

FCC PART 15B TEST REPORT

For

Quanzhou Wouxun Electronics Co., Ltd.

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

FCC ID: WVTWOXUN20

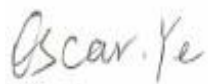
Report Type: Original Report	Product Type: Two way Radio(GMRS mobile radio)
Test Engineer:	Jett Zhao 
Report Number:	RXM200702052-00A
Report Date:	2020-10-12
Reviewed By:	Oscar Ye EMC Manager 
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan,Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Quanzhou Wouxun Electronics Co., Ltd.
Test Model	KG-1000G
Series Model	1000G, KG-1000GR, KG-1000GX
Model Difference	See Declaration letter
Product	Two way Radio(GMRS mobile radio)
Rate Voltage	DC 13.8 V
*Highest Operation Frequency	960 MHz

Note: The Highest Operating Frequency was provided by the applicant.

**All measurement and test data in this report was gathered from production sample serial number: 20200702052. (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 TNB Submittal with FCC ID: WVTWOUXUN20.

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: Scanning mode

Test mode 2: Scanning stop/ Receiving 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

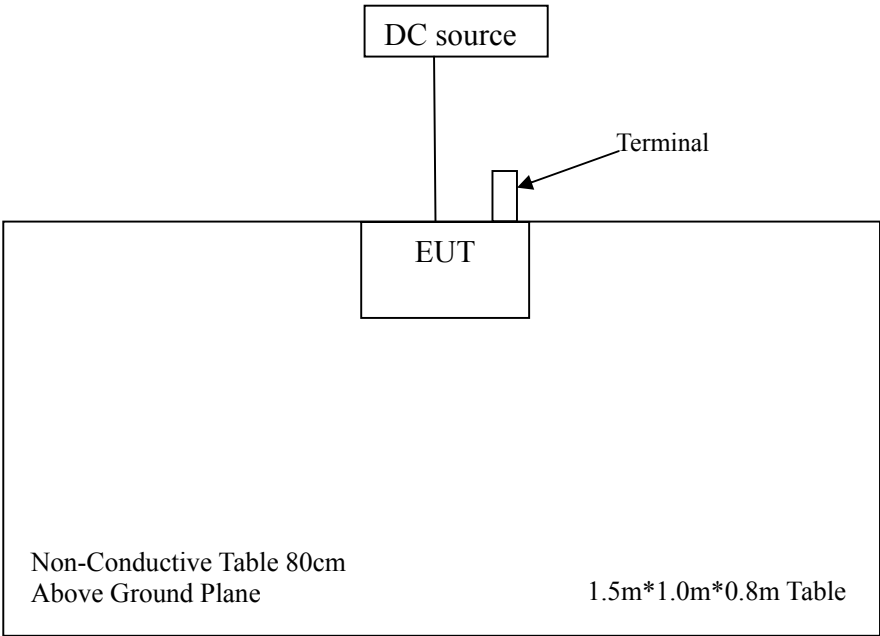
Manufacturer	Description	Model	Serial Number
HUAXIANG	Terminal	50W	17101301
BEST	DC Power Supply	PS-1502D+	/

External I/O Cable

Cable Description	Length (m)	From/Port	To
Power Cable	1.0	EUT	DC source

Block Diagram of Radiated Test Setup

Test mode: Operating



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Not Applicable (See Note)
§15.109	Radiated Emissions	Compliant
§15.111	Antenna Conducted Power for receivers	Compliant
§15.121(b)	Scanning receivers and frequency converters used with scanning receivers	Compliant

Note: The EUT was used in a vehicle.

FCC §15.109 - RADIATED EMISSIONS

Applicable Standard

FCC §15.109

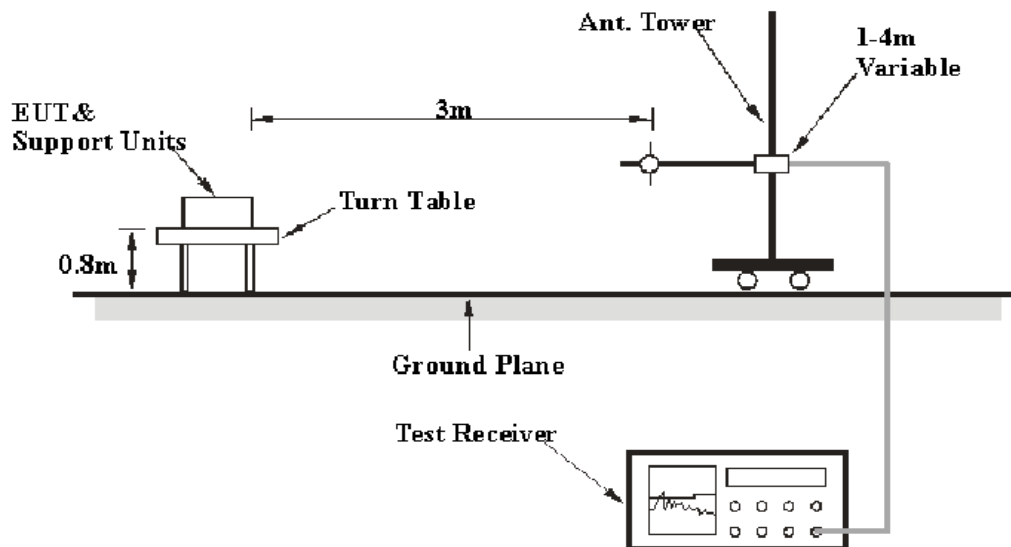
Measurement Uncertainty

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.

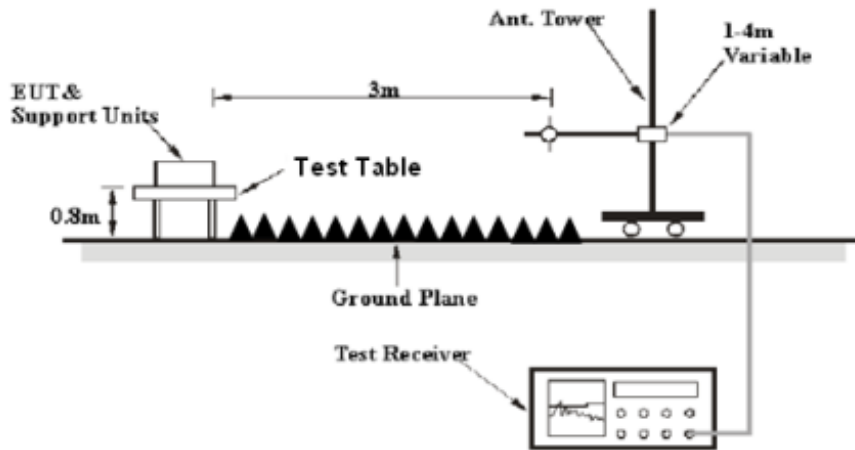
Item		Measurement Uncertainty	U_{cispr}
Radiated Emission	30MHz~1GHz	6.11dB	6.3 dB
	1GHz~6GHz	4.45dB	5.2 dB

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 5 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
ETS	Horn Antenna	3115	9207-3900	2020-07-15	2023-07-14
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:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Over Limit (dB)} = \text{Read level (dB}\mu\text{V)} + \text{Factor (dB)} - \text{Limit (dB}\mu\text{V)}$$

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:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data**Environmental Conditions**

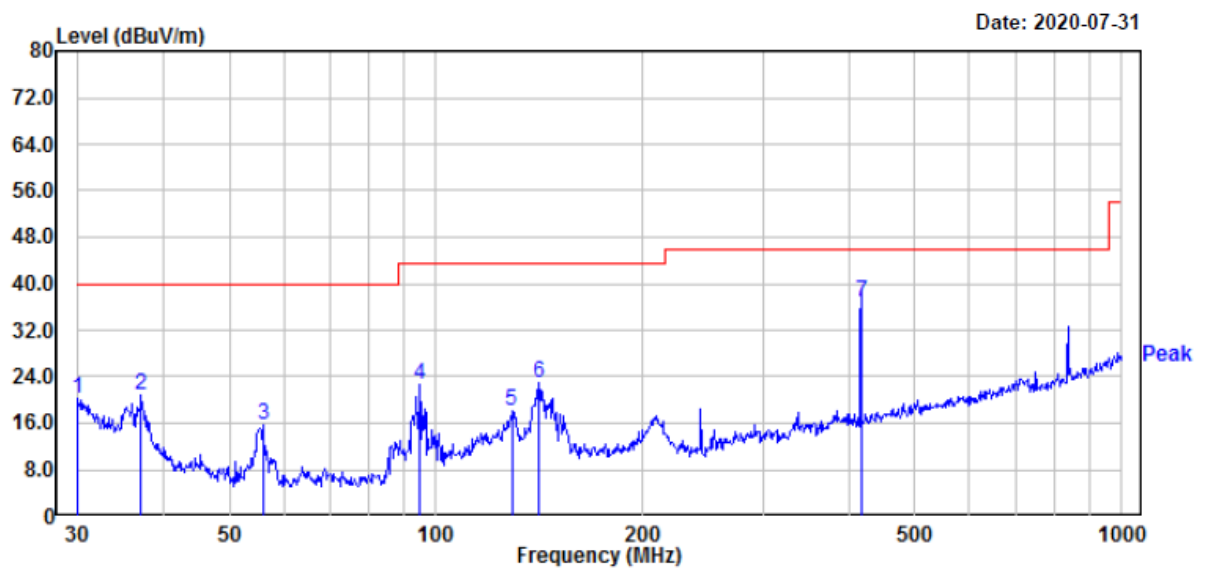
Temperature:	24.8°C~25.2 °C
Relative Humidity:	48°C~51 %
ATM Pressure:	100.8 kPa ~101.5 kPa

The testing was performed by Jett Zhao from 2020-07-11 to 2020-07-31 .

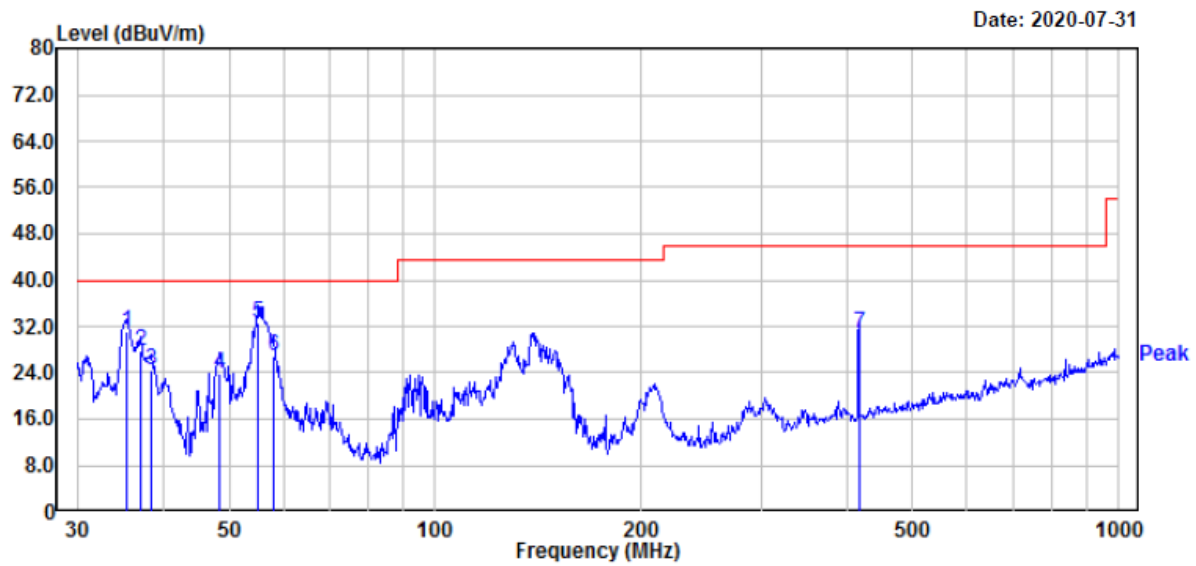
Test mode 1:

1)30MHz ~ 1GHz

Horizontal:



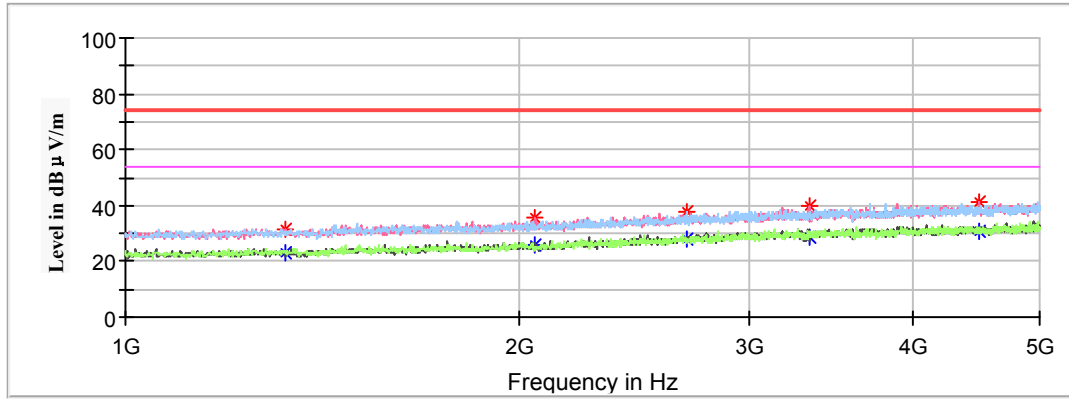
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	APos	TPos	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.11	29.44	-9.22	20.22	40.00	-19.78	100	112	Peak
2	37.15	35.99	-15.09	20.90	40.00	-19.10	200	31	Peak
3	56.00	39.13	-23.31	15.82	40.00	-24.18	200	129	Peak
4	94.76	44.56	-21.99	22.57	43.50	-20.93	200	278	Peak
5	129.01	35.44	-17.18	18.26	43.50	-25.24	200	272	Peak
6	141.33	40.63	-17.78	22.85	43.50	-20.65	200	321	Peak
7	417.64	50.00	-13.26	36.74	46.00	-9.26	100	205	QP

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	35.38	44.70	-13.60	31.10	40.00	-8.90	100	1	QP
2	37.03	42.80	-14.97	27.83	40.00	-12.17	100	1	QP
3	38.35	40.60	-16.07	24.53	40.00	-15.47	100	64	QP
4	48.50	46.00	-22.12	23.88	40.00	-16.12	200	128	QP
5	55.22	55.80	-23.26	32.54	40.00	-7.46	100	300	QP
6	58.20	50.20	-23.45	26.75	40.00	-13.25	100	81	QP
7	417.64	44.00	-13.26	30.74	46.00	-15.26	100	62	QP

Above 1 GHz:

Full Spectrum

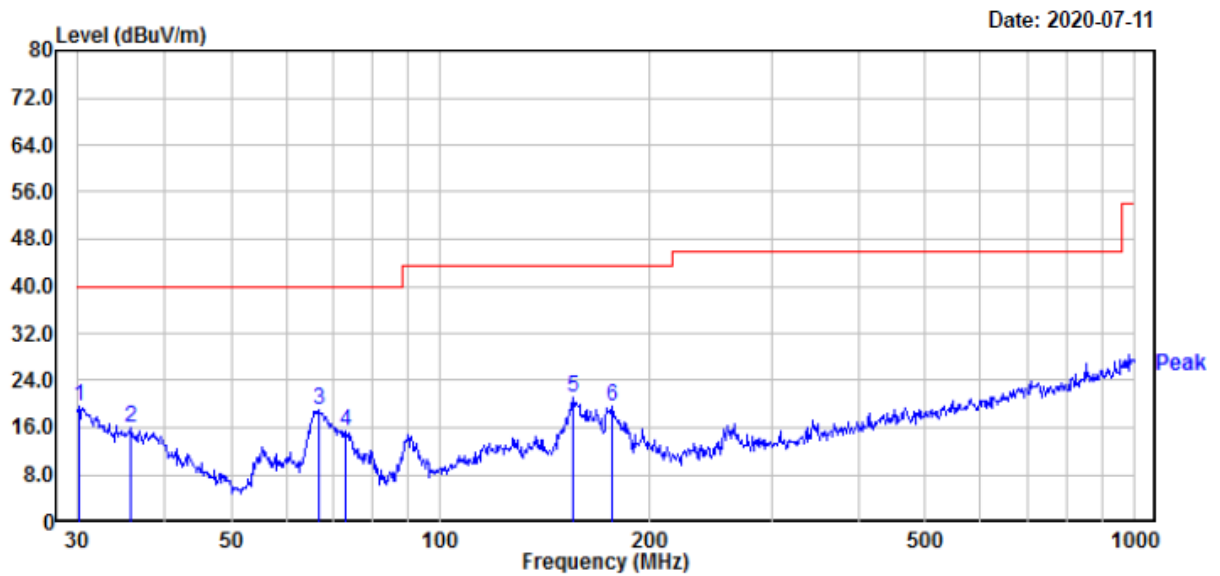


Frequency (MHz)	Max Peak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1326.400000	---	23.37	54.00	30.63	150.0	H	180.0	-17.3
1326.400000	31.82	---	74.00	42.18	150.0	H	180.0	-17.3
2059.100000	---	25.74	54.00	28.26	150.0	V	295.0	-14.2
2059.100000	35.79	---	74.00	38.21	150.0	V	295.0	-14.2
2684.700000	---	28.31	54.00	25.69	150.0	V	98.0	-11.6
2684.700000	37.70	---	74.00	36.30	150.0	V	98.0	-11.6
3330.700000	---	28.82	54.00	25.18	150.0	V	354.0	-9.3
3330.700000	40.15	---	74.00	33.85	150.0	V	354.0	-9.3
4498.600000	---	30.90	54.00	23.10	150.0	H	218.0	-6.2
4498.600000	40.99	---	74.00	33.01	150.0	H	218.0	-6.2
5059.600000	---	33.04	54.00	20.96	150.0	H	35.0	-5.0
5059.600000	41.43	---	74.00	32.57	150.0	H	35.0	-5.0

Test mode 2 /Receiving at low channel of 400MHz~479.995MHz:(worst case)

1)30MHz ~ 1GHz

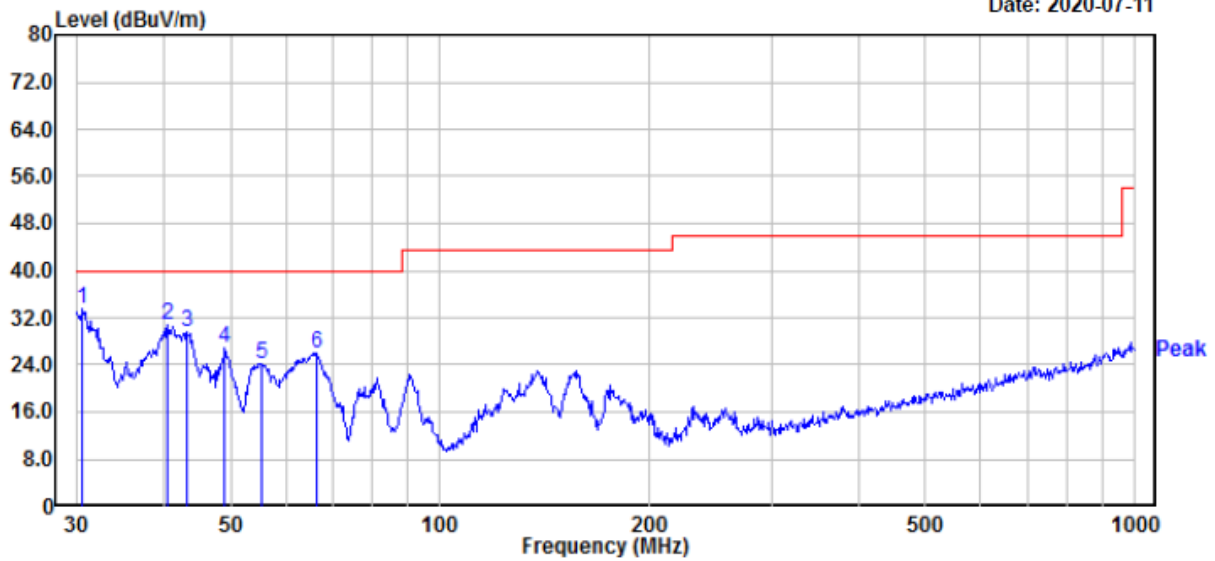
Horizontal:



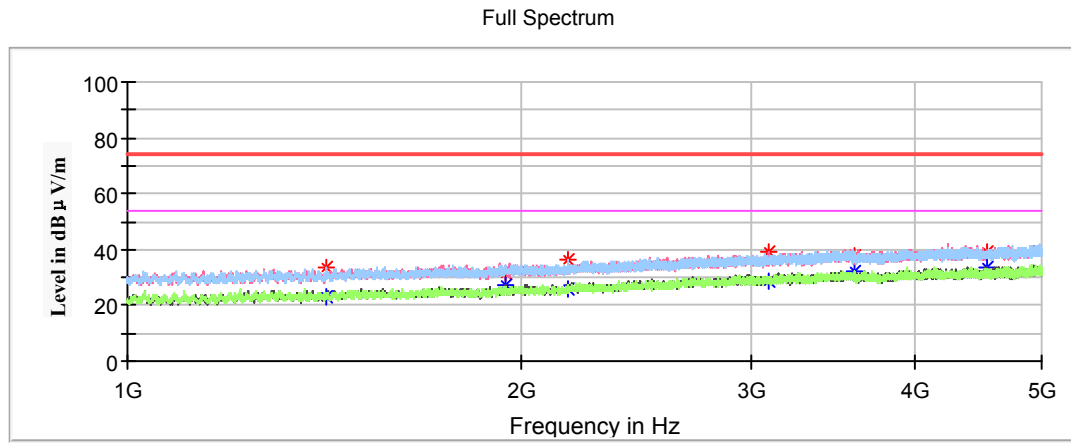
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	APos	TPos	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.21	28.79	-9.31	19.48	40.00	-20.52	100	341	Peak
2	35.75	29.79	-13.91	15.88	40.00	-24.12	200	2	Peak
3	66.73	42.02	-23.11	18.91	40.00	-21.09	200	9	Peak
4	73.10	38.36	-22.97	15.39	40.00	-24.61	200	28	Peak
5	155.36	39.11	-17.97	21.14	43.50	-22.36	200	311	Peak
6	176.89	38.45	-18.87	19.58	43.50	-23.92	200	83	Peak

Vertical:

Date: 2020-07-11



		Read			Limit	Over	APos	TPos	
	Freq	Level	Factor	Level	Line	Limit			Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	deg	
1	30.64	43.13	-9.66	33.47	40.00	-6.53	100	37	Peak
2	40.56	48.57	-17.76	30.81	40.00	-9.19	100	19	Peak
3	43.35	48.88	-19.29	29.59	40.00	-10.41	100	205	Peak
4	49.01	49.25	-22.40	26.85	40.00	-13.15	100	168	Peak
5	55.41	47.42	-23.27	24.15	40.00	-15.85	100	100	Peak
6	66.50	49.21	-23.12	26.09	40.00	-13.91	100	143	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)
1419.600000	---	22.76	54.00	31.24	200.0	H	359.0	-16.8
1419.600000	33.58	---	74.00	40.42	200.0	H	359.0	-16.8
1942.800000	---	27.07	54.00	26.93	200.0	V	124.0	-14.7
1942.800000	31.71	---	74.00	42.29	200.0	V	124.0	-14.7
2169.200000	---	26.12	54.00	27.88	200.0	H	190.0	-13.8
2169.200000	36.03	---	74.00	37.97	200.0	H	190.0	-13.8
3092.000000	---	28.81	54.00	25.19	100.0	V	2.0	-9.9
3092.000000	39.17	---	74.00	34.83	100.0	V	2.0	-9.9
3594.400000	---	32.51	54.00	21.49	200.0	V	251.0	-8.5
3594.400000	37.84	---	74.00	36.16	200.0	V	251.0	-8.5
4546.800000	---	33.60	54.00	20.40	100.0	V	8.0	-6.1
4546.800000	39.03	---	74.00	34.97	100.0	V	8.0	-6.1

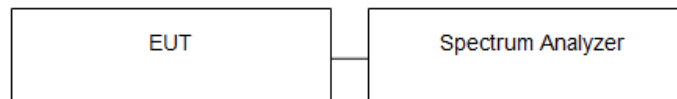
FCC §15.111 - ANTENNA CONDUCTED POWER FOR RECEIVERS**Applicable Standard**

FCC §15.111

Limit

The antenna conducted power of the receiver as defined in §15.111 shall not exceed the values given in the following tables

Frequency Range	Limit
9 kHz to 5 GHz	2.0 nW (-57 dBm)

EUT Setup**Test Procedure**

1. The receiver antenna terminal connected to a spectrum analyzer.
2. The test data of the worst case condition was reported on the following Data page.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSV40	101116	2020-08-05	2021-08-04
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
ZHAOXIN	DC Power Supply	RXN-605D	DC002	2020-10-10	2021-10-09
Wouxun	RF Cable	Wouxun C01	C01	Each Time	/

* **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).

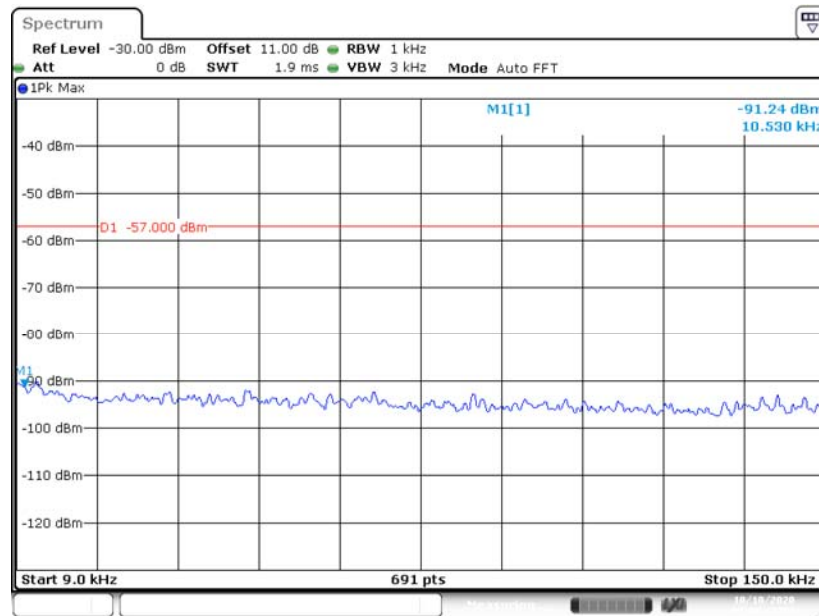
Test Data**Environmental Conditions**

Temperature:	25.2 °C
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

The testing was performed by Jett Zhao on 2020-10-10.

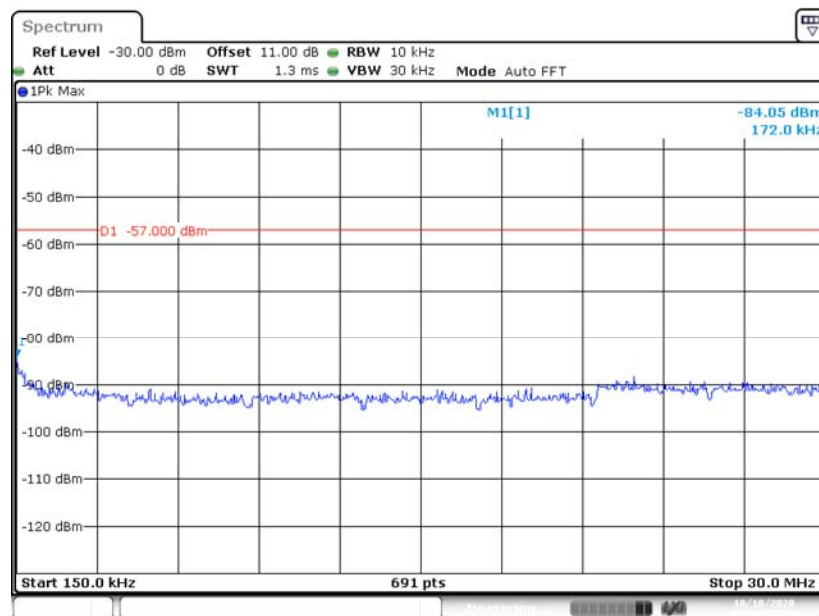
Test mode: RX mode

Conducted Measurement (9 kHz to 150 kHz)



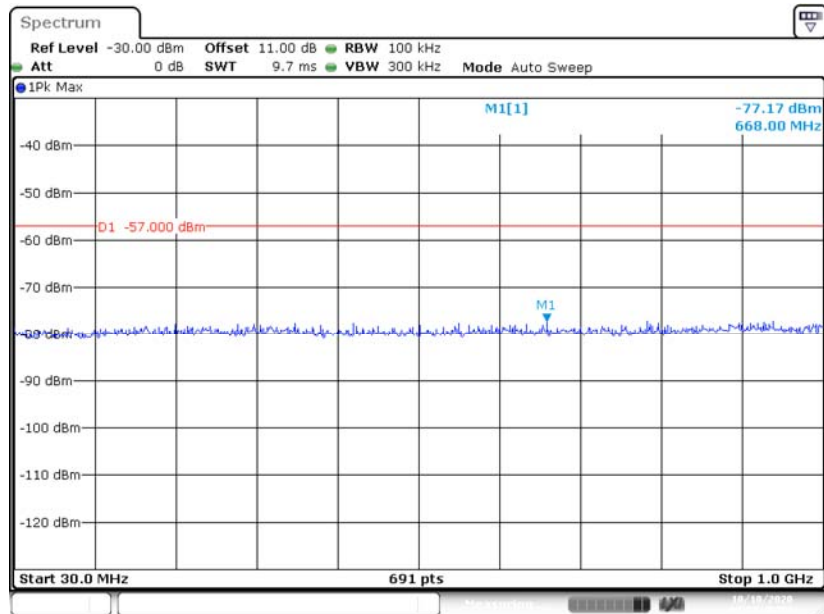
Date: 10.OCT.2020 13:36:48

Conducted Measurement (150 kHz to 30MHz)



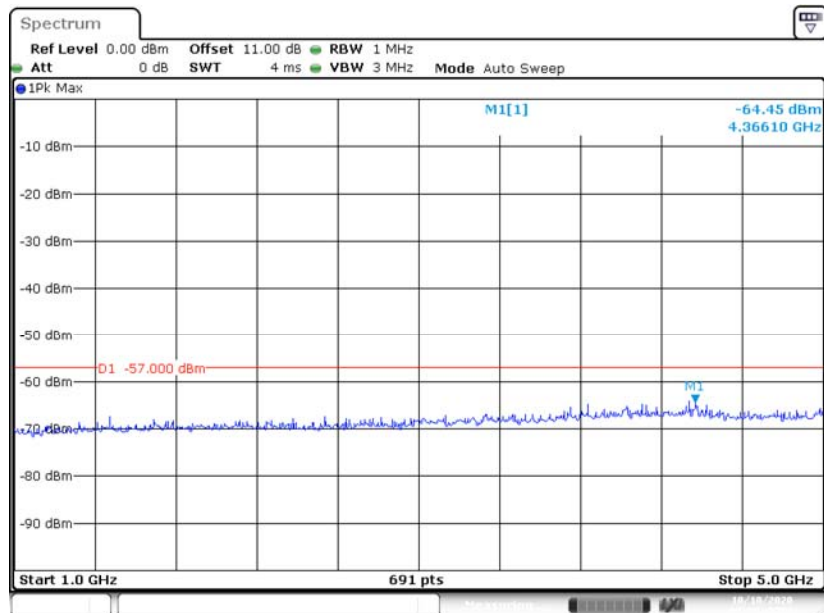
Date: 10.OCT.2020 13:38:56

Conducted Measurement (30MHz to 1GHz)



Date: 10.OCT.2020 13:37:40

Conducted Measurement (1GHz to 5GHz)



Date: 10.OCT.2020 13:35:29

FCC §15.121(b) - SCANNING RECEIVERS AND FREQUENCY CONVERTERS USED WITH SCANNING RECEIVERS

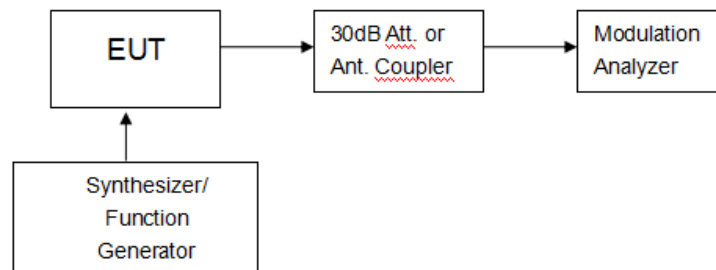
Applicable Standard

FCC §15.121(b)

Limit

Except as provided in paragraph (c) of this section, scanning receivers shall reject any signals from the Cellular Radiotelephone Service frequency bands that are 38 dB or lower based upon a 12 dB SINAD measurement, which is considered the threshold where a signal can be clearly discerned from any interference that may be present.

EUT Setup



Test Procedure

Please review the FCC Part 15.121(b) section requirements to meet the testing process

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Narda	Attenuator	30dB	030	2020-08-15	2021-08-14
ZHAOXIN	DC Power Supply	RXN-605D	DC002	2020-10-10	2021-10-09
HP	RF communication test SET.	8920B	079	2020-04-01	2021-03-31
Wouxun	RF Cable	Wouxun C01	C01	Each Time	/

* **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).

Test Data**Environmental Conditions**

Temperature:	25.2 °C
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

The testing was performed by Jett Zhao on 2020-10-10.

Frequency Range (MHz)	Channel	Measurement Result (dB)	Limit (dB)
50-54.995	Low/ Middle/ High	48	>38
65-108	Low/ Middle/ High	49	>38
108-180.995	Low/ Middle/ High	51	>38
320-349.995	Low/ Middle/ High	52	>38
400-479.995	Low/ Middle/ High	45	>38
700-824	Low/ Middle/ High	48	>38
849-869	Low/ Middle/ High	49	>38
894-960	Low/ Middle/ High	51	>38

Note:

1. This device meets the requirements of FCC PART 15.121(b)
2. The test report only shows the worst test results

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.

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