



FCC Test Report

APPLICANT : PAX Technology Limited
EQUIPMENT : Encrypting PIN Pad
BRAND NAME : PAX
MODEL NAME : IM300
MARKETING NAME : IM300
FCC ID : V5PIM300BW
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Jan. 15, 2018 and testing was completed on Jan. 22, 2018. We, Sporton International (Shenzhen) 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 (Shenzhen) Inc., the test report shall not be reproduced except in full.



Approved by: Eric Shih / Manager

Sporton International (Shenzhen) Inc.

**1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City
Guangdong Province 518055 China**



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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 6.31 dB at 0.50 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 4.80 dB at 33.88 MHz for Quasi-Peak



1. General Description

1.1. Applicant

PAX Technology Limited

Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong

1.2. Manufacturer

PAX Computer Technology (Shenzhen) Co., Ltd.

4/F, No.3 Building, Software Park, Second Central Science-Tech Road, High-Tech industrial Park, Shenzhen, Guangdong, P.R.C.

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Encrypting PIN Pad
Brand Name	PAX
Model Name	IM300
Marketing Name	IM300
FCC ID	V5PIM300BW
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth v3.0+EDR/ Bluetooth v4.0 LE
HW Version	IM300-XXX-XXX
SW Version	PED4.0
EUT Stage	Production Unit

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	802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Antenna Type	External Monopole Antenna
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -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 (Shenzhen) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No are CN5018 and CN5019.

Test Site	Sporton International (Shenzhen) Inc.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	Sporton Site No.	FCC Test Firm Registration No.
	CO01-SZ	251365

Test Site	Sporton International (Shenzhen) Inc.	
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District Shenzhen City Guangdong Province 518055 China TEL: +86-755-3320-2398	
Test Site No.	Sporton Site No.	FCC Test Firm Registration No.
	03CH03-SZ	577730

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 : RS232 Port link (1-1) + DC power output load (2) + Earphone load (3+4) + LAN Link(5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk (14) + RS232 Port load (1-2)
	Mode 2 : RS232 Port load (1-1) + DC power output load (2) + Audio Test (3+4) + LAN Link(5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load (10) + USB Mini-B load for NB (11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk (14) + RS232 Port load (1-2)
	Mode 3 : RS232 Port load (1-1)+ DC power output load (2) + Earphone load(3+4)+ LAN Link (5) + RJ45 port RS232 connection NB Link(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load (10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)
	Mode 4 : RS232 Port load (1-1)+ DC power output load (2)+ Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load (6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB Link(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)
	Mode 5 : RS232 Port load (1-1)+ DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B Link for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)
	Mode 6 : RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB (11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A Link for U disk(14) + RS232 Port load (1-2)
	Mode 7 : RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load (10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk (14)+ RS232 Port Link (1-2)
	Mode 8 : RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link(5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port Link(13) + USB Type-A load for U disk (14) + RS232 Port load (1-2)



Radiated Emissions < 1GHz	<p>Mode 1: RS232 Port link (1-1) + DC power output load (2) + Earphone load (3+4) + LAN Link(5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk (14) + RS232 Port load (1-2)</p> <p>Mode 2: RS232 Port load (1-1) + DC power output load (2) + Audio Test (3+4) + LAN Link(5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load (10) + USB Mini-B load for NB (11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk (14) + RS232 Port load (1-2)</p> <p>Mode 3: RS232 Port load (1-1)+ DC power output load (2) + Earphone load(3+4)+ LAN Link (5) + RJ45 port RS232 connection NB Link(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load (10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)</p> <p>Mode 4: RS232 Port load (1-1)+ DC power output load (2)+ Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load (6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB Link(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)</p> <p>Mode 5: RS232 Port load (1-1)+ DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B Link for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)</p> <p>Mode 6: RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB (11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A Link for U disk(14) + RS232 Port load (1-2)</p> <p>Mode 7: RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load (10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk (14)+ RS232 Port Link (1-2)</p> <p>Mode 8: RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link(5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port Link(13) + USB Type-A load for U disk (14) + RS232 Port load (1-2)</p>
Radiated Emissions ≥ 1GHz	<p>Mode 1: RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB (11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A Link for U disk(14) + RS232 Port load (1-2)</p>

Remark:

1. The worst case of AC is mode 4; only the test data of this mode was reported.
2. The worst case of RE < 1G is mode 6; only the test data of this mode was reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.
4. Detail connector/port of EUT list as below

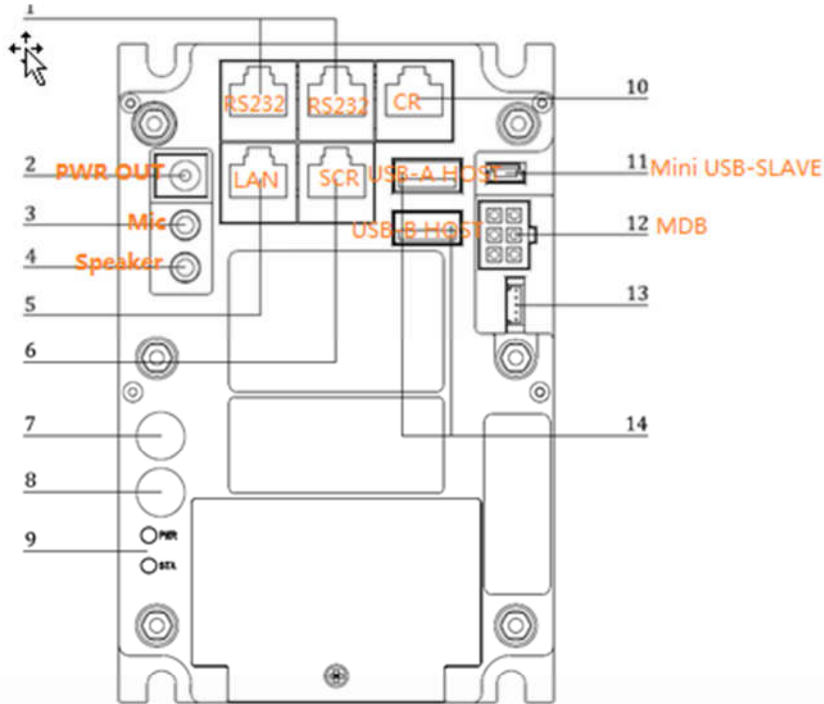
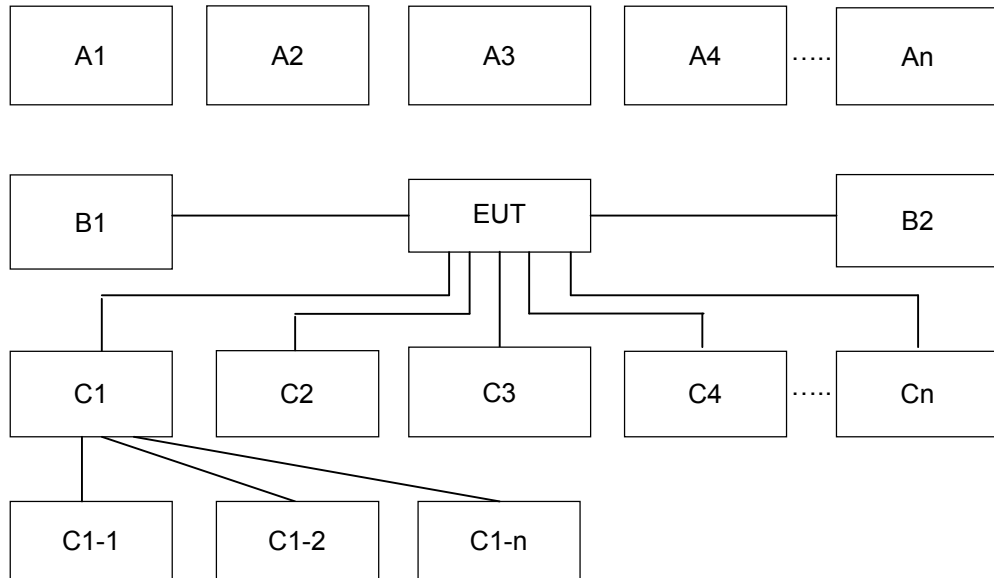


Figure 2: Back view

- | | |
|---|---|
| 1. RJ45 ports (RS232) ⁺ | 8. WiFi/BT antenna connector ⁺ |
| 2. 6.3mm DC power jack (12VDC) ⁺ | 9. LED indicators ⁺ |
| 3. Microphone jack ⁺ | 10. RJ45 port (RS232) ⁺ |
| 4. Earphone jack ⁺ | 11. USB 2.0 Mini-B ⁺ |
| 5. Ethernet port ⁺ | 12. MDB port ⁺ |
| 6. RJ45 port (RS232) ⁺ | 13. Temperature control (reserved) ⁺ |
| 7. SMA connector ⁺ | 14. USB 2.0 Type-A |

2.2. Connection Diagram of Test System



Conduction Test Setup										
No.	Wireless Station	Connection Type	Test Mode							
			1	2	3	4	5	6	7	8
A1	BT Earphone	Bluetooth	X	X	X	X	X	X	X	X
A2	AP router	WiFi	X	X	X	X	X	X	X	X
No.	Power Source	Connection Type	1	2	3	4	5	6	7	8
B1	AC : 120V/60Hz	AC Power Cable	X	X	X	X	X	X	X	X
No.	Setup Peripherals	Connection Type	1	2	3	4	5	6	7	8
C1	Notebook	RJ-45 Cable								
		RS-232 Cable	X	X	X	X	X	X	X	X
		USB Cable								
C1-1	AP router	RJ-45 Cable to C1	X	X	X	X	X	X	X	X
C1-2	iPod	USB Cable to C1	X	X	X	X	X	X	X	X
C2	AP router	RJ45 Cable	X	X	X	X	X	X	X	X
C3	Notebook	RS-232 Cable	X	X	X	X	X	X	X	X
C4	U-disk	USB Port	X	X	X	X	X	X	X	X
C5	Speaker	Speaker jack	X	X	X	X	X	X	X	X
C6	Microphone	Microphone jack	X	X	X	X	X	X	X	X
C7	Temperature control	temperature control port	X	X	X	X	X	X	X	X



Radiation Test Setup										
No.	Wireless Station	Connection Type	Test Mode							
			1	2	3	4	5	6	7	8
A1	AP router	WiFi	X	X	X	X	X	X	X	X
A2	BT Earphone	Bluetooth	X	X	X	X	X	X	X	X
No.	Power Source	Connection Type	1	2	3	4	5	6	7	8
B1	AC : 120V/60Hz	AC Power Cable	X	X	X	X	X	X	X	X
No.	Setup Peripherals	Connection Type	1	2	3	4	5	6	7	8
C1	Notebook	USB Cable/ RS-232 Cable	X	X	X	X	X	X	X	X
C1-1	iPod	USB Cable to C1	X	X	X	X	X	X	X	X
C1-2	AP router	RJ-45 Cable to C1	X	X	X	X	X	X	X	X
C2	Notebook	USB Cable/ RS-232 Cable	X	X	X	X	X	X	X	X
C2-1	iPod	USB Cable to C1	X	X	X	X	X	X	X	X
C2-2	AP router	RJ-45 Cable to C1	X	X	X	X	X	X	X	X
C3	U Disk	USB HOST A	X	X	X	X	X	X	X	X
C4	U Disk	USB HOST B	X	X	X	X	X	X	X	X
C5	Notebook	USB Cable/ RS-232 Cable	X	X	X	X	X	X	X	X
C6	Notebook	USB Cable/ RS-232 Cable	X	X	X	X	X	X	X	X
C7	Notebook	RJ-45LAN Cable to NB	X	X	X	X	X	X	X	X
C8	USB Cable Mini	USB Mini-B load for NB	X	X	X	X	X	X	X	X
C9	DC power output load	12V/1A With load	X	X	X	X	X	X	X	X

2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded, 1.8 m
2.	WLAN AP	ASUSTek	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 2.7m with Core
3.	Bluetooth Earphone	Samsung	EO-MG900	N/A	N/A	N/A
4.	Bluetooth Earphone	Samsung	HS3000	A3LHS3000	N/A	N/A
5.	Notebook	Lenovo	E450	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Notebook	Lenovo	G480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
7.	iPod	Apple	A1285	FCC DoC	Unshielded, 1.2 m	N/A
8.	iPod	Apple	MC525 ZP/A	FCC DoC	Unshielded, 1.2 m	N/A
9.	Temperature control	PSX	IM700	N/A	N/A	N/A
10.	Speaker	N/A	N/A	N/A	N/A	N/A
11.	Microphone	N/A	N/A	N/A	N/A	N/A
12.	U-disk	Kingston	8G	N/A	N/A	N/A
13.	U-disk	SanDisk	Cruze Blade	FCC DoC	N/A	N/A
14.	U-disk	Kingston	DT101 G2	FCC DoC	N/A	N/A
15.	RS232 Cable	N/A	N/A	N/A	Unshielded, 1.0m	N/A
16.	USB Cable	Motorola	SKN6378A	FCC DoC	Unshielded, 1.0m	N/A

2.4. EUT Operation Test Setup

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. Execute the programs, "USB Slave" or "Winthrax" under WINXP installed in notebook for files transfer with EUT via U Disk.
2. EUT links with Notebook via RS-232 Cable.
3. Execute "Ping" and link with Notebook via RJ-45 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.

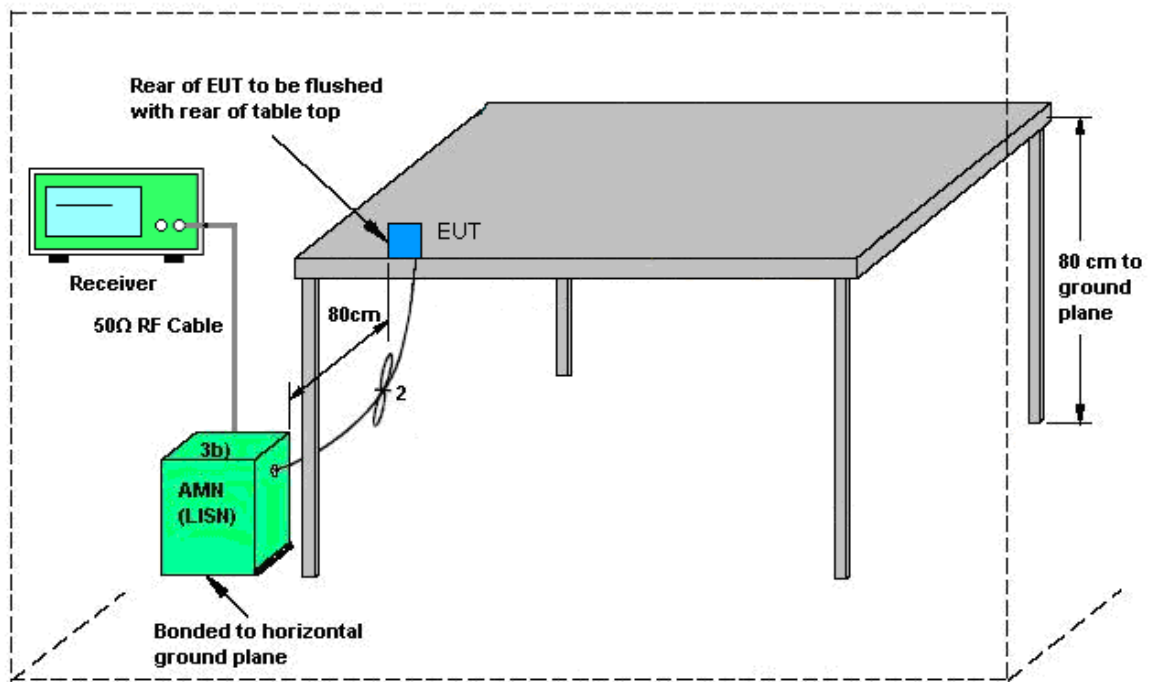
3.1.2 Measuring Instruments

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

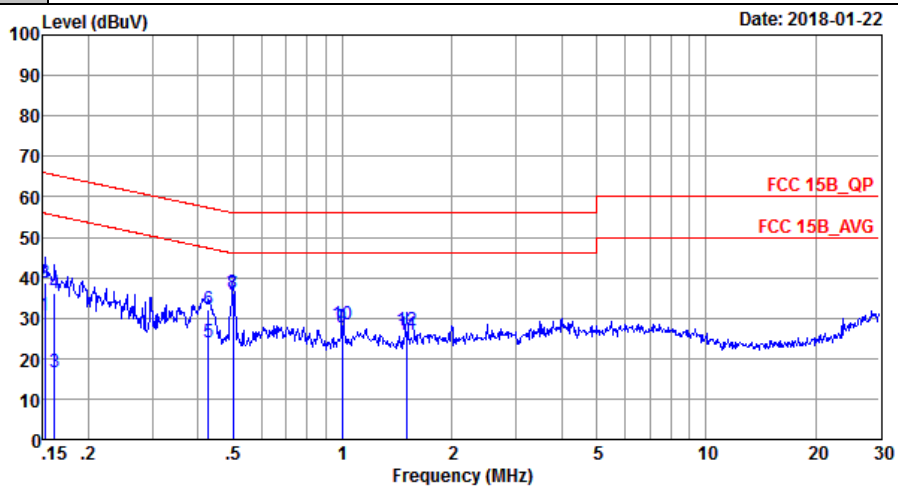


AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network



3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 4	Temperature :	24~25°C
Test Engineer :	Peng Wang	Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	RS232 Port load (1-1)+ DC power output load (2)+ Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load (6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB Link(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)		

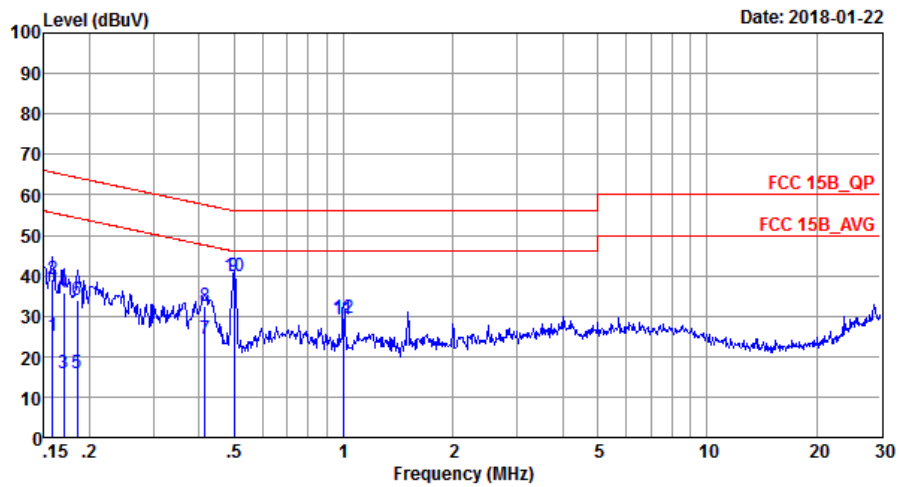


Site : C001-SZ
 Condition: FCC 15B_QP LISN_20170907_L LINE
 Project : 811505
 Mode : Mode 4
 Sample : #5

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	30.59	-25.32	55.91	20.50	0.03	10.06	Average
2	0.15	38.89	-27.02	65.91	28.80	0.03	10.06	QP
3	0.16	16.59	-38.79	55.38	6.50	0.03	10.06	Average
4	0.16	36.29	-29.09	65.38	26.20	0.03	10.06	QP
5	0.43	23.81	-23.48	47.29	13.70	0.03	10.08	Average
6	0.43	32.11	-25.18	57.29	22.00	0.03	10.08	QP
7 *	0.50	35.80	-10.21	46.01	25.70	0.02	10.08	Average
8	0.50	36.20	-19.81	56.01	26.10	0.02	10.08	QP
9	1.00	27.76	-18.24	46.00	17.60	0.07	10.09	Average
10	1.00	28.56	-27.44	56.00	18.40	0.07	10.09	QP
11	1.50	25.79	-20.21	46.00	15.60	0.09	10.10	Average
12	1.50	26.99	-29.01	56.00	16.80	0.09	10.10	QP



Test Mode :	Mode 4	Temperature :	24~25°C
Test Engineer :	Peng Wang	Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	RS232 Port load (1-1)+ DC power output load (2)+ Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load (6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB Link(10) + USB Mini-B load for NB(11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A load for U disk(14) + RS232 Port load (1-2)		



Site : C001-SZ
 Condition: FCC 15B_QP LISN_20170907_N NEUTRAL
 Project : 811505
 Mode : Mode 4
 Sample : #5

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	25.19	-30.37	55.56	15.10	0.03	10.06	Average
2	0.16	39.19	-26.37	65.56	29.10	0.03	10.06	QP
3	0.17	16.00	-38.94	54.94	5.90	0.03	10.07	Average
4	0.17	35.69	-29.25	64.94	25.59	0.03	10.07	QP
5	0.19	15.80	-38.44	54.24	5.70	0.03	10.07	Average
6	0.19	34.10	-30.14	64.24	24.00	0.03	10.07	QP
7	0.41	24.30	-23.25	47.55	14.20	0.02	10.08	Average
8	0.41	32.40	-25.15	57.55	22.30	0.02	10.08	QP
9 *	0.50	39.70	-6.31	46.01	29.60	0.02	10.08	Average
10	0.50	39.80	-16.21	56.01	29.70	0.02	10.08	QP
11	1.00	29.04	-16.96	46.00	18.90	0.05	10.09	Average
12	1.00	29.64	-26.36	56.00	19.50	0.05	10.09	QP



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.

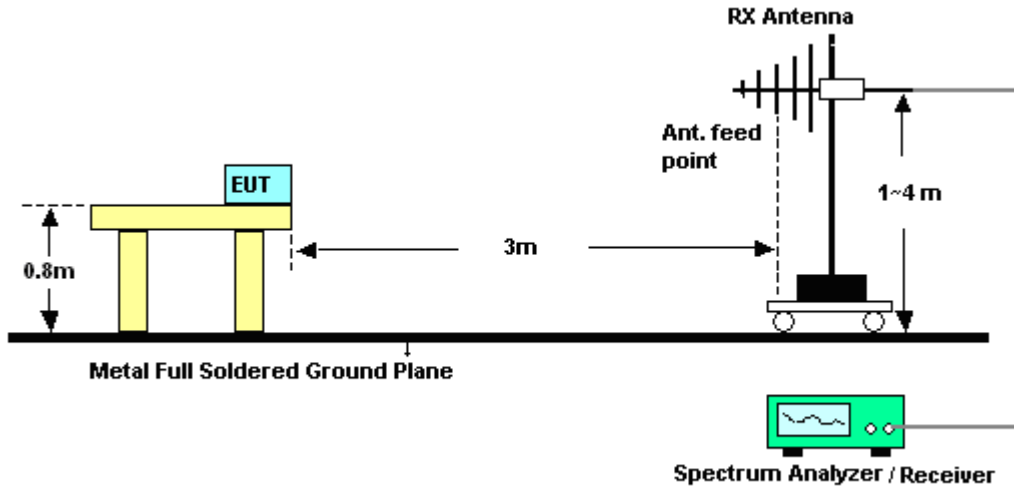


3.2.3. Test Procedures

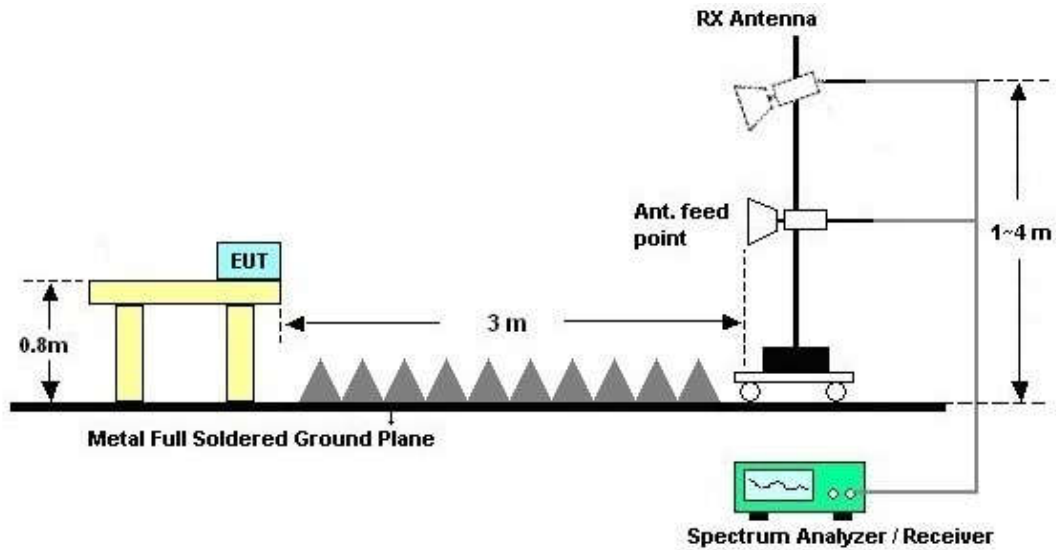
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 (dB μ V/m) = 20 log Emission level (μ V/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



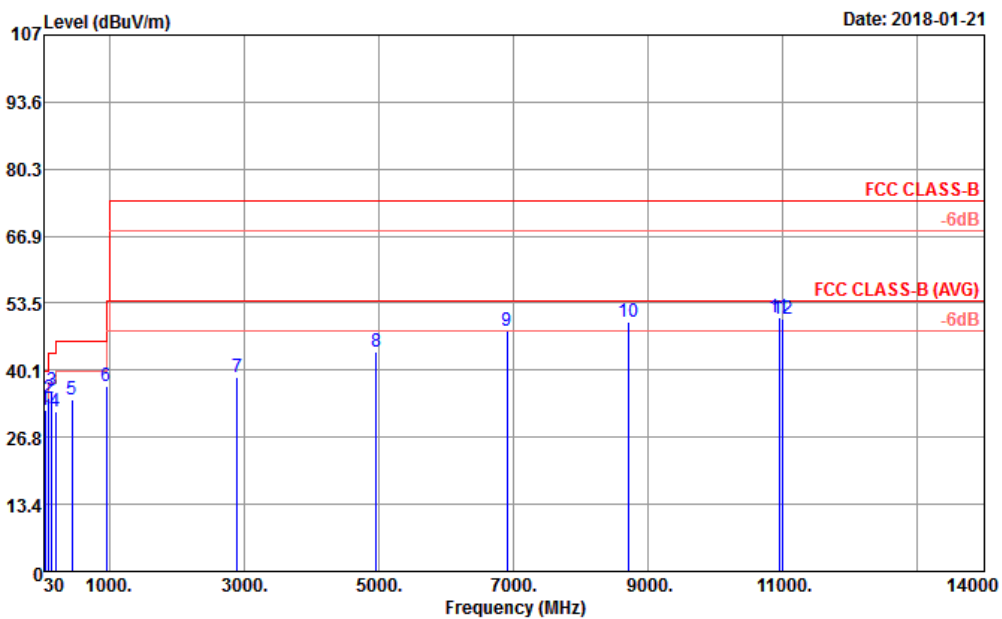
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 6	Temperature :	24~25°C
Test Engineer :	Liangliang Lu	Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB (11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A Link for U disk(14) + RS232 Port load (1-2)		

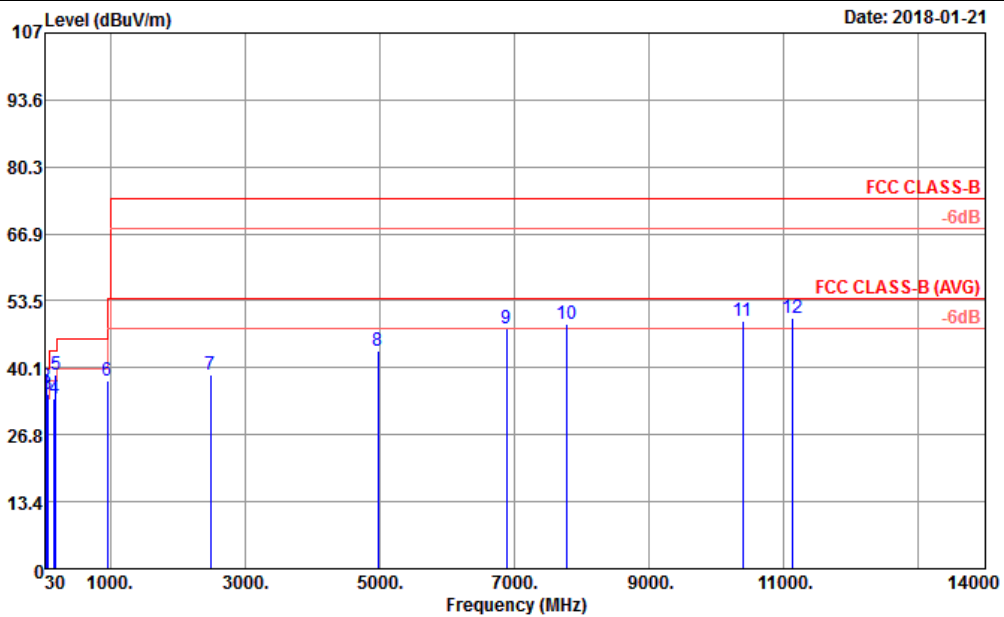


Site : 03CH03-SZ
 Condition : FCC CLASS-B 3m LF35408CBL6112D_6 HORIZONTAL
 Project : (FC)811505
 Mode : Mode 5
 Sample : #5
 Plane : Y

	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	49.40	32.28	-7.72	40.00	47.47	16.70	0.71	32.60	---	---	Peak
2	99.84	34.60	-8.90	43.50	46.87	18.80	1.03	32.10	---	---	Peak
3	147.37	36.13	-7.37	43.50	49.21	17.86	1.26	32.20	120	320	Peak
4	198.78	31.86	-11.64	43.50	46.06	15.64	1.46	31.30	---	---	Peak
5	450.01	34.21	-11.79	46.00	38.55	24.90	2.26	31.50	---	---	Peak
6	960.23	36.89	-17.11	54.00	35.02	29.61	3.41	31.15	---	---	Peak
7	2904.20	38.73	-35.27	74.00	62.86	28.38	6.13	58.64	---	---	Peak
8	4970.30	43.90	-30.10	74.00	61.69	31.88	8.65	58.32	---	---	Peak
9	6906.00	48.05	-25.95	74.00	62.37	34.83	10.05	59.20	---	---	Peak
10	8717.60	49.85	-24.15	74.00	61.55	37.17	10.86	59.73	---	---	Peak
11	10950.00	50.65	-23.35	74.00	58.59	39.99	11.84	59.77	155	50	Peak
12	11000.10	50.42	-23.58	74.00	58.22	40.00	11.86	59.66	---	---	Peak



Test Mode :	Mode 6	Temperature :	24~25°C
Test Engineer :	Liangliang Lu	Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Vertical
Function Type :	RS232 Port load (1-1) + DC power output load (2) + Earphone load(3+4) + LAN Link (5) + RJ45 port RS232 connection NB load(6) + Bluetooth Idle + WLAN Idle(2.4G) + RJ45 port RS232 connection NB load(10) + USB Mini-B load for NB (11) + AC Adapter to MDB port(12) + temperature control port load(13) + USB Type-A Link for U disk(14) + RS232 Port load (1-2)		



Site : 03CH03-SZ
 Condition : FCC CLASS-B 3m LF35408CBL6112D_6 VERTICAL
 Project : (FC)811505
 Mode : Mode 5
 Sample : #5
 Plane : Y

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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 !	33.88	35.20	-4.80	40.00	42.16	25.02	0.62	32.60	110	50	QP
2 !	51.34	36.50	-3.50	40.00	52.51	15.86	0.73	32.60	---	---	Peak
3 !	64.92	34.86	-5.14	40.00	53.73	12.90	0.83	32.60	---	---	Peak
4	169.68	33.97	-9.53	43.50	47.52	16.94	1.34	31.83	---	---	Peak
5 !	194.90	38.71	-4.79	43.50	52.80	15.82	1.44	31.35	---	---	Peak
6	960.23	37.66	-16.34	54.00	35.79	29.61	3.41	31.15	---	---	Peak
7	2490.20	38.81	-35.19	74.00	64.66	27.50	5.19	58.54	---	---	Peak
8	4974.00	43.54	-30.46	74.00	61.33	31.88	8.65	58.32	---	---	Peak
9	6892.60	47.87	-26.13	74.00	62.19	34.83	10.05	59.20	---	---	Peak
10	7786.00	49.00	-25.00	74.00	61.78	36.28	10.64	59.70	---	---	Peak
11	10402.00	49.45	-24.55	74.00	58.96	39.68	11.64	60.83	---	---	Peak
12	11138.00	50.03	-23.97	74.00	57.68	40.08	11.92	59.65	120	40	Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 20, 2017	Jan. 21, 2018	Apr. 19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 20, 2017	Jan. 21, 2018	Apr. 19, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May 14, 2017	Jan. 21, 2018	May 13, 2018	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Jul. 09, 2017	Jan. 21, 2018	Jul. 08, 2018	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz~40GHz	Jun. 16, 2017	Jan. 21, 2018	Jun. 15, 2018	Radiation (03CH03-SZ)
LF Amplifier	Burgeon	BPA-530	102210	0.01Hz~3000MHz	Oct.19, 2017	Jan. 21, 2018	Oct.18, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1943528	1GHz~18GHz	Oct. 19, 2017	Jan. 21, 2018	Oct.18, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 18, 2017	Jan. 21, 2018	Jul. 17, 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jan. 21, 2018	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jan. 21, 2018	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jan. 21, 2018	NCR	Radiation (03CH03-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 26, 2017	Jan. 22, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Dec. 26, 2017	Jan. 22, 2018	Dec. 25, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Nov.01, 2017	Jan. 22, 2018	Oct. 31, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 19, 2017	Jan. 22, 2018	Jul. 18, 2018	Conduction (CO01-SZ)

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% ($U = 2Uc(y)$)	2.6 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0 dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.8 dB
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