



FCC Test Report

Report No.: AGC02931201208FE10

FCC ID : 2AWYH-M2RB

PRODUCT DESIGNATION: Mobile Radio

BRAND NAME : Rugged Radios

MODEL NAME : M1-G, M1

APPLICANT : Rugged Radios

DATE OF ISSUE : Jan. 25, 2021

STANDARD(S) : FCC Part 90 Rules FCC Part 22 Rules

REPORT VERSION : V 1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd





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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 25, 2021	Valid	Initial Release

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1. GENERAL INFORMATION

Applicant	Rugged Radios
Address	951 E Grand Ave, Arroyo Grande, CA 93420
Manufacturer	Rugged Radios
Address	951 E Grand Ave, Arroyo Grande, CA 93420
Factory	Rugged Radios
Address	951 E Grand Ave, Arroyo Grande, CA 93420
Product Designation	Mobile Radio
Brand Name	Rugged Radios
Test Model:	M1-G,
Series Model	M1
Difference Description	M1-G supports GPS, M1 without GPS
Deviation from Standard	None
Date of Receipt	Dec. 28, 2020
Date of Test	Dec. 28, 2020~Jan. 25, 2021
Test Result	Pass

WE HEREBY CERTIFY THAT:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI/TIA-603-E-2016. The sample tested as described in this report is in compliance with the FCC Rules Part 22 and 90. The test results of this report relate only to the tested sample identified in this report.

Prepared By

Donjon Huang
(Project Engineer)

Reviewed By

Calvin Liu
(Reviewer)

Approved By

Forrest Lei
Authorized Officer

Jan. 25, 2021

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2.PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Hardware Version	V4A-201111		
Software Version	V1.35		
Power Supply	DC 13.8V	10 CC	
Communication Type	Voice / Data	C	
Operation Frequency Range	From 136MHz to 174MHzV	HF C	
Modulation Time	Analog Voice:	FM	
Modulation Type	Digital Voice/Digital Data:	4FSK	
Digital Type	DMR	CO CO CO CO	
Ob annual Companyion	Analog Voice:	12.5 kHz	
Channel Separation	Digital Voice/Digital Data:	12.5 kHz	
Support Data Rate	9600bps	1 CO - CO - CO	
	Analog Voice:	✓ VHF:10K0F3E-5W-12.5kHz✓ VHF:10K0F3E-25W-12.5kHz✓ VHF:10K0F3E-55W-12.5kHz	
Emission Designator	Digital Voice/Digital Data:	 ✓ VHF:7K71F1D-5W-12.5kHz ✓ VHF:7K71F1D-25W-12.5kHz ✓ VHF:7K71F1D-55W-12.5kHz ✓ VHF:7K83F1W-5W-12.5kHz ✓ VHF:7K83F1W-25W-12.5kHz ✓ VHF:7K83F1W-55W-12.5kHz 	
Rated Output Power	VHF:5W/25W/55W (It was fixed by the manufact	urer, any individual can't arbitrarily change it.)	
	VHF: 36.38dBm(5W-12.5kHz)-Analog VHF:43.67dBm(25W-12.5kHz) -Analog		
Maximum Transmitter Power	VHF: 47.14dBm(55W-12.5kHz) -Analog VHF:36.16dBm(5W-12.5kHz)-Digital		
	VHF:43.58dBm(25W-12.5kH	z) - Digital VHF: 47.07dBm(55W-12.5kHz)-Digital	
Antenna Designation	Detachable	· FO COC	
Antenna type	External antenna	- GO - C - C	
Antenna Gain	0dBi	NO 60	

Note:

- 1. The product has the same digital working characters when operating in both two digitized voice/data mode. So only one set of test results for digital modulation modes are provided in this test report.
- 2. This equipment is capable of supporting a minimum data rate of 4800 bits per second per 6.25 kHz of channel bandwidth. DMR interphone's bandwidth is 12.5 kHz, and it has a double time slot, one is the speech time slot, one is the data time slot, just language sequence is satisfied with 4800 bps/6.25 kHz BW.

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2.2 TEST FREQUENCY LIST

Operation mode	Channel Separation	Operation Frequency Range	Test channel	Test Frequency
	12.5 kHz	136-174MHz	Bottom	136.025 MHz
	12.5 kHz	136-174MHz	Middle	151.850 MHz
Analog/ Digital	12.5 kHz	136-174MHz	Middle	155.025 MHz
	12.5 kHz	136-174MHz	Middle	161.610 MHz
	12.5 kHz	136-174MHz	Тор	173.975 MHz

Note:

In section KDB 634817 D01 Sections II) (f) (1) and (2):

Test at least one frequency in each band for each rule part applied under and ensure the device is capable of operating on the frequency under each rule part. This requirement may result in testing on multiple frequencies. Testing on one frequency may be acceptable if multiple listed bands for a rule part with a continuous frequency range are split to remove a conflict with other rules and the technical requirements in the split bands are the same. Additional requirements for RF exposure may apply.

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2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **2AWYH-M2RB**, filing to comply with Part 2, Part 22, and Part 90 of the Federal Communication Commission rules.

2.4 TEST METHODOLOGY

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 22	Public Mobile Services
2	FCC 47 CFR Part 90	Private Land Mobile Radio Services
3	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
4	ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
5	KDB 971168 D01	KDB 971168 D01 Power Meas License Digital Systems v03r01
6	KDB 579009 D03	KDB 579009 D03 Applications Part 90 Refarming Bands v01
7	KDB 634817 D01	KDB 634817 D01 Freq Range Listing for Grants v04r01

2.5 CALCULATION OF EMISSION INDICATORS

FCC Rules and Regulations Part 2.202: Necessary Bandwidth and Emission Bandwidth

For FM Mode (ChannelSpacing: 12.5kHz)

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 = 11KO

F3E portion of the designator represents an FM voice transmission.

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

For FM Mode (Channel Spacing: 25kHz)

Emission Designator 16K0F3E

In this case, the maximum modulating frequency is 3.0 kHz with a 5.0 kHz deviation.

BW = 2(M+D) = 2*(3.0 kHz + 5.0 kHz) = 16 kHz = 16K0

F3E portion of the designator represents an FM voice transmission.

Therefore, the entire designator for 25 kHz channel spacing FM mode is 16K0F3E.

For Digital Mode (Channel Spacing: 12.5 kHz)

Emission Designator 7K60F1D and 7K60F1W

The 99% energy rule was used for digital mode. It basically states that 99% of the modulation energy falls within X kHz, in this case, 7.60 kHz.

F1D and F1W portion of the designator indicates digital information.

Therefore, the entire designator for 12.5 kHz channel spacing digital mode is 7K60F1D and 7K60F1W.

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2.6 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

2.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

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3. TEST ENVIRONMENT

3.1 ADDRESS OF THE TEST LABORATORY

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

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3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (°C)	15 - 35	-20 - 50
	20 % - 75 %	20 % - 75 %
Relative humidty range	F 100	
Pressure range (kPa)	86 - 106	86 - 106
Power supply	DC 13.8V	HV:15.87V/ LV:11.73V

Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.

3.4 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Test Items	Measurement Uncertainty
Frequency stability	±0.5%
Transmitter power conducted	±0.8dB
Transmitter power Radiated	±1.3dB
Conducted spurious emission 9kHz-40 GHz	±2.7dB
Conducted Emission	±3.2 dB
Radiated Emission below 1GHz	±3.9 dB
Radiated Emission above 1GHz	±4.8 dB
Occupied Channel Bandwidth	±2 %
FM deviation	±2 %
Audio level	±0.98dB
Low Pass Filter Response	±0.65dB
Modulation Limiting	0.42 %
Transient Frequency Behavior	6.8 %

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3.5 LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15, 2020	May 14, 2021
EXA Signal Analyzer	Aglient	N9020A	W1312-60196	Aug. 21, 2020	Aug. 20, 202
EXA Signal Analyzer	Aglient	N9020A	MY52090123	Sep. 03, 2020	Sep. 02, 202
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep.16, 2019	Sep.15, 2021
preamplifier	ChengYi	EMC184045SE	980508	Sep. 23, 2019	Sep. 22, 202
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May. 17, 2019	May. 16, 202
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Jun. 09, 2020	Jun. 08, 202
HORN ANTENNA	EM	EM-AH-10180	· /	Feb.28, 2020	Feb.27, 2021
SIGNAL GENERATOR	AGILENT	E4421B	MY43351603	Jun. 08, 2020	Jun. 07, 2021
SIGNAL GENERATOR	R&S	SMT03	A0304261	Jun. 09, 2020	Jun. 08, 2021
ANTENNA	SCHWARZBECK	VULB9168	VULB9168-494	Jan. 09, 2019	Jan. 08, 2021
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 20, 2019	Sep. 19, 202
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Jun. 11, 2020	Jun. 10, 2021
Modulation Domain Analyzer	HP	53310A	3121A02467	Aug. 26, 2020	Aug. 25, 202
Small environmental tester	ESPEC	SH-242	·	Sep. 03, 2020	Sep. 02, 2022
RF Communication Test Set	HP	8920B	7. 0	Jun. 09, 2020	Jun. 08, 2021
Attenuator	Weinachel Corp	58-30-33	ML030	Oct. 26, 2020	Oct. 25, 2021
RF Cable	R&S	1#	>	Each time	N/A
RF Cable	R&S	2#	- GD	Each time	N/A
Fliter-VHF	Microwave	N26460M1	498703	May 11, 2020	May 10, 2021

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4.SYSTEM TEST CONFIGURATION

4.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 CONFIGURATION OF TESTED SYSTEM

Fig. 2-1 Configuration of Tested System



Table 2-1 Equipment Used in Tested System

4.4 EQUIPMENT USED IN TESTED SYSTEM

The Following Peripheral Devices And Interface Cables Were Connected During The Measurement:

☐ Test Accessories Come From The Laboratory

☐ Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	Mobile Radio	M1	FCC ID: 2AWYH-M2RB	EUT
2	Hand microphone	N/A	N/A	Accessories

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4.5 SUMMARY OF TEST RESULTS

Item	FCC Rules	Description Of Test	Result
1	FCC 47 CFR PART 90/22	Antenna Equipment	Pass
2	§90.205&22.565& 2.1046	Maximum Transmitter Power	Pass
3	§90.207& 2.1047	Modulation Characteristic	Pass
4	§2.1047&90.242(b)(8)	Audio Low Pass Filter Response	Pass
5	§90.209& 22.359& 2.1049	Occupied Bandwidth	Pass
6	§90.210& 22.359& 2.1049	Emission Mask	Pass
7	§90.213& 22.355& 2.1055	Frequency Tolerance	Pass
8	§90.214	Transmitter Frequency Behavior	Pass
9	§90.210&22.359& 2.1051	Spurious Emission on Antenna Port	Pass
10	§90.210&22.359& 2.1053	Spurious Ratiated Emission	Pass

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5.DESCRIPTION OF TEST MODES

The EUT (**Two-way radio**) has been tested under normal operating condition. (The top channel, the middle channel and the bottom channel) are chosen for testing at each channel separation.

NO.	TEST MODE DESCRIPTION	CHANNEL SEPARATION
1	TX Bottom channel-VHF	12.5 kHz
2	TX Middle channel-VHF	12.5 kHz
3	TX Middle channel-VHF	12.5 kHz
4	TX Middle channel-VHF	12.5 kHz
5	TX Top channel-VHF	12.5 kHz

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. The battery is full-charged during the test.
- 3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 4. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
- 5. Manufacturers use computer PC programming software to switch and operate frequency points, refer to the instructions for details

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6.FREQUENCY TOLERANCE

6.1 PROVISIONS APPLICABLE

- a). According to FCC §2.1055, § 22.355 and §90.213, the frequency stability shall be measured with variation of ambient temperature from −30°C to +50°C centigrade.
- b). According to FCC Part 2 Section 2.1055(d)(2), for battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacturer.
- c). According to FCC Part 90 Section 90.213, the frequency tolerance must be maintained within 0.00025% for 12.5 kHz channel separation and 0.0001% for 6.25 kHz channel separation.

6.2 MEASUREMENT PROCEDURE

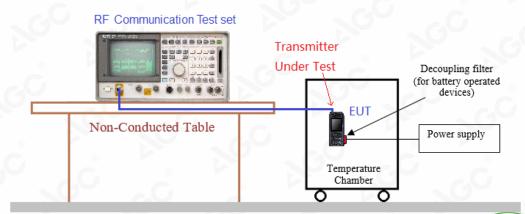
6.2.1 Frequency stability versus environmental temperature

- 1. Setup the configuration per figure 1 for frequencies measurement inside an environment chamber, Install new battery in the EUT.
- 2. Turn on EUT and set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1kHz and Video Resolution Bandwidth to 1kHz and Frequency Span to 50kHz.Record this frequency as reference frequency.
- 3. Set the temperature of chamber to 50 ℃. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.
- 4. Repeat step 2 with a 10°C decreased per stage until the lowest temperature -30°C is measured, record all measured frequencies on each temperature step.

6.2.2 Frequency stability versus input voltage

- Setup the configuration per figure 1 for frequencies measured at temperature if it is within 15℃ to 25℃.
 Otherwise, an environment chamber set for a temperature of 20℃ shall be used. The EUT shall be powered by DC 13.8V.
- 2. Set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1 kHz and Video Resolution Bandwidth to 1kHz. Record this frequency as reference frequency.
- 3. Supply the EUT primary voltage at the operating end point which is specified by manufacturer and record the frequency.

6.3 MEASUREMENT SETUP



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6.4 MEASUREMENT RESULTS

	12.5 kHz	Channel Sepa	ration, Analog	modulation, A	Assigned Freq	uency For VF	IF-5W	
Test c	Test conditions Frequency error (ppm)							
Voltage Temp		Test	Frequency (N	ЛHz)		Limit (ppm)	Result	
(V)		136.025	151.850	155.025	161.610	173.975	(
	-30	0.723	0.653	0.803	0.802	0.763	80	- 0
8	-20	0.727	0.846	1.061	0.605	0.792		
GU	-10	0.736	0.543	1.034	0.763	0.841	(8)	
	0	0.501	0.670	0.795	0.760	0.786		
13.80	10	0.546	0.893	0.548	0.800	0.976		
	20	1.021	0.559	0.938	0.912	0.329	2.5	Pass
	30	0.512	0.712	0.807	0.708	0.859		8)
	40	0.889	0.823	0.719	0.860	0.516		
	50	1.075	0.864	0.894	0.559	0.915		
15.87	20	0.723	0.653	0.803	0.802	0.763	8	8
11.73	20	0.727	0.846	1.061	0.605	0.792	GU	-C

	12.5 kHz (Channel Sepa	ration, Digital	modulation, A	ssigned Freq	uency For VH	F-5W	
Test c	onditions		Fred	quency error (p	opm)			
Voltage Temp		Test	Frequency (N	ЛHz)		Limit (ppm)	Result	
(V)	(℃)	136.025	151.850	155.025	161.610	173.975	(PP)	
10	-30	0.545	0.697	0.552	0.593	0.763		®
	-20	0.522	0.986	0.874	0.482	0.363		
	-10	0.823	0.829	1.054	0.487	0.848		
	0	0.769	0.764	0.948	0.639	0.825	(8)	
13.80	10	0.874	0.716	0.779	0.941	0.571	c.C	8
8	20	1.090	1.066	0.537	0.717	0.913	2.5	Pass
G	30	0.696	0.742	0.647	0.315	0.891	@	
	40	0.744	0.603	0.551	0.644	.644 0.456	0	
8	50	0.771	0.992 0.794 0.822	0.822	0.505		30	
15.87	20	0.545	0.697	0.552	0.593	0.763		
11.73	20	0.522	0.986	0.874	0.482	0.363		(3)

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	12.5 kHz (Channel Separ	ation, Analog	modulation, A	ssigned Frequ	uency For VH	F-25W	
Test c	onditions		Fred	quency error (p	opm)			
Voltage (°C)		Test	Frequency (N	ЛHz)		Limit (ppm)	Result	
	136.025	151.850	155.025	161.610	173.975	(PP)		
10	-30	0.889	0.822	0.606	0.607	0.954	8	@
	-20	0.824	0.920	0.971	0.350	0.304	GU	
	-10	0.890	0.752	1.039	0.990	0.360		
	0	1.071	1.048	0.863	0.936	0.696	©	
13.80	10	0.744	0.653	0.527	0.332	0.840		
8	20	0.762	1.083	1.019	0.501	0.528	2.5	Pass
	30	0.767	0.715	0.683	0.639	0.607		
	40	0.775	1.036	1.036	0.446	0.504		
©	50	0.568	0.998	0.787	0.837	0.759		
15.87	20	0.889	0.822	0.606	0.607	0.954		
11.73	20	0.824	0.920	0.971	0.350	0.304		

	12.5 kHz C	Channel Separ	ation, Digital	modulation, A	ssigned Frequ	ency For VHI	F-25W	
Test c	Test conditions Frequency error (ppm)							
Voltage Temp	Temp		Test	Frequency (N	ЛHz)		Limit (ppm)	Result
(V)	<u> </u>	136.025	151.850	155.025	161.610	173.975	(PP)	
	-30	0.765	0.828	0.824	0.456	0.653		
	-20	0.649	0.626	0.850	0.521	0.552		
0	-10	0.702	0.725	0.530	0.641	0.879	< G	
40	0 @	1.014	0.939	0.590	0.705	0.955		
13.80	10	0.557	0.983	0.879	0.889	0.570	8	
	20	0.822	0.866	1.015	0.612	0.979	2.5	Pass
- G	30	0.521	1.080	0.761	0.568	0.833		
O	40	0.926	0.564	0.910	0.835	0.637	8	
	50	0.977	0.661	0.839	0.738	1.071	O	
15.87	20	0.765	0.828	0.824	0.456	0.653		
11.73	20	0.649	0.626	0.850	0.521	0.552		

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	12.5 kHz C	Channel Separ	ation, Analog	modulation, A	ssigned Frequ	uency For VH	F-55W	
Test c	onditions		Fred	quency error (p	opm)			
Voltage Temp		Test	Frequency (N	ЛНz)		Limit (ppm)	Result	
(V)	•	136.025	151.850	155.025	161.610	173.975	(PP)	
	-30	0.734	1.068	1.003	0.870	0.363	8	0
	-20	1.015	0.955	1.036	0.687	0.386	GO	
(8)	-10	1.042	0.604	0.563	0.312	0.784		
G	0	0.759	0.803	0.524	0.862	0.490	®	
13.80	10	0.658	0.762	0.521	0.782	0.843		
®	20	0.786	1.036	0.946	0.866	0.798	2.5	Pass
	30	0.641	0.937	0.540	0.903	0.877		
	40	0.638	0.932	0.969	0.851	0.452	-0	
8	50	0.563	0.744	0.642	0.399	0.564		
15.87	20	0.734	1.068	1.003	0.870	0.363		
11.73	20	1.015	0.955	1.036	0.687	0.386		

	12.5 kHz C	Channel Separ	ration, Digital	modulation, A	ssigned Frequ	ency For VH	F-55W	
Test c	conditions		Fred	quency error (p	opm)			
Voltage Temp		Test	Frequency (N	ЛНz)		Limit (ppm)	Result	
(V)	(℃)	136.025	151.850	155.025	161.610	173.975	(ββ)	
	-30	1.008	1.022	0.611	0.456	0.653		
	-20	0.773	0.886	0.509	0.521	0.552		
	-10	0.636	0.996	0.834	0.641	0.879	~ G	
	0 @	0.986	0.614	0.893	0.705	0.955		
13.80	10	1.059	0.549	1.062	0.889	0.570	(8)	
	20	0.870	0.901	0.968	0.612	0.979	2.5	Pass
	30	0.626	0.956	0.757	0.568	0.833		
	40	0.963	1.045	0.735	0.835	0.637	®	
	50	0.956	0.767	0.925	0.738	1.071	G	
15.87	20	1.008	1.022	0.611	0.456	0.653		
11.73	20	0.773	0.886	0.509	0.521	0.552		

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7. EMISSION BANDWIDTH

7.1 PROVISIONS APPLICABLE

FCC Part 90.209 & FCC Part 22.359& FCC Part 2.1049:

The authorized bandwidth shall be 11.25 kHz for 12.5 kHz channel separation and 6 kHz for 6.25 kHz channel separation.

7.2 MEASUREMENT PROCEDURE

1.The EUT was modulated by 2.5kHz sine wave audio signal; the level of the audio signal employed is 16dB greater than that necessary to produce 50% of rated system deviation.

Rated system deviation is 2.5 kHz for 12.5kHz channel spacing).

2. Spectrum set as follow:

Centre frequency = fundamental frequency, span=50kHz for 12.5kHz channel spacing, RBW=100Hz, VBW=300Hz, Sweep = auto,

Detector function = peak, Trace = max hold

- 3.Set 99% Occupied Bandwidth and 26dB Occupied Bandwidth.
- 4. Measure and record the results in the test report.

7.3 MEASUREMENT SETUP



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7.4 MEASUREMENT RESULTS

	Measurement Result of \	/HF-Analog Modulation-5	W	
Operating Frequency		12.5 kHz Channel Sepa	aration	
Operating Frequency	Occupied Bandwidth	Emission Bandwidth	Limits	Result
136.025MHz	9.921 kHz	10.16 kHz	11.25 kHz	Pass
151.850MHz	9.907 kHz	10.16 kHz	11.25 kHz	Pass
155.025MHz	9.904 kHz	10.16 kHz	11.25 kHz	Pass
161.610MHz	9.913 kHz	10.17 kHz	11.25 kHz	Pass
173.975MHz	9.894 kHz	10.16 kHz	11.25 kHz	Pass

Measurement Result of VHF-Analog Modulation-25W						
Operating Francisco		12.5 kHz Channel Sepa	aration			
Operating Frequency	Occupied Bandwidth	Emission Bandwidth	Limits	Result		
136.025MHz	9.920 kHz	10.16 kHz	11.25 kHz	Pass		
151.850MHz	9.911 kHz	10.16 kHz	11.25 kHz	Pass		
155.025MHz	9.906 kHz	10.16 kHz	11.25 kHz	Pass		
161.610MHz	9.919 kHz	10.16 kHz	11.25 kHz	Pass		
173.975MHz	9.893 kHz	10.16 kHz	11.25 kHz	Pass		

	Measurement Result of V	/HF-Analog Modulation-55	5W	
Operating Frequency		12.5 kHz Channel Sepa	ration	
Operating Frequency	Occupied Bandwidth	Emission Bandwidth	Limits	Result
136.025MHz	9.920 kHz	10.17 kHz	11.25 kHz	Pass
151.850MHz	9.905 kHz	10.17 kHz	11.25 kHz	Pass
155.025MHz	9.904 kHz	10.16 kHz	11.25 kHz	Pass
161.610MHz	9.917 kHz	10.16 kHz	11.25 kHz	Pass
173.975MHz	9.901 kHz	10.16 kHz	11.25 kHz	Pass

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	Measurement Result of	VHF-Digital Modulation-5\	W					
Operation Francisco	12.5 kHz Channel Separation							
Operating Frequency	Occupied Bandwidth	Emission Bandwidth	Limits	Result				
136.025MHz	7.635 kHz	10.20 kHz	11.25 kHz	Pass				
151.850MHz	7.522 kHz	10.17 kHz	11.25 kHz	Pass				
155.025MHz	7.470 kHz	9.70 kHz	11.25 kHz	Pass				
161.610MHz	7.727 kHz	10.23 kHz	11.25 kHz	Pass				
173.975MHz	7.793 kHz	9.88 kHz	11.25 kHz	Pass				

	Measurement Result of \	/HF-Digital Modulation-25	SW .				
Operating Fraguency	12.5 kHz Channel Separation						
Operating Frequency	Occupied Bandwidth	Emission Bandwidth	Limits	Result			
136.025MHz	7.677 kHz	9.981 kHz	11.25 kHz	Pass			
151.850MHz	7.711 kHz	9.667 kHz	11.25 kHz	Pass			
155.025MHz	7.544 kHz	9.883 kHz	11.25 kHz	Pass			
161.610MHz	7.652 kHz	10.24 kHz	11.25 kHz	Pass			
173.975MHz	7.836 kHz	10.20 kHz	11.25 kHz	Pass			

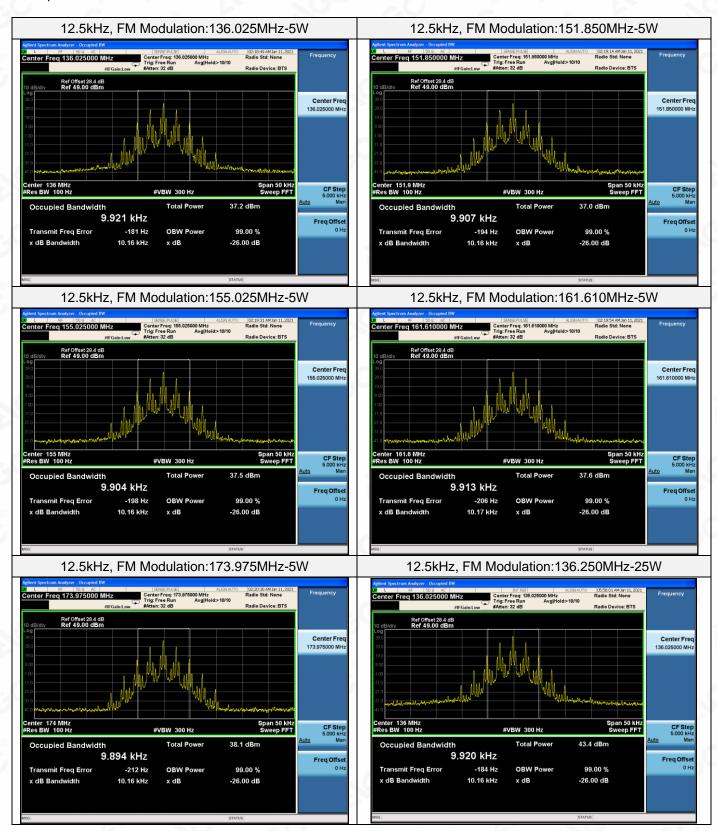
Measurement Result of VHF-Digital Modulation-55W				
Operating Frequency	12.5 kHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
136.025MHz	7.550 kHz	9.971 kHz	11.25 kHz	Pass
151.850MHz	7.711 kHz	9.880 kHz	11.25 kHz	Pass
155.025MHz	7.347 kHz	9.408 kHz	11.25 kHz	Pass
161.610MHz	7.462 kHz	9.655 kHz	11.25 kHz	Pass
173.975MHz	7.467 kHz	9.858 kHz	11.25 kHz	Pass

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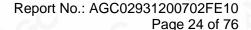


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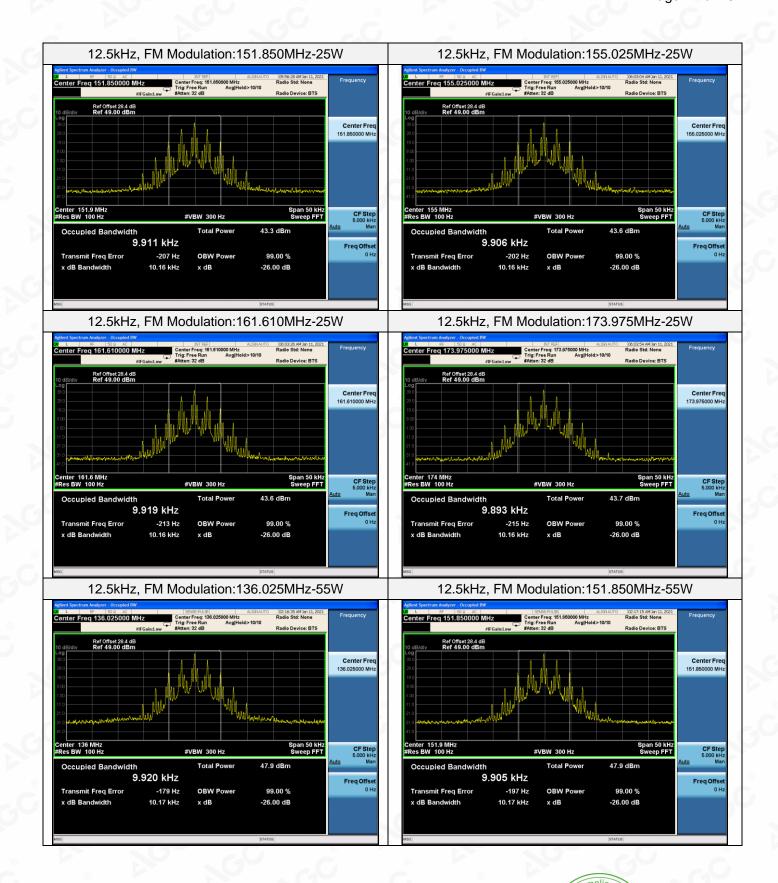
Test plot as follows:



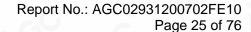
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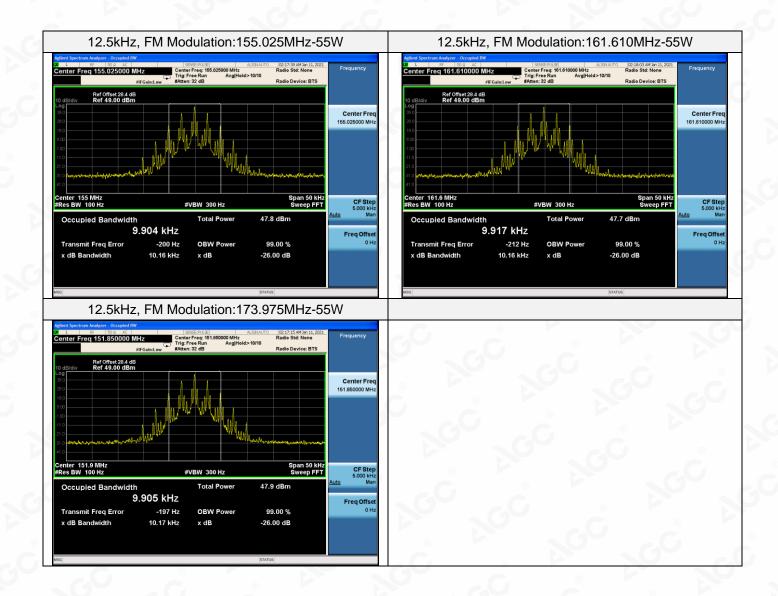




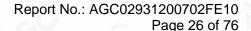
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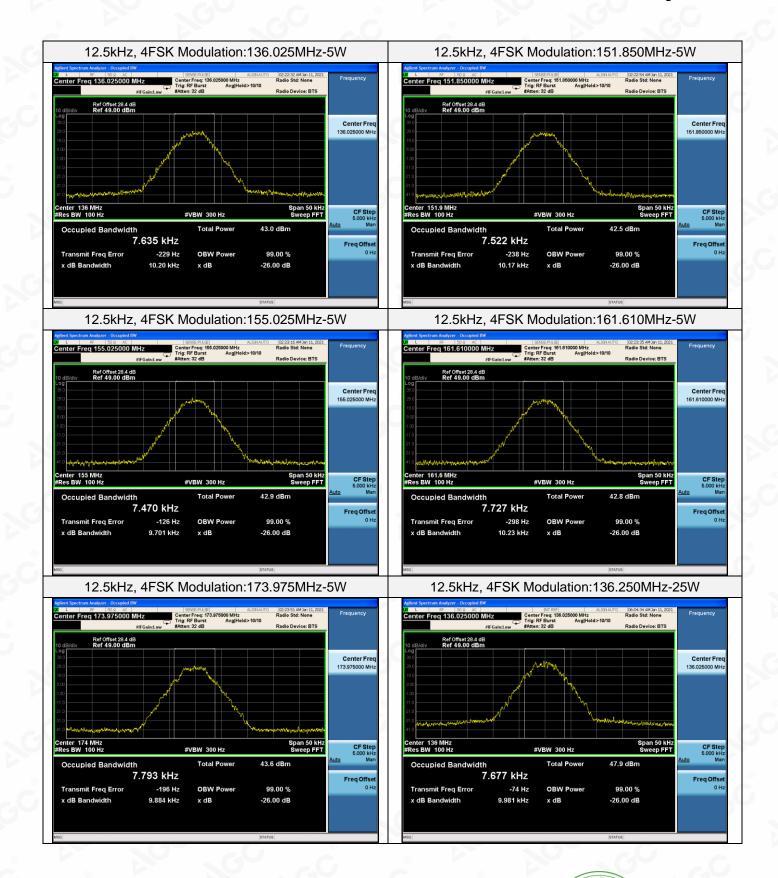




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