

FCC Test Report

Report No.:AGC03590180701FE10A

FCC ID : MMAGXT1050G

PRODUCT DESIGNATION: Two way radio

BRAND NAME : MIDLAND

MODEL NAME : GXT1000G, GXT1000, GXT1050

APPLICANT: Midland Radio Corporation

DATE OF ISSUE : Jan. 05, 2020

STANDARD(S) : FCC Part 95 Rules

REPORT VERSION : V 1.0

Attestation of Globals Con OF Ince (Shenzhen) Co., Ltd

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the codecated restino/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test result presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuence of the test report Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 05, 2021	Valid	Class II Permissive Change

Note: The original test report Ref. No. (AGC03590180701FE10) (dated 2018-09-19), was modified on 2021-01-06 to include the following changes and additions for:

- Replace filter

Re-evaluate the radiated spurious and power test of all powers at 12.5KH and 25KHz.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Festing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC he test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuence of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc=cert.com.

/Inspection

The test results

he test report.



VERIFICATION OF COMPLIANCE

Applicant	Midland Radio Corporation
Address	5900 Parretta Drive Kansas City, Missouri United States 64120-2134
manufacturer	Midland Radio Corporation
Address	5900 Parretta Drive Kansas City, Missouri United States 64120-2134
Factory	Midland Radio Corporation
Address	5900 Parretta Drive Kansas City, Missouri United States 64120-2134
Product Designation	Two way radio
Brand Name	MIDLAND
Test Model	GXT1000G
Series Model	GXT1000, GXT1050
Difference Description	All the same except for the model name and appearance color.
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Date of Test	Dec. 15, 2020~Jan. 05, 2021
Test Result	PASS
Report Template	AGCRT-US-PTT/RF

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 TIA/EIA 603-E. The sample tested as described in this report is in compliance with the FCC Rules Part 95 requirements. The test results of this report relate only to the tested sample identified in this report.

Prepared By

Donjon Huang
(Project Engineer)

Calvin Liu
(Reviewer)

Jan. 05, 2021

Approved By

Forrest Lei
Authorized Officer

Jan. 05, 2021

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written perhaps the presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



TABLE OF CONTENTS

1. GENERAL INFORMATION	5
1.1 PRODUCT DESCRIPTION 1.2 RELATED SUBMITTAL(S) / GRANT (S) 1.3 TEST METHODOLOGY 1.4 ADDRESS OF THE TEST LABORATORY 1.5 TEST FACILITY 1.6 SPECIAL ACCESSORIES 1.7 EQUIPMENT MODIFICATIONS 1.8 ANTENNA REQUIREMENT	7 7 7
2. SYSTEM TEST CONFIGURATION	
2.1 EUT CONFIGURATION	9 9
3. SUMMARY OF TEST RESULTS	
4. DESCRIPTION OF TEST MODES	
7. UNWANTED RADIATION	
7.1 PROVISIONS APPLICABLE	14 16
8. MAXIMUMN TRANSMITTER POWER	
8.1 PROVISIONS APPLICABLE 8.2 TEST PROCEDURE 8.3 TEST CONFIGURATION 8.4 TEST RESULT	
APPENDIX I: PHOTOGRAPHS OF SETUP	
APPENDIX II: PHOTOGRAPHS OF EUT	31

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

The EUT is a **Two way radio** designed for voice communication. It is designed by way of utilizing the FM modulation achieves the system operating.

A major technical description of EUT is described as following:

Voice/Tone only
Two way radio
GXT1000G
GXT1000G X5
V112
FM
12.5KHz/25KHz
11K0F3E
33.93dBm-2.85W 26.47dBm-0.5W
2.85W/0.5W (It was fixed by the manufacturer, any individual can't arbitrarily change it.)
Inseparable
1.5dBi
DC 6.0V,700mAh by battery
DC 5.1V~6.9V
GMRS: 462.5500MHz-462.7250MHz(2.85W) 462.5625MHz-462.7125MHz(2.85W) 467.5625MHz-467.7125MHz(0.5W) Test Channel: 4, 11, 19 channel

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Dedicated Festivo/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter portorization of AGC he test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issued of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Channel List:

CH. No	CH. Freq	Power	CH. No	CH. Freq	Power
1	462.5625	-6	15 🏻	462.5500	
2	462.5875		16	462.5750	
3	462.6125		17	462.6000	
4	462.6375	2.8W	18	462.6250	2 0 0 0
5	462.6625		19	462.6500	2.8W
6	462.6875		20	462.6750	
7	462.7125		21	462.7000	8
8	467.5625		22	462.7250	60
9 🏻	467.5875		23	8	
10	467.6125		24	2G 2°	0
11	467.6375	0.5W	25	- 60	
12	467.6625	-C	26	<u>-</u>	
13	467.6875		27	- O - O	
14	467.7125	0	28	-C	
					- (
	N/A		30		

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **MMAGXT1050G**, filing to comply with the FCC Part 95 requirements.

1.3 TEST METHODOLOGY.

FCC Part 95: Personal Radio Services

FCC Part 2: Frequency allocations and radio treaty matters, general rules and regulations.

TIA/EIA 603 E: March 2016: Land Mobile FM or PM Communications Equipment Measurement and

Performance Standards.

1.4 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

1.5 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.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the bedicated resting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC he test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc=cert.com.



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.

1.6 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

1.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

1.8 ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device. For more information of the antenna, please refer to the APPENDIX II: PHOTOGRAPHS OF EUT.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Festing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of ACC whe test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc=cert.com.



2. SYSTEM TEST CONFIGURATION

2.1 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.

2.2 EUT EXERCISE

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

2.3 CONFIGURATION OF TESTED SYSTEM

Fig. 2-1 Configuration of Tested System

EUT₊

Table 2-1 Equipment Used in Tested System

Item	Equipment	Model No.	Identifier	Note
1	Two way radio	Two way radio GXT1000G FCC ID: MMAGXT1		EUT
2	Adapter	S003ATU0900030	Input: AC 100-240V 50/60Hz, 0.15A Output:: DC 9V 0.3A	AE
3	Charger	N/A	Input: DC 9V 0. 3A Output: DC 8.4V 0.5A	AE
4	Battery	BATT-5RX	DC 6V 700mA	AE
5	Back clip	N/A	N/A	AE

Note: The battery is full-charged during the test

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Festing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC whe test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuence of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



2.4 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%.

- Uncertainty of Conducted Emission, Uc = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB
- Uncertainty of total RF power, conducted, Uc = ±0.8dB
- Uncertainty of spurious emissions, conducted, Uc = ±2.7dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %
- Uncertainty of Frequency: Uc = ±2 %
- Uncertainty of FM deviation: Uc=±2 %
- Uncertainty of Audio Level: Uc=±0.98dB
- Uncertainty of Modulation Limiting: Uc=0.42 %
- Uncertainty of Transient Frequency Behavior: Uc=6.8%

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Festing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of ACC whe test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc=cert.com.



3. SUMMARY OF TEST RESULTS

FCC 47 CFR Part 95 Test Cases						
Test Item Test Requirement Test Method						
Maximum Transmitter Power	FCC CFR Part 95.1767 FCC 47 CFR Part 2.1046(a)	ANSI/TIA-603-E-2016	PASS			
Transmitter Radiated Spurious Emission	FCC CFR Part 95.1779 FCC 47 CFR Part 2.1053	ANSI/TIA-603-E-2016	PASS			

Note:

1) The EUT is Integral Antenna.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Festing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun. 09, 2020	Jun. 08, 2021
EXA Signal Analyzer	KEYSIGHT	N9020A	MY53300860	July 15, 2020	July 14, 2021
Horn antenna	SCHWARZBECK	BBHA9170	768	Oct. 09, 2019	Oct. 08, 2021
preamplifier	ETS	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May. 17, 2019	May. 16, 2021
Broadband Preamplifier	SCHWARZBECK	BBV9718	9718-205	Jun. 09, 2020	Jun. 08, 2021
Double-Ridged Waveguide Horn	ETS	3117	00154520	Oct. 26, 2019	Oct. 25, 2021
SIGNAL	AGILENT	E4421B	MY43351603	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, 2021
Modulation Domain Analyzer	HP	53310A	3121A02467	Aug. 26, 2020	Aug. 25, 2021
Small environmental tester	ESPEC	SH-242	93008290	Sep. 03, 2020	Sep. 02, 2022
RF Communication Test Set	HP	8920B	US35010161	Sep. 03, 2020	Sep. 02, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Jun. 11, 2020	Jun. 10, 2021
Attenuator	Schaffner	58-30-33	ML030	Oct. 26, 2020	Oct. 25, 2021
RF Cable	R&S	1#		Each time	N/A
Fliter-UHF	Microwave	N25155M2	498705	May. 11, 2020	May. 10, 2021

Note: 8920B can generate audio modulation frequency.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc~cert.com.



4. DESCRIPTION OF TEST MODES

RF TEST MODES

The EUT (**Two way radio**) has been tested under normal operating condition. (GMRS TX) are chosen for testing at each channel separation.

NO.	TEST MODE DESCRIPTION	CHANNEL SEPARATION		
1 0	GMRS TX CHANNEL 4	12.5 kHz		
2	GMRS TX CHANNEL 11	12.5 kHz		
3	GMRS TX CHANNEL 19	12.5 kHz		

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. Manufacturers use computer PC programming software to switch and operate frequency points, refer to the instructions for details

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Factorian (Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc=cert.com.



7. UNWANTED RADIATION

7.1 PROVISIONS APPLICABLE

Standard Applicable [FCC Part 95.1779]

According to FCC section 95.1779, the unwanted emission should be attenuated below TP by at least 43+10 log(Transmit Power) dB.

7.2 MEASUREMENT PROCEDURE

Each GMRS transmitter type must be designed to comply with the applicable unwanted emissions limits in this section.

(a)Emission masks. Emission masks applicable to transmitting equipment in the GMRS are defined by the requirements in the following table. The numbers in the attenuation requirements column refer to rule paragraph numbers under paragraph (b) of this section.

Emission types filter	Attenuation requirements
A1D, A3E, F1D, G1D, F2D, F3E, G3E with audio filter	(1), (2), (7)
A1D, A3E, F1D, G1D, F3E, G3E without audio filter	(3), (4), (7)
H1D, J1D, R1D, H3E, J3E, R2E	(5), (6), (7)

- (1) Filtering noted for GMRS transmitters refers to the requirement in §95.1775(e).
- (2) Unwanted emission power may be measured as either mean power or peak envelope power, provided that the transmitter output power is measured the same way.
- (b) Attenuation requirements. The power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) by at least:
- (1) 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.
- (2) 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.
- (3) 83 log (fd ÷ 5) dB on any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 5 kHz up to and including 10 kHz.
- (4) 116 log (fd ÷ 6.1) dB or 50 + 10 log (P) dB, whichever is the lesser attenuation, on any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz), of more than 10 kHz up to and including 250% of the authorized bandwidth.
- (5) 25 dB on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 150% of the authorized bandwidth.
- (6) 35 dB on any frequency removed from the center of the authorized bandwidth by more than 150% up to and including 250% of the authorized bandwidth.
- (7) 43 + 10 log (P) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Festing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day attention of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



- (1) EUT was placed on a 0.8 or 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made. The radiated emission measurements of all transmit frequencies in all channels were measured with peak detector.
- (2) A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- (3)The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz for above 1GHz and RBW=100kHz,VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
- (4)The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
- (5)A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
- (6)The measurement results are obtained as described below: Power(EIRP)=PMea- PAg Pcl Ga The measurement results are amend as described below:
 - Power(EIRP)=PMea-PcI-Ga
- (7)This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
 - ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
- (8) Test the EUT in the lowest channel, the middle channel the Highest channel

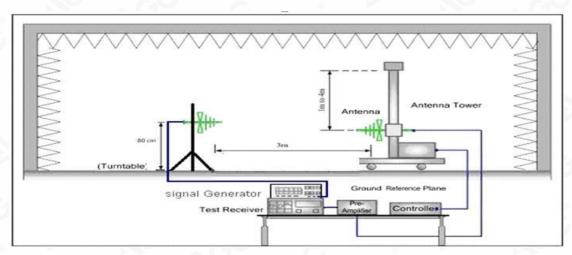
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the common stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc~cert.com.

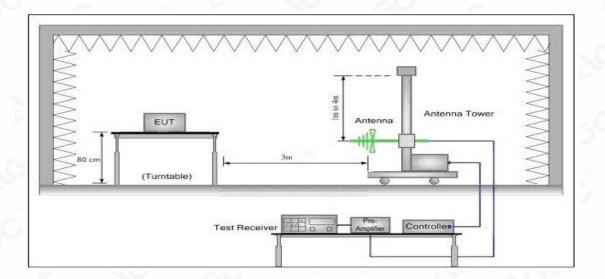


7.3 TEST SETUP BLOCK DIAGRAM

SUBSTITUTION METHOD: (Radiated Emissions)

Radiated Below1GHz

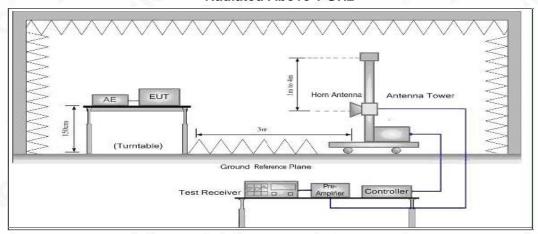


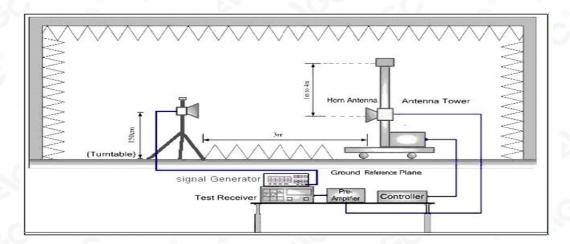


Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the specificated resting/inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter pathorization of AGC, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Radiated Above 1 GHz





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Restriction Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written application of AGC, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc~cert.com.



7.4 MEASUREMENT RESULTS:

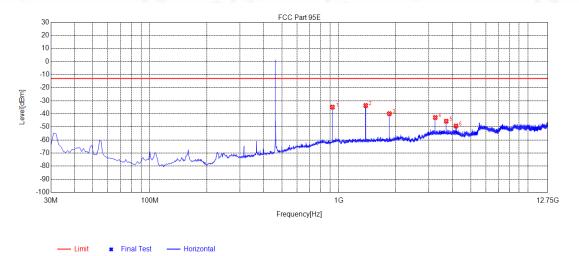
the unwanted emission should be attenuated below TP by at least 43+10 log(Transmit Power) dB

Limit: At least 43+10 log (P) =43+10log (2.85) =47.55(dBc) 34.55-47.55= -13dBm At least 43+10 log (P) =43+10log (0.5) =39.99(dBc) 26.99-39.99= -13dBm

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Festing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written exphorization of AGC, he test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuence of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Measurement Result for 12.5 KHz Channel Separation @ 462.6375MHz-2.85W-Horizontal



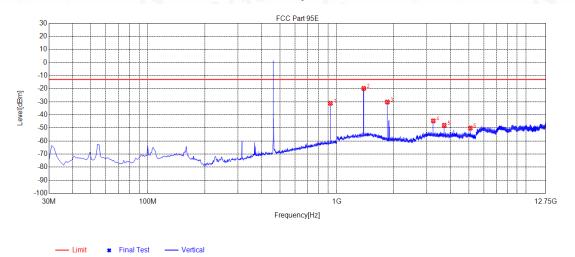
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.3100	-75.39	-34.90	-13.00	21.90	40.49	289	Horizontal
2	1387.7888	-27.21	-33.66	-13.00	20.66	-6.45	261	Horizontal
3	1850.7851	-36.31	-39.90	-13.00	26.90	-3.59	186	Horizontal
4	3238.5989	-43.54	-42.83	-13.00	29.83	0.71	56	Horizontal
5	3701.5952	-47.07	-45.66	-13.00	32.66	1.41	130	Horizontal
6	4164.5915	-50.65	-49.32	-13.00	36.32	1.33	336	Horizontal

RESULT: PASS

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc~cert.com.



Measurement Result for 12.5 KHz Channel Separation @ 462.6375MHz-2.85W-Vertical



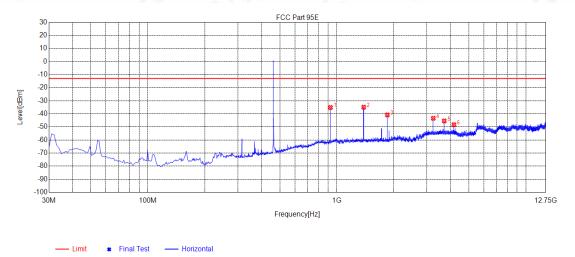
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.3100	-71.75	-31.18	-13.00	18.18	40.57	342	Vertical
2	1387.7888	-18.25	-19.84	-13.00	6.84	-1.59	147	Vertical
3	1850.7851	-28.14	-30.21	-13.00	17.21	-2.07	138	Vertical
4	3238.5989	-44.78	-44.64	-13.00	31.64	0.14	332	Vertical
5	3701.5952	-48.17	-48.02	-13.00	35.02	0.15	175	Vertical
6	5089.4089	-51.46	-50.17	-13.00	37.17	1.29	147	Vertical

RESULT: PASS

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc~cert.com.



Measurement Result for 12.5 KHz Channel Separation @ 462.6500MHz-2.85W-Horizontal



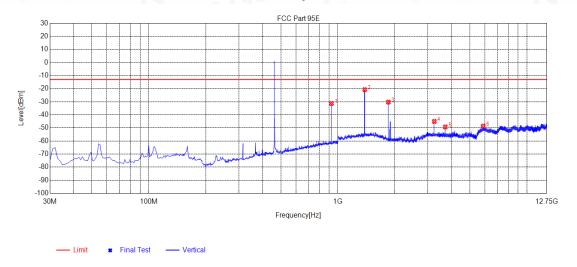
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.3100	-75.68	-35.19	-13.00	22.19	40.49	292	Horizontal
2	1387.7888	-28.50	-34.95	-13.00	21.95	-6.45	264	Horizontal
3	1850.7851	-37.26	-40.85	-13.00	27.85	-3.59	187	Horizontal
4	3238.5989	-44.16	-43.45	-13.00	30.45	0.71	18	Horizontal
5	3701.5952	-46.86	-45.45	-13.00	32.45	1.41	234	Horizontal
6	4164.5915	-49.67	-48.34	-13.00	35.34	1.33	56	Horizontal

RESULT: PASS

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Measurement Result for 12.5 KHz Channel Separation @ 462.6500MHz-2.85W-Vertical



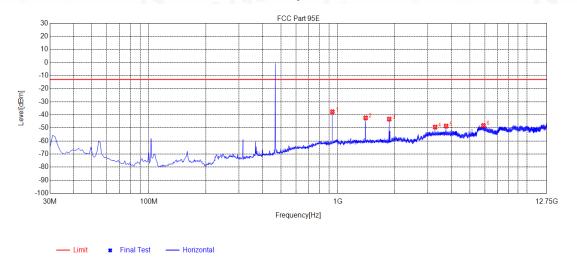
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.3100	-71.89	-31.32	-13.00	18.32	40.57	341	Vertical
2	1387.7888	-19.17	-20.76	-13.00	7.76	-1.59	141	Vertical
3	1850.7851	-28.22	-30.29	-13.00	17.29	-2.07	132	Vertical
4	3238.5989	-45.19	-45.05	-13.00	32.05	0.14	351	Vertical
5	3701.5952	-49.45	-49.30	-13.00	36.30	0.15	169	Vertical
6	5874.3874	-55.37	-48.66	-13.00	35.66	6.71	201	Vertical

RESULT: PASS

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Measurement Result for 12.5 KHz Channel Separation @ 467.6375MHz-0.5W-Horizontal



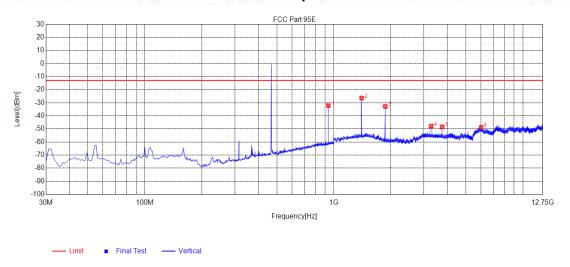
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.9800	-78.38	-37.66	-13.00	24.66	40.72	122	Horizontal
2	1403.0653	-35.97	-42.38	-13.00	29.38	-6.41	348	Horizontal
3	1870.7621	-39.82	-43.26	-13.00	30.26	-3.44	178	Horizontal
4	3273.8524	-50.16	-49.38	-13.00	36.38	0.78	37	Horizontal
5	3741.5492	-50.08	-48.62	-13.00	35.62	1.46	244	Horizontal
6	5893.1893	-55.56	-48.16	-13.00	35.16	7.40	122	Horizontal

RESULT: PASS

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc~cert.com.



Measurement Result for 12.5 KHz Channel Separation @ 467.6375MHz-0.5W-Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.9800	-72.88	-32.20	-13.00	19.20	40.68	342	Vertical
2	1403.0653	-24.96	-26.44	-13.00	13.44	-1.48	174	Vertical
3	1870.7621	-30.67	-32.81	-13.00	19.81	-2.14	154	Vertical
4	3273.8524	-47.99	-47.86	-13.00	34.86	0.13	351	Vertical
5	3741.5492	-48.62	-48.45	-13.00	35.45	0.17	174	Vertical
6	6016.5767	-56.74	-48.79	-13.00	35.79	7.95	230	Vertical

RESULT: PASS

Note:

- 1. Factor=Antenna Factor + Cable loss. (Below 1GHz)
- 2. Factor=Antenna Factor+ Cable loss-Pre-amplifier.(Above 1 GHz)
- 3. Margin=Limit- Level
- 4. All modes are tested, only the worst test data is recorded.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



8. MAXIMUMN TRANSMITTER POWER 8.1 PROVISIONS APPLICABLE

FCC Part 95.1767 For GMRS, the maximum permissible transmitter output power effective radiated power (e.r.p.) as follows.

This section contains transmitting power limits for GMRS stations. The maximum transmitting power depends on which channels are being used and the type of station.

- (a)462/467 MHz main channels. The limits in this paragraph apply to stations transmitting on any of the 462 MHz main channels or any of the 467 MHz main channels. Each GMRS transmitter type must be capable of operating within the allowable power range. GMRS licensees are responsible for ensuring that their GMRS stations operate in compliance with these limits.
- (1) The transmitter output power of mobile, repeater and base stations must not exceed 50 Watts.
- (2) The transmitter output power of fixed stations must not exceed 15 Watts.
- (b)462 MHz interstitial channels. The effective radiated power (ERP) of mobile, hand-held portable and base stations transmitting on the 462 MHz interstitial channels must not exceed 5 Watts.
- (c)467 MHz interstitial channels. The effective radiated power (ERP) of hand-held portable units transmitting on the 467 MHz interstitial channels must not exceed 0.5 Watt. Each GMRS transmitter type capable of transmitting on these channels must be designed such that the ERP does not exceed 0.5 Watt.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Residual Algorithms (Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC where the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



8.2 TEST PROCEDURE

- (1)EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made. The radiated emission measurements of all transmit frequencies in all channels were measured with peak detector
- (2)A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver
- (3)The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=100kHz,VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
- (4)The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
- (5)A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (PcI) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
- The measurement results are obtained as described below: Power(EIRP)=PMea- PAg Pcl Ga The measurement results are amend as described below:

Power(EIRP)=PMea-Pcl - Ga

- (6)This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- (7)ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
- (8) Test the EUT in the lowest channel, the middle channel the Highest channel

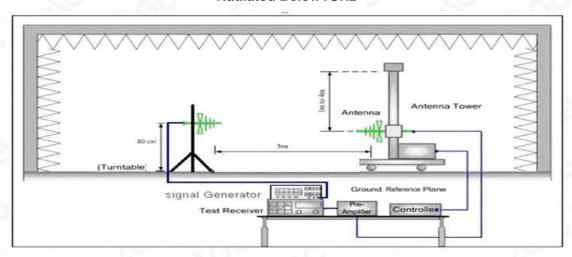
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc~cert.com.

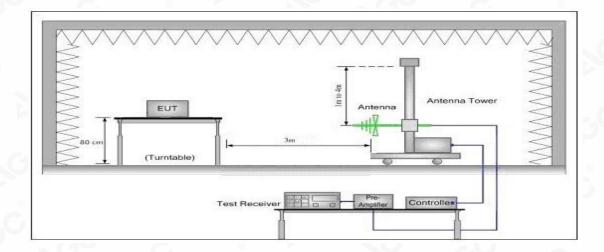


8.3 TEST CONFIGURATION

Effective Radiated Power

Radiated Below1GHz

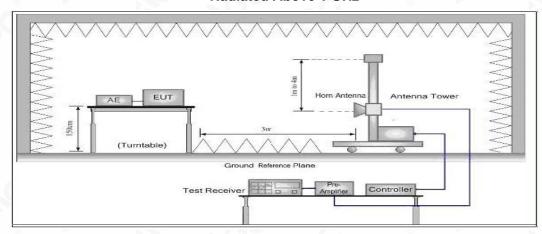


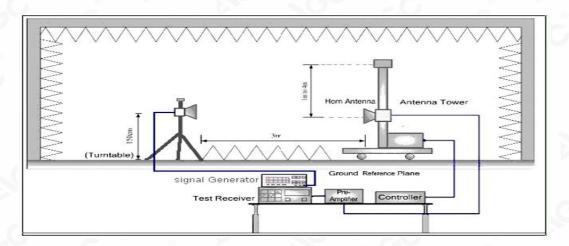


Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the specificated resting/inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter pathorization of AGC, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Radiated Above 1 GHz





Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the specificated resting/inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter pathorization of AGC, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



8.4 TEST RESULT

The maximum Power (CP) for UHF is

Analog: 2.85W/0.5W for 12.5 KHz/25KHz Channel Separation

Calculation Formula: CP = R + A + L

* Note:

CP: The final Conducted Power

R: The reading value from spectrum analyzer A: The attenuation value of the used attenuator

L: The loss of all connection cables

ERP RESULT:

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Emission Level	Limit	Margin
(MHz)	(dBuv/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(W)	(W)	(W)
8	ChannelSeparation:12.5KHz								10
462.6375	102.94	V	27.71	0.38	6.6	33.93	2.47	5	2.53
462.6375	101.23	Н	26.00	0.38	6.6	32.22	1.67	5	3.33
462.6500	102.9	V	27.67	0.38	6.6	33.89	2.45	50	47.55
462.6500	101.01	⊗ H	25.78	0.38	6.6	32.00	1.58	50	48.42
467.6375	95.48	V	20.25	0.38	6.6	26.47	0.44	0.5	0.06
467.6375	94.34	Н	19.11	0.38	6.6	25.33	0.34	0.5	0.16
9	ChannelSeparation:25KHz								
462.6375	102.86	V	27.63	0.38	6.6	33.85	2.43	5	2.57
462.6375	101.32	Н	26.09	0.38	6.6	32.31	1.70	5	3.30
462.6500	102.85	V	27.62	0.38	6.6	33.84	2.42	50	47.58
462.6500	101.12	Н	25.89	0.38	6.6	32.11	1.63	50	48.37
467.6375	95.41	V	20.18	0.38	6.6	26.4	0.44	0.5	0.06
467.6375	94.26	Н	19.03	0.38	6.6	25.25	0.33	0.5	0.17

NOTE:

Calculation Formula:

Emission Level(dBm) = S.G.(dBm)- Cable Loss(dB)+ Ant.Gain(dBi)

The Ant. Gain including the correct factor 2.15.

Margin(dB) = Limit(dBm)- Emission Level(dBm)

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



APPENDIX I: PHOTOGRAPHS OF SETUP

RADIATED EMISSION TEST SETUP



RADIATED EMISSION ABOVE 1G TEST SETUP



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the specificated resting/inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter pathorization of AGC, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



APPENDIX II: PHOTOGRAPHS OF EUT

Please refer to the project number: AGC03590180701AP01A

----END OF REPORT----

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the special pedicated fresh dynaspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the writter appropriation of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
- 2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. The non-CMA report issued by AGC is only permitted to be used by the client as internal reference use and shall not be used for public demonstration purpose.
- 5. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 6. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
- 7. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
- 8. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
- 9. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
- 10. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the standard restriction Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written explorization of AGE, the test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.