



FCC Test Report

APPLICANT : LENOVO (BEIJING) LIMITED
EQUIPMENT : Mobile Phone
BRAND NAME : Lenovo
MODEL NAME : Lenovo L70081
FCC ID : A5MLM21C81
STANDARD : 47 CFR Part 15 Subpart B
CLASSIFICATION : Certification
TEST DATE(S) : Apr. 13, 2021 ~ Apr. 18, 2021

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.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager



Sporton International (Kunshan) Inc.

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China



TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1. GENERAL DESCRIPTION	5
1.1. Applicant.....	5
1.2. Manufacturer	5
1.3. Product Feature of Equipment Under Test	5
1.4. Product Specification of Equipment Under Test	6
1.5. Modification of EUT	7
1.6. Test Location	8
1.7. Test Software	8
1.8. Applicable Standards	8
2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST	9
2.1. Test Mode	9
2.2. Connection Diagram of Test System	11
2.3. Support Unit used in test configuration and system	11
2.4. EUT Operation Test Setup	12
3. TEST RESULT	13
3.1. Test of AC Conducted Emission Measurement	13
3.2. Test of Radiated Emission Measurement	17
4. LIST OF MEASURING EQUIPMENT	21
5. UNCERTAINTY OF EVALUATION	22
APPENDIX A. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC111226-01	Rev. 01	Initial issue of report	Jun. 11, 2021



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 1.06 dB at 0.497 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.09 dB at 81.410 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.



1. General Description

1.1. Applicant

LENOVO (BEIJING) LIMITED

201-H2-6, Floor 2, Building 2, No.6 Shangdi West Road, Haidian District, Beijing, China 100085

1.2. Manufacturer

Lenovo PC HK Limited

23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong, P.R. China

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Lenovo
Model Name	Lenovo L70081
FCC ID	A5MLM21C81
EUT supports Radios application	CDMA/GSM/WCDMA/LTE/5G NR WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac VHT20/VHT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE GNSS/NFC
IMEI Code	Conduction: 865576050015018/865576050015026 Radiation: 865576050014979/865576050014987
HW Version	DVT2
SW Version	L70081_CN_OPEN_UD_Q00017.0_R_ZUI_12.5.020_ST_210219_qpst
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850MHz ~ 1910MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz CDMA2000 BC0: 824 MHz ~ 849 MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 25 : 1850 MHz ~ 1915 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 30 : 2305 MHz ~ 2315 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Rx Frequency	GSM850: 869 MHz ~ 894 MHz GSM1900: 1930 MHz ~ 1990 MHz WCDMA Band II: 1930 MHz ~ 1990 MHz WCDMA Band IV : 2110 MHz ~ 2155 MHz WCDMA Band V: 869 MHz ~ 894 MHz CDMA2000 BC0: 869 MHz ~ 894 MHz LTE Band 2 : 1930 MHz ~ 1990 MHz LTE Band 4 : 2110 MHz ~ 2155 MHz LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 7 : 2620 MHz ~ 2690 MHz LTE Band 12 : 729 MHz ~ 746 MHz LTE Band 17 : 734 MHz ~ 746 MHz LTE Band 25 : 1930 MHz ~ 1995 MHz LTE Band 26 : 859 MHz ~ 894 MHz LTE Band 30 : 2350 MHz ~ 2360 MHz

	LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz LTE Band 66 : 2110 MHz~ 2200 MHz LTE Band 71: 617 MHz ~ 652 MHz 5G NR n2 : 1930 MHz ~ 1990 MHz 5G NR n5 : 869 MHz ~ 894 MHz 5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n25 : 1930 MHz ~ 1995 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 2110 MHz~ 2200 MHz 5G NR n71 : 617 MHz ~ 652 MHz 5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz GNSS : 1559 MHz ~ 1610 MHz
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GNSS: PIFA Antenna NFC : FPC Antenna
Type of Modulation	GSM/GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK HSPA : QPSK HSPA+ : 16QAM (16QAM uplink is not supported) DC-HSDPA : 64QAM CDMA2000 1xRTT: QPSK CDMA2000 1xEV-DO: QPSK/8PSK LTE: QPSK / 16QAM / 64QAM / 256QAM 5G NR: DFT-s-OFDM (PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM) CP-OFDM (QPSK / 16QAM / 64QAM / 256QAM) 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac/ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GNSS : BPSK NFC: ASK

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/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-KS 03CH02-KS	CN1257	314309

1.7. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH02-KS	AUDIX	E3	6.2009-8-24a
2.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR 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

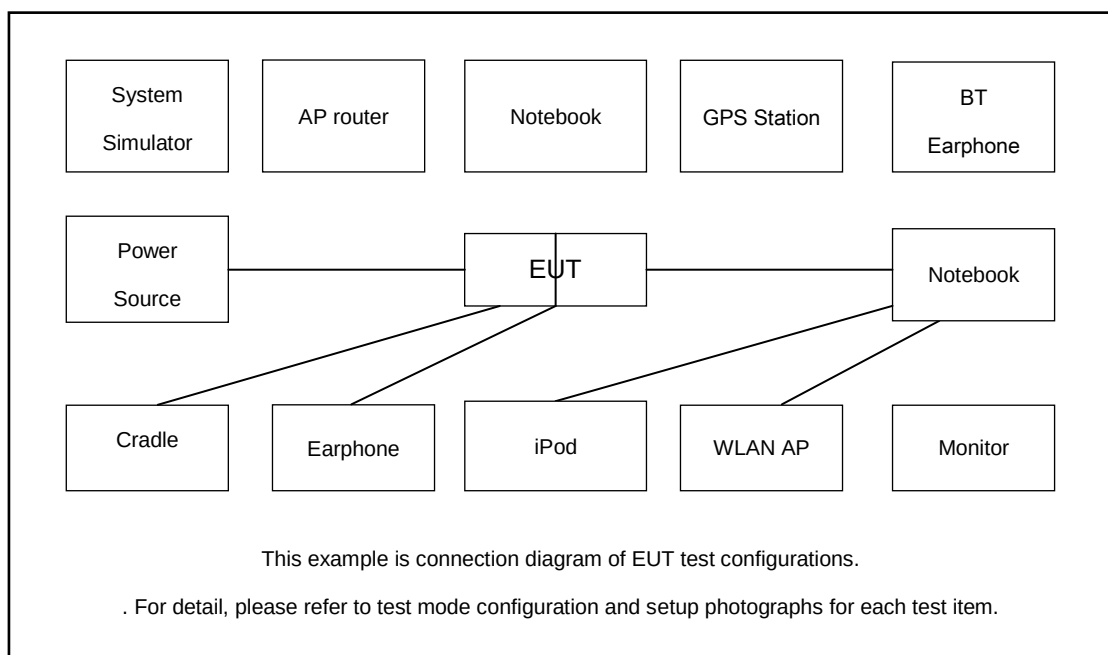
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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: GSM850 Rx Low CH + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone Type -c 2 + Battery + USB Cable (Charging from Adapter port 1Type -c 1) + SIM 1
	Mode 2: WCDMA FDD II Rx + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Earphone Type -c 1 + Battery + USB Cable (Charging from Adapter port 2Type -c 2) + SIM 2
	Mode 3: LTE Band 12 Rx Middle CH + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + DP Play With Type -c 2 + Battery + USB Cable (Charging from Adapter port 1 Type -c 1) + SIM 1
	Mode 4: LTE Band 17 Rx High CH + Bluetooth Idle + WLAN (5G) Idle + NFC On + DP Play With Type -c 2 + Battery + USB Cable (Charging from Adapter port 1 Type -c 1) + SIM 2
	Mode 5: LTE Band 26 Rx High CH + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx 1 + DP Play With Type -c 2 + Battery + USB Cable (Data Link with Notebook Type -c 1) + SIM 1
	Mode 6: 5G N5 Rx Middle CH + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx 2 + Earphone Type -c 1 + Battery + USB Cable (Data Link with Notebook Type -c 2) + SIM 2
	Mode 7: 5G N77 Rx + USB Cable (Charging from Adapter port 1Type -c 1) + USB Cable (Charging from Adapter port 2Type -c 2) + SIM 1
	Mode 8: LTE Band 17 Rx High CH + Dock (USB Port1 With keyboard + USB Port2 With mouse + HDMI Play out) + SIM 2

Radiated Emissions	Mode 1: GSM850 Rx Low CH + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone Type -c 2 + Battery + USB Cable (Charging from Adapter port 1Type -c 1) + SIM 1 Mode 2: WCDMA FDD II Rx + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Earphone Type -c 1 + Battery + USB Cable (Charging from Adapter port 2Type -c 2) + SIM 2 Mode 3: LTE Band 12 Rx Middle CH + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + DP Play With Type -c 2 + Battery + USB Cable (Charging from Adapter port 1 Type -c 1) + SIM 1 Mode 4: LTE Band 17 Rx High CH + Bluetooth Idle + WLAN (5G) Idle + NFC On + DP Play With Type -c 2 + Battery + USB Cable (Charging from Adapter port 1 Type -c 1) + SIM 2 Mode 5: LTE Band 26 Rx High CH + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx 1 + DP Play With Type -c 2 + Battery + USB Cable (Data Link with Notebook Type -c 1) + SIM 1 Mode 6: 5G N5 Rx Middle CH + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx 2 + Earphone Type -c 1 + Battery + USB Cable (Data Link with Notebook Type -c 2) + SIM 2 Mode 7: 5G N77 Rx + USB Cable (Charging from Adapter port 1Type -c 1) + USB Cable (Charging from Adapter port 2Type -c 2) + SIM 1 Mode 8: LTE Band 12 Rx Middle CH + Dock (USB Port1 With keyboard + USB Port2 With mouse + HDMI Play out) + SIM 1
Remark: 1. The worst case of AC is mode 8; only the test data of this mode is reported. 2. The worst case of RE is mode 3; only the test data of this mode is reported. 3. Data Link with Notebook means data application transferred mode between EUT and Notebook 4. Pre-scanned Low/Middle/High channel for receivers that operate within the frequency range of 30–960 MHz, the worst channel was recorded in this report. 5. HDMI Cable means media application transferred between EUT and external display.	

2.2.Connection Diagram of Test System



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

2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	LTE Base Station	Anritus	MT8820C	N/A	N/A	Unshielded,1.8m
3.	Base Station	Anritus	MT8000A	N/A	N/A	Unshielded,1.8m
4.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
5.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
6.	Vector Signal Generator	R&S	SMBV100A	258305	N/A	N/A
7.	Notebook	Lenovo	V130-15IKB005	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
8.	Notebook	Lenovo	V130-14IKB001	N/A	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
9.	Monitor	ASUS	BDM3275UP	Fcc DoC	N/A	Unshielded,1.8m
10.	(USB)Mouse	Lenovo	OEUUA	Fcc DoC	Shielded, 1.8m	N/A
11.	(USB)Keyboard	Lenovo	SK-8821	Fcc DoC	Shielded, 1.8m	N/A

12.	BT Earphone	Lenovo	LBH308	N/A	N/A	N/A
13.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
14.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
15.	Hard disk	KINGSHARE	KSP6120G	Fcc DoC	Shielded, 1.2m	N/A
16.	SD Card	Kingston	8GB	N/A	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE or 5G NR 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 MPEG4 function.
3. Turn on camera to capture images.
4. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.

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 Limit>

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.

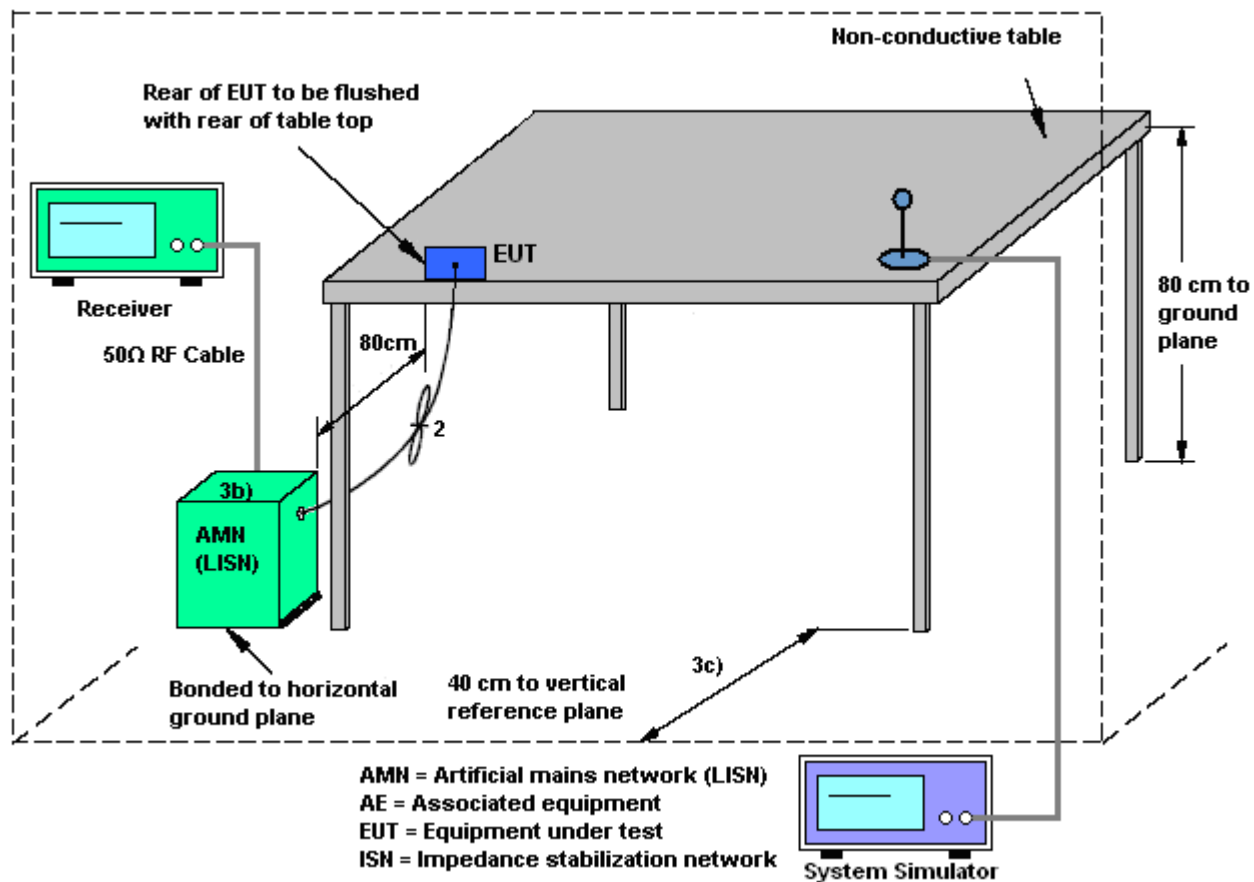
3.1.2 Measuring Instruments

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.

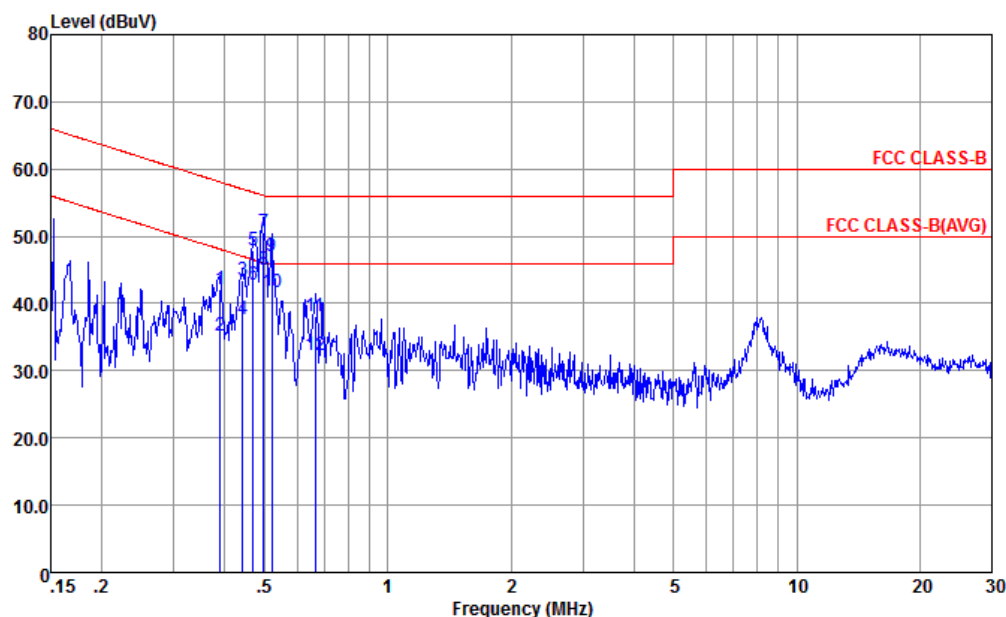
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Engineer :	Amos Zhang	Temperature :	24.2~25.6°C
		Relative Humidity :	37~39%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

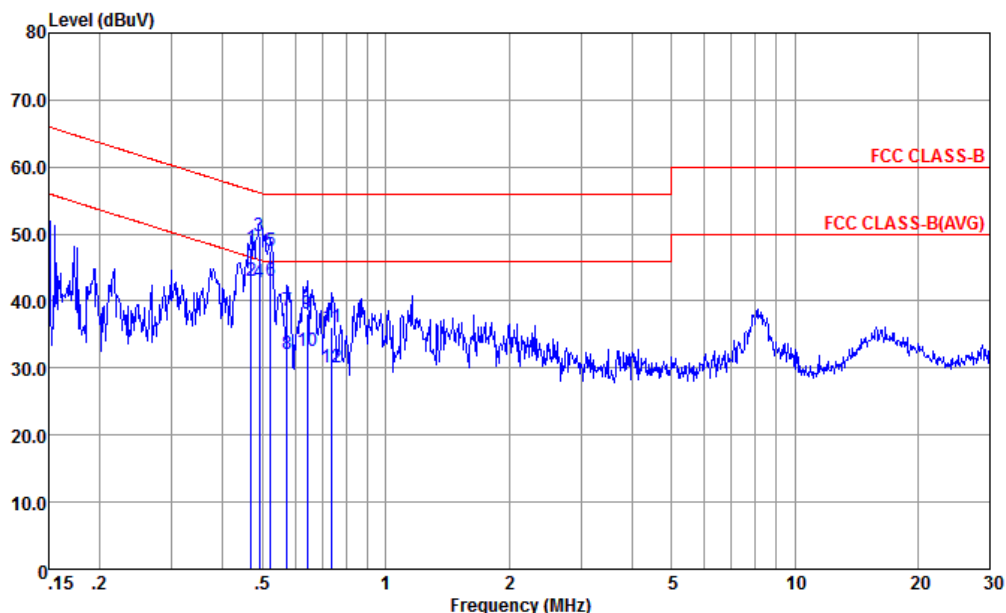


Site : CO01-KS
Condition : FCC CLASS-B TWO-LISN-CN02-L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.389	42.22	-15.86	58.08	22.30	9.65	10.27	QP
2	0.389	35.12	-12.96	48.08	15.20	9.65	10.27	Average
3	0.442	43.50	-13.52	57.02	23.60	9.65	10.25	QP
4	0.442	37.75	-9.27	47.02	17.85	9.65	10.25	Average
5	0.469	47.99	-8.55	56.54	28.10	9.65	10.24	QP
6	0.469	42.79	-3.75	46.54	22.90	9.65	10.24	Average
7	0.497	50.59	-5.46	56.05	30.70	9.65	10.24	QP
8 *	0.497	44.99	-1.06	46.05	25.10	9.65	10.24	Average
9	0.521	47.09	-8.91	56.00	27.20	9.65	10.24	QP
10	0.521	41.69	-4.31	46.00	21.80	9.65	10.24	Average
11	0.665	38.00	-18.00	56.00	18.10	9.66	10.24	QP
12	0.665	32.40	-13.60	46.00	12.50	9.66	10.24	Average



Test Engineer :	Amos Zhang	Temperature :	24.2~25.6°C
		Relative Humidity :	37~39%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC CLASS-B TWO-LISN-CN02-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.469	47.88	-8.66	56.54	27.90	9.74	10.24	QP
2	0.469	43.08	-3.46	46.54	23.10	9.74	10.24	Average
3	0.491	49.77	-6.37	56.14	29.80	9.73	10.24	QP
4	0.491	42.87	-3.27	46.14	22.90	9.73	10.24	Average
5	0.524	47.46	-8.54	56.00	27.49	9.73	10.24	QP
6 *	0.524	43.06	-2.94	46.00	23.09	9.73	10.24	Average
7	0.573	38.56	-17.44	56.00	18.59	9.73	10.24	QP
8	0.573	32.16	-13.84	46.00	12.19	9.73	10.24	Average
9	0.644	38.16	-17.84	56.00	18.19	9.73	10.24	QP
10	0.644	32.56	-13.44	46.00	12.59	9.73	10.24	Average
11	0.739	36.16	-19.84	56.00	16.20	9.72	10.24	QP
12	0.739	30.06	-15.94	46.00	10.10	9.72	10.24	Average

Note:

1. Level(dBuV) = Read Level(dBuV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBuV) – Limit Line(dBuV)

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 Limit>

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

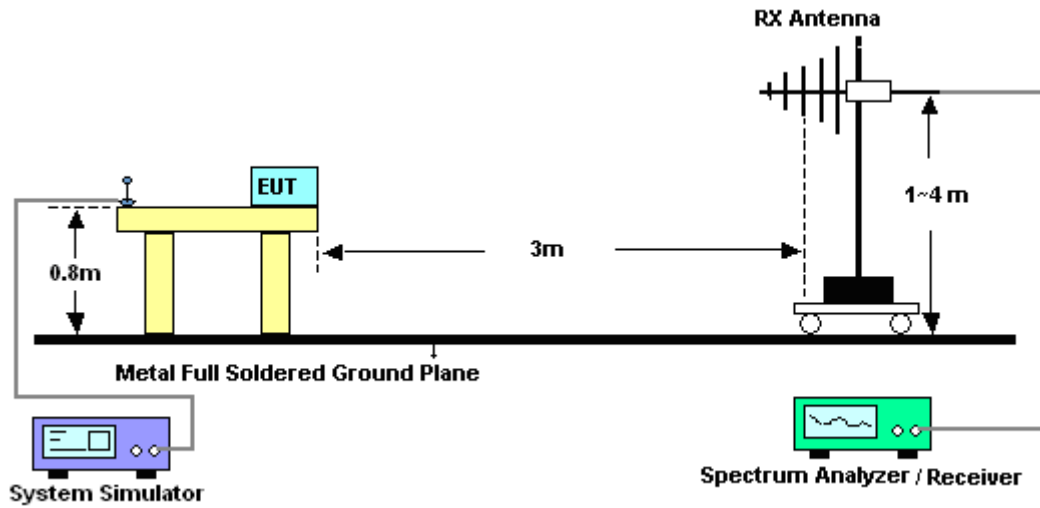
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

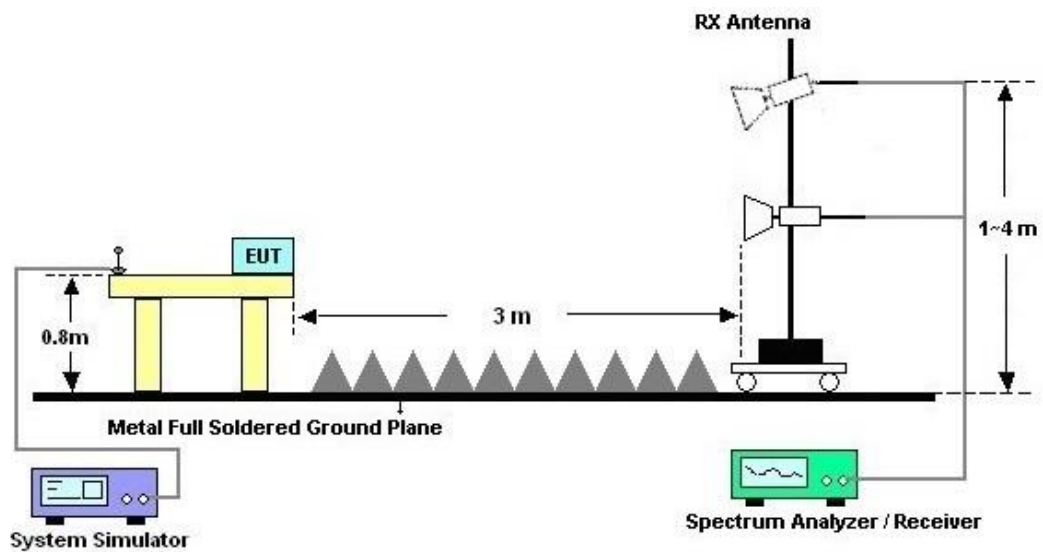
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

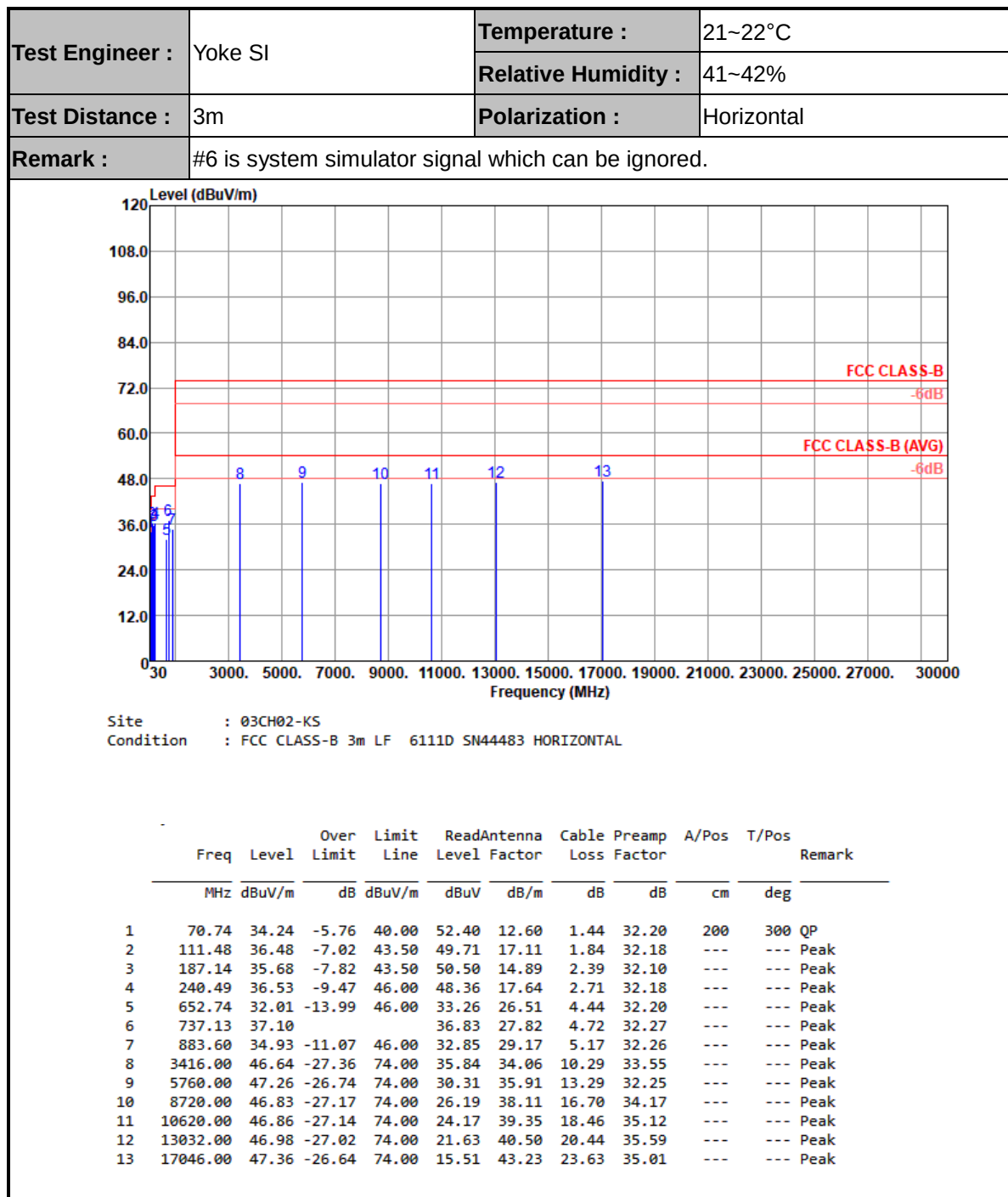


For radiated emissions above 1GHz



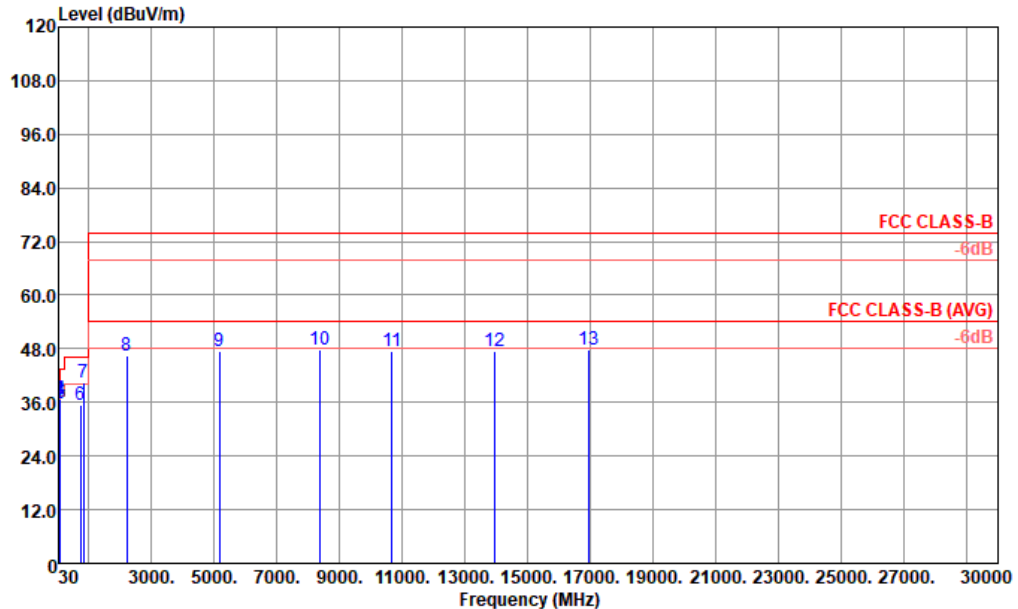


3.2.5. Test Result of Radiated Emission





Test Engineer :	Yoke SI	Temperature :	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Remark :	#6 is system simulator signal which can be ignored.		



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	cm	deg	
			dB	dBuV/m	dBuV	dB/m	dB	dB		
1	39.70	35.70	-4.30	40.00	46.96	19.80	1.06	32.12	100	270 QP
2	49.40	36.76	-3.24	40.00	52.86	14.89	1.21	32.20	---	Peak
3	68.80	36.32	-3.68	40.00	54.64	12.44	1.42	32.18	---	Peak
4	81.41	36.91	-3.09	40.00	53.81	13.72	1.56	32.18	100	160 QP
5	97.90	35.69	-7.81	43.50	50.34	15.84	1.71	32.20	---	Peak
6	737.13	35.33			35.06	27.82	4.72	32.27	---	Peak
7	831.22	40.51	-5.49	46.00	38.97	28.89	5.01	32.36	---	Peak
8	2208.00	46.63	-27.37	74.00	40.40	32.86	8.26	34.89	---	Peak
9	5160.00	47.46	-26.54	74.00	31.54	35.57	12.58	32.23	---	Peak
10	8392.00	47.78	-26.22	74.00	28.56	37.46	16.14	34.38	---	Peak
11	10665.00	47.47	-26.53	74.00	24.74	39.37	18.49	35.13	---	Peak
12	13923.00	47.38	-26.62	74.00	20.36	41.00	21.17	35.15	---	Peak
13	16929.00	47.94	-26.06	74.00	16.18	43.23	23.54	35.01	---	Peak

Note:

- Level(dBuV/m) = Read Level(dBuV) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBuV/m) - Limit Line(dBuV/m)



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Oct. 17, 2020	Apr. 18, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz-44G,MAX 30dB	Oct. 17, 2020	Apr. 18, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz-1GHz	Jan. 26, 2021	Apr. 18, 2021	Jan. 25, 2022	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 01, 2020	Apr. 18, 2021	Oct. 31, 2021	Radiation (03CH02-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 06, 2020	Apr. 18, 2021	Nov. 05, 2021	Radiation (03CH02-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 06, 2021	Apr. 18, 2021	Jan. 05, 2022	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 06, 2021	Apr. 18, 2021	Jan. 05, 2022	Radiation (03CH02-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5GHz	Oct. 17, 2020	Apr. 18, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Apr. 18, 2021	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Apr. 18, 2021	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Apr. 18, 2021	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	Apr. 13, 2021	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 17, 2020	Apr. 13, 2021	Oct. 16, 2021	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Apr. 13, 2021	Apr. 13, 2021	Apr. 12, 2022	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 17, 2020	Apr. 13, 2021	Oct. 16, 2021	Conduction (CO01-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% ($U = 2Uc(y)$)	4.9dB
---	-------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
---	-------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.1dB
---	-------