

FCC REPORT

(LTE)

Applicant : Luminys Systems Corporation
Address : 15245 Alton Pkwy # 100, Irvine CA 92618
Product Name : Mobile Solar Trailer
Brand Mark : N/A
Model : TG-113A
TG-113B, TG-113C, S75L-A/S10L-A,
Serial model : S75L-A/S10L-B, S75L-A/S10L-C, ST-701,
ST-1101
FCC ID : 2BHII-TG113A
Report Number : BLA-EMC-202408-A0102
Date of Receipt : 2024.08.02
Date of Test : 2024.08.02 to 2024.10.24
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
Test result : PASS

Compiled by: *Hugh*Review by: *Sueels*Approved by: *Blue Zheng*

Issued Date: 2024.10.24

BlueAsia of Technical Services(Shenzhen) Co., Ltd.Address: Building C, No. 107, Shihuan Road, Shiyuan Sub-District, Baoan District,
Shenzhen, Guangdong Province, China

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Revise Record

Version No.	Date	Description
01	2024.10.24	Original

1 General Information

1.1 Client Information

Applicant:	Luminys Systems Corporation
Address:	15245 Alton Pkwy # 100,Irvine CA 92618
Manufacturer:	Cheng Uei Precision Industry Co., Ltd
Address:	18, Chung Shan Road, Tu Cheng Dist., New Taipei City 23680,Taiwan
Factory	N/A
Address	N/A

1.2 General Description of E.U.T.

Product Name:	Mobile Solar Trailer
Test Model No.:	TG-113A
Series model:	TG-113B, TG-113C, S75L-A/S10L-A, S75L-A/S10L-B, S75L-A/S10L-C, ST-701, ST-1101
Note:	The above models are identical in PCB layout, internal structure and companents .only model no,and color is different.
Operation Frequency range:	LTE Band 2:TX: 1850MHz-1910MHz, RX: 1930MHz-1990MHz LTE Band 4:TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 5:TX: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 7:TX: 2500MHz-2570MHz, RX: 2620MHz-2690MHz LTE Band 12 TX:699MHz-716MHz, RX: 729MHz-746MHz LTE Band 13 TX: 777MHz-787MHz, RX: 746MHz-756MHz LTE Band 17 TX: 704MHz-716MHz, RX: 734MHz-746MHz LTE Band 25 TX: 1850MHz-1915MHz, RX: 1930MHz-1995MHz LTE Band 38 TX: 2570MHz-2620MHz, RX: 2570MHz-2620MHz LTE Band 40 Lower TX: 2305MHz-2315MHz, RX: 2305MHz-2315MHz LTE Band 40 Upper TX: 2350MHz-2360MHz, RX: 2350MHz-2360MHz LTE Band 41 TX: 2496MHz-2690MHz, RX: 2496MHz-2690MHz LTE Band 66 TX: 1710MHz-1780MHz, RX: 2110MHz-2200MHz
Modulation type:	QPSK, 16QAM
Antenna type:	External Antenna
Antenna gain:	LTE Band 2:TX: 2.82 dBi; LTE Band 4:TX: 3.31 dBi; LTE Band 5:TX: 2.66 dBi; LTE Band 7:TX: 2.07 dBi; LTE Band 12 TX: -2.70 dBi; LTE Band 13 TX: 1.60 dBi; LTE Band 17 TX: -2.70 dBi; LTE Band 25 TX: 1.60 dBi; LTE Band 38 TX: 2.07 dBi; LTE Band 40 TX: 3.25 dBi; LTE Band 41 TX: 2.08 dBi; LTE Band 66 TX: 3.31 dBi
Power supply:	Input DC6~35V/0.5A~0.08A
Remark:The Antenna Gain is supplied by the customer.BlueAsia is not responsible for this data	

2 Test Summary

Test Items	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 27.50 (d)(4)	Pass
Peak-to-Average Ratio	Part 24.232 (d) Part 27.50(d)(5)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 27.53(h)	Pass
Out of band emission, Band Edge	Part 22.917(a) Part 27.53 (h)	Pass
Field Strength of Spurious Radiation ERP EIRP Measurement	Part 2.1053 Part 27.53 (h)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 27.53 (h)	Pass
Frequency stability vs. temperature	Part 22.355 Part 24.235 Part 27.54 Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 22.355 Part 24.235 Part 27.54 Part 2.1055(d)(2)	Pass
Pass: The EUT complies with the essential requirements in the standard.		

3 Test Configuration

3.1 Test mode

Test Mode ^{Note 1}	Description
TX	Keep the EUT in continuously transmitting mode with modulation. (Duty cycle>98%)
RX	Keep the EUT in receiving mode
TX Low channel	Keep the EUT in continuously transmitting mode in low channel
TX middle channel	Keep the EUT in continuously transmitting mode in middle channel
TX high channel	Keep the EUT in continuously transmitting mode in high channel

Note 1: The EUT was configured to measure its highest possible emission and/or immunity level. The test modes were adapted according to the operation manual for use; the EUT was operated in the engineering mode Note 2 to fix the TX or Rx frequency that was for the purpose of the measurements.

Operation Frequency List:

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:

LTE Band 2(1.4MHz)			LTE Band 2(3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	18607	1850.70	Lowest channel	18615	1851.5
Middle channel	18900	1880.00	Middle channel	18900	1880.00
Highest channel	19193	1909.30	Highest channel	19185	1908.5
LTE Band 2(5MHz)			LTE Band 2(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	18625	1852.50	Lowest channel	18650	1855.00
Middle channel	18900	1880.00	Middle channel	18900	1880.00
Highest channel	19175	1907.50	Highest channel	19150	1905.00
LTE Band 2(15MHz)			LTE Band 2(20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	18675	1857.50	Lowest channel	18700	1860.00
Middle channel	18900	1880.00	Middle channel	18900	1880.00
Highest channel	19125	1902.50	Highest channel	19100	1900.00

LTE Band 4(1.4MHz)			LTE Band 4(3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	19957	1710.70	Lowest channel	19965	1711.50
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20393	1754.30	Highest channel	20385	1753.50
LTE Band 4(5MHz)			LTE Band 4(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	19975	1712.50	Lowest channel	20000	1715.00
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20375	1752.50	Highest channel	20350	1750.00
LTE Band 4(15MHz)			LTE Band 4(20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	20025	1717.50	Lowest channel	20050	1720.00
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20325	1747.50	Highest channel	20300	1745.00

LTE Band 5(1.4MHz)			LTE Band 5(3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	20407	824.7	Lowest channel	20415	825.5
Middle channel	20525	836.5	Middle channel	20525	836.5
Highest channel	20643	848.3	Highest channel	20635	847.5
LTE Band 5(5MHz)			LTE Band 5(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	20425	826.5	Lowest channel	20450	829.0
Middle channel	20525	836.5	Middle channel	20525	836.5
Highest channel	20625	846.5	Highest channel	20600	844.0

LTE Band 7(5MHz)			LTE Band 7(10MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	20775	2502.5	Lowest channel	20800	2505.0
Middle channel	21100	2535.0	Middle channel	21100	2535.0
Highest channel	21425	2567.5	Highest channel	21400	2465.0
LTE Band 7(15MHz)			LTE Band 7(20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	20825	2507.5	Lowest channel	20850	2510.0
Middle channel	21100	2435.0	Middle channel	21100	2535.0
Highest channel	21375	2562.5	Highest channel	21350	2560.0

LTE Band 12(1.4MHz)			LTE Band 12(3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	23017	699.7	Lowest channel	23025	700.5
Middle channel	23095	707.5	Middle channel	23095	707.5
Highest channel	23173	715.3	Highest channel	23165	714.0
LTE Band 12(5MHz)			LTE Band 12(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	23035	701.5	Lowest channel	23060	704
Middle channel	23095	707.5	Middle channel	23095	707.5
Highest channel	23155	713.5	Highest channel	23130	711

LTE Band 13(5MHz)			LTE Band 13(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	23205	779.5	Lowest channel	23230	782
Middle channel	23230	782	Middle channel	23230	782
Highest channel	23255	784.5	Highest channel	23230	782

LTE Band 17(5MHz)			LTE Band 17(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	23755	706.5	Lowest channel	23780	709
Middle channel	23790	710	Middle channel	23790	710
Highest channel	23825	713.5	Highest channel	23800	711

LTE Band 25(1.4MHz)			LTE Band 25(3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26047	1850.7	Lowest channel	26055	1851.5
Middle channel	26365	1882.5	Middle channel	26365	1882.5
Highest channel	26683	1914.3	Highest channel	26675	1913.5
LTE Band 25(5MHz)			LTE Band 25(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26065	1852.5	Lowest channel	26090	1855
Middle channel	26365	1882.5	Middle channel	26365	1882.5
Highest channel	26665	1912.5	Highest channel	26640	1910
LTE Band 25(15MHz)			LTE Band 25(20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	26115	1857.5	Lowest channel	26140	1860
Middle channel	26365	1882.5	Middle channel	26365	1882.5
Highest channel	26615	1907.5	Highest channel	26590	1905

LTE Band 38(5MHz)			LTE Band 38(10MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	37775	2572.5	Lowest channel	37800	2575
Middle channel	38000	2595	Middle channel	38000	2595
Highest channel	38225	2617.5	Highest channel	38200	2615
LTE Band 38(15MHz)			LTE Band 38(20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	37825	2577.5	Lowest channel	37850	2580
Middle channel	38000	2595	Middle channel	38000	2595
Highest channel	38175	2612.5	Highest channel	38150	2610

LTE Band 40 Lower(5MHz)			LTE Band 40 Lower(10MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	38725	2307.5	Lowest channel	/	/
Middle channel	/	/	Middle channel	38750	2310
Highest channel	38775	2312.5	Highest channel	/	/
LTE Band 40 Upper(5MHz)			LTE Band 40(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	39175	2352.5	Lowest channel	/	/
Middle channel	/	/	Middle channel	39200	2355
Highest channel	39225	2357.5	Highest channel	/	/

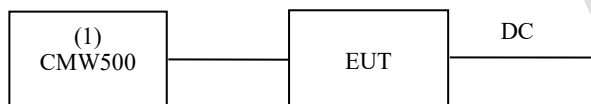
LTE Band 41(5MHz)			LTE Band 41(10MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	39675	2498.5	Lowest channel	39700	2501
Middle channel	40620	2593	Middle channel	40620	2593
Highest channel	41565	2687.5	Highest channel	41540	2685
LTE Band 41(15MHz)			LTE Band 41(20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	39725	2503.5	Lowest channel	39750	2506
Middle channel	40620	2593	Middle channel	40620	2593
Highest channel	41515	2682.5	Highest channel	41490	2680

LTE Band 66(1.4MHz)			LTE Band 66(3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	131979	1710.7	Lowest channel	131987	1711.5
Middle channel	132322	1745	Middle channel	132322	1745
Highest channel	132665	1779.3	Highest channel	132657	1778.5
LTE Band 66(5MHz)			LTE Band 66(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	131997	1712.5	Lowest channel	132022	1715
Middle channel	132322	1745	Middle channel	132322	1745
Highest channel	132647	1777.5	Highest channel	132622	1775
LTE Band 66(15MHz)			LTE Band 66(20MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	132047	1717.5	Lowest channel	132072	1720
Middle channel	132322	1745	Middle channel	132322	1745
Highest channel	132597	1772.5	Highest channel	132572	1770

3.2 Test environment and mode

Operating Environment:	
Temperature:	Normal: 15℃~ 35℃, Extreme: -30℃ ~ +70℃
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 12Vdc
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.	

3.3 Configuration diagram of EUT



3.4 Auxiliary equipment

Device Type	Manufacturer	Model Name	Serial No.	Remark
Radio communication tester	R&S	CMW500	132429	From lab (No.BLA-EMC-044)
--	--	--	--	--
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, Shiyao 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)	$\pm 4.34\text{dB}$
Radiated Emission(30MHz-1000MHz)	$\pm 4.24\text{dB}$
Radiated Emission(1GHz-18GHz)	$\pm 4.68\text{dB}$
AC Power Line Conducted Emission(150kHz-30MHz)	$\pm 3.45\text{dB}$
Occupied Channel Bandwidth	$\pm 5\%$
RF output power, conducted	$\pm 1.5\text{ dB}$
Power Spectral Density, conducted	$\pm 3.0\text{ dB}$
Unwanted Emissions, conducted	$\pm 3.0\text{ dB}$
Temperature	$\pm 3\text{ }^{\circ}\text{C}$
Supply voltages	$\pm 3\%$
Time	$\pm 5\%$

5 Test equipment

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

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	00836P: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	PA2018043003	2024/08/08	2025/08/07
BLA-EMC-044	Radio communication tester	CMW500	R&S	132429	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_30M01G-30	SKET	SK2021060801	2024/06/28	2025/06/27
BLA-EMC-086	Amplifier	LNPA_18G40G-50dB	SKET	SK2022071301	2024/06/28	2025/06/27

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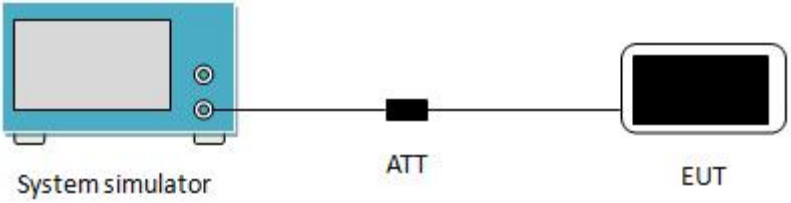
BLA-EMC-087	Horn Antenna	BBHA 9170	Schwarzbeck	1106	2024/06/29	2026/06/28
BLA-XC-03	Coaxial Cable	N/A	BlueAsia	V03	N/A	N/A
BLA-XC-04	Coaxial Cable	N/A	BlueAsia	V04	N/A	N/A

Test Software Record:

Software No.	Software Name	Manufacture	Software version	Test site
BLA-EMC-S001	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S010	MTS 8310	MW	2.0.0.0	RF
BLA-EMC-S014	Bluetooth and WiFi Test System	Tonscend	2.5.77.0418	RF

6 Test results

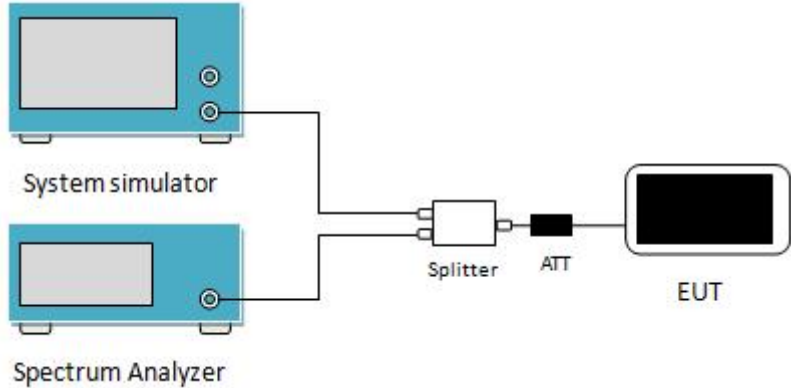
6.1 Conducted Output Power

Test Requirement:	Part 22.913(a)(2), Part 27.50(d)(4),
Test Method:	ANSI/TIA-603-E 2016
Limit:	Band2/Band7/Band25/Band38/Band40/Band41: 2W; Band4/Band66:1W; Band5/Band 12/Band13/Band17:7W;
Test Setup:	 System simulator ATT EUT
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:	Passed

Measurement Data:

Please Refer To Appendix 1: LTE RF Test data section 1.1

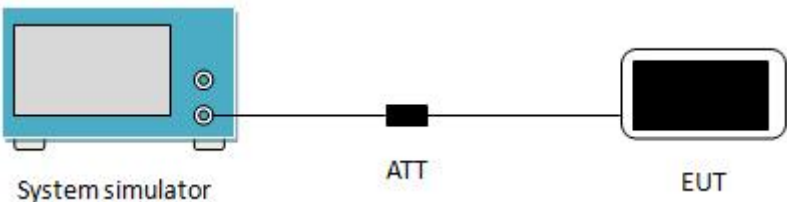
6.2 Peak-to-Average Ratio

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:	 The diagram illustrates the test setup for measuring the Peak-to-Average Ratio (PAR). It shows a System simulator and a Spectrum Analyzer connected to a Splitter. The Splitter is connected to an ATT (Attenuator), which is then connected to the EUT (Equipment Under Test).
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, $RBW \geq OBW$, 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:	Passed

Measurement Data:

Please Refer To Appendix 1: LTE RF Test data section 1.2

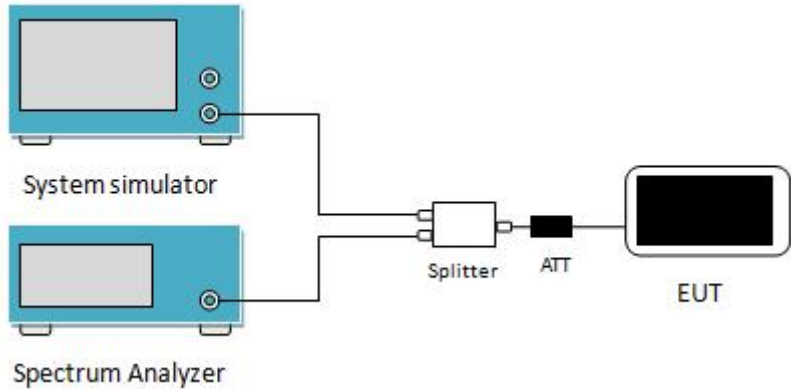
6.3 Modulation Characteristics

Test Requirement:	Part 2.1047
Test Method:	ANSI/TIA-603-E 2016
Limit:	N/A
Test Setup:	 System simulator ATT EUT
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:	Passed

Measurement Data:

Please Refer To Appendix 1: LTE RF Test data section 1.3

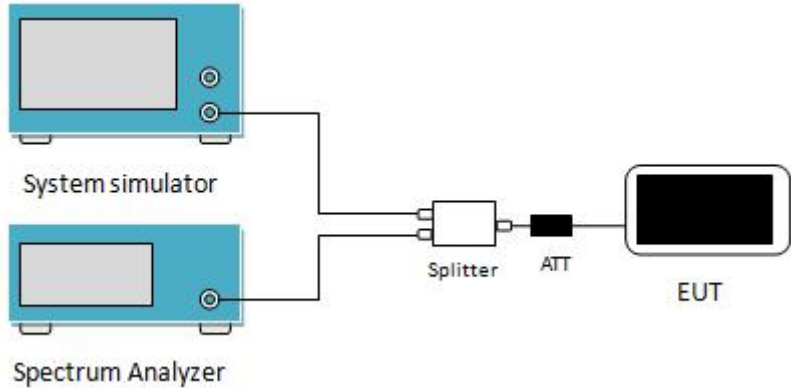
6.4 Occupy Bandwidth

Test Requirement:	Part 22.917(b), Part 27.53(h)
Test Method:	ANSI/TIA-603-E 2016
Test Setup:	 The diagram illustrates the test setup for measuring the occupied bandwidth of the EUT. A System simulator and a Spectrum Analyzer are connected to a Splitter. The Splitter is connected to an ATT (Attenuator), which is then connected to the EUT (Equipment Under Test).
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:	Passed

Measurement Data:

Please Refer To Appendix 1: LTE RF Test data section 1.5

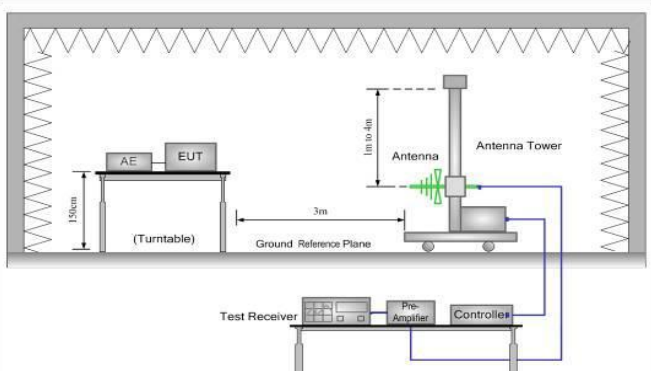
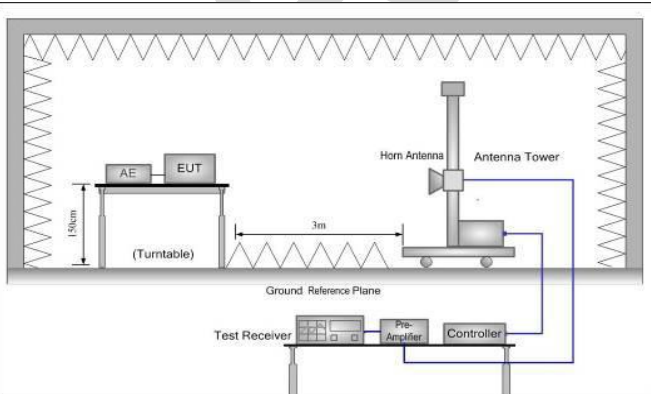
6.5 Out of band emission at antenna terminals,Band Edge

Test Requirement:	Part 24.238 (a), part 27.53(h)
Test Method:	ANSI/TIA-603-E 2016
Limit:	LTE Band4: The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB (-13 dBm). frequencies between 5 megahertz and X megahertz 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 emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.
Test Setup:	 The diagram shows a test setup where a System simulator and a Spectrum Analyzer are connected to a Splitter. The Splitter is connected to an ATT (Attenuator) and then to the EUT (Equipment Under Test).
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:	Passed

Measurement Data:

Please Refer To Appendix 1: LTE RF Test data section 1.7

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/Band25/Band38/Band41: 2W; Band4/Band66:1W; Band5:7W;Band40: 250mW Band 12/Band13/Band17:30W;
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: $ERP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable Loss (dB)}$ 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: $EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$

	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:	Passed

Measurement 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	23.48	33.00	Pass
					H	22.56		
1850.70	18607	16QAM	1.4	H	V	23.59		
					H	21.4		
Middle Channel								
1880.00	18900	QPSK	1.4	H	V	22.01	33.00	Pass
					H	22.65		
1880.00	18900	16QAM	1.4	H	V	23.49		
					H	21.76		
Highest Channel								
1909.30	19193	QPSK	1.4	H	V	23.83	33.00	Pass
					H	22.41		
1909.30	19193	16QAM	1.4	H	V	23.96		
					H	23.63		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1851.50	18615	QPSK	3	H	V	22.73	33.00	Pass
					H	21.19		
1851.50	18615	16QAM	3	H	V	20.45		
					H	21.27		
Middle Channel								
1880.00	18900	QPSK	3	H	V	19.5	33.00	Pass
					H	18.85		
1880.00	18900	16QAM	3	H	V	18.71		
					H	18.08		
Highest Channel								
1908.50	19185	QPSK	3	H	V	20.49	33.00	Pass
					H	24.29		
1908.50	19185	16QAM	3	H	V	21.61		
					H	23.49		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1852.50	18625	QPSK	5	H	V	20.32	33.00	Pass
					H	20.44		
1852.50	18625	16QAM	5	H	V	21.53		
					H	22.77		
Middle Channel								
1880.00	18900	QPSK	5	H	V	19.84	30.00	Pass
					H	21.29		
1880.00	18900	16QAM	5	H	V	18.59		
					H	19.88		
Highest Channel								
1907.50	19175	QPSK	5	H	V	20.9	33.00	Pass
					H	22.65		
1907.50	19175	16QAM	5	H	V	23.67		
					H	21.29		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1855.00	18650	QPSK	10	H	V	20.58	30.00	Pass
					H	23.51		
1855.00	18650	16QAM	10	H	V	23.84		
					H	20.27		
Middle Channel								
1880.00	18900	QPSK	10	H	V	18.82	33.00	Pass
					H	20.55		
1880.00	18900	16QAM	10	H	V	19.11		
					H	20.7		
Highest Channel								
1905.00	19150	QPSK	10	H	V	20.81	33.00	Pass
					H	24.57		
1905.00	19150	16QAM	10	H	V	22.61		
					H	22.41		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1857.50	18675	QPSK	15	H	V	21.04	33.00	Pass
					H	21.32		
1857.50	18675	16QAM	15	H	V	22.83		
					H	21.93		
Middle Channel								
1880.00	18900	QPSK	15	H	V	21.44	33.00	Pass
					H	21.13		
1880.00	18900	16QAM	15	H	V	20.16		
					H	19.97		
Highest Channel								
1902.50	19125	QPSK	15	H	V	19.02	33.00	Pass
					H	23.26		
1902.50	19125	16QAM	15	H	V	23.98		
					H	23.02		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1860.00	18700	QPSK	20	H	V	22.37	33.00	Pass
					H	22.45		
1860.00	18700	16QAM	20	H	V	23.09		
					H	23.83		
Middle Channel								
1880.00	18900	QPSK	20	H	V	21.69	33.00	Pass
					H	21.67		
1880.00	18900	16QAM	20	H	V	19.11		
					H	20.93		
Highest Channel								
1900.00	19100	QPSK	20	H	V	19.62	33.00	Pass
					H	23.54		
1900.00	19100	16QAM	20	H	V	22.78		
					H	23.23		

LTE Band 4

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1710.70	19957	QPSK	1.4	H	V	21.52	30.00	Pass
					H	23.13		
1710.70	19957	16QAM	1.4	H	V	22.62		
					H	22.41		
Middle Channel								
1732.50	20175	QPSK	1.4	H	V	23.65	30.00	Pass
					H	21.45		
1732.50	20175	16QAM	1.4	H	V	24.05		
					H	23.91		
Highest Channel								
1754.30	20393	QPSK	1.4	H	V	22.33	30.00	Pass
					H	24.5		
1754.30	20393	16QAM	1.4	H	V	22.42		
					H	24.28		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1711.50	19965	QPSK	3	H	V	23.13	30.00	Pass
					H	22.82		
1711.50	19965	16QAM	3	H	V	21.55		
					H	24.93		
Middle Channel								
1732.50	20175	QPSK	3	H	V	22.63	30.00	Pass
					H	23.66		
1732.50	20175	16QAM	3	H	V	23.37		
					H	23.75		
Highest Channel								
1753.50	20385	QPSK	3	H	V	22.06	30.00	Pass
					H	24.9		
1753.50	20385	16QAM	3	H	V	22.26		
					H	24.05		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1712.50	19975	QPSK	5	H	V	23.27	30.00	Pass
					H	22.43		
1712.50	19975	16QAM	5	H	V	24.58		
					H	23.56		
Middle Channel								
1732.50	20175	QPSK	5	H	V	22.08	30.00	Pass
					H	22.2		
1732.50	20175	16QAM	5	H	V	24.36		
					H	22.8		
Highest Channel								
1752.50	20375	QPSK	5	H	V	21.33	30.00	Pass
					H	23.25		
1752.50	20375	16QAM	5	H	V	22.72		
					H	23.03		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1715.00	2000	QPSK	10	H	V	22.56	30.00	Pass
					H	24.03		
1715.00	2000	16QAM	10	H	V	22.9		
					H	23.26		
Middle Channel								
1732.50	20175	QPSK	10	H	V	21.03	30.00	Pass
					H	23.43		
1732.50	20175	16QAM	10	H	V	24.1		
					H	24.91		
Highest Channel								
1750.00	20350	QPSK	10	H	V	21.43	30.00	Pass
					H	23.07		
1750.00	20350	16QAM	10	H	V	22.66		
					H	21.58		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1717.50	20025	QPSK	15	H	V	23.43	30.00	Pass
					H	21.18		
1717.50	20025	16QAM	15	H	V	21.37		
					H	21.34		
Middle Channel								
1732.50	20175	QPSK	15	H	V	23.48	30.00	Pass
					H	24.93		
1732.50	20175	16QAM	15	H	V	21.53		
					H	21.43		
Highest Channel								
1747.50	20325	QPSK	15	H	V	21.04	30.00	Pass
					H	23.26		
1747.50	20325	16QAM	15	H	V	24.64		
					H	22.78		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1720.00	20050	QPSK	20	H	V	24.61	30.00	Pass
					H	24.17		
1720.00	20050	16QAM	20	H	V	24.78		
					H	22.58		
Middle Channel								
1732.50	20175	QPSK	20	H	V	22.79	30.00	Pass
					H	22.8		
1732.50	20175	16QAM	20	H	V	22.02		
					H	23.07		
Highest Channel								
1745.00	20300	QPSK	20	H	V	22.18	30.00	Pass
					H	21.93		
1745.00	20300	16QAM	20	H	V	24.54		
					H	24.23		

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	21.96	38.45	Pass
					H	23.06		
824.7	20407	16QAM	1.4	H	V	20.47		
					H	20.57		
Middle Channel								
836.5	20525	QPSK	1.4	H	V	18.26	38.45	Pass
					H	21.3		
836.5	20525	16QAM	1.4	H	V	19.82		
					H	18.52		
Highest Channel								
848.3	20643	QPSK	1.4	H	V	22	38.45	Pass
					H	21.11		
848.3	20643	16QAM	1.4	H	V	23		
					H	21.87		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
LowestChannel								
825.5	20415	QPSK	3	H	V	23.27	38.45	Pass
					H	21.47		
825.5	20415	16QAM	3	H	V	21.81		
					H	23.84		
Middle Channel								
836.5	20525	QPSK	3	H	V	19.28	38.45	Pass
					H	20.03		
836.5	20525	16QAM	3	H	V	19.54		
					H	18.44		
Highest Channel								
847.5	20635	QPSK	3	H	V	22.85	38.45	Pass
					H	23.38		
847.5	20635	16QAM	3	H	V	22.31		
					H	24.42		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
LowestChannel								
826.5	24025	QPSK	5	H	V	21.88	38.45	Pass
					H	22.22		
826.5	24025	16QAM	5	H	V	21.12		
					H	21.57		
Middle Channel								
836.5	20525	QPSK	5	H	V	19.77	38.45	Pass
					H	21.08		
836.5	20525	16QAM	5	H	V	18.63		
					H	18.4		
Highest Channel								
846.5	20625	QPSK	5	H	V	21.16	38.45	Pass
					H	24.37		
846.5	20625	16QAM	5	H	V	21.36		
					H	21.05		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
LowestChannel								
829	20450	QPSK	10	H	V	21.92	38.45	Pass
					H	23.67		
829	20450	16QAM	10	H	V	20.58		
					H	22.6		
Middle Channel								
836.5	20525	QPSK	10	H	V	20.48	38.45	Pass
					H	19.96		
836.5	20525	16QAM	10	H	V	20.14		
					H	21.56		
Highest Channel								
844	20600	QPSK	10	H	V	19.08	38.45	Pass
					H	23.04		
844	20600	16QAM	10	H	V	21.35		
					H	23.12		

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	21.41	33.00	Pass
					H	21.19		
2502.5	20775	16QAM	5	H	V	20.99		
					H	22.9		
Middle Channel								
2535	21100	QPSK	5	H	V	21.05	33.00	Pass
					H	20.9		
2535	21100	16QAM	5	H	V	18.6		
					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	21.13		
					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	19.72		
Highest Channel								
2565	21400	QPSK	10	H	V	20.27	33.00	Pass
					H	22.35		
2565	21400	16QAM	10	H	V	23.04		
					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	24.47		

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	20.02		
2510	20850	16QAM	20	H	V	21.99		
					H	21.52		
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	19.91		
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	22.06		

LTE Band 12

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
699.7	23017	QPSK	1.4	H	V	20.21	44.77	Pass
					H	21.93		
699.7	23017	16QAM	1.4	H	V	20.41		
					H	20.78		
Middle Channel								
707.5	23095	QPSK	1.4	H	V	18.38	44.77	Pass
					H	21.34		
707.5	23095	16QAM	1.4	H	V	20.62		
					H	19.81		
Highest Channel								
715.3	23173	QPSK	1.4	H	V	22.1	44.77	Pass
					H	21.46		
715.3	23173	16QAM	1.4	H	V	21.3		
					H	23.48		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
700.5	23025	QPSK	3	H	V	20.68	44.77	Pass
					H	22.82		
700.5	23025	16QAM	3	H	V	23.45		
					H	23.92		
Middle Channel								
707.5	23095	QPSK	3	H	V	21.01	44.77	Pass
					H	20.63		
707.5	23095	16QAM	3	H	V	18.83		
					H	21.62		
Highest Channel								
714.0	23165	QPSK	3	H	V	20.57	44.77	Pass
					H	21.95		
714.0	23165	16QAM	3	H	V	24.17		
					H	21.58		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
779.5	23205	QPSK	5	H	V	23.29	44.77	Pass
					H	21.47		
779.5	23205	16QAM	5	H	V	21.48		
					H	20.56		
Middle Channel								
707.5	23095	QPSK	5	H	V	19.42	44.77	Pass
					H	18.55		
707.5	23095	16QAM	5	H	V	20.21		
					H	20.71		
Highest Channel								
713.5	23155	QPSK	5	H	V	20.09	44.77	Pass
					H	23.14		
713.5	23155	16QAM	5	H	V	23.96		
					H	21.77		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
704	23060	QPSK	10	H	V	20.37	44.77	Pass
					H	22.32		
704	23060	16QAM	10	H	V	23.97		
					H	21.82		
Middle Channel								
707.5	23095	QPSK	10	H	V	19.36	44.77	Pass
					H	20.78		
707.5	23095	16QAM	10	H	V	18.28		
					H	19.96		
Highest Channel								
711	23130	QPSK	10	H	V	19.83	44.77	Pass
					H	22.75		
711	23130	16QAM	10	H	V	24.65		
					H	21.31		

LTE Band 13

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
779.5	23205	QPSK	5	H	V	22.17	44.77	Pass
					H	23.05		
779.5	23205	16QAM	5	H	V	20.06		
					H	21.81		
Middle Channel								
782	23230	QPSK	5	H	V	19.67	44.77	Pass
					H	19.06		
782	23230	16QAM	5	H	V	21.88		
					H	19.15		
Highest Channel								
784.5	23255	QPSK	5	H	V	22.12	44.77	Pass
					H	21.27		
784.5	23255	16QAM	5	H	V	22.28		
					H	23.6		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Middle Channel								
782	23230	QPSK	10	H	V	22.5	44.77	Pass
					H	21.21		
782	23230	16QAM	10	H	V	21.02		
					H	21.8		

LTE Band 17

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
706.5	23755	QPSK	5	H	V	21.61	44.77	Pass
					H	21.57		
706.5	23755	16QAM	5	H	V	20.83		
					H	18.67		
Middle Channel								
710	23790	QPSK	5	H	V	22.56	44.77	Pass
					H	22.96		
710	23790	16QAM	5	H	V	23.52		
					H	21.44		
Highest Channel								
713.5	23825	QPSK	5	H	V	22.1	44.77	Pass
					H	22.14		
713.5	23825	16QAM	5	H	V	21.56		
					H	21.26		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
709	23780	QPSK	10	H	V	20.53	44.77	Pass
					H	21.12		
709	23780	16QAM	10	H	V	21.82		
					H	20.61		
Middle Channel								
710	23790	QPSK	10	H	V	21.48	44.77	Pass
					H	24.62		
710	23790	16QAM	10	H	V	23.94		
					H	24.39		
Highest Channel								
711	23800	QPSK	10	H	V	20.29	44.77	Pass
					H	23.95		
711	23800	16QAM	10	H	V	22.06		
					H	20.15		

LTE Band 25

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
1850.7	26047	QPSK	1.4	H	V	23.61	33.00	Pass
					H	23.82		
1850.7	26047	16QAM	1.4	H	V	20.31		
					H	21.76		
Middle Channel								
1882.5	26365	QPSK	1.4	H	V	19.79	33.00	Pass
					H	21.66		
1882.5	26365	16QAM	1.4	H	V	19.21		
					H	18.08		
Highest Channel								
1914.3	26683	QPSK	1.4	H	V	22.29	33.00	Pass
					H	22.6		
1914.3	26683	16QAM	1.4	H	V	24.02		
					H	23.07		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
1851.5	26055	QPSK	3	H	V	21.35	33.00	Pass
					H	20.37		
1851.5	26055	16QAM	3	H	V	20.8		
					H	22.82		
Middle Channel								
1882.5	26365	QPSK	3	H	V	18.36	33.00	Pass
					H	19.76		
1882.5	26365	16QAM	3	H	V	21.05		
					H	18.8		
Highest Channel								
1913.5	26675	QPSK	3	H	V	20.06	33.00	Pass
					H	22.29		
1913.5	26675	16QAM	3	H	V	23.89		
					H	22.8		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1852.5	26065	QPSK	5	H	V	22.77	33.00	Pass
					H	21.73		
1852.5	26065	16QAM	5	H	V	20.3		
					H	23.77		
Middle Channel								
1882.5	26365	QPSK	5	H	V	19.69	33.00	Pass
					H	21.45		
1882.5	26365	16QAM	5	H	V	19.23		
					H	18.76		
Highest Channel								
1912.5	26665	QPSK	5	H	V	19.33	33.00	Pass
					H	24.13		
1912.5	26665	16QAM	5	H	V	24.65		
					H	24.67		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1855	26090	QPSK	10	H	V	23.18	33.00	Pass
					H	20.11		
1855	26090	16QAM	10	H	V	23.66		
					H	22.61		
Middle Channel								
1882.5	26365	QPSK	10	H	V	20.27	33.00	Pass
					H	21.15		
1882.5	26365	16QAM	10	H	V	18.5		
					H	18.86		
Highest Channel								
1910	26640	QPSK	10	H	V	21.87	33.00	Pass
					H	22.41		
1910	26640	16QAM	10	H	V	22.93		
					H	21.3		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1857.5	26115	QPSK	15	H	V	21.85	33.00	Pass
					H	22.58		
1857.5	26115	16QAM	15	H	V	21.29		
					H	20.15		
Middle Channel								
1882.5	26365	QPSK	15	H	V	21.5	33.00	Pass
					H	21.74		
1882.5	26365	16QAM	15	H	V	19.87		
					H	19.59		
Highest Channel								
1907.5	26615	QPSK	15	H	V	21.79	33.00	Pass
					H	21.34		
1907.5	26615	16QAM	15	H	V	21.06		
					H	22.56		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1860	26140	QPSK	20	H	V	23.78	33.00	Pass
					H	22.25		
1860	26140	16QAM	20	H	V	21.61		
					H	20.31		
Middle Channel								
1882.5	26365	QPSK	20	H	V	21.13	33.00	Pass
					H	20.33		
1882.5	26365	16QAM	20	H	V	21.21		
					H	18.75		
Highest Channel								
1905	26590	QPSK	20	H	V	21.31	33.00	Pass
					H	23.7		
1905	26590	16QAM	20	H	V	21.33		
					H	23.43		

LTE Band 38

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
2577.5	37775	QPSK	5	H	V	21.29	33.00	Pass
					H	20.16		
2577.5	37775	16QAM	5	H	V	22.14		
					H	22.01		
Middle Channel								
2595	38000	QPSK	5	H	V	19.65	33.00	Pass
					H	20.18		
2595	38000	16QAM	5	H	V	19.83		
					H	21.9		
Highest Channel								
2617.5	38225	QPSK	5	H	V	21.03	33.00	Pass
					H	23.92		
2617.5	38225	16QAM	5	H	V	22.14		
					H	24.72		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
2575	37800	QPSK	10	H	V	21.2	33.00	Pass
					H	21.8		
2575	37800	16QAM	10	H	V	20.89		
					H	21.66		
Middle Channel								
2595	38000	QPSK	10	H	V	21.29	33.00	Pass
					H	19.38		
2595	38000	16QAM	10	H	V	18.96		
					H	21.44		
Highest Channel								
2615	38200	QPSK	10	H	V	21.07	33.00	Pass
					H	22.96		
2615	38200	16QAM	10	H	V	22.36		
					H	22.57		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2577.5	37825	QPSK	15	H	V	22.53	33.00	Pass
					H	23.07		
2577.5	37825	16QAM	15	H	V	23.47		
					H	22.14		
Middle Channel								
2595	38000	QPSK	15	H	V	18.11	33.00	Pass
					H	18.01		
2595	38000	16QAM	15	H	V	21.99		
					H	18.48		
Highest Channel								
2612.5	38175	QPSK	15	H	V	22.31	33.00	Pass
					H	22.98		
2612.5	38175	16QAM	15	H	V	21.7		
					H	24.88		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2580	37850	QPSK	20	H	V	20.49	33.00	Pass
					H	20.11		
2580	37850	16QAM	20	H	V	21.82		
					H	23.62		
Middle Channel								
2595	38000	QPSK	20	H	V	19.04	33.00	Pass
					H	18.57		
2595	38000	16QAM	20	H	V	18.89		
					H	20.72		
Highest Channel								
2610	38150	QPSK	20	H	V	21	33.00	Pass
					H	21.5		
2610	38150	16QAM	20	H	V	21.91		
					H	24.26		

LTE Band 40 lower(2305-2315)

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
2302.5	38725	QPSK	5	H	V	21.12	23.98	Pass
					H	22.05		
2302.5	38725	16QAM	5	H	V	21.09		
					H	22.30		
Highest Channel								
2397.5	38775	QPSK	5	H	V	21.48	23.98	Pass
					H	22.16		
2397.5	38775	16QAM	5	H	V	21.69		
					H	22.78		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Middle Channel								
2350	38750	QPSK	10	H	V	18.01	23.98	Pass
					H	18.73		
2350	38750	16QAM	10	H	V	18.66		
					H	20.98		

LTE Band 40 Upper(2350-2360)

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2307.5	39175	QPSK	5	H	V	21.58	23.98	Pass
					H	22.49		
2307.5	39175	16QAM	5	H	V	21.67		
					H	22.81		
Highest Channel								
2392.5	39225	QPSK	5	H	V	21.03	23.98	Pass
					H	23.01		
2392.5	39225	16QAM	5	H	V	21.17		
					H	22.78		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Middle Channel								
2350	39200	QPSK	10	H	V	20.04	23.98	Pass
					H	18.88		
2350	39200	16QAM	10	H	V	18.62		
					H	21.73		

LTE Band 41

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
2498.5	39675	QPSK	5	H	V	23.83	33.00	Pass
					H	21.06		
2498.5	39675	16QAM	5	H	V	23.27		
					H	23.3		
Middle Channel								
2593	40620	QPSK	5	H	V	19.02	33.00	Pass
					H	20.46		
2593	40620	16QAM	5	H	V	19.54		
					H	20.07		
Highest Channel								
2687.5	41565	QPSK	5	H	V	19.34	33.00	Pass
					H	22.18		
2687.5	41565	16QAM	5	H	V	21.17		
					H	23.3		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
2501	39700	QPSK	10	H	V	20.63	33.00	Pass
					H	20.37		
2501	39700	16QAM	10	H	V	23.01		
					H	20.34		
Middle Channel								
2593	40620	QPSK	10	H	V	20.91	33.00	Pass
					H	18.75		
2593	40620	16QAM	10	H	V	19.78		
					H	19.47		
Highest Channel								
2685	41540	QPSK	10	H	V	22.24	33.00	Pass
					H	22.71		
2685	41540	16QAM	10	H	V	23.24		
					H	22.28		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2503.5	39725	QPSK	15	H	V	22.17	33.00	Pass
					H	20.77		
2503.5	39725	16QAM	15	H	V	22.79		
					H	21.88		
Middle Channel								
2593	40620	QPSK	15	H	V	20.27	33.00	Pass
					H	20.42		
2593	40620	16QAM	15	H	V	19.68		
					H	21.63		
Highest Channel								
2682.5	41515	QPSK	15	H	V	19.53	33.00	Pass
					H	24.45		
2682.5	41515	16QAM	15	H	V	21.21		
					H	24.28		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
2506	39750	QPSK	20	H	V	20.75	33.00	Pass
					H	22.87		
2506	39750	16QAM	20	H	V	23.52		
					H	21.69		
Middle Channel								
2593	40620	QPSK	20	H	V	21.19	33.00	Pass
					H	19.38		
2593	40620	16QAM	20	H	V	19.05		
					H	21.16		
Highest Channel								
2680	41490	QPSK	20	H	V	20.57	33.00	Pass
					H	22.6		
2680	41490	16QAM	20	H	V	24.49		
					H	24.49		

LTE Band 66

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
1710.7	131979	QPSK	1.4	H	V	20.5	30.00	Pass
					H	23.34		
1710.7	131979	16QAM	1.4	H	V	22.64		
					H	23.11		
Middle Channel								
1745	132322	QPSK	1.4	H	V	18.98	30.00	Pass
					H	19.53		
1745	132322	16QAM	1.4	H	V	18.5		
					H	20.67		
Highest Channel								
1779.3	132665	QPSK	1.4	H	V	22.58	30.00	Pass
					H	23.1		
1779.3	132665	16QAM	1.4	H	V	21.04		
					H	22.59		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
Lowest Channel								
1711.5	131987	QPSK	3	H	V	21.33	30.00	Pass
					H	23.81		
1711.5	131987	16QAM	3	H	V	23.66		
					H	20.33		
Middle Channel								
1745	132322	QPSK	3	H	V	18.13	30.00	Pass
					H	19.91		
1745	132322	16QAM	3	H	V	21.75		
					H	19.54		
Highest Channel								
1778.5	132657	QPSK	3	H	V	20.85	30.00	Pass
					H	24.84		
1778.5	132657	16QAM	3	H	V	24.23		
					H	21.38		

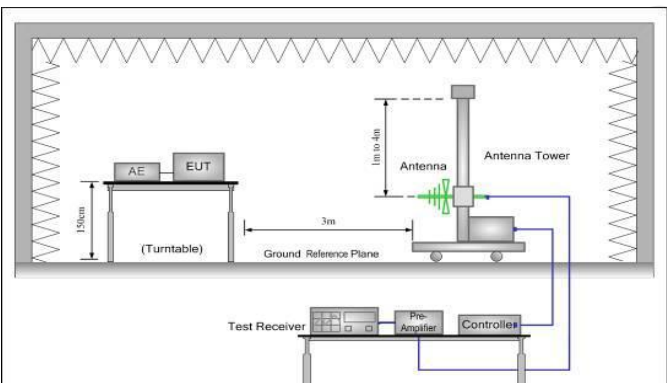
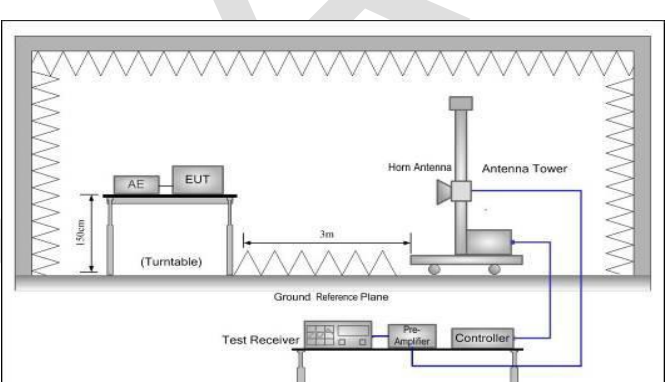
Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1712.5	131997	QPSK	5	H	V	21.79	30.00	Pass
					H	20.72		
1712.5	131997	16QAM	5	H	V	20.02		
					H	22.55		
Middle Channel								
1745	132322	QPSK	5	H	V	20.22	30.00	Pass
					H	18.67		
1745	132322	16QAM	5	H	V	19.89		
					H	21.28		
Highest Channel								
1777.5	132647	QPSK	5	H	V	20.45	30.00	Pass
					H	22.77		
1777.5	132647	16QAM	5	H	V	23.02		
					H	21.57		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1715	132022	QPSK	10	H	V	23.79	30.00	Pass
					H	22.35		
1715	132022	16QAM	10	H	V	22.07		
					H	21.89		
Middle Channel								
1745	132322	QPSK	10	H	V	18.51	30.00	Pass
					H	19.33		
1745	132322	16QAM	10	H	V	21.08		
					H	18.04		
Highest Channel								
1775	132622	QPSK	10	H	V	20.5	30.00	Pass
					H	22.09		
1775	132622	16QAM	10	H	V	21.94		
					H	22.27		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1717.5	132047	QPSK	15	H	V	22.27	30.00	Pass
					H	22.75		
1717.5	132047	16QAM	15	H	V	20.24		
					H	23.16		
Middle Channel								
1745	132322	QPSK	15	H	V	19.74	30.00	Pass
					H	20.79		
1745	132322	16QAM	15	H	V	19.21		
					H	18.99		
Highest Channel								
1772.5	132597	QPSK	15	H	V	22.65	30.00	Pass
					H	22.39		
1772.5	132597	16QAM	15	H	V	21.32		
					H	24.89		

Frequency (MHz)	UL Channel	Modulation	BW (MHz)	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
LowestChannel								
1720	132072	QPSK	20	H	V	22.61	30.00	Pass
					H	21.68		
1720	132072	16QAM	20	H	V	23.94		
					H	20.15		
Middle Channel								
1745	132322	QPSK	20	H	V	21.18	30.00	Pass
					H	18.51		
1745	132322	16QAM	20	H	V	20.95		
					H	21.44		
Highest Channel								
1770	132572	QPSK	20	H	V	21.25	30.00	Pass
					H	24.58		
1770	132572	16QAM	20	H	V	24.47		
					H	24.67		

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 2/4/5/12/13/17/25/66: <-13dBm, LTE Band 7/38/41:<-25dBm LTE Band 40:-40dBm
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. $ERP / EIRP = S.G. \text{ output (dBm) } + \text{Antenna Gain(dB/dBi) } - \text{Cable Loss (dB)}$
Test Instruments:	Refer to section 5 for details

Test mode:	Refer to section 3.1 for details
Test results:	Passed

Measurement 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	-43.21	-13.00	Pass
5552.1	V	-43.9		
2701.4	Horizontal	-41.42		
5552.1	H	-42.51		
Middle				
3760	Vertical	-39.92	-13.00	Pass
5640	V	-41.62		
3760	Horizontal	-41.69		
5640	H	-40.07		
Highest				
3818.6	Vertical	-41.5	-13.00	Pass
5727.9	V	-41.43		
3818.6	Horizontal	-42.11		
5727.9	H	-41.63		

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	-42.74	-13.00	Pass
5580	V	-43.69		
3720	Horizontal	-40.91		
5580	H	-41.77		
Middle				
3760	Vertical	-43.36	-13.00	Pass
5640	V	-41.35		
3760	Horizontal	-41.68		
5640	H	-41.56		
Highest				
3800	Vertical	-41.37	-13.00	Pass
5700	V	-43.01		
3800	Horizontal	-42.69		
5700	H	-44.48		

Note:

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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 4 / 1.4 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
3421.40	Vertical	-42.73	-13.00	Pass
5132.10	V	-42.07		
3421.40	Horizontal	-40.77		
5132.10	H	-42.37		
Middle				
3465.00	Vertical	-42.43	-13.00	Pass
5197.50	V	-40.8		
3465.00	Horizontal	-42.5		
5197.50	H	-41.19		
Highest				
3508.60	Vertical	-41.47	-13.00	Pass
5262.90	V	-41.28		
3508.60	Horizontal	-44.88		
5262.90	H	-44.54		

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 4 / 20 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
3440.00	Vertical	-42.97	-13.00	Pass
5160.00	V	-40.88		
3440.00	Horizontal	-41.62		
5160.00	H	-43.09		
Middle				
3465.00	Vertical	-41.75	-13.00	Pass
5197.50	V	-41.38		
3465.00	Horizontal	-41.35		
5197.50	H	-41.27		
Highest				
3490.00	Vertical	-42.85	-13.00	Pass
5235.00	V	-41.84		
3490.00	Horizontal	-41.85		
5235.00	H	-44.64		

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	-40.65	-13.00	Pass
2474.1	V	-42.53		
1649.7	Horizontal	-40.56		
2474.1	H	-41.08		
Middle				
1673.0	Vertical	-39.5	-13.00	Pass
2509.5	V	-41.77		
1673.0	Horizontal	-40.78		
2509.5	H	-40.33		
Highest				
1696.6	Vertical	-43.59	-13.00	Pass
2544.9	V	-41.38		
1696.6	Horizontal	-42.46		
2544.9	H	-42.21		

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	-43.6	-13.00	Pass
2487	V	-42.9		
1658	Horizontal	-43.96		
2487	H	-41.53		
Middle				
1673.0	Vertical	-42.27	-13.00	Pass
2509.5	V	-43.95		
1673.0	Horizontal	-40.8		
2509.5	H	-42.16		
Highest				
1688	Vertical	-43.02	-13.00	Pass
2532	V	-42.18		
1688	Horizontal	-43.19		
2532	H	-41.55		

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	-42.93	-25.00	Pass
7605	V	-41.01		
5070	Horizontal	-40.63		
7605	H	-39.08		
Highest				
5135.0	Vertical	-41.05	-25.00	Pass
7702.5	V	-43.47		
5135.0	Horizontal	-41.71		
7702.5	H	-43.53		

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	-43.53		
5020	Horizontal	-41.39		
7530	H	-41.22		
Middle				
5070	Vertical	-42.25	-25.00	Pass
7605	V	-43.17		
5070	Horizontal	-42.68		
7605	H	-43.46		
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.

LTE Band 12 / 1.4 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
1399.4	Vertical	-41.43	-13.00	Pass
2099.1	V	-42.86		
1399.4	Horizontal	-43.51		
2099.1	H	-42.44		
Middle				
1415	Vertical	-41.58	-13.00	Pass
2122.5	V	-40.03		
1415	Horizontal	-39.05		
2122.5	H	-42.75		
Highest				
1430.6	Vertical	-42.22	-13.00	Pass
2145.9	V	-44.68		
1430.6	Horizontal	-41.9		
2145.9	H	-43.93		

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 12 / 10 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
1408	Vertical	-40.42	-13.00	Pass
2112	V	-41.69		
1408	Horizontal	-42.2		
2112	H	-41.03		
Middle				
1415	Vertical	-40.29	-13.00	Pass
2122.5	V	-41.82		
1415	Horizontal	-40.87		
2122.5	H	-43.09		
Highest				
1422	Vertical	-41.09	-13.00	Pass
2133	V	-42.96		
1422	Horizontal	-41.18		
2133	H	-44.25		

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 13 / 5 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
1559	Vertical	-41.06	-13.00	Pass
2338.5	V	-40.62		
1559	Horizontal	-43.12		
2338.5	H	-40.35		
Middle				
1564	Vertical	-42.07	-13.00	Pass
2346	V	-39.31		
1564	Horizontal	-39.35		
2346	H	-42.36		
Highest				
1569	Vertical	-43.79	-13.00	Pass
2353.5	V	-44.52		
1569	Horizontal	-41.02		
2353.5	H	-44.23		

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 13 / 10 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Middle				
1564	Vertical	-43.87	-13.00	Pass
2346	V	-42.25		
1564	Horizontal	-43.49		
2346	H	-40.25		

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 17 / 5 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
1413	Vertical	-42.48	-13.00	Pass
2119.5	V	-43.14		
1413	Horizontal	-40.09		
2119.5	H	-43.43		
Middle				
1420	Vertical	-41.21	-13.00	Pass
2130	V	-44.07		
1420	Horizontal	-43.24		
2130	H	-44.97		
Highest				
1427	Vertical	-41.97	-13.00	Pass
2140.5	V	-42.57		
1427	Horizontal	-41.92		
2140.5	H	-40.3		

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 17 / 10 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
1418	Vertical	-42.36	-13.00	Pass
2127	V	-40.18		
1418	Horizontal	-39.36		
2127	H	-40.97		
Middle				
1420	Vertical	-42.54	-13.00	Pass
2130	V	-44.77		
1420	Horizontal	-41.51		
2130	H	-44.87		
Highest				
1422	Vertical	-41.63	-13.00	Pass
2133	V	-43.61		
1422	Horizontal	-42.58		
2133	H	-41.84		

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 25 / 1.4 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
3701.4	Vertical	-40.38	-13.00	Pass
5552.1	V	-41.88		
3701.4	Horizontal	-42.34		
5552.1	H	-41.24		
Middle				
3765	Vertical	-42.24	-13.00	Pass
5647.5	V	-42.05		
3765	Horizontal	-43.1		
5647.5	H	-43.42		
Highest				
3828.6	Vertical	-42.57	-13.00	Pass
5742.9	V	-42.72		
3828.6	Horizontal	-42.89		
5742.9	H	-43.87		

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 25 / 20 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
3720	Vertical	-40.35	-13.00	Pass
5580	V	-40.31		
3720	Horizontal	-40.68		
5580	H	-40.62		
Middle				
3765	Vertical	-40.04	-13.00	Pass
5647.5	V	-40.15		
3765	Horizontal	-39.84		
5647.5	H	-39.79		
Highest				
3810	Vertical	-42.89	-13.00	Pass
5715	V	-41.58		
3810	Horizontal	-44.07		
5715	H	-43.2		

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 38 / 5 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
5155	Vertical	-40.25	-25.00	Pass
7732.5	V	-41.03		
5155	Horizontal	-40.38		
7732.5	H	-40.22		
Middle				
5190	Vertical	-41.62	-25.00	Pass
7785	V	-42.45		
5190	Horizontal	-41.38		
7785	H	-40.52		
Highest				
5235	Vertical	-42.42	-25.00	Pass
7852.5	V	-42.6		
5235	Horizontal	-43.34		
7852.5	H	-42.85		

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 38 / 20 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
5160	Vertical	-43.51	-25.00	Pass
7740	V	-40.04		
5160	Horizontal	-43.87		
7740	H	-42.85		
Middle				
5190	Vertical	-42.27	-25.00	Pass
7785	V	-40.65		
5190	Horizontal	-43.4		
7785	H	-40.57		
Highest				
5220	Vertical	-44.49	-25.00	Pass
7830	V	-44.45		
5220	Horizontal	-42.77		
7830	H	-41.74		

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 40 lower/ 5 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
4615	Vertical	-43.65	-40.00	Pass
6922.5	V	-42.08		
4615	Horizontal	-43.02		
6922.5	H	-42.74		
Highest				
4625	Vertical	-43.16	-40.00	Pass
6937.5	V	-42.92		
4625	Horizontal	-43.01		
6937.5	H	-42.83		
LTE Band 40 lower/10 MHz / RB size 1 & RB offset 0				
Middle				
4620	Vertical	-43.02	-40.00	Pass
6930	V	-42.48		
4620	Horizontal	-42.15		
6930	H	-42.08		

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 40 Upper / 5MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
4705	Vertical	-43.36	-40.00	Pass
7057.5	V	-43.02		
4705	Horizontal	-42.89		
7057.5	H	-42.53		
Highest				
4715	Vertical	-43.12	-40.00	Pass
7072.5	V	-42.94		
4715	Horizontal	-43.04		
7072.5	H	-42.71		
LTE Band 40 Upper / 10MHz / RB size 1 & RB offset 0				
Middle				
4710	Vertical	-42.65	-40.00	Pass
7065	V	-42.47		
4710	Horizontal	-43.03		
7065	H	-42.85		

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.

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LTE Band 41 / 5 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
4997	Vertical	-40.89	-25.00	Pass
7495.5	V	-42.35		
4997	Horizontal	-42.61		
7495.5	H	-43.3		
Middle				
5186	Vertical	-40.54	-25.00	Pass
7779	V	-42.67		
5186	Horizontal	-40.79		
7779	H	-42.66		
Highest				
5375	Vertical	-43.11	-25.00	Pass
8062.5	V	-41.42		
5375	Horizontal	-42.08		
8062.5	H	-41.13		

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 41 / 20 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
5012	Vertical	-41.35	-25.00	Pass
7518	V	-43.68		
5012	Horizontal	-43.56		
7518	H	-43.52		
Middle				
5186	Vertical	-43.68	-25.00	Pass
7779	V	-40.8		
5186	Horizontal	-43.34		
7779	H	-40.05		
Highest				
5360	Vertical	-42.83	-25.00	Pass
8040	V	-44.26		
5360	Horizontal	-43.51		
8040	H	-43.03		

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 66 / 1.4 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
3421.4	Vertical	-42.87	-13.00	Pass
5132.1	V	-41.95		
3421.4	Horizontal	-42.32		
5132.1	H	-40.55		
Middle				
3490	Vertical	-39.39	-13.00	Pass
5235	V	-42.88		
3490	Horizontal	-41.48		
5235	H	-41.97		
Highest				
3558.6	Vertical	-43.84	-13.00	Pass
5337.9	V	-43.63		
3558.6	Horizontal	-41.37		
5337.9	H	-43.02		

Note:

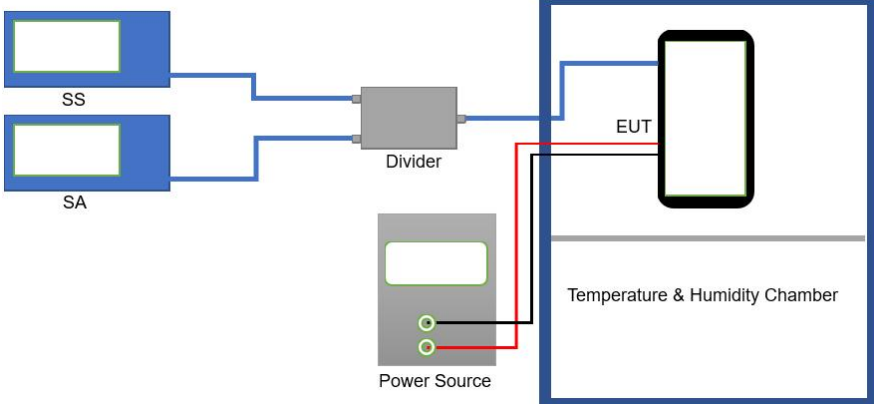
- 1 The emission levels of below 1 GHz are 20 dB lower than the limit so not show in this report.
- 2 For above 1 GHz, all test modes were performed, and just the worst case shown in the report.

LTE Band 66 / 20 MHz / RB size 1 & RB offset 0				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
Lowest				
3440	Vertical	-41.15	-13.00	Pass
5160	V	-40.07		
3440	Horizontal	-42.4		
5160	H	-43.01		
Middle				
3490	Vertical	-43.99	-13.00	Pass
5235	V	-41.88		
3490	Horizontal	-42.02		
5235	H	-40.55		
Highest				
3540	Vertical	-42.47	-13.00	Pass
5310	V	-42.25		
3540	Horizontal	-44.62		
5310	H	-44.27		

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.

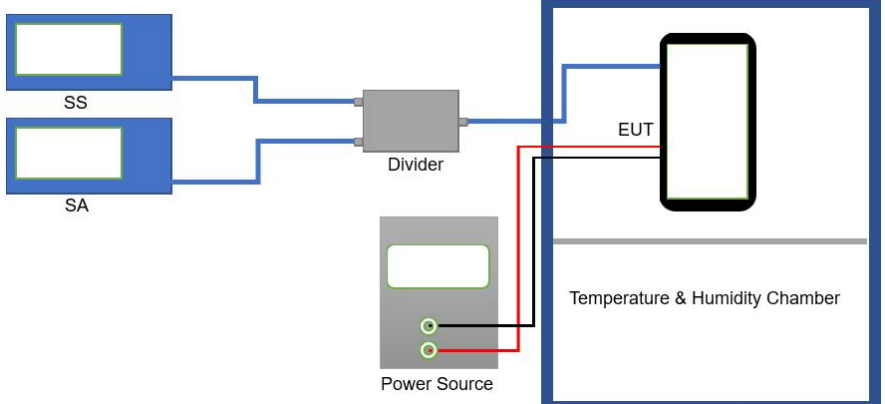
6.8 Frequency stability V.S. Temperature measurement

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:	± 2.5 ppm
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 °C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –30 °C . After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10 °C increased per stage until the highest temperature of +50 °C reached
Test Instruments:	Refer to section 5 for details
Test mode:	Refer to section 3.1 for details
Test results:	Passed

Measurement Data:

Please Refer To Appendix 1: LTE RF Test data section 1.4

6.9 Frequency stability V.S. Voltage measurement

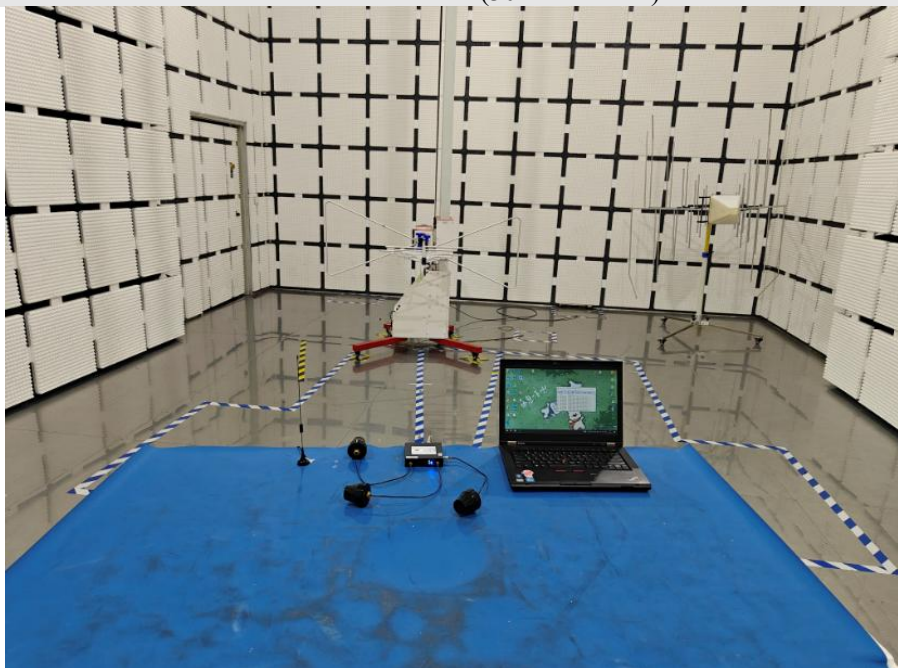
Test Requirement:	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(d)(2)
Test Method:	ANSI/TIA-603-E 2016
Limit:	± 2.5 ppm
Test setup:	
Test procedure:	1. Set chamber temperature to 25 °C . Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer 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:	Passed

Measurement Data:

Please Refer To Appendix 1: LTE RF Test data section 1.4

7 Test Setup Photo

Radiated Emissions (30MHz-1GHz)



Radiated Emissions (above 1GHz)



8 EUT Constructional Details

Reference to the test report No. BLA-EMC-202408-A0101

-----End of report-----

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