FCC Test Report

Report No.: AGC03590180701FE10B

FCC ID	:	MMAGXT1050G
PRODUCT DESIGNATION	:	Two way radio
BRAND NAME	:	MIDLAND
MODEL NAME	:	GXT1050G, GXT1000G
APPLICANT	:	Midland Radio Corporation
DATE OF ISSUE	:	Jun. 21, 2022
STANDARD(S)	:	FCC Part 95 Rules
REPORT VERSION	:	V 1.0

*A*ttestation of *G*lobal Compliance (Shenzhen) Co., Ltd

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jun. 21, 2022	Valid	Class II Permissive Change

Note: The original test report Ref. No. (AGC03590180701FE10) (dated 2018-09-19), was modified on 2022-06-21 to include the following changes and additions for:

-Updated model name

Change the PCB receiving position 466MHz filter, from electrical components to coil mode

Manufacturer removes 25KHz channel spacing via software, all GMRS bands only support 12.5KHz channel s pacing.

For the above described change(s), Updated Spurious Ratiated Emission and Radiated Power

TABLE OF CONTENTS

1. GENERAL INFORMATION

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	GXT1050G
Series Model(s)	GXT1000G
Difference Description	All the same except for the model name and appearance color.
Deviation from Standard	No any deviation from the test method.
Date of Receipt	May 25, 2022
Date of Test	May 25, 2022~Jun. 21, 2022
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 95. The test results of this report relate only to the tested sample identified in this report.

Prepared By

Bibo Zhang
(Project Engineer) Jun. 21, 2022

Reviewed By

Calvin Liu
(Reviewer) Jun. 21, 2022

Approved By

Max Zhang
Authorized Officer Jun. 21, 2022

2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Hardware Version	GXT1000G_A1
Software Version	V112
Power Supply	DC 6.0V 700mAh by battery
Adapter Information	Input: AC 100-240V 50/60Hz, 150mA Output: DC 9.0V 300mA
Communication Type	Voice / Tone only
Operation Frequency Range	462.5500MHz-462.7250MHz (GMRS 462 MHz main channels) 462.5625MHz-462.7125MHz (GMRS 462 MHz interstitial channels) 467.5625MHz-467.7125MHz (GMRS 467 MHz interstitial channels)
Modulation Type	FM
Channel Separation	12.5 KHz
Number of Channels:	22 Channels
Rated Output Power	2.85W/0.5W (It was fixed by the manufacturer, any individual can't arbitrarily change it.)
Maximum Transmitter Power	GMRS: 33.94dBm (2.85W-12.5KHz) GMRS:26.53dBm (0.5W-12.5KHz)
Antenna Designation	Inseparable Antenna
Antenna Gain	1.5dBi

2.2 TEST FREQUENCY LIST

According to ANSI C63.26 section 5.1.2.1:
Measurements of transmitters shall be performed and, if required, reported for each frequency band in which the EUT can be operated with the device transmitting at the number of frequencies in each band specified in Table 2.

Frequency range Over which EUT operates	Number of Frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

Channel. No	CH. Freq	Rated Power	CH. No	CH. Freq	Rated Power
1	462.5625	2.85W	15	462.5500	2.85W
2	462.5875		16	462.5750	
3	462.6125		17	462.6000	
4	**462.6375**		18	462.6250	
5	462.6625		19	**462.6500**	
6	462.6875		20	462.6750	
7	462.7125		21	462.7000	
8	467.5625	0.5W	22	462.7250	
9	467.5875		23	--	--
10	467.6125		24	--	
11	**467.6375**		25	--	
12	467.6625		26	--	
13	467.6875		27	--	
14	467.7125		28	--	
--			29	--	
			30	--	

2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **MMAGXT1050G ,** filing to comply with Part 2, Part 95 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 95	Personal Radio Services
2	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
3	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
4	ANSI/TIA-603-E-2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
5	KDB 888861 D01	888861 D01 Part 95 GMRS FRS v01

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 = 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.

2.6 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

2.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.8 ANTENNA REQUIREMENT

Excerpt from §95.1787 of the FCC Rules/Regulations:

The antenna of each GMRS transmitter type must meet the following requirements.
(1) The antenna must be a non-removable integral part of the GMRS transmitter type.
(2) The non-detachable antenna is only for handheld portable GMRS equipment.

- The antenna of this device is permanently attached.

Conclusion: The unit complies with the requirement of §95.1787.

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.

3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (℃)	15 - 35	-30 - 50
Relative humidty range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Power supply	DC 6.0V	LV DC 5.1V/ HV 6.9V
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 %

3.5 LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9020A	W1312-60196	Aug. 18, 2021	Aug. 17, 2022
EXA Signal Analyzer	Aglient	N9020A	MY52090123	Sep. 06, 2021	Sep. 05, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 07, 2021	Oct. 06, 2022
preamplifier	ChengYi	EMC184045SE	980508	Sep. 21, 2021	Sep. 20, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Jun. 05, 2022	Jun. 04, 2023
HORN ANTENNA	EM	EM-AH-10180	/	Feb.24, 2022	Feb.23, 2023
SIGNAL GENERATOR	AGILENT	E4421B	MY43351603	Mar. 04, 2022	Mar. 03, 2023
SIGNAL GENERATOR	R&S	SMT03	A0304261	Jun. 05, 2022	Jun. 04, 2023
ANTENNA	SCHWARZBECK	VULB9168	VULB9168-494	Jan. 08, 2021	Jan. 07, 2023
ANTENNA	SCHWARZBECK	VULB9168	D69250	Apr. 28, 2021	Apr. 27, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
RF Communication Test Set	HP	8920B	US35010161	Sep. 06, 2021	Sep. 05, 2022
Fliter-UHF	Microwave	N25155M2	498705	May 07, 2022	May 06, 2023

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

Item	Equipment	Model No.	Identifier	Note
-	-	-	-	-

☒ Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	Two way radio	GXT1050G	MMAGXT1050G	EUT
2	Battery	BATT-5RX	DC 6.0V 700mAh	Accessories
3	Adapter	S006AKU0900030	Input: AC 100-240V 50/60Hz, 150mA Output: DC 9.0V 300mA	Accessories
4	Back Clip	N/A	N/A	Accessories
5	Charger	18CVP-REVC	DC 9.0V 300mA	Accessories
6	Car Charger	N/A	N/A	Accessories

4.5 SUMMARY OF TEST RESULTS

Item	FCC Rules	Description Of Test	Result
1	§ 95.1767& 2.1046(a)	Maximum Transmitter Power	Pass
2	§95.1779& 2.1053	Spurious Ratiated Emission	Pass

Note:

1) N/A: In this whole report not application.
2) The EUT is Inseparable Antenna.

5. DESCRIPTION OF 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	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. The battery is full-charged during the test.
3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
4. Manufacturers use computer PC programming software to switch and operate frequency points, refer to the instructions for details

6. SPURIOUS RATIATED EMISSION

6.1 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

6.2 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 than100% 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.

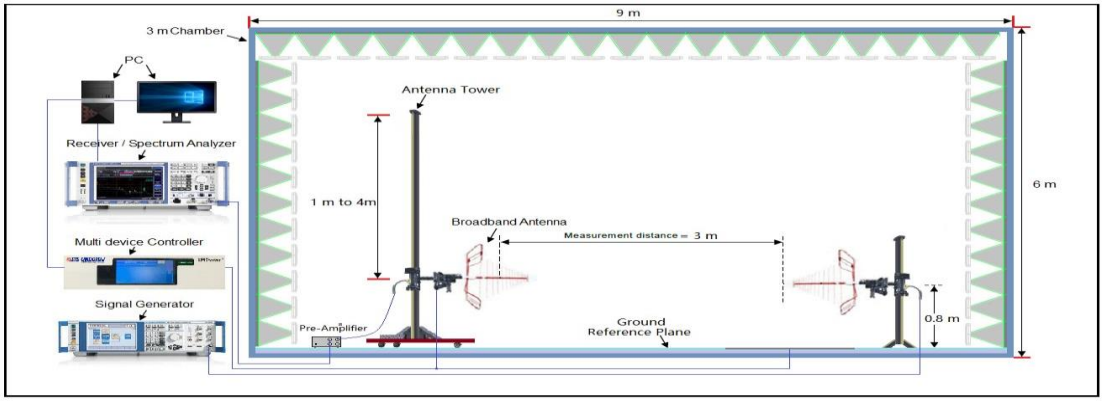
7) 43 + 10 log (P) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

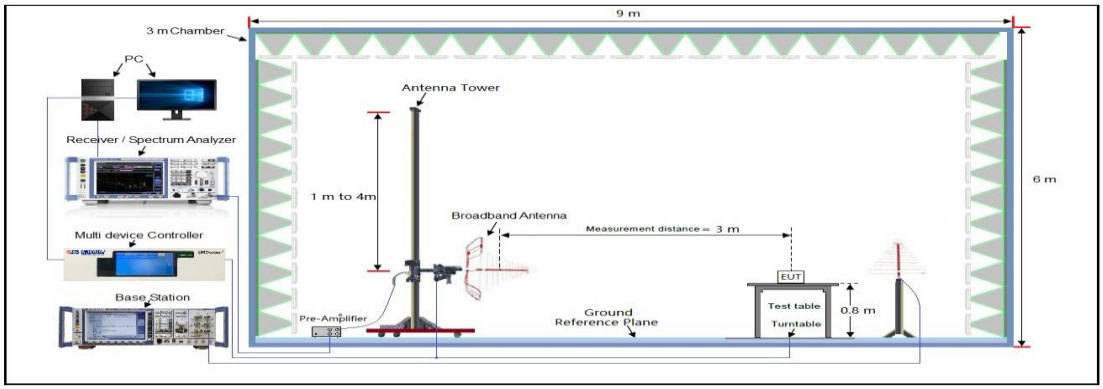
DETAILED OVERVIEW OF THE TEST METHOD IS AS FOLLOWS:

1) EUT was placed on a 0.8 or 1.5meter 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- Pcl - Ga
7) This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
8) ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
9) Test the EUT in the lowest channel, the middle channel the Highest channel

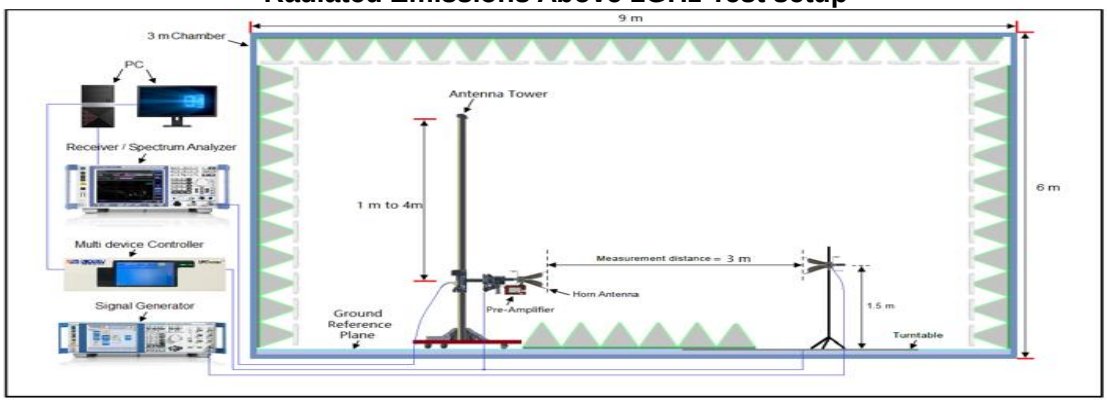
8.3 MEASUREMENT SETUP

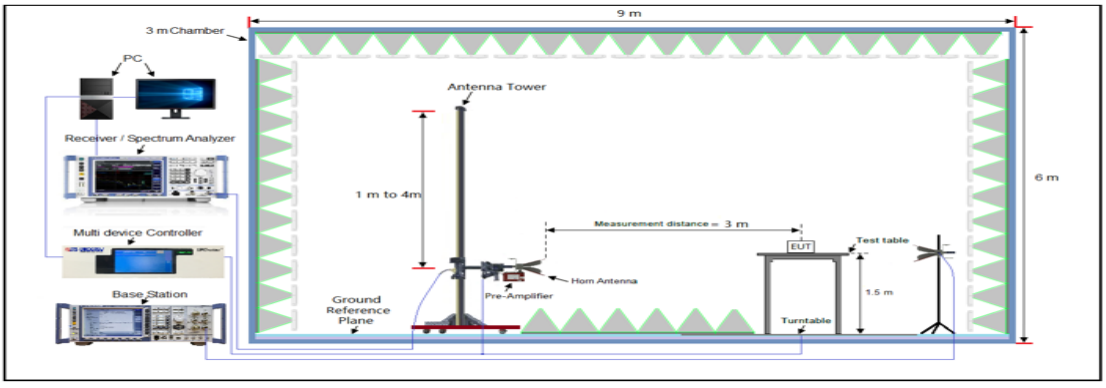
Radiated Emissions 30MHz to 1GHz Test setup





Radiated Emissions Above 1GHz Test setup



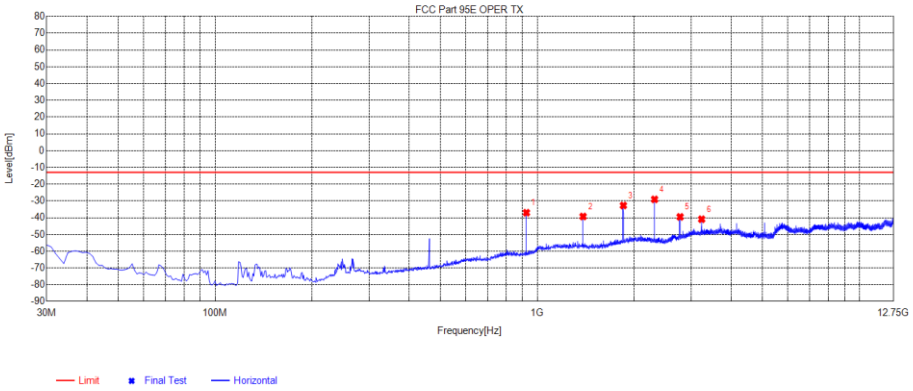


6.4 MEASUREMENT RESULTS

Preliminary calculation	Final Result
At least 43+10 log (P) =43+10log (2.85) =47.55 (dB)	Limit=P- Preliminary calculation=34.55-47.55=-13 dBm
At least 43+10 log (P) =43+10log (0.5) =43.00 (dB)	Limit=P- Preliminary calculation=30.00-43.00=-13 dBm

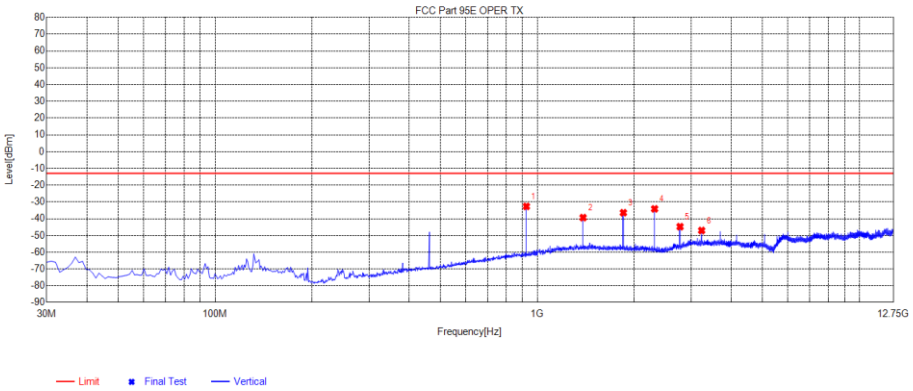
1. Factor=Antenna Factor + Cable loss. (Below 1GHz)
2. Factor=Antenna Factor+ Cable loss -Pre-amplifier. (Above 1 GHz)
3. Margin=Limit- Level

Test Mode:	TX-CH4-12.5KHz	Polarity:	Horizontal



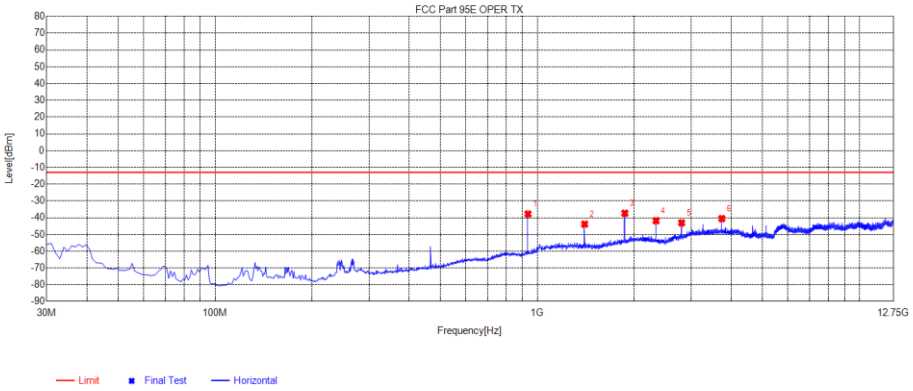
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-77.53	-37.04	-13.00	24.04	40.49	274	Horizontal
2	1387.7888	-32.85	-39.30	-13.00	26.30	-6.45	103	Horizontal
3	1850.7851	-29.14	-32.73	-13.00	19.73	-3.59	155	Horizontal
4	2313.7814	-25.37	-29.08	-13.00	16.08	-3.71	155	Horizontal
5	2776.7777	-37.70	-39.52	-13.00	26.52	-1.82	129	Horizontal
6	3238.5989	-41.64	-40.93	-13.00	27.93	0.71	86	Horizontal

Test Mode:	TX-CH4-12.5KHz	Polarity:	Vertical



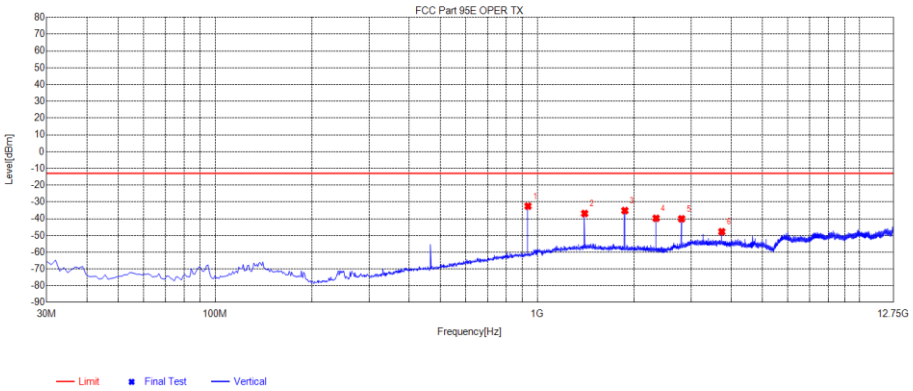
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-73.25	-32.68	-13.00	19.68	40.57	351	Vertical
2	1387.7888	-37.79	-39.38	-13.00	26.38	-1.59	240	Vertical
3	1850.7851	-34.39	-36.46	-13.00	23.46	-2.07	128	Vertical
4	2313.7814	-30.62	-34.15	-13.00	21.15	-3.53	136	Vertical
5	2775.6026	-43.06	-44.78	-13.00	31.78	-1.72	128	Vertical
6	3238.5989	-47.19	-47.05	-13.00	34.05	0.14	42	Vertical

Test Mode:	TX-CH11-12.5KHz	Polarity:	Horizontal



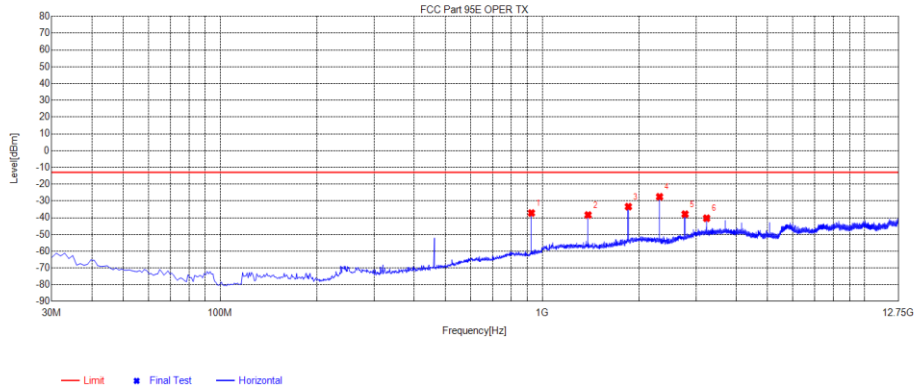
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-78.52	-37.80	-13.00	24.80	40.72	267	Horizontal
2	1403.0653	-37.46	-43.87	-13.00	30.87	-6.41	318	Horizontal
3	1870.7621	-33.90	-37.34	-13.00	24.34	-3.44	182	Horizontal
4	2338.4588	-38.00	-41.80	-13.00	28.80	-3.80	327	Horizontal
5	2806.1556	-41.56	-43.10	-13.00	30.10	-1.54	182	Horizontal
6	3741.5492	-42.01	-40.55	-13.00	27.55	1.46	113	Horizontal

Test Mode:	TX-CH11-12.5KHz	Polarity:	Vertical



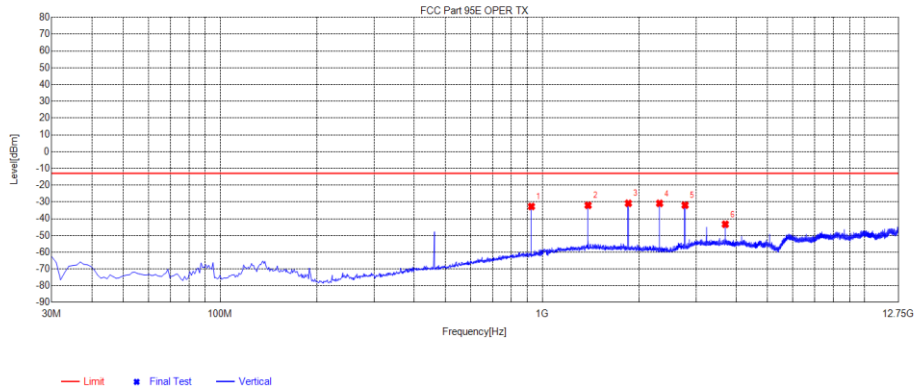
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	935.98	-73.22	-32.54	-13.00	19.54	40.68	351	Vertical
2	1403.0653	-35.44	-36.92	-13.00	23.92	-1.48	146	Vertical
3	1870.7621	-33.05	-35.19	-13.00	22.19	-2.14	146	Vertical
4	2338.4588	-36.17	-39.78	-13.00	26.78	-3.61	180	Vertical
5	2806.1556	-38.62	-40.08	-13.00	27.08	-1.46	172	Vertical
6	3741.5492	-47.95	-47.78	-13.00	34.78	0.17	172	Vertical

Test Mode:	TX-CH19-12.5KHz	Polarity:	Horizontal



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-77.71	-37.22	-13.00	24.22	40.49	121	Horizontal
2	1387.7888	-31.95	-38.40	-13.00	25.40	-6.45	113	Horizontal
3	1850.7851	-29.84	-33.43	-13.00	20.43	-3.59	164	Horizontal
4	2313.7814	-23.82	-27.53	-13.00	14.53	-3.71	148	Horizontal
5	2775.6026	-36.08	-37.91	-13.00	24.91	-1.83	69	Horizontal
6	3238.5989	-41.03	-40.32	-13.00	27.32	0.71	78	Horizontal

Test Mode:	TX-CH19-12.5KHz	Polarity:	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	925.31	-73.29	-32.72	-13.00	19.72	40.57	0	Vertical
2	1387.7888	-30.44	-32.03	-13.00	19.03	-1.59	163	Vertical
3	1850.7851	-28.78	-30.85	-13.00	17.85	-2.07	145	Vertical
4	2313.7814	-27.35	-30.88	-13.00	17.88	-3.53	188	Vertical
5	2775.6026	-30.24	-31.96	-13.00	18.96	-1.72	102	Vertical
6	3701.5952	-43.49	-43.34	-13.00	30.34	0.15	188	Vertical

7. MAXIMUMN TRANSMITTER POWER

7.1 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.

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.

The transmitter output power of mobile, repeater and base stations must not exceed 50 Watts.

The transmitter output power of fixed stations must not exceed 15 Watts.

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.

(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.

7.2 MEASUREMENT METHOD

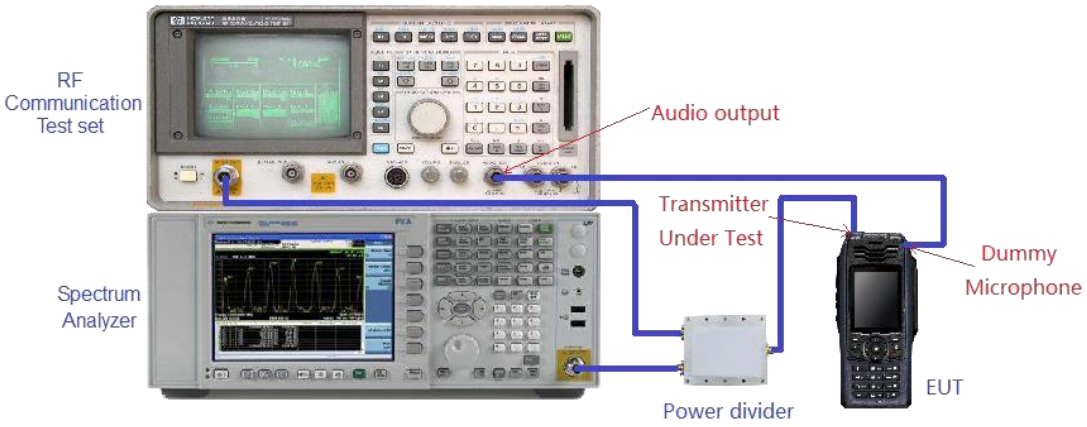
10) EUT was placed on a 0.8 or 1.5meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The disturbance of the transmitter was maximized on the test receiver display by raising 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.
11) 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.
12) 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).
13) 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.

14) 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
15) 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
16) This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
17) ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
18) Test the EUT in the lowest channel, the middle channel the Highest channel

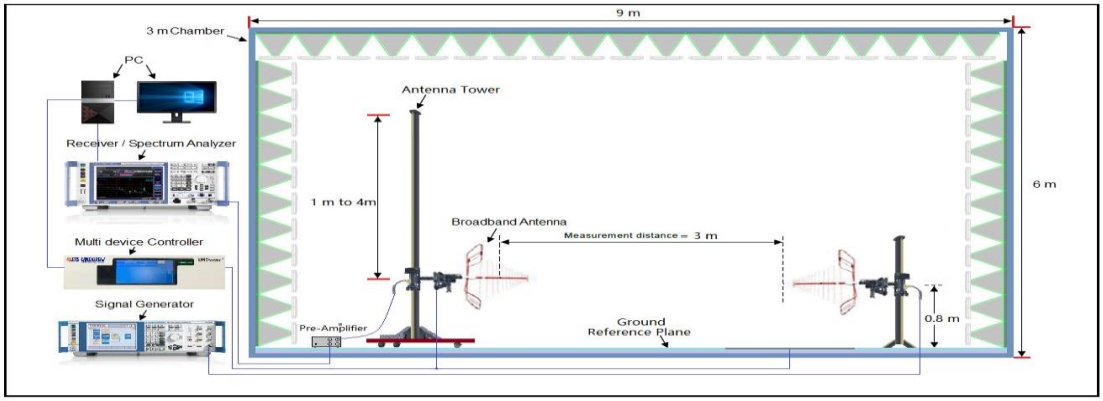
7.3 MEASUREMENT SETUP

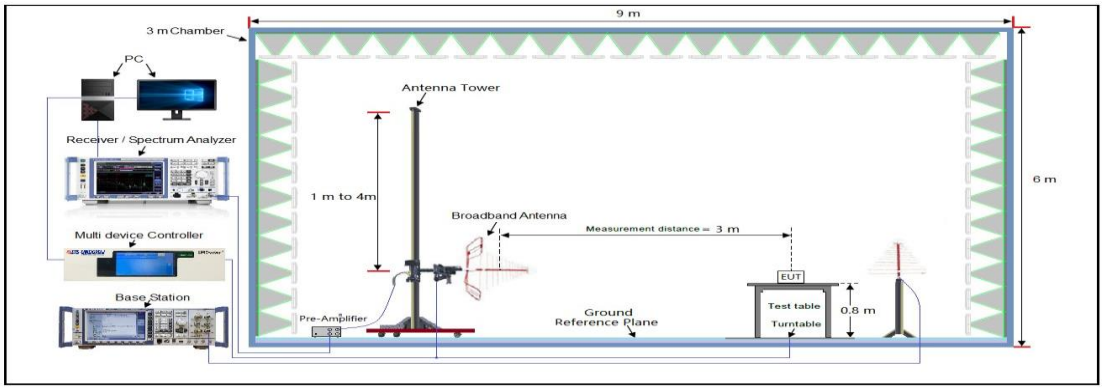
☐Conducted Output Power:



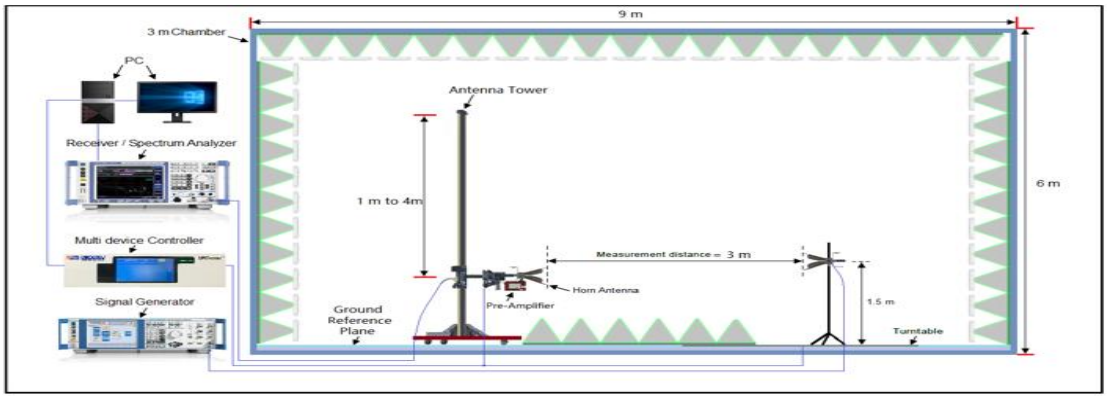
☒Effective Radiated Power:

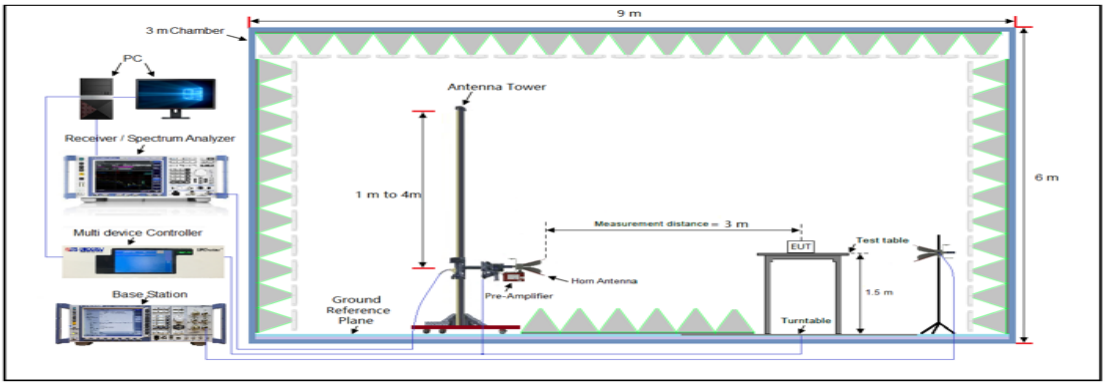
Radiated Below 1GHz





Radiated Above 1 GHz





7.4 MEASUREMENT RESULTS

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)
ChannelSeparation:12.5KHz									
467.6375	95.54	V	20.72	0.38	6.6	**26.53**	0.45	0.5	0.05
467.6375	94.92	H	20.59	0.38	6.6	25.91	0.39	0.5	0.11
462.6375	102.95	V	30.70	0.38	6.6	**33.94**	2.48	5	2.52
462.6375	102.88	H	30.65	0.38	6.6	33.87	2.44	5	2.56
462.6500	102.86	V	30.68	0.38	6.6	33.85	2.43	5	2.57
462.6500	102.75	H	30.62	0.38	6.6	33.74	2.37	5	2.63

NOTE:1. 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)

APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC05067220506AP01

APPENDIX II: PHOTOGRAPHS OF TEST EUT

Refer to the Report No.: AGC05067220506AP02

-----END OF REPORT-----

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. 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.
5. 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.
6. 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.
7.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.
8. 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.
9. 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.