



# FCC PART 95 MEASUREMENT AND TEST REPORT

For

## GOCOM Technology Co., Ltd.

UNIT12, 14/F, LIPPO SUN PLAZA,28 CANTON ROAD TSIM SHA TSUI, KOWLOON, Hong Kong, China

FCC ID: 2ARRE-2020G150

Report Type: **Product Type:** Original Report walkie talkie **Report Number:** RSZ201222010-00A **Report Date:** 2021-01-12 from Cas Ivan Cao Assistant Manager **Reviewed By: Test Laboratory:** Bay Area Compliance Laboratories Corp. (Dongguan) No.12, Pulong East 1<sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

## TABLE OF CONTENTS

PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) OBJECTIVE TEST METHODOLOGY MEASUREMENT UNCERTAINTY TEST FACILITY DECLARATIONS  SYSTEM TEST CONFIGURATION DESCRIPTION OF TEST CONFIGURATION EQUIPMENT MODIFICATIONS EUT EXERCISE SOFTWARE BLOCK DIAGRAM OF TEST SETUP  SUMMARY OF TEST RESULTS  FCC §2.1093 - RF EXPOSURE INFORMATION APPLICABLE STANDARD TEST RESULT  FCC §2.1046, §95.567 - RF OUTPUT POWER	3
TEST METHODOLOGY MEASUREMENT UNCERTAINTY TEST FACILITY DECLARATIONS  SYSTEM TEST CONFIGURATION  DESCRIPTION OF TEST CONFIGURATION EQUIPMENT MODIFICATIONS EUT EXERCISE SOFTWARE BLOCK DIAGRAM OF TEST SETUP  SUMMARY OF TEST RESULTS  FCC §2.1093 - RF EXPOSURE INFORMATION  APPLICABLE STANDARD TEST RESULT	
MEASUREMENT UNCERTAINTY TEST FACILITY DECLARATIONS  SYSTEM TEST CONFIGURATION  DESCRIPTION OF TEST CONFIGURATION  EQUIPMENT MODIFICATIONS  EUT EXERCISE SOFTWARE BLOCK DIAGRAM OF TEST SETUP  SUMMARY OF TEST RESULTS  FCC §2.1093 - RF EXPOSURE INFORMATION  APPLICABLE STANDARD  TEST RESULT	
TEST FACILITY. DECLARATIONS.  SYSTEM TEST CONFIGURATION.  DESCRIPTION OF TEST CONFIGURATION.  EQUIPMENT MODIFICATIONS.  EUT EXERCISE SOFTWARE.  BLOCK DIAGRAM OF TEST SETUP.  SUMMARY OF TEST RESULTS.  FCC §2.1093 - RF EXPOSURE INFORMATION.  APPLICABLE STANDARD.  TEST RESULT.	
DECLARATIONS.  SYSTEM TEST CONFIGURATION	
SYSTEM TEST CONFIGURATION  DESCRIPTION OF TEST CONFIGURATION  EQUIPMENT MODIFICATIONS  EUT EXERCISE SOFTWARE  BLOCK DIAGRAM OF TEST SETUP  SUMMARY OF TEST RESULTS  FCC §2.1093 - RF EXPOSURE INFORMATION  APPLICABLE STANDARD  TEST RESULT	5 5 5 6 7 8
DESCRIPTION OF TEST CONFIGURATION  EQUIPMENT MODIFICATIONS  EUT EXERCISE SOFTWARE  BLOCK DIAGRAM OF TEST SETUP  SUMMARY OF TEST RESULTS  FCC §2.1093 - RF EXPOSURE INFORMATION  APPLICABLE STANDARD  TEST RESULT	
EQUIPMENT MODIFICATIONS  EUT EXERCISE SOFTWARE  BLOCK DIAGRAM OF TEST SETUP  SUMMARY OF TEST RESULTS  FCC §2.1093 - RF EXPOSURE INFORMATION  APPLICABLE STANDARD  TEST RESULT	5 5 7 8
EÙT EXERCISE SOFTWARE BLOCK DIAGRAM OF TEST SETUP  SUMMARY OF TEST RESULTS  FCC §2.1093 - RF EXPOSURE INFORMATION  APPLICABLE STANDARD  TEST RESULT	5 7 8 8
BLOCK DIAGRAM OF TEST SETUP	
FCC §2.1093 - RF EXPOSURE INFORMATION	
APPLICABLE STANDARD	8 8
APPLICABLE STANDARD	8 8
TEST RESULT	8
FCC §2.1046, §95.567 - RF OUTPUT POWER	
	9
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS	
TEST DATA	
FCC §2.1047 & §95.575 - MODULATION CHARACTERISTIC	11
APPLICABLE STANDARD	
TEST EQUIPMENT LIST AND DETAILS	
TEST PROCEDURE	
TEST DATA	
FCC §2.1049,§95.573, §95.579 - AUTHOURIZED BANDWIDTH AND EMISSION MASK	
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS	19
TEST DATA	
APPLICABLE STANDARD	
APPLICABLE STANDARD	23
TEST PROCEDURE TEST EQUIPMENT LIST AND DETAILS TEST DATA  FCC §2.1053 & §95.579 - RADIATED SPURIOUS EMISSION  APPLICABLE STANDARD TEST PROCEDURE TEST EQUIPMENT LIST AND DETAILS TEST DATA  FCC§2.1055 (d), §95.565- FREQUENCY STABILITY	11111

#### **GENERAL INFORMATION**

#### **Product Description for Equipment Under Test (EUT)**

	<b>EUT Name:</b>	walkie talkie	
	<b>EUT Model:</b>	G 150	
Ор	eration Frequency:	462.5500-462.7250MHz 467.5625-467.7125MHz	
	<b>Modulation Mode:</b>	FM	
	<b>Channel Spacing:</b>	12.5kHz	
Er	nission Designator:	11K0F3E	
Maximum Output Power: (ERP)		462.5500-462.7250MHz: 25.53 dBm 467.5625-467.7125MHz: 26.16dBm	
R	ated Input Voltage:	DC 3.6V from Battery	
	Model:	TPA-97H050055UU01	
Adapter 1# Information	Input:	100~240V 50/60Hz 0.15A	
inioi mation	Output:	5.0V 550mA	
	Model:	TPA-97H050055UW01	
Adapter 2# Information	Input:	100~240V 50/60Hz 0.15A	
inioi mation	Output:	5.0V 550mA	
	Serial Number:	RSZ201222010-RF-S1	
E	UT Received Date:	2020.12.23	
EU	T Received Status:	Good	

#### **Objective**

This report is prepared on behalf of *GOCOM Technology Co., Ltd.* in accordance with Part 2 and Part 95, Subpart A and B of the Federal Communication Commissions rules.

#### Related Submittal(s)/Grant(s)

FCC Part 15B JAB submissions with FCC ID: 2ARRE-2020G150

#### **Test Methodology**

All tests and measurements indicated in this document were performed in accordance with:

The Code of federal Regulations Title 47, Part 2, Part 95 Subpart A and Subpart B

ANSI C63.26-2015, American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

TIA-603-E-2016, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

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

#### **Measurement Uncertainty**

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Unwanted Emissions, radiated	30MHz ~ 1GHz:5.85 dB 1G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1 °C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%

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

#### **Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 897218, the FCC Designation No.: CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

#### **Declarations**

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 a triangle symbol "<sup>\*</sup>". Customer model name, addresses, names, trademarks etc. are not considered data.

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

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

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.

This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk "\( \dag{\pi}\)".

## **SYSTEM TEST CONFIGURATION**

## **Description of Test Configuration**

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

The device uses total 22 FRS channels as below:

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	
1	462.5625	12	467.6625	
2	462.5875	13	467.6875	
3	462.6125	14	467.7125	
4	462.6375	15	462.5500	
5	462.6625	16	462.5750	
6	462.6875	17	462.6000	
7	462.7125	18	462.6250	
8	467.5625	19	462.6500	
9	467.5875	20	462.6750	
10	467.6125	21	462.7000	
11	467.6375	22	462.7250	

## **Equipment Modifications**

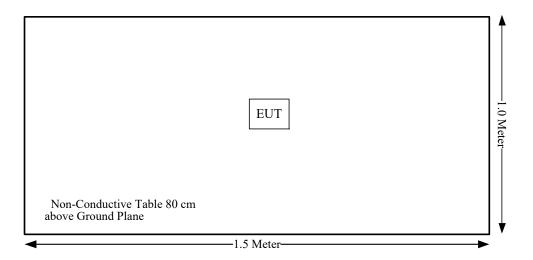
No modification was made to the EUT tested.

## **EUT Exercise Software**

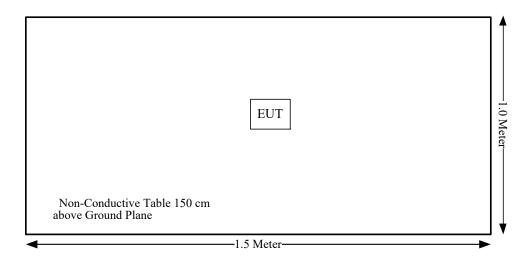
No software was used during test.

## **Block Diagram of Test Setup**

Radiation Below 1GHz:



Radiation Above 1GHz:



## **SUMMARY OF TEST RESULTS**

FCC Rules	Description of Test	Results
§2.1093	RF Exposure	Compliance
§2.1046, §95.567	RF Output Power	Compliance
§2.1047, §95.575	Modulation Characteristic	Compliance
§2.1049, §95.573, §95.579	Authorized Bandwidth & Emission Mask	Compliance
§2.1053, §95.579	Spurious Radiated Emissions	Compliance
§2.1055(d), §95.565	Frequency Stability	Compliance

## FCC §2.1093 - RF EXPOSURE INFORMATION

## **Applicable Standard**

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Report No.: RSZ201222010-00A

#### **Test Result**

Please refer to SAR Report Number: RSZ201222010-20A.

Page 8 of 24

## FCC §2.1046, §95.567 - RF OUTPUT POWER

#### **Applicable Standard**

Acorrding to FCC §95.567

Each FRS transmitter type must be designed such that the effective radiated power (ERP) on channels 8 through 14 does not exceed 0.5 Watts and the ERP on channels 1 through 7 and 15 through 22 does not exceed 2.0 Watts.

#### **Test Procedure**

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the emissions were measured by the substitution.

#### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB3	A060611-1	2020-11-10	2023-11-10
R&S	EMI Test Receiver	ESR3	102453	2020-09-12	2021-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
HP	Amplifier	8447D	2727A05902	2020-09-05	2021-09-05
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2020-09-05	2021-09-05
Agilent	Signal Generator	E8247C	MY43321350	2020-12-09	2021-12-08

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## **Test Data**

## **Environmental Conditions**

Temperature:	18.2 °C
Relative Humidity:	26 %
ATM Pressure:	101.8kPa
Test by:	Joker Chen
Test Date:	2021.01.09

**Test Mode:** Transmitting

Test Result: Compliance. Please refer to following table.

#### ERP:

	Receiver		Substituted Method			Absolute		_
Frequency (MHz)	Polar (H/V)	Reading (dBµV)	Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
Frequency:462.6375MHz								
462.6375	Н	90.30	8.97	0.00	0.67	8.30	33.00	24.70
462.6375	V	104.58	26.20	0.00	0.67	25.53	33.00	7.47
	Frequency:467.6375MHz							
467.6375	Н	87.72	6.52	0.00	0.68	5.84	27.00	21.16
467.6375	V	105.07	26.84	0.00	0.68	26.16	27.00	0.84

Test Result: Compliance.

## FCC §2.1047 & §95.575 - MODULATION CHARACTERISTIC

#### **Applicable Standard**

Per FCC §2.1047 and §95.575:

Each FRS transmitter type must be designed such that the peak frequency deviation does not exceed 2.5 kHz, and the highest audio frequency contributing substantially to modulation must not exceed 3.125 kHz.

#### **Test Equipment List and Details**

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
yzjingcheng	Coaxial Cable	KTRFBU- 141-50	41005012	Each Time	/
E-Microwave	Blocking Control	EMDCB- 00036	0E01201047	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10- 5RN-6	OE01203239	Each Time	/
НР	RF Communications Test Set	8920A	3438A05201	2020-05-09	2021-05-09
UNI-T	Multimeter	UT39A	M130199938	2020-07-23	2021-07-23

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

#### **Test Procedure**

Test Method: ANSI C63.26-2015

#### **Test Data**

#### **Environmental Conditions**

Temperature:	21~24.5 °C
Relative Humidity:	32~44 %
ATM Pressure:	101.0~102.4 kPa
Test by:	James Chen
Test Date:	2020.12.25~2021.01.04

Please refer to the following tables and plots.

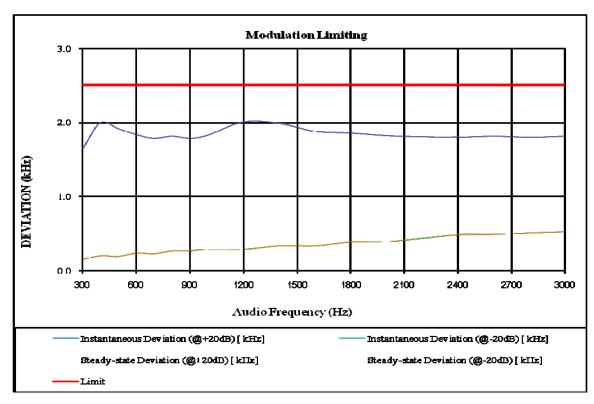
**Test Mode: Transmitting** 

**Test Result: Compliance.** Please refer to following table.

#### MODULATION LIMITING

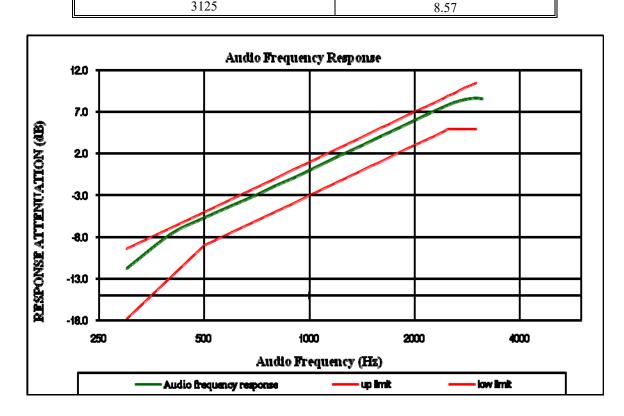
Carrier Frequency: 462.6375 MHz

	Instant	aneous	Stead	y-state	
Audio Frequency (Hz)	Deviation (@+20dB) [kHz]	Deviation (@-20dB) [kHz]	Deviation (@+20dB) [kHz]	Deviation (@-20dB) [kHz]	Limit [kHz]
300	1.641	0.151	1.642	0.151	2.5
400	1.997	0.200	1.996	0.202	2.5
500	1.914	0.194	1.914	0.192	2.5
600	1.835	0.237	1.835	0.235	2.5
700	1.787	0.226	1.787	0.225	2.5
800	1.817	0.265	1.818	0.264	2.5
900	1.788	0.267	1.788	0.267	2.5
1000	1.832	0.288	1.832	0.284	2.5
1200	2.008	0.288	2.005	0.287	2.5
1400	1.989	0.334	1.986	0.336	2.5
1600	1.879	0.333	1.878	0.333	2.5
1800	1.855	0.382	1.856	0.382	2.5
2000	1.823	0.392	1.821	0.392	2.5
2200	1.806	0.436	1.806	0.437	2.5
2400	1.805	0.485	1.803	0.484	2.5
2600	1.815	0.487	1.814	0.486	2.5
2800	1.802	0.510	1.803	0.508	2.5
3000	1.814	0.524	1.812	0.527	2.5



Carrier Frequency: 462.6375 MHz

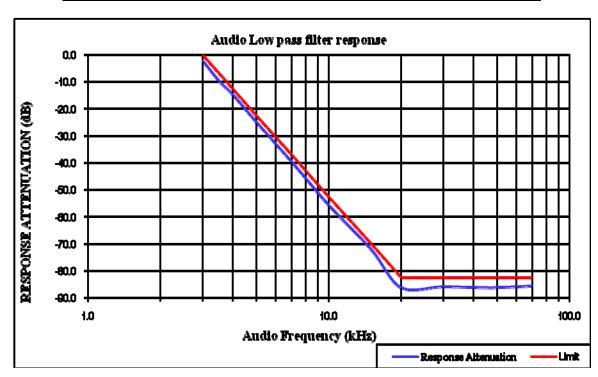
Audio Frequency (Hz)	Response Attenuation (dB)
300	-11.72
400	-7.63
500	-5.70
600	-4.21
700	-2.98
800	-1.87
900	-0.89
1000	0.00
1200	1.59
1400	2.91
1600	4.07
1800	5.10
2000	6.01
2200	6.85
2400	7.55
2600	8.11
2800	8.49
3000	8.66
3125	0.57



## **Audio Low Pass Filter Response**

Carrier Frequency: 462.6375 MHz

Audio Frequency (kHz)	Response Attenuation (dB)	Limit (dB)
3.0	-2.3	0.0
3.5	-9.4	-6.7
4.0	-14.8	-12.5
5.0	-24.8	-22.2
7.0	-39.5	-36.8
10.0	-55.3	-52.3
15.0	-72.1	-69.9
20.0	-86.2	-82.5
30.0	-85.9	-82.5
50.0	-86.0	-82.5
70.0	-85.4	-82.5



## FCC §2.1049,§95.573, §95.579 - AUTHOURIZED BANDWIDTH AND EMISSION MASK

#### **Applicable Standard**

According to §95.573

Each FRS transmitter type must be designed such that the occupied bandwidth does not exceed 12.5 kHz.

According to §95.579

Each FRS transmitter type must be designed to satisfy the applicable unwanted emissions limits in this paragraph.

- (a) Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:
- (1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency.
- (2) 35 dB in the frequency band 12.5 kHz to 31.25 kHz removed from the channel center frequency.
- (3) 43 + 10 log (P) dB in any frequency band removed from the channel center frequency by more than 31.25 kHz.

#### **Test Procedure**

Test Method: ANSI C63.26-2015

## **Test Equipment List and Details**

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-07-07	2021-07-07
yzjingcheng	Coaxial Cable	KTRFBU- 141-50	41005012	Each Time	/
Weinschel	Coaxial Attenuators	53-20-34	LN749	Each Time	/
НР	RF Communications Test Set	8920A	3438A05201	2020-07-07	2021-07-07

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

#### **Test Data**

#### **Environmental Conditions**

Temperature:	21 °C
Relative Humidity:	32 %
ATM Pressure:	102.4 kPa
Test by:	James Chen
Test Date:	2020.12.31

Test Mode: Transmitting

fc (MHz)	99% Occupied Bandwidth (kHz)	Limit (kHz)
462.6375	5.800	12.50
467.6375	5.800	12.50

Note: Emission bandwidth was based on calculation method instead of measurement.

**Emission Designator** 

Per CFR 47  $\S 2.201\& \S 2.202$ , BW = 2M + 2D

#### For FM Mode (Channel Spacing: 12.5 kHz)

Emission Designator 11K0F3E

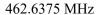
In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.

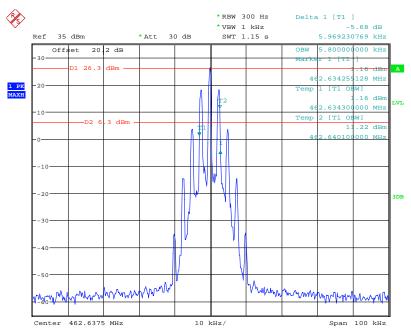
BW = 2(M+D) = 2\*(3.0 kHz + 2.5 kHz) = 11 kHz = 11K0

F3E portion of the designator represents an FM voice transmission

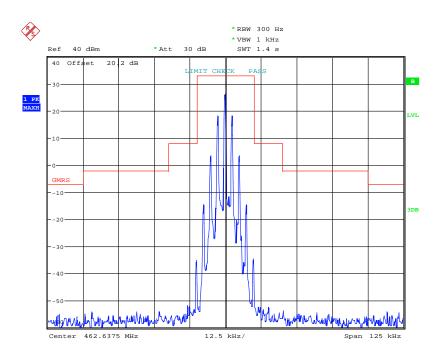
Therefore, the entire designator for 12.5 kHz channel spacing FM mode is 11K0F3E.

#### FM:





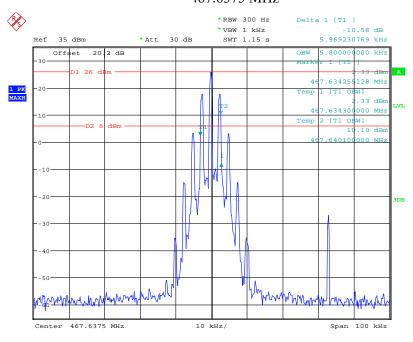
Date: 31.DEC.2020 19:08:35



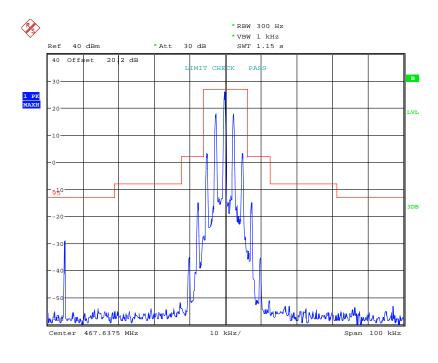
Date: 31.DEC.2020 19:09:22

#### 467.6375 MHz

Report No.: RSZ201222010-00A



Date: 31.DEC.2020 19:15:37



Date: 31.DEC.2020 19:14:22

## FCC §2.1053 & §95.579 - RADIATED SPURIOUS EMISSION

#### **Applicable Standard**

FCC §2.1053 and §95.579

#### **Test Procedure**

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 1g (TXpwr in Watts/0.001)-the absolute level Spurious attenuation limit in dB =  $43+10 \text{ Log}_{10}$  (power out in Watts)

#### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB3	A060611-1	2020-11-10	2023-11-10
R&S	EMI Test Receiver	ESR3	102453	2020-09-12	2021-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
HP	Amplifier	8447D	2727A05902	2020-09-05	2021-09-05
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2020-09-05	2021-09-05
Agilent	Signal Generator	E8247C	MY43321350	2020-12-09	2021-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-07-07	2021-07-07
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2020-09-05	2021-09-05
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2020-09-05	2021-09-05

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## **Test Data**

## **Environmental Conditions**

Test Items	Radiation Below 1GHz	Radiation Above 1GHz	
Temperature:	18.2 °C	20.5 °C	
Relative Humidity:	26 %	29 %	
ATM Pressure:	101.8kPa	101.7 kPa	
Tester:	Joker Chen	Lee Li	
Test Date:	2021.01.09	2021.01.06	

Test Mode: Transmitting

Test Mode: 1			Sub	ostituted Met	hod	Absolute		
Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
			FM, free	quency:462.6	375 <b>MHz</b>			
925.28	Н	69.99	-26.10	0.00	0.97	-27.07	-13.00	14.07
925.28	V	70.42	-27.50	0.00	0.97	-28.47	-13.00	15.47
1387.91	Н	51.18	-52.26	8.92	1.20	-44.54	-13.00	31.54
1387.91	V	58.73	-45.35	8.92	1.20	-37.63	-13.00	24.63
1850.55	Н	49.20	-54.35	11.45	0.85	-43.75	-13.00	30.75
1850.55	V	50.70	-53.30	11.45	0.85	-42.70	-13.00	29.70
2313.19	Н	48.94	-53.25	11.35	1.24	-43.14	-13.00	30.14
2313.19	V	45.64	-56.49	11.35	1.24	-46.38	-13.00	33.38
2775.83	Н	49.71	-52.07	13.10	1.33	-40.30	-13.00	27.30
2775.83	V	45.65	-56.30	13.10	1.33	-44.53	-13.00	31.53
3238.46	Н	48.24	-50.87	13.60	1.58	-38.85	-13.00	25.85
3238.46	V	47.40	-51.75	13.60	1.58	-39.73	-13.00	26.73
3701.10	Н	53.48	-44.50	14.00	1.83	-32.33	-13.00	19.33
3701.10	V	55.05	-42.91	14.00	1.83	-30.74	-13.00	17.74
4163.74	Н	63.37	-34.45	13.89	1.51	-22.07	-13.00	9.07
4163.74	V	53.13	-44.72	13.89	1.51	-32.34	-13.00	19.34
4626.38	Н	56.37	-40.74	14.25	1.80	-28.29	-13.00	15.29
4626.38	V	47.87	-49.34	14.25	1.80	-36.89	-13.00	23.89

		Receiver	Sul	ostituted Met	hod	Absolute		
Frequency (MHz)	Polar (H/V)	Reading (dBµV)	Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
			FM, free	quency:467.6	375 <b>MHz</b>			
935.28	Н	68.16	-27.51	0.00	0.94	-28.45	-13.00	15.45
935.28	V	73.94	-23.49	0.00	0.94	-24.43	-13.00	11.43
1402.91	Н	53.02	-50.41	9.01	1.20	-42.60	-13.00	29.60
1402.91	V	58.53	-45.49	9.01	1.20	-37.68	-13.00	24.68
1870.55	Н	51.47	-51.78	11.59	0.92	-41.11	-13.00	28.11
1870.55	V	51.89	-51.75	11.59	0.92	-41.08	-13.00	28.08
2338.19	Н	54.86	-47.41	11.62	1.25	-37.04	-13.00	24.04
2338.19	V	50.11	-52.17	11.62	1.25	-41.80	-13.00	28.80
2805.83	Н	52.88	-48.78	13.15	1.36	-36.99	-13.00	23.99
2805.83	V	46.99	-54.88	13.15	1.36	-43.09	-13.00	30.09
3273.46	Н	48.93	-50.58	13.60	1.58	-38.56	-13.00	25.56
3273.46	V	46.35	-53.18	13.60	1.58	-41.16	-13.00	28.16
3741.10	Н	55.84	-41.91	13.84	1.69	-29.76	-13.00	16.76
3741.10	V	58.24	-39.41	13.84	1.69	-27.26	-13.00	14.26
4208.74	Н	57.82	-39.84	13.99	1.53	-27.38	-13.00	14.38
4208.74	V	52.28	-45.34	13.99	1.53	-32.88	-13.00	19.88
4676.38	Н	49.59	-47.60	14.35	1.71	-34.96	-13.00	21.96
4676.38	V	46.06	-51.22	14.35	1.71	-38.58	-13.00	25.58

Note 1:The unit of antenna gain is dBd for frequency below 1GHz and is dBi for frequency above 1GHz. Note 2:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

## FCC§2.1055 (d), §95.565- FREQUENCY STABILITY

#### **Applicable Standard**

According to FCC §2.1055(a) (1),

The frequency stability shall be measured with variation of ambient temperature from -30 °C to +50 °C, and according to FCC 2.1055(d) (2), the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point which is specified by the manufacturer.

According to FCC §95.565

Each FRS transmitter type must be designed such that the carrier frequencies remain within  $\pm$  2.5 parts-per-million of the channel center frequencies specified in § 95.563 during normal operating conditions.

#### **Test Procedure**

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a Frequency Counter via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the Frequency Counter.

Frequency Stability vs. Voltage:

- 1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
- (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

The output frequency was recorded for each voltage.

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
yzjingcheng	Coaxial Cable	KTRFBU-141- 50	41005012	Each Time	/
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN- 6	OE01203239	Each Time	/
HP	RF Communications Test Set	8920A	3438A05201	2020-05-09	2021-05-09
UNI-T	Multimeter	UT39A	M130199938	2020-07-23	2021-07-23
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2020-03-10	2021-03-09
Pro instrument	DC Power Supply	pps3300	3300012	N/A	N/A

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

#### **Test Data**

#### **Environmental Conditions**

Temperature:	22.5 °C
Relative Humidity:	39 %
ATM Pressure:	102 kPa
Test by:	James Chen
Test Date:	2020.12.25

Test Mode: Transmitting

	Re	ference Frequenc	ey: 462.6375 MHz	
Temperature	Voltage	Reading	Frequency Error	Limit
${\mathbb C}$	Vdc	MHz	ppm	ppm
-30		462.63708808	-0.89	
-20		462.63774808	0.54	
-10		462.63762808	0.28	
0		462.63764808	0.32	
10	3.6	462.63712808	-0.80	
20		462.63727564	-0.48	2.5
30		462.63708808	-0.89	
40		462.63762808	0.28	
50		462.63764808	0.32	
20	4.2	462.63782808	0.71	
20	3.4	462.63712808	-0.80	

	Re	ference Frequenc	ey: 467.6375 MHz	
Temperature	Voltage	Reading	Frequency Error	Limit
${\mathbb C}$	Vdc	MHz	ppm	ppm
-30		467.63754808	0.10	
-20		467.63735808	-0.30	
-10		467.63753808	0.08	
0		467.63737808	-0.26	
10	3.6	467.63751808	0.04	
20		467.63725966	-0.51	2.5
30		467.63790808	0.87	
40		467.63735808	-0.30	
50		467.63769808	0.42	
20	4.2	467.63719808	-0.65	
20	3.4	467.63781808	0.68	

Note: The extreme voltage was declared by applicant.

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