TESTING LABORATORY
CERTIFICATE#4323.01

FCC PART 15B

MEASUREMENT AND TEST REPORT

For

Quanzhou Wouxun Electronics Co., Ltd.

Jiangnan High Technology Industry Park, No.928 Nanhuan Road, Quanzhou, Fujian, China

FCC ID: WVTWOUXUN17

Report Type:	**Product Type:**
Original Report	Two way Radio(FRS radio)

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Report Number:	RXM200702051-00A
Report Date:	2020-07-30
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Quanzhou Wouxun Electronics Co., Ltd.
Test Model	KG-805F
Series Model	KG-805FS, KG-805FN, KG-805FSN
Product	Two way Radio(FRS radio)
Rate Voltage	DC 7.4V from Battery and DC 12V from Adapter
Highest Operation Frequency	467.7125 MHz

Adapter information:
Model: DSX-120050L-US
Input: AC 100-240V, 50/60Hz, 0.3A
Output: DC 12V, 0.5A

Note: The model difference was explained in the attached declaration letter.

**All measurement and test data in this report was gathered from production sample serial number: 20200702051. (Assigned by the BACL. The EUT supplied by the applicant was received on 2020-07-02)*

Objective

This report is prepared on behalf of *Quanzhou Wouxun Electronics Co., Ltd.* in accordance with Part 2-Subpart J, and Part 15-Subparts A and B of the Federal Communication Commission's rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15, Class B device.

Related Submittal(s)/Grant(s)

FCC Part 95 FRF Submittal with FCC ID: WVTWOUXUN17.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01 and CAB identifier CN0004 under the ISED requirement. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

Test mode 1: Charging
Test mode 2: RX Mode

EUT Exercise Software

No exercise software.

Special Accessories

No special accessory was used.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

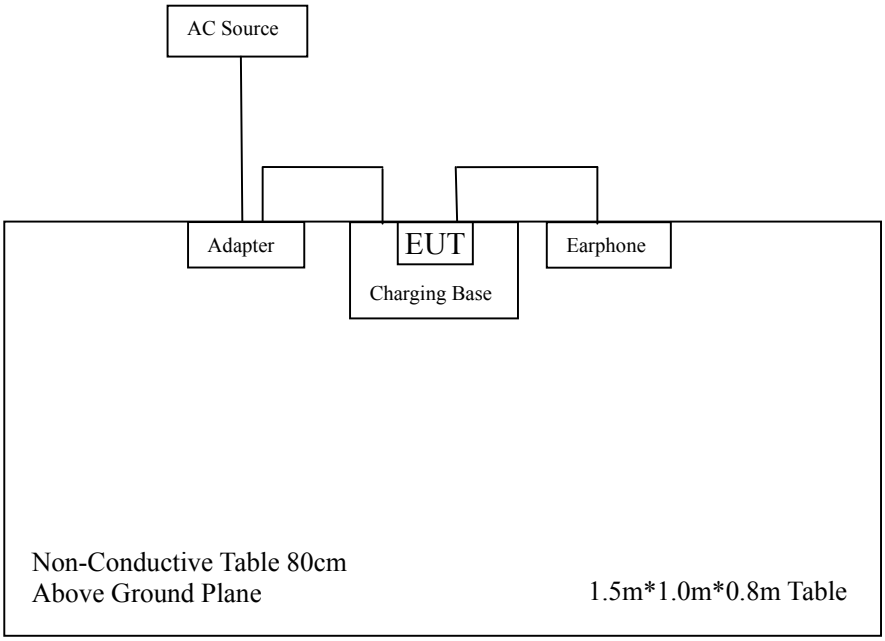
Manufacturer	Description	Model	Serial Number
Wouxun	Earphone	/	/

External I/O Cable

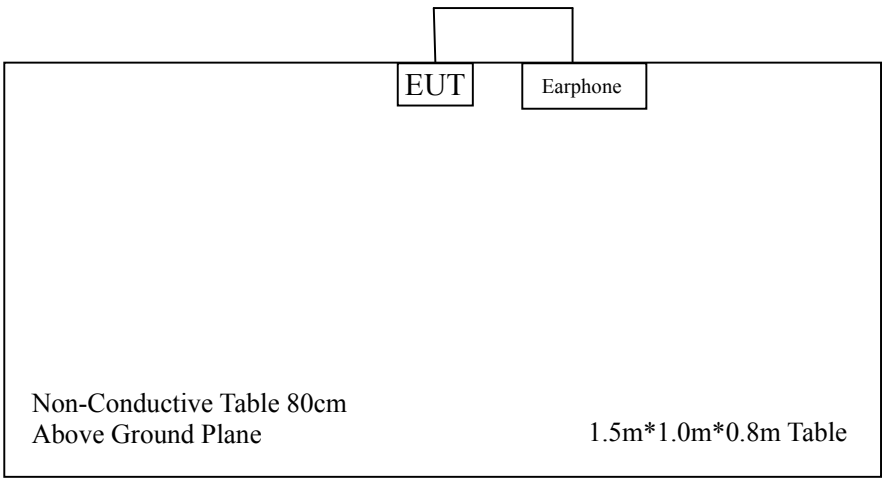
Cable Description	Length (m)	From/Port	To
Power Cable	1.0	EUT	Adapter
Power Cable	1.0	Adapter	AC Source
Audio Cable	1.2	EUT	Earphone

Block Diagram of Radiated Test Setup

Test mode 1



Test mode 2



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Compliant
§15.109	Radiated Emissions	Compliant

FCC §15.107 – CONDUCTED EMISSIONS

Applicable Standard

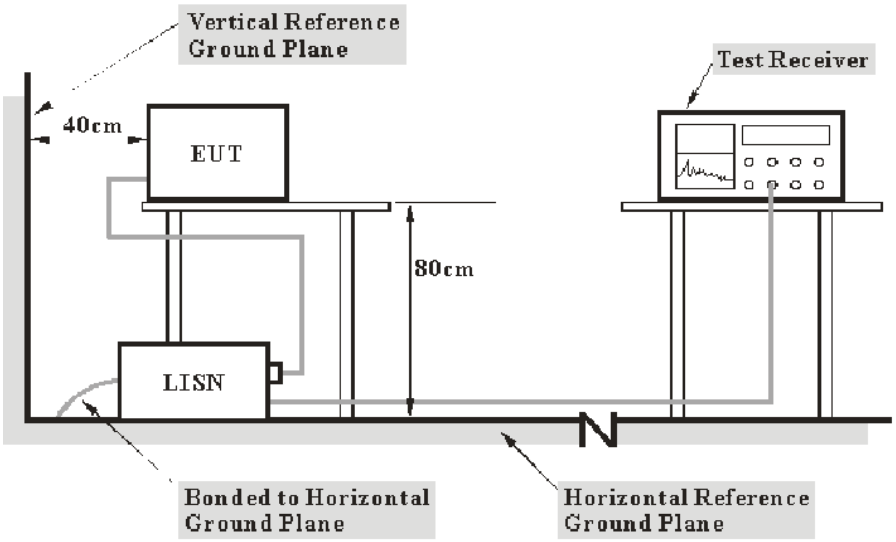
According to FCC§15.107

Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between LISN and receiver, LISN voltage division factor, LISN VDF frequency interpolation and receiver related input quantities, etc.

Item		Measurement Uncertainty	U_{cispr}
AMN	150kHz~30MHz	3.19 dB	3.4 dB

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class B.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2019-08-05	2020-08-04
Rohde & Schwarz	LISN	ENV216	3560655016	2019-11-30	2020-11-29
Audix	Test Software	e3	V9	--	--
Rohde & Schwarz	Pluse limiter	ESH3-Z2	100552	--	--
MICRO-COAX	Coaxial Cable	Cable-15	015	2019-08-15	2020-08-14

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Factor & Over Limit Calculation

The Factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of 7dB means the emission is 7 dB above the limit. The equation for over limit calculation is as follows:

Over Limit (dB) = Read level (dBµV) + Factor (dB) - Limit (dBµV)

Test Data

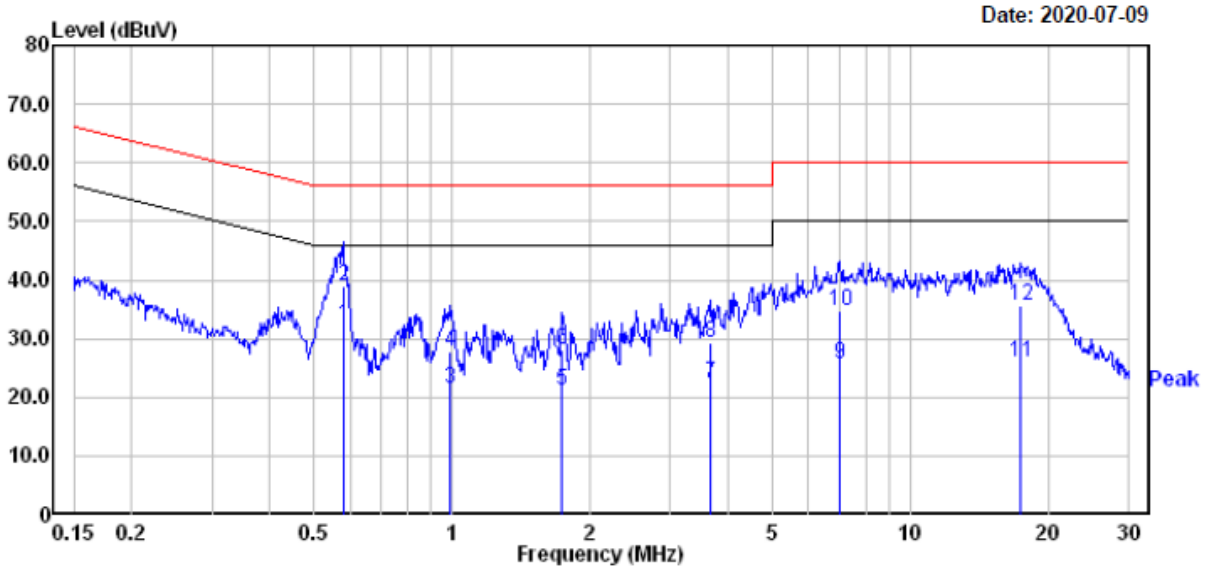
Environmental Conditions

Temperature:	24.2 ℃
Relative Humidity:	46 %
ATM Pressure:	101.2 kPa

The testing was performed by Jett Zhao on 2020-07-09.

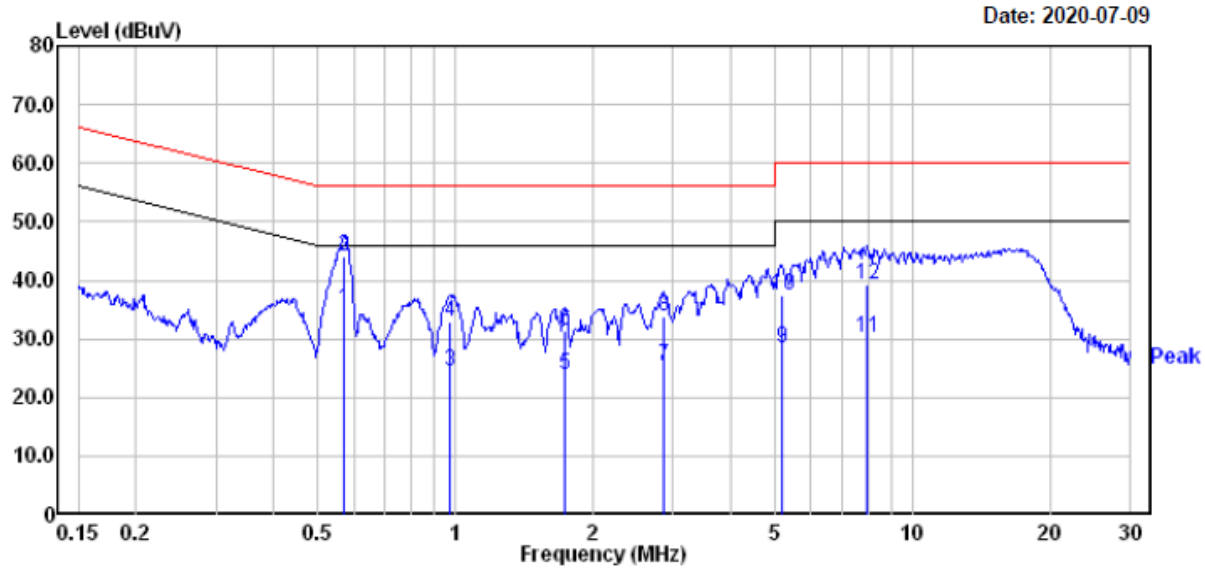
Test mode 1:

Line:



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.579	12.50	19.75	32.25	46.00	-13.75	Average
2	0.579	19.30	19.75	39.05	56.00	-16.95	QP
3	0.994	1.60	19.82	21.42	46.00	-24.58	Average
4	0.994	8.10	19.82	27.92	56.00	-28.08	QP
5	1.744	1.20	19.84	21.04	46.00	-24.96	Average
6	1.744	8.20	19.84	28.04	56.00	-27.96	QP
7	3.681	2.90	19.47	22.37	46.00	-23.63	Average
8	3.681	9.90	19.47	29.37	56.00	-26.63	QP
9	7.025	6.10	19.52	25.62	50.00	-24.38	Average
10	7.025	15.20	19.52	34.72	60.00	-25.28	QP
11	17.475	6.20	19.80	26.00	50.00	-24.00	Average
12	17.475	15.90	19.80	35.70	60.00	-24.30	QP

Neutral:



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.570	15.20	19.75	34.95	46.00	-11.05	Average
2	0.570	24.20	19.75	43.95	56.00	-12.05	QP
3	0.974	4.70	19.80	24.50	46.00	-21.50	Average
4	0.974	13.10	19.80	32.90	56.00	-23.10	QP
5	1.744	4.00	19.84	23.84	46.00	-22.16	Average
6	1.744	11.50	19.84	31.34	56.00	-24.66	QP
7	2.854	5.89	19.47	25.36	46.00	-20.64	Average
8	2.854	14.29	19.47	33.76	56.00	-22.24	QP
9	5.194	8.90	19.49	28.39	50.00	-21.61	Average
10	5.194	17.80	19.49	37.29	60.00	-22.71	QP
11	7.977	10.70	19.53	30.23	50.00	-19.77	Average
12	7.977	19.80	19.53	39.33	60.00	-20.67	QP

Note:

1) Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
2) Over Limit (dB) = Read level (dBµV) + Factor (dB) - Limit (dBµV)

FCC §15.109 - RADIATED EMISSIONS

Applicable Standard

FCC §15.109

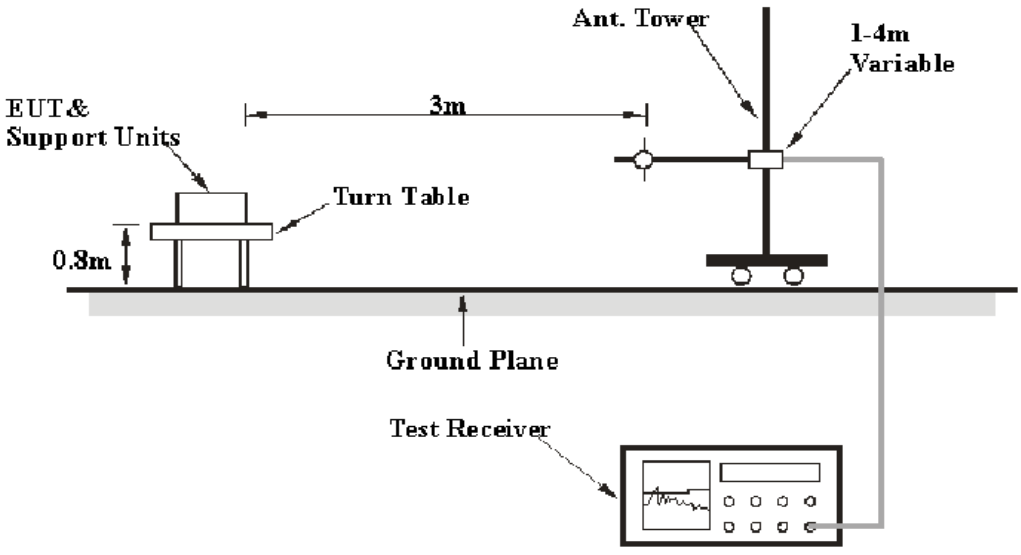
Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average) and system repeatability.

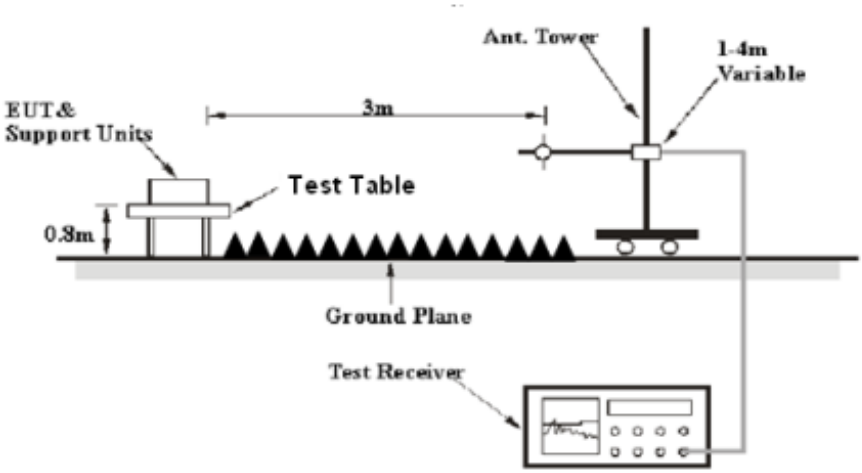
Item		Measurement Uncertainty	U_{cispr}
Radiated Emission	30MHz~1GHz	6.11dB	6.3 dB
	1GHz~6GHz	4.45dB	5.2 dB

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 2 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	Peak
	1MHz	3 MHz	1MHz	AVG

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz, Peak and average detection mode above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sonoma Instrument	Amplifier	310N	185700	2019-08-14	2020-08-13
Rohde & Schwarz	EMI Test Receiver	ESR	102454	2019-12-14	2020-12-13
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2017-12-26	2020-12-25
Albatross	Chamber 3#	3m-SAC 966	NA	2019-05-08	2022-05-07
Albatross	Chamber 2#	3m-SAC 966	NA	2019-05-08	2022-05-07
Audix	Test Software	e3	V9	NA	NA
ETS	Horn Antenna	3115	9207-3900	2017-07-15	2020-07-14
Rohde & Schwarz	EMI Receiver	ESU40	100207	2020-04-01	2021-03-31
A.H.Systems, inc	Amplifier	PAM-0118P	512	2020-02-20	2021-02-19
MICRO-COAX	Coaxial Cable	Cable-8	008	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-4	004	2019-12-12	2020-12-11
MICRO-COAX	Coaxial Cable	Cable-5	005	2019-12-12	2020-12-11

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Factor & Over Limit Calculation – For Below 1GHz

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit of 7 dB means the emission is 7 dB above the limit. The equation for Over Limit calculation is as follows:

Over Limit (dB) = Read level (dBμV) + Factor (dB) - Limit (dBμV)

Corrected Amplitude & Margin Calculation – For Above 1GHz

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Data

Environmental Conditions

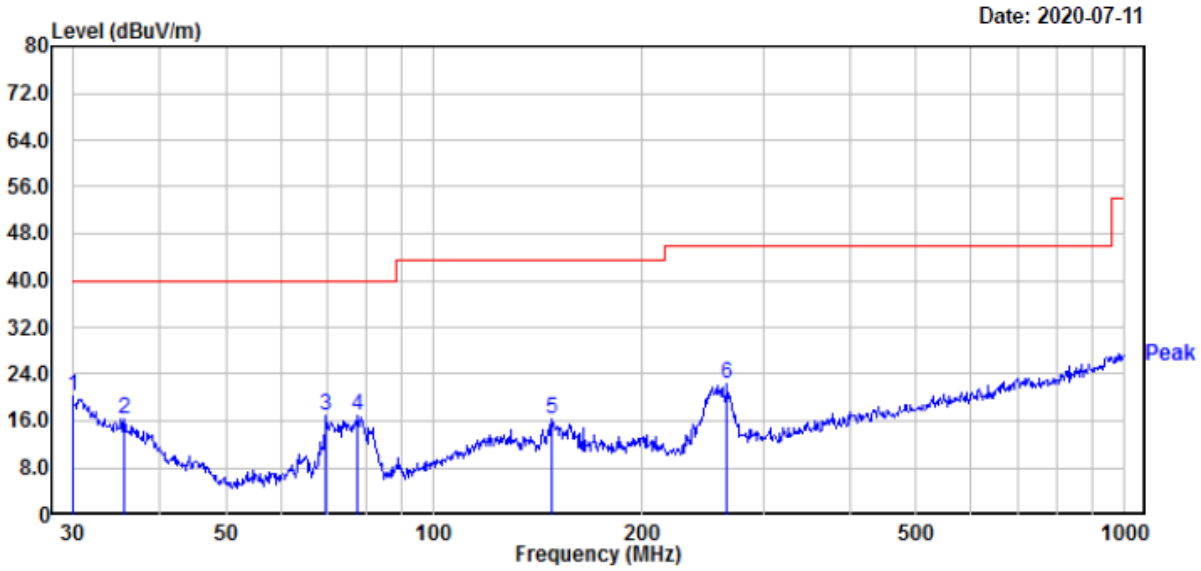
Temperature:	25.2 ℃
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

The testing was performed by Jett Zhao on 2020-07-11.

Test mode 1:

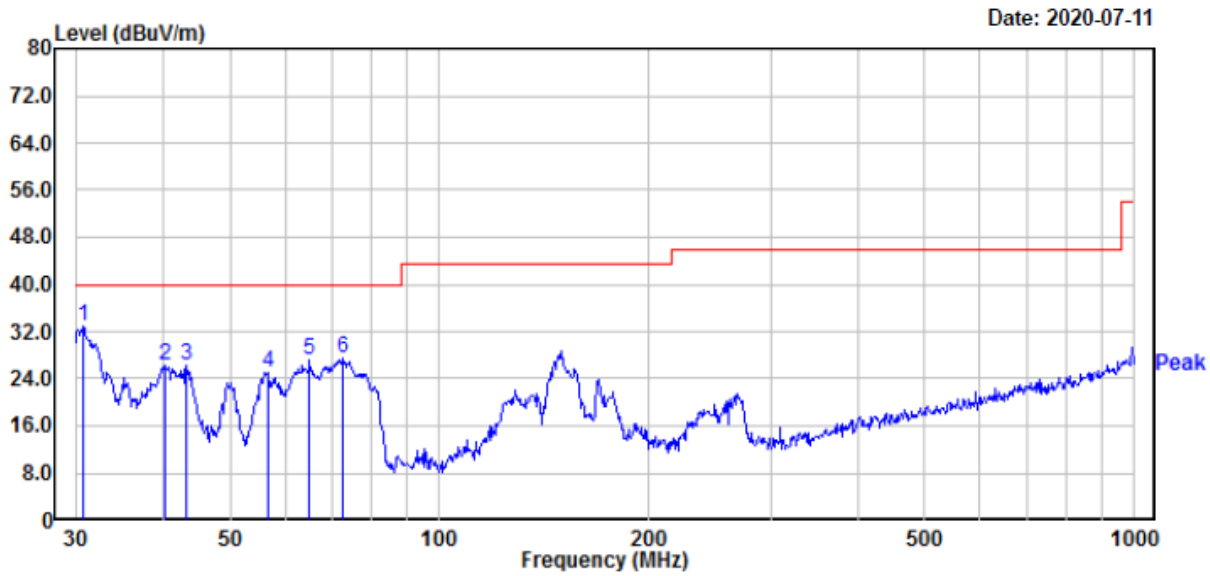
1)30MHz ~ 1GHz

Horizontal:



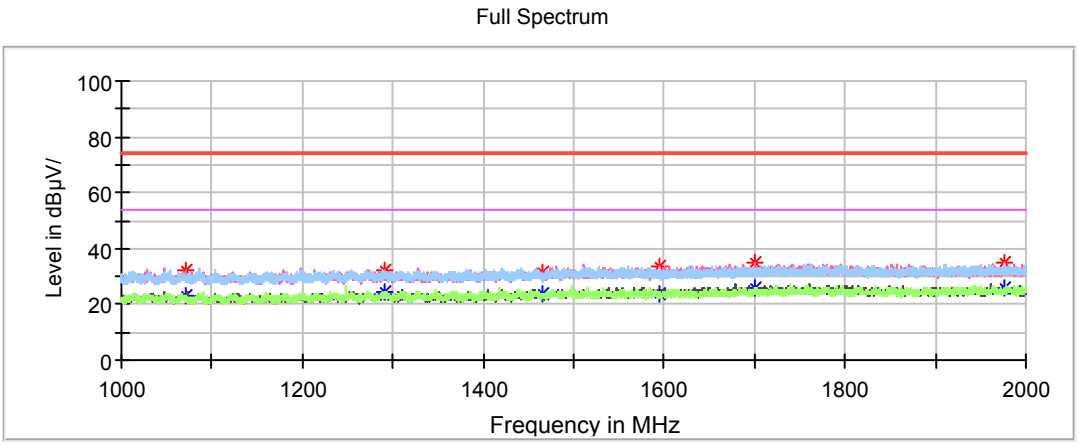
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	APos	TPos	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.00	29.28	-9.13	20.15	40.00	-19.85	200	60	Peak
2	35.62	30.11	-13.81	16.30	40.00	-23.70	200	41	Peak
3	69.84	39.69	-22.90	16.79	40.00	-23.21	200	4	Peak
4	77.32	39.88	-23.09	16.79	40.00	-23.21	200	29	Peak
5	148.44	34.27	-17.87	16.40	43.50	-27.10	200	279	Peak
6	265.68	39.51	-17.32	22.19	46.00	-23.81	100	319	Peak

Vertical:



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	APos	TPos	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.75	42.71	-9.75	32.96	40.00	-7.04	100	37	Peak
2	40.42	43.87	-17.68	26.19	40.00	-13.81	100	295	Peak
3	43.35	45.61	-19.29	26.32	40.00	-13.68	100	339	Peak
4	56.79	48.42	-23.37	25.05	40.00	-14.95	100	277	Peak
5	65.11	50.36	-23.21	27.15	40.00	-12.85	100	289	Peak
6	72.85	50.41	-22.96	27.45	40.00	-12.55	100	258	Peak

Above 1 GHz:

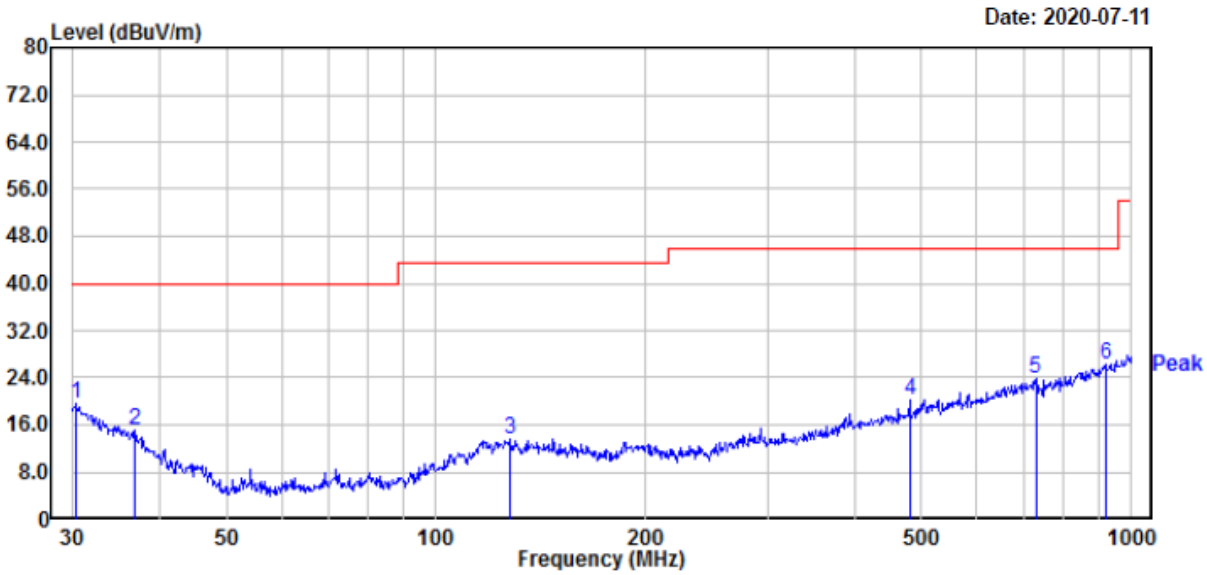


Frequency (MHz)	Max Peak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1070.600000	---	22.99	54.00	31.01	100.0	H	147.0	-18.7
1070.600000	32.38	---	74.00	41.62	100.0	V	344.0	-18.7
1290.800000	---	24.14	54.00	29.86	100.0	H	68.0	-17.5
1291.100000	32.44	---	74.00	41.56	100.0	V	202.0	-17.5
1466.300000	---	23.44	54.00	30.56	100.0	V	158.0	-16.5
1466.300000	31.27	---	74.00	42.73	100.0	V	158.0	-16.5
1595.500000	33.26	---	74.00	40.74	100.0	V	98.0	-16.0
1595.600000	---	23.94	54.00	30.06	100.0	V	348.0	-16.0
1700.100000	---	25.75	54.00	28.25	100.0	H	55.0	-15.6
1700.300000	34.99	---	74.00	39.01	100.0	V	352.0	-15.6
1976.500000	---	25.74	54.00	28.26	100.0	H	343.0	-14.6
1976.500000	34.80	---	74.00	39.20	100.0	V	327.0	-14.6

Test mode 2:

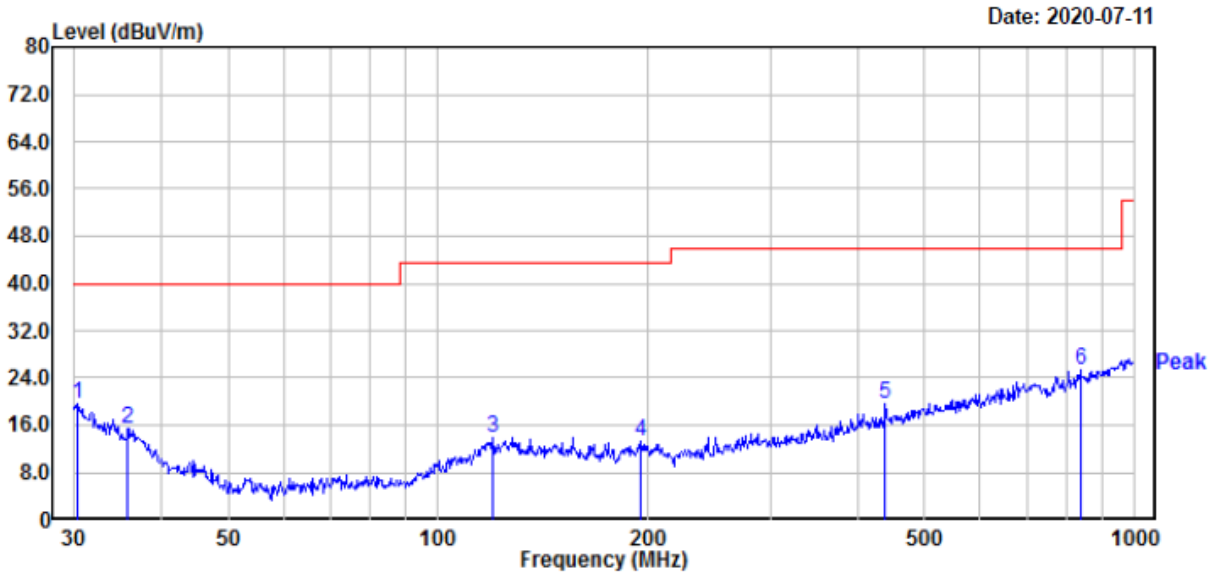
1)30MHz ~ 1GHz

Horizontal:



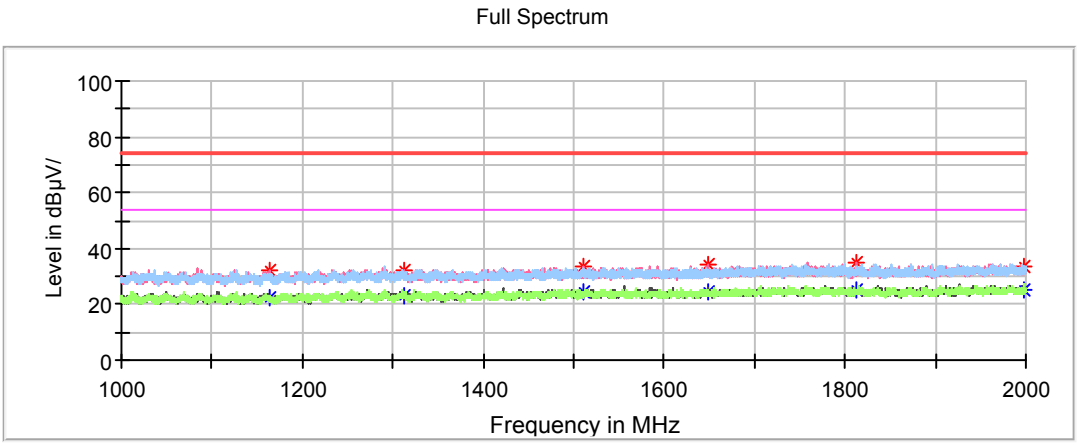
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	APos	TPos	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.42	28.97	-9.48	19.49	40.00	-20.51	200	272	Peak
2	36.90	30.03	-14.86	15.17	40.00	-24.83	100	240	Peak
3	128.11	30.56	-17.12	13.44	43.50	-30.06	100	21	Peak
4	480.53	32.26	-11.93	20.33	46.00	-25.67	200	297	Peak
5	729.36	31.49	-7.67	23.82	46.00	-22.18	200	37	Peak
6	919.29	30.90	-4.56	26.34	46.00	-19.66	100	72	Peak

Vertical:



	Freq	Read Level	Factor	Level	Limit Line	Over Limit	APos	TPos	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.42	29.02	-9.48	19.54	40.00	-20.46	200	158	Peak
2	35.87	29.51	-14.02	15.49	40.00	-24.51	100	169	Peak
3	119.86	30.48	-16.68	13.80	43.50	-29.70	200	241	Peak
4	195.82	31.03	-17.90	13.13	43.50	-30.37	200	152	Peak
5	438.66	32.60	-12.85	19.75	46.00	-26.25	200	181	Peak
6	836.24	31.72	-6.22	25.50	46.00	-20.50	100	257	Peak

Above 1 GHz:



Frequency (MHz)	Max Peak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1163.000000	---	22.58	54.00	31.42	100.0	H	277.0	-18.2
1163.000000	31.98	---	74.00	42.02	100.0	V	212.0	-18.2
1312.100000	---	23.34	54.00	30.66	100.0	H	152.0	-17.4
1312.100000	32.36	---	74.00	41.64	100.0	V	93.0	-17.4
1511.400000	---	24.26	54.00	29.74	100.0	V	136.0	-16.3
1511.400000	33.39	---	74.00	40.61	100.0	V	136.0	-16.3
1647.900000	---	24.45	54.00	29.55	100.0	V	353.0	-15.8
1647.900000	33.94	---	74.00	40.06	100.0	V	353.0	-15.8
1812.400000	35.18	---	74.00	38.82	100.0	V	282.0	-15.2
1812.400000	---	24.86	54.00	29.14	100.0	V	282.0	-15.2
1997.000000	33.91	---	74.00	40.09	100.0	H	0.0	-14.5
1997.000000	---	25.43	54.00	28.57	100.0	H	0.0	-14.5

Declarations

1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

5: This report cannot be reproduced except in full, without prior written approval of the Company.

6: This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

*******END OF REPORT*******