RADIO TEST REPORT
FCC ID:2AWGT-G1C

Product Designation	:	GPS tracker
Trade Name	:	GOSAFE
Model Name	:	G1C
Applicant	:	GOSAFE(GUANGZHOU)INC
Date of Issue	:	May. 15, 2020
Standard(s)	:	FCC Part 22:PUBLIC MOBILE SERVICES FCC Part 24:PERSONAL COMMUNICATIONS SERVICES FCC Part 27:MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
Report No	:	DGE200413002D01

Prepared for

GOSAFE(GUANGZHOU)INC

RM 1105, the Innovation Building C1 No. 182 Kexue Avenue, Science City, Guangzhou.China

Prepared by

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REPORT REVISE RECORD

Report No	Revise Time	Issued Date	Valid Version	Notes
DGE200413002D01	/	May 15, 2020	Invalid	Initial release

Note: The original test report Ref.No. ZR/2019/8003201 dated Dec. 11, 2019, was modified on May. 15, 2020 to include the following changes:

- Change the EUT Left headset photo;
- RADIATED OUTPUT POWER.
- RADIATED SPURIOUS EMISSION;

TABLE OF CONTENTS

1.TEST REPORT CERTIFICATION

Applicant's name..... :	GOSAFE(GUANGZHOU)INC
Address..... :	RM 1105, the Innovation Building C1 No. 182 Kexue Avenue, Science City, Guangzhou.China
Manufacturer's Name..... :	Huizhou Bo Shi Jie Technology Co., Ltd.
Address..... :	Bo Shi Jie Industrial Park, No .1 Huifeng West Third Road, Zhongkai，Huizhou City, Guangzhou.China

Product description

Product name..... :	GPS tracker
Trademark ..... :	GOSAFE
Model and/or type reference .... :	G1C
Difference ：	N/A
Standards..... :	FCC Part 22: PUBLIC MOBILE SERVICES FCC Part 24: PERSONAL COMMUNICATIONS SERVICES FCC Part 27:MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

Date of Test.....

Date (s) of performance of tests..... :	10 Apr. 2020 ~15 May. 2020
Date of Issue..... :	15 May. 2020
Test Result..... :	**Pass**

Testing Engineer : Eileen Liu.
(Eileen Liu)

Technical Manager : Jason chen
(Jason Chen)

Authorized Signatory : Sam . Chen
(Sam Chen)

2. GENERAL INFORMATION

2.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	GPS tracker
Frequency Bands:	☒ GPRS 850 ☒ PCS1900 ☒ LTE NB1 Band 2 ☒ LTE NB1 Band 4
Test Modulation	(GSM)GMSK,8PSK; (LTE)QPSK,16QAM
Hardware Version	V1.0
Software Version	V1.0
Antenna Type	PIFA Antenna
Antenna gain	GSM 850: -1.0dBi; GSM1900: 0.9dBi; LTE NB1 Band 2: 0.9dBi; LTE NB1 Band 4:1.6dBi;
Power Supply:	DC 3.3V to 4.07V (Normal: DC 3.7V);DC 6V~90V by external power supply
Singel Card:	GSM /LTE Card Slot
GPRS Class	12
Extreme Temp. Tolerance	-20℃ to +75℃
*** Note: 1. The High Voltage DC 4.07V and Low Voltage DC 3.3V were declared by manufacturer 2. The EUT couldn't be operating normally with higher or lower voltage.	

Characteristics	Description		
Supported Frequency Range	Band	Tx	Rx
	GSM 850	824 to 849 MHz	869 to 894 MHz
	GSM 1900	1850 to 1910 MHz	1930 to 1990 MHz
	LTE NB1 Band 2	1850 to 1910 MHz	1930 to 1990 MHz
	LTE NB1 Band 4	1710 to 1755 MHz	2110 to 2155 MHz

Supported Channel Bandwidth	GSM	200KHz
	LTE NB1 Band 2	180KHz
	LTE NB1 Band 4	180KHz

2.3 Test Frequencies

Test Mode	TX/RX	RF Channel		
		Low	Middle	High
GSM850	TX	Channel 128	Channel 190	Channel 251
		824.2MHz	836.6 MHz	848.8 MHz
	RX	Channel 128	Channel 190	Channel 251
		869.2 MHz	881.6 MHz	893.8 MHz
GSM1900	TX	Channel 512	Channel 661	Channel 810
		1850.2MHz	1880.0 MHz	1909.8 MHz
	RX	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz

Test Mode	Bandwidth	TX/RX	RF Channel		
			Low	Middle	High
LTE NB1 Band 2	180KHz	TX	Channel 18601	Channel 18900	Channel 19199
			1850.1 MHz	1880 MHz	1909.9 MHz
		RX	Channel 601	Channel 900	Channel 1199
			1930.1 MHz	1960 MHz	1989.9 MHz
LTE NB1 Band 4	180KHz	TX	Channel 19951	Channel 20175	Channel 20399
			1710.1 MHz	1732.5 MHz	1754.9 MHz
		RX	Channel 1975	Channel 2175	Channel 2375
			2110.1 MHz	2132.5MHz	2154.9 MHz

2.4 Test Methodology

The radiated emission testing was performed according to the procedures of ANSI/TIA-603-E-2016, and KDB 971168 D01 Power Means License Digital Systems V03R01.

2.5 TEST FACILITY

Site	Shenzhen NTEK Testing Technology Co., Ltd.
Location	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China
Designation Number	FCC Registered No.: 238937 IC Registered No.:9270A-1 CNAS Registration No.:L5516

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 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±3.6dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4. 8dB
5	All emissions,radiated(>1G)	±5.0dB
6	Temperature	±0.5°C
7	Humidity	±2%

ALL TEST EQUIPMENT LIST

No.	Type	Manufacturer	S/N	Cal. Date	Cal. Due
1	H & T Chamber ETH225-40A	Test EQ	WIT-05121302	Feb.13,2020	Feb.12,2021
2	CMW500	R&S	1100.008.02	Feb.27,2020	Feb.26,2021
3	Wireless communication test set 8960	Agilent	GB46200384	July 16,2019	July 15,2020
4	Power Splitter 11636A	Agilent	34	Sep.21,2019	Sep.20,2020
5	Attenuator	JFW	50FHC-006-50	Jun 20, 2019	June 19, 2020
6	Vector Signal Generator SMU200A	R&S	104332	Sep.21,2019	Sep.20,2020
7	VECTOR ANALYZER E4440A	Agilent	MY44303916	Jun 29, 2019	June 28, 2020
8	MXG Vector Signal Generator N5182A	AGILENT	MY50140530	Sep. 21, 2019	Sep. 20, 2020
9	PSG Analog Signal Generator E8257D	AGILENT	MY45141029	Sep. 21, 2019	Sep. 20, 2020
10	MXA Signal Analyzer	AGILENT	W1312-60196	Feb.27,2020	Feb.26,2021

No.	Type	Manufacturer	S/N	Cal. Date	Cal. Due
	N9020A				
11	Universal Switch Control Unit	JS TONSCEND	N/A	---	---
12	RF SHIELD BOX	R&S	1204.7008K02-1 02590-EE	Feb.27,2020	Feb.26,2021
13	Programmable Power Supply PPT-1830	GW INSTEK	EM907629	Aug.24,2019	Aug.23,2020
14	Vibration Source SCU-200	SUSHI	3000-40-07	Feb.23,2020	Feb.22,2021
15	Attenuator	JFW	50FHC-006-50	Jun 20, 2019	Jun 19, 2020
16	EMI Test Receiver ESCI	R&S	100694	Feb.27,2020	Feb.26,2021
17	Horn Antenna	EM	EM-AH-10180	Mar.01,2020	Feb.28,2021
18	Horn Ant	Schwarzbeck	BBHA 9170	Mar.12,2020	Mar.11,2021
19	Loop antenna	ARA	PLA-1030/B	Mar.01,2020	Feb.28,2021
20	Bilog Antenna	TESEQ	CBL6111D	Apr.11,2020	Apr.10,2021
21	Pre-Amplifier	EMC	EMC051835SE	Mar.01,2016	Feb.28,2021
22	High pass filter unit	Tonscend	JS0806-F	Mar.09,2019	Mar.08,2022
23	Coupling Ant	EMC	0059611	Mar.18,2019	Mar.17,2022

2.6 SPECIAL ACCESSORIES

The battery wassupplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

2.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

3. SYSTEM TEST CONFIGURATION

3.1 EUT CONFIGURATION

The EUTconfiguration 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.

3.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

3.3 CONFIGURATION OF EUT SYSTEM

Fig. 2-1 Configuration of EUT System

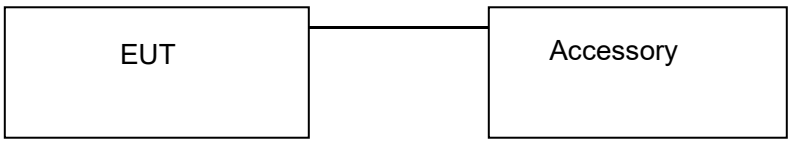


Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Remark
1	GPS tracker	G1C	2AWGT-G1C	EUT
2	Antenna	N/A	N/A	AE

***Note: All the accessories have been used during the test. The following “EUT” in setup diagram means EUT system.

4. SUMMARY OF TEST RESULTS

Item Number	Item Description		FCC Rules	Result
1	Output Power	Conducted Output Power	2.1046	Pass
		Radiated Output Power	22.913(a) (2) / 24.232 (c)/ 27.50(d)(4)	
2	Peak-to-Average Ratio	Peak-to-Average Ratio	24.232(d)/27.50(d)	Pass
3	Spurious Emission	Conducted Spurious Emission	2.1051/22.917(a)/24.238(a)/ 27.53(h)	Pass
		Radiated Spurious Emission		
4	Frequency Stability		2.1053/22.917(a)/24.238(a)/27.53(h)	Pass
5	Occupied Bandwidth		2.1049	Pass
6	Band Edge		2.1051/22.917(a)/24.238(a)/ 27.53(h)	Pass

5. DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMW 500)to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both GSMand PCS frequency band.
***Note:** GPRS/EGPRS 850, GPRS/EGPRS 1900, LTE, mode have been tested during the test.
The worst condition was recorded in the test report if no other modes test data.

6. OUTPUT POWER

6.1 CONDUCTED OUTPUT POWER

Please refer to the original report .: ZR/2019/8003201-Appendix B , FCC ID: ZMOMA510GL

6.2 RADIATED OUTPUT POWER

6.2.1 MEASUREMENT METHOD

The measurements procedures specified in TIA-603-D-2010 were applied.
In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.
The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:
ERP/EIRP = SGLevel -Pcl +Ga
where:
ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as SGLevel, typically dBW or dBm);
SGLevel = Signal generator output power or PSD, in dBm or dBW;
Ga = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
Pcl = signal attenuation in the connecting cable between the transmitter and antenna, in dB.[2]

The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.
From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.
The EUT is then put into continuously transmitting mode at its maximum power level.
Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.
This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).
ERP can be calculated from EIRP by subtracting the gain of the dipole, **ERP = EIRP -2.15dBi.**
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis.
The worst case emissions were reported.

6.2.2 PROVISIONS APPLICABLE

Mode	FCC Part Section(s)	Nominal Peak Power
GPRS/EDGE 850	22.913(a)(2)	<=38.45dBm (7W). ERP
GPRS/EDGE 1900	24.232(c)	<=33dBm (2W). EIRP
LTE NB1 Band 2	24.229(b)	<=33dBm (2W)
LTE NB1 Band 4	27.5(h)	<=30dBm (1W)

6.2.3 MEASUREMENT RESULT

Band	Channel	Slot	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
GSM850	128	---	32.34	29.19	38.45	PASS
GSM850	190	---	32.38	29.23	38.45	PASS
GSM850	251	---	32.39	29.24	38.45	PASS
EGPRS850	128	1	26.59	23.44	38.45	PASS
EGPRS850	128	2	26.32	23.17	38.45	PASS
EGPRS850	128	3	25.22	22.07	38.45	PASS
EGPRS850	128	4	23.94	20.79	38.45	PASS
EGPRS850	190	1	26.65	23.50	38.45	PASS
EGPRS850	190	2	26.17	23.02	38.45	PASS
EGPRS850	190	3	25.06	21.91	38.45	PASS
EGPRS850	190	4	24.16	21.01	38.45	PASS
EGPRS850	251	1	26.60	23.45	38.45	PASS
EGPRS850	251	2	26.28	23.13	38.45	PASS
EGPRS850	251	3	25.24	22.09	38.45	PASS
EGPRS850	251	4	24.22	21.07	38.45	PASS

Band	Channel	Slot	Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Verdict
GSM1900	512	---	29.54	30.44	33.00	PASS
GSM1900	661	---	29.67	30.57	33.00	PASS
GSM1900	810	---	29.23	30.13	33.00	PASS
EGPRS1900	512	1	24.88	25.78	33.00	PASS
EGPRS1900	512	2	24.76	25.66	33.00	PASS
EGPRS1900	512	3	23.56	24.46	33.00	PASS
EGPRS1900	512	4	22.63	23.53	33.00	PASS
EGPRS1900	661	1	24.88	25.78	33.00	PASS
EGPRS1900	661	2	24.70	25.60	33.00	PASS
EGPRS1900	661	3	23.52	24.42	33.00	PASS
EGPRS1900	661	4	22.58	23.48	33.00	PASS
EGPRS1900	810	1	24.67	25.57	33.00	PASS
EGPRS1900	810	2	24.69	25.59	33.00	PASS

EGPRS1900	810	3	23.66	24.56	33.00	PASS
EGPRS1900	810	4	22.65	23.55	33.00	PASS

Test Band	Test Mode	Sub-carrier Spacing (kHz)	Test channel	Number of T	Conducted Power (dBm)	EIRP (dBm)	limit (dBm)	Verdict
NB1 Band 2	BPSK	3.75	18601	1T0	21.00	21.90	33.00	PASS
NB1 Band 2	BPSK	3.75	18900	1T0	20.84	21.74	33.00	PASS
NB1 Band 2	BPSK	3.75	19199	1T0	20.82	21.72	33.00	PASS
NB1 Band 2	QPSK	3.75	18601	1T0	21.00	21.90	33.00	PASS
NB1 Band 2	QPSK	3.75	18900	1T0	20.83	21.73	33.00	PASS
NB1 Band 2	QPSK	3.75	19199	1T0	20.78	21.68	33.00	PASS

Test Band	Test Mode	Sub-carrier Spacing (kHz)	Test channel	Number of T	Conducted Power (dBm)	EIRP (dBm)	limit (dBm)	Verdict
NB1 Band 2	BPSK	15	18601	1T0	20.24	21.14	33.00	PASS
NB1 Band 2	BPSK	15	18900	1T0	20.56	21.46	33.00	PASS
NB1 Band 2	BPSK	15	19199	1T0	21.00	21.90	33.00	PASS
NB1 Band 2	QPSK	15	18601	1T0	20.23	21.13	33.00	PASS
NB1 Band 2	QPSK	15	18601	12T0	20.11	21.01	33.00	PASS
NB1 Band 2	QPSK	15	18900	1T0	20.66	21.56	33.00	PASS
NB1 Band 2	QPSK	15	18900	12T0	20.82	21.72	33.00	PASS
NB1 Band 2	QPSK	15	19199	1T0	21.07	21.97	33.00	PASS
NB1 Band 2	QPSK	15	19199	12T0	20.22	21.12	33.00	PASS

Note:

a: For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

EIRP [dBm] = Conducted Power [dBm] + Gain [dBi]

ERP [dBm] = Conducted Power [dBm] + Gain [dBi] -2.15

6.3. PEAK-TO-AVERAGE RATIO

Please refer to the original report .: ZR/2019/8003201-Appendix B , FCC ID: ZMOMA510GL

7. OCCUPIED BANDWIDTH

Please refer to the original report .: ZR/2019/8003201-Appendix B , FCC ID: ZMOMA510GL

8. BAND EDGE

Please refer to the original report .: ZR/2019/8003201-Appendix B , FCC ID: ZMOMA510GL

9. SPURIOUS EMISSION

9.1 CONDUCTED SPURIOUS EMISSION

Please refer to the original report .: ZR/2019/8003201-Appendix B , FCC ID: ZMOMA510GL

9.2 RADIATED SPURIOUS EMISSION

9.2.1 MEASUREMENT METHOD

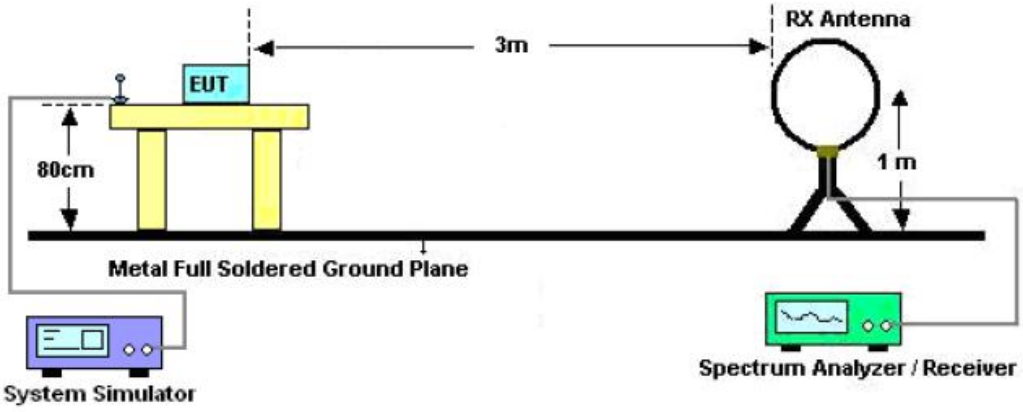
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.

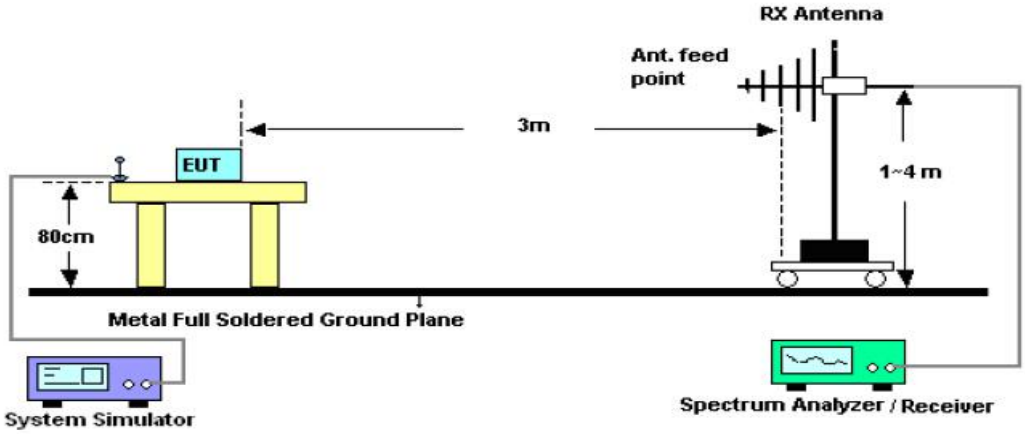
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

9.2.2 TEST SETUP

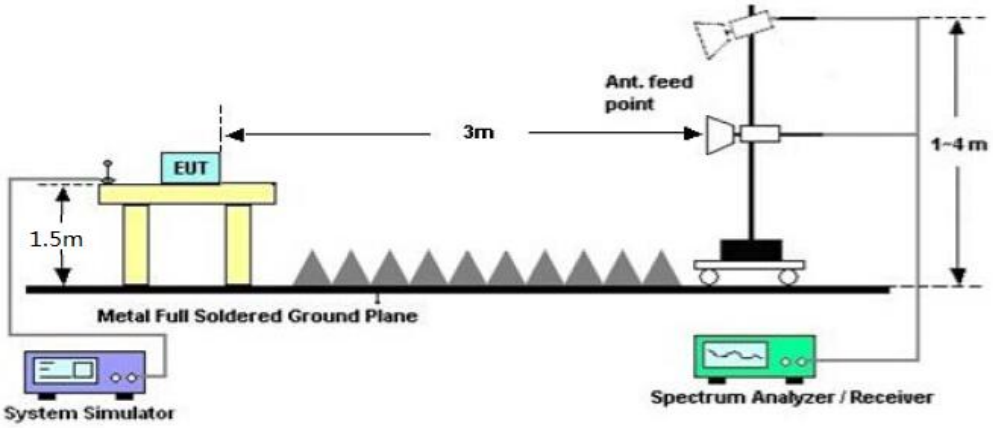
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



9.2.3 PROVISIONS APPLICABLE

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Note: only result the worst condition of each test mode:

9.2.4 MEASUREMENT RESULT

GPRS 850:

Test Results for Channel 128/824.2 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
1648.63	-50.67	1.35	-13	-37.67	Horizontal
2472.74	-49.43	1.32	-13	-36.43	Horizontal
6593.75	-50.79	0.98	-13	-37.79	Horizontal
1648.86	-48.78	1.15	-13	-35.78	Vertical
2472.81	-50.47	1.07	-13	-37.47	Vertical
6593.80	-47.79	1.11	-13	-34.79	Vertical
Test Results for Channel 190/836.6 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
1673.47	-50.72	2.47	-13	-37.72	Horizontal
2510.11	-49.39	2.43	-13	-36.39	Horizontal
6693.22	-51.14	0.99	-13	-38.14	Horizontal
1673.29	-49.00	2.06	-13	-36.00	Vertical
2510.09	-50.48	2.55	-13	-37.48	Vertical
6693.22	-47.73	1.64	-13	-34.73	Vertical
Test Results for Channel 190/848.8MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
1697.90	-50.59	1.36	-13	-37.59	Horizontal
2546.82	-49.21	1.48	-13	-36.21	Horizontal
6790.41	-51.24	2.23	-13	-38.24	Horizontal
1697.78	-49.18	1.17	-13	-36.18	Vertical
2546.52	-50.50	1.37	-13	-37.50	Vertical
6790.74	-48.07	2.19	-13	-35.07	Vertical

PCS 1900(GPRS):

Test Results for Channel 512/1850.2MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3700.47	-50.87	2.08	-13	-37.87	Horizontal
5550.83	-49.58	2.64	-13	-36.58	Horizontal
14801.93	-50.85	2.17	-13	-37.85	Horizontal
3700.79	-48.87	2.24	-13	-35.87	Vertical
5551.01	-50.29	2.53	-13	-37.29	Vertical
14802.01	-47.97	1.40	-13	-34.97	Vertical
Test Results for Channel 661/1880MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3760.10	-50.49	2.14	-13	-37.49	Horizontal
5640.16	-49.29	1.65	-13	-36.29	Horizontal
15040.32	-51.02	1.08	-13	-38.02	Horizontal
3760.21	-48.79	1.19	-13	-35.79	Vertical
5640.33	-50.36	2.16	-13	-37.36	Vertical
15040.11	-47.81	1.48	-13	-34.81	Vertical
Test Results for Channel 810/1909.8MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3820.00	-50.87	2.42	-13	-37.87	Horizontal
5729.45	-49.67	2.39	-13	-36.67	Horizontal
15278.80	-50.94	1.58	-13	-37.94	Horizontal
3819.90	-48.98	1.29	-13	-35.98	Vertical
5729.68	-50.59	1.25	-13	-37.59	Vertical
15278.48	-48.06	2.02	-13	-35.06	Vertical

LTE NB1 Band 2:

Test Results for Channel 18601/1850.1 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3700.34	-51.49	2.47	-13	-38.49	Horizontal
5550.53	-53.35	2.22	-13	-40.35	Horizontal
14801.10	-50.99	1.79	-13	-37.99	Horizontal
3700.59	-53.89	1.37	-13	-40.89	Vertical
5550.67	-50.29	2.50	-13	-37.29	Vertical
14801.01	-55.80	1.29	-13	-42.80	Vertical
Test Results for Channel 18900/1880 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3760.36	-51.56	2.35	-13	-38.56	Horizontal
5640.13	-53.51	1.94	-13	-40.51	Horizontal
15040.50	-50.97	2.35	-13	-37.97	Horizontal
3760.32	-53.96	1.37	-13	-40.96	Vertical
5640.02	-50.53	1.51	-13	-37.53	Vertical
15040.22	-56.01	1.15	-13	-43.01	Vertical
Test Results for Channel 19199/1909.9 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3819.81	-51.53	1.42	-13	-38.53	Horizontal
5729.92	-53.58	1.45	-13	-40.58	Horizontal
15279.53	-51.04	1.66	-13	-38.04	Horizontal
3820.06	-53.69	1.33	-13	-40.69	Vertical
5730.05	-50.16	2.36	-13	-37.16	Vertical
15279.59	-56.06	2.48	-13	-43.06	Vertical

LTE NB1 Band 4:

Test Results for Channel 19951/1710.1 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3420.65	-51.76	2.43	-13	-38.76	Horizontal
5130.39	-53.42	2.03	-13	-40.42	Horizontal
13681.12	-50.96	1.54	-13	-37.96	Horizontal
3420.44	-54.00	2.40	-13	-41.00	Vertical
5130.78	-50.65	1.19	-13	-37.65	Vertical
13680.93	-55.93	1.31	-13	-42.93	Vertical
Test Results for Channel 20175/1732.5 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3465.03	-51.64	1.39	-13	-38.64	Horizontal
5197.64	-53.59	2.69	-13	-40.59	Horizontal
13860.22	-50.92	2.44	-13	-37.92	Horizontal
3465.45	-53.81	1.99	-13	-40.81	Vertical
5197.82	-50.46	1.84	-13	-37.46	Vertical
13860.24	-55.77	2.28	-13	-42.77	Vertical
Test Results for Channel 20399/1754.9 MHz					
Frequency (MHz)	Emission Level (dBm)	Factor (dBm)	Limits (dBm)	Margin (dB)	Comment
3510.15	-51.57	2.33	-13	-38.57	Horizontal
5264.97	-53.51	1.33	-13	-40.51	Horizontal
14039.54	-51.11	1.45	-13	-38.11	Horizontal
3510.08	-54.04	1.47	-13	-41.04	Vertical
5265.02	-50.58	2.23	-13	-37.58	Vertical
14039.21	-55.95	1.78	-13	-42.95	Vertical

RESULT: PASS

Note:

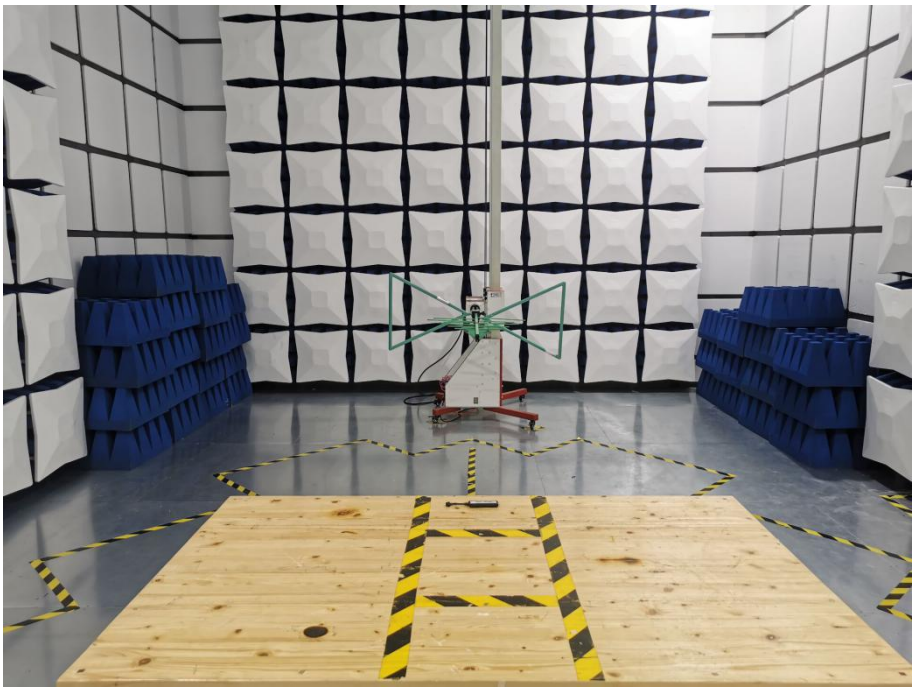
1. Margin = Emission Level -Limit
2. Below 30MHZ no Spurious found and Above is the worst mode data
3. Factor = Antenna Factor + Cable Loss

10. FREQUENCY STABILITY

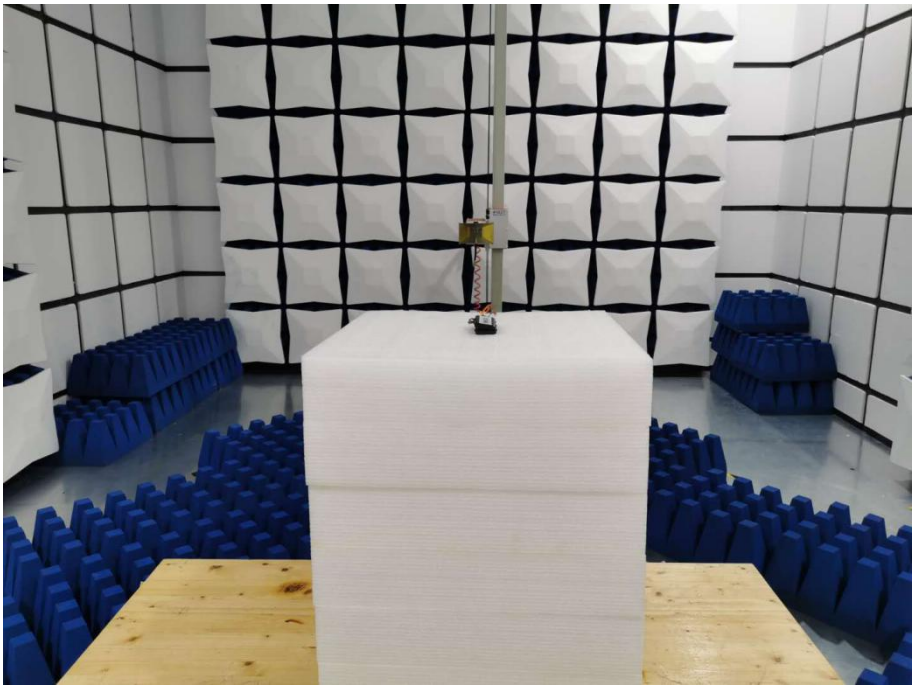
Please refer to the original report .: ZR/2019/8003201-Appendix B , FCC ID: ZMOMA510GL

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

RADIATED SPURIOUS EMISSION



RADIATED SPURIOUS ABOVE 1G EMISSION



----END OF REPORT----