



# FCC Test Report

**APPLICANT** : SHARP CORPORATION, IoT Communication BU  
**EQUIPMENT** : Smart Phone  
**FCC ID** : APYHRO00244  
**STANDARD** : FCC 47 CFR FCC Part 15 Subpart B  
**CLASSIFICATION** : Certification

The product was received on Oct. 14, 2016 and testing was completed on Nov. 03, 2016. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in 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: Louis Wu / Manager

Approved by: Jones Tsai / Manager



## **SPORTON INTERNATIONAL INC.**

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



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## SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 13.20 dB at 6.142 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 2.41 dB at 31.620 MHz for Quasi-Peak



# 1. General Description

## 1.1. Applicant

**SHARP CORPORATION, IoT Communication BU**

2-13-1, Hachihonmatsu-lida, Higashi-hiroshima-shi, Hiroshima, 739-0192, Japan

## 1.2. Manufacturer

**SHARP CORPORATION, IoT Communication BU**

2-13-1, Hachihonmatsu-lida, Higashi-hiroshima-shi, Hiroshima, 739-0192, Japan

## 1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Phone
FCC ID	APYHRO00244
Sample 1	eMMC Brand Name : Samsung
Sample 2	eMMC Brand Name : hynix
EUT supports Radios application	GSM/GPRS/WCDMA/HSPA/LTE/NFC WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	PP1
SW Version	AB04A
EUT Stage	Production Unit

**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. Product Specification of Equipment Under Test

Standards-related Product Specification	
<b>Tx Frequency</b>	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5700 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
<b>Rx Frequency</b>	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5700 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz NFC : 13.56 MHz
<b>Antenna Type</b>	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GPS : PIFA Antenna NFC : Loop Antenna
<b>Type of Modulation</b>	GSM: GMSK GPRS: GMSK 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM /256QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GPS : BPSK NFC: ASK

### 1.5. Modification of EUT

No modifications are made to the EUT during all test items.



### 1.6. Test Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

<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 District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	CO05-HY	03CH06-HY

#### Applicable 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 C63.4-2014

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



## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

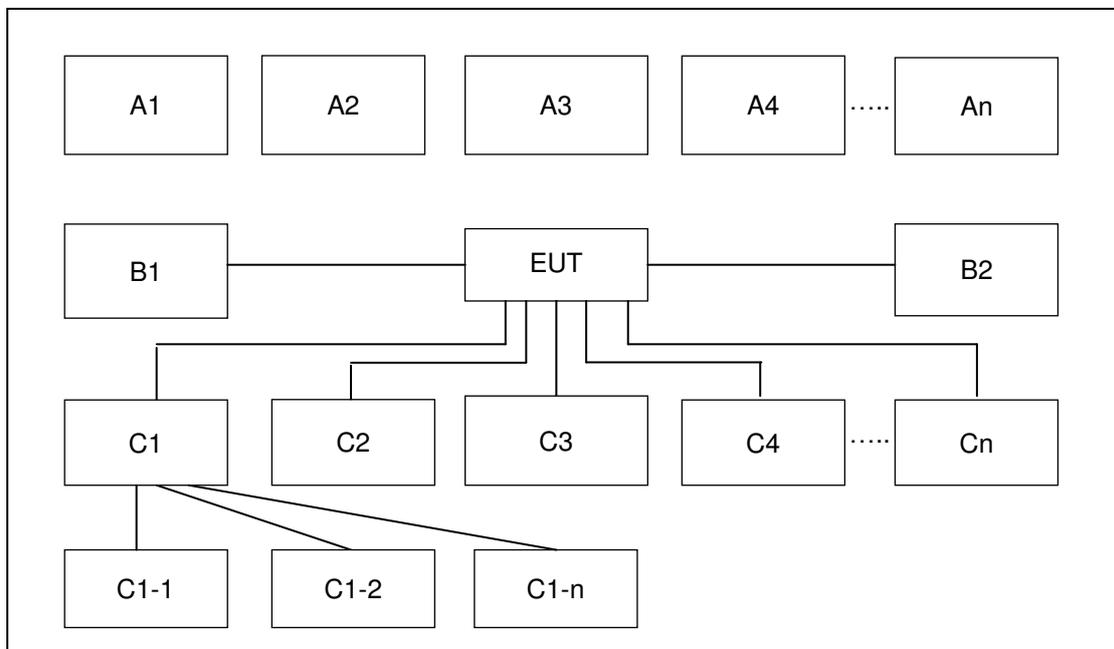
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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).

Test Items	Function Type
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + NFC On + USB Cable (Charging from Adapter) for Sample 1
	Mode 2 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + MPEG4 + USB Cable (Charging from Adapter) for Sample 1
	Mode 3 : GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + Camera (Front) + USB Cable (Charging from Adapter) for Sample 1
	Mode 4 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + Camera (Rear) + USB Cable (Charging from Adapter) for Sample 1
	Mode 5 : GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + GPS Rx + USB Cable (Charging from Adapter) for Sample 1
	Mode 6 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + Glonass Rx + USB Cable (Data Link with Notebook) for Sample 1
	Mode 7 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + Glonass Rx + USB Cable (Data Link with Notebook) for Sample 2
Radiated Emissions < 1GHz	Mode 1 : GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + NFC On + USB Cable (Charging from Adapter) for Sample 1
	Mode 2 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + MPEG4 + USB Cable (Charging from Adapter) for Sample 1
	Mode 3 : GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + Camera (Front) + USB Cable (Charging from Adapter) for Sample 1
	Mode 4 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + Camera (Rear) + USB Cable (Charging from Adapter) for Sample 1
	Mode 5 : GSM850 Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Earphone + GPS Rx + USB Cable (Charging from Adapter) for Sample 1
	Mode 6 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + Glonass Rx + USB Cable (Data Link with Notebook) for Sample 1
	Mode 7 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + MPEG4 + USB Cable (Charging from Adapter) for Sample 2

Test Items	Function Type
Radiated Emissions $\geq$ 1GHz	Mode 1 : GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + MPEG4 + USB Cable (Charging from Adapter) for Sample 1
<p><b>Remark:</b></p> <ol style="list-style-type: none"> <li>The worst case of AC is mode 6; only the test data of this mode was reported.</li> <li>The worst case of RE &lt; 1G is mode 2; only the test data of this mode was reported.</li> <li>Data Link with Notebook means data application transferred mode between EUT and Notebook.</li> </ol>	

## 2.2. Connection Diagram of Test System





Conduction Test Setup									
No.	Wireless Station	Connection Type	Test Mode						
			1	2	3	4	5	6	7
A1	BT Earphone	Bluetooth	X	X	X	X	X	X	X
A2	System Simulator	GSM/UMTS/CDMA/ WCDMA/LTE	X	X	X	X	X	X	X
A3	GPS Station	GPS					X	X	X
A4	AP router	WiFi	X	X	X	X	X	X	X
No.	Power Source	Connection Type	1	2	3	4	5	6	7
B1	AC : 120V/60Hz	AC Power Cable	X	X	X	X	X		
No.	Setup Peripherals	Connection Type	1	2	3	4	5	6	7
C1	Notebook	USB Cable						X	X
C1-1	iPod	USB Cable to C1						X	X
C1-2	AP router	RJ-45 Cable to C1						X	X
C2	Earphone	Earphone jack	X	X	X	X	X	X	X
C3	SD card	SD I/O interface without Cable	X	X	X	X	X	X	X

Radiation Test Setup									
No.	Wireless Station	Connection Type	Test Mode						
			1	2	3	4	5	6	7
A1	BT Earphone	Bluetooth	X	X	X	X	X	X	X
A2	System Simulator	GSM/UMTS/CDMA/ WCDMA/LTE	X	X	X	X	X	X	X
A3	GPS Station	GPS					X	X	
A4	AP router	WiFi	X	X	X	X	X	X	X
No.	Power Source	Connection Type	1	2	3	4	5	6	7
B1	AC : 120V/60Hz	AC Power Cable	X	X	X	X	X		X
No.	Setup Peripherals	Connection Type	1	2	3	4	5	6	7
C1	Notebook	USB Cable						X	
C1-1	iPod	USB Cable to C1						X	
C1-2	AP router	RJ-45 Cable to C1						X	
C2	Earphone	Earphone jack	X	X	X	X	X	X	X
C3	SD card	SD I/O interface without Cable	X	X	X	X	X	X	X



### 2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
4.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
5.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
6.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
9.	Notebook	DELL	P20G	FCC DoC/ Contains FCC ID: QDS-BRCM1051	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
10.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
11.	USB Cable	SHARP(P1X accessory)	CUBB01M-FA002-DH	N/A	Shielded, 0.9m	N/A
12.	Earphone	SONY	SHLDL1	N/A	Unshielded, 1.5m	N/A
13.	Adapter	SHARP	DSA-10PFL-05 FUS 050200	N/A	N/A	N/A



## **2.4. EUT Operation Test Setup**

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. Turn on the NFC function.
2. Turned on Camera function.
3. Execute "Video player" to play MPEG4 files.
4. Execute "A-GPS field" to make the EUT receive continuous signals from GPS station.
5. Data application is transferred between Laptop and SD Card.



### 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.

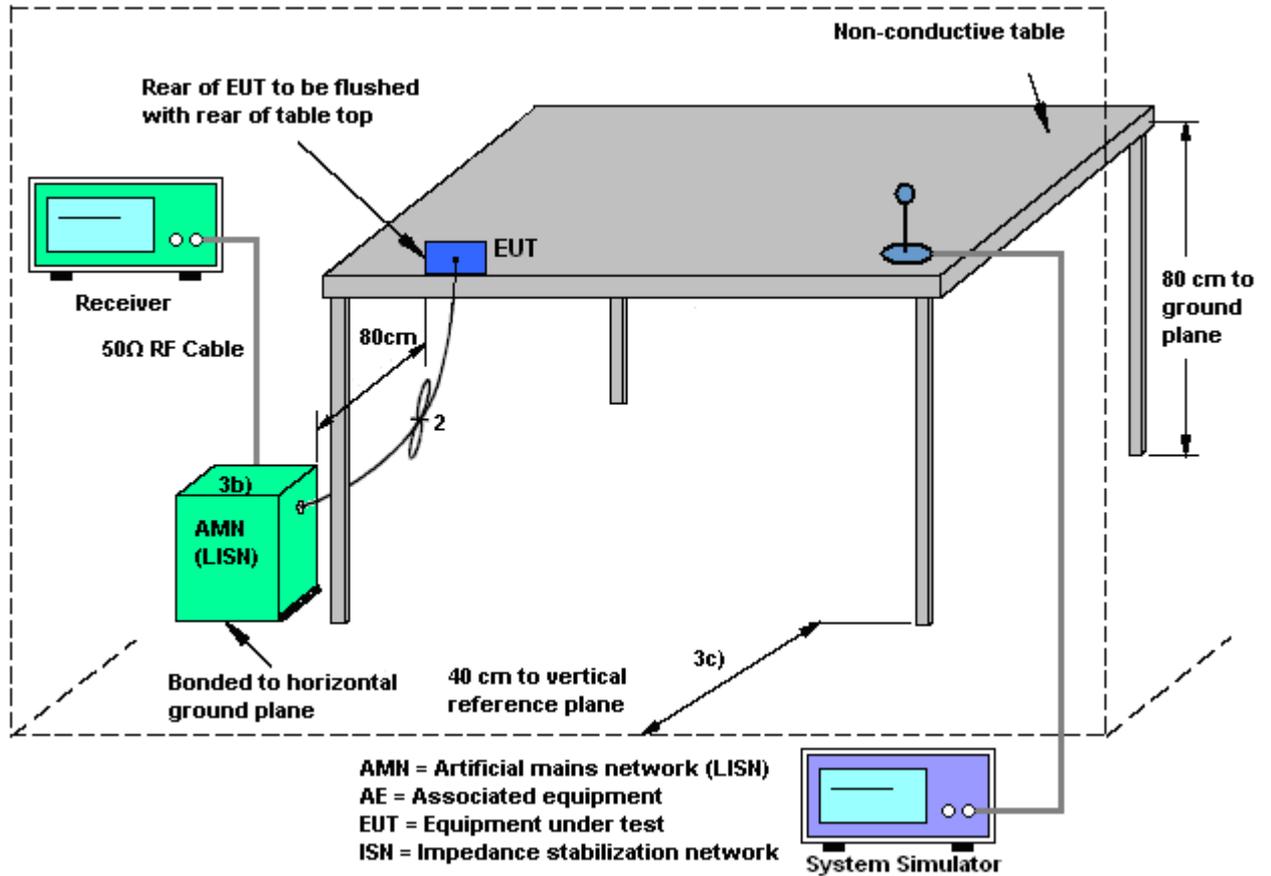
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedure

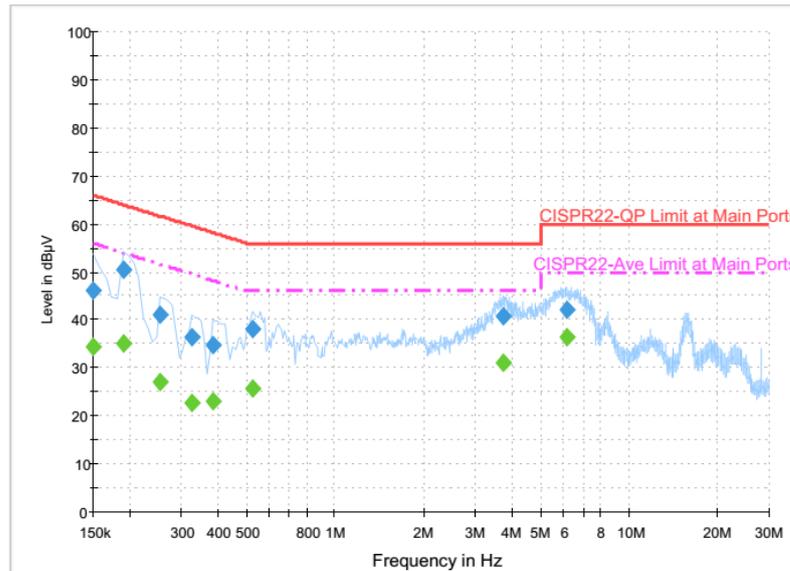
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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 (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.1.4 Test Setup



### 3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 6	Temperature :	22~25°C
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~53%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + Glonass Rx + USB Cable (Data Link with Notebook) for Sample 1		



#### Final Result : Quasi-Peak

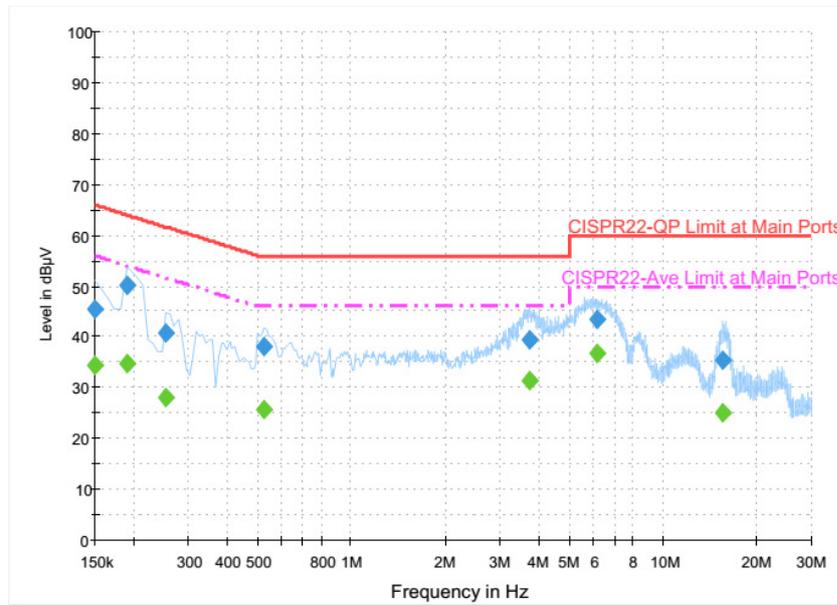
Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	46.3	Off	L1	19.6	19.7	66.0
0.190000	50.5	Off	L1	19.6	13.5	64.0
0.254000	41.0	Off	L1	19.6	20.6	61.6
0.326000	36.4	Off	L1	19.6	23.2	59.6
0.382000	34.9	Off	L1	19.6	23.3	58.2
0.526000	38.0	Off	L1	19.6	18.0	56.0
3.750000	40.7	Off	L1	19.7	15.3	56.0
6.174000	42.2	Off	L1	19.7	17.8	60.0

#### Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.3	Off	L1	19.6	21.7	56.0
0.190000	35.0	Off	L1	19.6	19.0	54.0
0.254000	27.0	Off	L1	19.6	24.6	51.6
0.326000	22.7	Off	L1	19.6	26.9	49.6
0.382000	23.0	Off	L1	19.6	25.2	48.2
0.526000	25.7	Off	L1	19.6	20.3	46.0
3.750000	31.2	Off	L1	19.7	14.8	46.0
6.174000	36.5	Off	L1	19.7	13.5	50.0



Test Mode :	Mode 6	Temperature :	22~25°C
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~53%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + Glonass Rx + USB Cable (Data Link with Notebook) for Sample 1		



**Final Result : Quasi-Peak**

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	45.3	Off	N	19.6	20.7	66.0
0.190000	50.2	Off	N	19.6	13.8	64.0
0.254000	40.9	Off	N	19.6	20.7	61.6
0.526000	38.0	Off	N	19.6	18.0	56.0
3.718000	39.4	Off	N	19.6	16.6	56.0
6.142000	43.3	Off	N	19.7	16.7	60.0
15.646000	35.5	Off	N	19.9	24.5	60.0

**Final Result : Average**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.6	Off	N	19.6	21.4	56.0
0.190000	34.9	Off	N	19.6	19.1	54.0
0.254000	28.0	Off	N	19.6	23.6	51.6
0.526000	25.7	Off	N	19.6	20.3	46.0
3.718000	31.3	Off	N	19.6	14.7	46.0
6.142000	36.8	Off	N	19.7	13.2	50.0
15.646000	25.1	Off	N	19.9	24.9	50.0



### 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

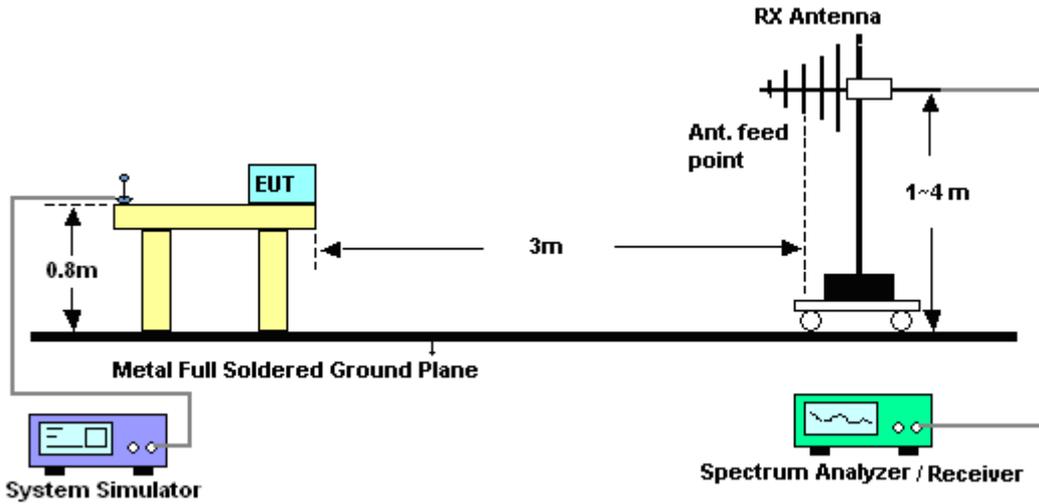
The measuring equipment is listed in the section 4 of this test report.

#### 3.2.3. Test Procedures

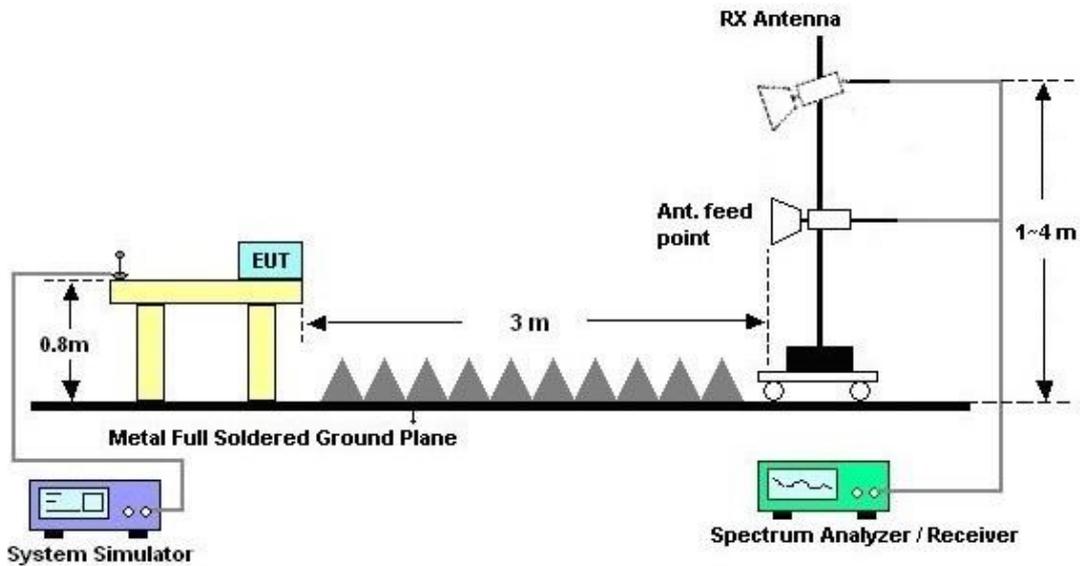
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to 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 (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBµV/m) = 20 log Emission level (µV/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



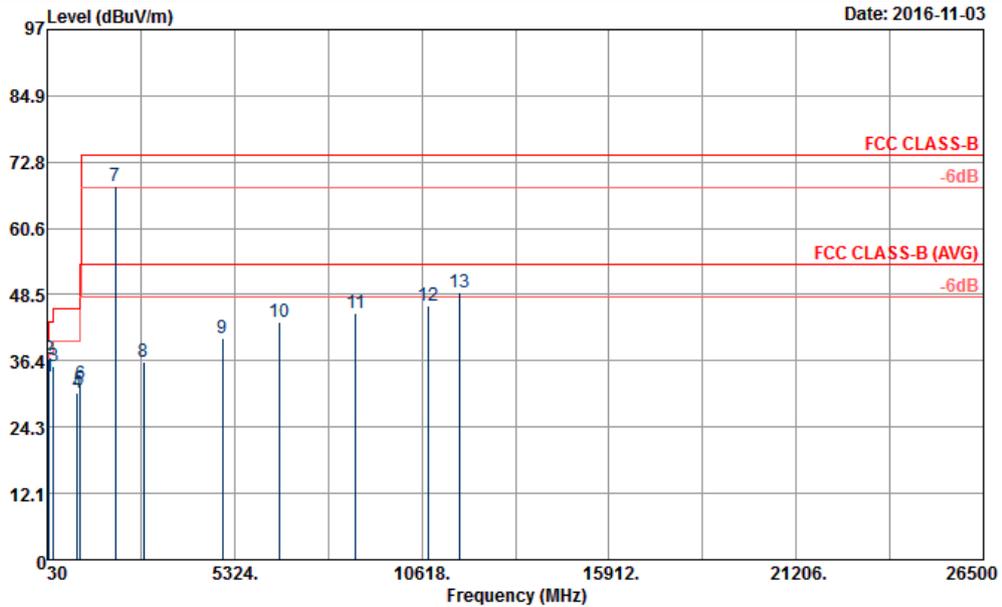
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 2	Temperature :	22~25°C
Test Engineer :	Donny Tang	Relative Humidity :	51~53%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + MPEG4 + USB Cable (Charging from Adapter) for Sample 1		
Remark :	#7 is system simulator signal which can be ignored.		

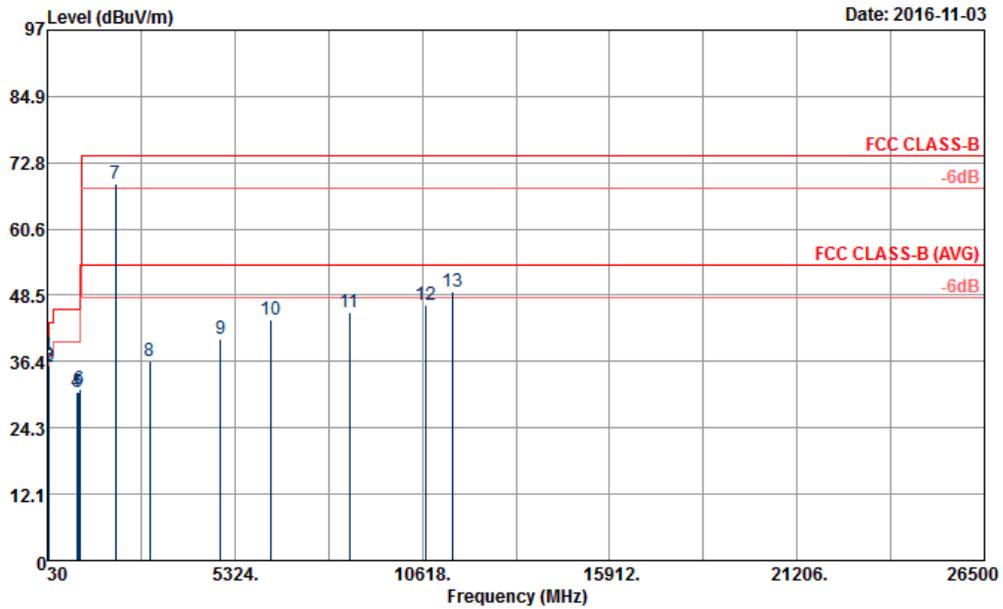


Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL  
 Project : 601415  
 Power : 120Vac/60Hz  
 Memo : Mode 2  
 : #10 Adapter

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg		
1	79.95	33.48	-6.52	40.00	49.66	13.39	2.16	31.73	100	122 Peak	
2	88.86	36.87	-6.63	43.50	52.10	14.58	1.91	31.72	---	---	Peak
3	207.66	35.44	-8.06	43.50	49.13	16.05	1.98	31.72	---	---	Peak
4	889.40	30.54	-15.46	46.00	29.40	29.34	3.37	31.57	---	---	Peak
5	936.30	31.08	-14.92	46.00	28.78	30.34	3.15	31.19	---	---	Peak
6	958.70	32.04	-13.96	46.00	29.26	30.70	3.06	30.98	---	---	Peak
7	1960.00	68.44			95.97	26.56	6.31	60.40	---	---	Peak
8	2754.00	36.23	-37.77	74.00	61.27	28.10	7.46	60.60	---	---	Peak
9	4978.00	40.66	-33.34	74.00	57.43	31.77	11.22	59.76	---	---	Peak
10	6596.00	43.56	-30.44	74.00	55.43	35.74	12.34	59.95	---	---	Peak
11	8760.00	45.01	-28.99	74.00	51.78	38.30	14.48	59.55	---	---	Peak
12	10794.00	46.54	-27.46	74.00	50.05	41.00	14.73	59.24	---	---	Peak
13	11690.00	48.84	-25.16	74.00	49.11	41.59	16.29	58.15	100	174 Peak	



Test Mode :	Mode 2	Temperature :	22~25°C
Test Engineer :	Donny Tang	Relative Humidity :	51~53%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM1900 Idle + Bluetooth Idle + WLAN (5GHz) Idle + Earphone + MPEG4 + USB Cable (Charging from Adapter) for Sample 1		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH06-HY  
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL  
 Project : 601415  
 Power : 120Vac/60Hz  
 Memo : Mode 2  
 : #10 Adapter

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.62	37.59	-2.41	40.00	42.90	24.58	1.91	31.80	100	70 QP	
2	76.44	35.31	-4.69	40.00	51.77	13.06	2.22	31.74	---	---	Peak
3	86.97	35.76	-4.24	40.00	51.25	14.34	1.90	31.73	---	---	Peak
4	856.50	30.79	-15.21	46.00	30.04	29.14	3.32	31.71	---	---	Peak
5	902.00	30.87	-15.13	46.00	29.55	29.45	3.38	31.51	---	---	Peak
6	950.30	31.47	-14.53	46.00	28.78	30.70	3.05	31.06	---	---	Peak
7	1960.00	68.83			96.36	26.56	6.31	60.40	---	---	Peak
8	2918.00	36.35	-37.65	74.00	60.68	28.77	7.63	60.73	---	---	Peak
9	4922.00	40.65	-33.35	74.00	57.72	31.68	11.17	59.92	---	---	Peak
10	6360.00	44.06	-29.94	74.00	56.45	35.30	11.97	59.66	---	---	Peak
11	8558.00	45.51	-28.49	74.00	52.41	38.45	13.94	59.29	---	---	Peak
12	10698.00	46.76	-27.24	74.00	50.67	41.00	14.60	59.51	---	---	Peak
13	11480.00	49.19	-24.81	74.00	48.89	42.40	15.95	58.05	100	196	Peak



### 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 02, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Nov. 02, 2016	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Nov. 02, 2016	Dec. 01, 2016	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C&N-6-06	2725&AT-N0601	30MHz~1GHz	Oct. 15, 2016	Nov. 01, 2016 ~ Nov. 03, 2016	Oct. 14, 2017	Radiation (03CH06-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz~26.5GHz	Jan. 07, 2016	Nov. 01, 2016 ~ Nov. 03, 2016	Jan. 06, 2017	Radiation (03CH06-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1156	1GHz~18GHz	Aug. 05, 2016	Nov. 01, 2016 ~ Nov. 03, 2016	Aug. 04, 2017	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A01917	1GHz~26.5GHz	Apr. 18, 2016	Nov. 01, 2016 ~ Nov. 03, 2016	Apr. 17, 2017	Radiation (03CH06-HY)
Preamplifier	SONOMA	310N	186713	9kHz~1GHz	Apr. 19, 2016	Nov. 01, 2016 ~ Nov. 03, 2016	Apr. 18, 2017	Radiation (03CH06-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1850117	1GHz ~ 18GHz	Jun. 22, 2016	Nov. 01, 2016 ~ Nov. 03, 2016	Jun. 21, 2017	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1m~4m	N/A	Nov. 01, 2016 ~ Nov. 03, 2016	N/A	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0-360 degree	N/A	Nov. 01, 2016 ~ Nov. 03, 2016	N/A	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170576	18GHz ~ 40GHz	Apr. 15, 2016	Nov. 01, 2016 ~ Nov. 03, 2016	Apr. 14, 2017	Radiation (03CH06-HY)



## 5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.7
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.9
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.7
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.5
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