



FCC TEST REPORT

FCC ID : IHDT56YU2
Equipment : Mobile Cellular Phone
Brand Name : Motorola
Model Name : XT2063-3
Applicant : Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800,
Chicago, IL 60654, United States
Manufacturer : Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800,
Chicago, IL 60654, United States
Standard : FCC 47 CFR FCC Part 15 Subpart B Class B

The product was received on Jan. 30, 2020 and testing was started from Feb. 08, 2020 and completed on Mar. 18, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1. General Description	5
1.1. Product Feature of Equipment Under Test	5
1.2. Product Specification of Equipment Under Test	7
1.3. Modification of EUT	9
1.4. Test Location.....	10
1.5. Applicable Standards	10
2. Test Configuration of Equipment Under Test	11
2.1. Test Mode	11
2.2. Connection Diagram of Test System	13
2.3. Support Unit used in test configuration and system.....	15
2.4. EUT Operation Test Setup.....	16
3. Test Result	17
3.1. Test of AC Conducted Emission Measurement	17
3.2. Test of Radiated Emission Measurement	19
4. List of Measuring Equipment.....	21
5. Uncertainty of Evaluation	22
Appendix A. AC Conducted Emission Test Result	
Appendix B. Radiated Emission Test Result	



History of this test report

Report No.	Version	Description	Issued Date
FC012201	01	Initial issue of report	Apr. 10, 2020



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.107	AC Conducted Emission	Pass	Under limit 5.41 dB at 0.166 MHz
3.2	15.109	Radiated Emission	Pass	Under limit 3.57 dB at 30.000 MHz for Quasi-Peak

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Dara Chiu

Report Producer: Yvonne Cheng

1. General Description

1.1. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2063-3
FCC ID	IHDT56YU2
IMEI Code	IMEI 1: 353585110016733
	IMEI 2: 353585110016741
	IMEI : 351615110009420
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/5G NR/GNSS/NFC/FM WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40 Bluetooth BR/EDR/LE
HW Version	DVT2
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer.

Accessory List	
AC Adapter 1 (US)	Brand Name : Motorola
	Model Name : SC-51
	Manufacturer : Chenyang
AC Adapter 1 (EU)	Brand Name : Motorola
	Model Name : SC-52
	Manufacturer : Chenyang
AC Adapter 1 (UK)	Brand Name : Motorola
	Model Name : SC-53UK
	Manufacturer : Chenyang
AC Adapter 1 (AU)	Brand Name : Motorola
	Model Name : SC-55AU
	Manufacturer : Chenyang
AC Adapter 1 (AR)	Brand Name : Motorola
	Model Name : SC-56
	Manufacturer : Chenyang
AC Adapter 2 (US)	Brand Name : Motorola
	Model Name : SC-51
	Manufacturer : Acbel
AC Adapter 2 (EU)	Brand Name : Motorola
	Model Name : SC-52
	Manufacturer : Acbel
AC Adapter 2 (AR)	Brand Name : Motorola
	Model Name : SC-56
	Manufacturer : Acbel

Accessory List	
AC Adapter 3 (Chile)	Brand Name : Motorola
	Model Name : SC-52
	Manufacturer : Salom
AC Adapter 3 (BR)	Brand Name : Motorola
	Model Name : SC-57
	Manufacturer : Salom
AC Adapter 3 (BR Local Build)	Brand Name : Motorola
	Model Name : SC-57
	Manufacturer : Flex/Salom
AC Adapter 4 (IN)	Brand Name : Motorola
	Model Name : SC-54
	Manufacturer : Salom
AC Adapter 5 (BR Local Build)	Brand Name : Motorola
	Model Name : SC-57
	Manufacturer : Cliptech/Tenpao
Battery	Brand Name : ATL
	Model Name : LR50
Earphone 1	Brand Name : Motorola
	Model Name : SH38C37773
Earphone 2	Brand Name : Motorola
	Model Name : SH38C44959
USB Cable 1	Brand Name : Motorola
	Model Name : SC18C24367
	Manufacturer : Saibao
USB Cable 2	Brand Name : Motorola
	Model Name : SC18C24368
	Manufacturer : Luxshare
USB Cable 3	Brand Name : Motorola
	Model Name : SC18C28955
	Manufacturer : I SHENG

1.2. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502. 5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26 : 824.7 MHz ~ 848.3 MHz LTE Band 38 : 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz

Standards-related Product Specification	
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5 MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz LTE Band 26 : 869.7 MHz ~ 893.3 MHz LTE Band 38 : 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 2110.7 MHz ~ 2199.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz GNSS : 1559 ~ 1610 MHz (GPS/Glonass/Galileo) NFC : 13.56 MHz FM : 88 ~ 108 MHz
Antenna Type	WWAN: Fixed Internal Antenna WLAN: <Ant. 1>: Loop Antenna <Ant. 2>: IFA Antenna Bluetooth: Loop Antenna GPS/Glonass/Galileo: Loop Antenna NFC: Ferrite + FPC Antenna FM: Using earphone as antenna

Standards-related Product Specification	
Type of Modulation	GSM / GPRS: GMSK EGPRS: GMSK for MCS 0 ~ 4 & 8PSK for MCS5 ~9 WCDMA: QPSK (Uplink) HSDPA: 64QAM (Downlink) / HSUPA : QPSK (Uplink) LTE: QPSK / 16QAM / 64QAM 5G NR: QPSK / 16QAM / 64QAM 802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) Bluetooth LE: GFSK Bluetooth (1Mbps): GFSK Bluetooth (2Mbps): $\pi/4$ -DQPSK Bluetooth (3Mbps): 8-DPSK GPS/Glonass/Galileo: BPSK NFC: ASK FM

1.3. Modification of EUT

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

1.4. Test Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No.
	CO05-HY

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No.
	03CH10-HY

FCC designation No.: TW1093 and TW1098

1.5. 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 Class 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

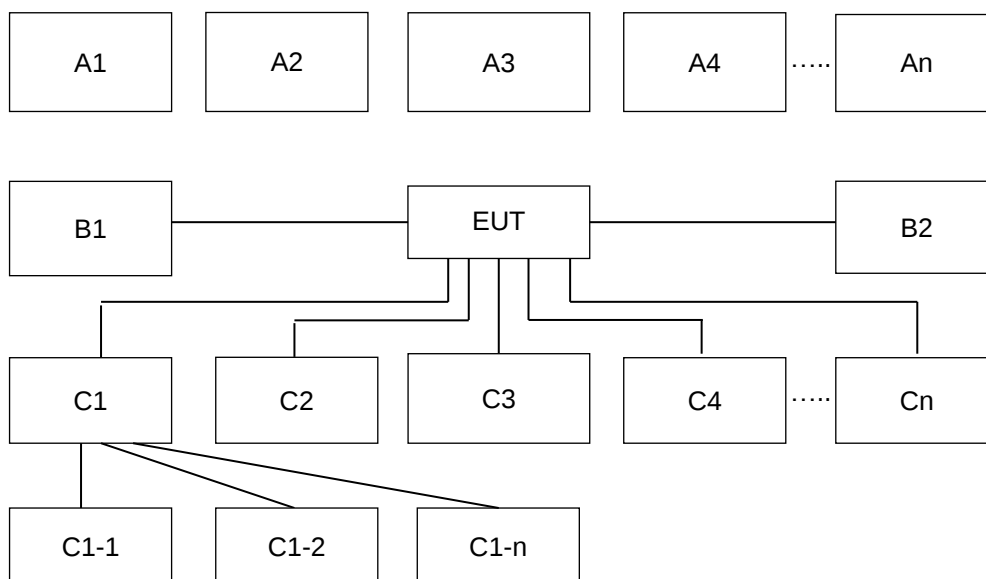
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (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 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Camera (Front) + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 2: WCDMA Band V (Middle Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + Camera (Rear) + Earphone 2 + Battery + USB Cable 2 (Charging from Adapter 2) + SIM 2 for Sample 1
	Mode 3: LTE Band 5 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + fingerprint + Earphone 1 + Battery + USB Cable 3 (Charging from Adapter 3) + SIM 1 for Sample 1
	Mode 4: LTE Band 12 (Middle Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + MPEG4 + Earphone 2 + Battery + USB Cable 1 (Charging from Adapter 4) + SIM 1 for Sample 1
	Mode 5: LTE Band 17 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + GPS + Earphone 1 + Battery + USB Cable 2 (Charging from Adapter 5) + SIM 1 for Sample 1
	Mode 6: LTE Band 26 (Middle Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + MPEG4 + Earphone 2 + Battery + USB Cable 1 (Data Link with Notebook) + SIM 1 for Sample 1
	Mode 7: GSM1900 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + GPS + Earphone 1 + Battery + USB Cable 2 (Data Link with Notebook) + SIM 1 for Sample 1
	Mode 8: LTE Band 7 (Middle Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + GPS + Earphone 2 + Battery + USB Cable 3 (Data Link with Notebook) + SIM 1 for Sample 1
	Mode 9: LTE Band 17 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + GPS + Earphone 1 + Battery + USB Cable 2 (Charging from Adapter 5) + SIM 1 for Sample 2
	Mode 10 : LTE Band 17 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + FM Rx + Earphone 1 + Battery + USB Cable 2 (Charging from Adapter 5) for Sample 1
	Mode 11 : LTE Band 17 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + NFC On + Earphone 1 + Battery + USB Cable 2 (Charging from Adapter 5) for Sample 1

Test Items	Function Type
Radiated Emissions	Mode 1 : GSM850 (Low Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + Camera (Front) + Earphone 1 + Battery + USB Cable 1 (Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 2 : WCDMA Band V (Low Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + Camera (Rear) + Earphone 2 + Battery + USB Cable 2 (Charging from Adapter 2) + SIM 2 for Sample 1
	Mode 3 : LTE Band 5 (Low Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + fingerprint + Earphone 1 + Battery + USB Cable 3 (Charging from Adapter 3) + SIM 1 for Sample 1
	Mode 4 : LTE Band 12 (Low Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + MPEG4 + Earphone 2 + Battery + USB Cable 1 (Charging from Adapter 4) + SIM 1 for Sample 1
	Mode 5 : LTE Band 17 (Low Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + GPS + Earphone 1 + Battery + USB Cable 2 (Charging from Adapter 5) + SIM 1 for Sample 1
	Mode 6 : LTE Band 26 (High Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + MPEG4 + Earphone 2 + Battery + USB Cable 1 (Data Link with Notebook) + SIM 1 for Sample 1
	Mode 7 : GSM1900 (Middle Channel) Idle + Bluetooth Idle + WLAN (2.4GHz) Idle + GPS + Earphone 1 + Battery + USB Cable 2 (Data Link with Notebook) + SIM 1 for Sample 1
	Mode 8 : LTE Band 7 (Middle Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + GPS + Earphone 2 + Battery + USB Cable 3 (Data Link with Notebook) + SIM 1 for Sample 1
	Mode 9 : WCDMA Band V (Low Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + Camera (Rear) + Earphone 2 + Battery + USB Cable 2 (Charging from Adapter 2) for Sample 2
	Mode 10 : WCDMA Band V (Low Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + FM Rx + Earphone 2 + Battery + USB Cable 2 (Charging from Adapter 2) for Sample 1
	Mode 11 : WCDMA Band V (Low Channel) Idle + Bluetooth Idle + WLAN (5GHz) Idle + NFC On + Earphone 2 + Battery + USB Cable 2 (Charging from Adapter 2) for Sample 1
Remark: - The worst case of AC is mode 5; only the test data of this mode was reported. - The worst case of RE is mode 2; only the test data of this mode was reported. - For radiation emission after pre-scanned the cellular band between 30MHz ~ 960MHz (GSM850/WCDMA Band V /LTE Band 5/12/17/26); only the worst case for cellular band test data of this mode was reported. - Data Link with Notebook means data application transferred mode between EUT and Notebook. - All test items were performed with Adapter 1 (US), Adapter 2 (US), Adapter 3 (BR), Adapter 4 (IN), and Adapter 5 (BR Local Build)	

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/WCDMA/LTE/FM	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	-	-
B2	Power from system	AC Power Cable	-	-	-	-	-	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

Conduction Test Setup									
No.	Wireless Station	Connection Type	Test Mode						
			8	9	10	11	-	-	-
A1	BT Earphone	Bluetooth	X	X	X	X			
A2	System Simulator	GSM/WCDMA/LTE/FM	X	X	X	X			
A3	GPS Station	GPS	X	X	-	-			
A4	AP router	WiFi	X	X	X	X			
No.	Power Source	Connection Type	8	9	10	11	-	-	-
B1	AC : 120V/60Hz	AC Power Cable	-	X	X	X			
B2	Power from system	AC Power Cable	X	-	-	-			
No.	Setup Peripherals	Connection Type	8	9	10	11	-	-	-
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			
C3	SD card	SD I/O interface without Cable	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	-	-
No.	Setup Peripherals	Connection Type	1	2	3	4	5	6	7
C1	Notebook	USB cable	-	-	-	-	-	X	X
C1-1	AP Router	RJ-45 Cable to C1	-	-	-	-	-	X	X
C1-2	iPod	USB 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

Radiation Test Setup									
No.	Wireless Station	Connection Type	Test Mode						
			8	9	10	11	-	-	-
A1	BT Earphone	Bluetooth	X	X	X	X			
A2	System Simulator	GSM/UMTS/CDMA/WCDMA/LTE/FM	X	X	X	X			
A3	GPS Station	GPS	X	-	-	-			
A4	AP router	WiFi	X	X	X	X			
No.	Power Source	Connection Type	8	9	10	11	-	-	-
B1	AC : 120V/60Hz	AC Power Cable		X	X	X			
No.	Setup Peripherals	Connection Type	8	9	10	11	-	-	-
C1	Notebook	USB cable	X	-	-	-			
C1-1	AP Router	RJ-45 Cable to C1	X	-	-	-			
C1-2	iPod	USB Cable to C1	X	-	-	-			
C2	Earphone	Earphone jack	X	X	X	X			
C3	SD Card	SD I/O interface without Cable	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.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
5.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
6.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
7.	Notebook	DELL	Latitude E3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
8.	Notebook	DELL	Latitude E5480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
9.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A



2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE idle mode during the testing. The EUT was synchronized with the BCCH, and had been continuous receiving mode by setting paging reorganization of the system simulator.

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. Data application is transferred between Laptop and EUT via USB cable.
2. Execute "GPS Test" to make the EUT receive continuous signals from GPS station.
3. Execute "Video player" to play MPEG4 files.
4. Turn on camera to capture images.
5. Turn on the FM function.
6. Turn on the NFC function.
7. Turn on the fingerprint function.
8. Turn on the color bar function

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.

<Class B>

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.

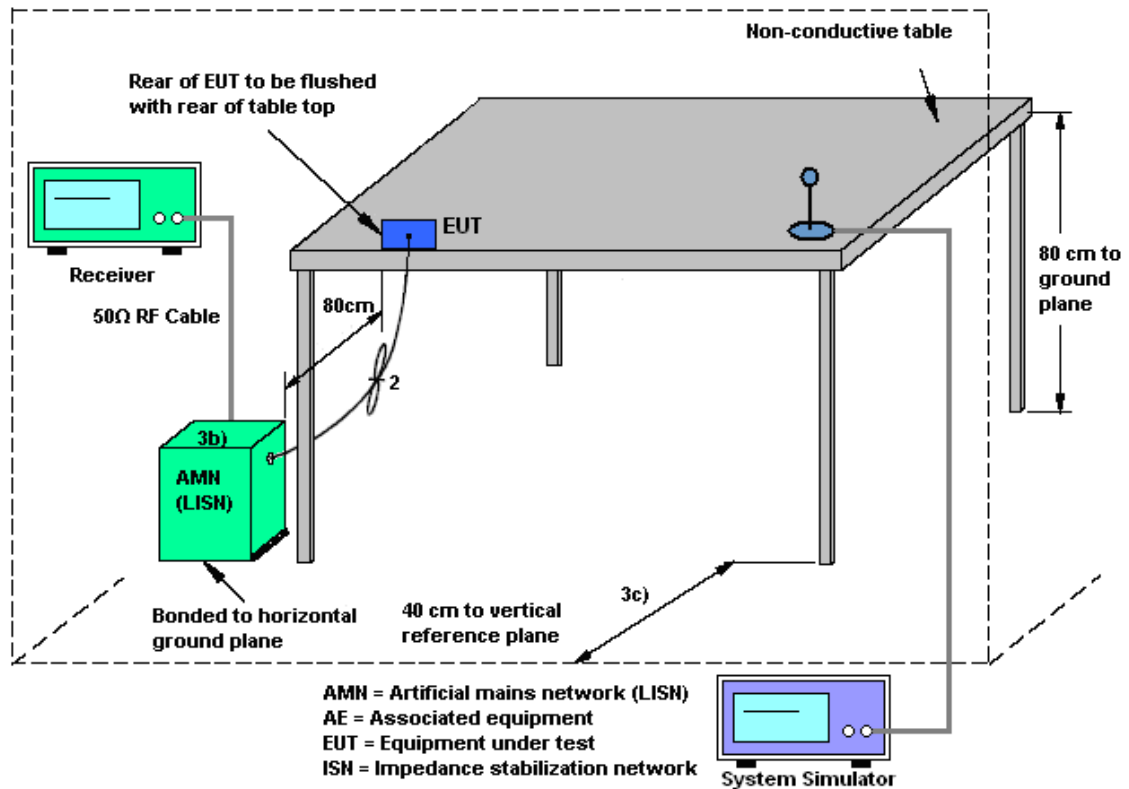
3.1.2. Measuring Instruments

Refer a test equipment and calibration data table in 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

Please refer to Appendix A.

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:

<Class B>

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

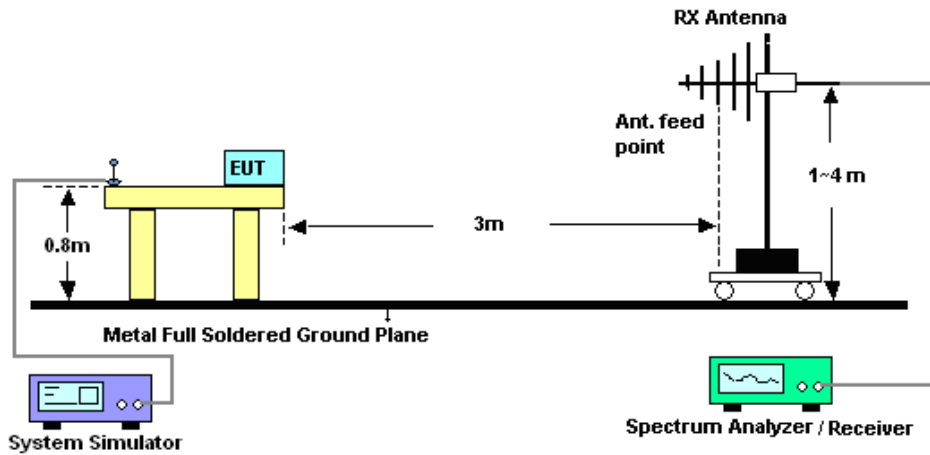
Refer a test equipment and calibration data table in this test report.

3.2.3. Test Procedures

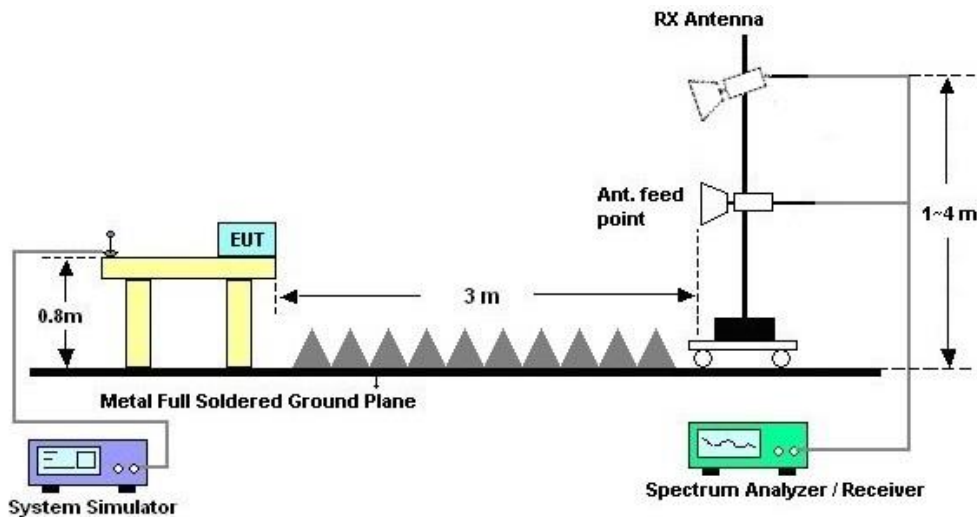
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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

Please refer to Appendix B.



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	Feb. 08, 2020~ Mar. 04, 2020	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 15, 2019	Feb. 08, 2020~ Mar. 04, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Mar. 19, 2019	Feb. 08, 2020~ Mar. 04, 2020	Mar. 18, 2020	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 20, 2019	Feb. 08, 2020~ Mar. 04, 2020	Nov. 19, 2020	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Feb. 08, 2020~ Mar. 04, 2020	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 02, 2020	Feb. 08, 2020~ Mar. 04, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 02, 2020	Feb. 08, 2020~ Mar. 04, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Oct. 22, 2019	Feb. 10, 2020~ Mar. 18, 2020	Oct. 21, 2020	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	35413 & 02	30MHz~1GHz	Feb. 11, 2020	Mar. 18, 2020	Feb. 10, 2021	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	41912 & 05	30MHz~1GHz	Feb. 09, 2020	Feb. 10, 2020~ Feb. 11, 2020	Feb. 08, 2021	Radiation (03CH10-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Feb. 10, 2020~ Mar. 18, 2020	N/A	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Feb. 10, 2020~ Mar. 18, 2020	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0~360 Degree	N/A	Feb. 10, 2020~ Mar. 18, 2020	N/A	Radiation (03CH10-HY)
Software	Audix	E3 6.2009-8-24	RK-001042	N/A	N/A	Feb. 10, 2020~ Mar. 18, 2020	N/A	Radiation (03CH10-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290045	20MHz~8.4GHz	Jan. 18, 2020	Mar. 18, 2020	Jan. 17, 2021	Radiation (03CH10-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Dec. 05, 2019	Feb. 10, 2020~ Feb. 11, 2020	Dec. 04, 2020	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz~18GHz	Oct. 09, 2019	Mar. 18, 2020	Oct. 08, 2020	Radiation (03CH10-HY)
Preamplifier	Jet-Power	JPA0118-55-3 03K	171000180005 4002	1GHz~18GHz	Feb. 07, 2020	Mar. 18, 2020	Feb. 06, 2021	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz~44GHz	Feb. 10, 2020	Mar. 18, 2020	Feb. 09, 2021	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104 / 102	MY11692/4PE, MY11693/4PE, MY2855/2	30MHz~1GHz	Nov. 07, 2019	Feb. 10, 2020~ Mar. 18, 2020	Nov. 06, 2020	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104 / 102	MY11692/4PE, MY11693/4PE, MY2855/2	1GHz~18GHz	Nov. 07, 2019	Mar. 18, 2020	Nov. 06, 2020	Radiation (03CH10-HY)

5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.8
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3
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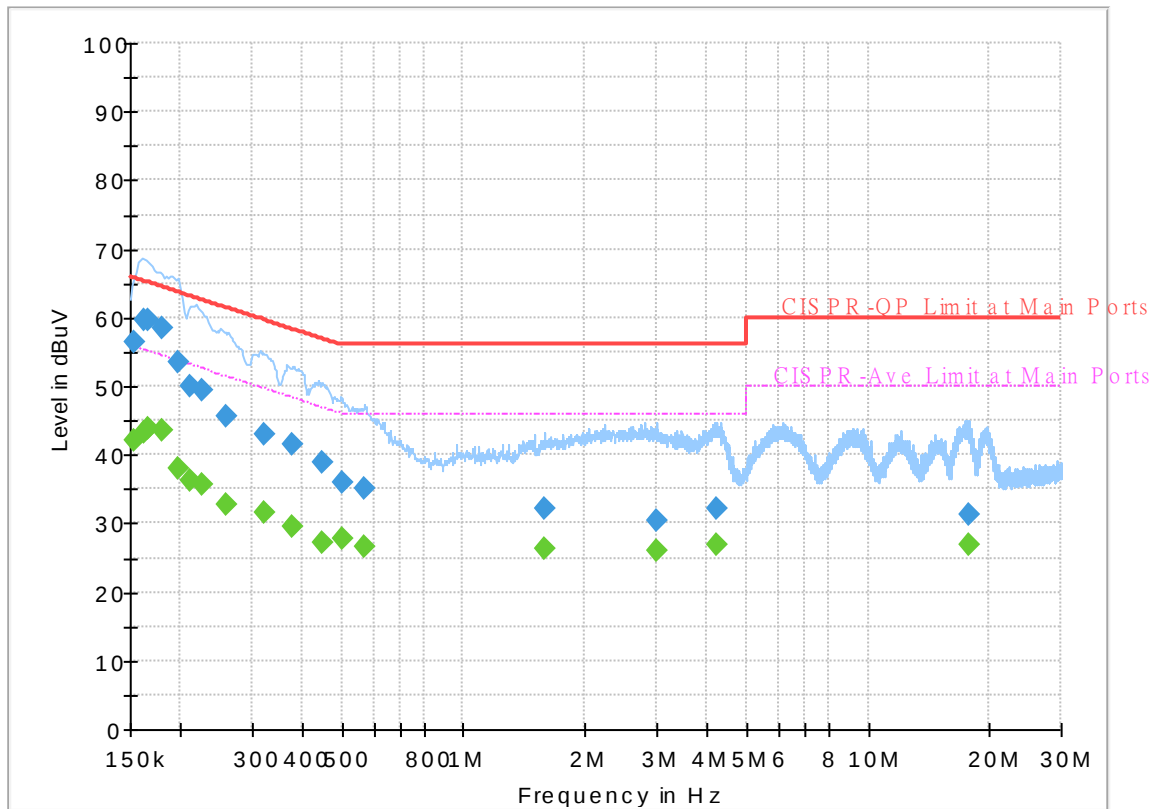
Appendix A. AC Conducted Emission Test Results

Test Engineer :	Howard Huang and Tom Lee	Temperature :	21~25°C
		Relative Humidity :	42~50%

EUT Information

Test Mode : Mode 5
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



Final_Result

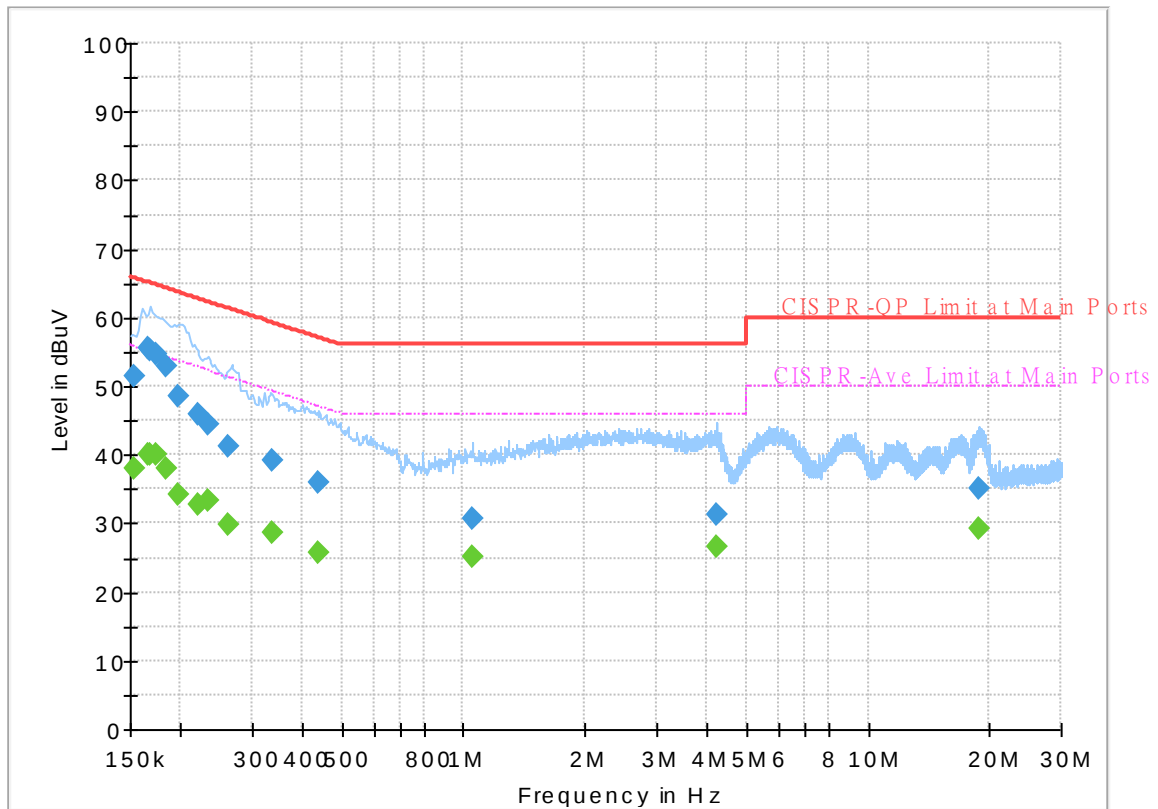
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.153150	---	42.10	55.83	13.73	L1	OFF	19.5
0.153150	56.48	---	65.83	9.35	L1	OFF	19.5
0.162780	---	43.39	55.32	11.93	L1	OFF	19.5
0.162780	59.59	---	65.32	5.73	L1	OFF	19.5
0.165750	---	43.74	55.17	11.43	L1	OFF	19.5
0.165750	59.76	---	65.17	5.41	L1	OFF	19.5
0.179340	---	43.69	54.52	10.83	L1	OFF	19.5
0.179340	58.54	---	64.52	5.98	L1	OFF	19.5
0.196440	---	38.03	53.76	15.73	L1	OFF	19.5
0.196440	53.36	---	63.76	10.40	L1	OFF	19.5
0.210750	---	36.15	53.18	17.03	L1	OFF	19.5
0.210750	49.92	---	63.18	13.26	L1	OFF	19.5
0.225510	---	35.54	52.61	17.07	L1	OFF	19.5
0.225510	49.50	---	62.61	13.11	L1	OFF	19.5
0.257730	---	32.66	51.50	18.84	L1	OFF	19.5
0.257730	45.47	---	61.50	16.03	L1	OFF	19.5
0.320460	---	31.64	49.70	18.06	L1	OFF	19.5
0.320460	43.09	---	59.70	16.61	L1	OFF	19.5
0.379140	---	29.64	48.30	18.66	L1	OFF	19.5
0.379140	41.50	---	58.30	16.80	L1	OFF	19.5
0.447720	---	27.24	46.92	19.68	L1	OFF	19.5

0.447720	38.98	---	56.92	17.94	L1	OFF	19.5
0.500100	---	27.74	46.00	18.26	L1	OFF	19.5
0.500100	36.05	---	56.00	19.95	L1	OFF	19.5
0.569940	---	26.50	46.00	19.50	L1	OFF	19.5
0.569940	35.04	---	56.00	20.96	L1	OFF	19.5
1.589910	---	26.17	46.00	19.83	L1	OFF	19.6
1.589910	32.28	---	56.00	23.72	L1	OFF	19.6
3.018750	---	26.11	46.00	19.89	L1	OFF	19.7
3.018750	30.28	---	56.00	25.72	L1	OFF	19.7
4.229250	---	26.97	46.00	19.03	L1	OFF	19.7
4.229250	32.25	---	56.00	23.75	L1	OFF	19.7
17.790000	---	26.99	50.00	23.01	L1	OFF	20.2
17.790000	31.22	---	60.00	28.78	L1	OFF	20.2

EUT Information

Test Mode : Mode 5
 Test Voltage : 120Vac/60Hz
 Phase : Neutral

Full Spectrum



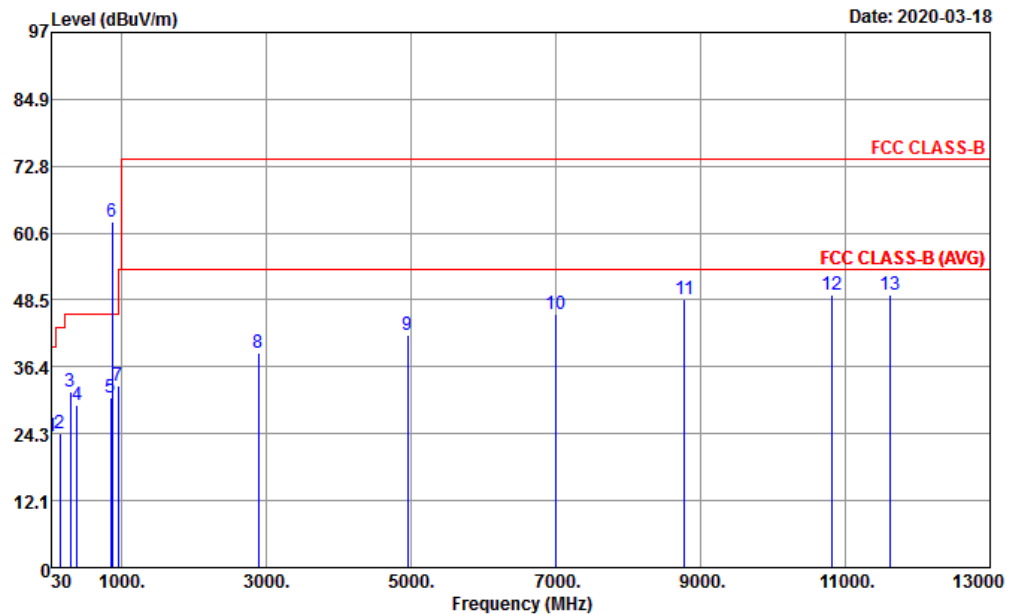
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.153038	---	37.91	55.83	17.92	N	OFF	19.6
0.153038	51.45	---	65.83	14.38	N	OFF	19.6
0.165750	---	39.99	55.17	15.18	N	OFF	19.6
0.165750	55.46	---	65.17	9.71	N	OFF	19.6
0.168270	---	40.08	55.05	14.97	N	OFF	19.6
0.168270	55.28	---	65.05	9.77	N	OFF	19.6
0.174750	---	40.12	54.73	14.61	N	OFF	19.6
0.174750	54.66	---	64.73	10.07	N	OFF	19.6
0.183930	---	38.09	54.31	16.22	N	OFF	19.6
0.183930	52.93	---	64.31	11.38	N	OFF	19.6
0.197250	---	34.16	53.73	19.57	N	OFF	19.6
0.197250	48.44	---	63.73	15.29	N	OFF	19.6
0.222000	---	32.84	52.74	19.90	N	OFF	19.6
0.222000	45.81	---	62.74	16.93	N	OFF	19.6
0.234690	---	33.22	52.28	19.06	N	OFF	19.6
0.234690	44.49	---	62.28	17.79	N	OFF	19.6
0.262500	---	29.93	51.35	21.42	N	OFF	19.6
0.262500	41.33	---	61.35	20.02	N	OFF	19.6
0.335400	---	28.58	49.32	20.74	N	OFF	19.6
0.335400	39.32	---	59.32	20.00	N	OFF	19.6
0.437640	---	25.78	47.11	21.33	N	OFF	19.6

0.437640	36.07	---	57.11	21.04	N	OFF	19.6
1.049460	---	25.06	46.00	20.94	N	OFF	19.6
1.049460	30.59	---	56.00	25.41	N	OFF	19.6
4.237440	---	26.61	46.00	19.39	N	OFF	19.7
4.237440	31.21	---	56.00	24.79	N	OFF	19.7
18.759750	---	29.17	50.00	20.83	N	OFF	20.3
18.759750	35.20	---	60.00	24.80	N	OFF	20.3

Appendix B. Radiated Emission Test Result

Test Engineer :	Donny Tang	Temperature :	20~24°C
		Relative Humidity :	51~59%
Test Distance :	3m	Polarization :	Horizontal
Remark :	#6 is system simulator signal which can be ignored.		



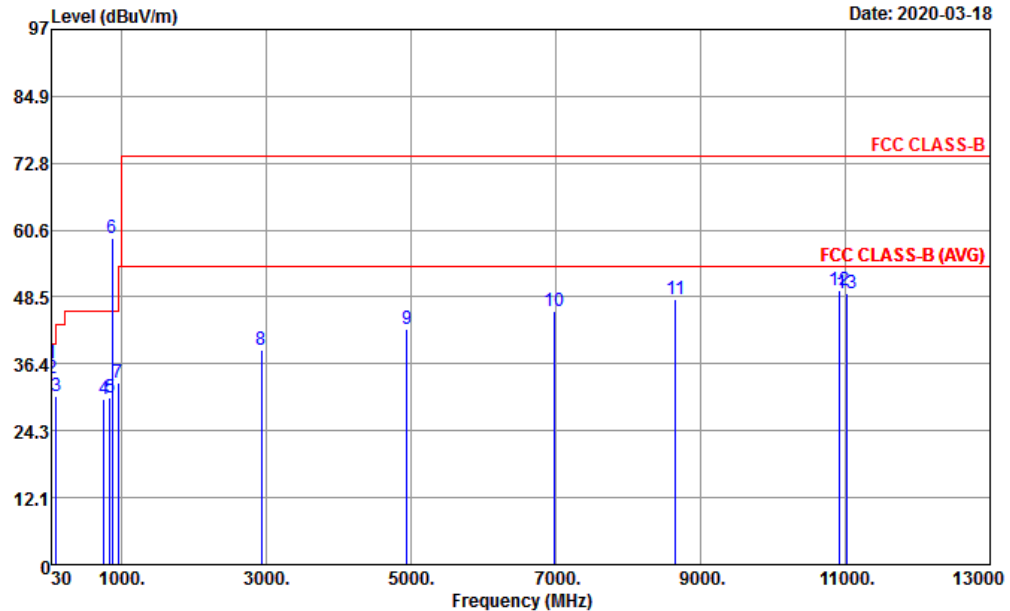
Site : 03CH10-HY
Condition : FCC CLASS-B 3m HORN 9120D-HF HORIZONTAL

Power : 120Vac/60Hz
Mode : 2

	Freq	Level	Over Limit	Limit	Antenna Line Factor	Read Level	Cable Loss	Preamplifier Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dBuV	dB	dB	cm	deg	
1	30.00	23.81	-16.19	40.00	25.30	30.42	0.58	32.49	---	---	Peak
2	150.28	24.21	-19.29	43.50	16.70	38.51	1.31	32.31	---	---	Peak
3	297.72	31.80	-14.20	46.00	19.20	42.89	1.87	32.16	---	---	Peak
4	389.87	29.34	-16.66	46.00	21.49	37.97	2.16	32.28	---	---	Peak
5	851.59	30.81	-15.19	46.00	29.30	30.11	3.26	31.86	---	---	Peak
6 *	871.40			46.00	29.20	61.95	3.30	31.73	---	---	Peak
7	956.35	33.08	-12.92	46.00	31.23	29.31	3.46	30.92	100	192	Peak
8	2888.00	38.98	-35.02	74.00	28.45	66.45	6.51	62.43	---	---	Peak
9	4954.00	42.14	-31.86	74.00	31.22	62.58	8.68	60.34	---	---	Peak
10	6994.00	45.91	-28.09	74.00	35.38	59.54	10.30	59.31	---	---	Peak
11	8774.00	48.60	-25.40	74.00	37.84	58.28	11.65	59.17	---	---	Peak
12	10822.00	49.55	-24.45	74.00	40.20	59.18	12.70	62.53	100	145	Peak
13	11620.00	49.45	-24.55	74.00	39.50	59.03	13.24	62.32	---	---	Peak



Test Engineer :	Donny Tang	Temperature :	20~24°C
		Relative Humidity :	51~59%
Test Distance :	3m	Polarization :	Vertical
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH10-HY
Condition : FCC CLASS-B 3m HORN 9120D-HF VERTICAL
Power : 120Vac/60Hz
Mode : 2

	Freq	Level	Over Limit	LimitAntenna Line	Factor	Read Level	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dB/m	dBuV	dB	dB	cm	deg	
1	30.00	36.43	-3.57	40.00	25.30	43.04	0.58	32.49	100	233	QP
2	38.73	33.81	-6.19	40.00	20.43	45.20	0.66	32.48	---	---	Peak
3	95.96	30.49	-13.01	43.50	15.50	46.32	1.04	32.37	---	---	Peak
4	761.38	29.89	-16.11	46.00	28.30	30.82	3.05	32.28	---	---	Peak
5	839.95	30.33	-15.67	46.00	29.00	30.03	3.24	31.94	---	---	Peak
6 *	871.40			46.00	29.20	58.39	3.30	31.73	---	---	Peak
7	951.50	33.09	-12.91	46.00	31.06	29.55	3.45	30.97	---	---	Peak
8	2928.00	38.83	-35.17	74.00	28.44	66.23	6.55	62.39	---	---	Peak
9	4938.00	42.79	-31.21	74.00	31.20	63.28	8.66	60.35	---	---	Peak
10	6980.00	45.89	-28.11	74.00	35.32	59.62	10.27	59.32	---	---	Peak
11	8650.00	48.08	-25.92	74.00	37.50	58.04	11.59	59.05	---	---	Peak
12	10920.00	49.70	-24.30	74.00	40.20	59.30	12.77	62.57	100	130	Peak
13	11020.00	49.20	-24.80	74.00	40.12	58.84	12.83	62.59	---	---	Peak

————THE END————