FCC REPORT

(LTE)

Applicant	:	Beijing Xinyangquan Electronic technology Co.,Ltd
Address	:	1407,Building No.3,Daliushu Fuhai Center,Haidian District.Beijing
Product Name	:	Motorcycle Smart System
Brand Mark	:	ABSOLUTE RIDER
Model	:	A3
Series model	:	A1,A5,A7,M3,M5,M7
Report Number	:	BLA-EMC-202412-A2607
FCC ID	:	2BMPM-ARMSS03
Date of Receipt	:	Dec.09,2024
Date of Test	:	Dec.10,2024 to Jan.07,2025
Test Standard	:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part 22 Subpart H FCC CFR Title 47 Part 24 Subpart E FCC CFR Title 47 Part 27 Subpart L
Test Result	:	Pass

Compiled by: charlie **Review by:** Sweely **Approved by:** Blue Zheng

Issued Date: Jan.07,2025

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.

Address: Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

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Revise Record

Version No.	Date	Description
01	Jan.07,2025	Original

1 General information

1.1 General information

Applicant	Beijing Xinyangquan Electronic technology Co.,Ltd
Address	1407,Building No.3,Daliushu Fuhai Center,Haidian District.Beijing
Manufacturer	Beijing Xinyangquan Electronic technology Co.,Ltd
Address	1407,Building No.3,Daliushu Fuhai Center,Haidian District.Beijing
Factory	ShenZhen Haixiujiang technology Co.,Ltd
Address	Floor 3, Zone B, Building 5, Hanhaida (Tianliao) Science Park, Tianliao No.7 Industrial Zone, Guangming New District, Shenzhen

1.2 General description of EUT

Product Name	Motorcycle Smart System
Model No.	A3
Series model	A1,A5,A7,M3,M5,M7
Desc of series model	The above models are identical in PCB layout, internal structure and components ,only model No.and color is different.
Operation Frequency	LTE Band 2:TX: 1850MHz-1910MHz, RX: 1930MHz-1990MHz LTE Band 5:TX: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 7 TX:2500MHz-2570MHz, RX: 2620MHz-2690MHz
Modulation Type	QPSK, 16QAM
Antenna Type	FPC Antenna
Antenna Gain	LTE Band 2:TX: 1.55 dBi; (Provided by customer) LTE Band 5:TX: 0.42 dBi; (Provided by customer) LTE Band 7:TX: 0.68 dBi; (Provided by customer)
Power supply or adapter information	DC12V
Hardware Version	N/A
Software Version	N/A
Engineer sample no	BLA-EMC-202412-A26
Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.	

2 Test summary

No.	Test item	FCC Part Section(s)	Result
1	Conducted Emissions at AC Power Line (150kHz-30MHz)	Part 15.207	N/A
2	RF Output Power	Part 2.1046 Part 27.50 (d)(4)	Pass
3	Peak-to-Average Ratio	Part 24.232 (d) Part 27.50(d)(5)	Pass
4	99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 27.53(h)	Pass
5	Out of band emission, Band Edge	Part 22.917(a) Part 27.53 (h)	Pass
6	Field Strength of Spurious Radiation ERP EIRP Measurement	Part 2.1053 Part 27.53 (h)	Pass
7	Spurious Emissions at Antenna Terminal	Part 2.1051 Part 27.53 (h)	Pass
8	Frequency stability vs. temperature	Part 22.355 Part 24.235 Part 27.54 Part 2.1055(a)(1)(b)	Pass
9	Frequency stability vs. voltage	Part 22.355 Part 24.235 Part 27.54 Part 2.1055(d)(2)	Pass

N/A: Not Applicable

3 Test Configuration

3.1 Test environment and mode

Operating Environment:	
Temperature:	Normal: 15℃~ 35℃, Extreme: -30℃ ~ +70℃
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: DC12V
Test mode:	
LTE QPSK mode	Keep the EUT communication with simulated station in QPSK mode
LTE 16-QAM mode	Keep the EUT communication with simulated station in 16-QAM mode
Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes with power adaptor, earphone and Data cable. Just the worst case position (H mode) shown in report.	

3.2 Operation Frequency each of channel

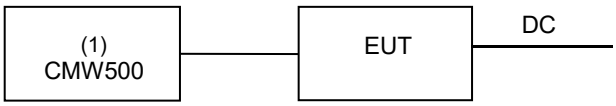
Regards to the operating frequency range, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels as below:

	Channel	Bandwidth(MHz)	Upper Frequency (MHz)	Frequency (MHz)
Band2	Lowest channel	1.4	18607	1850.7
		3	18615	1851.5
		5	18625	1852.5
		10	18650	1855
		15	18675	1857.5
		20	18700	1860
	Middle channel	all	18900	1880
	Highest channel	1.4	19193	1909.3
		3	19185	1908.5
		5	19175	1907.5
		10	19150	1905
		15	19125	1902.5
		20	19100	1900

	Channel	Bandwidth(MHz)	Upper Frequency (MHz)	Frequency (MHz)
Band5	Lowest channel	1.4	20407	824.7
		3	20415	825.5
		5	20425	826.5
		10	20450	829
	Middle channel	all	20525	836.5
	Highest channel	1.4	20643	848.3
		3	20635	847.5
		5	20625	846.5
		10	20600	844

	Channel	Bandwidth(MHz)	Upper Frequency (MHz)	Frequency (MHz)
Band7	Lowest channel	5	20775	2502.5
		10	20800	2505
		15	20825	2507.5
		20	20850	2510
	Middle channel	all	21100	2535
	Highest channel	5	21425	2567.5
		10	21400	2565
		15	21375	2562.5
		20	21350	2560

3.3 Configuration diagram of EUT



Note: see test photographs attached in APPENDIX A for the actual connections between Product and support equipment.

Support equipment:

Name	Device type	Brand	Mode	Series No	Remark
(1)	Radio communication tester	R&S	CMW500	132429	From lab (No.BLA-EMC-044)
(2)	N/A	N/A	N/A	N/A	N/A
(3)	N/A	N/A	N/A	N/A	N/A

3.4 Auxiliary equipment

Device Type	Manufacturer	Model Name	Serial No.	Remark
Rechargeable battery	OUTDO	UTX7L-BS	N/A	From lab（No.BLA-ZC-PJ-2023005）
CMW500	R&S	N/A	N/A	From lab
Note:"--" mean no any auxiliary device during testing.				

3.5 Test environment

Environment	Temperature	Voltage
Normal	25℃	DC 12V

4 Laboratory information

4.1 Laboratory and accreditations

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

Company name:	BlueAsia of Technical Services(Shenzhen) Co., Ltd.
Address:	Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China
CNAS accredited No.:	L9788
A2LA Cert. No.:	5071.01
FCC Designation No.:	CN1252
ISED CAB identifier No.:	CN0028
Telephone:	+86-755-28682673
FAX:	+86-755-28682673

4.2 Measurement uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

Parameter	Expanded Uncertainty
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30Mz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5 dB
Power Spectral Density, conducted	±3.0 dB
Unwanted Emissions, conducted	±3.0 dB
Temperature	±3 °C
Supply voltages	±3 %
Time	±5 %

5 Test equipment

Radiated Spurious Emissions (Below 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-002-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-002-02	Control room	966 control room	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2024/08/08	2025/08/07
BLA-EMC-043	Loop antenna	FMZB1519B	Schwarzbeck	00102	2024/06/29	2026/06/28
BLA-EMC-065	Broadband antenna	VULB9168	Schwarzbeck	01065P	2024/06/29	2026/06/27
BLA-XC-01	Coaxial Cable	N/A	BlueAsia	V01	N/A	N/A
BLA-XC-02	Coaxial Cable	N/A	BlueAsia	V02	N/A	N/A

Radiated Spurious Emissions (Above 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-001-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-001-02	Control Room	966 control room	SKET	N/A	2023/11/16	2025/11/15
BLA-EMC-008	Spectrum	FSP40	R&S	100817	2024/08/08	2025/08/07
BLA-EMC-012	Broadband antenna	VULB9168	Schwarzbeck	00836 P:00227	2022/10/12	2025/10/11
BLA-EMC-013	Horn Antenna	BBHA9120D	Schwarzbeck	01892	2024/06/29	2026/06/28
BLA-EMC-014	Amplifier	PA_000318G-45	SKET	PA201804 3003	2024/08/08	2025/08/07
BLA-EMC-046	Filter bank	2.4G/5G Filter bank	SKET	N/A	2024/06/28	2025/06/27
BLA-EMC-061	Receiver	ESPI7	R&S	101477	2024/06/28	2025/06/27
BLA-EMC-066	Amplifier	LNPA_30M01 G-30	SKET	SK202106 0801	2024/06/28	2025/06/27
BLA-EMC-086	Amplifier	LNPA_18G40 G-50dB	SKET	SK202207 1301	2024/06/28	2025/06/27
BLA-EMC-087	Horn Antenna	BBHA 9170	Schwarzbeck	1106	2024/06/29	2026/06/28
BLA-XC-03	Coaxial Cable	N/A	BlueAsia	V03	N/A	N/A
BLA-XC-04	Coaxial Cable	N/A	BlueAsia	V04	N/A	N/A

RF conducted

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-003-003	Shield room	5*3*3	SKET	N/A	2023/11/16	2025/11/15
BLA-EMC-016	Signal Generator	N5182A	Agilent	MY52420567	2024/06/28	2025/06/27
BLA-EMC-038	Spectrum	N9020A	Agilent	MY49100060	2024/08/08	2025/08/07
BLA-EMC-042	Power sensor	RPR3006W	DARE	14I00889SN042	2024/08/08	2025/08/07
BLA-EMC-044	Radio communication tester	CMW500	R&S	132429	2024/08/08	2025/08/07
BLA-EMC-064	Signal Generator	N5182B	KEYSIGHT	MY58108892	2024/06/28	2025/06/27
BLA-EMC-079	Spectrum	N9020A	Agilent	MY54420161	2024/08/08	2025/08/07
BLA-EMC-088	Audio Analyzer	ATS-1	Audio Precision	ATS141094	2024/06/28	2025/06/27

Test Software Record

Software No.	Software Name	Manufacture	Software version	Test site
BLA-EMC-S001	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S002	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S010	MTS 8310	MW	2.0.0.0	RF

6 Test result

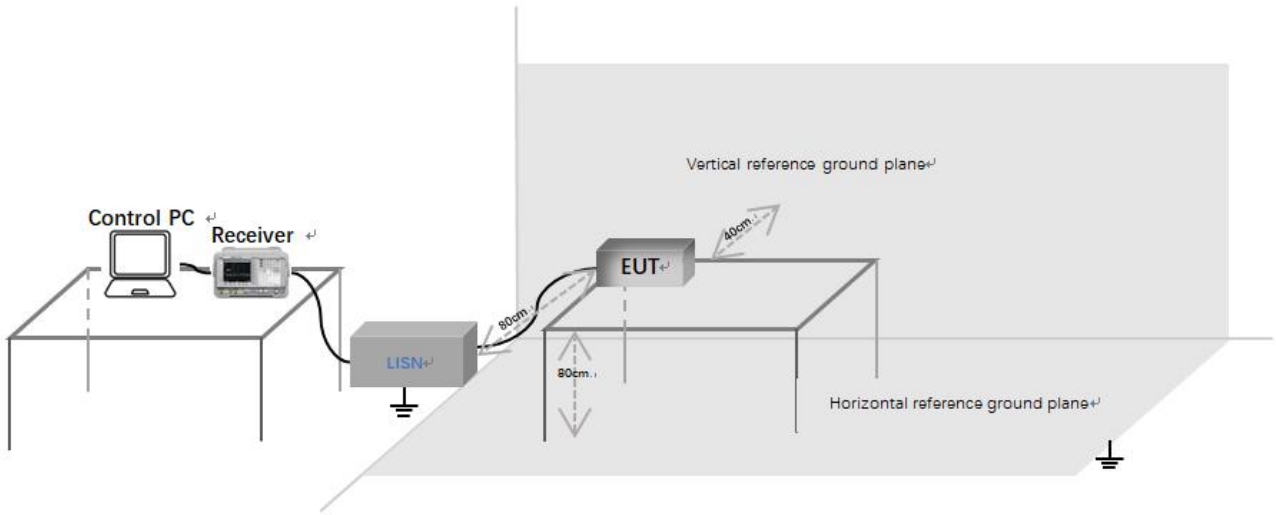
6.1 Conducted emissions at AC power line (150 kHz-30 MHz)

Test Standard	Part 15.207
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

Limit

Frequency of emission(MHz)	**Conducted limit(dBμV)**	
	Quasi-peak	**Average**
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency.		

Test setup



Description of test setup connection:

a) Connect the control PC to the receiver through a USB to GPIB cable;

b) The receiver is connected to the LISN through a coaxial line;

c) Connect the power port of LISN to the EUT.

Procedure

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

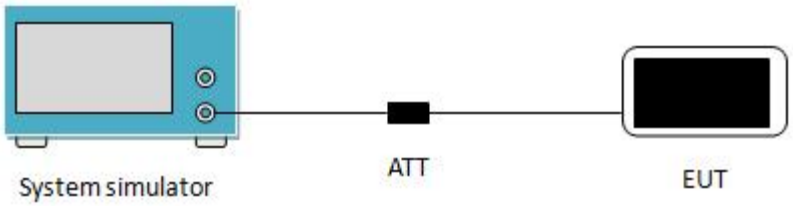
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

LISN=Read Level+ Cable Loss+ LISN Factor

6.1.1 Test data

N/A

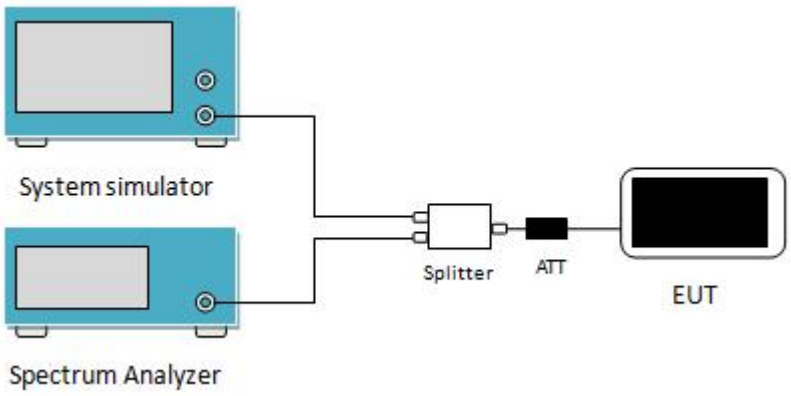
6.2 Conducted output Power

Test Requirement	Part 22.913(a)(2), Part 27.50(d)(4)
Test Method	ANSI/TIA-603-E 2016
Limit	Band2/Band7: 2W; Band5: 7W;
Test Setup	
Test Procedure	The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the CMW500. Transmitter output power was read off in dBm.
Test Instruments	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.2.1 Test data

Pass: Please Refer To Appendix 1: LTE RF Test data section 2

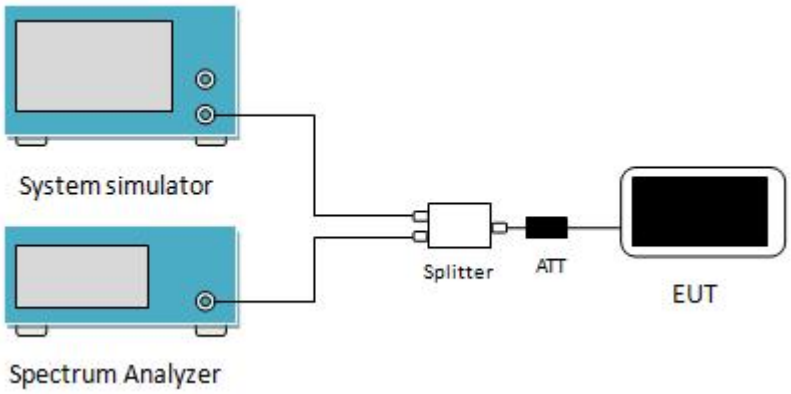
6.3 Peak-to-Average Ratio

Test Requirement	Part 24.232 (d), Part 27.50(d)(5)
Test Method	ANSI/TIA-603-E 2016
Limit	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup	
Test Procedure	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 Set the CCDF option in spectrum analyzer, RBW ≥ OBW, 3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level. 4 Repeat step 1~3 at other frequency and modulations.
Test Instruments	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.3.1 Test data

Pass: Please Refer To Appendix 1: LTE RF Test data section 3

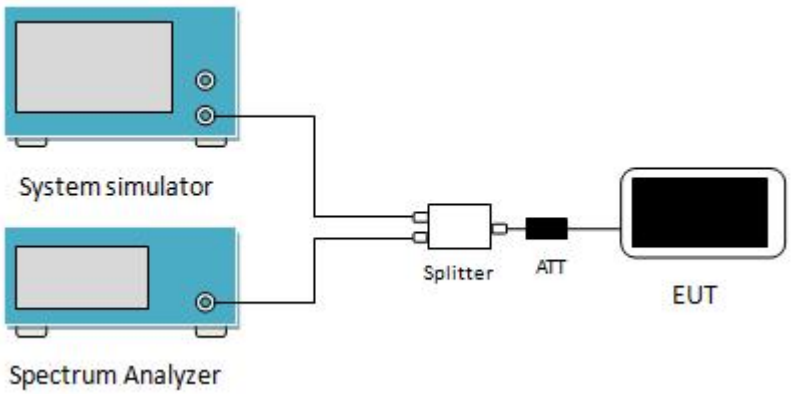
6.4 Occupy Bandwidth

Test Requirement	Part 22.917(b), Part 27.53(h)
Test Method	ANSI/TIA-603-E 2016
Test Setup	
Test Procedure	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% ~ 5% of emission BW, VBW= 3 times RBW. 3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.
Test Instruments	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.4.1 Test data

Pass: Please Refer To Appendix 1: LTE RF Test data section 5

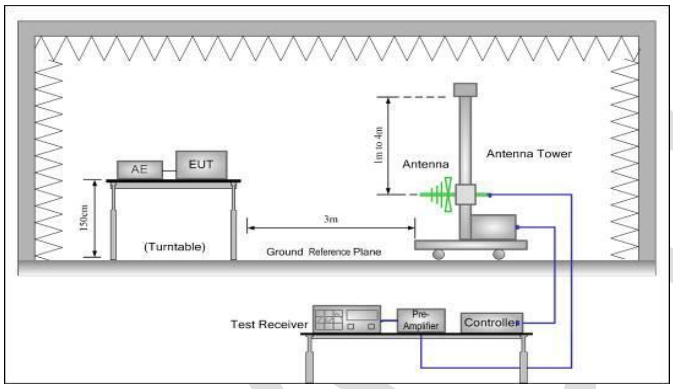
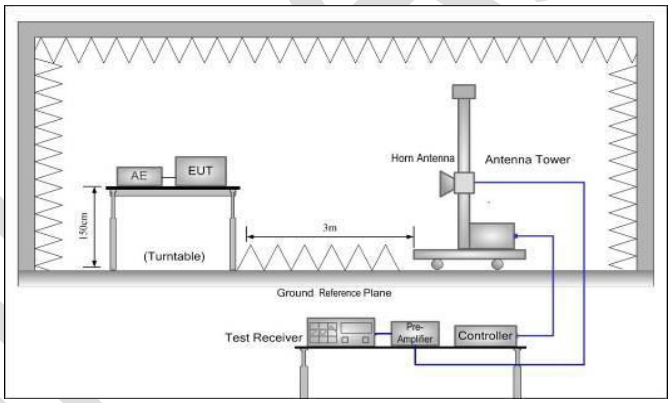
6.5 Out of band emission at antenna terminals,Band Edge

Test Requirement	Part 24.238 (a), part 27.53(h)
Test Method	ANSI/TIA-603-E 2016
Limit	LTE Band4: Thepower of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10(P) dB (-13 dBm). frequencies between 5 megahertz and Xmegahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge,where X is the greater of 6 megahertz or the actual emissionbandwidth as defined in paragraph (m)(6) of this section. Inaddition, the attenuation factor shall not be less that 43 + 10 log (P) dB on allfrequencies between 2490.5 MHz and 2496 MHzand 55 + 10 log (P) dB at or below 2490.5 MHz.
Test Setup	
Test Procedure	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.5.1 Test data

Pass: Please Refer To Appendix 1: LTE RF Test data section 1

6.6 ERP, EIRP Measurement

Test Requirement	Part 22.913(a)(2), Part 27.50 (h)
Test Method	ANSI/TIA-603-E 2016
Limit	Band2/Band7: 2W; Band5:7W
Test setup	Below 1GHz  Above 1GHz 
Test Procedure	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated. 3. ERP in frequency band below 1GHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows: ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB) 4. EIRP in frequency band above 1GHz were measured using a substitution method. The EUT was replaced by or horn antenna

	connected, the S.G. output was recorded and EIRP was calculated as follows: EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB) 5. The worse case was relating to the conducted output power.
Test Instruments	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.6.1 Test data

LTE Band 2

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1850.70	18607	QPSK	1.4	H	V	22.14	33.00	Pass
					H	23.20		
1850.70	18607	16QAM	1.4	H	V	22.83		
					H	23.37		
Middle Channel								
1880.00	18900	QPSK	1.4	H	V	22.31	33.00	Pass
					H	22.34		
1880.00	18900	16QAM	1.4	H	V	22.17		
					H	21.31		
Highest Channel								
1909.30	19193	QPSK	1.4	H	V	22.61	33.00	Pass
					H	22.54		
1909.30	19193	16QAM	1.4	H	V	22.97		
					H	22.21		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1851.50	18615	QPSK	3	H	V	23.73	33.00	Pass
					H	22.33		
1851.50	18615	16QAM	3	H	V	23.72		
					H	23.74		
Middle Channel								
1880.00	18900	QPSK	3	H	V	20.59	33.00	Pass
					H	21.78		
1880.00	18900	16QAM	3	H	V	21.79		
					H	22.38		
Highest Channel								
1908.50	19185	QPSK	3	H	V	23.17	33.00	Pass
					H	22.66		
1908.50	19185	16QAM	3	H	V	22.11		
					H	23.03		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1852.50	18625	QPSK	5	H	V	21.57	33.00	Pass
					H	21.08		
1852.50	18625	16QAM	5	H	V	21.34		
					H	22.49		
Middle Channel								
1880.00	18900	QPSK	5	H	V	21.01	30.00	Pass
					H	22.71		
1880.00	18900	16QAM	5	H	V	21.5		
					H	21.54		
Highest Channel								
1907.50	19175	QPSK	5	H	V	22.53	33.00	Pass
					H	23.83		
1907.50	19175	16QAM	5	H	V	21.63		
					H	21.87		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1855.00	18650	QPSK	10	H	V	22.32	30.00	Pass
					H	22.14		
1855.00	18650	16QAM	10	H	V	23.97		
					H	21.85		
Middle Channel								
1880.00	18900	QPSK	10	H	V	21.25	33.00	Pass
					H	22.06		
1880.00	18900	16QAM	10	H	V	21.94		
					H	21.91		
Highest Channel								
1905.00	19150	QPSK	10	H	V	22.54	33.00	Pass
					H	21.15		
1905.00	19150	16QAM	10	H	V	21.76		
					H	20.47		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1857.50	18675	QPSK	15	H	V	22.97	33.00	Pass
					H	22.95		
1857.50	18675	16QAM	15	H	V	22.56		
					H	23.67		
Middle Channel								
1880.00	18900	QPSK	15	H	V	21.22	33.00	Pass
					H	21.87		
1880.00	18900	16QAM	15	H	V	22.45		
					H	23.35		
Highest Channel								
1902.50	19125	QPSK	15	H	V	22.26	33.00	Pass
					H	21.41		
1902.50	19125	16QAM	15	H	V	22.17		
					H	22.97		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1860.00	18700	QPSK	20	H	V	22.74	33.00	Pass
					H	22.42		
1860.00	18700	16QAM	20	H	V	22.19		
					H	22.68		
Middle Channel								
1880.00	18900	QPSK	20	H	V	22.39	33.00	Pass
					H	22.87		
1880.00	18900	16QAM	20	H	V	20.28		
					H	22.58		
Highest Channel								
1900.00	19100	QPSK	20	H	V	22.13	33.00	Pass
					H	20.77		
1900.00	19100	16QAM	20	H	V	22.84		
					H	23.86		

LTE Band 5

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
LowestChannel								
824.7	20407	QPSK	1.4	H	V	22.98	38.45	Pass
					H	21.86		
824.7	20407	16QAM	1.4	H	V	22.7		
					H	22.58		
Middle Channel								
836.5	20525	QPSK	1.4	H	V	22.32	38.45	Pass
					H	21.17		
836.5	20525	16QAM	1.4	H	V	21.16		
					H	22.18		
Highest Channel								
848.3	20643	QPSK	1.4	H	V	21.1	38.45	Pass
					H	22.8		
848.3	20643	16QAM	1.4	H	V	22.45		
					H	21.38		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
LowestChannel								
825.5	20415	QPSK	3	H	V	23.56	38.45	Pass
					H	21.04		
825.5	20415	16QAM	3	H	V	22.87		
					H	21.96		
Middle Channel								
836.5	20525	QPSK	3	H	V	22.73	38.45	Pass
					H	22.89		
836.5	20525	16QAM	3	H	V	21.25		
					H	21.98		
Highest Channel								
847.5	20635	QPSK	3	H	V	21.33	38.45	Pass
					H	22.07		
847.5	20635	16QAM	3	H	V	20.47		
					H	22.24		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
LowestChannel								
826.5	24025	QPSK	5	H	V	22.83	38.45	Pass
					H	21.35		
826.5	24025	16QAM	5	H	V	21.23		
					H	21.26		
Middle Channel								
836.5	20525	QPSK	5	H	V	20.84	38.45	Pass
					H	21.75		
836.5	20525	16QAM	5	H	V	22.24		
					H	21.39		
Highest Channel								
846.5	20625	QPSK	5	H	V	21.53	38.45	Pass
					H	22.77		
846.5	20625	16QAM	5	H	V	21.81		
					H	23.57		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
LowestChannel								
829	20450	QPSK	10	H	V	21.57	38.45	Pass
					H	22.76		
829	20450	16QAM	10	H	V	20.45		
					H	22.67		
Middle Channel								
836.5	20525	QPSK	10	H	V	21.93	38.45	Pass
					H	22.21		
836.5	20525	16QAM	10	H	V	22.36		
					H	21.86		
Highest Channel								
844	20600	QPSK	10	H	V	22.66	38.45	Pass
					H	21.21		
844	20600	16QAM	10	H	V	23.75		
					H	22.67		

LTE Band 7

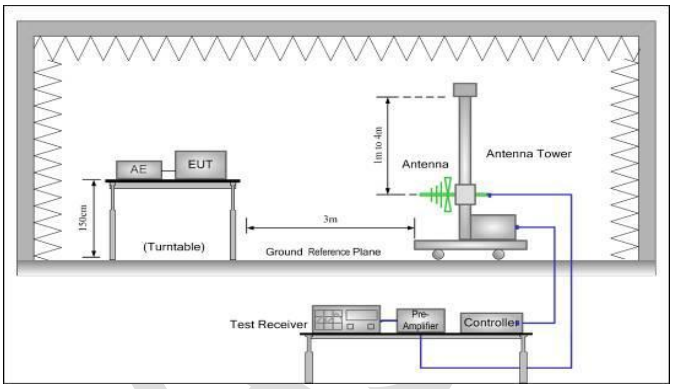
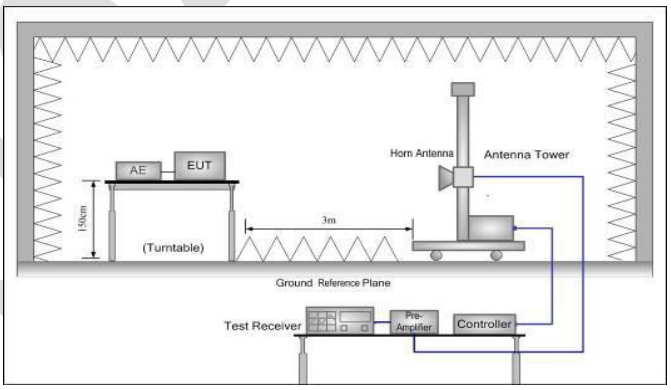
Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2502.5	20775	QPSK	5	H	V	21.71	33.00	Pass
					H	21.39		
2502.5	20775	16QAM	5	H	V	21.79		
					H	21.75		
Middle Channel								
2535	21100	QPSK	5	H	V	21.05	33.00	Pass
					H	20.93		
2535	21100	16QAM	5	H	V	18.60		
					H	18.11		
Highest Channel								
2567.5	21425	QPSK	5	H	V	22.66	33.00	Pass
					H	21.25		
2567.5	21425	16QAM	5	H	V	21.15		
					H	22.68		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2505	20800	QPSK	10	H	V	20.86	33.00	Pass
					H	22.07		
2505	20800	16QAM	10	H	V	23.96		
					H	20.58		
Middle Channel								
2535	21100	QPSK	10	H	V	18.93	33.00	Pass
					H	19.87		
2535	21100	16QAM	10	H	V	20.14		
					H	19.77		
Highest Channel								
2565	21400	QPSK	10	H	V	20.27	33.00	Pass
					H	22.34		
2565	21400	16QAM	10	H	V	22.04		
					H	24.15		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2507.5	20825	QPSK	15	H	V	22.99	33.00	Pass
					H	23.41		
2507.5	20825	16QAM	15	H	V	21.59		
					H	20.99		
Middle Channel								
2535	21100	QPSK	15	H	V	21.41	33.00	Pass
					H	20.77		
2535	21100	16QAM	15	H	V	21.79		
					H	19.82		
Highest Channel								
2562.5	21375	QPSK	15	H	V	22.76	33.00	Pass
					H	21.16		
2562.5	21375	16QAM	15	H	V	24.92		
					H	23.47		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2510	20850	QPSK	20	H	V	20.75	33.00	Pass
					H	23.02		
2510	20850	16QAM	20	H	V	21.99		
					H	22.54		
Middle Channel								
2535	21100	QPSK	20	H	V	21.08	33.00	Pass
					H	21.96		
2535	21100	16QAM	20	H	V	21.45		
					H	20.91		
Highest Channel								
2560	21350	QPSK	20	H	V	19.4	33.00	Pass
					H	23.33		
2560	21350	16QAM	20	H	V	23.86		
					H	22.03		

6.7 Spurious Emissions at Antenna Terminal

Test Requirement	Part 24.238 (a),Part 27.53(h)
Test Method	ANSI/TIA-603-E 2016
Limit	LTE Band 2/5: <-13dBm, LTE Band 7:<-25dBm
Test setup	Below 1GHz  Above 1GHz 
Test Procedure	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

	ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Instruments	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.7.1 Test data

LTE Band 2 / 1.4 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
2701.4	Vertical	-40.73	-13.00	Pass
5552.1	V	-41.92		
2701.4	Horizontal	-39.25		
5552.1	H	-40		
Middle				
3760	Vertical	-39.71	-13.00	Pass
5640	V	-41.41		
3760	Horizontal	-40.67		
5640	H	-40.01		
Highest				
3818.6	Vertical	-40.94	-13.00	Pass
5727.9	V	-41.29		
3818.6	Horizontal	-41.9		
5727.9	H	-39.56		

Note:1.The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

2.For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 2 / 20 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
3720	Vertical	-41.17	-13.00	Pass
5580	V	-40.31		
3720	Horizontal	-40.86		
5580	H	-41.55		
Middle				
3760	Vertical	-40.57	-13.00	Pass
5640	V	-42.19		
3760	Horizontal	-40.66		
5640	H	-42.46		
Highest				
3800	Vertical	-40.46	-13.00	Pass
5700	V	-40.91		
3800	Horizontal	-41.67		
5700	H	-41.68		

Note:1.The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

2.For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 5/ 1.4 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
1649.7	Vertical	-41.78	-13.00	Pass
2474.1	V	-41.28		
1649.7	Horizontal	-42.27		
2474.1	H	-42.37		
Middle				
1673.0	Vertical	-41.77	-13.00	Pass
2509.5	V	-42.85		
1673.0	Horizontal	-41.23		
2509.5	H	-43.12		
Highest				
1696.6	Vertical	-41.15	-13.00	Pass
2544.9	V	-41.54		
1696.6	Horizontal	-41.34		
2544.9	H	-42.75		

Note:1.The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

2.For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 5 / 10 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
1658	Vertical	-41.52	-13.00	Pass
2487	V	-41.95		
1658	Horizontal	-42.66		
2487	H	-41.55		
Middle				
1673.0	Vertical	-41.99	-13.00	Pass
2509.5	V	-41.05		
1673.0	Horizontal	-42.07		
2509.5	H	-41.38		
Highest				
1688	Vertical	-41.88	-13.00	Pass
2532	V	-42.94		
1688	Horizontal	-41.25		
2532	H	-42.68		

Note:1.The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

2.For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 7/ 5 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
5005.0	Vertical	-42.97	-25.00	Pass
7507.5	V	-42.58		
5005.0	Horizontal	-41.04		
7507.5	H	-41.66		
Middle				
5070	Vertical	-42.97	-25.00	Pass
7605	V	-41.01		
5070	Horizontal	-40.68		
7605	H	-39.08		
Highest				
5135.0	Vertical	-41.05	-25.00	Pass
7702.5	V	-43.48		
5135.0	Horizontal	-41.71		
7702.5	H	-43.56		

Note:1.The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

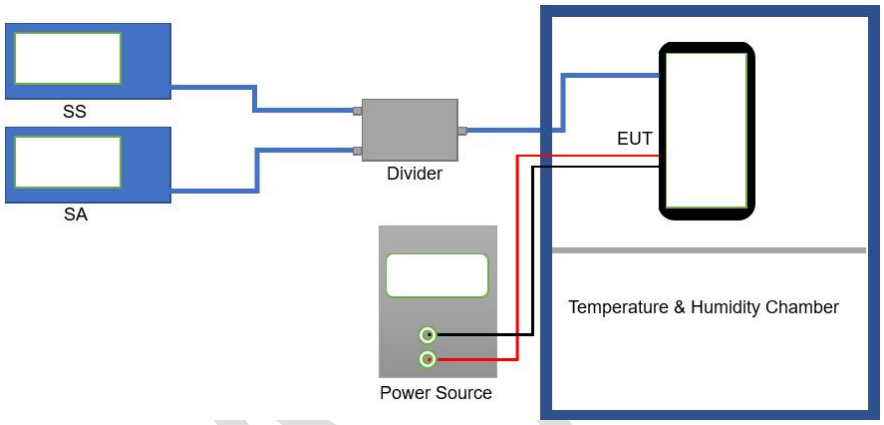
2.For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 7 / 20 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
5020	Vertical	-43.81	-25.00	Pass
7530	V	-43.66		
5020	Horizontal	-41.39		
7530	H	-41.78		
Middle				
5070	Vertical	-42.87	-25.00	Pass
7605	V	-43.17		
5070	Horizontal	-42.88		
7605	H	-43.47		
Highest				
5120	Vertical	-42.41	-25.00	Pass
7680	V	-44.25		
5120	Horizontal	-41.8		
7680	H	-43.61		

Note:1.The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.

2.For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

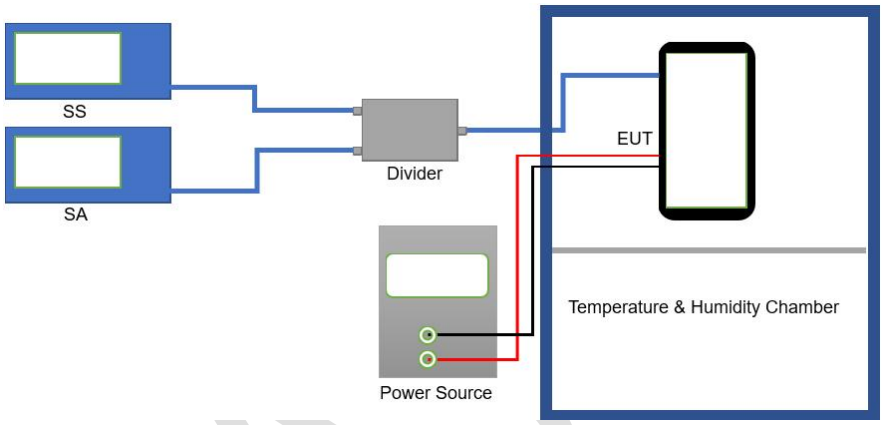
6.8 Frequency stability V.S. Temperature measurement

Test Requirement	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(a)(1)(b)
Test Method	ANSI/TIA-603-E 2016
Limit	±2.5ppm
Test setup	
Test procedure	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25 ℃ operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached
Test Instruments	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.8.1 Test data

Pass: Please Refer To Appendix 1: LTE RF Test data section 4

6.9 Frequency stability V.S. Voltage measurement

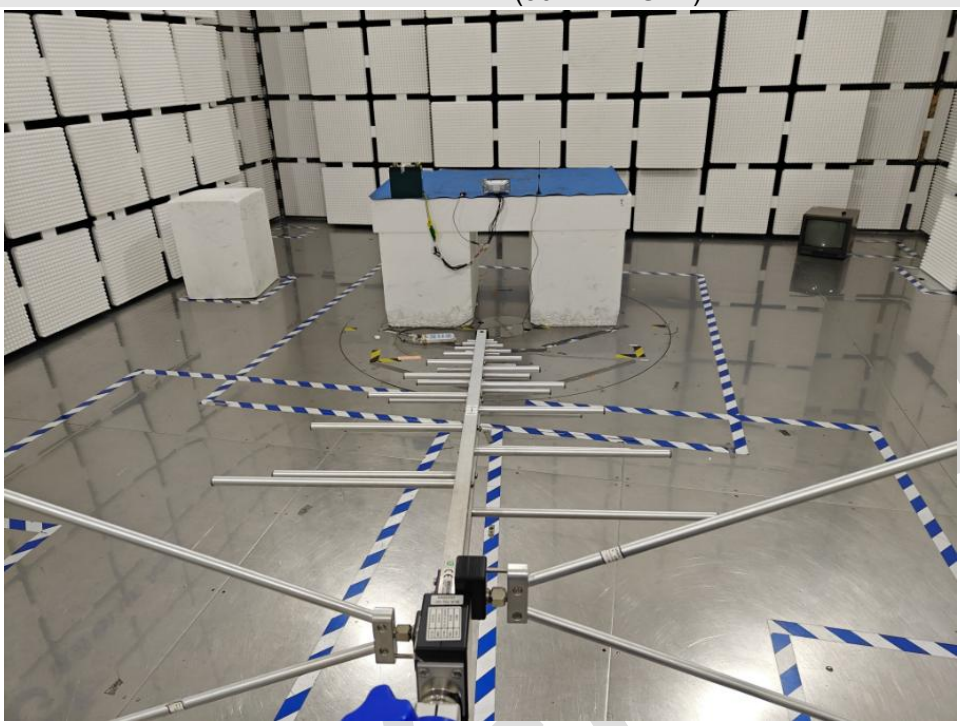
Test Requirement	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(d)(2)
Test Method	ANSI/TIA-603-E 2016
Limit	±2.5ppm
Test setup	
Test procedure	1. Set chamber temperature to 25℃. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments	Refer to section 5 for details
Test mode	Refer to section 3.1 for details
Test results	Pass

6.9.1 Test data

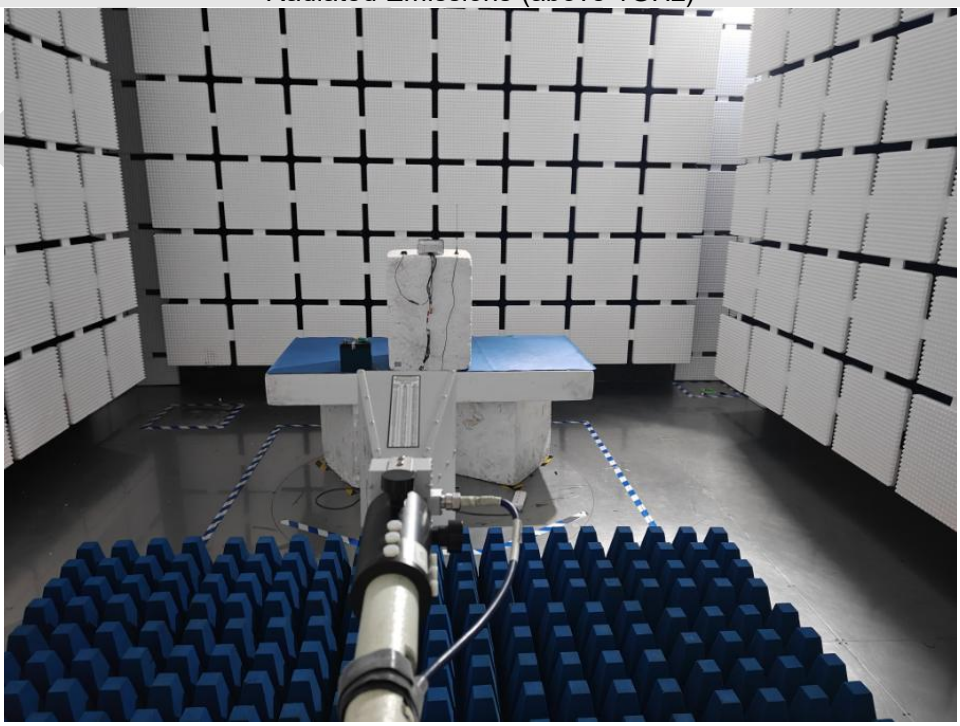
Pass: Please Refer To Appendix 1: LTE RF Test data section 4

7 Appendix A: photographs of test setup

Radiated Emissions (30MHz-1GHz)



Radiated Emissions (above 1GHz)



Appendix B: photographs of EUT

Reference to the test report no. BLA-EMC-202412-A2601

----END OF REPORT----