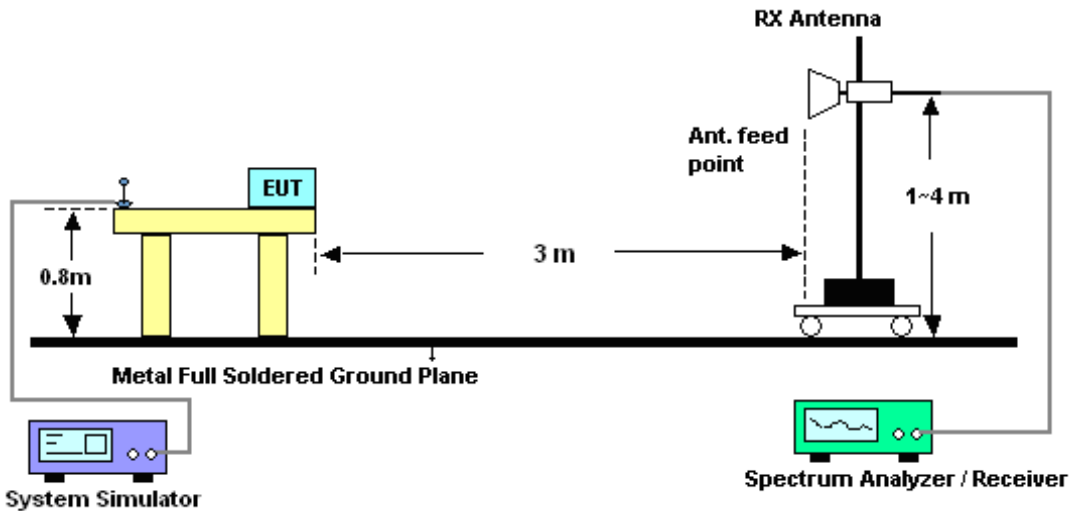
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported
8. Emission level (dBuV/m) = 20 log Emission level (uV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



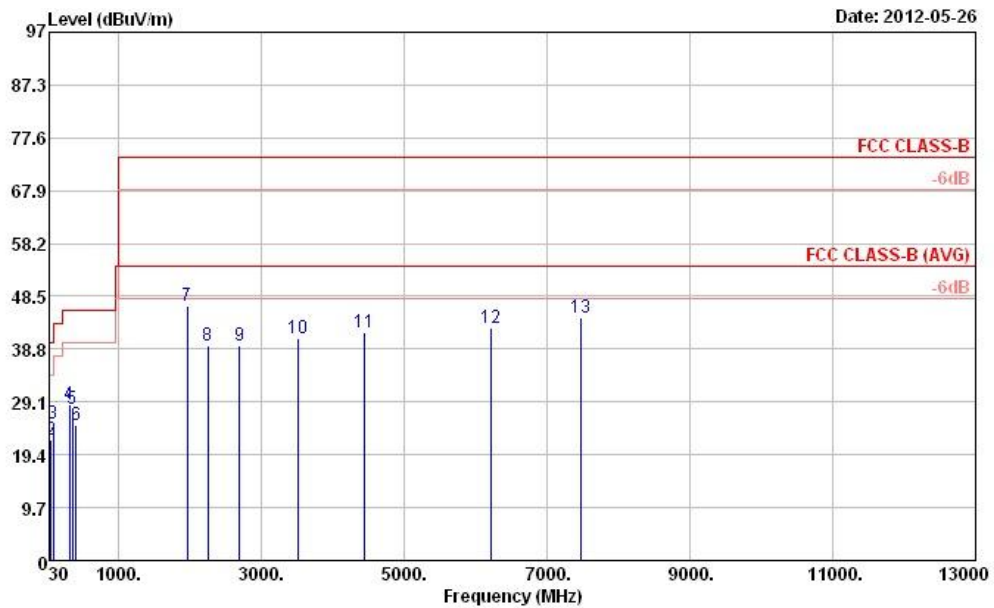
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	David Yang	Relative Humidity :	51~53%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GSM1900 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + Camera + Battery		
Remark :	#7 is system simulator signal which can be ignored.		

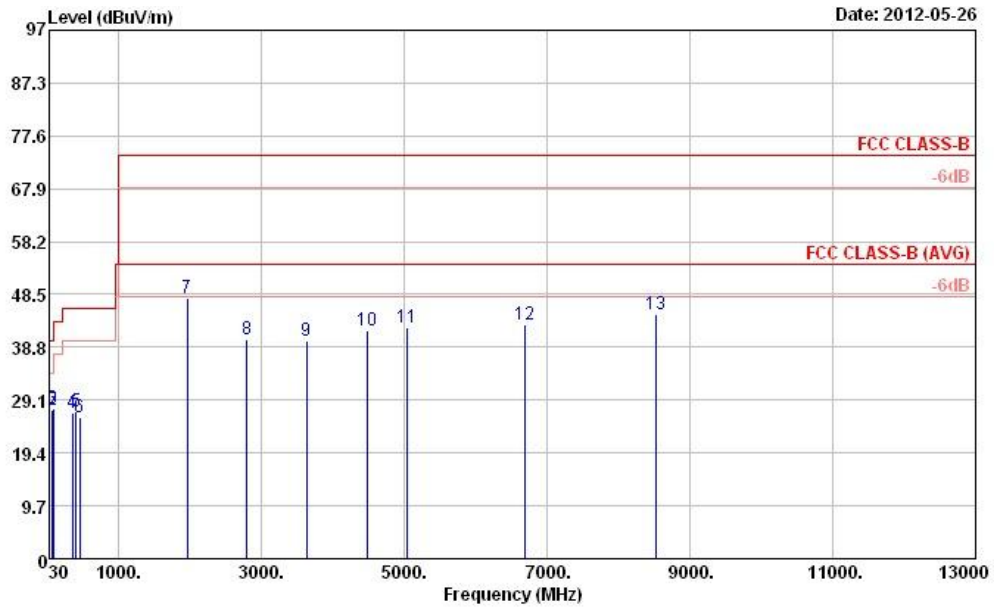


Site : 03CH05-HY  
 Condition : FCC CLASS-B 3m HF\_ANT\_110810 HORIZONTAL  
 Power : 120Vac/60Hz

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	
	MHz	dBUV/m	dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	32.97	26.12	-13.88	40.00	39.27	17.76	0.72	31.63	130	309 Peak	
2	60.51	22.05	-17.95	40.00	46.77	6.00	0.87	31.59	---	---	Peak
3	89.13	25.25	-18.25	43.50	47.00	8.58	1.06	31.39	---	---	Peak
4	311.90	28.77	-17.23	46.00	44.54	13.34	1.81	30.92	---	---	Peak
5	359.50	27.94	-18.06	46.00	42.48	14.60	1.92	31.06	---	---	Peak
6	407.80	24.92	-21.08	46.00	37.82	16.22	2.03	31.15	---	---	Peak
7	1960.00	46.62			69.29	31.35	4.26	58.28	---	---	Peak
8	2248.00	39.38	-34.62	74.00	61.13	31.89	4.49	58.13	---	---	Peak
9	2694.00	39.45	-34.55	74.00	60.24	32.38	4.99	58.16	---	---	Peak
10	3524.00	40.86	-33.14	74.00	61.43	32.72	5.70	58.99	---	---	Peak
11	4448.00	42.02	-31.98	74.00	61.73	33.84	6.34	59.89	---	---	Peak
12	6226.00	42.80	-31.20	74.00	56.43	35.32	7.40	56.35	---	---	Peak
13	7466.00	44.52	-29.48	74.00	58.48	35.60	8.68	58.24	100	0 Peak	



Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	David Yang	Relative Humidity :	51~53%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM1900 Idle + Bluetooth Idle + WLAN Idle + Adapter + Earphone + Camera + Battery		
Remark :	#7 is system simulator signal which can be ignored.		

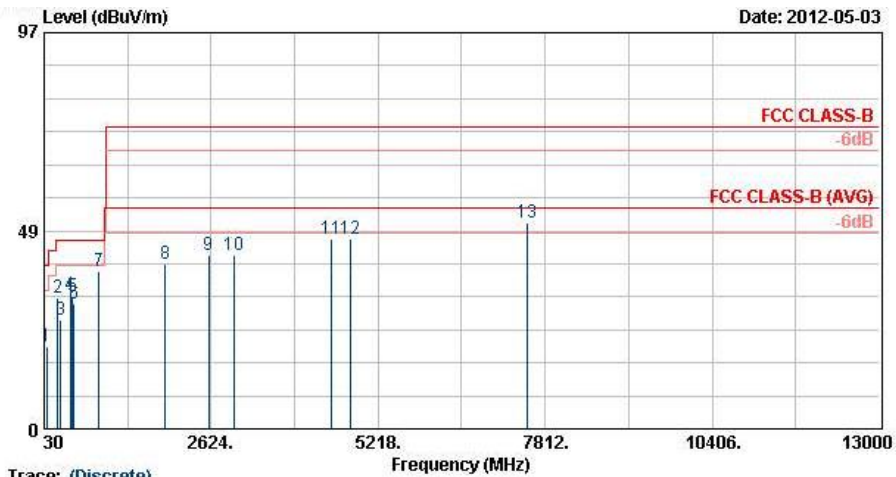


Site : 03CH05-HY  
 Condition : FCC CLASS-B 3m HF\_ANT\_110810 VERTICAL  
 Power : 120Vac/60Hz

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	32.97	32.37	-7.63	40.00	45.52	17.76	0.72	31.63	109	177 Peak	
2	79.95	27.20	-12.80	40.00	50.07	7.53	0.98	31.38	---	---	Peak
3	89.94	27.50	-16.00	43.50	49.13	8.70	1.07	31.40	---	---	Peak
4	359.50	26.79	-19.21	46.00	41.33	14.60	1.92	31.06	---	---	Peak
5	407.80	27.11	-18.89	46.00	40.01	16.22	2.03	31.15	---	---	Peak
6	456.10	25.94	-20.06	46.00	37.46	17.32	2.15	30.99	---	---	Peak
7	1960.00	47.89			70.56	31.35	4.26	58.28	---	---	Peak
8	2802.00	40.22	-33.78	74.00	60.78	32.52	5.15	58.23	---	---	Peak
9	3636.00	40.01	-33.99	74.00	60.60	32.87	5.77	59.23	---	---	Peak
10	4480.00	41.75	-32.25	74.00	61.39	33.88	6.36	59.88	---	---	Peak
11	5048.00	42.39	-31.61	74.00	60.40	33.85	6.62	58.48	---	---	Peak
12	6680.00	43.03	-30.97	74.00	56.77	35.60	7.55	56.89	---	---	Peak
13	8534.00	44.89	-29.11	74.00	56.53	35.82	9.39	56.85	100	0 Peak	



Test Mode :	Mode 2	Temperature :	23~24°C
Test Engineer :	David Yang	Relative Humidity :	51~53%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + Battery + USB Cable (Data Link with Notebook)		
Remark :	#7 is system simulator signal which can be ignored.		

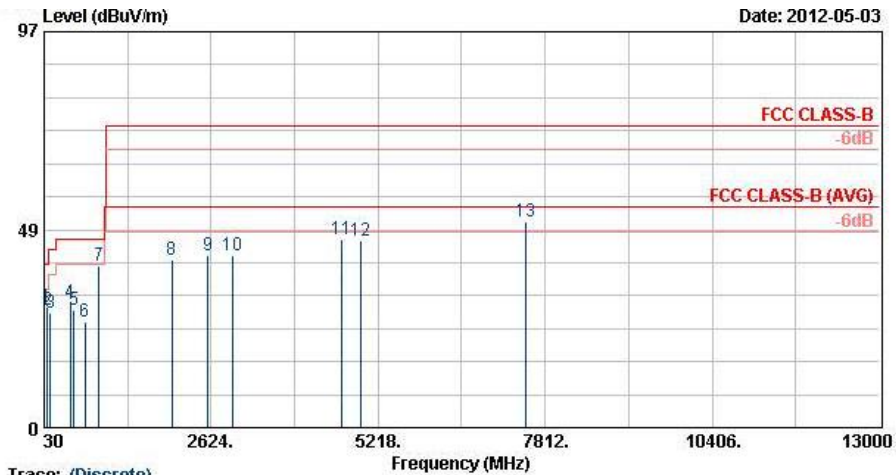


Trace: (Discrete)  
 Site : 03CH06-HY  
 Condition : FCC CLASS-B HF-ANT\_110802 HORIZONTAL  
 Project : FD 100527-02  
 Power : 120Vac/60Hz

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	75.63	20.10	-19.90	40.00	43.93	6.65	0.87	31.35	---	---	Peak
2	239.79	32.12	-13.88	46.00	49.66	11.30	2.24	31.08	---	---	Peak
3	284.88	26.86	-19.14	46.00	42.81	12.95	2.19	31.09	---	---	Peak
4	441.40	32.94	-13.06	46.00	44.91	16.62	2.53	31.12	100	244	Peak
5	465.90	32.41	-13.59	46.00	43.63	17.15	2.62	30.99	---	---	Peak
6	491.80	30.74	-15.26	46.00	41.80	17.60	2.88	31.54	---	---	Peak
7 @	881.40	38.56	---	---	45.31	20.61	3.81	31.17	---	---	Peak
8	1916.00	40.30	-33.70	74.00	58.86	30.88	4.78	54.22	---	---	Peak
9	2582.00	42.69	-31.31	74.00	59.39	32.08	5.63	54.42	---	---	Peak
10	2972.00	42.62	-31.38	74.00	58.63	32.47	6.05	54.53	---	---	Peak
11	4500.00	46.65	-27.35	74.00	59.96	34.60	7.76	55.67	---	---	Peak
12	4790.00	46.45	-27.55	74.00	59.91	34.42	7.95	55.83	---	---	Peak
13	7524.00	50.37	-23.63	74.00	59.74	35.51	11.35	56.22	100	63	Peak



Test Mode :	Mode 2	Temperature :	23~24°C
Test Engineer :	David Yang	Relative Humidity :	51~53%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + Battery + USB Cable (Data Link with Notebook)		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH06-HY  
 Condition : FCC CLASS-B HF-ANT\_110802 VERTICAL  
 Project : FD 100527-02  
 Power : 120Vac/60Hz

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	75.09	29.44	-10.56	40.00	53.35	6.60	0.85	31.36	104	318 Peak
2	82.38	28.77	-11.23	40.00	51.90	7.22	0.96	31.32	---	---
3	121.53	28.21	-15.29	43.50	46.30	11.88	1.32	31.29	---	---
4	441.40	30.74	-15.26	46.00	42.71	16.62	2.53	31.12	---	---
5	491.80	28.98	-17.02	46.00	40.04	17.60	2.88	31.54	---	---
6	665.40	25.96	-20.04	46.00	34.68	19.15	3.45	31.32	---	---
7 @	881.40	39.61			46.36	20.61	3.81	31.17	---	---
8	2020.00	41.10	-32.90	74.00	58.90	31.52	4.93	54.25	---	---
9	2574.00	42.15	-31.85	74.00	58.85	32.08	5.63	54.42	---	---
10	2958.00	42.16	-31.84	74.00	58.18	32.45	6.05	54.53	---	---
11	4652.00	46.25	-27.75	74.00	59.65	34.51	7.85	55.75	---	---
12	4956.00	45.96	-28.04	74.00	59.50	34.32	8.06	55.92	---	---
13	7510.00	50.46	-23.54	74.00	59.79	35.50	11.39	56.23	100	67 Peak



### 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	May 16, 2012 ~ May 31, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	May 16, 2012 ~ May 31, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	May 16, 2012 ~ May 31, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	May 16, 2012 ~ May 31, 2012	N/A	Conduction (CO05-HY)
GPS Station	Pendulum	GSG-54	N/A	N/A	N/A	May 16, 2012 ~ May 31, 2012	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	ESU26	100390	20Hz ~ 26.5GHz	Dec. 22, 2011	May 18, 2012 ~ May 26, 2012	Dec. 21, 2012	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 2GHz	Oct. 22, 2011	May 18, 2012 ~ May 26, 2012	Oct. 21, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 ~ 360 degree	N/A	May 18, 2012 ~ May 26, 2012	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m ~ 4 m	N/A	May 18, 2012 ~ May 26, 2012	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz ~ 18GHz	Aug. 04, 2011	May 18, 2012 ~ May 26, 2012	Aug. 03, 2012	Radiation (03CH05-HY)
Pre Amplifier	COM-POWER	PA-103A	161075	10Hz ~ 1000MHz Gain:32dB	Feb. 27, 2012	May 18, 2012 ~ May 26, 2012	Feb. 26, 2013	Radiation (03CH05-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159087	1GHz~18GHz	Feb. 27, 2012	May 18, 2012 ~ May 26, 2012	Feb. 26, 2013	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz~26.5GHz	Aug. 30, 2011	May 18, 2012 ~ May 26, 2012	Aug. 29, 2012	Radiation (03CH05-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9KHz ~ 26.5GHz	Nov. 23, 2011	May 03, 2012	Nov. 22, 2012	Radiation (03CH06-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz-30GHz	Nov. 01, 2011	May 03, 2012	Oct. 31, 2012	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz ~ 1000MHz	May 10, 2011	May 03, 2012	May 09, 2012	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz ~ 2GHz	Oct. 22, 2011	May 03, 2012	Oct. 21, 2012	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2011	May 03, 2012	Jul. 31, 2012	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz ~ 40GHz	Oct. 21, 2011	May 03, 2012	Oct. 20, 2012	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz ~ 26.5GHz	Apr. 13, 2012	May 03, 2012	Apr. 12, 2013	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz ~ 1GHz	Apr. 11, 2012	May 03, 2012	Apr. 10, 2013	Radiation (03CH06-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 18, 2011	May 03, 2012	Jul. 17, 2012	Radiation (03CH06-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	May 03, 2012 ~ May 26, 2012	Jul. 27, 2013	-

## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 KHz ~ 30 MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.54</b>		



**Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)**

Contribution	Uncertainty of $X_i$		$u(X_i)$	$C_i$	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	$\pm 0.10$	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	$\pm 1.70$	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	$\pm 0.50$	Normal (k=2)	0.25	1	0.25
Receiver Correction	$\pm 2.00$	Rectangular	1.15	1	1.15
Antenna Factor Directional	$\pm 1.50$	Rectangular	0.87	1	0.87
Site Imperfection	$\pm 2.80$	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>2.36</b>				
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>4.72</b>				

## Appendix A. Product Equality Declaration

### Chi Mei Communication System Inc.

Tel: 886-2-2268-5511; Fax: 886-2-2269-2922

Date: May 29, 2012

### Product Equality Declaration

We, Chi Mei Communication System Inc., declare on our sole responsibility for the product of XT615 (model name) as below:

The difference between XT615 #3149 (900/2100) and XT685#3402 (900/2100) are:

- ◆ CPU difference : XT615 use 800MHz CPU, XT685 use 1GHz CPU.
- ◆ SIM difference : XT615 is single SIM, and XT685 is dual SIM.
- ◆ Battery difference : XT615 is SNN5843A, and XT685 is SNN5891A
- ◆ LCD Panel difference: XT615 is TOSHIBA\_ LT040MDT9000, and XT685 is Truly\_ TFT3P3446-M-E
- ◆ Color difference: XT615 is Black, and XT685 is white
- ◆ PCB is the same with XT615 (900/2100), only BOM difference listed below:

Reference	3149 (EU variant)		3402 (1G-Dual SIM)		Note
	Part Number	Description	Part Number	Description	
R902	SR004730231	RES_47K_0201_±1%_1/20W_RM02FTN4702	SR000000252	RES_0Ω_0201_±5%_1/20W_RM02JTN0	HWID
R908	SR039030251	RES_390K_0201_±5%_1/20W_RM02JTN394	SR000000252	RES_0Ω_0201_±5%_1/20W_RM02JTN0	HWID
U301	SA0227A00A0	IC_MSM7227A-0_3.3V_11*11*1.05_576P_NSP	SA02271A0A0	IC_CPU_1GHz_4.28V_11*11*1.05mm_576P_NSP	3149:MSM7227A 3402:MSM7227A-AA
CON104	N/A	Did not install	MEIRM47002A	CONN_SIM_6P_8.5*15.9*0.5mm	2 <sup>nd</sup> SIM reader
X701	SX0032K012H	CRYSTAL_32.768KHz_CL:12.5pF_±20ppm_3.2*1	SX0032M012X	XTAL_32.768K_CL:7pF_±20ppm_3.2*1.5*0.9_Swatch	3402: uses 2 <sup>nd</sup> source to avoid shortage



ESD1901	SG012033110	ESD_Chip SMD Transient Voltage Suppressor	SG18131D0A0	ESD_TV_S_CL-12V/1 A_OP-5V_1.25pF_2P SOD882	3402: uses 2 <sup>nd</sup> source to avoid shortage
ESD1902	SG012033110	ESD_Chip SMD Transient Voltage Suppressor	SG18131D0A0	ESD_TV_S_CL-12V/1 A_OP-5V_1.25pF_2P SOD882	3402: uses 2 <sup>nd</sup> source to avoid shortage

Except Listings above, the others are the same as previous version.

Should you have any questions or comments regarding this matter, please have my best attention.

Sincerely yours,

**James Wen**  
**Chi Mei Communication System Inc.**  
**Tel: 886-2-2268-5511**  
**Fax: 886-2-2269-2922**  
**E-Mail: Jameswen@fih-foxconn.com**



## **Appendix B. Original Report**

Please refer to Sporton report number FC1O0527A as below.