FCC RADIO TEST REPORT

FCC ID: 2BPM4-BL-332

Sample: Watch intercom

Trade Name: N/A

Main Model: BL-332

Additional Model: M5A, BL-371, MBL-368, MBL-369, 7799-20A, BL-385, MBL-325, MBL-324, MBL-323

Report No.: UNIA25051614ER-61

Prepared for

Shantou Mibile Electronic Technology Co., Ltd

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Prepared by

Shenzhen United Testing Technology Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant.....: Shantou Mibile Electronic Technology Co., Ltd

Address..... : 2nd Floor, No. 4 East Yutan Road, North Chengjiang Road, Longtian, Guangyi Street, Chenghai District, Shantou City, Guangdong Provinc China

Manufacturer.....: Shantou Mibile Electronic Technology Co., Ltd

Address..... : 2nd Floor, No. 4 East Yutan Road, North Chengjiang Road, Longtian, Guangyi Street, Chenghai District, Shantou City, Guangdong Provinc China

Product description

Product..... : Watch intercom

Trade Name.....: N/A

Model Name..... : BL-332, M5A,BL-371, MBL-368, MBL-369, 7799-20A, BL-385, MBL-325, MBL-324, MBL-323

Test Methods.....: FCC 47 CFR Part 2&Part 95

This device described above has been tested by Shenzhen United Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the IC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test..... :

Date (s) of performance of tests.....: May. 19, 2025 ~ Jun. 25, 2025

Date of Issue.....: Jun. 25, 2025

Test Result..... : Pass

Prepared by: Abe Yang/Supervisor

Reviewer: Kelly Cheng/Supervisor

Approved & Authorized Signer: Liuze/Manager

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1. GENERAL INFORMATION

Product Designation:	Watch intercom
Brand Name:	N/A
Test Model	BL-332

2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Communication Type	Voice/ Tone only
Product:	Watch intercom
Trade Mark:	N/A
Main Model:	BL-332
Additional Model:	M5A,BL-371,MBL-368,MBL-369,7799-20A,BL-385,MBL-325,MBL-324, MBL-323
Model Difference:	The functions, software and circuits of all models are the same, only the model names and appearance colors are different. Test sample model: BL-332
Hardware Version	1.0
Software Version	1.0
Power Supply	DC 3.7V by battery or DC 5V by adapter
Communication Type	Voice / Tone only
Operation Frequency Range	462.5625MHZ
Modulation Type	FM
Channel Separation	12.5 KHz
Emission Designator	11K0F3E
Number of Channels:	1 Channels
Maximum Transmitter Power	7.539dBm
Antenna Designation	Inseparable Antenna
Antenna Gain	0.54dBi
Frequency Tolerance	1.011ppm

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

Operation Frequency Each of Channel	
FRS	
Channel	Frequency
1	462.5625 MHz

2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: 2BPM4-BL-332, 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	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
4	ANSI/TIA-603-E	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.
- There are no provisions for connection to an external antenna.
- This GMRS device has a fixed antenna port
- This GMRS equipment is a mobile station or a fixed station, which can be connected to an external antenna

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

3. TEST ENVIRONMENT

3.1 TEST FACILITY

Test Firm	:	Shenzhen United Testing Technology Co., Ltd.
Address	:	D101&D401, No. 107, Kaicheng High-Tech Park, Taoyuan Community, Dalang Sub-District, Longhua District, Shenzhen, Guangdong, China

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.The testing quality system of our laboratory meets with ISO/IEC-17025 requirements. This approval result is accepted by MRA of APLAC.

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

A2LA Certificate Number: 4747.01
The EMC Laboratory has been accredited by A2LA, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

FCC Registration Number: 0027159896
The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission.

IC Registration Number: 21947
The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada.

3.2 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (℃)	15 - 35	-20 - 50
Relative humidty range	20 % - 75 %	20 % - 75 %
Pressure range (kPa)	86 - 106	86 - 106
Power supply	--	--
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.		

3.3 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 %

3.4 LIST OF EQUIPMENTS USED

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	Horn Antenna	Sunol	DRH-118	A101415	2025.07.14
2	Broadband Hybrid Antenna	Sunol	JB1	A090215	2025.07.28
3	PREAMP	HP	8449B	3008A00160	2026.06.11
4	PREAMP	HP	8447D	2944A07999	2026.06.11
5	EMI Test Receiver	Rohde&Schwarz	ESR3	101891	2026.06.11
6	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2026.06.11
7	MXA Signal Analyzer	Agilent	N9020A	MY51110104	2026.06.11
8	RF Power Sensor	DARE	RPR3006W	15I00041SNO88	2026.06.11
9	RF Power Sensor	DARE	RPR3006W	15I00041SNO89	2026.06.11
10	RF Power Divider	Anritsu	K241B	992289	2026.06.11
11	Signal Generator	Agilent	E4421B	MY4335105	2026.06.11
12	VECTOR Signal Generator	Rohde&Schwarz	SMU200A	101521	2026.06.11
13	Wideband Radio Communication Tester	Rohde&Schwarz	CMW500	154987	2026.06.11
14	Active Loop Antenna	Com-Power	AL-130R	10160009	2026.06.11
15	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2025.07.14
16	Horn Antenna	A-INFOMW	LB-180400-KF	J211060660	2024.07.14
17	Microwave Broadband Preamplifier	Schwarzbeck	BBV 9721	100472	2025.09.22
18	Signal Generator	Agilent	N5183A	MY47420153	2025.09.22
19	Spctrum Analyzer	Rohde&Schwarz	FSP 40	100501	2025.09.22
20	Power Meter	KEYSIGHT	N1911A	MY50520168	2025.09.22
21	Frequency Meter	VICTOR	VC2000	997406086	2025.09.22
22	DC Power Source	HYELEC	HY5020E	055161818	2025.09.22
23	MTS 8310	MW	Copyright MWRFtest 2017	V2.0.0.0	N/A

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	Watch intercom	BL-332	FCC ID: 2BPM4-BL-332	EUT
2	Battery	N/A	DC 3.7V	Accessory

4.5 SUMMARY OF TEST RESULTS

Item	FCC Rules	Description of Test	Result
1	FCC 47 CFR PART 95	Antenna Equipment	Pass
2	§ 95.567& 2.1046(a)	Maximum Transmitter Power	Pass
3	§95.575& 2.1047(a) (b)	Modulation Limit	Pass
4	§95.575& 2.1047(a)	Audio Frequency Response	Pass
5	§95.573& 2.1049	Emission Bandwidth	Pass
6	§95.579& 2.1049	Emission Mask	Pass
7	§95.565& 2.1055(a) (1)	Frequency Stability	Pass
8	§95.579& 2.1053	Spurious Ratiated Emission	Pass

5. DESCRIPTION OF TEST MODES

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

NO.	TEST MODE DESCRIPTION	CHANNEL SEPARATION
1	FRS TX CHANNEL 1	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.FREQUENCY STABILITY

6.1 PROVISIONS APPLICABLE

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

6.2 MEASUREMENT PROCEDURE

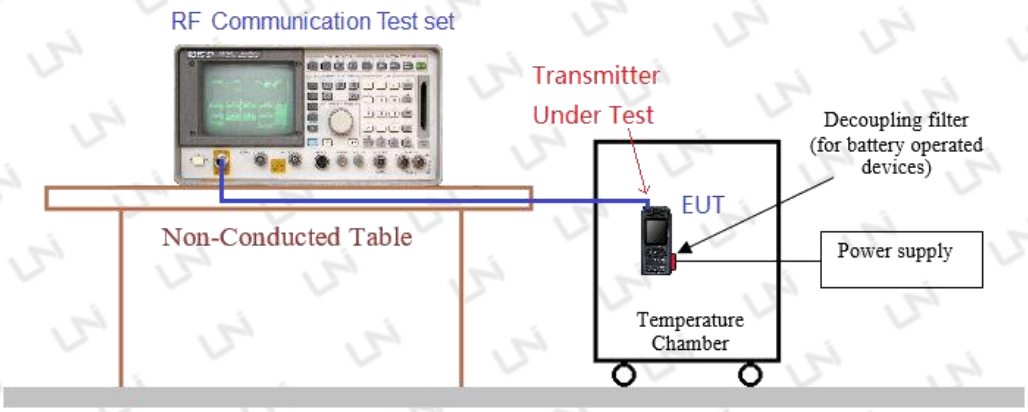
6.2.1 Frequency stability versus environmental temperature

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℃ decreased per stage until the lowest temperature -30℃ is measured, record all measured frequencies on each temperature step.

6.2.2 Frequency stability versus input voltage

1. 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 7.4V.
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



6.4 MEASUREMENT RESULTS

(1) Frequency stability versus input voltage (Supply nominal voltage is 3.70V)**-12.5KHz**

Environment Temperature(℃)	Power Supply	Reference Frequency	Limit	Result
	(V)	462.5625MHz	ppm	Pass
50	DC 3.70	0.728	2.5	Pass
40	DC 3.70	1.011	2.5	Pass
30	DC 3.70	0.876	2.5	Pass
20	DC 3.70	0.745	2.5	Pass
10	DC 3.70	0.774	2.5	Pass
0	DC 3.70	0.703	2.5	Pass
-10	DC 3.70	0.836	2.5	Pass
-20	DC 3.70	0.920	2.5	Pass
-30	DC 3.70	0.567	2.5	Pass

(2) Frequency stability versus input voltage (Battery endpoint is 3.15V) **-12.5KHz**

Environment Temperature(℃)	Power Supply	Reference Frequency	Limit	Result
	(V)	462.5625MHz	ppm	Pass
50	DC 3.15	0.715	2.5	Pass
40	DC 3.15	1.002	2.5	Pass
30	DC 3.15	0.848	2.5	Pass
20	DC 3.15	0.765	2.5	Pass
10	DC 3.15	0.768	2.5	Pass
0	DC 3.15	0.775	2.5	Pass
-10	DC 3.15	0.858	2.5	Pass
-20	DC 3.15	0.925	2.5	Pass
-30	DC 3.15	0.754	2.5	Pass

Note: 1.Battery terminal voltage is declared and specified by the manufacturer.
2. All test values are in “ppm”

7. EMISSION BANDWIDTH

7.1 PROVISIONS APPLICABLE

FCC Part 95.573: FRS: The authorized bandwidth for an FRS unit is 12.5 kHz.

Occupied Bandwidth (Section 2.1049, 95.573): The EUT was connected to the audio signal generator and the spectrum analyzer via the main RF connector, and through an appropriate attenuator. The EUT was controlled to transmit its maximum power. Then the bandwidth of 99% power can be measured by the spectrum analyzer.

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:

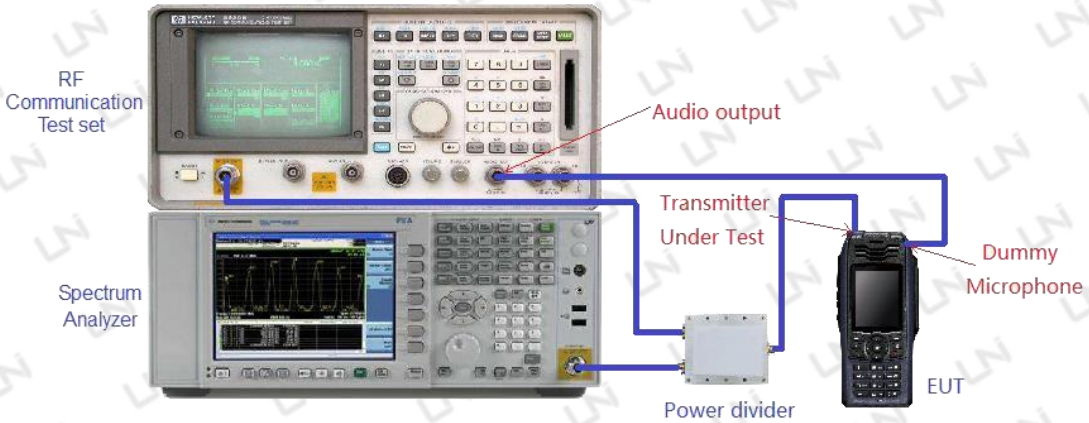
Centre frequency = fundamental frequency, span=50kHz for 12.5kHz channel spacing, RBW=100Hz, VBW=300Hz, Sweep = auto,

Detector function = peak, Trace = max hold

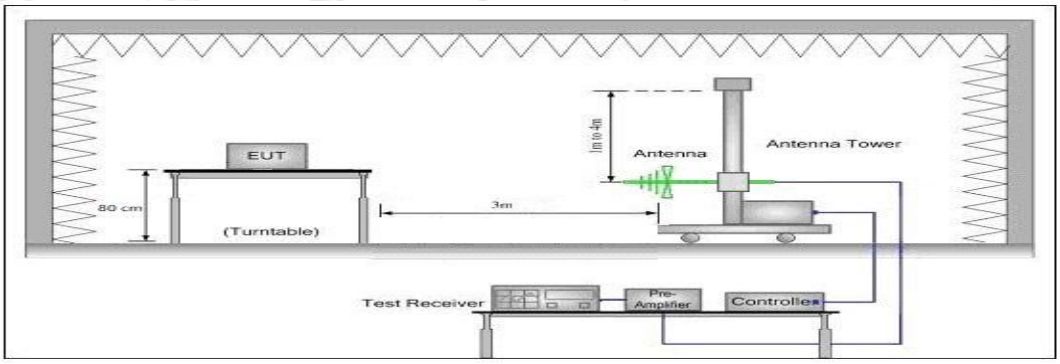
3.Set 99% Occupied Bandwidth and 26dB Occupied Bandwidth.

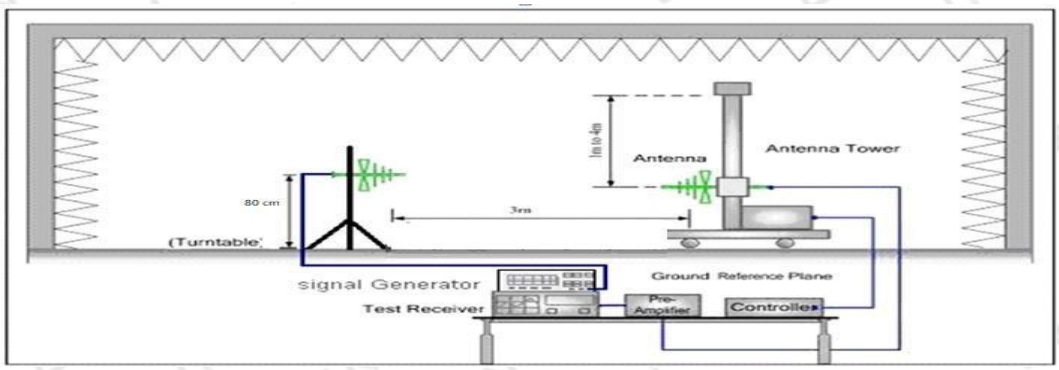
4.Measure and record the results in the test report.

7.3 MEASUREMENT SETUP

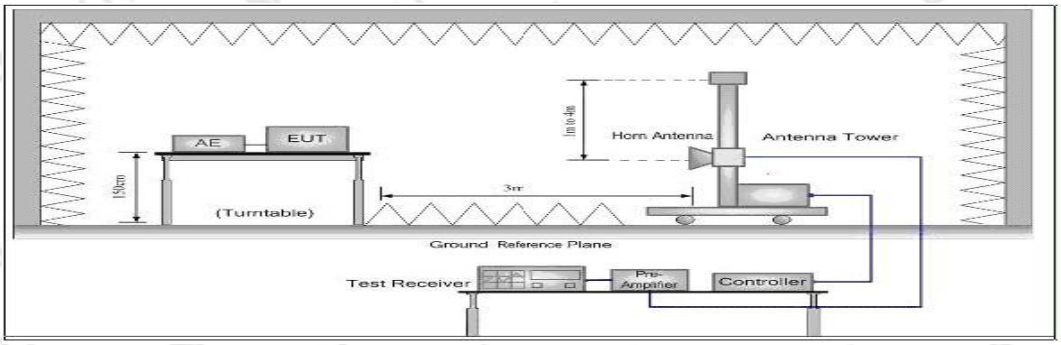


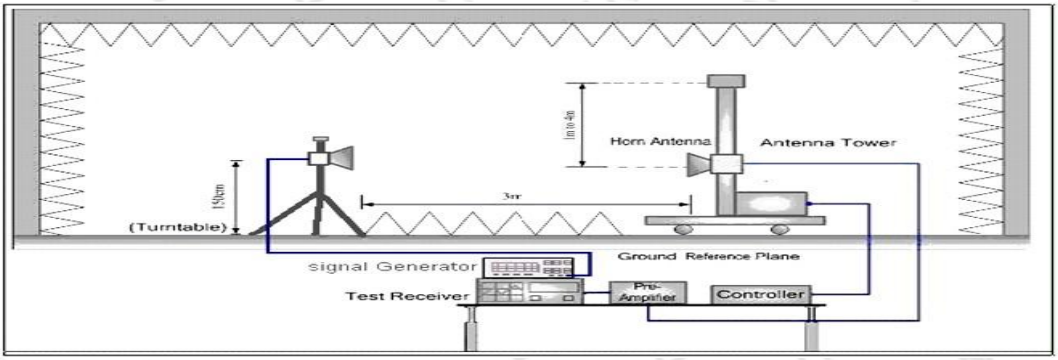
RADIATED BELOW1GHZ





RADIATED ABOVE 1 GHZ

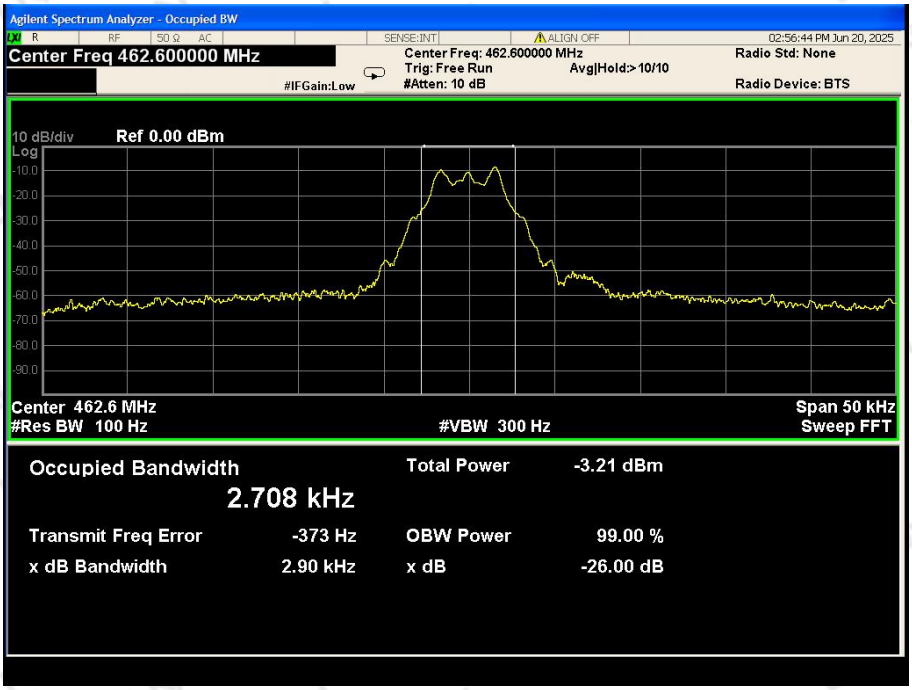




7.4 MEASUREMENT RESULTS

Emission Bandwidth Measurement Result				
Operating Frequency	12.5 KHz Channel Separation			
	Occupied Bandwidth	Emission Bandwidth	Limits	Result
462.5625MHz	2.708 KHz	2.90 KHz	12.5 KHz	Pass

Occupied bandwidth of Middle channel Channel (462.5625MHz)



8. SPURIOUS RATIATED EMISSION

8.1 PROVISIONS APPLICABLE

Standard Applicable [FCC Part 95.579] According to FCC section 95.579, the unwanted emission should be attenuated below TP by at least 43+10 log (Transmit Power) Db.

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

(a) Attenuation requirements. The power of unwanted emissions must be attenuated below the carrier power output in Watts (P) by at least:

(1) 25 dB (decibels) in the frequency band 6.25 kHz to 12.5 kHz removed from the channel center frequency.

(2) 35 dB in the frequency band 12.5 kHz to 31.25 kHz removed from the channel center frequency.

(3) 43 + 10 log (P) dB in any frequency band removed from the channel center frequency by more than 31.25 kHz

8.2 MEASUREMENT PROCEDURE

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

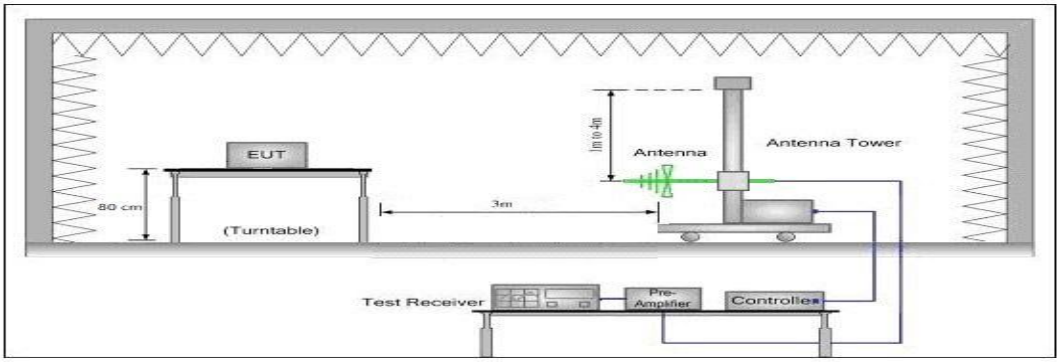
7) This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

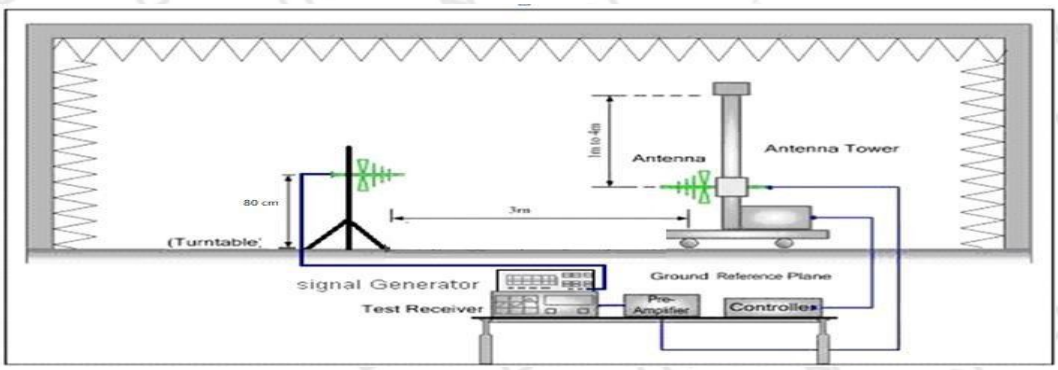
8) ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

9) Test the EUT in the lowest channel, the middle channel the Highest channel

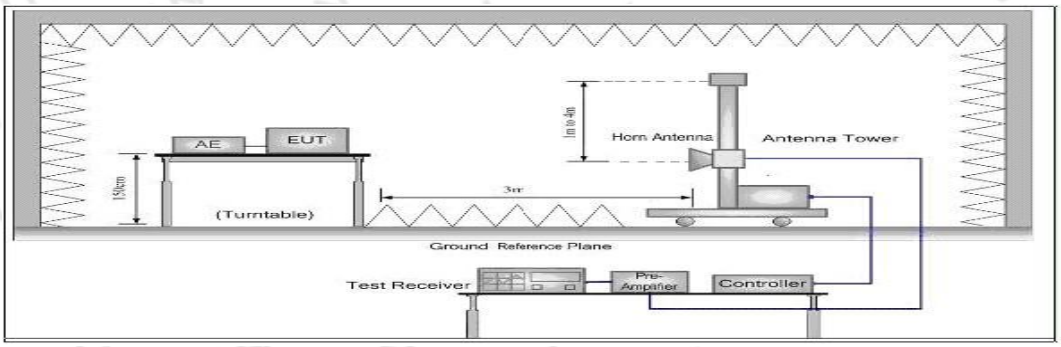
8.3 MEASUREMENT SETUP

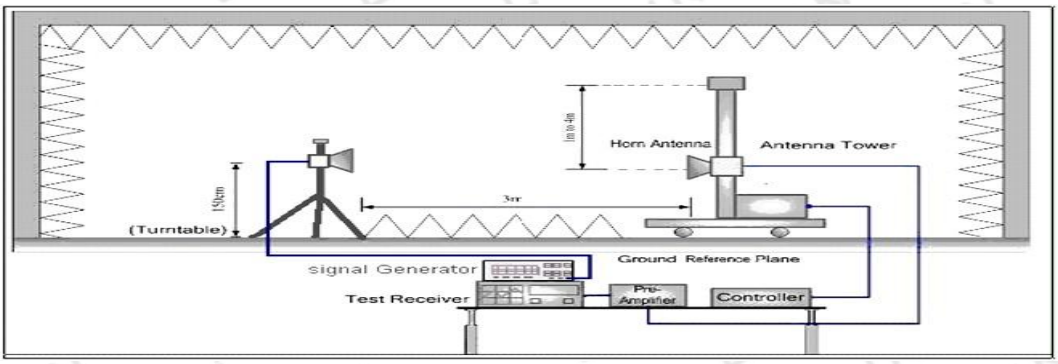
RADIATED BELOW1GHZ





RADIATED ABOVE 1 GHZ



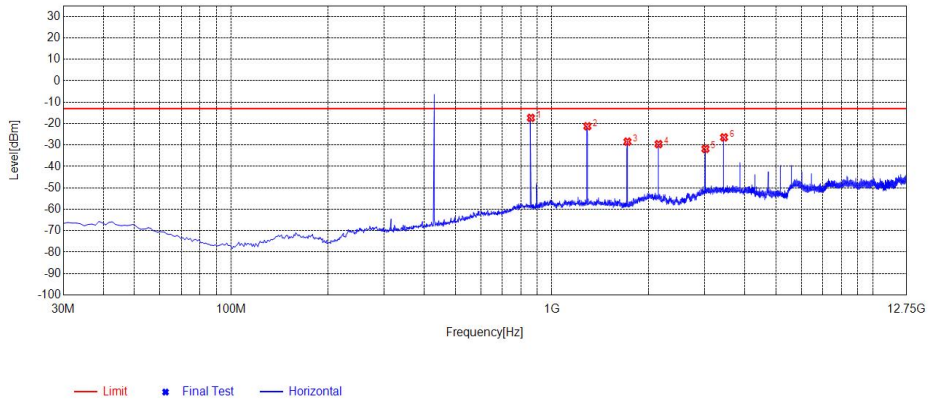


8.4 MEASUREMENT RESULTS

Preliminary calculation	Final Result
At least 43+10 log (P) =43+10log (5) =49.99 (dB)	Limit=P- Preliminary calculation=36.99-49.99=-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

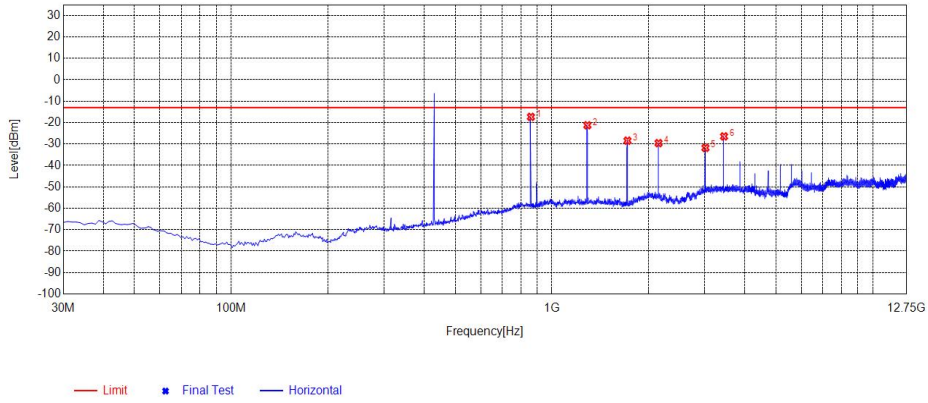
1. Factor=Antenna Factor + Cable loss. (Below 1GHz)
2. Factor=Antenna Factor+ Cable loss -Pre-amplifier. (Above 1 GHz)
3. Margin=Limit- Level

Test Mode:	CH_{L1}	Polarity:	Horizontal



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	860.3200	-60.48	-17.35	-13.00	4.35	43.13	5	Horizontal
2	1290.2540	-17.60	-21.25	-13.00	8.25	-3.65	125	Horizontal
3	1720.3470	-26.89	-28.45	-13.00	15.45	-1.56	230	Horizontal
4	2150.4400	-29.54	-29.60	-13.00	16.60	-0.06	230	Horizontal
5	3010.6261	-35.13	-31.82	-13.00	18.82	3.31	267	Horizontal
6	3440.7191	-30.51	-26.44	-13.00	13.44	4.07	351	Horizontal

Test Mode:	CH_{L1}	Polarity:	Vertical



NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]	Polarity
1	860.3200	-60.48	-17.35	-13.00	4.35	43.13	5	Horizontal
2	1290.2540	-17.60	-21.25	-13.00	8.25	-3.65	125	Horizontal
3	1720.3470	-26.89	-28.45	-13.00	15.45	-1.56	230	Horizontal
4	2150.4400	-29.54	-29.60	-13.00	16.60	-0.06	230	Horizontal
5	3010.6261	-35.13	-31.82	-13.00	18.82	3.31	267	Horizontal
6	3440.7191	-30.51	-26.44	-13.00	13.44	4.07	351	Horizontal

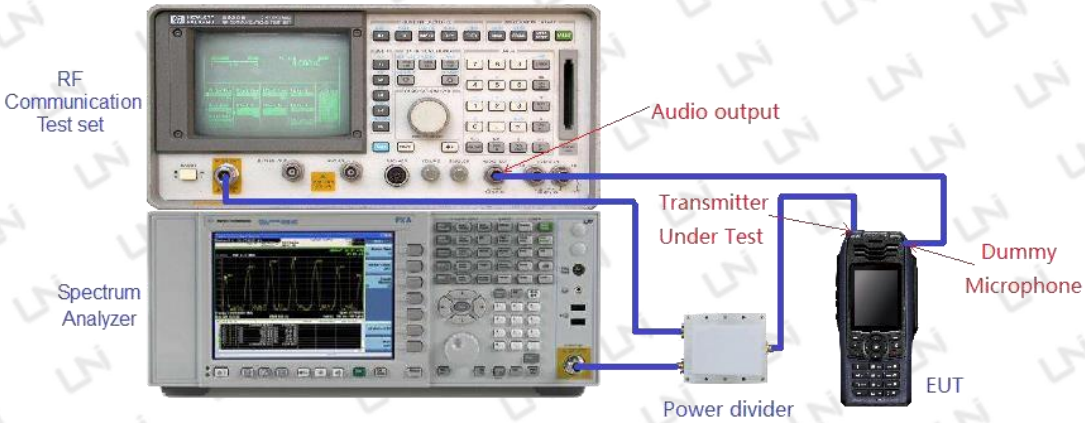
8.5 EMISSION MASK PLOT

The detailed procedure employed for Emission Mask measurements are specified as following:

-Connect the equipment as illustrated.

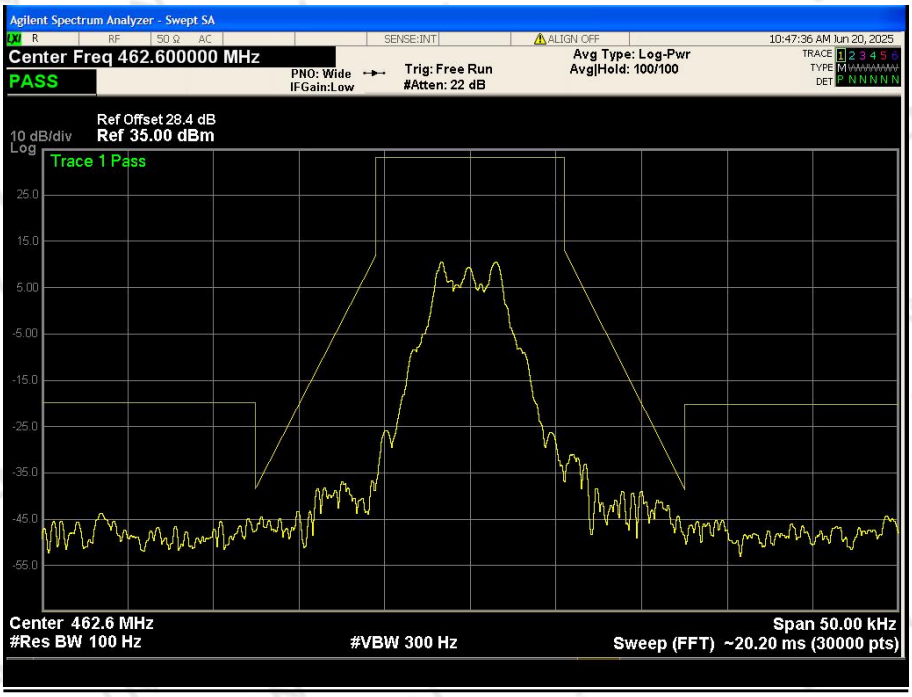
-Spectrum set as follow:

1. Centre frequency = fundamental frequency, Span=50kHz for 12.5kHz , RBW=100Hz, VBW=300Hz ;
2. Sweep = auto, Detector function = peak, Trace = max hold
3. Key the transmitter, and set the level of the unmodulated carrier to a full scale reference line. This is the 0dB reference for the measurement.
4. Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of rated system deviation (Rated system deviation is 2.5 kHz for 12.5kHz channel spacing).
   The input level shall be established at the frequency of maximum response of the audio modulating circuit.
5. Transmitters employing digital modulation techniques that bypass the limiter and the audio low-pass filter shall be modulated as specified by the manufacturer.
6. Measure and record the results in the test report.



Test plot as follows:

The Worst Emission Mask for (462.5625 MHz) of 12.5 KHz channel Separation



9. MAXIMUMN TRANSMITTER POWER

9.1 PROVISIONS APPLICABLE

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

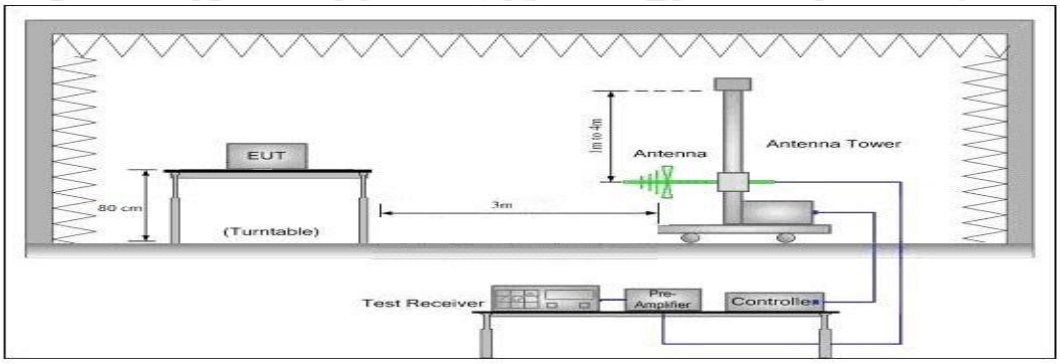
9.2 MEASUREMENT METHOD

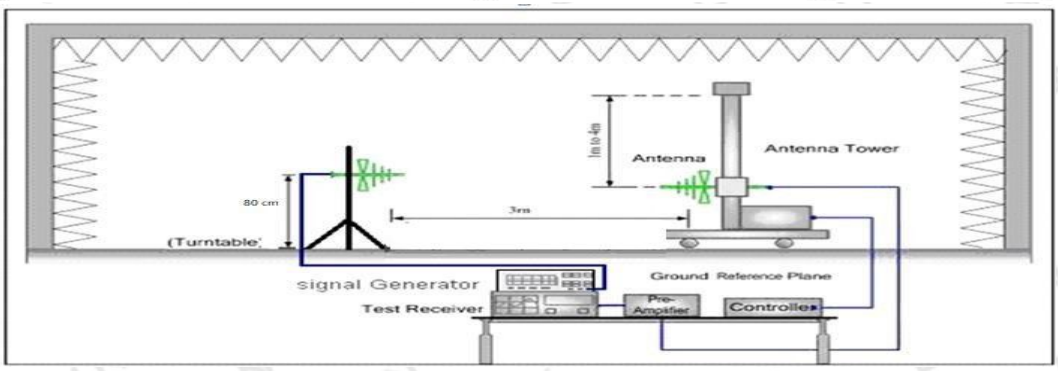
1) EUT was placed on a 0.8 or 1.5meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The disturbance of the transmitter was maximized on the test receiver display by raising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

9.3 MEASUREMENT SETUP

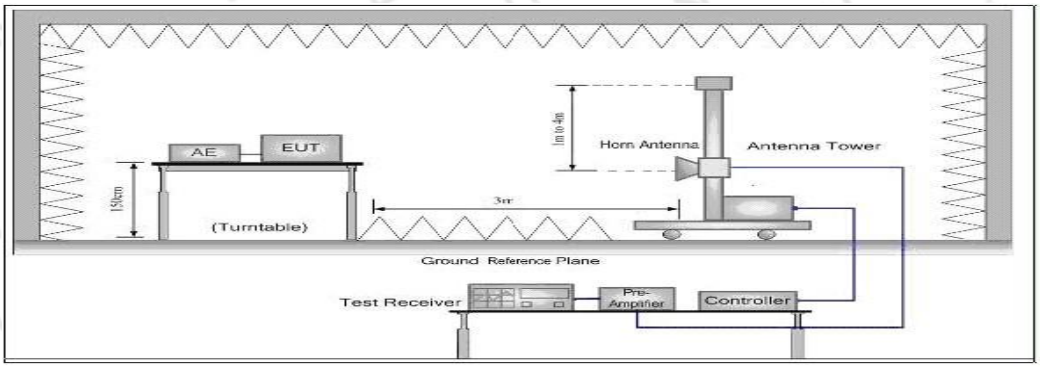
EFFECTIVE RADIATED POWER:

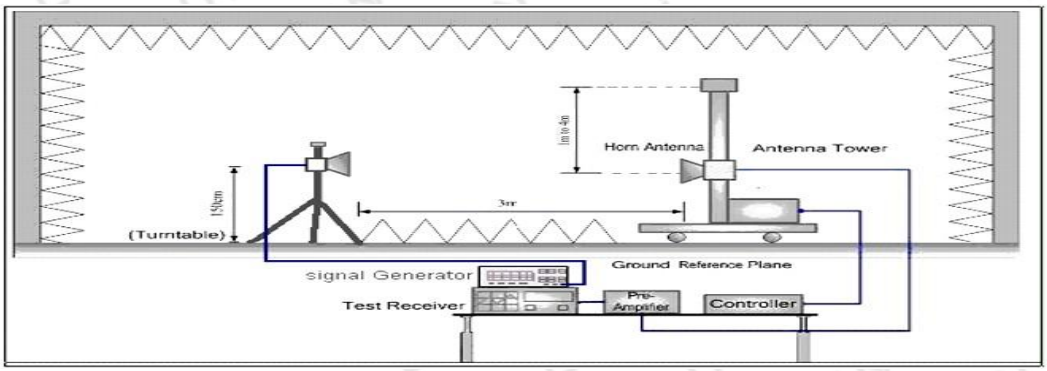
Radiated Below1GHz





Radiated Above 1 GHz





9.4 MEASUREMENT RESULTS

ERP RESULT:

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Emission Level	Limit
(MHz)	(dBuv/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(W)	(W)
ChannelSeparation:12.5KHz								
462.5625	105.93	V	7.379	0.38	0.54	7.539	**0.00567**	2.0
462.5625	105.88	H	7.34	0.38	0.54	7.5	0.00562	2.0

NOTE: 1. Calculation Formula: Emission Level(dBm) = S.G. (dBm)- Cable Loss(dB)+ Ant.Gain(dBi)
2.The Ant. Gain including the correct factor 2.15
3.Margin (dB) = Limit(dBm)- Emission Level(dBm)

10.MODULATION CHARACTERISTICS

10.1 PROVISIONS APPLICABLE

According to FCC§2.1047 and §95.575, for Voice Modulation Communication Equipment, the frequency response of the audio modulation circuit over a range of 100 to 5000Hz shall be measured.

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

10.2 MEASUREMENT METHOD

10.2.1 Modulation Limit

(1). Configure the EUT as shown in figure 1, adjust the audio input for 60% of rated system deviation at 1kHz using this level as a reference (0dB) and vary the input level from –20 to +20dB. Record the frequency deviation obtained as a function of the input level.

(2). Repeat step 1 with input frequency changing to 300, 1000, 1500 and 3000Hz in sequence.

10.2.2 Audio Frequency Response

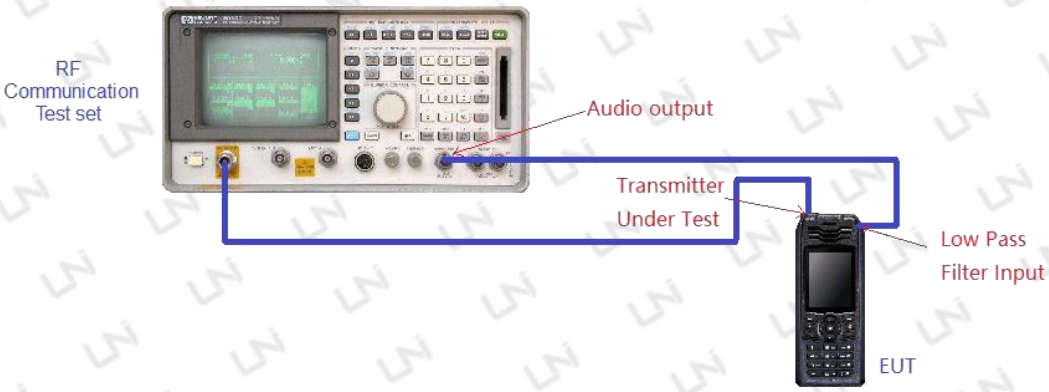
(1). Configure the EUT as shown in figure 1.

(2). Adjust the audio input for 20% of rated system deviation at 1 kHz using this level as a reference (0 dB).

(3). Vary the Audio frequency from 100 Hz to 10 kHz and record the frequency deviation.

(4). Audio Frequency Response = 20log10 (Deviation of test frequency/Deviation of 1 kHz reference).

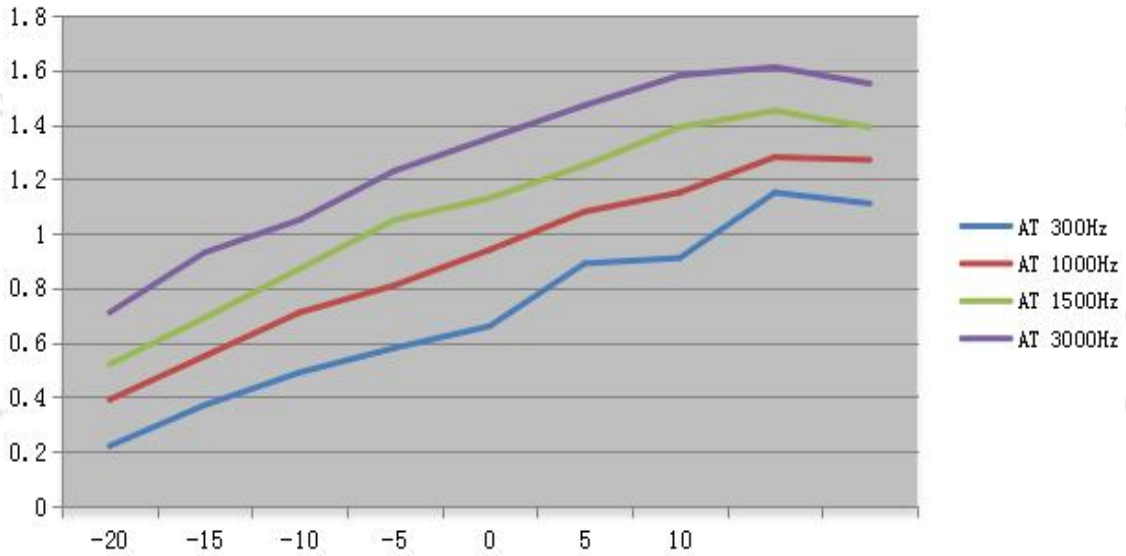
10.3 MEASUREMENT SETUP



10.4 MEASUREMENT RESULTS

(A). MODULATION LIMIT:

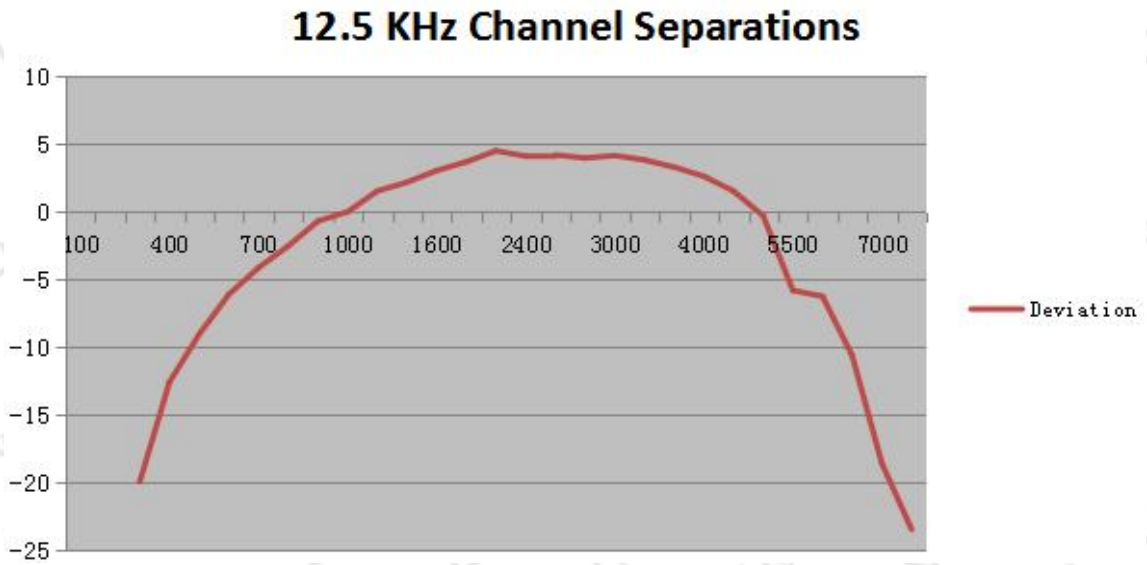
12.5kHz, FM modulation, Assigned Frequency:462.5625MHz				
Modulation Level (dB)	Peak Freq. Deviation At 300 Hz (kHz)	Peak Freq. Deviation At 1000 Hz (kHz)	Peak Freq. Deviation At 1500 Hz (kHz)	Peak Freq. Deviation At 3000 Hz (kHz)
-20	0.21	0.45	0.62	0.86
-15	0.45	0.69	0.89	1.25
-10	0.62	0.88	1.13	1.48
-5	0.77	1.09	1.28	1.53
0	0.83	1.13	1.35	1.66
+5	0.92	1.28	1.48	1.71
+10	0.99	1.34	1.69	1.80
+15	1.12	1.47	1.72	1.86
+20	1.11	1.45	1.65	1.82



Note: All the modes had been tested, but only the worst data recorded in the report

(B). AUDIO FREQUENCY RESPONSE:

12.5kHz, Analog modulation, Assigned Frequency:462.5625MHz		
Frequency (Hz)	Deviation (kHz)	Audio Frequency Response(dB)
100	--	--
200	--	--
300	0.12	-19.93
400	0.28	-12.57
500	0.42	-9.05
600	0.59	-6.09
700	0.74	-4.13
800	0.89	-2.52
900	1.10	-0.68
1000	1.19	0.00
1200	1.42	1.53
1400	1.53	2.18
1600	1.69	3.05
1800	1.82	3.69
2000	2.00	4.51
2400	1.91	4.11
2500	1.93	4.20
2800	1.88	3.97
3000	1.92	4.16
3200	1.85	3.83
3600	1.74	3.30
4000	1.61	2.63
4500	1.42	1.53
5000	1.15	-0.30
5500	0.61	-5.80
6000	0.58	-6.24
6500	0.35	-10.63
7000	0.14	-18.59
7500	0.08	-23.45



Note: All the modes had been tested, but only the worst data recorded in the report.

11. TEST SETUP PHOTO

Reference to the **Test Setup Photo** for details.

12. EUT CONSTRUCTIONAL DETAILS

Reference to the **External Photos and Internal Photos** for details.

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