TEST REPORT

Product	:	4G Intelligent Gateway
Trade mark	:	N/A
Model/Type reference	:	X2
Serial Number	:	N/A
Report Number	:	EED32P80040003
FCC ID	:	2AG6GX2
Date of Issue	:	Feb. 09, 2023
Test Standards	:	47 CFR Part 2 47 CFR Part 22 subpart H 47 CFR Part 24 subpart E 47 CFR Part 27 subpart C
Test result	:	PASS

Prepared for:

Hongdian Corporation
Tower A, Hongdian Building, 100 Huabao Road, Pinghu, Longgang District, Shenzhen, China

Prepared by:

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Approved by:	Aaron Ma Aaron Ma	Date:	Feb. 09, 2023

Check No.: 2407100123

1 Version

Version No.	Date	Description
00	Feb. 09, 2023	Original

2 Test Summary

Test Item	Test Requirement	Test method	Result
GSM 850			
Conducted output power	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
Effective Radiated Power of Transmitter(ERP)	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 22.917(b) &KDB 971168 D01v02r02	Note 1
Band Edge at antenna terminals	Part 2.1051/Part 22.917(a)	Part 22.917(b) &KDB 971168 D01v02r02	Note 1
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
Field strength of spurious radiation	Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/ Part 22.355	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
WCDMA Band V			
Conducted output power	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
Effective Radiated Power of Transmitter(ERP)	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 22.917(b) &KDB 971168 D01v02r02	Note 1
Band Edge at antenna terminals	Part 2.1051/Part 22.917(a)	Part 22.917(b) &KDB 971168 D01v02r02	Note 1
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
Field strength of spurious radiation	Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/ Part 22.355	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
LTE Band 5			
Conducted output power	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
Effective Radiated Power of Transmitter(ERP)	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 22.917(b) &KDB 971168 D01v02r02	Note 1
Band Edge at antenna terminals	Part 2.1051/Part 22.917(a)	Part 22.917(b) &KDB 971168 D01v02r02	Note 1

Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
Field strength of spurious radiation	Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/ Part 22.355	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 1
GSM 1900			
Conducted output power	Part 2.1046(a) /Part 24.232(c)	TIA-603-E-2016&KDB 971168 D01v02r02	Note 2
Effective Radiated Power of Transmitter(EIRP)	Part 2.1046(a) / Part 24.232(c)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
peak-to-average ratio	Part 24.232(d)	KDB 971168 D01v02r02	Note 2
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 24.238(b) &KDB 971168 D01v02r02	Note 2
Band Edge at antenna terminals	Part 2.1051/ Part 24.238(a)	Part 24.238(b) &KDB 971168 D01v02r02	Note 2
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 24.238(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
Field strength of spurious radiation	Part 2.1053 /Part 2.1057 / Part 24.238(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/Part 24.235	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
WCDMA Band II			
Conducted output power	Part 2.1046(a) /Part 24.232(c)	TIA-603-E-2016&KDB 971168 D01v02r02	Note 2
Effective Radiated Power of Transmitter(EIRP)	Part 2.1046(a) / Part 24.232(c)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
peak-to-average ratio	Part 24.232(d)	KDB 971168 D01v02r02	Note 2
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 24.238(b) &KDB 971168 D01v02r02	Note 2
Band Edge at antenna terminals	Part 2.1051/ Part 24.238(a)	Part 24.238(b) &KDB 971168 D01v02r02	Note 2
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 24.238(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
Field strength of spurious radiation	Part 2.1053 /Part 2.1057 / Part 24.238(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/Part 24.235	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
LTE Band 2			
Conducted output power	Part 2.1046(a) /Part 24.232(c)	TIA-603-E-2016&KDB 971168 D01v02r02	Note 2

Effective Radiated Power of Transmitter(EIRP)	Part 2.1046(a) / Part 24.232(c)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
peak-to-average ratio	Part 24.232(d)	KDB 971168 D01v02r02	Note 2
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 24.238(b) &KDB 971168 D01v02r02	Note 2
Band Edge at antenna terminals	Part 2.1051/ Part 24.238(a)	Part 24.238(b) &KDB 971168 D01v02r02	Note 2
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 24.238(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
Field strength of spurious radiation	Part 2.1053 /Part 2.1057 / Part 24.238(a)(b)	TIA-603-E-2016 &KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/Part 24.235	TIA-603-E-2016 &KDB 971168 D01v02r02	Note 2
LTE Band 4			
Conducted output power	Part 2.1046(a) /Part 27.50(d)	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3
Effective Radiated Power of Transmitter(EIRP)	Part 2.1046(a) / Part 27.50(d)	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3
peak-to-average ratio	Part 27.50(d)	KDB 971168 D01v03r01	Note 3
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 27.53(h) &KDB 971168 D01v03r01	Note 3
Band Edge at antenna terminals	Part 2.1051/ Part 27.53(h)	Part 27.53(h) &KDB 971168 D01v03r01	Note 3
Spurious emissions at antenna terminals	Part 2.1051/ Part 27.53(h)	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3
Field strength of spurious radiation	Part 2.1053/ Part 27.53(h)	TIA-603-E-2016&KDB 971168 D01v03r01	PASS
Frequency stability	Part 2.1055/Part 27.54	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3
LTE Band 7			
Conducted output power	Part 2.1046(a) /Part 27.50(d)	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3
Effective Radiated Power of Transmitter(EIRP)	Part 2.1046(a) / Part 27.50(d)	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3
peak-to-average ratio	Part 27.50(d)	KDB 971168 D01v03r01	Note 3
99% &26dBOccupied Bandwidth	Part 2.1049(h)	Part 27.53(h) &KDB 971168 D01v03r01	Note 3
Band Edge at antenna terminals	Part 2.1051/ Part 27.53(h)	Part 27.53(h) &KDB 971168 D01v03r01	Note 3
Spurious emissions at antenna terminals	Part 2.1051/ Part 27.53(h)	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3
Field strength of spurious radiation	Part 2.1053/ Part 27.53(h)	TIA-603-E-2016&KDB 971168 D01v03r01	PASS

Frequency stability	Part 2.1055/Part 27.54	TIA-603-E-2016&KDB 971168 D01v03r01	Note 3

Remark:

This product has two antenna schemes,please see the product photo,and we have tested both.

Since the communication module of the product has been certified, we only tested Field strength of spurious radiation,and recorded in the report.

Note1: Refer to report NO.:R2108A0762-R1 (FCC ID: XMR202006EC25AUX).

Note2: Refer to report NO.:R2108A0762-R2 (FCC ID: XMR202006EC25AUX).

Note3: Refer to report NO.:R2108A0762-R3 (FCC ID: XMR202006EC25AUX).

Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

3 Content

1 VERSION 2

2 TEST SUMMARY 3

3 CONTENT 7

4 TEST REQUIREMENT 8

4.1 TEST SETUP 8

4.1.1 *For Radiated Emissions test setup* 8

5 TEST ENVIRONMENT 8

6 GENERAL INFORMATION 9

6.1 CLIENT INFORMATION 9

6.2 GENERAL DESCRIPTION OF EUT 9

6.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD 9

6.4 DESCRIPTION OF SUPPORT UNITS 11

6.5 TEST LOCATION 11

6.6 DEVIATION FROM STANDARDS 11

6.7 ABNORMALITIES FROM STANDARD CONDITIONS 11

6.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER 11

6.9 MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2) 12

7 EQUIPMENT LIST 13

8 RADIO TECHNICAL REQUIREMENTS SPECIFICATION 15

Appendix A) Field strength of spurious radiation 16

PHOTOGRAPHS OF TEST SETUP 25

PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS 28

4 Test Requirement

4.1 Test setup

4.1.1 For Radiated Emissions test setup

Radiated Emissions setup:

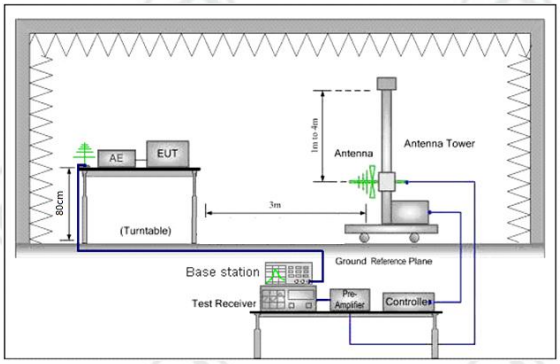


Figure 1.30MHz to 1GHz

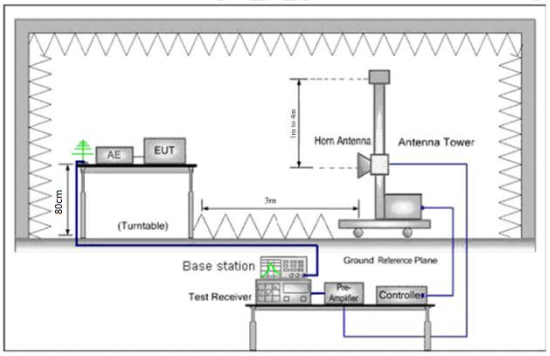


Figure 2. above 1GHz

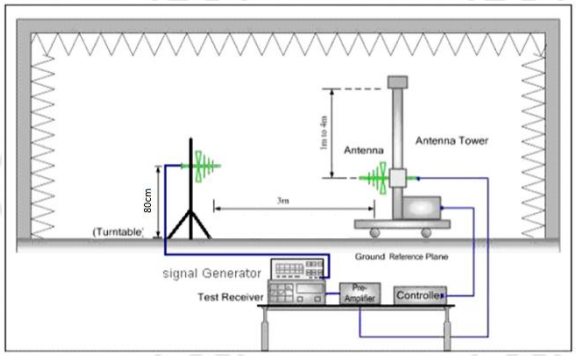


Figure 1. 30MHz to 1GHz

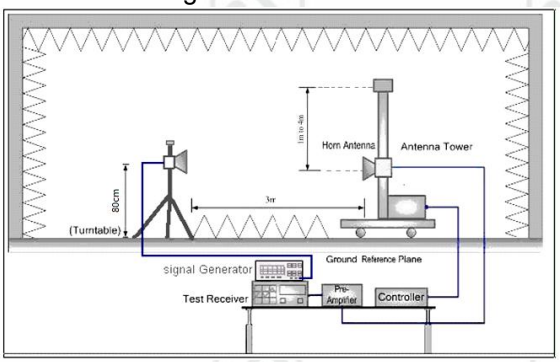


Figure 2. above 1GHz

5 Test Environment

Operating Environment:	
Temperature:	25.0 °C
Humidity:	53 % RH
Atmospheric Pressure:	995mbar

6 General Information

6.1 Client Information

Applicant:	Hongdian Corporation
Address of Applicant:	Tower A, Hongdian Building, 100 Huabao Road, Pinghu, Longgang District, Shenzhen, China
Manufacturer:	Hongdian Corporation
Address of Manufacturer:	Tower A, Hongdian Building, 100 Huabao Road, Pinghu, Longgang District, Shenzhen, China
Factory:	Hongdian Corporation
Address of Factory:	Tower A, Hongdian Building, 100 Huabao Road, Pinghu, Longgang District, Shenzhen, China

6.2 General Description of EUT

Product Name:	4G Intelligent Gateway
Model No.(EUT):	X2
Trade Mark:	N/A
EUT Supports Radios application:	GSM 850,GSM 1900; WCDMA Band V,WCDMA II; LTE Band 4,LTE Band 5,LTE Band 7
Power Supply:	DC12V,3A
Sample Received Date:	Jan. 10, 2023
Sample tested Date:	Jan. 10, 2023 to Feb. 03, 2023

6.3 Product Specification subjective to this standard

Frequency Band:	GSM 850: TX: 824-849MHz, RX: 869-894MHz GSM1900：TX：1850-1910MHz，RX：1930-1990MHz WCDMA: Band V: TX: 824-849MHz, RX: 869-894MHz Band II: TX: 1850-1910MHz, RX: 1930-1990MHz LTE: Band 5: TX:824-849MHz,RX:869-894MHz Band 2: TX:1850-1910MHz,RX:1930-1990MHz Band 4: TX:1710-1755MHz,RX:2110-2155MHz Band 7: TX:2500-2570MHz,RX:2620-2690MHz	
Modulation Type:	(GSM)GMSK, 8PSK; (WCDMA)BPSK,QPSK; (LTE)QPSK,16QAM	
Sample Type:	Fixed-Use	
Antenna Type:	External Antenna Single Transmitting（☒1T2R） (note:Only Ant0 can transmit and Ant1 can receive.)	
Antenna Gain:	Antenna schemes 1:	Ant0:GSM: 2dBi, WCDMA: 2dBi, LTE: 2dBi Ant1:GSM: 2dBi, WCDMA: 2dBi, LTE: 2dBi
	Antenna schemes 2:	GSM: Ant0: GSM850:0.26dBi,GSM1900:0.86dBi; Ant1:GSM850:0.84dBi,GSM1900:1.90dBi;

		WCDMA: Ant0:WCDMA Band V:0.26dBi; WCDMA Band II:0.86dBi; Ant1:WCDMA Band V:0.84dBi; WCDMA Band II:1.90dBi;
		LTE: Ant0:LTE band2:0.86dBi,LTE band4:-0.53dBi, LTE band5:0.26dBi,LTE band7:1.35dBi; Ant1:LTE band2:1.90dBi,LTE band4:-0.57dBi, LTE band5:0.84dBi,LTE band7:1.14dBi;
Test Voltage:	DC12V	

6.4 Description of Support Units

The EUT has been tested with associated equipment below.

1) support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
AC/DC adapter	Shenzhen Boshenggao Technology CO LTD	BSG-1203000	CCC	Client
Notebook	Lenovo	ThinkBook 14	FCC	CTI

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd
Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China
Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385
No tests were sub-contracted.
FCC Designation No.: CN1164

6.6 Deviation from Standards

None.

6.7 Abnormalities from Standard Conditions

None.

6.8 Other Information Requested by the Customer

None.

6.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

7 Equipment List

3M Semi-anechoic Chamber (2)- Radiated disturbance Test					
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Due Date**
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05-22-2022	05-21-2025
Receiver	R&S	ESCI7	100938-003	09-28-2022	09-27-2023
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	9163-618	05-22-2022	05-21-2025
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-15-2021	04-14-2024
Microwave Preamplifier	Tonscend	EMC051845SE	980380	12-23-2022	12-22-2023
Multi device Controller	maturo	NCD/070/10711112	---	---	---
Horn Antenna	ETS-LINGREN	BBHA 9120D	9120D-1869	04/15/2021	04/14/2024
Microwave Preamplifier	Agilent	8449B	3008A02425	06/20/2022	06/19/2023

3M full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	---	---
Receiver	Keysight	N9038A	MY57290136	03-01-2022	02-28-2023
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-01-2022	02-28-2023
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-01-2022	02-28-2023
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-28-2021	04-27-2024
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-15-2021	04-14-2024
Horn Antenna	ETS-LINDGREN	3117	57407	07-04-2021	07-03-2024
Preamplifier	EMCI	EMC184055SE	980597	04-20-2022	04-19-2023
Preamplifier	EMCI	EMC001330	980563	04-13-2022	04-12-2023
Preamplifier	JS Tonscend	TAP-011858	AP21B806112	07-29-2022	07-28-2023
Communication test set	R&S	CMW500	102898	12-23-2022	12-22-2023
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	02-21-2022	02-20-2023
Fully Anechoic Chamber	TDK	FAC-3	---	01-09-2021	01-08-2024
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	---	---
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	---	---
Cable line	Times	EMC104-NMNM-1000	SN160710	---	---
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	---	---
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	---	---
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	---	---
Cable line	Times	HF160-KMKM-3.00M	393493-0001	---	---

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	PART 22	PART 22 – PUBLIC MOBILE SERVICES Subpart H – Cellular Radiotelephone Service
2	PART 24	PART 24 – PERSONAL COMMUNICATIONS SERVICES Subpart E – Broadband PCS
3	PART 27	PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
4	PART 2	Frequency allocations and radio treaty matters; general rules and regulations
5	TIA-603-E-2016	Land Mobile FM or PM -Communications Equipment -Measurement and Performance Standards
6	KDB971168 D01	KDB971168 D01 Power Meas License Digital Systems v02r02

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)/ Part 24.238(a)(b) Part 27.53(h)	TIA-603-E-2016&KDB 971168 D01v02r02	Field strength of spurious radiation	PASS	Appendix A)

Appendix A) Field strength of spurious radiation

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-30MHz	Peak	10kHz	30kHz	Peak
30MHz-1GHz	Peak	120kHz	300kHz	Peak
Above 1GHz	Peak	1MHz	3MHz	Peak

Measurement Procedure:

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 0.8m high table in the chamber. ,mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer.The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made(the radiation measurements are performed in X, Y, Z axis positioning be lower 30 MHz.)

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized and EUT .

8) Calculate power in dBm by the following formula:

ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

where:

Pg is the generator output power into the substitution antenna.

Above 1GHz test procedure as below:

1)Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber ; up to 18GHz a measurement distance of 3 meters is used, Above 18GHz the distance is 1 meter.

2) Calculate power in dBm by the following formula:

EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

EIRP=ERP+2.15dB

where:

Pg is the generator output power into the substitution antenna.

3.Test the EUT in the lowest channel, the middle channel the Highest channel

The radiation measurements are performed in X, Y, Z axis positioning for EUT operation mode,And found the X axis positioning which it is worse case.

Repeat above procedures until all frequencies measured was complete.

Limit: Attenuated at least 43+10log(P)

Antenna schemes 1:

Test data:

Mode:		GSM	Band:	850		Channel:		190	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	51.5383	150	136	-66.82	-13.00	53.82	PASS	H	PK
2	131.2883	150	3	-55.78	-13.00	42.78	PASS	H	PK
3	581.2643	150	93	-50.54	-13.00	37.54	PASS	H	PK
4	1668.4668	150	58	-52.90	-13.00	39.90	PASS	H	PK
5	5016.8508	150	314	-53.41	-13.00	40.41	PASS	H	PK
6	10956.3978	150	347	-47.47	-13.00	34.47	PASS	H	PK
7	53.8668	150	36	-62.22	-13.00	49.22	PASS	V	PK
8	208.9038	150	3	-65.53	-13.00	52.53	PASS	V	PK
9	593.6827	150	287	-54.92	-13.00	41.92	PASS	V	PK
10	1681.4681	150	303	-56.82	-13.00	43.82	PASS	V	PK
11	3849.7925	150	12	-54.11	-13.00	41.11	PASS	V	PK
12	14398.3199	150	0	-43.09	-13.00	30.09	PASS	V	PK

Mode:		WCDMA		Band:	5	Channel:		4175	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	40.09	150	15	-67.80	-13.00	54.80	PASS	H	PK
2	124.3029	150	310	-61.20	-13.00	48.20	PASS	H	PK
3	568.6517	150	341	-49.55	-13.00	36.55	PASS	H	PK
4	1347.0347	150	310	-53.78	-13.00	40.78	PASS	H	PK
5	14489.8245	150	169	-43.79	-13.00	30.79	PASS	H	PK
6	21852.6341	150	360	-56.83	-13.00	43.83	PASS	H	PK
7	40.2841	150	124	-63.06	-13.00	50.06	PASS	V	PK
8	137.1094	150	3	-65.20	-13.00	52.20	PASS	V	PK
9	593.6827	150	343	-60.38	-13.00	47.38	PASS	V	PK
10	1346.6347	150	124	-52.97	-13.00	39.97	PASS	V	PK
11	14390.0695	150	196	-43.67	-13.00	30.67	PASS	V	PK
12	21664.1466	150	249	-57.52	-13.00	44.52	PASS	V	PK

Mode:		LTE	Band:	5		Channel:		20525	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	50.5681	150	141	-69.29	-13.00	56.29	PASS	H	PK
2	124.885	150	104	-49.82	-13.00	36.82	PASS	H	PK
3	568.8458	150	331	-50.52	-13.00	37.52	PASS	H	PK
4	1347.4347	150	244	-54.97	-13.00	41.97	PASS	H	PK
5	2409.1409	150	360	-56.08	-13.00	43.08	PASS	H	PK
6	16581.6791	150	16	-37.62	-13.00	24.62	PASS	H	PK
7	40.2841	150	360	-61.48	-13.00	48.48	PASS	V	PK
8	131.2883	150	342	-60.31	-13.00	47.31	PASS	V	PK
9	581.2643	150	342	-57.72	-13.00	44.72	PASS	V	PK
10	1346.6347	150	104	-59.09	-13.00	46.09	PASS	V	PK
11	5741.3871	150	5	-52.68	-13.00	39.68	PASS	V	PK
12	16577.1789	150	226	-38.08	-13.00	25.08	PASS	V	PK

Mode:		GSM	Band:	1900		Channel:		661	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	50.9562	150	142	-70.79	-13.00	57.79	PASS	H	PK
2	124.885	150	305	-52.78	-13.00	39.78	PASS	H	PK
3	593.6827	150	3	-50.69	-13.00	37.69	PASS	H	PK
4	1453.4453	150	196	-49.13	-13.00	36.13	PASS	H	PK
5	4835.3418	150	18	-55.57	-13.00	42.57	PASS	H	PK
6	14451.5726	150	173	-43.88	-13.00	30.88	PASS	H	PK
7	40.2841	150	53	-63.35	-13.00	50.35	PASS	V	PK
8	160.006	150	3	-61.10	-13.00	48.10	PASS	V	PK
9	726.2112	150	3	-52.01	-13.00	39.01	PASS	V	PK
10	1334.8335	150	161	-48.04	-13.00	35.04	PASS	V	PK
11	5801.3901	150	0	-51.30	-13.00	38.30	PASS	V	PK
12	11476.1738	150	357	-41.41	-13.00	28.41	PASS	V	PK

Mode:		WCDMA		Band:	2	Channel:		9400	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	54.0608	150	155	-67.01	-13.00	54.01	PASS	H	PK
2	131.2883	150	360	-50.51	-13.00	37.51	PASS	H	PK
3	581.2643	150	217	-51.10	-13.00	38.10	PASS	H	PK
4	1325.6326	150	217	-48.48	-13.00	35.48	PASS	H	PK
5	3849.7925	150	8	-50.45	-13.00	37.45	PASS	H	PK
6	14543.8272	150	0	-43.24	-13.00	30.24	PASS	H	PK
7	41.6423	150	360	-63.09	-13.00	50.09	PASS	V	PK
8	124.3029	150	338	-61.29	-13.00	48.29	PASS	V	PK
9	739.0178	150	3	-56.80	-13.00	43.80	PASS	V	PK
10	1373.8374	150	246	-49.25	-13.00	36.25	PASS	V	PK
11	3849.7925	150	346	-54.03	-13.00	41.03	PASS	V	PK
12	14529.5765	150	172	-43.90	-13.00	30.90	PASS	V	PK

Mode:		LTE	Band:	2		Channel:		18900	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	49.986	150	169	-69.65	-13.00	56.65	PASS	H	PK
2	124.3029	150	315	-53.54	-13.00	40.54	PASS	H	PK
3	568.6517	150	341	-50.28	-13.00	37.28	PASS	H	PK
4	1283.2283	150	359	-47.13	-13.00	34.13	PASS	H	PK
5	3849.7925	150	236	-52.83	-13.00	39.83	PASS	H	PK
6	14486.8243	150	211	-42.82	-13.00	29.82	PASS	H	PK
7	37.7616	150	223	-62.27	-13.00	49.27	PASS	V	PK
8	131.2883	150	330	-61.07	-13.00	48.07	PASS	V	PK
9	726.2112	150	3	-52.16	-13.00	39.16	PASS	V	PK
10	1237.2237	150	185	-48.76	-13.00	35.76	PASS	V	PK
11	3850.5425	150	83	-53.87	-13.00	40.87	PASS	V	PK
12	11395.1698	150	108	-46.58	-13.00	33.58	PASS	V	PK

Mode:		LTE	Band:		4	Channel:		20175	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	50.7622	150	138	-70.19	-13.00	57.19	PASS	H	PK
2	124.3029	150	281	-49.98	-13.00	36.98	PASS	H	PK
3	568.6517	150	327	-50.63	-13.00	37.63	PASS	H	PK
4	1305.6306	150	210	-48.34	-13.00	35.34	PASS	H	PK
5	5025.8513	150	189	-53.93	-13.00	40.93	PASS	H	PK
6	11845.1923	150	253	-46.08	-13.00	33.08	PASS	H	PK
7	37.1794	150	92	-63.46	-13.00	50.46	PASS	V	PK
8	124.885	150	328	-59.77	-13.00	46.77	PASS	V	PK
9	730.2861	150	3	-48.03	-13.00	35.03	PASS	V	PK
10	1260.226	150	319	-49.06	-13.00	36.06	PASS	V	PK
11	3849.7925	150	340	-54.14	-13.00	41.14	PASS	V	PK
12	9170.5585	150	67	-48.29	-13.00	35.29	PASS	V	PK

Mode:		LTE	Band:	7		Channel:		21100	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	50.7622	150	334	-70.48	-13.00	57.48	PASS	H	PK
2	124.885	150	86	-56.45	-13.00	43.45	PASS	H	PK
3	568.6517	150	326	-49.93	-13.00	36.93	PASS	H	PK
4	1286.8287	150	299	-47.96	-13.00	34.96	PASS	H	PK
5	5031.8516	150	323	-53.19	-13.00	40.19	PASS	H	PK
6	9223.0612	150	24	-46.85	-13.00	33.85	PASS	H	PK
7	49.4039	150	28	-64.32	-13.00	51.32	PASS	V	PK
8	192.4105	150	63	-64.25	-13.00	51.25	PASS	V	PK
9	581.2643	150	345	-57.62	-13.00	44.62	PASS	V	PK
10	1301.2301	150	181	-47.12	-13.00	34.12	PASS	V	PK
11	5060.353	150	357	-51.32	-13.00	38.32	PASS	V	PK
12	12385.9693	150	0	-45.57	-13.00	32.57	PASS	V	PK

Note:
1) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

Antenna schemes 2:

Test data:

Mode:		GSM	Band:	850		Channel:		190	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	52.3145	150	347	-67.10	-13.00	54.10	PASS	H	PK
2	131.2883	150	3	-54.91	-13.00	41.91	PASS	H	PK
3	581.2643	150	103	-50.14	-13.00	37.14	PASS	H	PK
4	1731.2731	150	79	-57.29	-13.00	44.29	PASS	H	PK
5	5034.8517	150	206	-53.51	-13.00	40.51	PASS	H	PK
6	14479.324	150	0	-43.26	-13.00	30.26	PASS	H	PK
7	38.1496	150	170	-62.54	-13.00	49.54	PASS	V	PK
8	208.9038	150	3	-64.13	-13.00	51.13	PASS	V	PK
9	581.2643	150	78	-54.78	-13.00	41.78	PASS	V	PK
10	1728.2728	150	335	-58.33	-13.00	45.33	PASS	V	PK
11	3849.7925	150	118	-54.43	-13.00	41.43	PASS	V	PK
12	14363.0682	150	281	-43.14	-13.00	30.14	PASS	V	PK

Mode:		WCDMA		Band:	5	Channel:		4175	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	50.3741	150	136	-69.70	-13.00	56.70	PASS	H	PK
2	124.885	150	102	-51.38	-13.00	38.38	PASS	H	PK
3	568.8458	150	326	-49.48	-13.00	36.48	PASS	H	PK
4	1346.0346	150	86	-56.90	-13.00	43.90	PASS	H	PK
5	3849.7925	150	264	-53.29	-13.00	40.29	PASS	H	PK
6	12418.2209	150	60	-46.18	-13.00	33.18	PASS	H	PK
7	40.09	150	137	-62.38	-13.00	49.38	PASS	V	PK
8	124.885	150	359	-60.08	-13.00	47.08	PASS	V	PK
9	581.2643	150	351	-57.39	-13.00	44.39	PASS	V	PK
10	1376.6377	150	75	-59.20	-13.00	46.20	PASS	V	PK
11	3849.7925	150	338	-53.50	-13.00	40.50	PASS	V	PK
12	11475.4238	150	0	-43.04	-13.00	30.04	PASS	V	PK

Mode:		LTE	Band:	5		Channel:		20525	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	38.3437	150	181	-61.69	-13.00	48.69	PASS	H	PK
2	131.2883	150	314	-63.12	-13.00	50.12	PASS	H	PK
3	581.2643	150	339	-57.29	-13.00	44.29	PASS	H	PK
4	1390.039	150	165	-59.10	-13.00	46.10	PASS	H	PK
5	3849.7925	150	340	-53.86	-13.00	40.86	PASS	H	PK
6	13107.5054	150	41	-45.89	-13.00	32.89	PASS	H	PK
7	50.18	150	122	-70.68	-13.00	57.68	PASS	V	PK
8	124.885	150	279	-52.81	-13.00	39.81	PASS	V	PK
9	568.8458	150	329	-49.32	-13.00	36.32	PASS	V	PK
10	1287.4287	150	200	-46.85	-13.00	33.85	PASS	V	PK
11	5024.3512	150	222	-53.59	-13.00	40.59	PASS	V	PK
12	14407.3204	150	139	-43.57	-13.00	30.57	PASS	V	PK

Mode:		GSM	Band:	1900		Channel:		661	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	50.18	150	160	-70.32	-13.00	57.32	PASS	H	PK
2	124.885	150	329	-49.74	-13.00	36.74	PASS	H	PK
3	568.8458	150	329	-49.25	-13.00	36.25	PASS	H	PK
4	1329.2329	150	196	-47.91	-13.00	34.91	PASS	H	PK
5	3849.7925	150	337	-51.86	-13.00	38.86	PASS	H	PK
6	14397.5699	150	98	-43.15	-13.00	30.15	PASS	H	PK
7	41.4483	150	329	-64.20	-13.00	51.20	PASS	V	PK
8	160.006	150	3	-59.48	-13.00	46.48	PASS	V	PK
9	581.2643	150	348	-57.60	-13.00	44.60	PASS	V	PK
10	1293.8294	150	348	-47.29	-13.00	34.29	PASS	V	PK
11	5004.1002	150	156	-54.17	-13.00	41.17	PASS	V	PK
12	11485.9243	150	339	-41.86	-13.00	28.86	PASS	V	PK

Mode:		WCDMA		Band:	2	Channel:		9400	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	51.5383	150	150	-70.19	-13.00	57.19	PASS	H	PK
2	124.885	150	297	-50.05	-13.00	37.05	PASS	H	PK
3	568.6517	150	334	-49.32	-13.00	36.32	PASS	H	PK
4	1354.4354	150	3	-49.26	-13.00	36.26	PASS	H	PK
5	3849.7925	150	284	-52.48	-13.00	39.48	PASS	H	PK
6	14481.5741	150	21	-43.97	-13.00	30.97	PASS	H	PK
7	40.2841	150	358	-62.97	-13.00	49.97	PASS	V	PK
8	131.2883	150	328	-60.72	-13.00	47.72	PASS	V	PK
9	727.3755	150	3	-51.46	-13.00	38.46	PASS	V	PK
10	1308.6309	150	236	-48.21	-13.00	35.21	PASS	V	PK
11	3849.7925	150	337	-53.53	-13.00	40.53	PASS	V	PK
12	14391.5696	150	16	-43.59	-13.00	30.59	PASS	V	PK

Mode:		LTE	Band:	2		Channel:		18900	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	124.885	150	312	-54.73	-13.00	41.73	PASS	H	PK
2	192.4105	150	125	-60.34	-13.00	47.34	PASS	H	PK
3	568.6517	150	338	-50.37	-13.00	37.37	PASS	H	PK
4	1286.6287	150	12	-47.51	-13.00	34.51	PASS	H	PK
5	3850.5425	150	212	-52.41	-13.00	39.41	PASS	H	PK
6	9695.5848	150	0	-46.32	-13.00	33.32	PASS	H	PK
7	41.8364	150	297	-64.16	-13.00	51.16	PASS	V	PK
8	143.7067	150	350	-62.60	-13.00	49.60	PASS	V	PK
9	734.1668	150	3	-52.34	-13.00	39.34	PASS	V	PK
10	1307.6308	150	217	-48.10	-13.00	35.10	PASS	V	PK
11	3850.5425	150	114	-54.21	-13.00	41.21	PASS	V	PK
12	14404.3202	150	106	-43.14	-13.00	30.14	PASS	V	PK

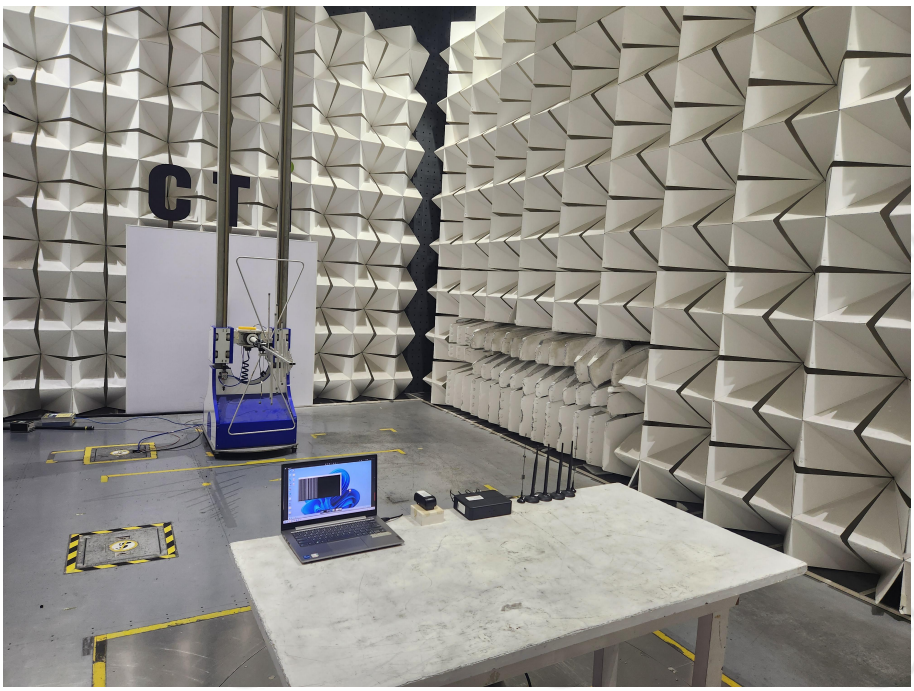
Mode:		LTE	Band:		4	Channel:		20175	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	49.0158	150	139	-68.64	-13.00	55.64	PASS	H	PK
2	121.5863	150	104	-55.24	-13.00	42.24	PASS	H	PK
3	568.8458	150	327	-49.98	-13.00	36.98	PASS	H	PK
4	1297.0297	150	66	-48.09	-13.00	35.09	PASS	H	PK
5	3849.7925	150	280	-52.43	-13.00	39.43	PASS	H	PK
6	14385.5693	150	78	-43.76	-13.00	30.76	PASS	H	PK
7	48.6277	150	82	-65.90	-13.00	52.90	PASS	V	PK
8	98.4957	150	3	-63.22	-13.00	50.22	PASS	V	PK
9	581.2643	150	343	-58.12	-13.00	45.12	PASS	V	PK
10	1250.6251	150	360	-46.58	-13.00	33.58	PASS	V	PK
11	3849.7925	150	339	-53.77	-13.00	40.77	PASS	V	PK
12	14486.8243	150	18	-43.09	-13.00	30.09	PASS	V	PK

Mode:		LTE	Band:	7		Channel:		21100	
NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	50.18	150	122	-70.68	-13.00	57.68	PASS	H	PK
2	124.885	150	279	-52.81	-13.00	39.81	PASS	H	PK
3	568.8458	150	329	-49.32	-13.00	36.32	PASS	H	PK
4	1287.4287	150	200	-46.85	-13.00	33.85	PASS	H	PK
5	5024.3512	150	222	-53.59	-13.00	40.59	PASS	H	PK
6	14407.3204	150	139	-43.57	-13.00	30.57	PASS	H	PK
7	41.8364	150	271	-63.66	-13.00	50.66	PASS	V	PK
8	131.2883	150	334	-60.95	-13.00	47.95	PASS	V	PK
9	581.2643	150	342	-57.00	-13.00	44.00	PASS	V	PK
10	1284.4284	150	291	-47.78	-13.00	34.78	PASS	V	PK
11	5064.8532	150	340	-51.02	-13.00	38.02	PASS	V	PK
12	14398.3199	150	331	-42.75	-13.00	29.75	PASS	V	PK

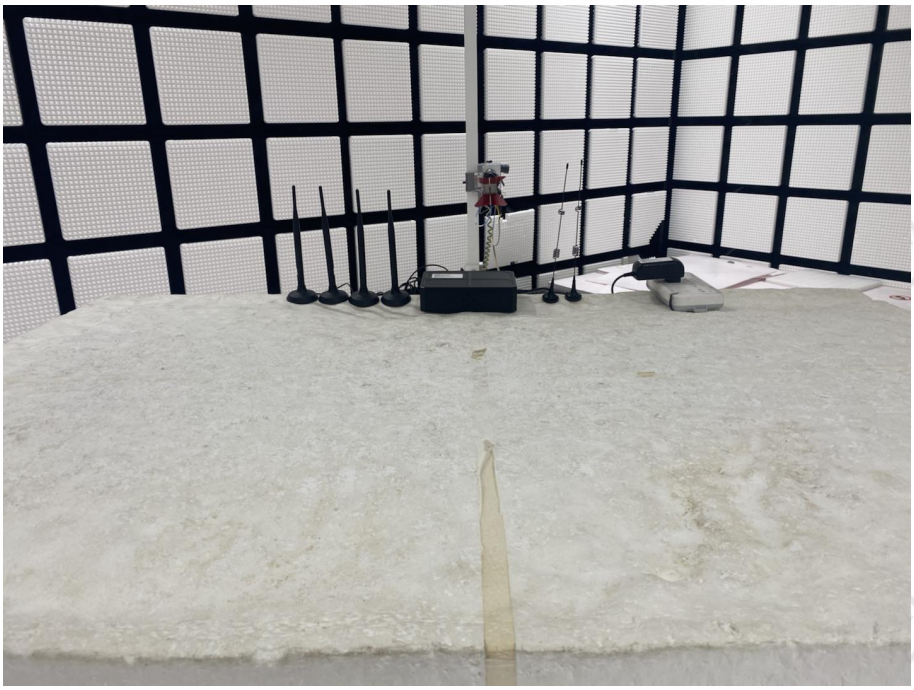
Note:
1) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

PHOTOGRAPHS OF TEST SETUP

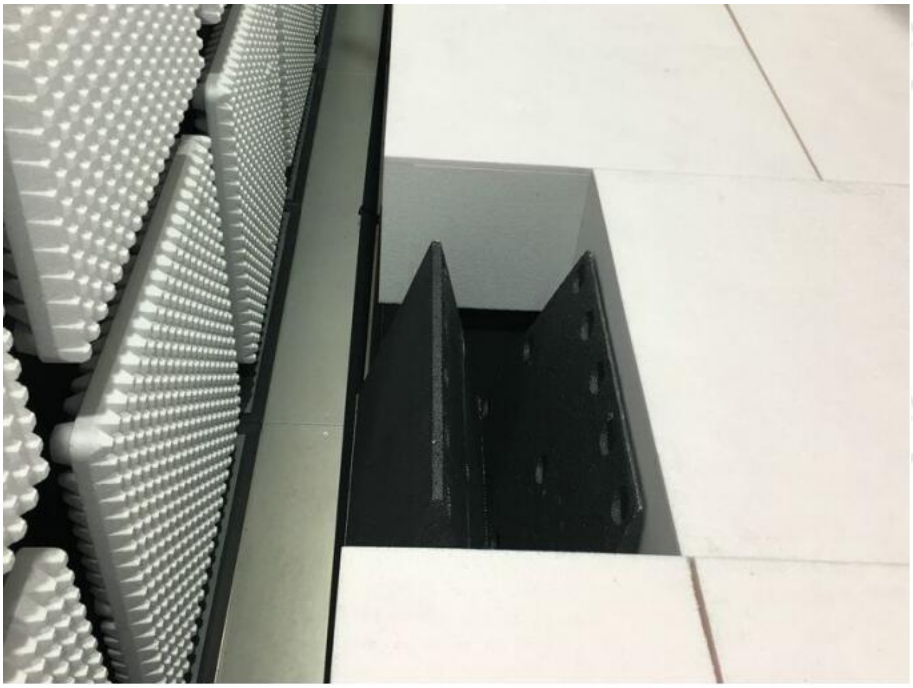
Antenna schemes 1:



Radiated spurious emission Test Setup-1(Below 1GHz)

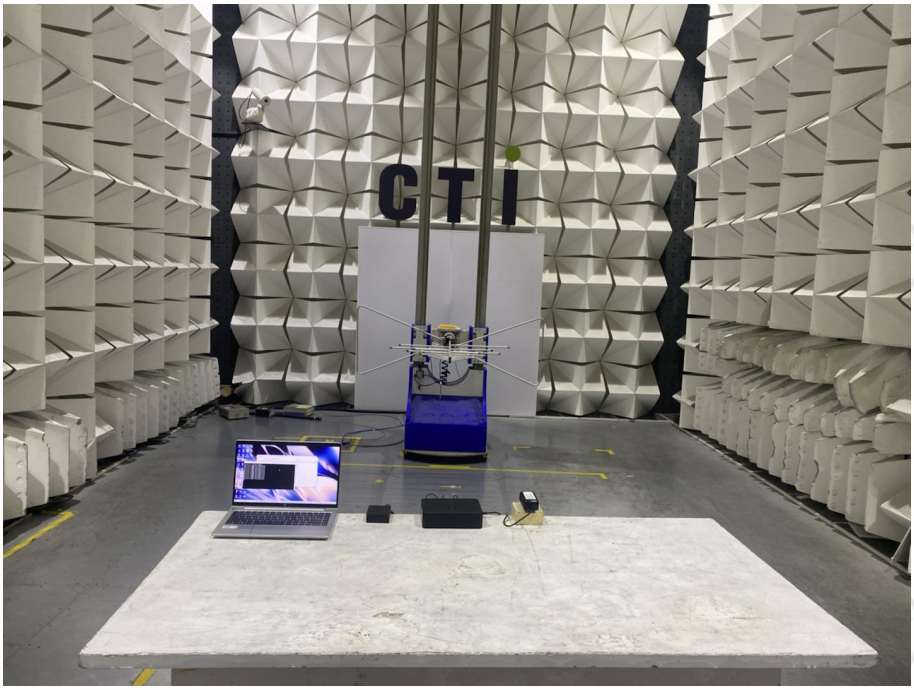


Radiated spurious emission Test Setup-2(Above 1GHz)

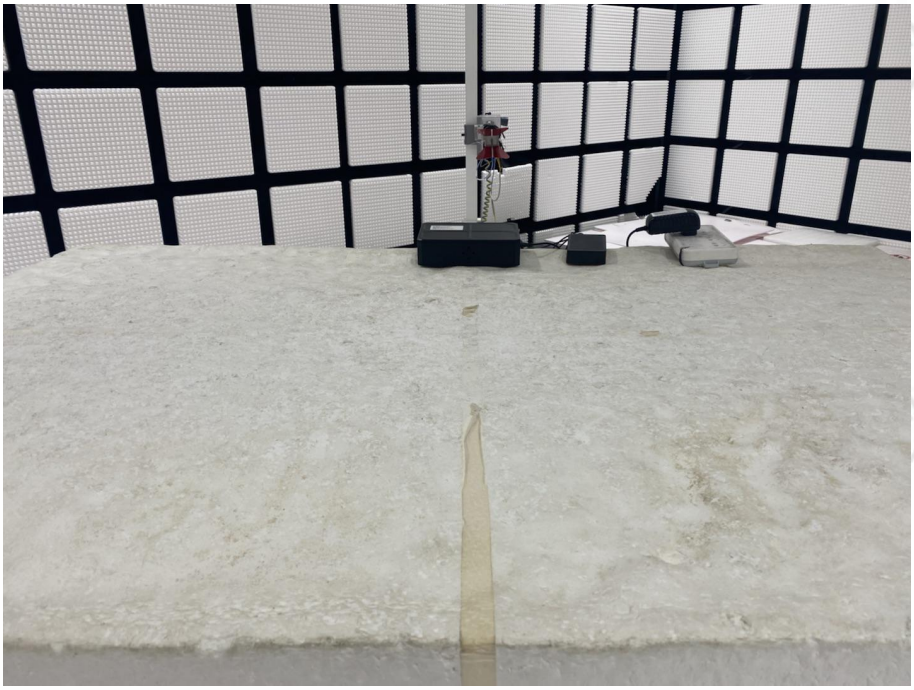


Radiated spurious emission Test Setup-3
There are absorbing materials under the ground.

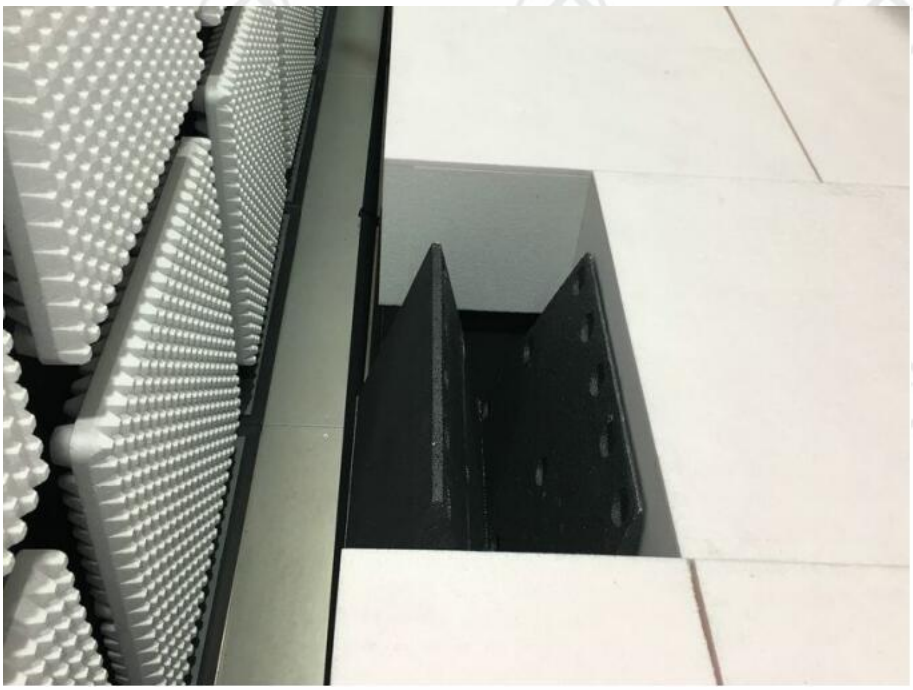
Antenna schemes 2:



Radiated spurious emission Test Setup-1(Below 1GHz)



Radiated spurious emission Test Setup-2(Above 1GHz)



Radiated spurious emission Test Setup-3(Above 1GHz)
There are absorbing materials under the ground.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No.EED32P80040001 for EUT external and internal photos.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***