FCC Test Report

APPLICANT	:	Xiaomi Communications Co., Ltd.
EQUIPMENT	:	Mobile Phone
BRAND NAME	:	MI
MODEL NAME	:	M1803D5XA
FCC ID	:	2AFZZ-XMSD5X
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Feb. 08, 2018 and testing was completed on Mar. 10, 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

Approved by: James Huang / Manager

NVLAP TESTING
NVLAP LAB CODE 600155-0

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
FC820821	Rev. 01	Initial issue of report	Apr. 08, 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 4.16 dB at 0.200 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 4.24 dB at 45.120 MHz

1. General Description

1.1. Applicant

Xiaomi Communications Co., Ltd.
The Rainbow City of China Resources,NO.68,Qinghe Middle Street,Haidian District,Beijing,China

1.2. Manufacturer

Xiaomi Communications Co., Ltd.
The Rainbow City of China Resources,NO.68,Qinghe Middle Street,Haidian District,Beijing,China

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	MI
Model Name	M1803D5XA
FCC ID	2AFZZ-XMSD5X
EUT supports Radios application	CDMA/EV-DO/GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20/HT40/ WLAN 5GHz 802.11a/n HT20/HT40/ WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/ Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/ Bluetooth v4.1 LE/Bluetooth v4.2 LE/Bluetooth v5.0 LE
IMEI Code	Conduction: 867601030224072/867601030224080 for Sample 1 867601030228610/867601030228628 for Sample 2 Radiation: 867601030223751/867601030223769 for Sample 1 867601030228610/867601030228628 for Sample 2
HW Version	P3.0
SW Version	MIUI 9
EUT Stage	Pre-Production Unit

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. There are two types of EUT sample 1 and sample 2, the differences between two samples are only for Flash, sample 1 is 6GB+64GB, sample 2 is 6GB+128GB. We chose the sample 1 to perform all tests and the sample 2 verified worst cases.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz 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 25 : 1850.7 MHz ~ 1914.3 MHz LTE Band 26 : 814.7 MHz ~ 848.3 MHz LTE Band 30 : 2307.5 MHz ~ 2312.5 MHz LTE Band 38 : 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz CDMA2000 BC10: 817.9 MHz ~ 823.1 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; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
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 13 : 748.5 MHz ~ 753.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz LTE Band 25 : 1930.7 MHz ~ 1994.3 MHz LTE Band 26 : 859.7 MHz ~ 893.3 MHz LTE Band 30 : 2352.5 MHz ~ 2357.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz CDMA2000 BC10: 862.9 MHz ~ 868.1 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; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz GNSS : 1559 MHz ~ 1610 MHz NFC : 13.56 MHz

Antenna Type	WWAN : LDS Antenna WLAN : LDS Antenna Bluetooth : LDS Antenna GNSS: LDS Antenna NFC: planar Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM DC-HSDPA : 64QAM LTE: QPSK / 16QAM / 64QAM CDMA2000 : QPSK CDMA2000 1xEV-DO : 8PSK 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) : π/4-DQPSK Bluetooth (3Mbps) : 8-DPSK GNSS : BPSK NFC: ASK

GNSS Rx = GPS + BDS + GLONASS + Galileo

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

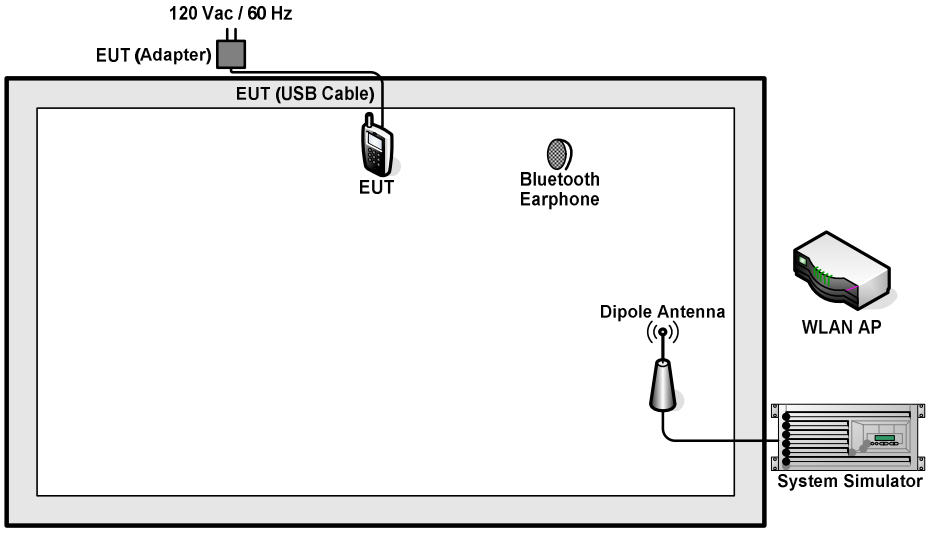
Test Items	Function Type
AC Conducted Emission	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Charging from Adapter) + Camera (Rear) + SIM 1 for Sample 1 <Fig.1> Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Charging from Adapter) + Camera (Front) + SIM 2 for Sample 1<Fig.1> Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Charging from Adapter) + MPEG4 + SIM 1 for Sample 1<Fig.1> Mode 4: LTE Band 4 + Bluetooth Idle + WLAN (5G) Idle + USB Cable 1(Charging from Adapter) + NFC ON + SIM 2 for Sample 1<Fig.1> Mode 5: LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Data Link with Notebook) + GNSS Rx + SIM 1 for Sample 1<Fig.4> Mode 6: LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 1<Fig.4> Mode 7: LTE Band 12 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(wireless charging from Adapter) + Earphone + Camera (Rear)+ SIM 1 for Sample 1 <Fig.2> Mode 8: LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 2 <Fig.4>

Radiated Emissions < 1GHz	Mode 1 : GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Charging from Adapter) + Camera (Rear) + SIM 1 for Sample 1 <Fig.1> Mode 2 : GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Charging from Adapter) + Camera (Front) + SIM 2 for Sample 1 <Fig.1> Mode 3 : WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + Earphone + MPEG4 + SIM 1 for Sample 1 <Fig.3> Mode 4 : LTE Band 4 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Charging from Adapter) + NFC ON + SIM 2 for Sample 1 <Fig.1> Mode 5 : LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Data Link with Notebook) + GNSS Rx + SIM 1 for Sample 1<Fig.4> Mode 6 : LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 1<Fig.4> Mode 7 : LTE Band 12 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 2(wireless charging from Adapter) + Earphone + Camera (Front)+ SIM 1 for Sample 1 <Fig.2> Mode 8 : LTE Band 12 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 2(wireless charging from Adapter) + Earphone + Camera (Front)+ SIM 1 for Sample 2 <Fig.2>
Radiated Emissions ≥ 1GHz	Mode 1 : LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 1 <Fig.4> Mode 2 : LTE Band 12 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 2(wireless charging from Adapter) + Earphone + Camera (Front)+ SIM 1 for Sample 1 <Fig.2>

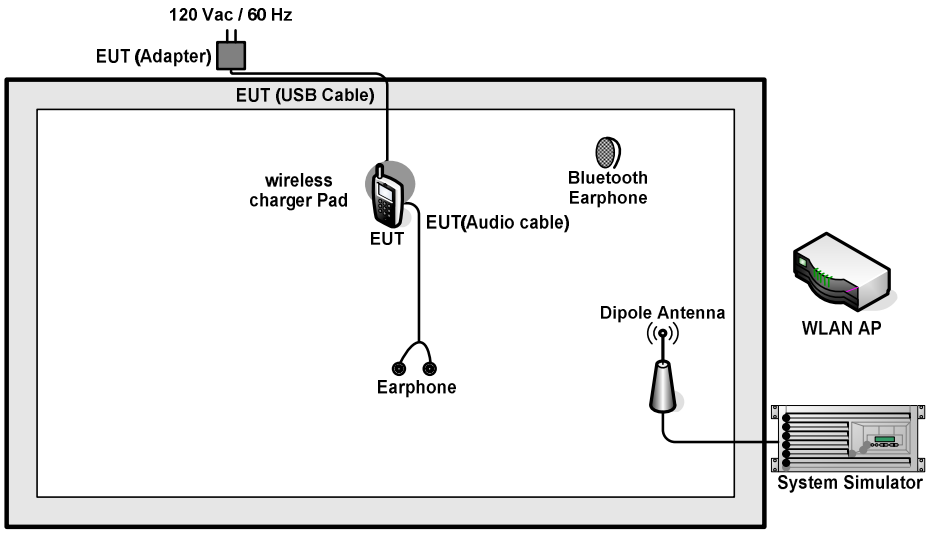
Remark:

1. The worst case of AC is mode 1; and the USB data link mode is mode 8, the test data of these modes are reported.
2. The worst case of RE < 1G is mode 7; and the USB data link mode is mode 6, the test data of these modes are reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.

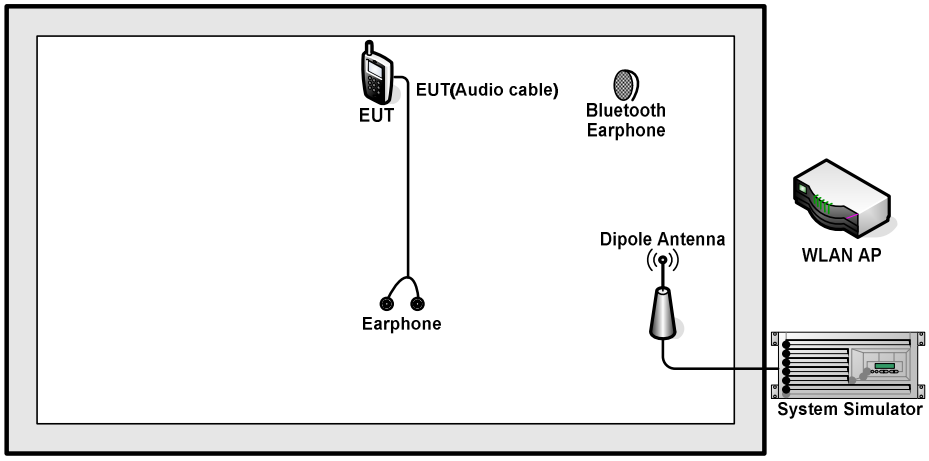
2.2. Connection Diagram of Test System



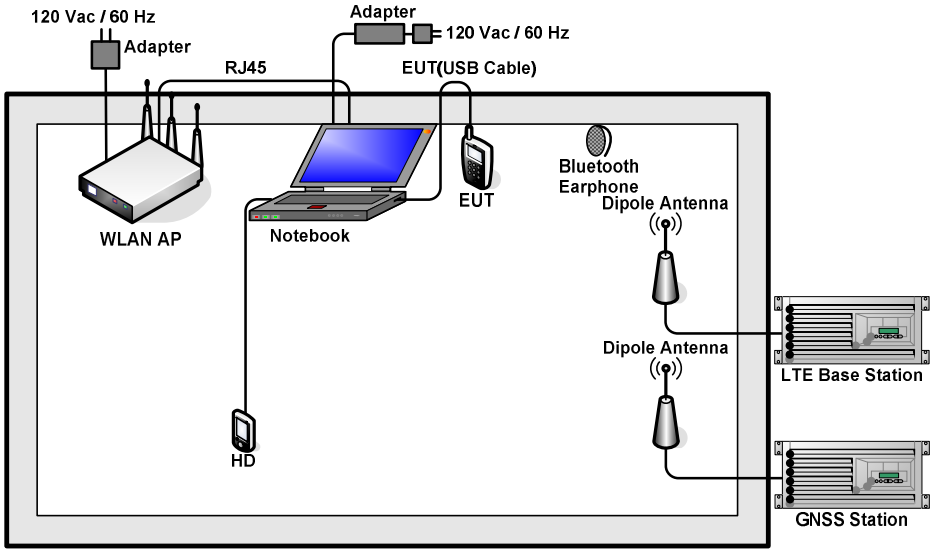
<Fig.1>



<Fig.2>


EUT
EUT(Audio cable)
Bluetooth
Earphone
Dipole Antenna
WLAN AP
Earphone
System Simulator

<Fig.3>


120 Vac / 60 Hz
Adapter
RJ45
Adapter
120 Vac / 60 Hz
EUT(USB Cable)
WLAN AP
Notebook
EUT
Bluetooth
Earphone
Dipole Antenna
Dipole Antenna
LTE Base Station
HD
GNSS Station

<Fig.4>

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	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	GNSS Station	R&S	SMBV100A	258305	N/A	Unshielded, 1.8 m
4.	GNSS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
5.	GNSS Station	RACELOGIC	RLLS03-2RP	N/A	N/A	Unshielded, 1.8 m
6.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
7.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded, 1.8 m
8.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
9.	Notebook	Dell	Latitude3440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
10.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
11.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
12.	iPod	Apple	A1199	Fcc DoC	Shielded, 1.2m	iPod
13.	SD Card	Kingston	8GB	N/A	N/A	N/A
14.	Earphone	Lenovo	SH100	N/A	Unshielded, 1.0 m	N/A
15.	wireless charger Pad	N/A	N/A	N/A	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 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 Notebook and EUT via USB cable.
2. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.
3. Execute "Video Player" to play MPEG4 files.
4. Turn on camera to capture images.
5. Turn on NFC 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.

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.

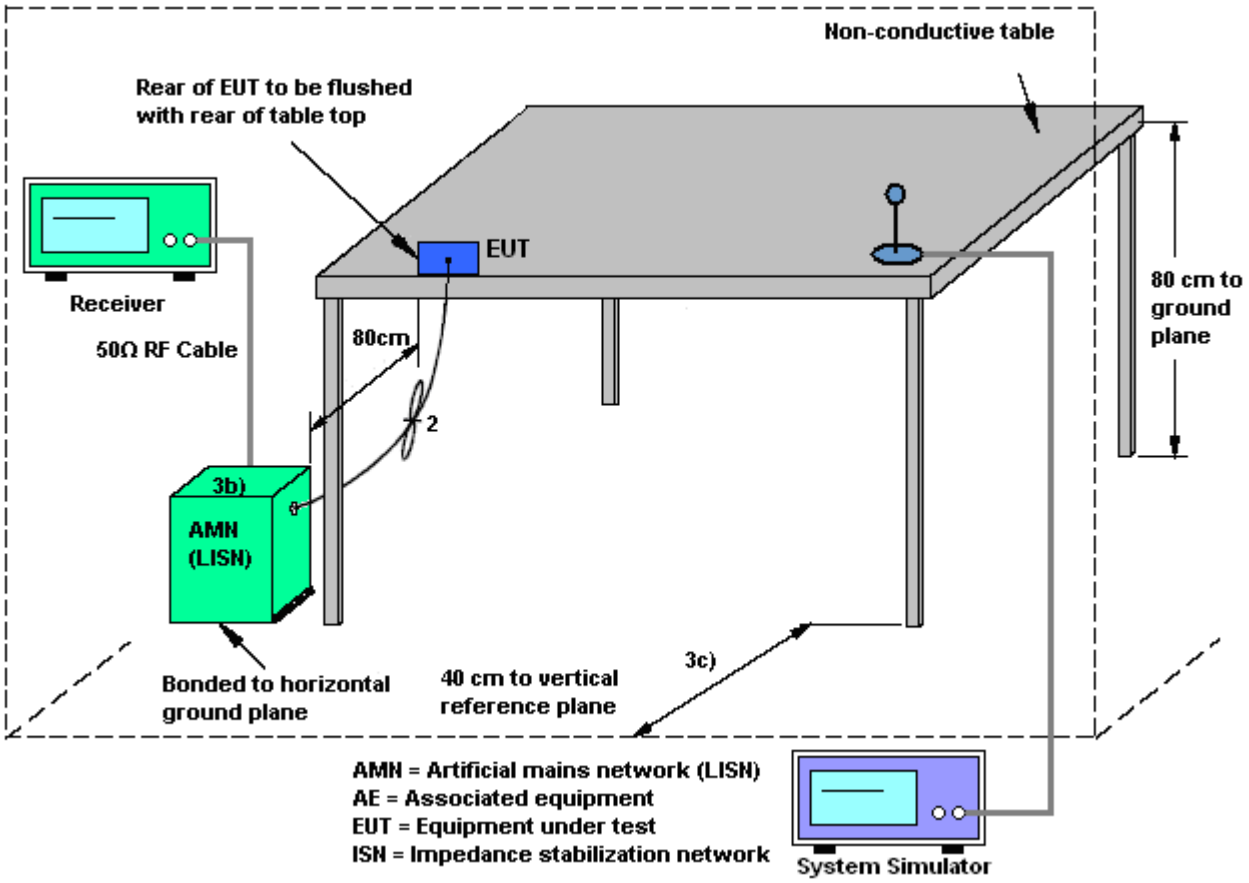
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

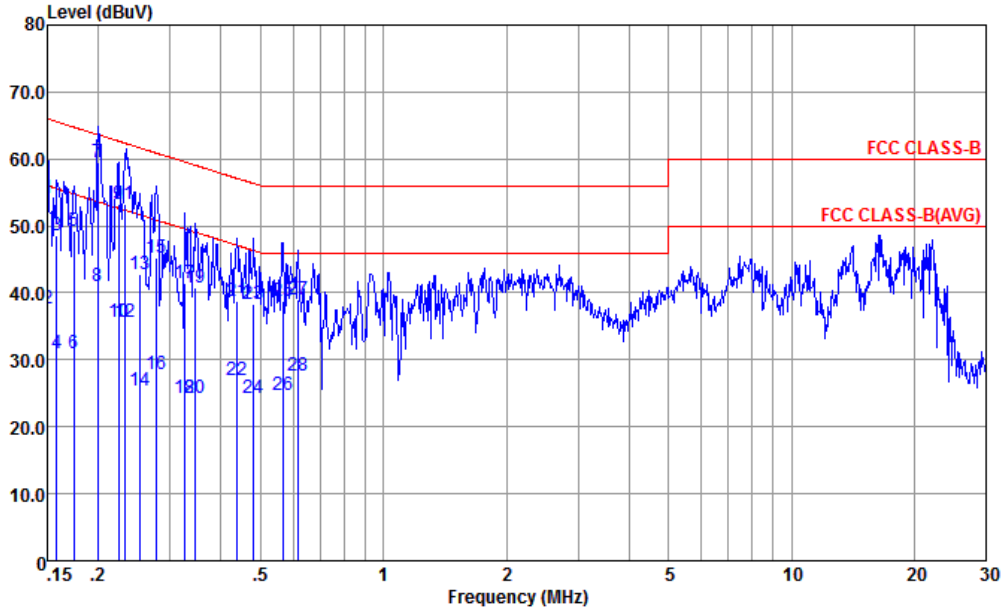
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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 :**	21~23℃
Test Engineer :	Amos Zhang	**Relative Humidity :**	41~44%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Charging from Adapter) + Camera (Rear) + SIM 1 for Sample 1		

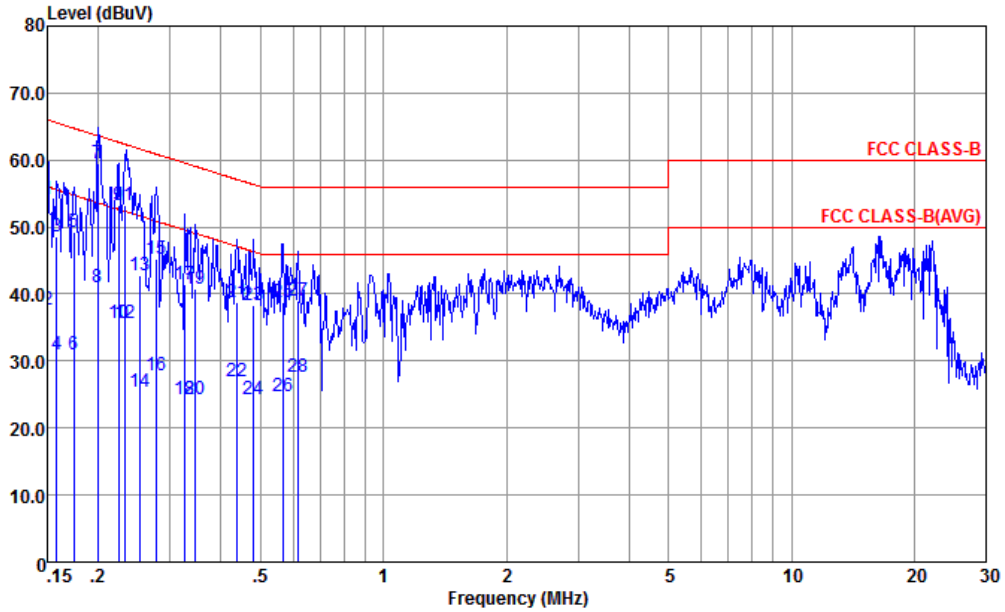


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-171013-060103 LINE
Project : (FC) 820821

: 867601030224072/867601030224080 #15

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.150	54.08	-11.92	66.00	43.30	0.16	10.62	QP
2		0.150	37.68	-18.32	56.00	26.90	0.16	10.62	Average
3		0.158	48.56	-17.00	65.56	37.80	0.17	10.59	QP
4		0.158	30.96	-24.60	55.56	20.20	0.17	10.59	Average
5		0.174	49.32	-15.45	64.77	38.60	0.18	10.54	QP
6		0.174	30.92	-23.85	54.77	20.20	0.18	10.54	Average
7	*	0.200	59.46	-4.16	63.62	48.80	0.20	10.46	QP
8		0.200	40.96	-12.66	53.62	30.30	0.20	10.46	Average
9		0.224	53.25	-9.41	62.66	42.59	0.21	10.45	QP
10		0.224	35.55	-17.11	52.66	24.89	0.21	10.45	Average
11		0.232	53.25	-9.14	62.39	42.59	0.21	10.45	QP
12		0.232	35.75	-16.64	52.39	25.09	0.21	10.45	Average
13		0.253	42.85	-18.79	61.64	32.19	0.22	10.44	QP
14		0.253	25.45	-26.19	51.64	14.79	0.22	10.44	Average
15		0.277	45.25	-15.65	60.90	34.60	0.22	10.43	QP
16		0.277	27.85	-23.05	50.90	17.20	0.22	10.43	Average
17		0.327	41.45	-18.08	59.53	30.80	0.23	10.42	QP

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Amos Zhang	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Charging from Adapter) + Camera (Rear) + SIM 1 for Sample 1		

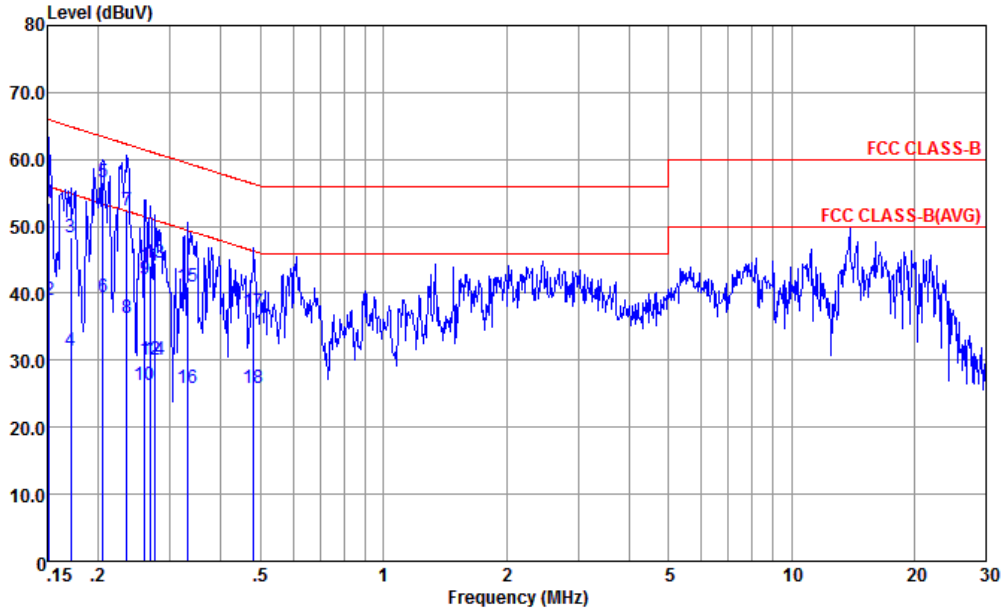


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-171013-060103 LINE

mode : Mode 1
: 867601030224072/867601030224080 #15

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
18	0.327	24.25	-25.28	49.53	13.60	0.23	10.42	Average
19	0.346	40.85	-18.20	59.05	30.19	0.24	10.42	QP
20	0.346	24.25	-24.80	49.05	13.59	0.24	10.42	Average
21	0.437	38.82	-18.29	57.11	28.20	0.25	10.37	QP
22	0.437	26.92	-20.19	47.11	16.30	0.25	10.37	Average
23	0.481	38.38	-17.94	56.32	27.80	0.26	10.32	QP
24	0.481	24.18	-22.14	46.32	13.60	0.26	10.32	Average
25	0.567	38.71	-17.29	56.00	28.20	0.26	10.25	QP
26	0.567	24.81	-21.19	46.00	14.30	0.26	10.25	Average
27	0.617	39.08	-16.92	56.00	28.60	0.26	10.22	QP
28	0.617	27.58	-18.42	46.00	17.10	0.26	10.22	Average

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Amos Zhang	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1(Charging from Adapter) + Camera (Rear) + SIM 1 for Sample 1		

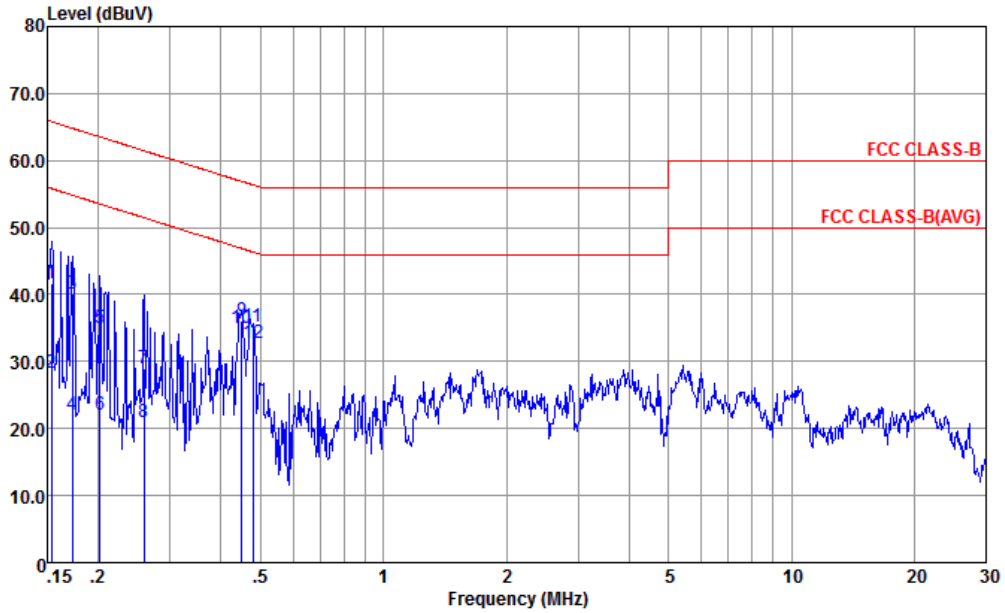


Site : CO01-KS
Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL

mode : Mode 1
: 867601030224072/867601030224080 #15

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.152	53.49	-12.42	65.91	42.60	0.28	10.61	QP
2		0.152	38.99	-16.92	55.91	28.10	0.28	10.61	Average
3		0.171	48.43	-16.47	64.90	37.60	0.28	10.55	QP
4		0.171	31.33	-23.57	54.90	20.50	0.28	10.55	Average
5	*	0.205	56.63	-6.77	63.40	45.90	0.28	10.45	QP
6		0.205	39.53	-13.87	53.40	28.80	0.28	10.45	Average
7		0.235	52.33	-9.93	62.26	41.61	0.28	10.44	QP
8		0.235	36.23	-16.03	52.26	25.51	0.28	10.44	Average
9		0.260	42.22	-19.20	61.42	31.50	0.28	10.44	QP
10		0.260	26.22	-25.20	51.42	15.50	0.28	10.44	Average
11		0.267	44.22	-16.98	61.20	33.50	0.28	10.44	QP
12		0.267	30.02	-21.18	51.20	19.30	0.28	10.44	Average
13		0.276	44.62	-16.32	60.94	33.91	0.28	10.43	QP
14		0.276	30.02	-20.92	50.94	19.31	0.28	10.43	Average
15		0.332	40.91	-18.49	59.40	30.20	0.29	10.42	QP
16		0.332	25.91	-23.49	49.40	15.20	0.29	10.42	Average
17		0.481	37.21	-19.11	56.32	26.60	0.29	10.32	QP
18		0.481	25.81	-20.51	46.32	15.20	0.29	10.32	Average

Test Mode :	Mode 8	Temperature :	21~23℃
Test Engineer :	Amos Zhang	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 2		

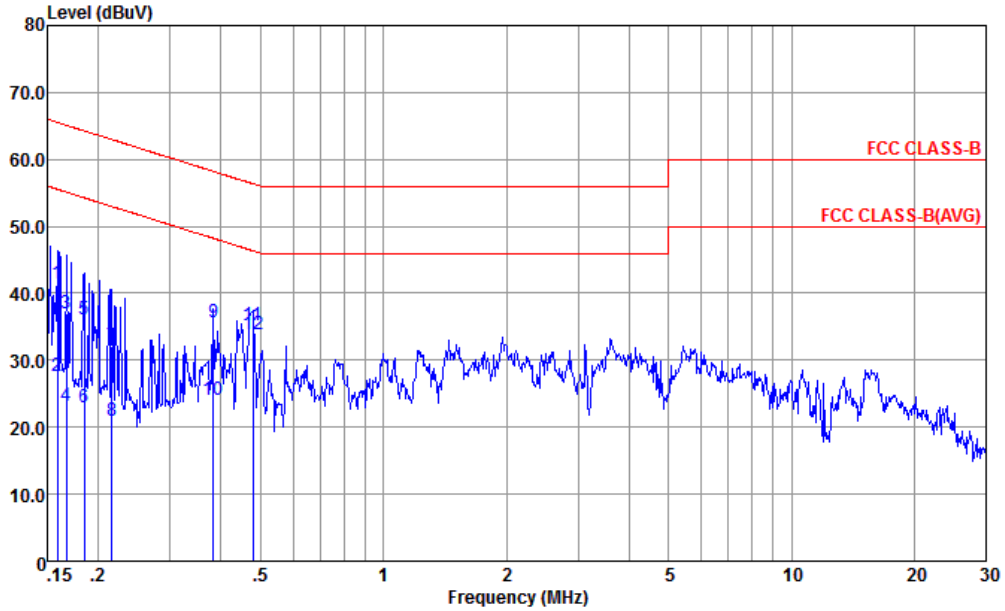


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-161017-060103 LINE

mode : Mode 8
: 867601030228610/867601030228628 #34

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.153	41.64	-24.18	65.82	30.50	0.53	10.61	QP
2	0.153	28.34	-27.48	55.82	17.20	0.53	10.61	Average
3	0.173	40.15	-24.66	64.81	29.20	0.41	10.54	QP
4	0.173	22.15	-32.66	54.81	11.20	0.41	10.54	Average
5	0.202	34.92	-28.62	63.54	24.20	0.27	10.45	QP
6	0.202	22.02	-31.52	53.54	11.30	0.27	10.45	Average
7	0.259	29.01	-32.46	61.47	18.30	0.27	10.44	QP
8	0.259	20.91	-30.56	51.47	10.20	0.27	10.44	Average
9	0.449	36.13	-20.76	56.89	25.50	0.27	10.36	QP
10 *	0.449	34.93	-11.96	46.89	24.30	0.27	10.36	Average
11	0.479	35.19	-21.17	56.36	24.60	0.27	10.32	QP
12	0.479	32.69	-13.67	46.36	22.10	0.27	10.32	Average

Test Mode :	Mode 8	Temperature :	21~23℃
Test Engineer :	Amos Zhang	Relative Humidity :	41~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 2		



Site : CO01-KS
Condition : FCC CLASS-B LISN-N-161017-060103 NEUTRAL

mode : Mode 8
: 867601030228610/867601030228628 #34

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.159	41.42	-24.10	65.52	30.49	0.34	10.59	QP
2	0.159	27.52	-28.00	55.52	16.59	0.34	10.59	Average
3	0.167	37.09	-28.03	65.12	26.19	0.34	10.56	QP
4	0.167	23.19	-31.93	55.12	12.29	0.34	10.56	Average
5	0.184	36.14	-28.14	64.28	25.31	0.33	10.50	QP
6	0.184	23.04	-31.24	54.28	12.21	0.33	10.50	Average
7	0.216	32.08	-30.88	62.96	21.30	0.33	10.45	QP
8	0.216	20.98	-31.98	52.96	10.20	0.33	10.45	Average
9	0.383	35.58	-22.63	58.21	24.80	0.37	10.41	QP
10	0.383	23.98	-24.23	48.21	13.20	0.37	10.41	Average
11	0.479	35.20	-21.16	56.36	24.50	0.38	10.32	QP
12 *	0.479	33.90	-12.46	46.36	23.20	0.38	10.32	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

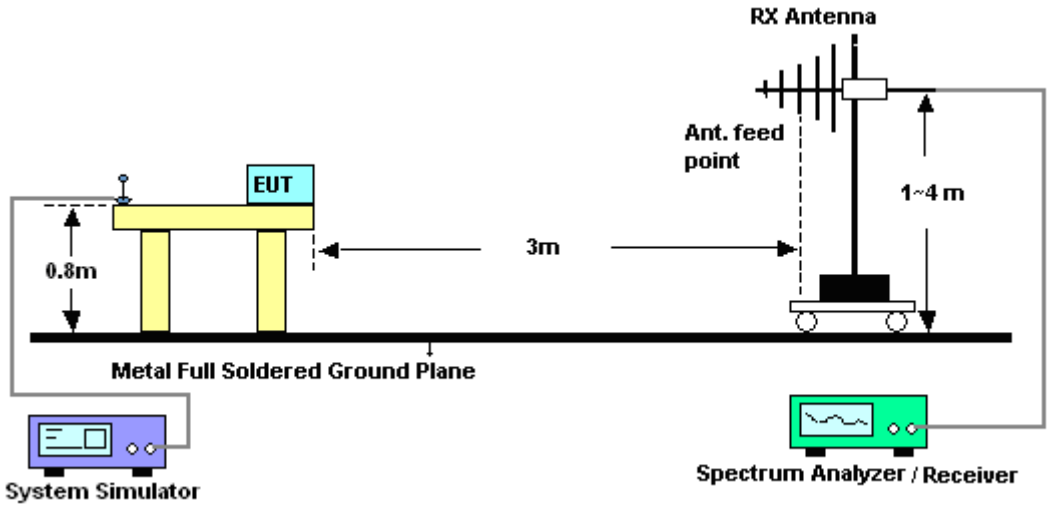
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

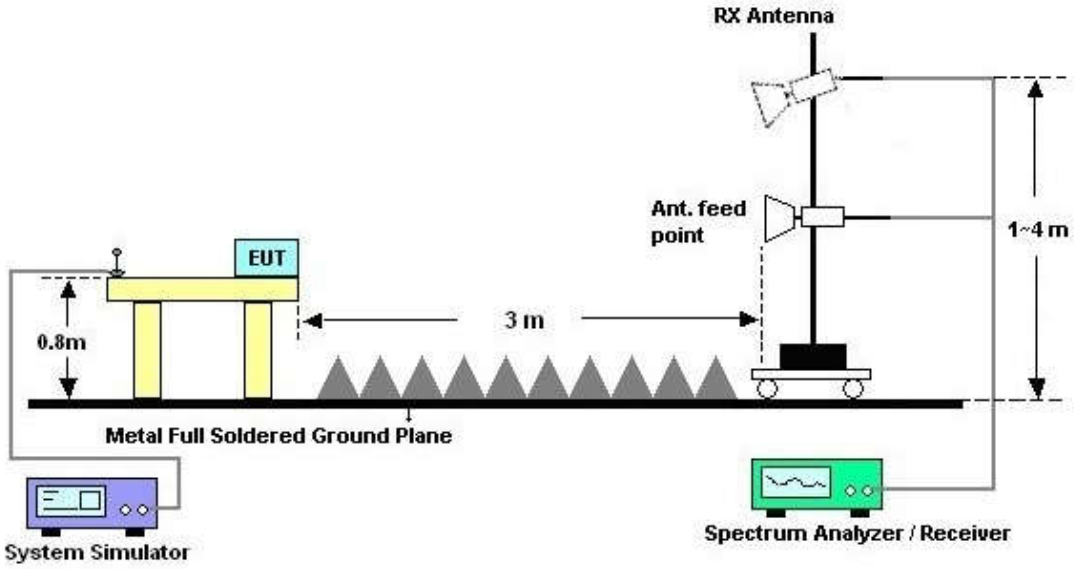
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

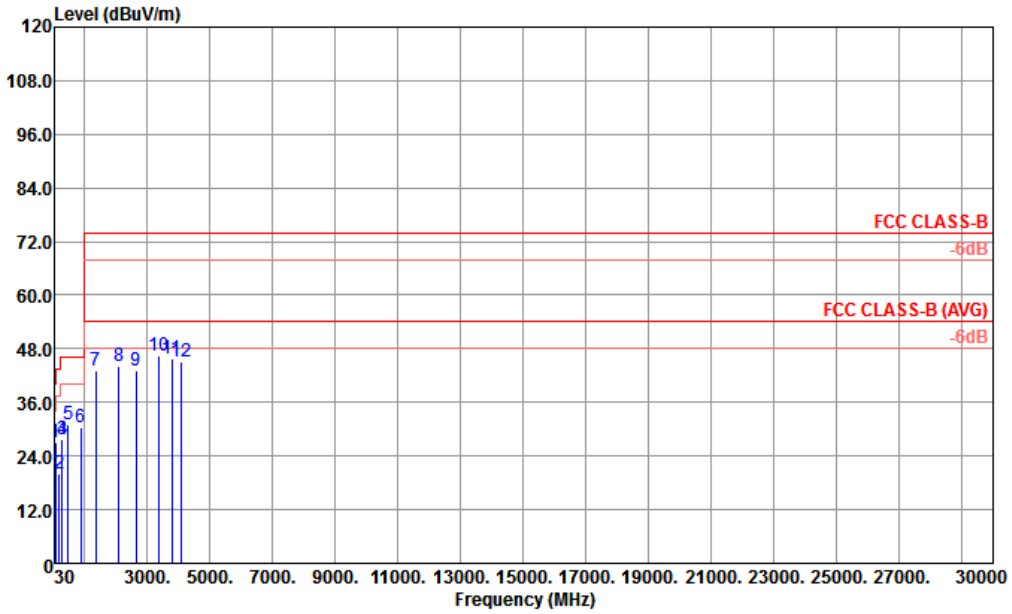


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 6	**Temperature :**	21~22°C
Test Engineer :	Maker Qi	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 1		

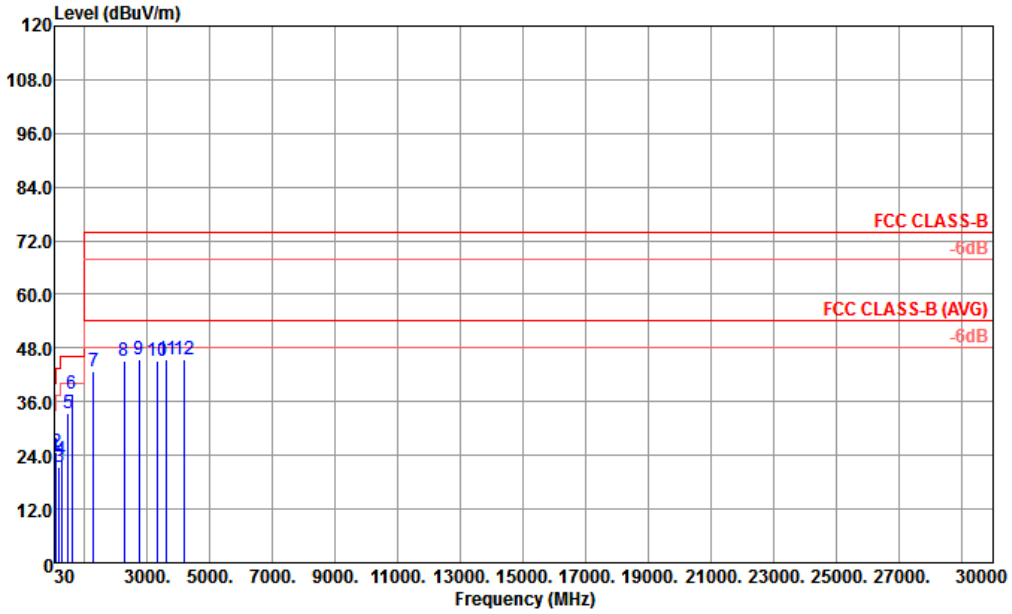


Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 HORIZONTAL

Mode : 6
IMEI : 867601030223751 867601030223769 #13

	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	69.42	27.05	-12.95	40.00	45.92	12.30	0.85	32.02	100	0	Peak
2	174.45	20.16	-23.34	43.50	35.10	15.47	1.35	31.76	---	---	Peak
3	270.30	27.80	-18.20	46.00	38.36	18.99	1.82	31.37	---	---	Peak
4	282.72	27.63	-18.37	46.00	38.10	18.93	1.86	31.26	---	---	Peak
5	479.90	30.99	-15.01	46.00	35.87	23.22	2.30	30.40	---	---	Peak
6	869.80	30.32	-15.68	46.00	28.58	26.42	3.07	27.75	---	---	Peak
7	1352.00	43.11	-30.89	74.00	45.55	28.60	3.85	34.89	---	---	Peak
8	2094.00	44.05	-29.95	74.00	41.34	30.59	4.79	32.67	---	---	Peak
9	2632.00	43.20	-30.80	74.00	36.56	31.71	5.42	30.49	---	---	Peak
10	3372.00	46.37	-27.63	74.00	36.75	33.35	6.27	30.00	---	---	Peak
11	3783.00	45.72	-28.28	74.00	34.46	34.76	6.61	30.11	---	---	Peak
12	4083.00	45.14	-28.86	74.00	33.08	35.23	6.94	30.11	---	---	Peak

Test Mode :	Mode 6	Temperature :	21~22°C
Test Engineer :	Maker Qi	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2(Data Link with Notebook) + GNSS Rx + SIM 2 for Sample 1		

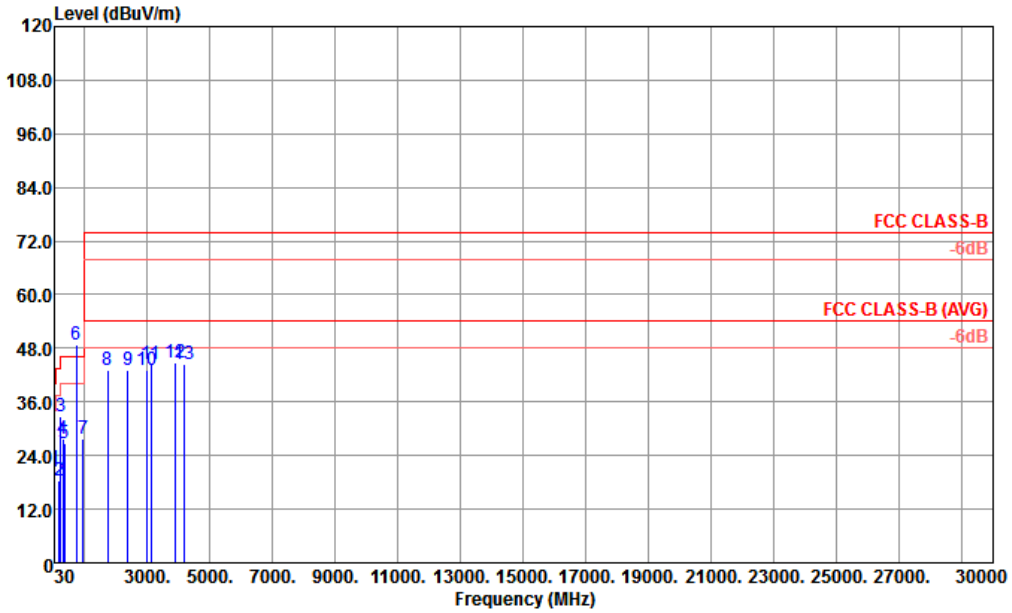


Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 VERTICAL

Mode : 6
IMEI : 867601030223751 867601030223769 #13

	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	30.00	23.62	-16.38	40.00	30.08	25.00	0.57	32.03	---	---	Peak
2	91.29	24.81	-18.69	43.50	40.77	15.09	0.97	32.02	---	---	Peak
3	174.18	21.56	-21.94	43.50	36.50	15.47	1.35	31.76	---	---	Peak
4	255.72	23.10	-22.90	46.00	33.59	19.24	1.77	31.50	---	---	Peak
5	479.90	33.32	-12.68	46.00	38.20	23.22	2.30	30.40	---	---	Peak
6	599.60	37.75	-8.25	46.00	40.19	24.61	2.62	29.67	100	0	Peak
7	1272.00	42.90	-31.10	74.00	45.81	28.43	3.72	35.06	---	---	Peak
8	2252.00	45.09	-28.91	74.00	40.84	31.08	4.99	31.82	---	---	Peak
9	2726.00	45.39	-28.61	74.00	38.05	31.88	5.66	30.20	---	---	Peak
10	3315.00	45.21	-28.79	74.00	35.66	33.26	6.25	29.96	---	---	Peak
11	3624.00	45.32	-28.68	74.00	34.70	33.81	6.47	29.66	---	---	Peak
12	4176.00	45.38	-28.62	74.00	32.85	35.40	7.24	30.11	---	---	Peak

Test Mode :	Mode 7	**Temperature :**	21~22°C
Test Engineer :	Maker Qi	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	LTE Band 12 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 2(wireless charging from Adapter) + Earphone + Camera (Front)+ SIM 1 for Sample 1		
Remark :	#6 is system simulator signal which can be ignored.		

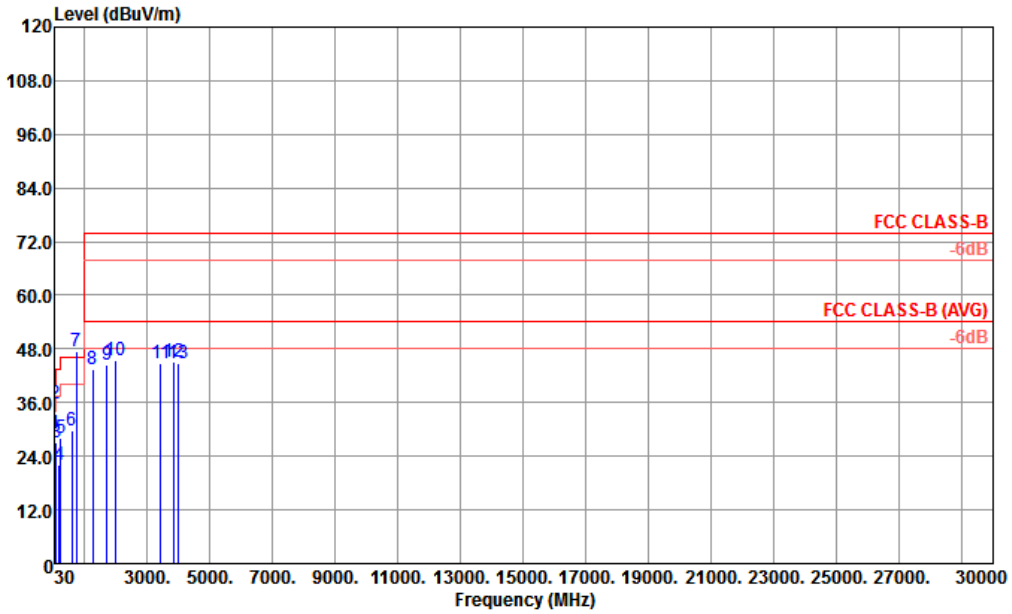


Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 HORIZONTAL

Mode : 7
IMEI : 867601030223751 867601030223769 #13

		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		30.27	20.97	-19.03	40.00	27.43	25.00	0.57	32.03	---	---	Peak
2		179.85	18.50	-25.00	43.50	33.62	15.25	1.37	31.74	---	---	Peak
3		239.79	32.90	-13.10	46.00	45.39	17.40	1.69	31.58	100	0	Peak
4		299.73	27.67	-18.33	46.00	37.67	19.20	1.92	31.12	---	---	Peak
5		359.50	26.61	-19.39	46.00	34.96	20.57	1.94	30.86	---	---	Peak
6	*	736.80	48.72			49.12	25.52	2.80	28.72	---	---	Peak
7		955.90	27.71	-18.29	46.00	24.63	26.97	3.21	27.10	---	---	Peak
8		1742.00	43.14	-30.86	74.00	43.81	29.23	4.38	34.28	---	---	Peak
9		2380.00	43.20	-30.80	74.00	38.31	31.27	5.14	31.52	---	---	Peak
10		2966.00	42.96	-31.04	74.00	34.49	32.50	5.94	29.97	---	---	Peak
11		3114.00	44.40	-29.60	74.00	35.12	32.87	6.10	29.69	---	---	Peak
12		3906.00	44.78	-29.22	74.00	33.27	34.95	6.67	30.11	---	---	Peak
13		4176.00	44.32	-29.68	74.00	31.79	35.40	7.24	30.11	---	---	Peak

Test Mode :	Mode 7	Temperature :	21~22°C
Test Engineer :	Maker Qi	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 12 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 2(wireless charging from Adapter) + Earphone + Camera (Front)+ SIM 1 for Sample 1		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 VERTICAL
Project : (FC)820821

IMEI : 867601030223751 867601030223769 #13

		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		32.70	28.95	-11.05	40.00	37.06	23.32	0.61	32.04	---	---	Peak
2	!	45.12	35.76	-4.24	40.00	51.26	15.95	0.66	32.11	100	0	Peak
3		98.85	27.12	-16.38	43.50	41.44	16.61	1.01	31.94	---	---	Peak
4		179.85	22.04	-21.46	43.50	37.16	15.25	1.37	31.74	---	---	Peak
5		239.79	27.91	-18.09	46.00	40.40	17.40	1.69	31.58	---	---	Peak
6		599.60	29.71	-16.29	46.00	32.15	24.61	2.62	29.67	---	---	Peak
7	*	736.80	47.50			47.90	25.52	2.80	28.72	---	---	Peak
8		1258.00	43.44	-30.56	74.00	46.44	28.40	3.72	35.12	---	---	Peak
9		1720.00	44.43	-29.57	74.00	45.30	29.17	4.35	34.39	---	---	Peak
10		1964.00	45.34	-28.66	74.00	44.12	30.07	4.59	33.44	---	---	Peak
11		3435.00	44.73	-29.27	74.00	34.91	33.43	6.30	29.91	---	---	Peak
12		3819.00	45.28	-28.72	74.00	33.95	34.81	6.63	30.11	---	---	Peak
13		4002.00	44.64	-29.36	74.00	32.92	35.12	6.71	30.11	---	---	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. 20, 2017	Mar. 10, 2018	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Mar. 10, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Mar. 10, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Mar. 10, 2018	Oct. 11, 2018	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 08, 2017	Feb. 26, 2018	Aug. 07, 2018	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz, MAX 30dB	Apr. 18, 2017	Feb. 26, 2018	Apr. 17, 2018	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz~2GHz	Jan. 21, 2018	Feb. 26, 2018	Jan. 20, 2019	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 21, 2017	Feb. 26, 2018	Oct. 20, 2018	Radiation (03CH02-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 07, 2018	Feb. 26, 2018	Feb. 06, 2019	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18GHz~40GHz	Oct. 12, 2017	Feb. 26, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Aug. 07, 2017	Feb. 26, 2018	Aug. 06, 2018	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1-26.5GHz Gain 30dB	Oct. 12, 2017	Feb. 26, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Feb. 26, 2018	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Feb. 26, 2018	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Feb. 26, 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))	2.3dB

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

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

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

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

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

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