FCC PART 15B, CLASS B

TEST REPORT

For

GOCOM Technology Co.,Ltd.

UNIT 12, 14/F, LIPPO SUN PLAZA, 28 CANTON ROAD TSIM SHA TSUI,
KOWLOON, Hong Kong, China

FCC ID: 2ARRE2020G600

Report Type:	**Product Type:**
Original Report	Walkie talkie

Test Engineer:	Haiguo Li Charlie Cha Harris He Alen He	Haiguo Li Charlie Cha Harris He Alen He
Report Number:	RSZ201103011-00A	
Report Date:	2020-11-20	
Reviewed By:	Joson Xiao EMC Engineer	Joson Xiao
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn	

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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.

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Walkie talkie
Tested Model	G600
Voltage Range	DC 3.6V from battery
Frequency Range	400-470 MHz (Scanning Receiver)
Date of Test	2020-11-07 to 2020-11-20
Sample number	RSZ201103011-EM-S1(Assigned by BACL, Shenzhen)
Received date	2020-11-03
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A, B of the Federal Communication Commissions rules.

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

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

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.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will be taken into consideration for the test data recorded in the report

Parameter		uncertainty
Conducted Emissions		±1.95dB
Radiated Emissions	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a manufacturer testing fashion.

EUT Operation Mode: charging+scanning

EUT Operation Mode: receiving

EUT Exercise Software

No exercise software was used.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

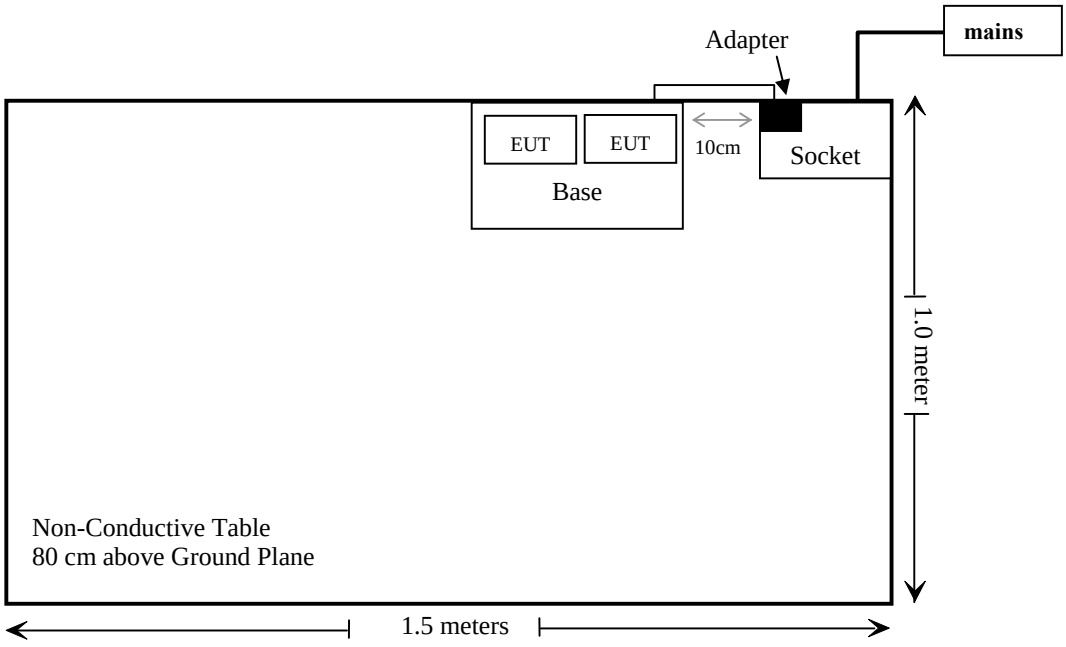
Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-415K	5503290068073
BLU	Adapter	US-WT-1000	NA
GOCOM	Base	G600	NA

External I/O Cable

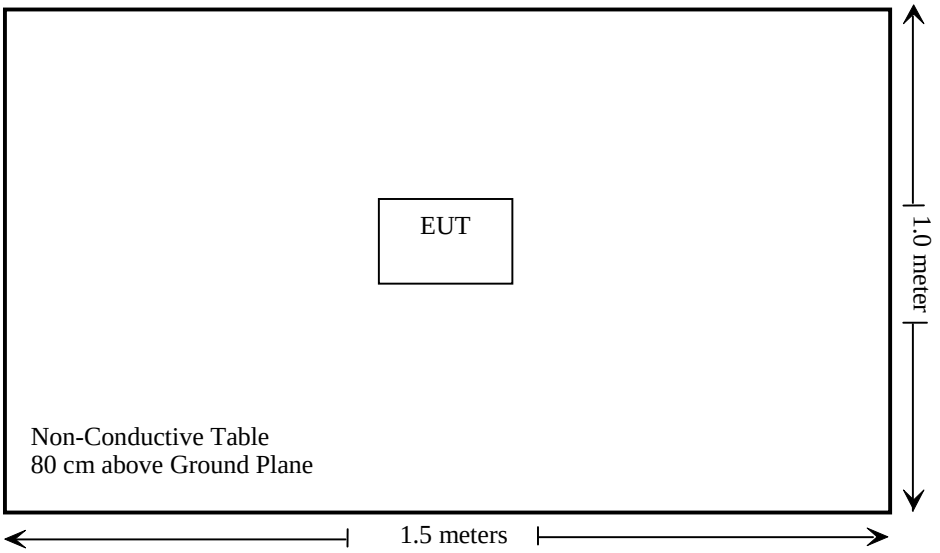
Cable Description	Length (m)	From/Port	To
Unshielded un-detachable AC cable	1.0	socket	mains
Unshielded detachable USB cable	1.0	Adapter	EUT

Block Diagram of Test Setup

EUT Operation Mode: charging+scanning, Weather Channel



EUT Operation Mode: receiving



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Spurious Emissions	Compliance
§15.121	Compliance for Scanning Receiver	Compliance

EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2020/08/04	2021/08/03
Rohde & Schwarz	LISN	ENV216	101613	2020/08/04	2021/08/03
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2019/11/29	2020/11/28
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2019/11/29	2020/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017/12/22	2020/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2019/11/29	2020/11/28
Unknown	Cable	Chamber Cable 4	EC-007	2019/11/29	2020/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR
Yijia	Temperature & Humidity Meter	TA218B	E0938	2020/10/14	2021/10/13
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2020/08/04	2021/08/03
COM-POWER	Pre-amplifier	PA-122	181919	2019/11/29	2020/11/28
Sunol Sciences	Horn Antenna	DRH-118	A052604	2017/12/22	2020/12/21
Yijia	Temperature & Humidity Meter	TA218B	E0938	2020/10/14	2021/10/13
Insulted Wire Inc.	RF Cable	SPS-2503-3150	02222010	2019/11/29	2020/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2019/11/29	2020/11/28
Unknown	Signal Cable	RG-214	2	2019/11/29	2020/11/28
Agilent	Signal Generator	N5183A	MY51040755	2019/12/04	2020/12/04
HP Agilent	RF Communication test set	8920A	3325UC0859	2020/07/31	2021/07/30

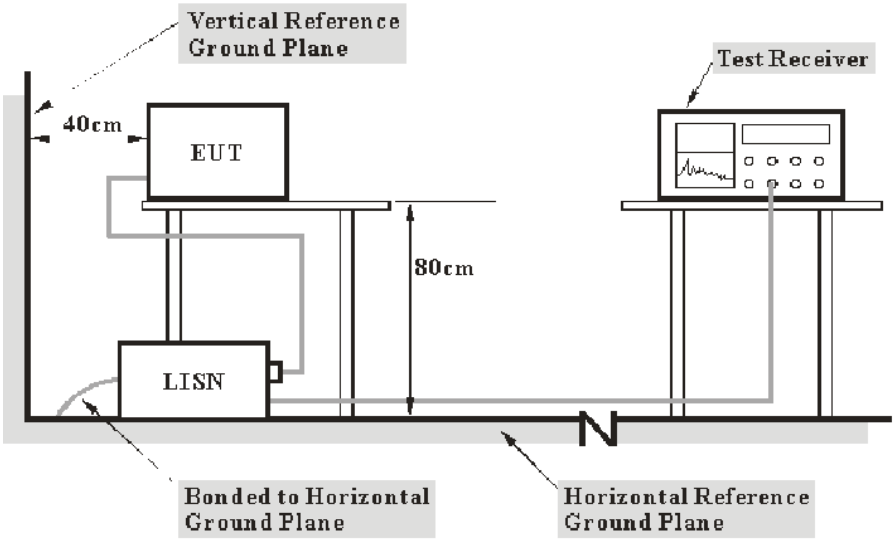
*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC §15.107

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 per ANSI C63.4-2014. The related limit was specified in FCC Part 15.107.

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

During the conducted emission test, the device was connected to the first LISN and the other relevant equipments were conncected to the second LISN.

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

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

Corrected Factor & Margin Calculation

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

Correction Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

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

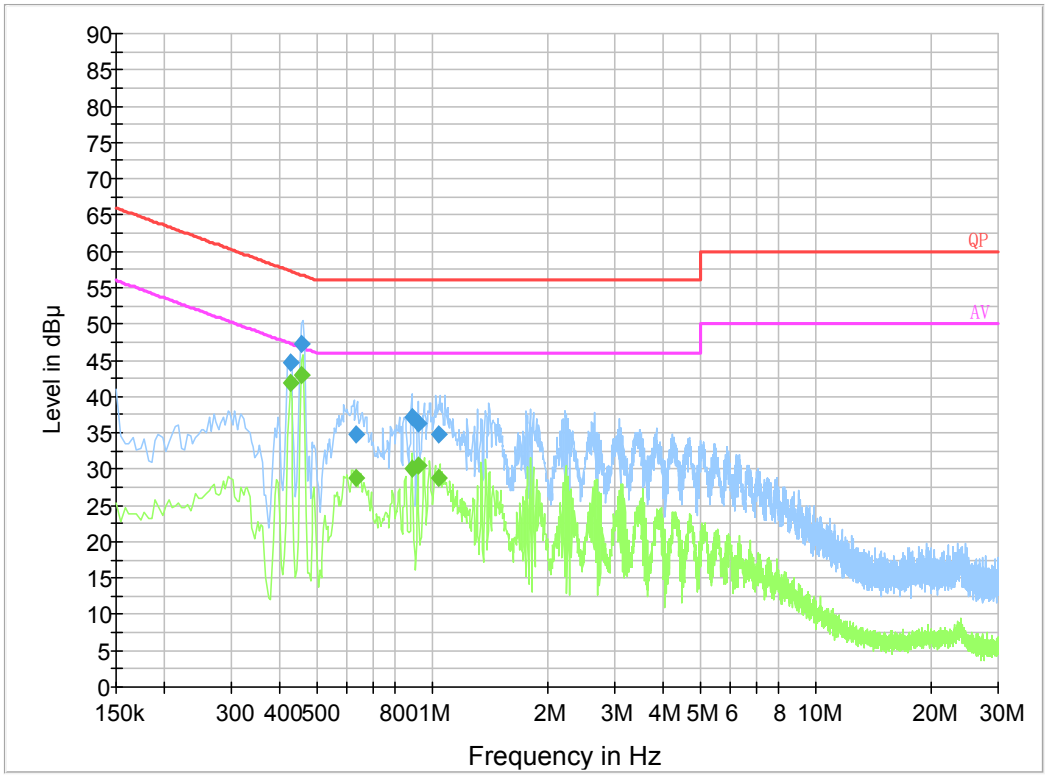
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	65 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li from 2020-11-07 to 2020-11-16.

EUT Operation Mode: charging+scanning

AC 120V/60 Hz, Line



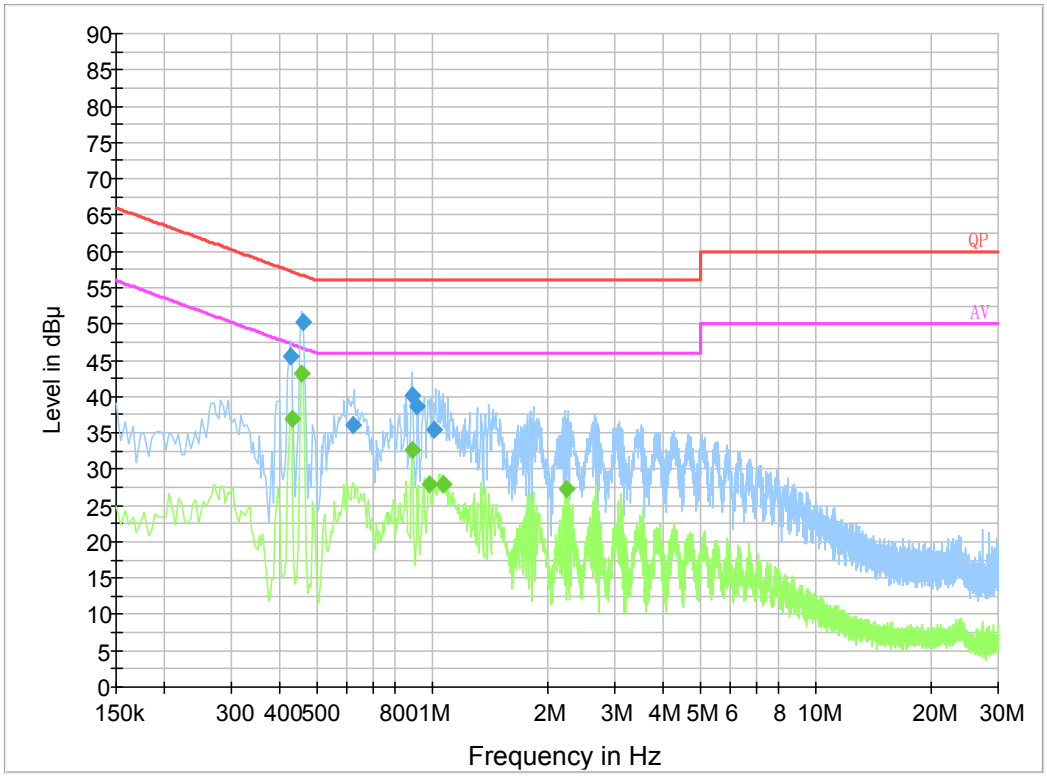
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.427610	44.7	9.000	L1	19.9	12.6	57.3
0.459070	47.3	9.000	L1	19.8	9.4	56.7
0.635390	34.7	9.000	L1	19.8	21.3	56.0
0.884710	37.1	9.000	L1	19.8	18.9	56.0
0.920170	36.2	9.000	L1	19.8	19.8	56.0
1.038250	34.9	9.000	L1	19.9	21.1	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.427610	41.8	9.000	L1	19.9	5.5	47.3
0.459070	43.0	9.000	L1	19.8	3.7	46.7
0.635390	28.7	9.000	L1	19.8	17.3	46.0
0.884710	30.0	9.000	L1	19.8	16.0	46.0
0.920170	30.5	9.000	L1	19.8	15.5	46.0
1.038250	28.8	9.000	L1	19.9	17.2	46.0

AC 120V/60 Hz, Neutral:



Final Result 1

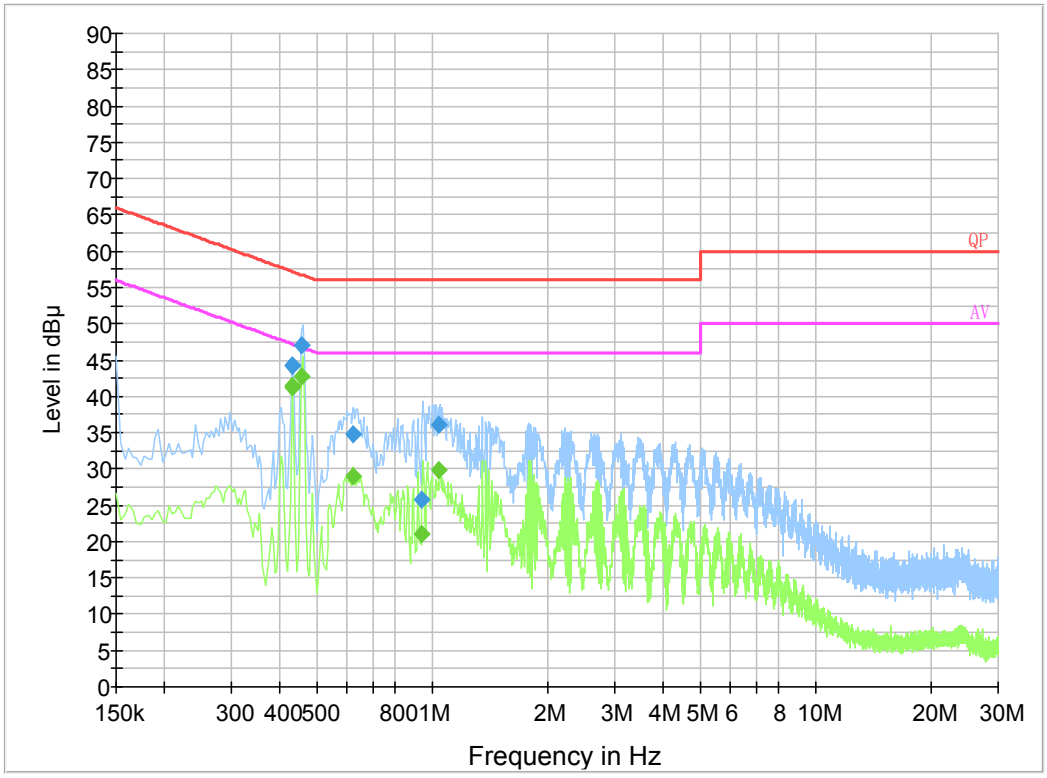
Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.427610	45.6	9.000	N	19.8	11.7	57.3
0.459130	50.3	9.000	N	19.8	6.4	56.7
0.620610	36.0	9.000	N	19.8	20.0	56.0
0.888710	40.2	9.000	N	19.7	15.8	56.0
0.916290	38.7	9.000	N	19.7	17.3	56.0
1.010670	35.5	9.000	N	19.8	20.5	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.430000	37.0	9.000	N	19.8	10.3	47.3
0.458000	43.1	9.000	N	19.8	3.6	46.7
0.886000	32.7	9.000	N	19.7	13.3	46.0
0.986000	27.9	9.000	N	19.8	18.1	46.0
1.070000	28.0	9.000	N	19.8	18.0	46.0
2.234000	27.3	9.000	N	19.8	18.7	46.0

EUT Operation Mode: Weather Channel

AC 120V/60 Hz, Line



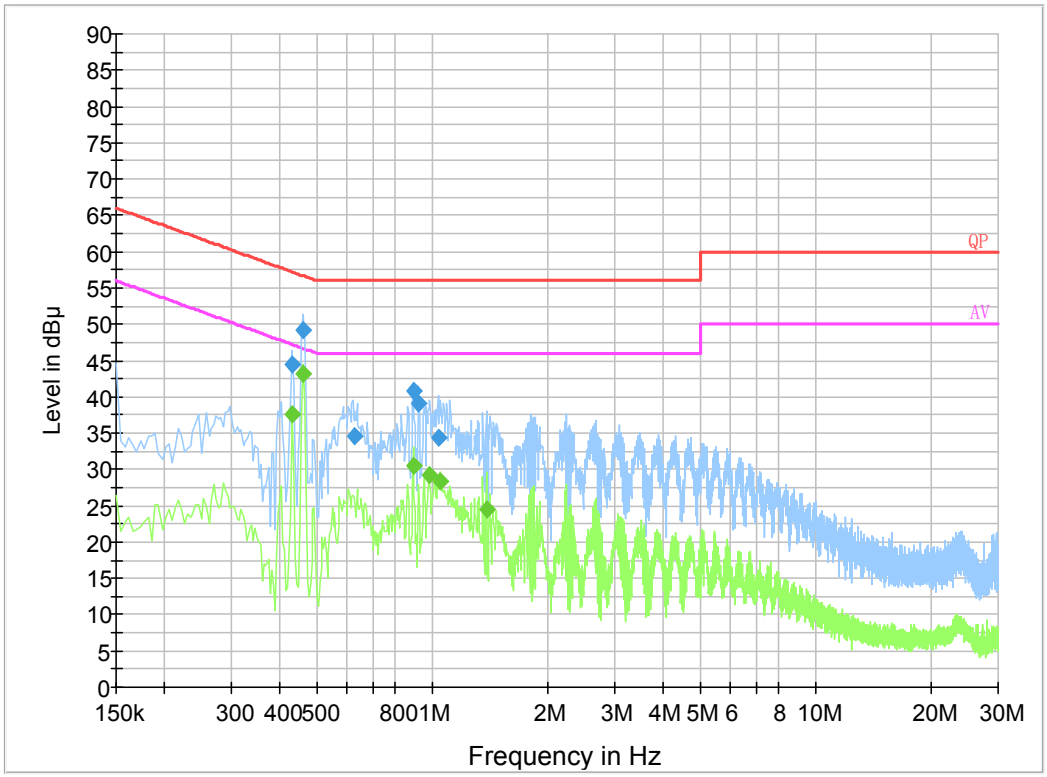
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.431490	44.2	9.000	L1	19.8	13.0	57.2
0.431550	44.2	9.000	L1	19.8	13.0	57.2
0.459070	47.0	9.000	L1	19.8	9.7	56.7
0.624670	34.8	9.000	L1	19.8	21.2	56.0
0.943810	25.7	9.000	L1	19.8	30.3	56.0
1.046250	36.0	9.000	L1	19.9	20.0	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.431490	41.4	9.000	L1	19.8	5.8	47.2
0.431550	41.3	9.000	L1	19.8	5.9	47.2
0.459070	42.8	9.000	L1	19.8	3.9	46.7
0.624670	28.9	9.000	L1	19.8	17.1	46.0
0.943810	21.0	9.000	L1	19.8	25.0	46.0
1.046250	29.8	9.000	L1	19.9	16.2	46.0

AC 120V/60 Hz, Neutral:



Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.431550	44.5	9.000	N	19.8	12.7	57.2
0.463070	49.3	9.000	N	19.8	7.3	56.6
0.628670	34.6	9.000	N	19.8	21.4	56.0
0.892590	40.7	9.000	N	19.7	15.3	56.0
0.920170	39.1	9.000	N	19.8	16.9	56.0
1.038430	34.4	9.000	N	19.8	21.6	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.430000	37.5	9.000	N	19.8	9.8	47.3
0.462000	43.1	9.000	N	19.8	3.6	46.7
0.894000	30.4	9.000	N	19.7	15.6	46.0
0.982000	29.2	9.000	N	19.8	16.8	46.0
1.050000	28.4	9.000	N	19.8	17.6	46.0
1.386000	24.5	9.000	N	19.8	21.5	46.0

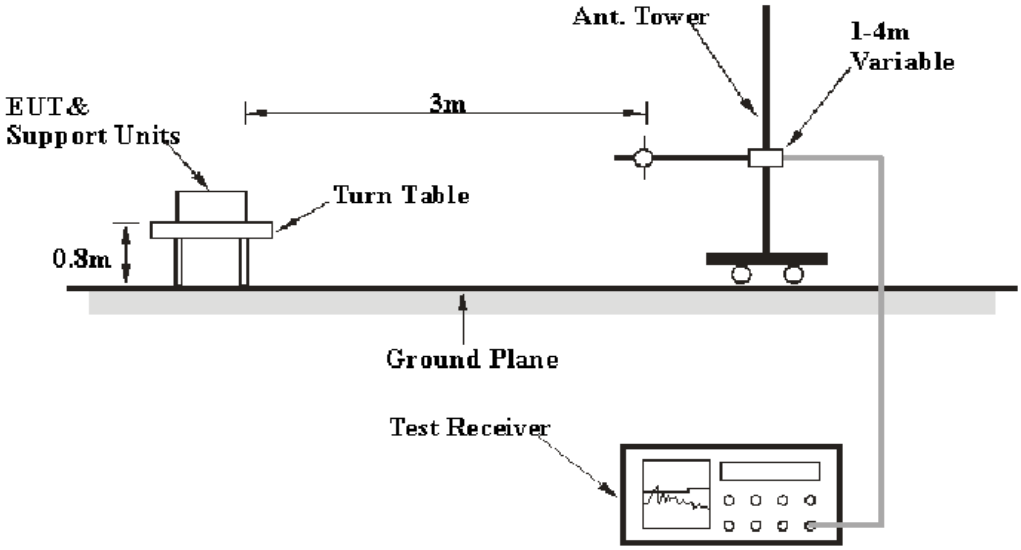
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

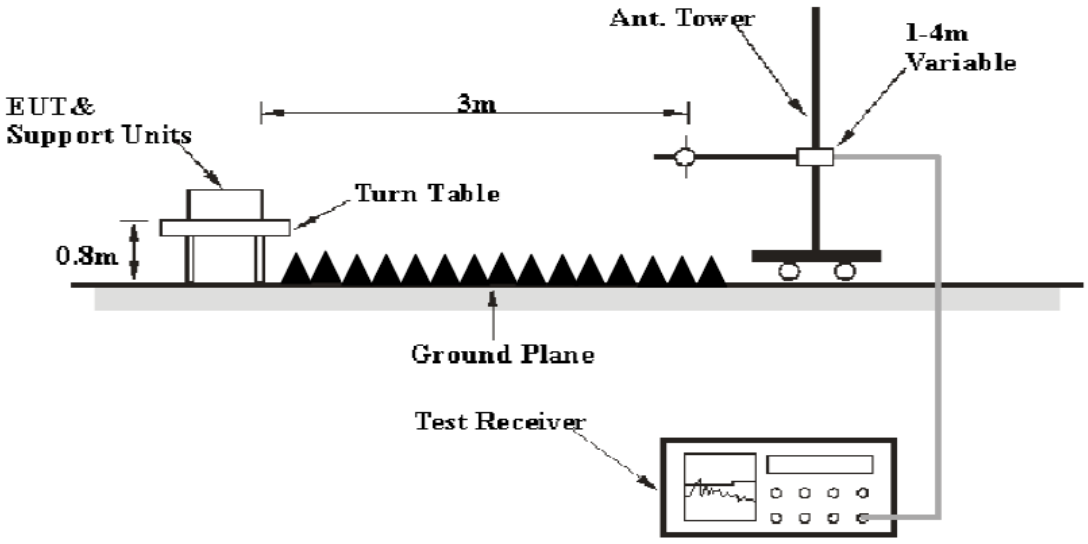
FCC §15.109

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 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

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

Frequency Range	RBW	Video B/W	IF B/W	Measurment
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

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 and PK and average detector modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

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

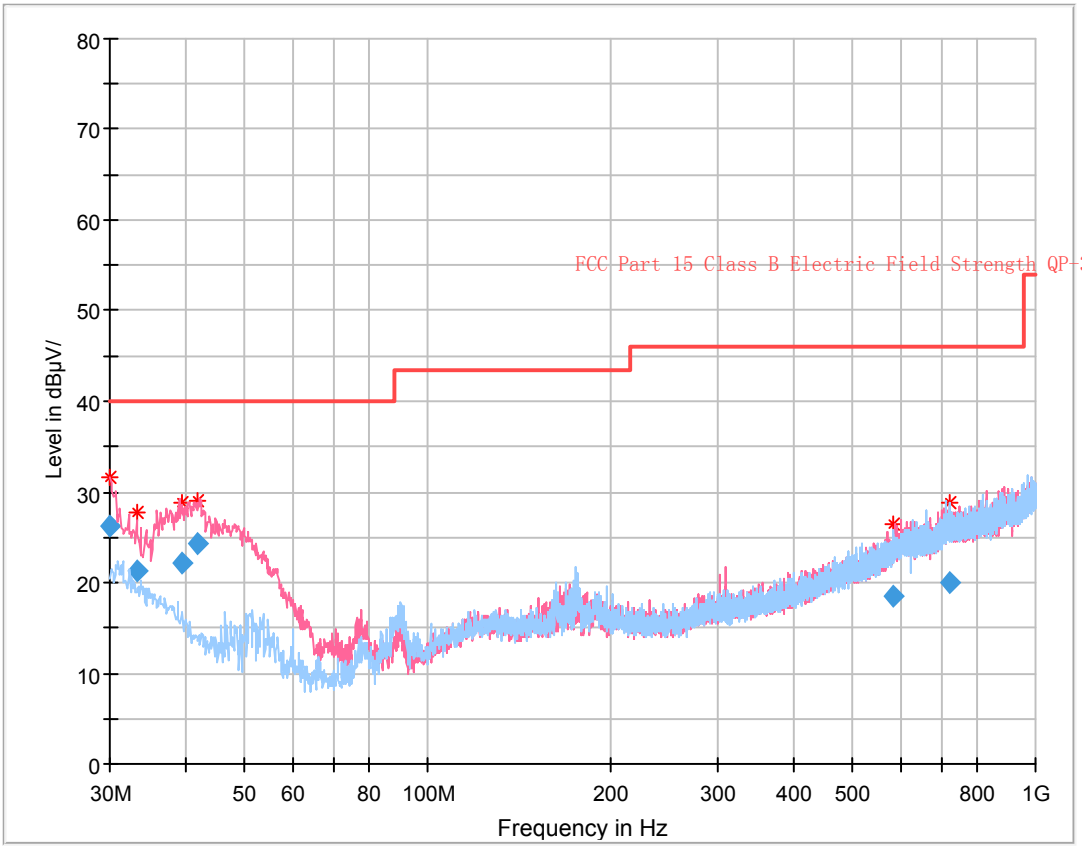
Environmental Conditions

Temperature:	27~32.4 ℃
Relative Humidity:	52~55 %
ATM Pressure:	101.0~101.3 kPa

The testing was performed by Harris He and Charlie Cha from 2020-11-07 to 2020-11-17 for below 1GHz and Alan He from 2020-11-07 t 2020-11-17 for above 1GHz.

EUT Operation Mode: charging+scanning

30 MHz~1 GHz:



Final_Result

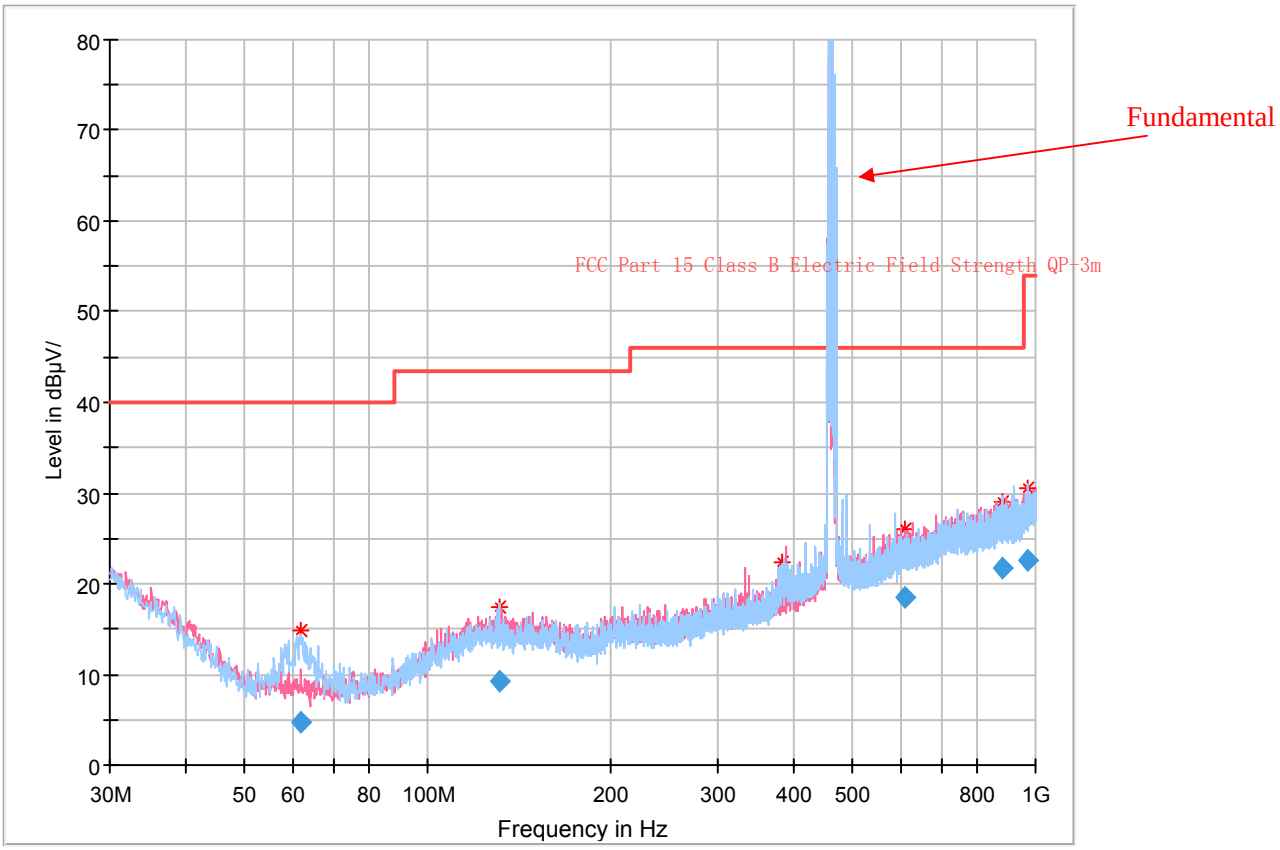
Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.062188	26.19	40.00	13.81	114.0	V	200.0	-4.5
33.152500	21.27	40.00	18.73	165.0	V	0.0	-6.2
39.328125	22.11	40.00	17.89	104.0	V	196.0	-10.1
41.783625	24.27	40.00	15.73	96.0	V	101.0	-11.8
584.773500	18.49	46.00	27.51	383.0	H	305.0	-2.7
721.743250	20.10	46.00	25.90	230.0	H	205.0	-0.7

1-2 GHz:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15B	
	Reading (dBµV)	PK/QP/Ave.		Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
1136.17	43.77	PK	347	2.1	H	-5.43	38.34	74	35.66
1136.17	28.87	Ave.	347	2.1	H	-5.43	23.44	54	30.56
1136.17	43.86	PK	298	2.2	V	-5.43	38.43	74	35.57
1136.17	28.93	Ave.	298	2.2	V	-5.43	23.50	54	30.50
1645.52	43.92	PK	319	1.7	H	-2.61	41.31	74	32.69
1645.52	28.96	Ave.	319	1.7	H	-2.61	26.35	54	27.65
1645.52	43.98	PK	109	2.2	V	-2.61	41.37	74	32.63
1645.52	29.07	Ave.	109	2.2	V	-2.61	26.46	54	27.54

EUT Operation Mode: receiving (Pre-scan with low/middle/high channel frequency(400.25MHz, 434.75MHz, 469.75MHz), and worst case is 469.75MHz, the test data as below)

30 MHz~1 GHz:



Final_Result

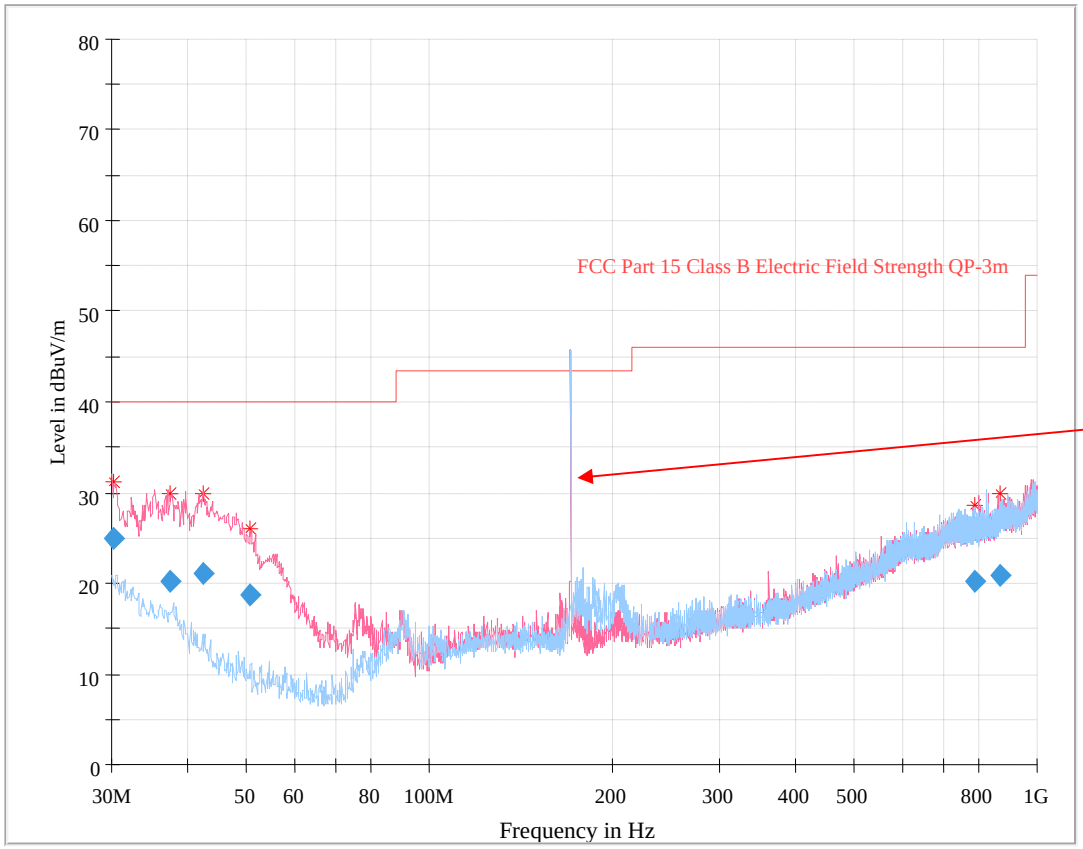
Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
61.722125	4.70	40.00	35.30	284.0	H	52.0	-17.2
131.364375	9.35	43.50	34.15	302.0	H	136.0	-10.8
382.088750	18.18	46.00	27.82	116.0	H	259.0	-7.8
611.537625	18.43	46.00	27.57	142.0	V	177.0	-2.1
884.864000	21.80	46.00	24.20	358.0	H	339.0	1.2
971.237250	22.67	53.90	31.23	321.0	H	146.0	2.8

1-2 GHz:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15B	
	Reading (dBµV)	PK/QP/Ave.		Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
1306.55	43.76	PK	17	2.1	H	-4.31	39.45	74	34.55
1306.55	28.85	Ave.	17	2.1	H	-4.31	24.54	54	29.46
1306.55	43.83	PK	271	1.6	V	-4.31	39.52	74	34.48
1306.55	28.89	Ave.	271	1.6	V	-4.31	24.58	54	29.42
1735.43	43.94	PK	56	2.2	H	-2.01	41.93	74	32.07
1735.43	29.05	Ave.	56	2.2	H	-2.01	27.04	54	26.96
1735.43	44.08	PK	351	2.3	V	-2.01	42.07	74	31.93
1735.43	29.12	Ave.	351	2.3	V	-2.01	27.11	54	26.89

EUT Operation Mode: Weather Channel

30 MHz~1 GHz:



Final_Result

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.192812	25.02	40.00	14.98	100.0	V	152.0	-4.6
37.488125	20.31	40.00	19.69	131.0	V	105.0	-9.0
42.433875	21.11	40.00	18.89	119.0	V	183.0	-12.3
50.762000	18.72	40.00	21.28	102.0	V	0.0	-16.5
787.541125	20.13	46.00	25.87	270.0	H	211.0	-0.2
866.695250	20.84	46.00	25.16	350.0	H	162.0	0.9

1-2 GHz:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15B	
	Reading (dBµV)	PK/QP/Ave.		Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
1126.65	43.85	PK	215	2.4	H	-5.43	38.42	74	35.58
1126.65	28.78	Ave.	215	2.4	H	-5.43	23.35	54	30.65
1126.65	43.94	PK	290	1.3	V	-5.43	38.51	74	35.49
1126.65	28.81	Ave.	290	1.3	V	-5.43	23.38	54	30.62
1522.40	43.93	PK	298	1.9	H	-2.51	41.42	74	32.58
1522.40	29.04	Ave.	298	1.9	H	-2.51	26.53	54	27.47
1522.40	44.13	PK	319	2.2	V	-2.51	41.62	74	32.38
1522.40	29.08	Ave.	319	2.2	V	-2.51	26.57	54	27.43

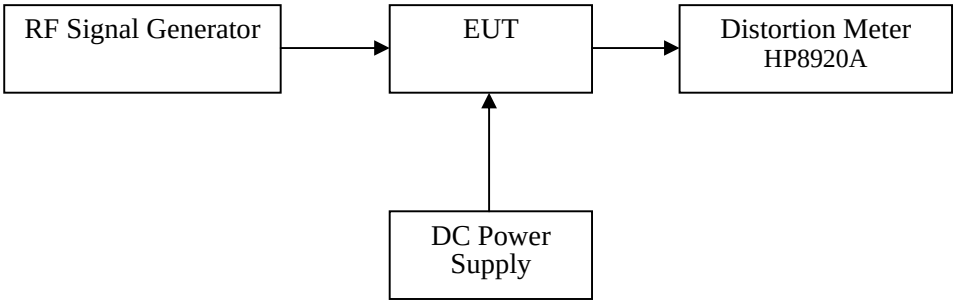
FCC §15.121 - COMPLIANCE FOR SCANNING RECEIVER

Applicable Standard

FCC §15.121

EUT Setup

For FCC §15.121(b) Scanning Receiver Cellular Band Rejection Test



Test Procedure

1) Connected the EUT as shown in the above block diagram.
2) Apply a RF signal to the receiver input port at lowest, middle and highest channel frequencies of receiver operation band.
3) Adjust the audio output level of the receiver to it's rated value with the distortion less than 10%.
4) Adjust the RF Signal Generator Output Power to produce 12 dB SINAD without the audio output power dropping by more than 3 dB.This output level of the RF SG at each channel frequency is the sensitivity of the receiver.
5) Select the lowest or worse-case sensitivity level for all of the bands as the reference sensitivity.
6) Adjust the RF Signal Generator output to a level of +60 dB above the reference sensitivity obtained in step 5) and its frequency to the frequency points in the cellular band.
7) Set the Receiver squelch to threshold, the signal required to open the squelch must be lower than the reference sensitivity level.
8) Set the receiver in a scanning mode and allow it to scan through it's complete receiving range.
9) If the receiver unsquelched or stopped on any frequency, receiving at this frequency, then adjust the signal generator output level until 12 dB SINAD is produced, this level is the spurious value and the difference between the reference sensitivity and the spurious value is the rejection ratio and must be at least 38dB.
10) Repeat above procedure at the frequencies 824.5, 836.0, and 848.5 MHz for the mobile band, and 869.1, 881.5, and 893.5MHz for the cellular base band.

Test Results Summary

Comply with FCC 121(a):
– Please refer to the technical informations or the attestation letter conforming compliance with this requirement.

Comply with FCC 121(b):
– Please refer to the following Scanning Receiver Cellular Band Rejection Test Result.

Comply with FCC 121(c):
– Not applicable.

Comply with FCC 121(d):
–Please refer to the User Manual.

Comply with FCC 121(e):
– This Scanning Receiver is not assembled from kits or marketed in kit form.

Comply with FCC 121(f):
–Please refer to the User Manual..

Test Data

For FCC §15.121(b) Scanning Receiver Cellular Band Rejection

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Alan He on 2020-11-20.

EUT Operation Mode: charging+scanning, receiving

Scanning Receiver Cellular Band Rejection Test Data:

EUT's Scanning Frequency Band (MHz)	Test Frequencies of Cellular Band (MHz)	Spurious Value of Cellular Frequencies for 12 dB SINAD (dBm)	Reference Sensitivity for 12 dB SINAD (dBm)	Rejection Ratio (dB)	Rejection Ratio Limit (dB)
400-470	824.5, 836.0, 848.5, 869.1, 881.5, 893.5	>-40	-101	<-61	<-38.0

Note: Rejection Ratio = Reference Sensitivity - Spurious Value

Result

Compliance with the requirements specified in Part 15.121 for scanning receiver.

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