



REPORT No.: XM19050029E01

TEST REPORT

APPLICANT : Xingtel Xiamen Group Co., Ltd.
PRODUCT NAME : Facial Recognition Door Lock
MODEL NAME : XL-9192
BRAND NAME : N/A
STANDARD(S) : 47 CFR Part 15 Subpart B
TEST DATE : 2019-07-15 to 2019-07-17
ISSUE DATE : 2019-07-19

Prepared by: Qijie Xiao

Qijie Xiao (Test engineer)

Approved by: Anne Liu

Anne Liu (Supervisor)

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Change History		
Issue	Date	Reason for change
1.0	2019-07-19	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Xingtel Xiamen Group Co., Ltd.
Applicant Address:	Xingtel Building,Chuangxin Road, Torch Hi-Tech Industrial District,Xiamen 361006, PR China
Manufacturer:	Xingtel Xiamen Group Co., Ltd.
Manufacturer Address:	Xingtel Building,Chuangxin Road, Torch Hi-Tech Industrial District,Xiamen 361006, PR China

1.2. Equipment Under Test (EUT) Description

EUT Type:	Facial Recognition Door Lock	
Serial No:	(N/A, marked #1 by test site)	
Hardware Version:	S3_1V4	
Software Version:	1.0.9 Z6	
Accessory Information	Battery	
	Brand Name:	GP
	Model No:	GN15A
	Serial No:	N/A
	Capacity:	N/A
	Rated Voltage:	1.5V
	Number:	8
Ancillary Equipment:	Adapter	
	Manufacturer:	Xiamen Meitu Mobile Technology Co.,Ltd.
	Brand Name:	Apple
	Model No.:	MA-1804
	Serial No.:	CY84V1000140

Note:

1. For a more detailed description, please refer to specification or user's manual supplied by the applicant and/or manufacturer



2. Test Results

2.1. Applied Reference Documents

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result
1	15.107	Conducted Emission	July.16 2019	Qijie Xiao	PASS
2	15.109	Radiated Emission	July.16 2019	Qijie Xiao	PASS

NOTE: The tests were performed according to the method of measurements prescribed in ANSI C63.4-2014.



2.2. EUT Setup and Operating Conditions

Frequency range was investigated: Conducted emission test: from 150KHz to 30MHz; Radiated emission test: from 30MHz to 1000MHz.

Test Item	
Radiated Emission	
Mode 1	: EUT(Face recognition mode)
Mode 2	: EUT(Face recognition mode)+ADAPTER
Conducted Emission	
Mode 1	: EUT(Face recognition mode)+ADAPTER

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 - 60
Atmospheric Pressure (kPa):	86 - 106

3. 47 CFR Part 15B Requirements

3.1. Conducted Emission

3.1.1. Requirement

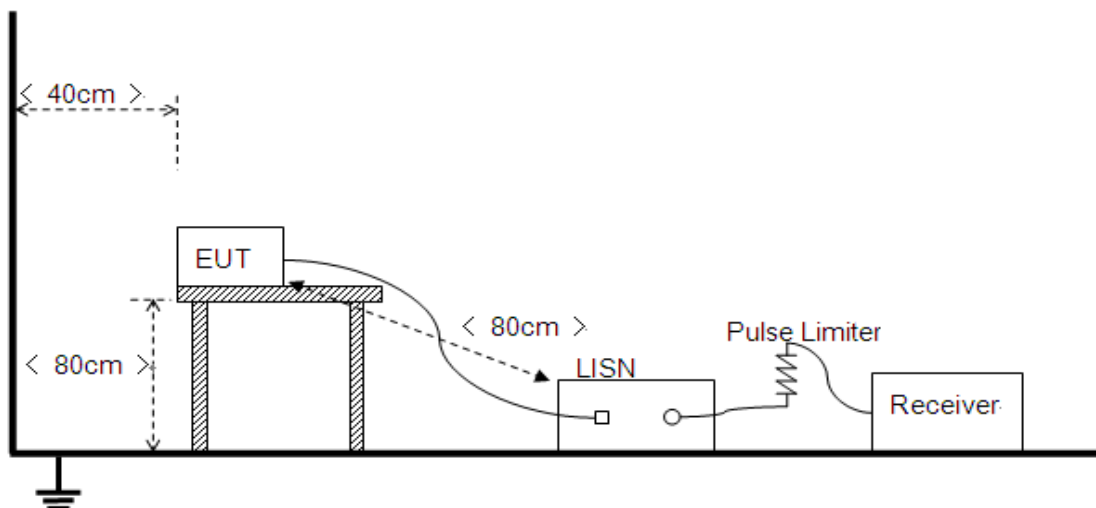
According to FCC section 15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- a) The limit subjects to the Class B digital device.
- b) The lower limit shall apply at the band edges.
- c) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

3.1.2. Test Setup



The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power



mains through a LISN which provides $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument. A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

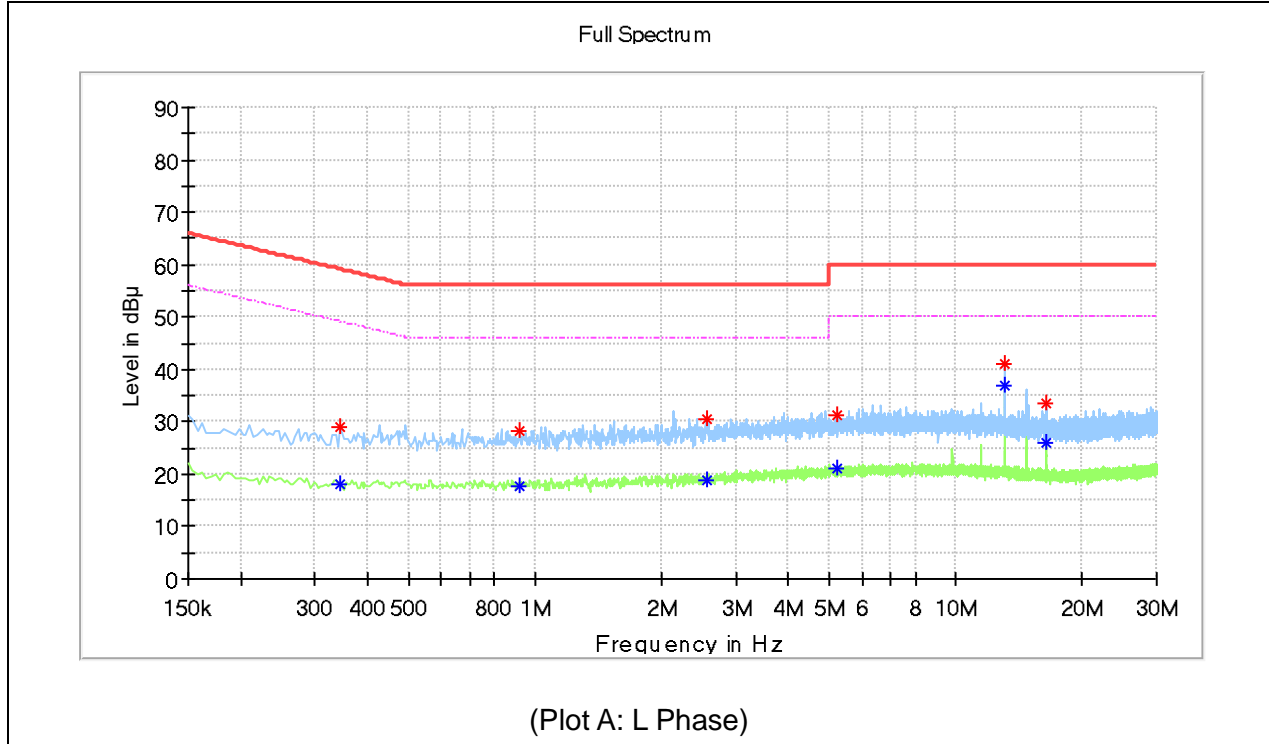
The power strip or extension cord has been investigated to make sure that the LISN integrity is maintained with respect to the impedance characteristics as prescribed in ANSI C63.4-2014 at Clause 4.3.

3.1.3. Test Result

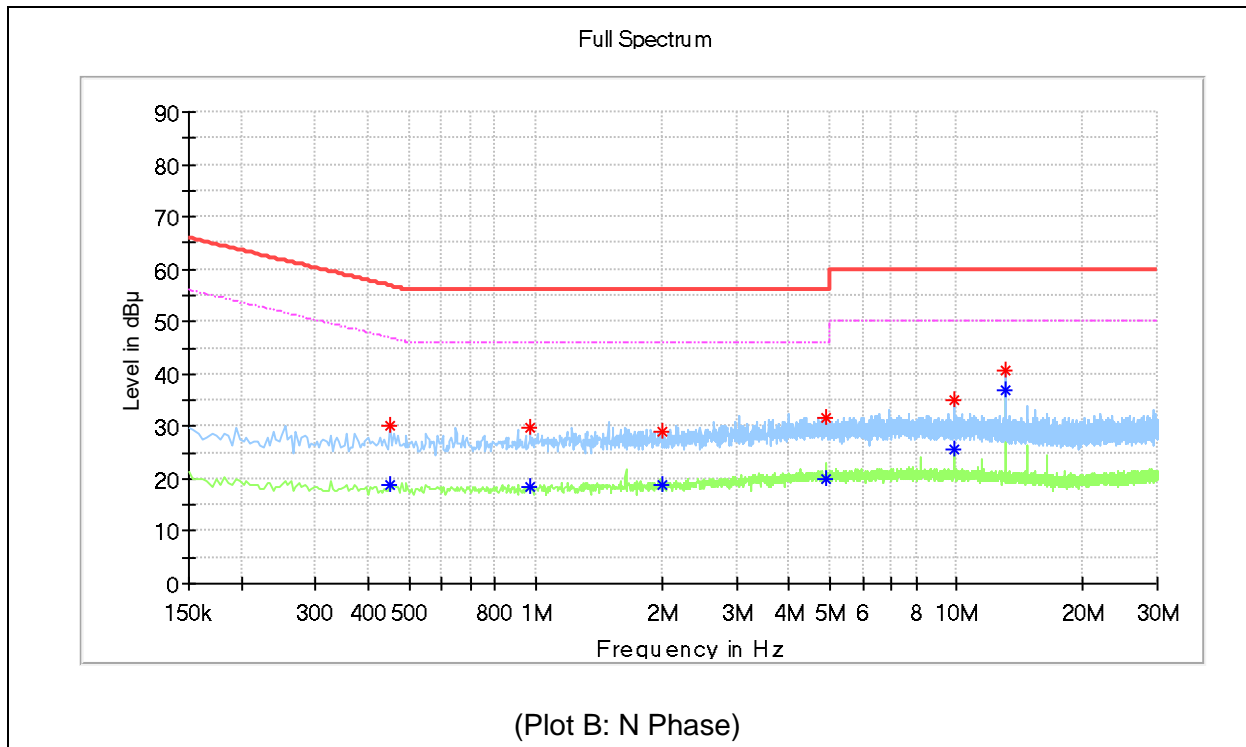
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

A. Test Plot and Suspicious Points:

Test Mode 1:



Frequency (MHz)	Quasi-peak (dBμV)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	Verdict
0.346000	---	---	18.16	49.06	30.90	L1	10.2	PASS
0.346000	---	29.11	---	59.06	29.95	L1	10.2	PASS
0.922000	---	---	17.80	46.00	28.20	L1	10.3	PASS
0.922000	---	28.22	---	56.00	27.78	L1	10.3	PASS
2.550000	---	---	18.89	46.00	27.11	L1	10.3	PASS
2.550000	---	30.65	---	56.00	25.35	L1	10.3	PASS
5.238000	---	---	21.03	50.00	28.97	L1	10.4	PASS
5.238000	---	31.44	---	60.00	28.56	L1	10.4	PASS
13.094000	---	---	36.89	50.00	13.11	L1	10.7	PASS
13.094000	---	40.89	---	60.00	19.11	L1	10.7	PASS
16.378000	---	---	25.87	50.00	24.13	L1	10.7	PASS
16.378000	---	33.46	---	60.00	26.54	L1	10.7	PASS



Frequency (MHz)	Quasi-peak (dBμV)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)	Verdict
0.450000	---	---	18.71	46.88	28.16	N	10.2	PASS
0.450000	---	29.99	---	56.88	26.89	N	10.2	PASS
0.970000	---	---	18.56	46.00	27.44	N	10.3	PASS
0.970000	---	29.73	---	56.00	26.27	N	10.3	PASS
1.994000	---	---	18.80	46.00	27.20	N	10.3	PASS
1.994000	---	29.01	---	56.00	26.99	N	10.3	PASS
4.882000	---	---	20.08	46.00	25.92	N	10.4	PASS
4.882000	---	31.69	---	56.00	24.31	N	10.4	PASS
9.834000	---	---	25.79	50.00	24.21	N	10.6	PASS
9.834000	---	34.97	---	60.00	25.03	N	10.6	PASS
13.114000	---	---	36.76	50.00	13.24	N	10.7	PASS
13.114000	---	40.73	---	60.00	19.27	N	10.7	PASS

Radiated Disturbance

3.1.4. Requirement

According to FCC section 15.205, the field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the following values:

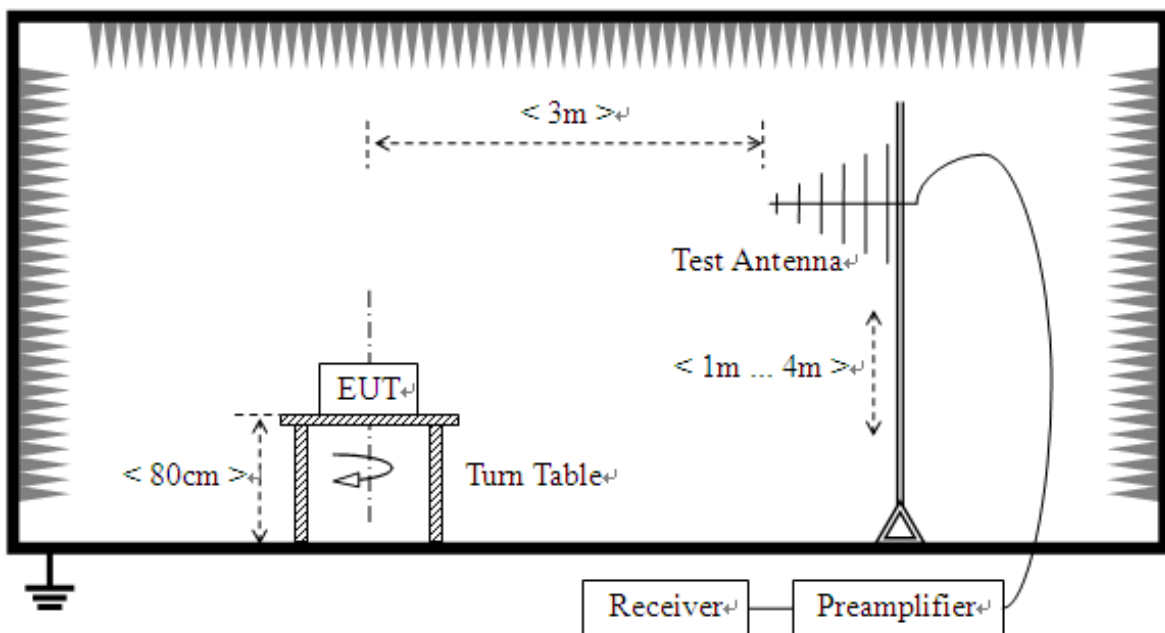
Frequency range (MHz)	Field Strength	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE: a) Field Strength ($\text{dB}\mu\text{V/m}$) = $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$.

b) In the emission tables above, the tighter limit applies at the band edges.

3.1.5. Test Setup

For radiated emissions from 30MHz to 1GHz





The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

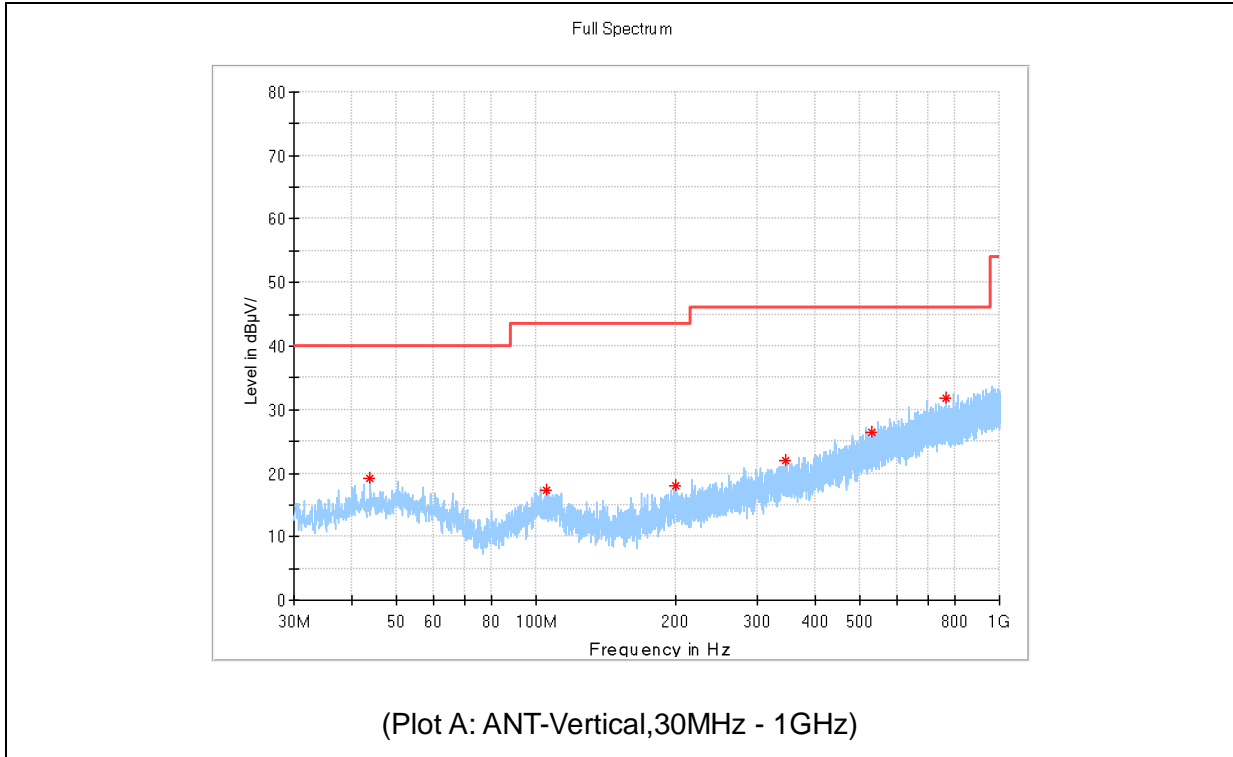
In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

3.1.6. Test Result

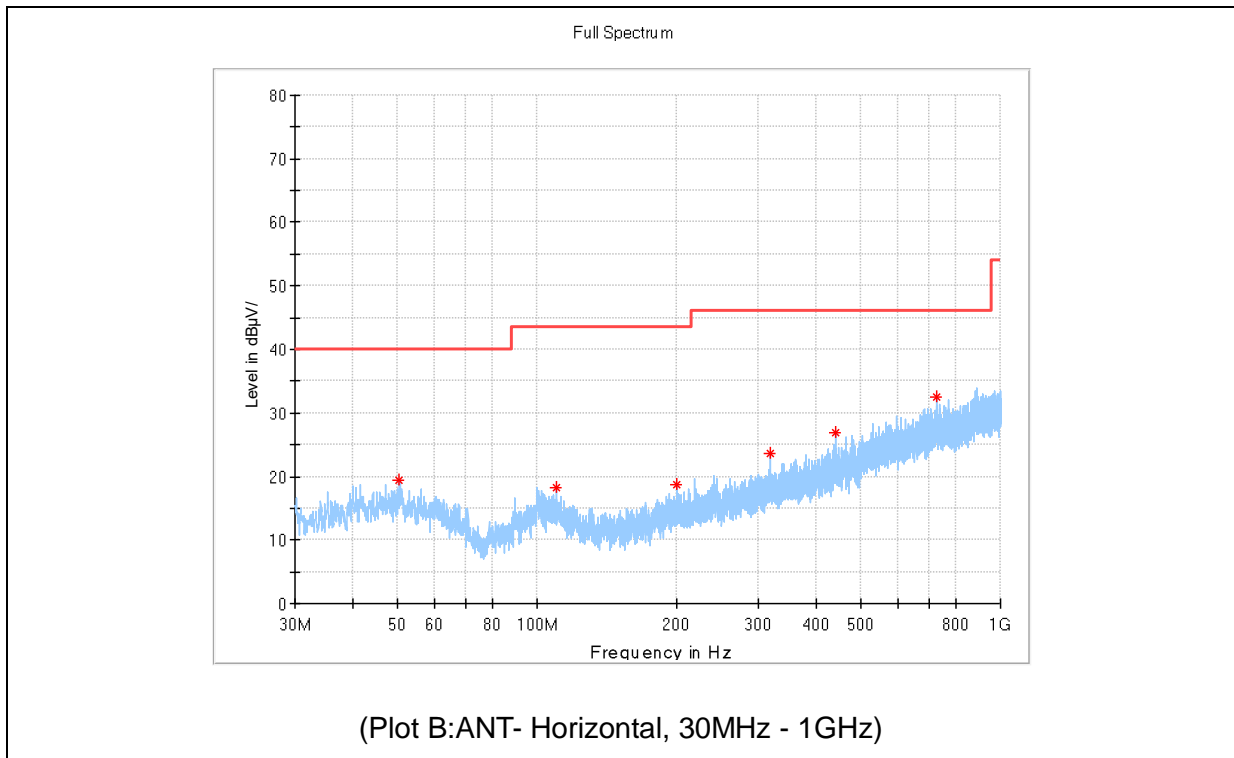
The maximum radiated emission is searched using PK, QP detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.



Test mode 1:



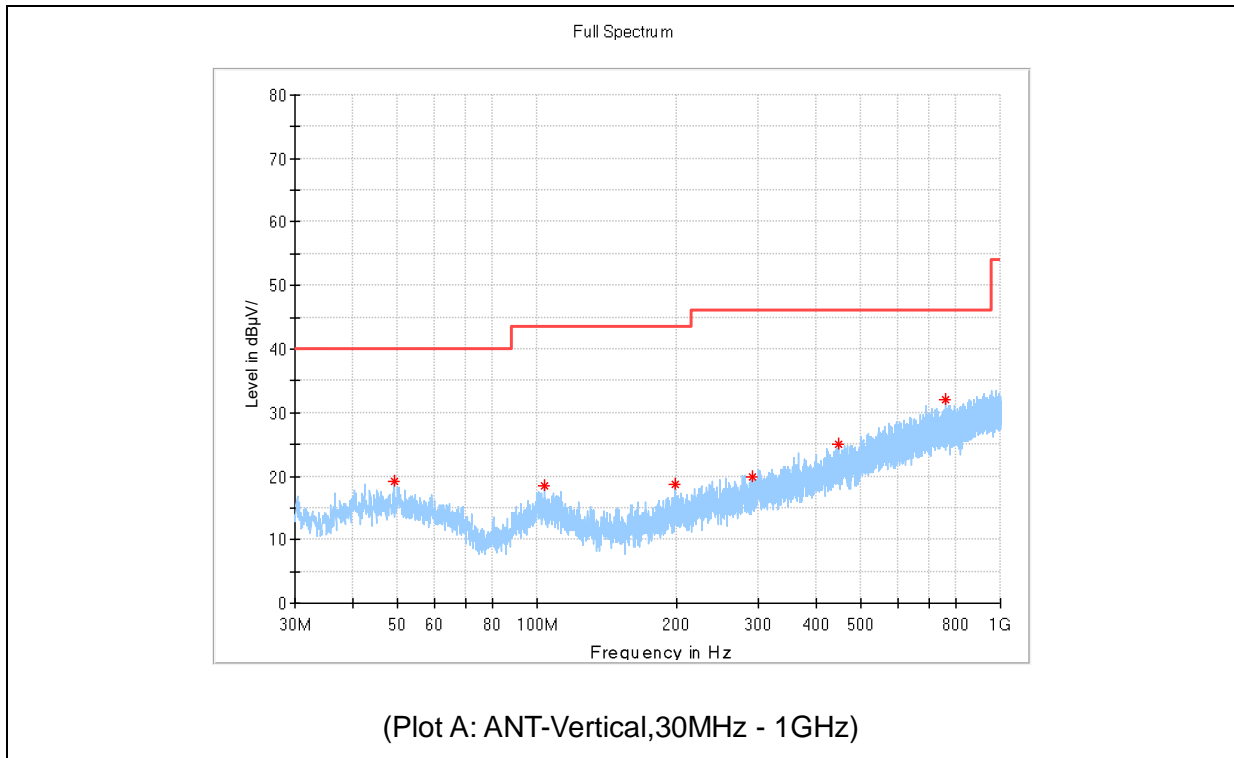
Frequency (MHz)	MaxPeak (dBµV/m)	Quasi Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)	Verdict
43.822500	19.09	---	40.00	20.91	V	15.3	PASS
105.619583	17.40	---	43.50	26.10	V	14.2	PASS
200.679583	18.12	---	43.50	25.38	V	14.2	PASS
345.694583	22.06	---	46.00	23.94	V	18.1	PASS
529.428750	26.39	---	46.00	19.61	V	22.2	PASS
769.301667	31.80	---	46.00	14.20	V	26.2	PASS



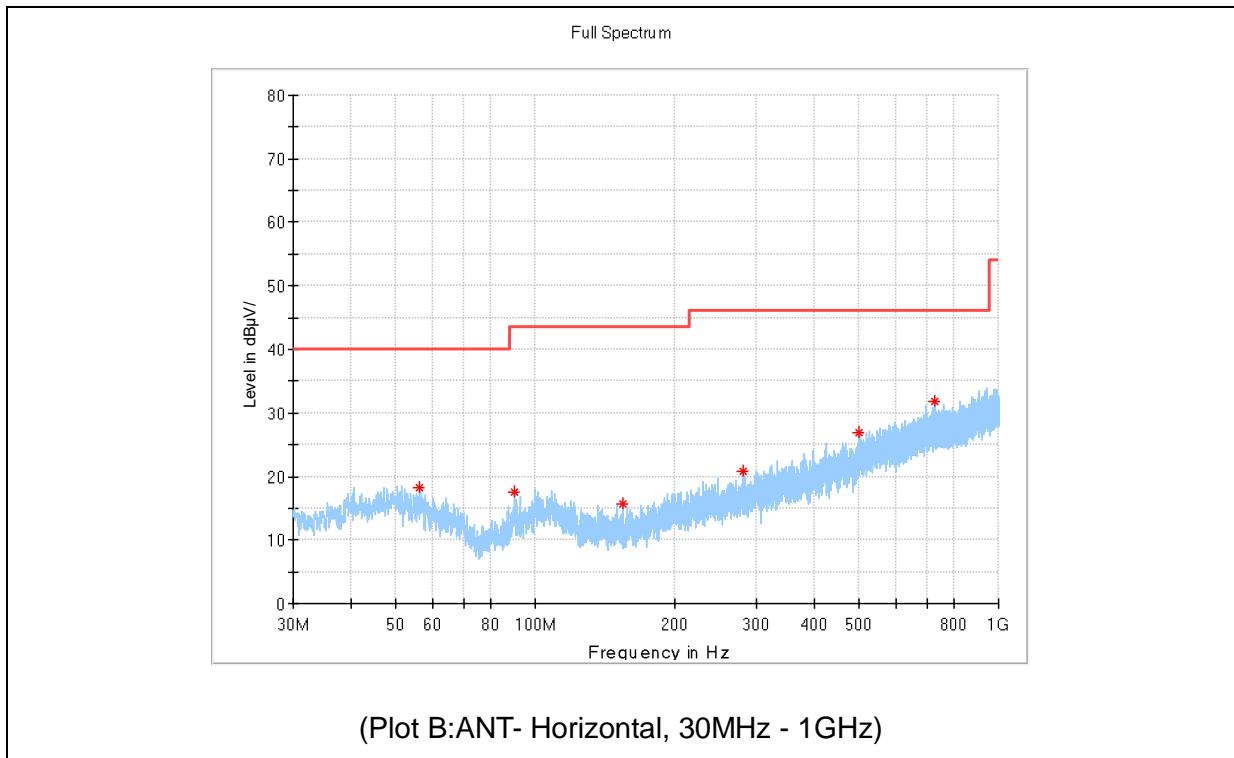
Frequency (MHz)	MaxPeak (dBµV/m)	Quasi Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)	Verdict
50.450833	19.51	---	40.00	20.49	H	16.1	PASS
109.944167	18.28	---	43.50	25.22	H	14.9	PASS
200.477500	18.76	---	43.50	24.74	H	14.3	PASS
318.898333	23.59	---	46.00	22.41	H	17.8	PASS
440.310000	26.90	---	46.00	19.10	H	20.6	PASS
728.885000	32.53	---	46.00	13.47	H	25.3	PASS



Test mode 2:



Frequency (MHz)	MaxPeak (dBµV/m)	Quasi Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)	Verdict
49.036250	19.29	---	49.036250	19.29	V	15.6	PASS
103.922083	18.58	---	103.922083	18.58	V	14.3	PASS
198.335417	18.66	---	198.335417	18.66	V	14.0	PASS
290.566250	19.89	---	290.566250	19.89	V	15.8	PASS
446.332083	24.96	---	446.332083	24.96	V	19.7	PASS
759.561250	32.03	---	759.561250	32.03	V	26.2	PASS



Frequency (MHz)	MaxPeak (dBµV/m)	Quasi Peak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)	Verdict
56.392083	18.15	---	40.00	21.85	H	14.7	PASS
90.220833	17.59	---	43.50	25.91	H	13.3	PASS
154.160000	15.65	---	43.50	27.85	H	10.8	PASS
281.917083	20.92	---	46.00	25.08	H	16.4	PASS
500.369167	26.98	---	46.00	19.02	H	22.0	PASS
728.440417	31.71	---	46.00	14.29	H	25.3	PASS



Annex A Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission Measurement

Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y))	150kHz-30MHz	±2.61dB
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Uncertainty of Radiated Emission Measurement

Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y))	30MHz-200MHz	±3.87dB
	200MHz-1000MHz	±4.07dB



Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Department:	Kehu-Morlab Test Laboratory
Address:	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian) China
Responsible Test Lab Manager:	Mr. Di Dehai
Telephone:	+86 592 5612050
Facsimile:	+86 592 5612095

2. Identification of the Responsible Testing Location

Name:	Kehu-Morlab Test Laboratory
Address:	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian) China

3. Accreditation Certificate

Accredited Testing Laboratory:	The FCC designation number is CN1249. (Kehu-Morlab Test Laboratory)
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4. Test Equipment Utilized

List of Software Used

No.	Model	Version Number	Producer	Test Item
1	EMC 32	V10.00.00	R&S	RE
2	EMC 32	V10.20.01	R&S	CE

Conducted Emission Test Equipments

No.	Equipment Name	Serial No.	Model No.	Manufacturer	Cal.Date	Cal.Due Date
1	EMI Receiver	102174	ESR3	ESR3	2019.01.08	2020.01.07
2	LISN	101338	ENV432	ENV432	2019.01.14	2020.01.13
3	Pulse Limiter (10dB)	317	VTSD 9561 F	VTSD 9561 F	2019.01.03	2020.01.02
4	Coaxial cable(BNC) (30MHz-3GHz)	EMC01	N/A	Morlab	N/A	N/A

**Radiated Test Equipments**

No.	Equipment Name	Serial No.	Model No.	Manufacturer	Cal. Date	Cal.Due Date
1	Anechoic Chamber	N/A	9m*6m*6m	ETS-Lindgren	2017.07.21	2020.07.20
2	Receiver	R&S	ESR7	101799	2019.01.07	2020.01.06
3	Linear Log Periodic Broad Band Antenna	949	VULB 9163	Schwarzbeck	2018.09.25	2019.09.24
4	Coaxial cable (N male) (9kHz -3GHz)	EMC03	N/A	Morlab	N/A	N/A

————— END OF REPORT —————