FCC Test Report

APPLICANT	:	**Lenovo(Shanghai) Electronics Technology Co., Ltd.**
EQUIPMENT	:	**Notebook Computer**
BRAND NAME	:	**Lenovo**
MODEL NAME	:	**Lenovo YB-J912L**
FCC ID	:	**O57YBJ912L**
STANDARD	:	**FCC 47 CFR FCC Part 15 Subpart B**
CLASSIFICATION	:	**Certification**

The product was received on May 21, 2018 and testing was completed on May 31, 2018. We, Sporton International (Kunshan) 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

James Huang

NVLAP®
TESTING
NVLAP LAB CODE 600155-0

Approved by: James Huang / Manager

Sporton International (Kunshan) Inc.
No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC810315-01	Rev. 01	Initial issue of report	Jun. 29, 2018

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 4.86 dB at 8.683 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 4.68 dB at 68.80 MHz for Quasi-Peak

1. General Description

1.1. Applicant

Lenovo(Shanghai) Electronics Technology Co., Ltd.
NO.68 BUILDING, 199 FENJU RD, Pilot Free Trade Zone, 200131, China

1.2. Manufacturer

Lenovo PC HK Limited
23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	Lenovo YB-J912L
FCC ID	O57YBJ912L
EUT supports Radios application	WCDMA/HSPA/HSPA+(16QAM uplink is not supported)/ DC-HSDPA/LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
IMEI Code	Conduction: N/A Radiation: 863212030377607
HW Version	Lenovo YB-J912L
SW Version	Windows 10
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This is a variant report for Lenovo YB-J912L. The product equality declaration could be referred to Appendix B. Based on the similarity between current and previous project, only the worst cases from original test report (Sporton Report Number FC810315) were verified for the differences.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	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 13 : 779.5 MHz ~ 784.5 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz LTE Band 26 : 814.7MHz ~ 848.3 MHz LTE Band 30 : 2307.5 MHz ~ 2312.5 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66 : 1710.7 MHz ~ 1779.3 MHz 802.11b/g/n: 2412 MHz ~ 2472 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5720 MHz 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	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 : 2622.5MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz LTE Band 26 : 859.7MHz ~ 893.3MHz LTE Band 30 : 2352.5 MHz ~ 2357.5 MHz LTE Band 38 : 2572.5MHz ~ 2617.5MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66 : 2110.7 MHz~ 2199.3 MHz 802.11b/g/n: 2412 MHz ~ 2472 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5720 MHz 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Antenna Type	WWAN : Fixed Internal Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna

Type of Modulation	WCDMA : BPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM(Uplink is not supported) DC-HSDPA : 64QAM LTE: QPSK / 16QAM 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) : π /4-DQPSK Bluetooth (3Mbps) : 8-DPSK

1.5. Modification of EUT

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

1.6. Test Location

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.		
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**		**FCC Test Firm Registration No.**
	CO01-KS	03CH02-KS	630927

Note: The test site complies with ANSI C63.4 2014 requirement.

1.7. 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

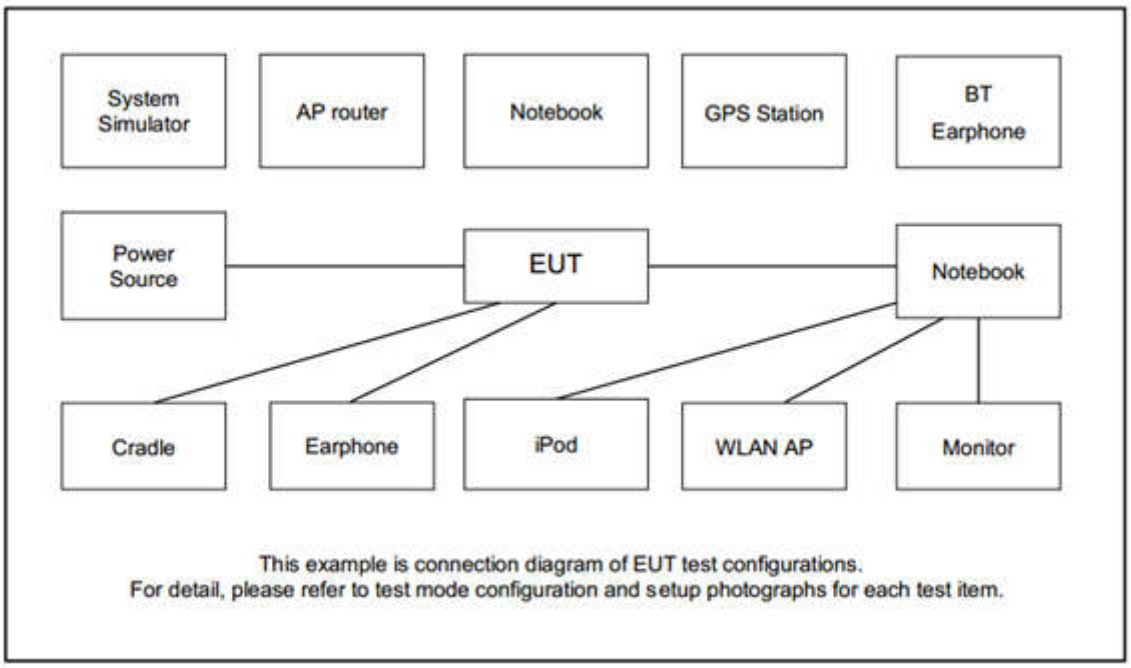
2.1. Test Mode

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 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 : LTE Band 38 Idle + WLAN (2.4G) Idle + Bluetooth Idle with BT pen + Video with Type C 1 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 2
Radiated Emissions	Mode 1 : WCDMA Band II Idle + WLAN (2.4G) Idle + Bluetooth Idle + USB Link with Type C 2 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 1

2.2. Connection Diagram of Test System



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.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
5.	Monitor	Dell	IN1940MWb	FCC DoC	N/A	N/A
6.	U Disk	Kingston	DTSE9 G2 16GB	N/A	N/A	N/A
7.	SD Card	SanDisk	Uitra	N/A	N/A	N/A
8.	SD Card	Kingston	8GB	N/A	N/A	N/A
9.	Type C turn to DP Cable	Dell	N/A	N/A	N/A	N/A
10.	Type C turn to HDMI Cable	Dell	N/A	N/A	N/A	N/A
11.	DP Cable	Dell	N/A	N/A	N/A	N/A
12.	HDMI Cable	Dell	N/A	N/A	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in WCDMA or LTE 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. Data application is transferred between U Disk and EUT via USB Type C cable.
2. Turn on camera to capture images.
3. Execute "H Pattern" to show H Pattern via HDMI or DP Cable on the Monitor.
4. Connect LCD Monitor via HDMI or DP Cable.

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.

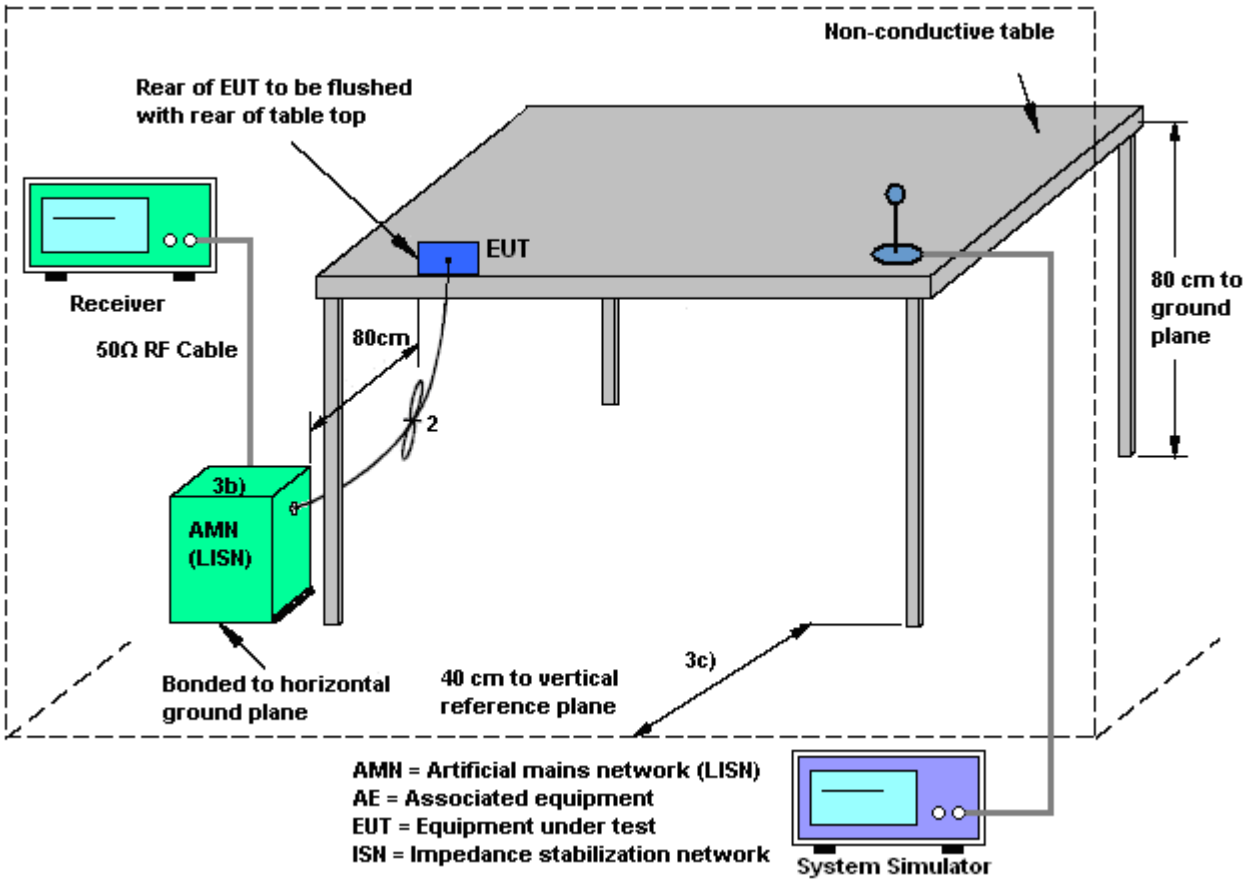
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

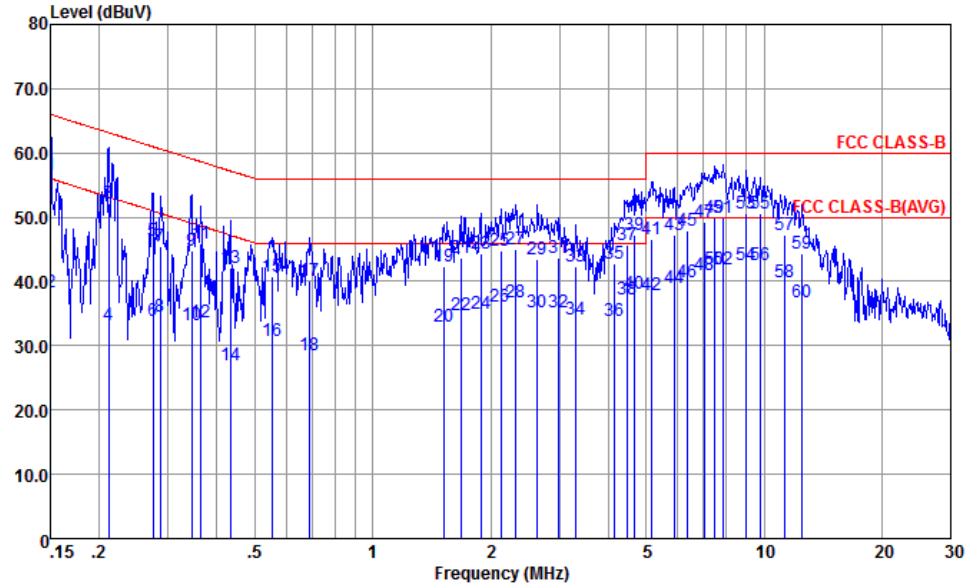
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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

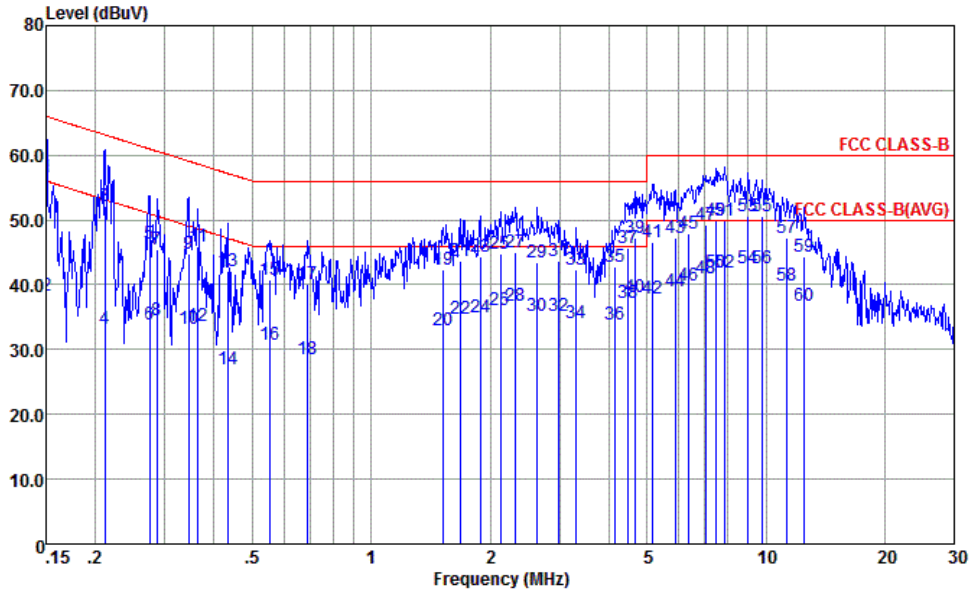
Test Mode :	Mode 1	**Temperature :**	24~25℃
Test Engineer :	Amos Zhang	**Relative Humidity :**	42~46%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	LTE Band 38 Idle + WLAN (2.4G) Idle + Bluetooth Idle with BT pen + Video with Type C 1 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 2		



Site : CO01-KS
Condition : FCC CLASS-B LISN-L-171013-060103 LINE
Project : (FC) 810315-01
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.150	56.68	-9.32	66.00	45.90	0.16	10.62	QP
2	0.150	38.38	-17.62	56.00	27.60	0.16	10.62	Average
3	0.212	52.16	-10.98	63.14	41.51	0.20	10.45	QP
4	0.212	33.26	-19.88	53.14	22.61	0.20	10.45	Average
5	0.274	46.25	-14.73	60.98	35.60	0.22	10.43	QP
6	0.274	33.95	-17.03	50.98	23.30	0.22	10.43	Average
7	0.286	45.55	-15.08	60.63	34.90	0.22	10.43	QP
8	0.286	34.55	-16.08	50.63	23.90	0.22	10.43	Average
9	0.345	44.85	-14.24	59.09	34.19	0.24	10.42	QP
10	0.345	33.25	-15.84	49.09	22.59	0.24	10.42	Average
11	0.363	45.85	-12.80	58.65	35.20	0.24	10.41	QP
12	0.363	33.55	-15.10	48.65	22.90	0.24	10.41	Average
13	0.433	42.22	-14.98	57.20	31.60	0.25	10.37	QP
14	0.433	26.92	-20.28	47.20	16.30	0.25	10.37	Average
15	0.555	40.72	-15.28	56.00	30.20	0.26	10.26	QP
16	0.555	30.82	-15.18	46.00	20.30	0.26	10.26	Average
17	0.690	40.03	-15.97	56.00	29.60	0.26	10.17	QP

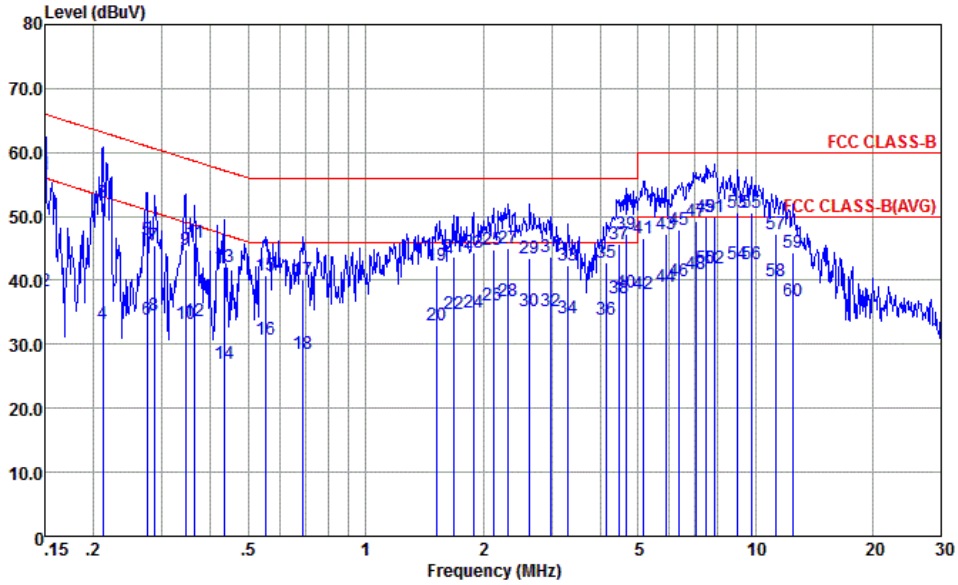
Test Mode :	Mode 1	Temperature :	24~25℃
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 38 Idle + WLAN (2.4G) Idle + Bluetooth Idle with BT pen + Video with Type C 1 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 2		



Site : CO01-KS
Condition : FCC CLASS-B LISN-L-171013-060103 LINE
Project : (FC) 810315-01
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
18	0.690	28.63	-17.37	46.00	18.20	0.26	10.17	Average
19	1.519	42.34	-13.66	56.00	31.90	0.27	10.17	QP
20	1.519	33.04	-12.96	46.00	22.60	0.27	10.17	Average
21	1.689	43.66	-12.34	56.00	33.19	0.28	10.19	QP
22	1.689	34.66	-11.34	46.00	24.19	0.28	10.19	Average
23	1.888	44.38	-11.62	56.00	33.89	0.28	10.21	QP
24	1.888	35.08	-10.92	46.00	24.59	0.28	10.21	Average
25	2.121	44.70	-11.30	56.00	34.20	0.29	10.21	QP
26	2.121	36.10	-9.90	46.00	25.60	0.29	10.21	Average
27	2.321	45.10	-10.90	56.00	34.60	0.30	10.20	QP
28	2.321	36.70	-9.30	46.00	26.20	0.30	10.20	Average
29	2.636	43.40	-12.60	56.00	32.90	0.31	10.19	QP
30	2.636	35.10	-10.90	46.00	24.60	0.31	10.19	Average
31	2.993	43.71	-12.29	56.00	33.20	0.32	10.19	QP
32	2.993	35.11	-10.89	46.00	24.60	0.32	10.19	Average
33	3.310	42.31	-13.69	56.00	31.80	0.33	10.18	QP
34	3.310	34.01	-11.99	46.00	23.50	0.33	10.18	Average
35	4.158	42.83	-13.17	56.00	32.30	0.35	10.18	QP
36	4.158	33.83	-12.17	46.00	23.30	0.35	10.18	Average
37	4.454	45.76	-10.24	56.00	35.20	0.36	10.20	QP
38	4.454	37.16	-8.84	46.00	26.60	0.36	10.20	Average
39	4.672	47.18	-8.82	56.00	36.61	0.36	10.21	QP
40	4.672	38.18	-7.82	46.00	27.61	0.36	10.21	Average

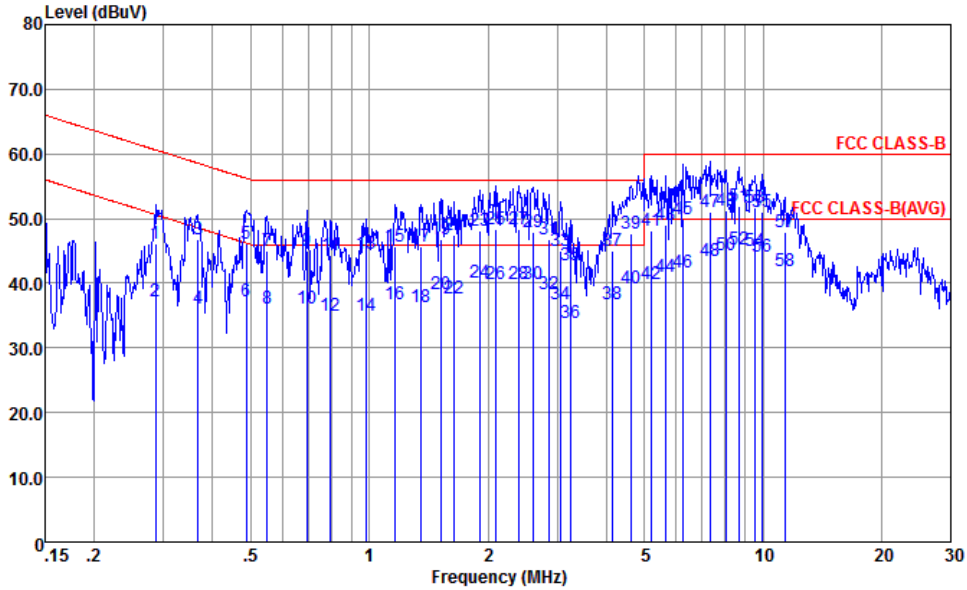
Test Mode :	Mode 1	Temperature :	24~25℃
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 38 Idle + WLAN (2.4G) Idle + Bluetooth Idle with BT pen + Video with Type C 1 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 2		



Site : CO01-KS
Condition : FCC CLASS-B LISN-L-171013-060103 LINE
Project : (FC) 810315-01
mode : Mode 1

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
41		5.139	46.52	-13.48	60.00	35.90	0.37	10.25	QP
42		5.139	37.92	-12.08	50.00	27.30	0.37	10.25	Average
43		5.898	47.29	-12.71	60.00	36.60	0.36	10.33	QP
44		5.898	38.89	-11.11	50.00	28.20	0.36	10.33	Average
45		6.386	47.89	-12.11	60.00	37.20	0.36	10.33	QP
46		6.386	39.89	-10.11	50.00	29.20	0.36	10.33	Average
47		7.025	49.28	-10.72	60.00	38.60	0.35	10.33	QP
48		7.025	40.98	-9.02	50.00	30.30	0.35	10.33	Average
49		7.446	49.88	-10.12	60.00	39.20	0.35	10.33	QP
50		7.446	41.88	-8.12	50.00	31.20	0.35	10.33	Average
51		7.852	49.88	-10.12	60.00	39.20	0.35	10.33	QP
52		7.852	41.98	-8.02	50.00	31.30	0.35	10.33	Average
53		9.011	50.58	-9.42	60.00	39.90	0.35	10.33	QP
54	*	9.011	42.58	-7.42	50.00	31.90	0.35	10.33	Average
55		9.757	50.58	-9.42	60.00	39.90	0.35	10.33	QP
56		9.757	42.58	-7.42	50.00	31.90	0.35	10.33	Average
57		11.317	47.28	-12.72	60.00	36.60	0.32	10.36	QP
58		11.317	39.88	-10.12	50.00	29.20	0.32	10.36	Average
59		12.516	44.28	-15.72	60.00	33.60	0.30	10.38	QP
60		12.516	36.88	-13.12	50.00	26.20	0.30	10.38	Average

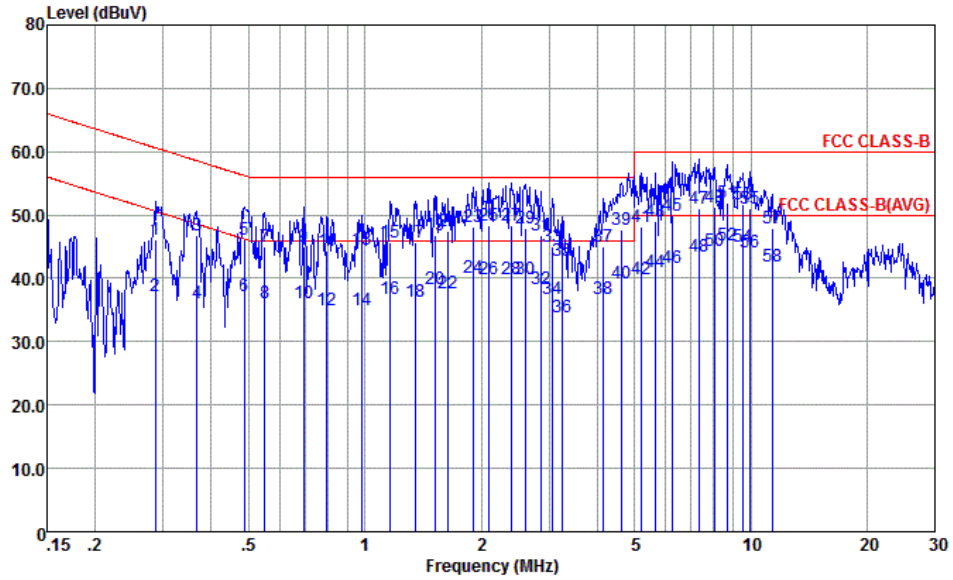
Test Mode :	Mode 1	Temperature :	24~25℃
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 38 Idle + WLAN (2.4G) Idle + Bluetooth Idle with BT pen + Video with Type C 1 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 2		



Site : CO01-KS
Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL
Project : (FC) 810315-01
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.286	46.21	-14.42	60.63	35.50	0.28	10.43	QP
2	0.286	37.31	-13.32	50.63	26.60	0.28	10.43	Average
3	0.367	46.90	-11.66	58.56	36.20	0.29	10.41	QP
4	0.367	36.00	-12.56	48.56	25.30	0.29	10.41	Average
5	0.486	46.11	-10.12	56.23	35.50	0.29	10.32	QP
6	0.486	37.21	-9.02	46.23	26.60	0.29	10.32	Average
7	0.549	45.06	-10.94	56.00	34.50	0.29	10.27	QP
8	0.549	36.06	-9.94	46.00	25.50	0.29	10.27	Average
9	0.694	44.96	-11.04	56.00	34.50	0.30	10.16	QP
10	0.694	36.06	-9.94	46.00	25.60	0.30	10.16	Average
11	0.796	44.31	-11.69	56.00	33.91	0.30	10.10	QP
12	0.796	35.01	-10.99	46.00	24.61	0.30	10.10	Average
13	0.979	44.62	-11.38	56.00	34.20	0.31	10.11	QP
14	0.979	35.02	-10.98	46.00	24.60	0.31	10.11	Average
15	1.160	45.64	-10.36	56.00	35.20	0.31	10.13	QP
16	1.160	36.74	-9.26	46.00	26.30	0.31	10.13	Average
17	1.352	45.67	-10.33	56.00	35.21	0.31	10.15	QP

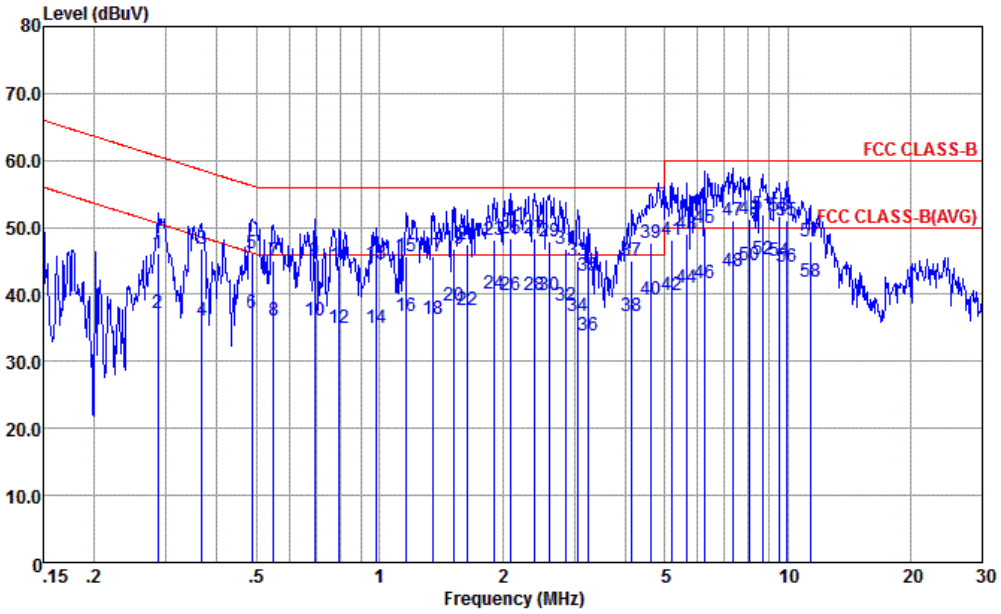
Test Mode :	Mode 1	Temperature :	24~25℃
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 38 Idle + WLAN (2.4G) Idle + Bluetooth Idle with BT pen + Video with Type C 1 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 2		



Site : CO01-KS
Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL
Project : (FC) 810315-01
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
18	1.352	36.37	-9.63	46.00	25.91	0.31	10.15	Average
19	1.519	46.69	-9.31	56.00	36.20	0.32	10.17	QP
20	1.519	38.29	-7.71	46.00	27.80	0.32	10.17	Average
21	1.645	47.40	-8.60	56.00	36.90	0.32	10.18	QP
22	1.645	37.70	-8.30	46.00	27.20	0.32	10.18	Average
23	1.908	48.13	-7.87	56.00	37.60	0.32	10.21	QP
24	1.908	40.03	-5.97	46.00	29.50	0.32	10.21	Average
25	2.088	48.33	-7.67	56.00	37.80	0.32	10.21	QP
26	2.088	39.83	-6.17	46.00	29.30	0.32	10.21	Average
27	2.396	48.33	-7.67	56.00	37.81	0.32	10.20	QP
28	2.396	39.83	-6.17	46.00	29.31	0.32	10.20	Average
29	2.608	47.82	-8.18	56.00	37.29	0.33	10.20	QP
30	2.608	39.82	-6.18	46.00	29.29	0.33	10.20	Average
31	2.854	46.72	-9.28	56.00	36.20	0.33	10.19	QP
32	2.854	38.42	-7.58	46.00	27.90	0.33	10.19	Average
33	3.058	45.01	-10.99	56.00	34.50	0.33	10.18	QP
34	3.058	36.81	-9.19	46.00	26.30	0.33	10.18	Average
35	3.258	42.71	-13.29	56.00	32.20	0.33	10.18	QP
36	3.258	33.81	-12.19	46.00	23.30	0.33	10.18	Average
37	4.158	45.11	-10.89	56.00	34.59	0.34	10.18	QP
38	4.158	36.81	-9.19	46.00	26.29	0.34	10.18	Average
39	4.622	47.75	-8.25	56.00	37.20	0.34	10.21	QP
40	4.622	39.15	-6.85	46.00	28.60	0.34	10.21	Average

Test Mode :	Mode 1	Temperature :	24~25℃
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 38 Idle + WLAN (2.4G) Idle + Bluetooth Idle with BT pen + Video with Type C 1 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 2		



Site : CO01-KS
Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL
Project : (FC) 810315-01
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
41	5.194	48.09	-11.91	60.00	37.49	0.34	10.26	QP
42	5.194	39.89	-10.11	50.00	29.29	0.34	10.26	Average
43	5.653	48.93	-11.07	60.00	38.30	0.33	10.30	QP
44	5.653	40.93	-9.07	50.00	30.30	0.33	10.30	Average
45	6.252	49.86	-10.14	60.00	39.20	0.33	10.33	QP
46	6.252	41.56	-8.44	50.00	30.90	0.33	10.33	Average
47	7.329	50.95	-9.05	60.00	40.30	0.32	10.33	QP
48	7.329	43.45	-6.55	50.00	32.80	0.32	10.33	Average
49	8.062	51.24	-8.76	60.00	40.60	0.31	10.33	QP
50	8.062	44.24	-5.76	50.00	33.60	0.31	10.33	Average
51	8.683	51.84	-8.16	60.00	41.20	0.31	10.33	QP
52 *	8.683	45.14	-4.86	50.00	34.50	0.31	10.33	Average
53	9.552	51.73	-8.27	60.00	41.10	0.30	10.33	QP
54	9.552	44.93	-5.07	50.00	34.30	0.30	10.33	Average
55	9.966	50.93	-9.07	60.00	40.30	0.30	10.33	QP
56	9.966	44.23	-5.77	50.00	33.60	0.30	10.33	Average
57	11.377	47.93	-12.07	60.00	37.30	0.27	10.36	QP
58	11.377	41.83	-8.17	50.00	31.20	0.27	10.36	Average

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

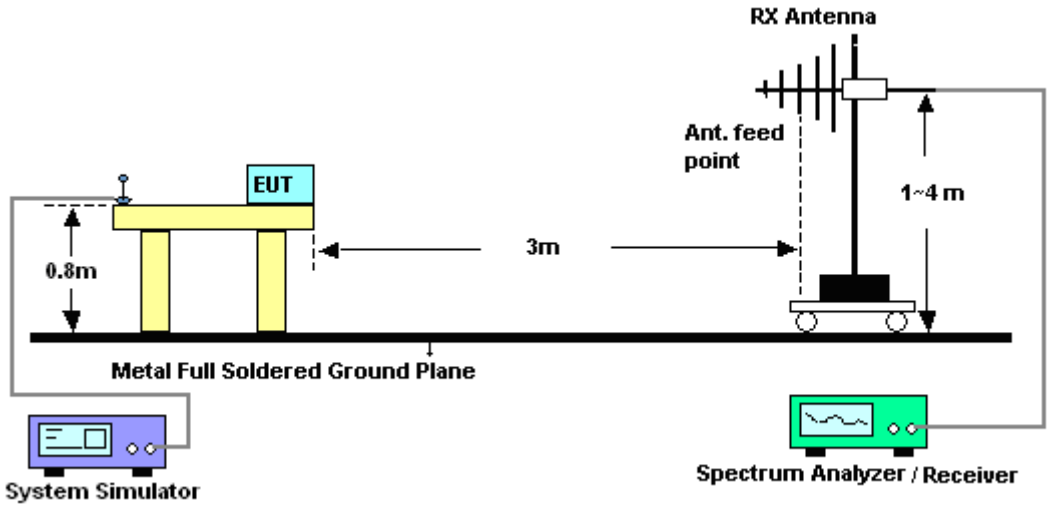
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

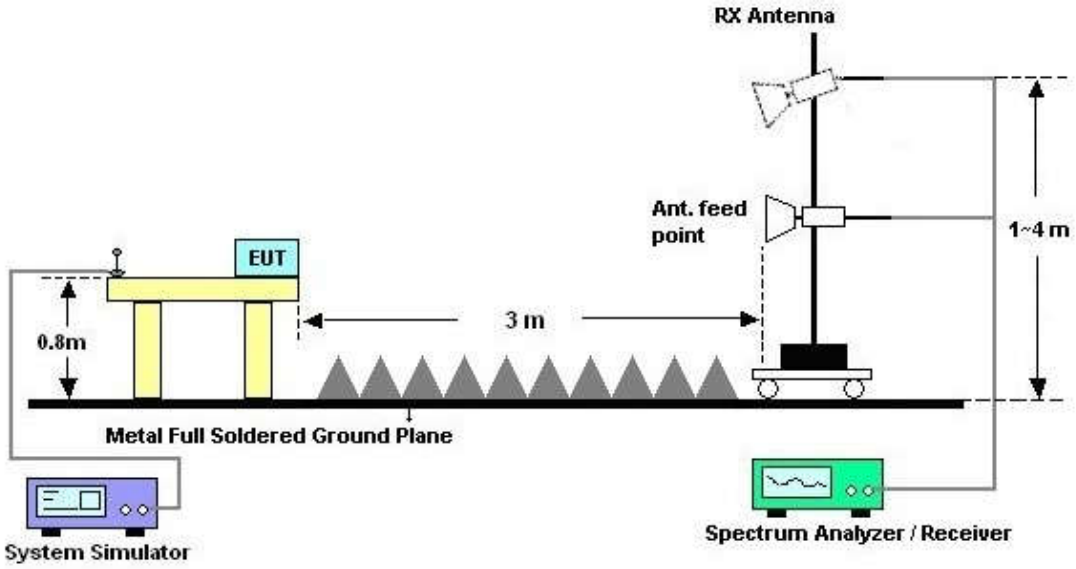
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

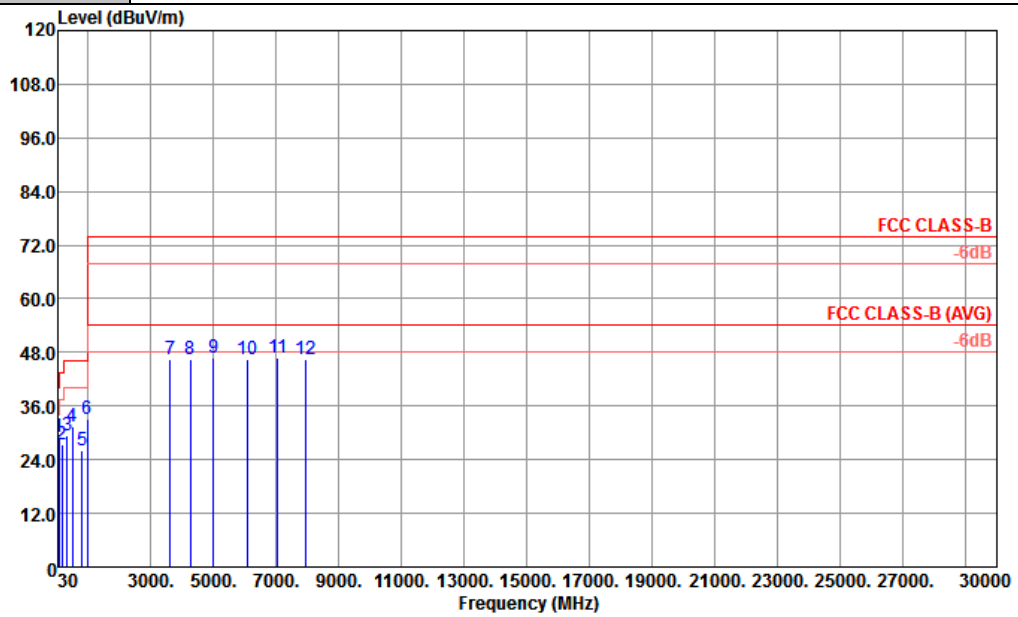


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

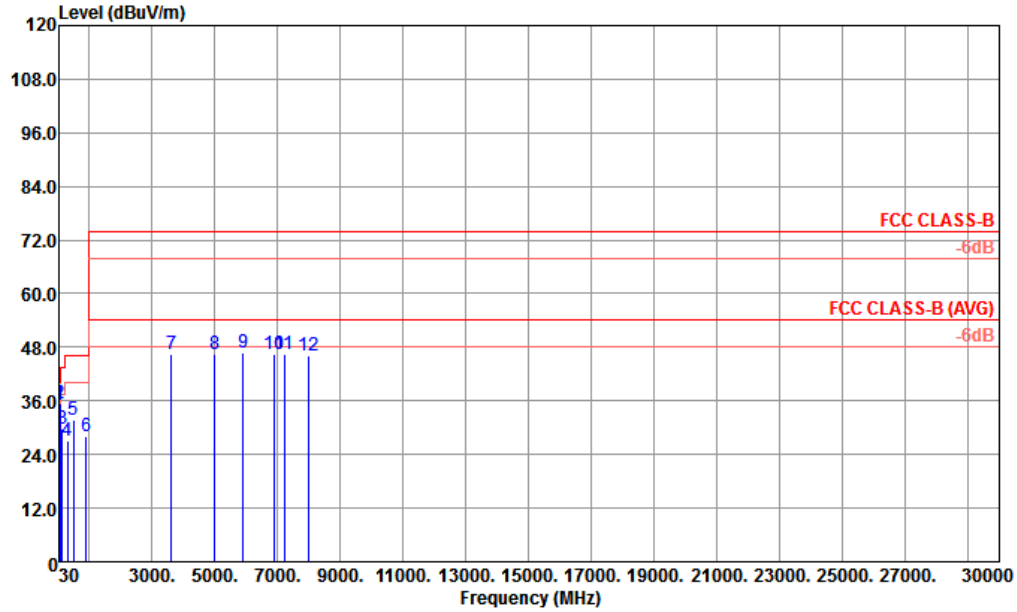
Test Mode :	Mode 1	**Temperature :**	21~22°C
Test Engineer :	Carl Ni	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	WCDMA Band II Idle + WLAN (2.4G) Idle + Bluetooth Idle + USB Link with Type C 2 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 1		



Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 HORIZONTAL
Project : (FC)810315-01
Mode : 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	70.74	28.94	-11.06	40.00	47.75	12.37	0.85	32.03	100	0	Peak
2	153.19	27.46	-16.04	43.50	41.64	16.38	1.27	31.83	---	---	Peak
3	325.85	29.53	-16.47	46.00	38.86	19.77	1.91	31.01	---	---	Peak
4	500.45	31.40	-14.60	46.00	35.83	23.50	2.38	30.31	---	---	Peak
5	806.00	26.20	-19.80	46.00	25.83	25.95	2.69	28.27	---	---	Peak
6	959.90	33.20	-12.80	46.00	30.06	27.01	3.21	27.08	---	---	Peak
7	3616.00	46.45	-27.55	74.00	42.08	34.34	6.47	36.44	---	---	Peak
8	4256.00	46.33	-27.67	74.00	40.86	35.07	7.25	36.85	---	---	Peak
9	5008.00	46.77	-27.23	74.00	40.52	35.10	7.86	36.71	---	---	Peak
10	6104.00	46.62	-27.38	74.00	39.10	35.76	8.65	36.89	---	---	Peak
11	7056.00	46.82	-27.18	74.00	38.24	36.13	9.26	36.81	---	---	Peak
12	7936.00	46.43	-27.57	74.00	37.71	36.02	9.89	37.19	---	---	Peak

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WCDMA Band II Idle + WLAN (2.4G) Idle + Bluetooth Idle + USB Link with Type C 2 + Camera + Play H Plane + Adapter 1 With Type C Cable 1 In Type C 1		



Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 VERTICAL
Project : (FC)810315-01
Mode : 1

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	!	60.07	35.03	-4.97	40.00	54.00	12.40	0.79	32.16	---	---	Peak
2	!	68.80	35.32	-4.68	40.00	54.19	12.31	0.85	32.03	100	0	QP
3		146.40	29.61	-13.89	43.50	43.39	16.83	1.24	31.85	---	---	Peak
4		297.72	26.98	-19.02	46.00	37.05	19.16	1.91	31.14	---	---	Peak
5		500.45	31.60	-14.40	46.00	36.03	23.50	2.38	30.31	---	---	Peak
6		903.00	27.96	-18.04	46.00	25.73	26.62	3.10	27.49	---	---	Peak
7		3624.00	46.43	-27.57	74.00	42.06	34.34	6.47	36.44	---	---	Peak
8		5000.00	46.48	-27.52	74.00	40.24	35.09	7.86	36.71	---	---	Peak
9		5904.00	46.76	-27.24	74.00	39.72	35.71	8.33	37.00	---	---	Peak
10		6872.00	46.45	-27.55	74.00	38.01	36.07	9.06	36.69	---	---	Peak
11		7216.00	46.50	-27.50	74.00	38.32	35.89	9.19	36.90	---	---	Peak
12		7976.00	46.17	-27.83	74.00	37.34	36.06	9.98	37.21	---	---	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 19, 2018	May 31, 2018	Apr. 18, 2019	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	May 31, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	May 31, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	May 31, 2018	Oct. 11, 2018	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Aug. 08, 2017	May 30, 2018	Aug. 07, 2018	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz-44G,MAX 30dB	Apr.17, 2018	May 30, 2018	Apr. 16, 2019	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz-2GHz	Jan. 29, 2018	May 30, 2018	Jan. 28, 2019	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 21, 2017	May 30, 2018	Oct. 20, 2018	Radiation (03CH02-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 07, 2018	May 30, 2018	Feb. 06, 2019	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Aug. 07, 2017	May 30, 2018	Aug. 06, 2018	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1-26.5GHz Gain 30dB	Oct. 12, 2017	May 30, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18~40GHz	Oct. 12, 2017	May 30, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	May 30, 2018	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	May 30, 2018	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	May 30, 2018	NCR	Radiation (03CH02-KS)

NCR: No Calibration Required

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))	2.9dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.2dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.2dB

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.7dB

Appendix B. Product Equality Declaration