



FCC EMI TEST REPORT

FCC ID : NM82Q9R100
Equipment : Headset
Model Name : 2Q9R100
Applicant : HTC Corporation
No.88, Sec. 3, Zhongxing Rd., Xindian Dist.,
New Taipei City 231, Taiwan (R.O.C.)
Manufacturer : HTC Corporation
No.23, Xinghua Rd., Taoyuan District,
Taoyuan City, Taiwan 330
Standard : FCC 47 CFR FCC Part 15 Subpart B Class B

The product was received on Aug. 07, 2020 and testing was started from Aug. 12, 2020 and completed on Aug. 25, 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 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. Modification of EUT	5
1.3. Test Location	5
1.4. Applicable Standards	5
2. Test Configuration of Equipment Under Test	6
2.1. Test Mode	6
2.2. Connection Diagram of Test System	7
2.3. Support Unit used in test configuration and system	7
2.4. EUT Operation Test Setup	7
3. Test Result	8
3.1. Test of AC Conducted Emission Measurement	8
3.2. Test of Radiated Emission Measurement	10
4. List of Measuring Equipment.....	12
5. Uncertainty of Evaluation	13
Appendix A. AC Conducted Emission Test Result	
Appendix B. Radiated Emission Test Result	



History of this test report

Report No.	Version	Description	Issued Date
FC073116-02	01	Initial issue of report	Sep. 07, 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 7.40 dB at 0.154 MHz
3.2	15.109	Radiated Emission	Pass	Under limit 3.58 dB at 262.470 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: Yimin Ho

1. General Description

1.1. Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax.

Product Specification subjective to this standard	
Antenna Type	WLAN: <Ant. 0>: Dipole Antenna <Ant. 1>: Dipole Antenna Bluetooth: Dipole Antenna

1.2. Modification of EUT

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

1.3. 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	03CH06-HY

FCC designation No.: TW1093

1.4. 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.

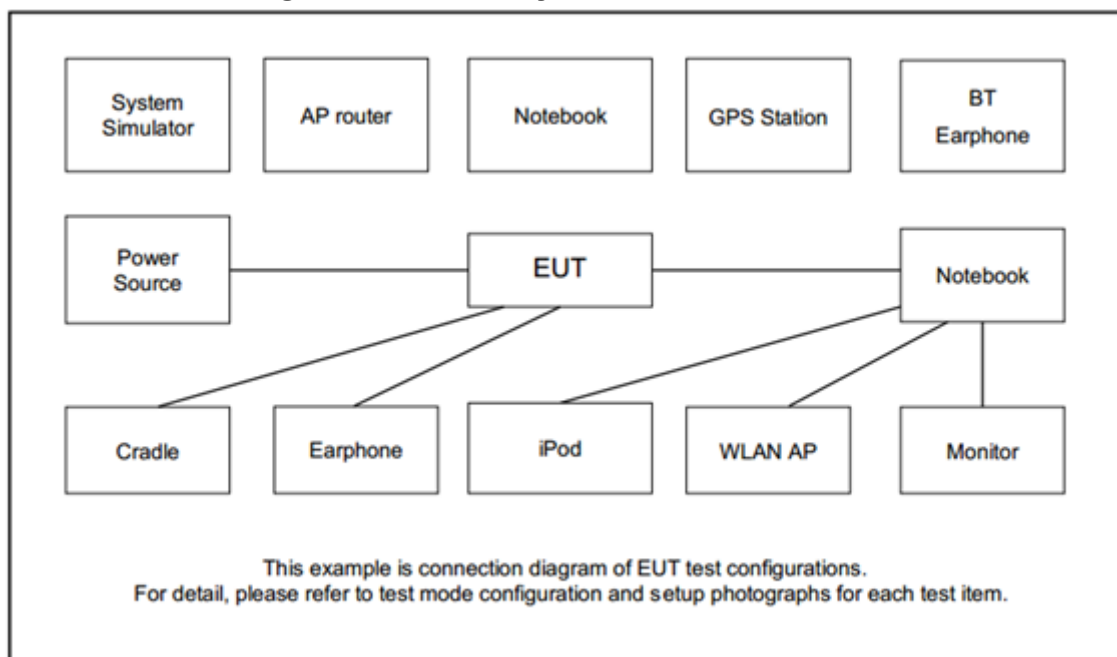
Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
AC Conducted Emission	Mode 1: Controller power on (Bluetooth Link) + WLAN Idle + MPEG4 (Color Bar) + Speaker + USB Cable 1 (Charging from Adapter)
	Mode 2: Controller power off (Bluetooth Idle) + WLAN Idle + H-Pattern + Earphone + USB Cable 1 (Data Link with Notebook)
	Mode 3: Controller power off (Bluetooth Idle) + WLAN Idle + H-Pattern + Earphone + USB Cable 2 (Charging from Adapter)
	Mode 4: Controller power off (Bluetooth Idle) + WLAN Idle + H-Pattern + Earphone + USB Cable 2 (Data Link with Notebook)
Radiated Emissions	Mode 1: Controller power on (Bluetooth Link) + WLAN Idle + MPEG4 (Color Bar) + Speaker + USB Cable 1 (Charging from Adapter)
	Mode 2: Controller power off (Bluetooth Idle) + WLAN Idle + H-Pattern + Earphone + USB Cable 1 (Data Link with Notebook)
	Mode 3: Controller power off (Bluetooth Idle) + WLAN Idle + H-Pattern + Earphone + USB Cable 2 (Charging from Adapter)
	Mode 4: Controller power off (Bluetooth Idle) + WLAN Idle + H-Pattern + Earphone + USB Cable 2 (Data Link with Notebook)

Remark:

1. The worst case of AC is mode 2; only the test data of this mode was reported.
2. The worst case of RE is mode 4; only the test data of this mode was reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.

2.2. Connection Diagram of Test System



2.3. Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
3.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
4.	Notebook	DELL	Latitude E3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	ASUS	P2430U	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
7.	SD Card	TOSHIBA	MicroSD HC_32G	FCC DoC	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was attached to the Controller 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 Video player to play MPEG4 (Color Bar) files.
3. Execute "H Pattern" to show H Patterns on the Monitor.
4. The EUT link with Controller via Bluetooth 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.

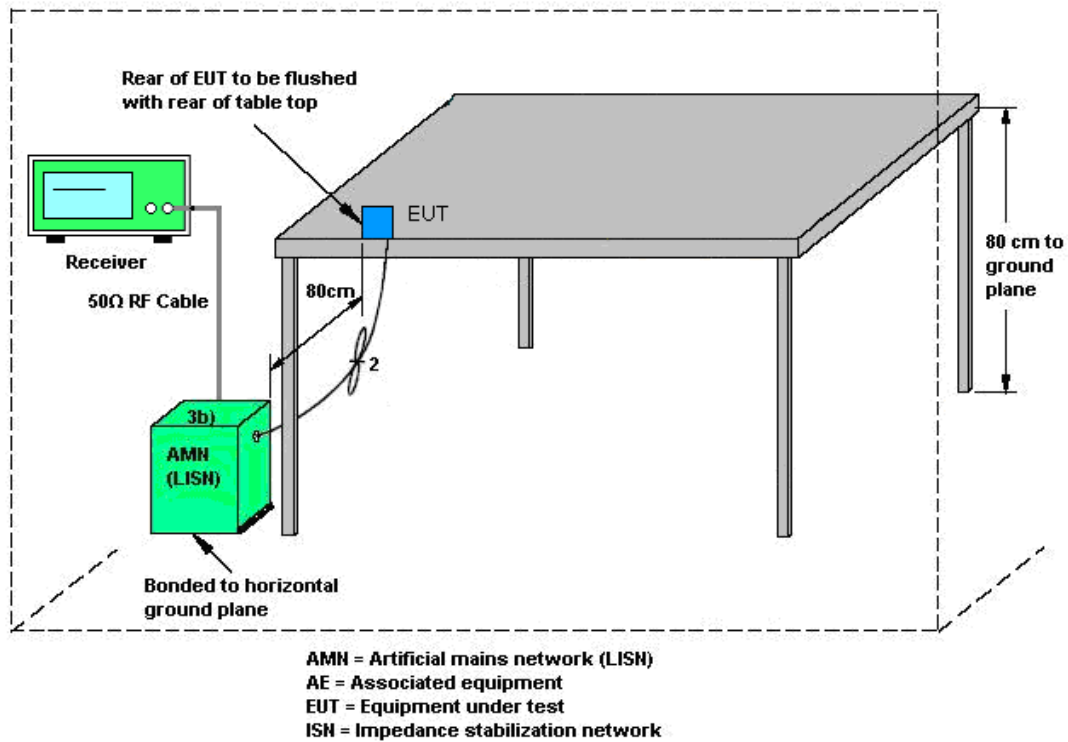
3.1.2. Measuring Instruments

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

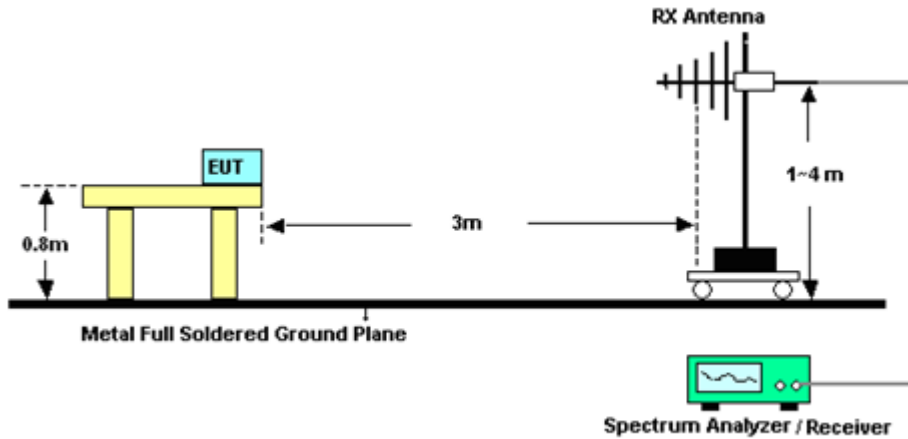
Refer a test equipment and calibration data table in this test report.

3.2.3. Test Procedures

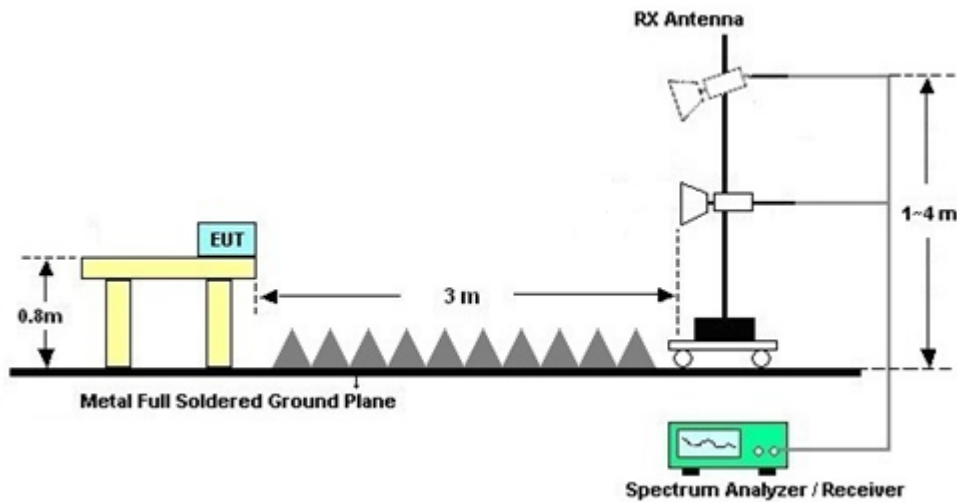
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 12, 2020	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Nov. 15, 2019	Aug. 12, 2020	Nov. 14, 2020	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 20, 2019	Aug. 12, 2020	Nov. 19, 2020	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 15, 2019	Aug. 12, 2020	Nov. 14, 2020	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Aug. 12, 2020	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 02, 2020	Aug. 12, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 02, 2020	Aug. 12, 2020	Jan. 01, 2021	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz~26.5GHz	Jan. 10, 2020	Aug. 13, 2020~ Aug. 25, 2020	Jan. 09, 2021	Radiation (03CH06-HY)
Bilog Antenna	Schaffner	CBL 6111C & N-6-06	2725 & AT-N0601	30MHz~1GHz	Jan. 09, 2020	Aug. 13, 2020~ Aug. 25, 2020	Jan. 08, 2021	Radiation (03CH06-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1156	1GHz~18GHz	Aug. 30, 2019	Aug. 13, 2020~ Aug. 25, 2020	Aug. 29, 2020	Radiation (03CH06-HY)
Amplifier	SONOMA	310N	186713	9kHz~1GHz	Apr. 30, 2020	Aug. 13, 2020~ Aug. 25, 2020	Apr. 29, 2021	Radiation (03CH06-HY)
Preamplifier	Jet-Power	JPA00101800-30-10P	1601180001	1GHz~18GHz	Jul. 21, 2020	Aug. 13, 2020~ Aug. 25, 2020	Jul. 20, 2021	Radiation (03CH06-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104 / STORM/LL142	MY24966/4 / 00100A1O2A178T	30MHz~26GHz	Nov. 21, 2019	Aug. 13, 2020~ Aug. 25, 2020	Nov. 20, 2020	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1m~4m	N/A	Aug. 13, 2020~ Aug. 25, 2020	N/A	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0-360 degree	N/A	Aug. 13, 2020~ Aug. 25, 2020	N/A	Radiation (03CH06-HY)
Software	Audix	E3 6.2009-8-24 (k5)	N/A	N/A	N/A	Aug. 13, 2020~ Aug. 25, 2020	N/A	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% ($U = 2Uc(y)$)	2.3
--	-----

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.9
--	-----

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3
--	-----



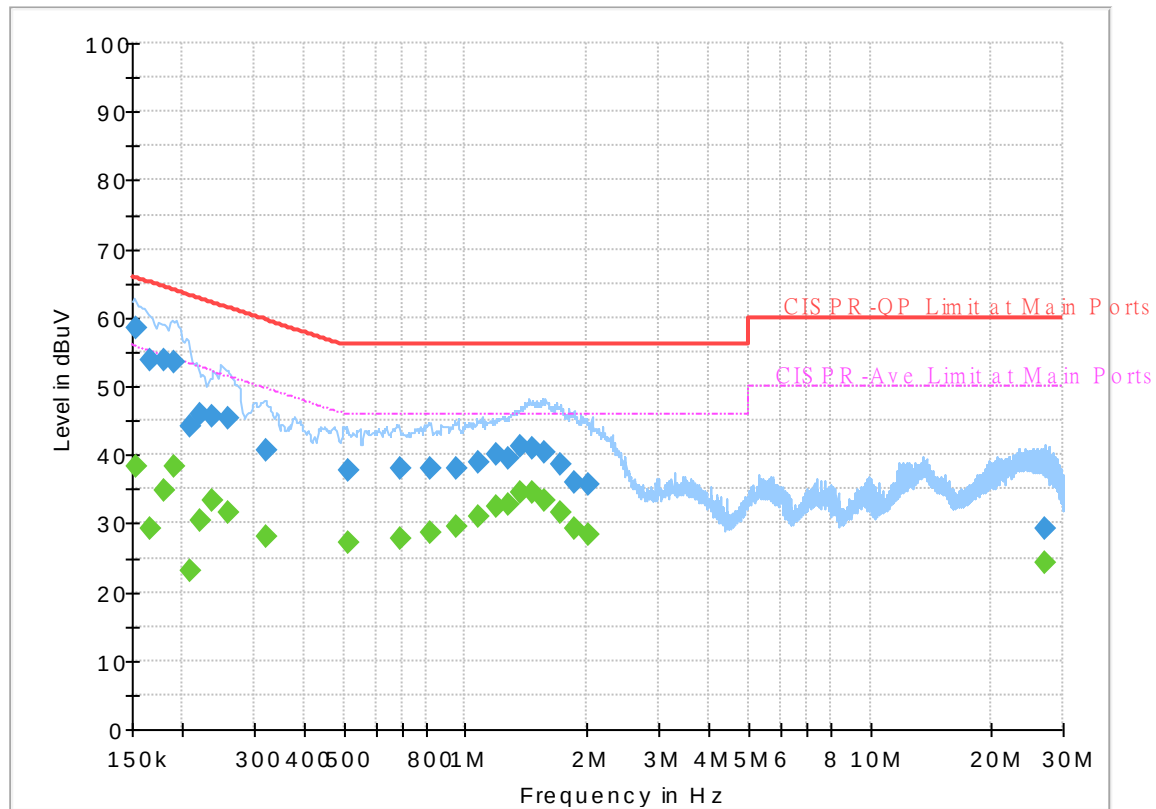
Appendix A. AC Conducted Emission Test Results

Test Engineer :	Tom Lee	Temperature :	24~26℃
		Relative Humidity :	42~50%

EUT Information

Report NO : 073116-02
 Test Mode : Mode 2
 Test Voltage : Power From System
 Phase : Line

Full Spectrum



Final Result

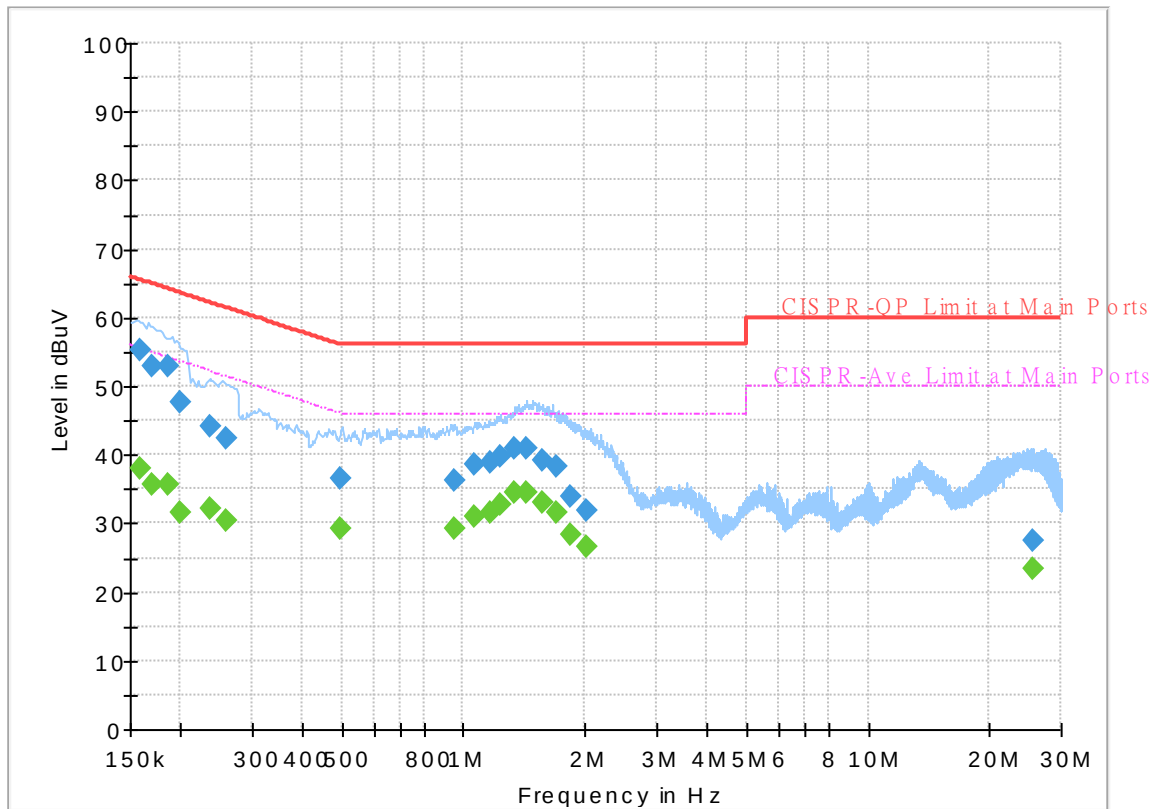
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154050	---	38.17	55.78	17.61	L1	OFF	19.5
0.154050	58.38	---	65.78	7.40	L1	OFF	19.5
0.165750	---	29.11	55.17	26.06	L1	OFF	19.5
0.165750	53.81	---	65.17	11.36	L1	OFF	19.5
0.179250	---	34.84	54.52	19.68	L1	OFF	19.5
0.179250	53.84	---	64.52	10.68	L1	OFF	19.5
0.191130	---	38.16	53.99	15.83	L1	OFF	19.5
0.191130	53.46	---	63.99	10.53	L1	OFF	19.5
0.208500	---	22.97	53.27	30.30	L1	OFF	19.5
0.208500	44.15	---	63.27	19.12	L1	OFF	19.5
0.219750	---	30.49	52.83	22.34	L1	OFF	19.5
0.219750	45.79	---	62.83	17.04	L1	OFF	19.5
0.235500	---	33.44	52.25	18.81	L1	OFF	19.5
0.235500	45.61	---	62.25	16.64	L1	OFF	19.5
0.257820	---	31.58	51.50	19.92	L1	OFF	19.5
0.257820	45.39	---	61.50	16.11	L1	OFF	19.5
0.320370	---	28.04	49.70	21.66	L1	OFF	19.5
0.320370	40.76	---	59.70	18.94	L1	OFF	19.5
0.512160	---	27.12	46.00	18.88	L1	OFF	19.5
0.512160	37.84	---	56.00	18.16	L1	OFF	19.5
0.690000	---	27.76	46.00	18.24	L1	OFF	19.5

0.690000	38.09	---	56.00	17.91	L1	OFF	19.5
0.816000	---	28.74	46.00	17.26	L1	OFF	19.5
0.816000	38.06	---	56.00	17.94	L1	OFF	19.5
0.946500	---	29.59	46.00	16.41	L1	OFF	19.5
0.946500	37.96	---	56.00	18.04	L1	OFF	19.5
1.081500	---	31.02	46.00	14.98	L1	OFF	19.5
1.081500	39.02	---	56.00	16.98	L1	OFF	19.5
1.197780	---	32.32	46.00	13.68	L1	OFF	19.6
1.197780	40.08	---	56.00	15.92	L1	OFF	19.6
1.283190	---	32.67	46.00	13.33	L1	OFF	19.6
1.283190	39.51	---	56.00	16.49	L1	OFF	19.6
1.367250	---	34.56	46.00	11.44	L1	OFF	19.6
1.367250	41.30	---	56.00	14.70	L1	OFF	19.6
1.470750	---	34.62	46.00	11.38	L1	OFF	19.6
1.470750	40.96	---	56.00	15.04	L1	OFF	19.6
1.572000	---	33.33	46.00	12.67	L1	OFF	19.6
1.572000	40.36	---	56.00	15.64	L1	OFF	19.6
1.718250	---	31.47	46.00	14.53	L1	OFF	19.6
1.718250	38.64	---	56.00	17.36	L1	OFF	19.6
1.850550	---	29.32	46.00	16.68	L1	OFF	19.6
1.850550	36.00	---	56.00	20.00	L1	OFF	19.6
2.022000	---	28.27	46.00	17.73	L1	OFF	19.6
2.022000	35.59	---	56.00	20.41	L1	OFF	19.6
27.019500	---	24.35	50.00	25.65	L1	OFF	19.8
27.019500	29.25	---	60.00	30.75	L1	OFF	19.8

EUT Information

Report NO : 073116-02
 Test Mode : Mode 2
 Test Voltage : Power From System
 Phase : Neutral

Full Spectrum

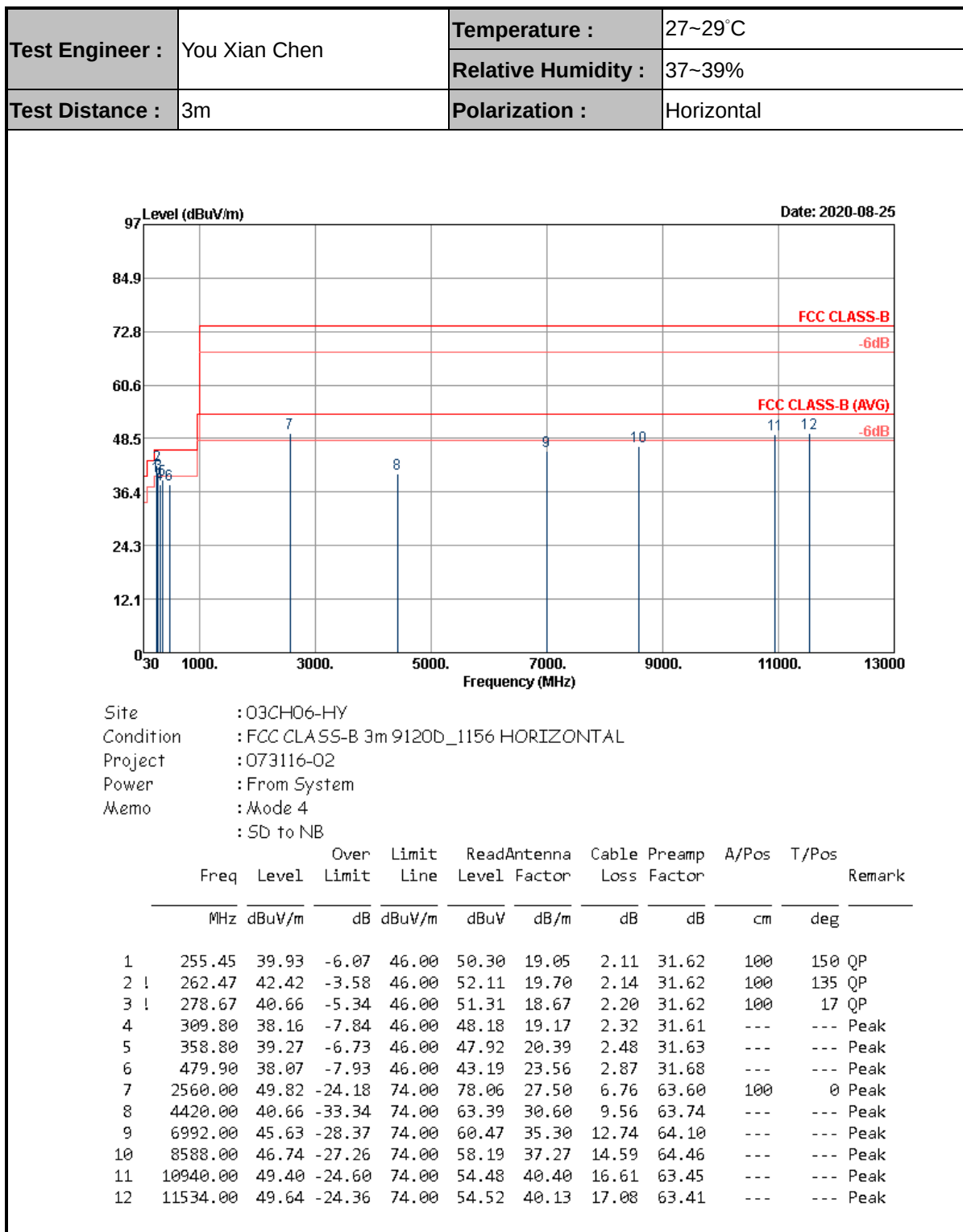


Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.159000	---	38.12	55.52	17.40	N	OFF	19.5
0.159000	55.38	---	65.52	10.14	N	OFF	19.5
0.170250	---	35.68	54.95	19.27	N	OFF	19.5
0.170250	53.07	---	64.95	11.88	N	OFF	19.5
0.186000	---	35.57	54.21	18.64	N	OFF	19.5
0.186000	52.95	---	64.21	11.26	N	OFF	19.5
0.199500	---	31.64	53.63	21.99	N	OFF	19.5
0.199500	47.80	---	63.63	15.83	N	OFF	19.5
0.237750	---	32.04	52.17	20.13	N	OFF	19.5
0.237750	44.20	---	62.17	17.97	N	OFF	19.5
0.260250	---	30.42	51.42	21.00	N	OFF	19.5
0.260250	42.37	---	61.42	19.05	N	OFF	19.5
0.498750	---	29.26	46.02	16.76	N	OFF	19.5
0.498750	36.49	---	56.02	19.53	N	OFF	19.5
0.948480	---	29.25	46.00	16.75	N	OFF	19.6
0.948480	36.37	---	56.00	19.63	N	OFF	19.6
1.067730	---	30.90	46.00	15.10	N	OFF	19.6
1.067730	38.52	---	56.00	17.48	N	OFF	19.6
1.162500	---	31.71	46.00	14.29	N	OFF	19.6
1.162500	38.78	---	56.00	17.22	N	OFF	19.6
1.233690	---	32.82	46.00	13.18	N	OFF	19.6

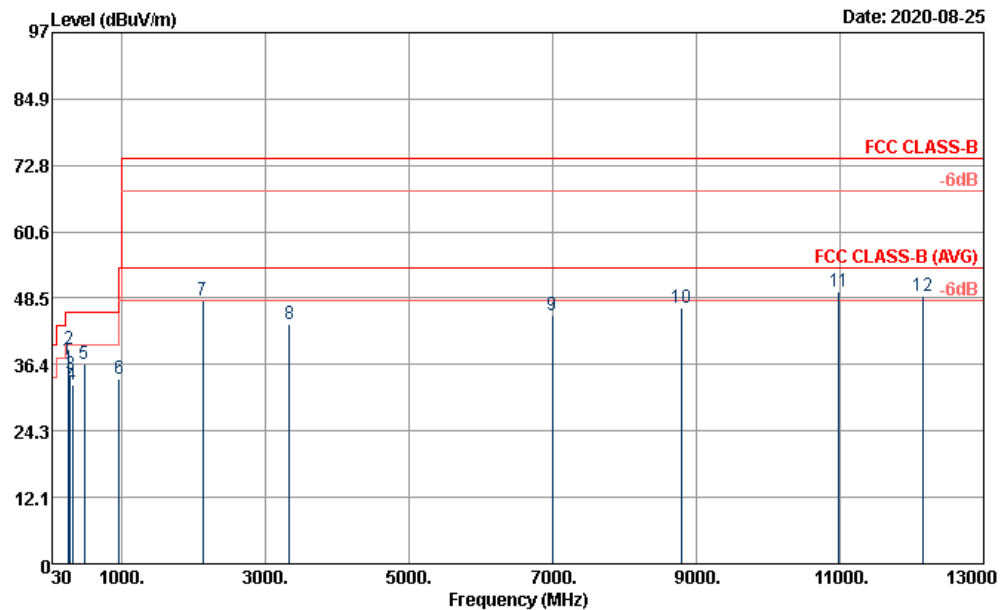
1.233690	39.73	---	56.00	16.27	N	OFF	19.6
1.342410	---	34.39	46.00	11.61	N	OFF	19.6
1.342410	40.82	---	56.00	15.18	N	OFF	19.6
1.434210	---	34.57	46.00	11.43	N	OFF	19.6
1.434210	40.90	---	56.00	15.10	N	OFF	19.6
1.572810	---	32.98	46.00	13.02	N	OFF	19.6
1.572810	39.11	---	56.00	16.89	N	OFF	19.6
1.704750	---	31.71	46.00	14.29	N	OFF	19.6
1.704750	38.22	---	56.00	17.78	N	OFF	19.6
1.848750	---	28.29	46.00	17.71	N	OFF	19.6
1.848750	33.87	---	56.00	22.13	N	OFF	19.6
2.010750	---	26.67	46.00	19.33	N	OFF	19.6
2.010750	31.88	---	56.00	24.12	N	OFF	19.6
25.449360	---	23.39	50.00	26.61	N	OFF	20.0
25.449360	27.60	---	60.00	32.40	N	OFF	20.0

Appendix B. Radiated Emission Test Result





Test Engineer :	You Xian Chen	Temperature :	27~29°C
		Relative Humidity :	37~39%
Test Distance :	3m	Polarization :	Vertical



Site : 03CH06-HY
Condition : FCC CLASS-B 3m 9120B_1156 VERTICAL
Project : 073116-02
Power : From System
Memo : Mode 4
: SB to NB

	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	dB	cm	deg	
1	254.37	37.21	-8.79	46.00	47.73	18.90	2.11	31.62	---	---	Peak
2	263.28	39.07	-6.93	46.00	48.76	19.70	2.14	31.62	100	0	Peak
3	279.21	34.58	-11.42	46.00	45.19	18.70	2.21	31.62	---	---	Peak
4	309.80	32.71	-13.29	46.00	42.73	19.17	2.32	31.61	---	---	Peak
5	479.90	36.45	-9.55	46.00	41.57	23.56	2.87	31.68	---	---	Peak
6	960.00	33.84	-12.16	46.00	29.57	30.55	4.07	30.82	---	---	Peak
7	2126.00	48.16	-25.84	74.00	77.33	27.30	6.26	63.70	---	---	Peak
8	3330.00	43.75	-30.25	74.00	70.45	28.23	7.75	63.48	---	---	Peak
9	6994.00	45.37	-28.63	74.00	60.08	35.40	12.74	64.11	---	---	Peak
10	8788.00	46.83	-27.17	74.00	57.80	37.67	14.68	64.44	---	---	Peak
11	10982.00	49.78	-24.22	74.00	54.83	40.40	16.63	63.44	100	0	Peak
12	12162.00	48.95	-25.05	74.00	54.44	39.17	17.62	63.57	---	---	Peak

—THE END—