

FCC TEST REPORT

Product Name: Smart Tablet Computer

Trade Mark:



Model No.: T10

Report Number: 24122015364RFM-2

Test Standards: FCC 47 CFR Part 22
FCC 47 CFR Part 24
FCC 47 CFR Part 27

FCC ID: SS4T10F1

Test Result: PASS

Date of Issue: January 23, 2025

Prepared for:

Bluebird Inc.

3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea

Prepared by:

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UTTR-RF-FCC4G-V1.1

Version

Version No.	Date	Description
V1.0	January 23, 2025	Original

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CONTENTS

1. GENERAL INFORMATION	5
1.1 CLIENT INFORMATION	5
1.2 EUT INFORMATION	5
1.2.1 GENERAL DESCRIPTION OF EUT	5
1.2.2 DESCRIPTION OF ACCESSORIES	6
1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	7
1.4 DESCRIPTION OF SUPPORT UNITS	9
1.5 TEST LOCATION.....	9
1.6 TEST FACILITY.....	9
1.7 DEVIATION FROM STANDARDS	10
1.8 ABNORMALITIES FROM STANDARD CONDITIONS.....	10
1.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER	10
1.10 MEASUREMENT UNCERTAINTY	10
2. TEST SUMMARY	11
3. EQUIPMENT LIST	14
4. TEST CONFIGURATION	15
4.1 ENVIRONMENTAL CONDITIONS FOR TESTING	15
4.2 TEST SETUP	16
4.2.1 FOR RADIATED EMISSIONS TEST SETUP	16
4.2.2 FOR CONDUCTED RF TEST SETUP	17
4.3 TEST CHANNELS	18
4.4 SYSTEM TEST CONFIGURATION	20
4.5 PRE-SCAN.....	21
5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION	23
5.1 REFERENCE DOCUMENTS FOR TESTING	23
5.2 CONDUCTED OUTPUT POWER	23
5.2.1 LTE BAND 2	24
5.2.2 LTE BAND 4	25
5.2.3 LTE BAND 5	26
5.2.4 LTE BAND 7	27
5.2.5 LTE BAND 12	28
5.2.6 LTE BAND 13	29
5.2.7 LTE BAND 17	29
5.2.8 LTE BAND 38	30
5.2.9 LTE BAND 66	31
5.3 ERP OR EIRP	32
5.3.1 LTE BAND 2	33
5.3.2 LTE BAND 4	34
5.3.3 LTE BAND 5	35
5.3.4 LTE BAND 7	35
5.3.5 LTE BAND 12	36
5.3.6 LTE BAND 13	36
5.3.7 LTE BAND 17	36
5.3.8 LTE BAND 38	37
5.3.9 LTE BAND 66	37
5.4 PEAK-TO-AVERAGE RATIO	38
5.5 99%&26DB BANDWIDTH.....	39
5.6 BAND EDGE AT ANTENNA TERMINALS	40
5.7 SPURIOUS EMISSIONS AT ANTENNA TERMINALS	41
5.8 FIELD STRENGTH OF SPURIOUS RADIATION.....	42
5.8.1 LTE BAND 2	43
5.8.2 LTE BAND 4	44
5.8.3 LTE BAND 5	45

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UTTR-RF-FCC4G-V1.1

5.8.4	LTE BAND 7	46
5.8.5	LTE BAND 12	47
5.8.6	LTE BAND 13	48
5.8.7	LTE BAND 17	50
5.8.8	LTE BAND 38	51
5.8.1	LTE BAND 66	52
5.9	FREQUENCY STABILITY	53
	APPENDIX A RF TEST DATA.....	54
A.1	PEAK TO AVERAGE RATIO	54
A.2	OCCUPIED BANDWIDTH.....	174
A.3	CONDUCTED BAND EDGE	234
A.4	CONDUCTED SPURIOUS EMISSIONS.....	316
A.5	FREQUENCY STABILITY	508
	APPENDIX 1 PHOTOS OF TEST SETUP	510
	APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS.....	510

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Bluebird Inc.
Address of Applicant:	3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea
Manufacturer:	Bluebird Inc.
Address of Manufacturer:	3F, 115, Irwon-ro, Gangnam-gu, Seoul, Republic of Korea

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	Smart Tablet Computer		
Model No.:	T10		
Trade Mark:			
DUT Stage:	Identical Prototype		
EUT Supports Function: (Provided by the customer)	GSM Bands:	GSM850 /PCS 1900	
	UTRA Bands:	WCDMA Band II/IV/V	
	E-UTRA Bands:	FDD Band 2/4/5/7/12/13/14/17/66	
		TDD Band 38	
	2.4 GHz ISM Band:	IEEE 802.11b/g/n	
		Bluetooth V5.0	
	5 GHz U-NII Bands:	5 150 MHz to 5 250 MHz	IEEE 802.11a/n/ac
		5 250 MHz to 5 350 MHz	IEEE 802.11a/n/ac
		5 470 MHz to 5 725 MHz	IEEE 802.11a/n/ac
	RNSS Band:	5 725 MHz to 5 850 MHz	IEEE 802.11a/n/ac
	NFC:	1559 MHz to 1610 MHz	GPS/ BDS/ GLONASS/ Galileo/ SBAS
Software Version:	R1.00 (Provided by the customer)		
Hardware Version:	REV_C (Provided by the customer)		
Sample Received Date:	November 29, 2024		
Sample Tested Date:	January 2, 2025 to January 13, 2025		
Remark: The above EUT's information was provided by customer. Please refer to the specifications or user's manual for more detailed description.			

1.2.2 Description of Accessories

Adapter	
Model No.:	ICP20-050-3000B
Input:	100-240V~50/60Hz 0.6A
Output:	5.0V---3.0A

Battery	
Model No.:	BAT-800001
Battery Type:	Lithium-ion Polymer Battery
Rated Voltage:	3.8Vdc
Limited Charge Voltage:	4.35Vdc
Rated Capacity:	8000mAh

Cable	
Description:	USB Type-C to USB 3.0 Type A Cable
Connector:	USB Type-C / USB 3.0 Type A
Cable Type:	Shielded without ferrite
Length:	1 Meter

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Support Networks:	Single Carrier: LTE Band 2/4/5/7/12/13/17/38/66	
Type of Modulation:	QPSK, 16QAM	
Antenna Type: (Provided by the customer)	PIFA Antenna	
Antenna Gain: (Provided by the customer)	LTE Band 2:	0.77 dBi
	LTE Band 4:	0.6 dBi
	LTE Band 5:	-0.5 dBi
	LTE Band 7:	1.7 dBi
	LTE Band 12:	-1.2 dBi
	LTE Band 13:	-1.1 dBi
	LTE Band 17:	-1.2 dBi
	LTE Band 38:	1.8 dBi
	LTE Band 66:	0.6 dBi
Sample No.:	Radiated: S202411294756-ZJA09/9 Conducted: S202411294756-ZJA05/9	
Normal Test Voltage:	3.8 Vdc	
Extreme Test Voltage:	3.7 to 4.35 Vdc	
Extreme Test Temperature:	-20 °C to +50 °C	

Summary of Results:								
Bands	BW	Modulation	Frequency Range	Max RF Output Power (dBm)		ERP/EIRP	99% BW	Emission Designator
	(MHz)		(MHz)	Conducted (Average)	ERP/EIRP (Average)	(W)	(MHz)	
2	1.4	QPSK	1850.7-1909.3	23.88	24.65	0.2917	1.1002	1M10G7D
		16QAM		22.88	23.65	0.2317	1.0974	1M10W7D
	3	QPSK	1851.5-1908.5	23.81	24.58	0.2871	2.7046	2M70G7D
		16QAM		22.84	23.61	0.2296	2.6978	2M70W7D
	5	QPSK	1852.5-1907.5	23.78	24.55	0.2851	4.5101	4M51G7D
		16QAM		23.09	23.86	0.2432	4.5168	4M52W7D
	10	QPSK	1855.0-1905.0	23.88	24.65	0.2917	8.9959	9M00G7D
		16QAM		23.24	24.01	0.2518	8.9748	8M98W7D
	15	QPSK	1857.5-1902.5	23.61	24.38	0.2742	13.4720	13M5G7D
		16QAM		23.20	23.97	0.2495	13.4670	13M5W7D
	20	QPSK	1860.0-1900.0	23.96	24.73	0.2972	17.9370	17M9G7D
		16QAM		23.52	24.29	0.2685	18.0170	18M0W7D
4	1.4	QPSK	1710.7-1754.3	23.99	24.59	0.2877	1.0978	1M10G7D
		16QAM		23.27	23.87	0.2438	1.1028	1M10W7D
	3	QPSK	1711.5-1753.5	23.89	24.49	0.2812	2.7067	2M71G7D
		16QAM		23.36	23.96	0.2489	2.6985	2M70W7D
	5	QPSK	1712.5-1752.5	23.99	24.59	0.2877	4.5084	4M51G7D
		16QAM		23.15	23.75	0.2371	4.5068	4M51W7D
	10	QPSK	1715-1750	23.98	24.58	0.2871	8.9810	8M98G7D
		16QAM		23.38	23.98	0.2500	8.9837	8M98W7D
	15	QPSK	1717.5-1747.5	23.97	24.57	0.2864	13.4360	13M4G7D
		16QAM		23.06	23.66	0.2323	13.4410	13M4W7D
5	20	QPSK	1720-1745	24.07	24.67	0.2931	17.9420	17M9G7D
		16QAM		23.43	24.03	0.2529	17.9250	17M9W7D
	1.4	QPSK	824.7-848.3	23.64	23.14	0.2061	1.1004	1M10G7D
		16QAM		23.12	22.62	0.1828	1.1011	1M10W7D
	3	QPSK	825.5-847.5	23.60	23.10	0.2042	2.7050	2M71G7D
		16QAM		23.33	22.83	0.1919	2.6993	2M70W7D
	5	QPSK	826.5-846.5	23.63	23.13	0.2056	4.5066	4M51G7D
		16QAM		23.14	22.64	0.1837	4.5246	4M52W7D
7	10	QPSK	829-844	23.68	23.18	0.2080	8.9817	8M98G7D
		16QAM		23.04	22.54	0.1795	8.9910	8M99W7D
	5	QPSK	2502.5-2567.5	23.73	25.43	0.3491	4.5063	4M51G7D
		16QAM		23.11	24.81	0.3027	4.5143	4M51W7D
	10	QPSK	2505-2565	23.64	25.34	0.3420	8.9790	8M98G7D
		16QAM		22.92	24.62	0.2897	8.9793	8M98W7D
	15	QPSK	2507.5-2562.5	23.67	25.37	0.3443	13.4500	13M4G7D
		16QAM		23.03	24.73	0.2972	13.4560	13M5W7D
12	20	QPSK	2510-2560	23.76	25.46	0.3516	17.9330	17M9G7D
		16QAM		23.58	25.28	0.3373	17.9400	17M9W7D
	1.4	QPSK	699.7-715.3	23.48	22.28	0.1690	1.1012	1M10G7D
		16QAM		22.62	21.42	0.1387	1.1024	1M10W7D
	3	QPSK	700.5-714.5	23.51	22.31	0.1702	2.7090	2M71G7D
		16QAM		22.57	21.37	0.1371	2.6987	2M70W7D
	5	QPSK	701.5-713.5	23.45	22.25	0.1679	4.5058	4M51G7D
		16QAM		22.22	21.02	0.1265	4.5204	4M52W7D
13	10	QPSK	704-711	23.66	22.46	0.1762	9.0121	9M01G7D
		16QAM		22.93	21.73	0.1489	9.0176	9M02W7D
	5	QPSK	779.5-784.5	23.19	22.09	0.1618	4.5013	4M50G7D
		16QAM		22.40	21.30	0.1349	4.5152	4M52W7D
17	10	QPSK	782-782	23.24	22.14	0.1637	8.9350	8M94G7D
		16QAM		22.41	21.31	0.1352	8.9465	8M95W7D
	5	QPSK	706.5-713.5	23.57	22.37	0.1726	4.5013	4M50G7D
		16QAM		22.81	21.61	0.1449	4.5192	4M52W7D
10	QPSK	709-711	23.63	22.43	0.1750	8.9405	8M94G7D	
			23.07	21.87	0.1538	8.9399	8M94W7D	

Bands	BW	Modulation	Frequency Range	Max RF Output Power (dBm)		ERP/EIRP	99% BW	Emission Designator
	(MHz)		(MHz)	Conducted (Average)	ERP/EIRP (Average)	(W)	(MHz)	
38	5	QPSK	2572.5-2617.5	22.99	24.79	0.3013	4.5014	4M50G7D
		16QAM		22.74	24.54	0.2844	4.5025	4M50W7D
	10	QPSK	2575-2615	22.98	24.78	0.3006	8.9690	8M97G7D
		16QAM		22.48	24.28	0.2679	8.9823	8M98W7D
	15	QPSK	2577.5-2612.5	23.02	24.82	0.3034	13.4760	13M5G7D
		16QAM		22.37	24.17	0.2612	13.4800	13M5W7D
	20	QPSK	2580-2610	23.28	25.08	0.3221	17.9130	17M9G7D
		16QAM		22.65	24.45	0.2786	17.9160	17M9W7D
66	1.4	QPSK	1710.7-1779.3	24.26	24.86	0.3062	1.0945	1M09G7D
		16QAM		23.34	23.94	0.2477	1.1005	1M10W7D
	3	QPSK	1711.5-1778.5	23.90	24.50	0.2818	2.7080	2M71G7D
		16QAM		23.58	24.18	0.2618	2.6951	2M70W7D
	5	QPSK	1712.5-1777.5	23.95	24.55	0.2851	4.5025	4M50G7D
		16QAM		23.17	23.77	0.2382	4.5150	4M52W7D
	10	QPSK	1715-1775	24.21	24.81	0.3027	8.9743	8M97G7D
		16QAM		23.36	23.96	0.2489	8.9646	8M96W7D
	15	QPSK	1717.5-1772.5	23.98	24.58	0.2871	13.4280	13M4G7D
		16QAM		23.32	23.92	0.2466	13.4380	13M4W7D
	20	QPSK	1720-1770	24.44	25.04	0.3192	17.9310	17M9G7D
		16QAM		23.60	24.20	0.2630	17.9340	17M9W7D

1.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

1) Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Dummy battery	Bluebird	N/A	S202411294756-PJ A09	Bluebird

2) Support Cable

Cable No.	Description	Connector	Length	Supplied by
1	Antenna Cable	SMA	0.3 Meter	UnionTrust

1.5 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6th, Baoneng Science and Technology Park, Longhua Street, Longhua District, Shenzhen, China

Telephone: +86 (0) 755 2823 0888

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1.6 TEST FACILITY

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

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01

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UTTR-RF-FCC4G-V1.1

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories

CAB identifier: CN0032

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

1.7 DEVIATION FROM STANDARDS

None.

1.8 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.10 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Measurement Uncertainty
1	Conducted Output Power	±0.7 dB
2	99% & 26dB Bandwidth	±1.86 %
3	Emission Mask	±2.7 dBm
4	Spurious emissions at antenna terminals	±2.7 dBm
5	Field strength of spurious radiation	30 MHz-1 GHz: ±4.9 dB 1 GHz-18 GHz: ±4.8 dB 18 GHz-40 GHz: ±5.1 dB
6	Frequency stability	±6.5 x 10 ⁻⁸
7	Humidity	±3.9 %
8	Temperature	±0.62 °C
9	DC Voltages	±0.68 %

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2. TEST SUMMARY

FCC 47 CFR Part 24 Test Cases (Band 2)			
Test Item	Test Requirement	Test Method	Result
Equivalent Isotropic Radiated Power (EIRP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 24.232(c)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 24.232(c)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 24.232(d)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h) & FCC 47 CFR Part 24.238(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 24.238(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 24.238(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 24.238(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 24.235	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

FCC 47 CFR Part 27 Test Cases (LTE Band 4 & Band 66)			
Test Item	Test Requirement	Test Method	Result
Equivalent Isotropic Radiated Power (EIRP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(d)(4)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(d)(4)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 27.50(d)(5)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h) & FCC 47 CFR Part 27.53(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 27.53(h)(1)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 27.53(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 27.53(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

FCC 47 CFR Part 22 Test Cases (Band 5)			
Test Item	Test Requirement	Test Method	Result
Effective Radiated Power (ERP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 22.913(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 22.913(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 22.913(a)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 22.917(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 22.917(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 22.917(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 22.355	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

FCC 47 CFR Part 27 Test Cases (LTE Band 7 & Band 38)			
Test Item	Test Requirement	Test Method	Result
Equivalent Isotropic Radiated Power (EIRP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(h)(2)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(h)(2)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 27.50(d)(5)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 27.53(m)(4)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 27.53(m)(4)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 27.53(m)(4)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

FCC 47 CFR Part 27 Test Cases (LTE Band 12 & Band 17)			
Test Item	Test Requirement	Test Method	Result
Effective Radiated Power (ERP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(c)(10)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(c)(10)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 27.50(d)(5)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h) FCC 47 CFR Part 27.53(g)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 27.53(g)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 27.53(g)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 27.53(g)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

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UTTR-RF-FCC4G-V1.1

FCC 47 CFR Part 27 Test Cases (LTE Band 13)			
Test Item	Test Requirement	Test Method	Result
Effective Radiated Power (ERP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(b)(10)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(b)(10)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 27.50(d)(5)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 27.53	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 27.53	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 27.53	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

Disclaimer and Explanations:

The declared of product specification and data (e.g. antenna gain, RF specification, etc) for EUT presented in the report are provided by the customer, and the customer takes all the responsibilities for the accuracy of product specification.

3. EQUIPMENT LIST

Radiated Emission Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
<input checked="" type="checkbox"/>	3m SAC	ETS-LINDGREN	3M	Euroshiedpn-CT001270-13 17	11-Nov-2023	10-Nov-2026
<input checked="" type="checkbox"/>	Receiver	R&S	ESIB26	100114	25-Oct-2024	24-Oct-2025
<input type="checkbox"/>	Loop Antenna	ETS-LINDGREN	6502	00202525	28-Oct-2024	27-Oct-2025
<input checked="" type="checkbox"/>	Broadband Antenna	ETS-LINDGREN	3142E	00201566	29-Oct-2024	28-Oct-2025
<input checked="" type="checkbox"/>	6dB Attenuator	Talent	RA6A5-N-18	18103001	29-Oct-2024	28-Oct-2025
<input checked="" type="checkbox"/>	Preamplifier	HP	8447F	2805A02960	25-Oct-2024	24-Oct-2025
<input checked="" type="checkbox"/>	Double-Ridged Waveguide Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3117-PA	00201541	01-Apr-2024	31-Mar-2025
<input checked="" type="checkbox"/>	Pre-amplifier	ETS-LINDGREN	00118385	00201874	01-Apr-2024	31-Mar-2025
<input checked="" type="checkbox"/>	Double-Ridged Waveguide Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3116C-PA	00202652	28-Oct-2024	27-Oct-2025
<input checked="" type="checkbox"/>	Pre-amplifier	ETS-LINDGREN	00118384	00202652	28-Oct-2024	27-Oct-2025
<input checked="" type="checkbox"/>	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
<input checked="" type="checkbox"/>	Test Software	Audix	e3	Software Version: 9.160323		

RF Conducted Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
<input checked="" type="checkbox"/>	EXA Spectrum Analyzer	KEYSIGHT	N9020A	MY51286807	25-Oct-2024	24-Oct-2025
<input checked="" type="checkbox"/>	DC Source	KIKUSUI	PWR400L	LK003024	19-Jul-2024	18-Jul-2025
<input checked="" type="checkbox"/>	Digital multimeter	FLUKE	15B+	30701460WS 15	29-Oct-2024	28-Oct-2025
<input checked="" type="checkbox"/>	Temp & Humidity chamber	Votisch	VT4002	58566133290 020	29-Mar-2024	28-Mar-2025
<input checked="" type="checkbox"/>	Wideband Radio Communication Tester	R&S	CMW500	119583	29-Mar-2024	28-Mar-2025
<input type="checkbox"/>	Wideband Radio Communication Tester	R&S	CMW500	120932	29-Mar-2024	28-Mar-2025
<input checked="" type="checkbox"/>	Test Software	Tonscend	JS1120 RF Auto Test System	Software Version: 3.1.46(234G)		

4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

Test Environment	Selected Values During Tests		
	Ambient		
Test Condition	Temperature (°C)	Voltage (V)	Relative Humidity (%)
TN/VN	+15 to +35	3.8	20 to 75
TL/LV	-20	3.7	20 to 75
TH/VL	+50	3.7	20 to 75
TL/VH	-20	4.35	20 to 75
TH/VH	+50	4.35	20 to 75

Remark:

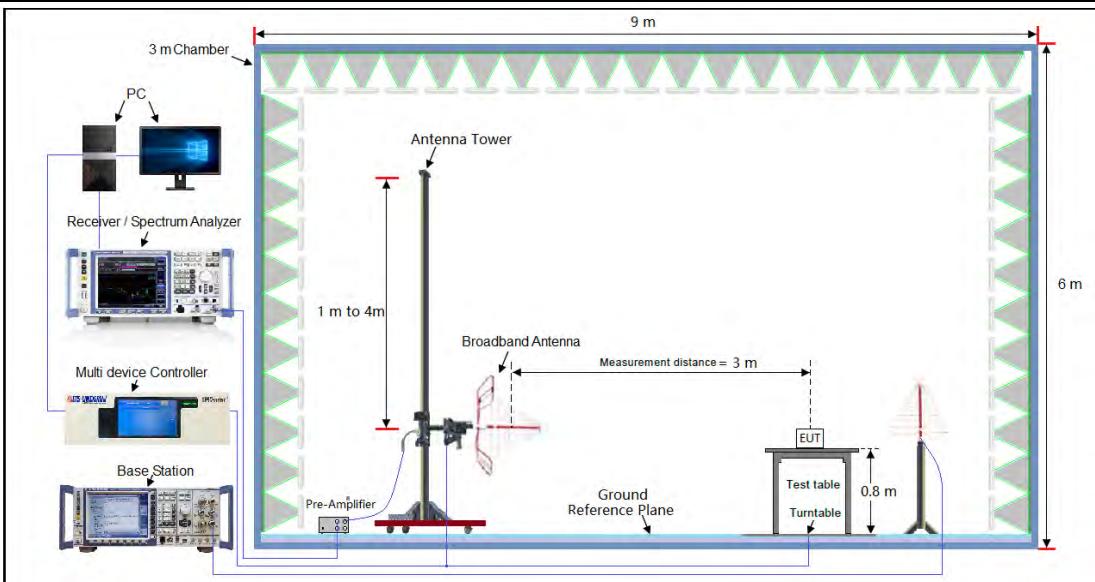
1) The EUT just work in such extreme temperature of -20 °C to +50 °C and the extreme voltage of 3.7 V to 4.35 V, so here the EUT is tested in the temperature of -20 °C to +50 °C and the voltage of 3.7 V to 4.35 V.

2) VN: Normal Voltage; TN: Normal Temperature;
TL: Low Extreme Test Temperature; TH: High Extreme Test Temperature;
VL: Low Extreme Test Voltage; VH: High Extreme Test Voltage.

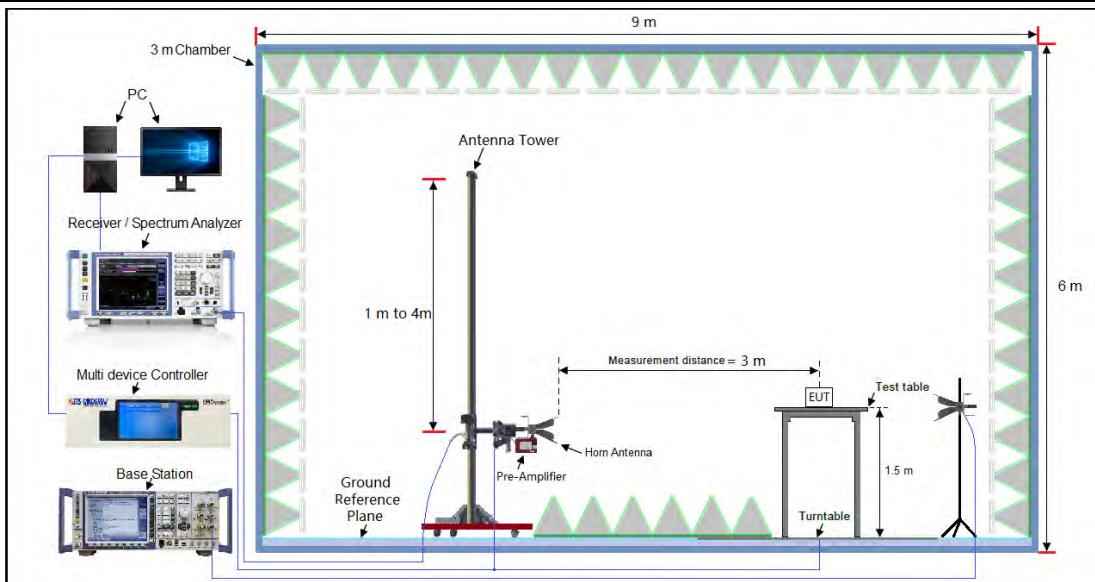
4.2 TEST SETUP

4.2.1 For Radiated Emissions test setup

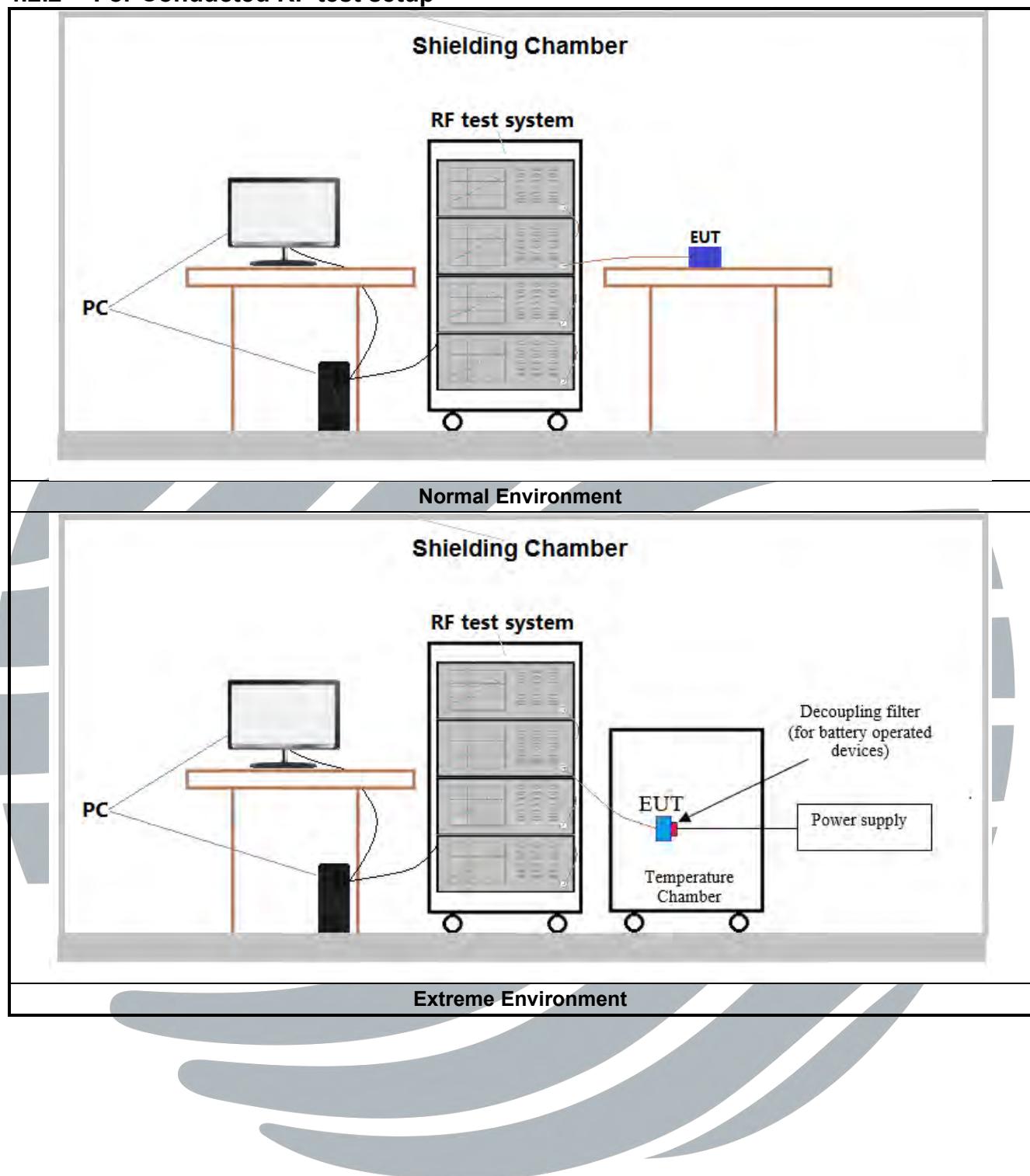
Radiated Emissions 30MHz to 1GHz Test setup



Radiated Emissions Above 1GHz Test setup



4.2.2 For Conducted RF test setup



4.3 TEST CHANNELS

Band	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink (MHz)
LTE Band 2 TX: 1850-1910MHz	Low Range	1.4	18607	1850.7
		3	18615	1851.5
		5	18625	1852.5
		10	18650	1855
		15	18675	1857.5
		20	18700	1860
	Middle Range	1.4/3/5/10/15/20	18900	1880
	High Range	1.4	19193	1909.3
		3	19185	1908.5
		5	19175	1907.5
		10	19150	1905
		15	19125	1902.5
		20	19100	1900
LTE Band 4 TX: 1710-1755MHz	Low Range	1.4	19957	1710.7
		3	19965	1711.5
		5	19975	1712.5
		10	20000	1715
		15	20025	1717.5
		20	20050	1720
	Middle Range	1.4/3/5/10/ 15/20	20175	1732.5
	High Range	1.4	20393	1754.3
		3	20385	1753.5
		5	20375	1752.5
		10	20350	1750
		15	20325	1747.5
		20	20300	1745
LTE band 5 TX: 824–849MHz	Low Range	1.4	20407	824.7
		3	20415	825.5
		5	20425	826.5
		10	20450	829
	Middle Range	1.4/3/5/10	20525	836.5
	High Range	1.4	20643	848.3
		3	20635	847.5
		5	20625	846.5
		10	20600	844
LTE Band 7 TX: 2500-2570MHz	Low Range	5	20775	2502.5
		10	20800	2505
		15	20825	2507.5
		20	20850	2510
	Middle Range	5/10/15/20	21100	2535
	High Range	5	21425	2567.5
		10	21400	2565
		15	21375	2562.5
		20	21350	2560
LTE Band 12 TX: 699-716MHz	Low Range	1.4	23017	699.7
		3	23025	700.5
		5	23035	701.5
		10	23060	704
	Middle Range	1.4/3/5/10	23095	707.5
	High Range	1.4	23173	715.3
		3	23165	714.5
		5	23155	713.5
		10	23130	711

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UTTR-RF-FCC4G-V1.1

Band	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink (MHz)
LTE Band 13 TX: 777-787MHz	Low Range	5	23205	779.5
		10	--	--
	Middle Range	5/10	23230	782
		5	23255	784.5
	High Range	10	--	--
		5	23755	706.5
	Low Range	10	23780	709
		5/10	23790	710
LTE Band 17 TX: 704-716MHz	Middle Range	5	23825	713.5
		10	23800	711
	Low Range	5	37775	2572.5
		10	37800	2575
		15	37825	2577.5
		20	37850	2580
	Middle Range	5/10/ 15/20	38000	2595
	High Range	5	38225	2617.5
		10	38200	2615
		15	38175	2612.5
		20	38150	2610
LTE Band 66 TX: 1710-1780MHz	Low Range	1.4	131979	1710.7
		3	131987	1711.5
		5	131997	1712.5
		10	132022	1715
		15	132047	1717.5
		20	132072	1720
	Middle Range	1.4/3/5/10/ 15/20	132322	1745
	High Range	1.4	132665	1779.3
		3	132657	1778.5
		5	132647	1777.5
		10	132622	1775
		15	132597	1772.5
		20	132572	1770

4.4 SYSTEM TEST CONFIGURATION

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario. It was powered by a 3.8V battery. Only the worst case data were recorded in this test report.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X/Y/Z axis, and antenna ports.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1 MHz or greater for frequencies above 1000MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.



4.5 PRE-SCAN

Pre-scan all bandwidth and RB, find worse case mode are chosen to the report, the LTE worse case mode applicability and tested channel detail as below:

Item	Band	Bandwidth(MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Conducted output power	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	5	☒	☒	☒	☒	☒	--	--	☒	☒	☒	☒	☒	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	12	☒	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	13	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	17	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
99%&26dB Bandwidth	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	5	☒	☒	☒	☒	☒	--	--	☒	☒	☒	☒	☒	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	12	☒	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	13	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	17	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
peak-to-average ratio	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
Band Edge at antenna terminals	2	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒	☒	☒
	4	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒	☒	☒
	5	☐	☐	☐	☐	☒	--	--	☒	☒	☒	☒	☒	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	12	☒	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	13	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	17	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
Spurious emissions at antenna terminals	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	5	☒	☒	☒	☒	☒	--	--	☒	☒	☒	☒	☒	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	12	☒	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	13	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
	17	-	-	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒
Field strength of spurious radiation	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
Frequency stability	2	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒	☒	☒
	4	☐	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☒	☒	☒	☒

Item	Band	Bandwidth(MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	--	--	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	7	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	13	-	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	17	-	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	38	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	66	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Remark:
 The mark “☒” means is chosen for testing; The mark “☐” means is not chosen for testing;
 The mark “-” means is not supported bandwidth

5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

5.1 REFERENCE DOCUMENTS FOR TESTING

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 22	Public Mobile Services
3	FCC 47 CFR Part 27	Miscellaneous Wireless Communications Services
4	FCC 47 CFR Part 24	Personal Communications Services
5	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
6	KDB 971168 D01	KDB 971168 D01 Power Meas License Digital Systems v03r01

5.2 CONDUCTED OUTPUT POWER

FCC 47 CFR Part 2.1046(a)

LTE Band 2: FCC 47 CFR Part 24.232(c)

LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.50(d)(4)

Test Requirement: **LTE Band 5:** FCC 47 CFR Part 22.913(a)

LTE Band 7 & Band 38: FCC 47 CFR Part 27.50(h)(2)

LTE Band 12 & Band 17: FCC 47 CFR Part 27.50(c)(10)

LTE Band 13: FCC 47 CFR Part 27.50(b)(10)

Test Method: KDB 971168 D01v03r01 & ANSI C63.26-2015

Limit:

FCC 47 CFR Part 22.913(a):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

FCC 47 CFR Part 24.232(c):

Mobile and portable stations are limited to 2 watts EIRP.

FCC 47 CFR Part 27.50(d)(4):

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

FCC 47 CFR Part 27.50(c)(10):

Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

FCC 47 CFR Part 27.50(h)(2):

Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

FCC 47 CFR Part 27.50(b)(10):

Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

Test Procedure:

The EUT was set up for the maximum power with CMW500, and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

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UTTR-RF-FCC4G-V1.1

5.2.1 LTE Band 2

			Conducted Power(dBm)					
Modulation			QPSK			16QAM		
Band	Bandwidth (MHz)	RB	18607	18900	19193	18607	18900	19193
			1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz
2	1.4	1RB#0	23.80	23.64	23.57	22.59	22.88	22.54
		1RB#2	23.74	23.61	23.64	22.69	22.40	22.82
		1RB#5	23.72	23.84	23.88	22.61	22.28	22.47
		3RB#0	23.65	23.85	23.61	22.81	22.68	22.25
		3RB#1	23.63	23.84	23.66	22.78	22.66	22.26
		3RB#3	23.65	23.77	23.58	22.87	22.63	22.31
		6RB#0	22.55	22.65	22.59	21.44	21.65	21.61
Band	Bandwidth (MHz)	RB	18615	18900	19185	18615	18900	19185
			1851.5 MHz	1880 MHz	1908.5 MHz	1851.5 MHz	1880 MHz	1908.5 MHz
2	3	1RB#0	23.40	23.66	23.78	22.40	22.32	22.52
		1RB#8	23.45	23.57	23.75	22.39	22.23	22.43
		1RB#14	23.48	23.42	23.81	22.46	22.23	22.84
		8RB#0	22.58	22.57	22.62	21.71	21.55	21.56
		8RB#4	22.50	22.59	22.64	21.72	21.57	21.58
		8RB#7	22.47	22.61	22.61	21.66	21.58	21.71
		15RB#0	22.56	22.52	22.51	21.51	21.61	21.56
Band	Bandwidth (MHz)	RB	18625	18900	19175	18625	18900	19175
			1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz
2	5	1RB#0	23.66	23.55	23.51	22.50	22.36	22.43
		1RB#12	23.76	23.72	23.73	22.51	22.62	23.09
		1RB#24	23.78	23.65	23.57	22.22	22.27	22.62
		12RB#0	22.52	22.44	22.61	21.63	21.76	21.60
		12RB#6	22.53	22.47	22.50	21.55	21.69	21.62
		12RB#13	22.51	22.45	22.57	21.58	21.59	21.71
		25RB#0	22.51	22.53	22.63	21.54	21.59	21.68
Band	Bandwidth (MHz)	RB	18650	18900	19150	18650	18900	19150
			1855 MHz	1880 MHz	1905 MHz	1855 MHz	1880 MHz	1905 MHz
2	10	1RB#0	23.54	23.53	23.49	22.52	22.90	23.24
		1RB#24	23.59	23.72	23.88	22.82	22.49	22.80
		1RB#49	23.73	23.70	23.77	22.54	22.28	22.95
		25RB#0	22.58	22.69	22.46	21.66	21.52	21.57
		25RB#12	22.60	22.63	22.49	21.66	21.45	21.58
		25RB#25	22.52	22.45	22.66	21.57	21.36	21.79
		50RB#0	22.57	22.45	22.58	21.63	21.47	21.86
Band	Bandwidth (MHz)	RB	18675	18900	19125	18675	18900	19125
			1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz
2	15	1RB#0	23.52	23.61	23.49	22.45	22.62	23.20
		1RB#38	23.58	23.42	23.54	22.77	22.76	22.93
		1RB#74	23.50	23.35	23.55	22.41	22.60	22.97
		38RB#0	22.55	22.52	22.59	22.62	22.53	22.60
		38RB#18	22.53	22.54	22.60	22.61	22.54	22.60
		38RB#37	22.52	22.54	22.60	22.68	22.54	22.62
		75RB#0	22.60	22.54	22.62	21.57	21.72	21.53
Band	Bandwidth (MHz)	RB	18700	18900	19100	18700	18900	19100
			1860 MHz	1880 MHz	1900 MHz	1860 MHz	1880 MHz	1900 MHz
2	20	1RB#0	23.45	23.62	23.26	22.65	23.21	22.26
		1RB#49	23.96	23.76	23.83	22.99	23.52	22.67
		1RB#99	23.63	23.31	23.46	22.70	22.59	22.35
		50RB#0	22.67	22.66	22.39	21.72	21.61	21.62
		50RB#25	22.49	22.62	22.43	21.72	21.63	21.62
		50RB#50	22.59	22.51	22.57	21.73	21.48	21.61
		100RB#0	22.60	22.48	22.48	21.65	21.46	21.55

5.2.2 LTE Band 4

Conducted Power(dBm)							
Modulation			QPSK			16QAM	
Band	Bandwidth (MHz)	RB	19957	20175	20393	19957	20175
			1710.7 MHz	1732.5 MHz	1754.3 MHz	1710.7 MHz	1732.5 MHz
4	1.4	1RB#0	23.71	23.44	23.81	22.40	23.27
		1RB#2	23.58	23.52	23.99	22.22	23.17
		1RB#5	23.56	23.52	23.76	22.19	23.14
		3RB#0	23.88	23.82	23.85	22.79	22.22
		3RB#1	23.85	23.83	23.76	22.75	22.22
		3RB#3	23.85	23.53	23.72	21.90	22.71
		6RB#0	22.82	22.60	22.77	21.72	21.92
Band	Bandwidth (MHz)	RB	19965	20175	20385	19965	20175
			1711.5 MHz	1732.5 MHz	1753.5 MHz	1711.5 MHz	1732.5 MHz
4	3	1RB#0	23.46	23.88	23.56	22.64	22.62
		1RB#8	23.18	23.50	23.75	22.44	22.30
		1RB#14	23.37	23.45	23.89	22.42	22.81
		8RB#0	22.73	22.67	22.84	21.90	21.72
		8RB#4	22.72	22.69	22.85	21.48	21.47
		8RB#7	22.69	22.72	22.77	21.81	21.52
		15RB#0	22.51	22.73	22.82	21.89	21.69
Band	Bandwidth (MHz)	RB	19975	20175	20375	19975	20175
			1712.5 MHz	1732.5 MHz	1752.5 MHz	1712.5 MHz	1732.5 MHz
4	5	1RB#0	23.54	23.71	23.99	22.64	22.82
		1RB#12	23.41	23.62	23.84	23.09	23.15
		1RB#24	23.50	23.48	23.66	22.20	22.70
		12RB#0	22.63	22.75	22.71	21.76	21.79
		12RB#6	22.72	22.67	22.72	21.35	21.71
		12RB#13	22.32	22.70	22.79	21.72	21.73
		25RB#0	22.51	22.62	22.81	21.56	21.84
Band	Bandwidth (MHz)	RB	20000	20175	20350	20000	20175
			1715 MHz	1732.5 MHz	1750 MHz	1715 MHz	1732.5 MHz
4	10	1RB#0	23.56	23.46	23.53	23.03	22.63
		1RB#24	23.94	23.69	23.98	22.89	22.32
		1RB#49	23.81	23.71	23.76	23.37	22.56
		25RB#0	22.57	22.67	22.75	21.74	21.59
		25RB#12	22.57	22.68	22.76	21.73	21.60
		25RB#25	22.72	22.62	22.76	22.07	21.74
		50RB#0	22.70	22.67	22.72	21.69	21.61
Band	Bandwidth (MHz)	RB	20025	20175	20325	20025	20175
			1717.5 MHz	1732.5 MHz	1747.5 MHz	1717.5 MHz	1732.5 MHz
4	15	1RB#0	23.63	23.65	23.97	22.64	22.71
		1RB#38	23.55	23.71	23.72	23.06	22.17
		1RB#74	23.65	23.61	23.66	22.55	22.50
		38RB#0	22.70	22.63	22.86	22.69	22.63
		38RB#18	22.69	22.63	22.87	22.68	22.64
		38RB#37	22.68	22.64	22.86	22.67	22.64
		75RB#0	22.67	22.64	22.87	21.68	21.65
Band	Bandwidth (MHz)	RB	20050	20175	20300	20050	20175
			1720 MHz	1732.5 MHz	1745 MHz	1720 MHz	1732.5 MHz
4	20	1RB#0	23.73	23.58	23.79	22.58	23.36
		1RB#49	24.01	24.07	23.73	23.20	23.43
		1RB#99	23.73	23.56	23.97	22.89	23.16
		50RB#0	22.68	22.73	22.83	21.88	21.70
		50RB#25	22.68	22.75	22.94	21.78	21.62
		50RB#50	22.72	22.63	22.74	21.89	21.60
		100RB#0	22.71	22.62	22.83	21.80	21.74

5.2.3 LTE Band 5

			Conducted Power(dBm)					
Modulation			QPSK			16QAM		
Band	Bandwidth (MHz)	RB	20407	20525	20643	20407	20525	20643
			824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz
5	1.4	1RB#0	23.64	23.41	23.50	22.52	22.27	23.12
		1RB#2	23.54	23.54	23.59	23.12	22.52	23.02
		1RB#5	23.43	23.44	23.35	22.51	22.25	22.33
		3RB#0	23.46	23.45	23.46	22.18	22.49	22.07
		3RB#1	23.61	23.37	23.60	22.34	22.50	22.42
		3RB#3	23.47	23.30	23.47	22.21	22.50	22.43
		6RB#0	22.65	22.56	22.58	21.52	21.28	21.25
Band	Bandwidth (MHz)	RB	20415	20525	20635	20415	20525	20635
			825.5 MHz	836.5 MHz	847.5 MHz	825.5 MHz	836.5 MHz	847.5 MHz
5	3	1RB#0	23.32	23.56	23.49	22.57	22.91	23.16
		1RB#8	23.31	23.39	23.60	22.48	22.69	23.07
		1RB#14	23.37	23.52	23.38	22.54	22.39	23.33
		8RB#0	22.68	22.59	22.82	21.77	21.49	21.95
		8RB#4	22.69	22.60	22.77	21.78	21.54	22.06
		8RB#7	22.62	22.57	22.61	21.71	21.50	21.83
		15RB#0	22.64	22.55	22.76	21.52	21.53	21.66
Band	Bandwidth (MHz)	RB	20425	20525	20625	20425	20525	20625
			826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz
5	5	1RB#0	23.52	23.31	23.47	22.60	22.05	22.58
		1RB#12	23.39	23.33	23.63	22.16	22.98	23.14
		1RB#24	23.54	23.37	23.35	22.07	22.14	22.55
		12RB#0	22.58	22.51	22.78	21.48	21.18	21.70
		12RB#6	22.57	22.52	22.73	21.48	21.19	21.72
		12RB#13	22.54	22.48	22.70	21.44	21.44	21.75
		25RB#0	22.64	22.52	22.73	21.37	21.71	21.66
Band	Bandwidth (MHz)	RB	20450	20525	20600	20450	20525	20600
			829 MHz	836.5 MHz	844 MHz	829 MHz	836.5 MHz	844 MHz
5	10	1RB#0	23.46	23.59	23.34	22.77	22.95	22.57
		1RB#24	23.39	23.68	23.42	22.22	23.04	22.71
		1RB#49	23.31	23.56	23.27	22.71	22.91	22.52
		25RB#0	22.65	22.52	22.67	21.91	21.71	21.61
		25RB#12	22.63	22.53	22.60	21.89	21.71	21.63
		25RB#25	22.59	22.68	22.68	21.77	21.76	21.65
		50RB#0	22.62	22.53	22.69	21.64	21.60	21.48

5.2.4 LTE Band 7

			Conducted Power(dBm)					
Modulation		RB	QPSK			16QAM		
Band	Bandwidth (MHz)		20775	21100	21425	20775	21100	21425
7	5	1RB#0	23.73	23.47	23.42	22.28	22.57	22.39
		1RB#12	23.64	23.63	23.49	23.11	22.91	22.57
		1RB#24	23.62	23.36	23.41	22.61	22.43	22.33
		12RB#0	22.52	22.47	22.41	21.68	21.54	21.40
		12RB#6	22.59	22.48	22.35	21.67	21.46	21.33
		12RB#13	22.68	22.43	22.31	21.78	21.48	21.36
		25RB#0	22.67	22.40	22.42	21.85	21.58	21.30
7	10	Bandwidth (MHz)	RB	20800	21100	21400	20800	21100
		2505 MHz		2535 MHz	2565 MHz	2505 MHz	2535 MHz	2565 MHz
		1RB#0	23.51	23.28	23.50	22.52	22.57	22.26
		1RB#24	23.64	23.32	23.59	22.92	22.63	22.72
		1RB#49	23.41	23.61	23.49	22.52	22.73	22.59
		25RB#0	22.76	22.49	22.47	21.85	21.66	21.77
		25RB#12	22.75	22.52	22.49	21.84	21.67	21.60
7	15	25RB#25	22.67	22.43	22.45	21.59	21.57	21.42
		50RB#0	22.66	22.43	22.47	21.77	21.37	21.57
		Bandwidth (MHz)	RB	20825	21100	21375	20825	21100
		2507.5 MHz		2535 MHz	2562.5 MHz	2507.5 MHz	2535 MHz	2562.5 MHz
		1RB#0	23.54	23.41	23.61	22.51	22.62	22.74
		1RB#38	23.67	23.39	23.36	23.03	22.60	22.75
		1RB#74	23.54	23.51	23.28	22.57	22.62	22.12
7	20	38RB#0	22.60	22.43	22.55	22.59	22.44	22.56
		38RB#18	22.60	22.45	22.56	22.60	22.44	22.44
		38RB#37	22.60	22.45	22.45	22.61	22.45	22.46
		75RB#0	22.61	22.45	22.46	21.83	21.59	21.68
		Bandwidth (MHz)	RB	20850	21100	21350	20850	21100
		2510 MHz		2535 MHz	2560 MHz	2510 MHz	2535 MHz	2560 MHz
		1RB#0	23.52	23.57	23.51	22.58	22.48	23.20
7	20	1RB#49	23.50	23.61	23.76	23.14	23.00	23.58
		1RB#99	23.57	23.50	23.32	22.27	22.65	23.08
		50RB#0	22.70	22.67	22.49	21.80	21.65	21.51
		50RB#25	22.69	22.60	22.54	21.86	21.66	21.61
		50RB#50	22.61	22.43	22.49	21.69	21.57	21.48
		100RB#0	22.56	22.57	22.51	21.69	21.71	21.56

5.2.5 LTE Band 12

			Conducted Power(dBm)					
Modulation			QPSK			16QAM		
Band	Bandwidth (MHz)	RB	23017	23095	23173	23017	23095	23173
			699.7 MHz	707.5 MHz	715.3 MHz	699.7 MHz	707.5 MHz	715.3 MHz
12	1.4	1RB#0	23.26	23.17	23.43	21.97	22.45	22.32
		1RB#2	23.35	23.48	23.43	22.06	22.62	22.38
		1RB#5	23.27	23.32	23.32	21.88	22.46	22.33
		3RB#0	23.39	23.26	23.32	22.28	21.68	22.54
		3RB#1	23.37	23.16	23.31	22.27	21.67	22.54
		3RB#3	23.31	23.15	23.25	22.16	22.03	22.62
		6RB#0	22.24	22.17	22.37	21.30	21.03	21.13
Band	Bandwidth (MHz)	RB	23025	23095	23165	23025	23095	23165
			700.5 MHz	707.5 MHz	714.5 MHz	700.5 MHz	707.5 MHz	714.5 MHz
12	3	1RB#0	23.06	23.12	23.13	21.98	22.01	22.57
		1RB#8	23.07	23.51	23.12	21.95	22.23	22.13
		1RB#14	23.10	23.13	23.18	21.84	21.98	22.11
		8RB#0	22.15	22.19	22.36	21.49	21.25	21.32
		8RB#4	22.25	22.20	22.37	21.31	21.24	21.32
		8RB#7	22.21	22.22	22.31	21.26	21.51	21.38
		15RB#0	22.17	22.21	22.31	21.16	21.04	21.22
Band	Bandwidth (MHz)	RB	23035	23095	23155	23035	23095	23155
			701.5 MHz	707.5 MHz	713.5 MHz	701.5 MHz	707.5 MHz	713.5 MHz
12	5	1RB#0	22.88	23.15	23.12	21.64	22.08	22.15
		1RB#12	23.21	23.39	23.45	22.22	22.15	22.21
		1RB#24	23.09	23.19	23.14	21.71	22.05	22.22
		12RB#0	22.08	22.22	22.25	21.13	21.23	21.15
		12RB#6	22.10	22.22	22.28	21.13	21.23	21.07
		12RB#13	22.14	22.16	22.36	21.10	21.18	21.11
		25RB#0	22.14	22.20	22.26	21.28	21.09	21.25
Band	Bandwidth (MHz)	RB	23060	23095	23130	23060	23095	23130
			704 MHz	707.5 MHz	711 MHz	704 MHz	707.5 MHz	711 MHz
12	10	1RB#0	22.90	22.79	23.20	21.93	22.03	22.93
		1RB#24	23.09	23.50	23.66	22.32	22.53	22.39
		1RB#49	22.84	22.98	23.13	22.01	22.03	22.62
		25RB#0	22.10	22.15	22.22	20.95	21.13	21.34
		25RB#12	22.11	22.16	22.23	20.86	21.14	21.34
		25RB#25	22.24	22.21	22.32	20.95	21.07	21.49
		50RB#0	22.22	22.18	22.16	21.35	21.13	21.21

5.2.6 LTE Band 13

Modulation			Conducted Power(dBm)					
Band	Bandwidth (MHz)	RB	QPSK			16QAM		
			23205 779.5 MHz	23230 782 MHz	23255 784.5 MHz	23205 779.5 MHz	23230 782 MHz	23255 784.5 MHz
13	5	1RB#0	22.58	22.79	22.85	21.71	21.74	22.11
		1RB#12	23.09	23.18	23.00	21.98	21.88	22.33
		1RB#24	23.09	23.02	23.19	22.02	21.81	22.40
		12RB#0	21.96	21.98	21.91	20.89	20.98	20.95
		12RB#6	21.87	22.05	21.92	20.97	21.05	20.95
		12RB#13	21.87	21.93	21.93	21.34	20.92	20.96
		25RB#0	21.86	21.86	21.89	20.78	21.03	21.13
Band	Bandwidth (MHz)	RB	--	23230	--	--	23230	--
			--	782 MHz	--	--	782 MHz	--
13	10	1RB#0	--	22.44	--	--	21.74	--
		1RB#24	--	22.95	--	--	22.41	--
		1RB#49	--	23.24	--	--	22.08	--
		25RB#0	--	21.97	--	--	21.08	--
		25RB#12	--	21.95	--	--	21.08	--
		25RB#25	--	21.96	--	--	21.06	--
		50RB#0	--	21.90	--	--	20.94	--

5.2.7 LTE Band 17

Modulation			Conducted Power(dBm)					
Band	Bandwidth (MHz)	RB	QPSK			16QAM		
			23755 706.5 MHz	23790 710 MHz	23825 713.5 MHz	23755 706.5 MHz	23790 710 MHz	23825 713.5 MHz
17	5	1RB#0	23.44	23.41	23.28	22.33	22.33	22.22
		1RB#12	23.54	23.46	23.20	22.81	22.24	22.75
		1RB#24	23.28	23.38	23.57	22.55	22.28	22.64
		12RB#0	22.27	22.14	22.38	21.32	21.43	21.36
		12RB#6	22.27	22.15	22.40	21.31	21.43	21.27
		12RB#13	22.35	22.32	22.33	21.48	21.51	21.33
		25RB#0	22.25	22.21	22.46	21.39	21.32	21.32
Band	Bandwidth (MHz)	RB	23780	23790	23800	23780	23790	23800
			709 MHz	710 MHz	711 MHz	709 MHz	710 MHz	711 MHz
17	10	1RB#0	23.27	23.30	23.20	22.36	22.05	23.07
		1RB#24	23.16	23.33	23.63	22.42	22.30	22.47
		1RB#49	23.39	23.08	23.33	22.41	21.87	22.83
		25RB#0	22.39	22.37	22.27	21.25	21.49	21.34
		25RB#12	22.39	22.38	22.29	21.25	21.44	21.55
		25RB#25	22.37	22.44	22.43	21.11	21.52	21.51
		50RB#0	22.41	22.41	22.43	21.36	21.39	21.66

5.2.8 LTE Band 38

Modulation			Conducted Power(dBm)					
Band	Bandwidth (MHz)	RB	QPSK			16QAM		
			37775	38000	38225	37775	38000	38225
38	5	1RB#0	22.69	22.79	22.91	22.09	22.17	22.73
		1RB#12	22.77	22.92	22.26	22.18	22.33	22.74
		1RB#24	22.71	22.78	22.99	22.10	22.01	22.65
		12RB#0	21.90	21.73	22.05	20.96	20.72	21.09
		12RB#6	21.92	21.84	22.06	20.97	20.84	21.01
		12RB#13	21.85	21.91	22.05	20.88	20.84	20.99
		25RB#0	21.86	21.78	22.01	20.93	20.70	21.14
Band	Bandwidth (MHz)	RB	37800	38000	38200	37800	38000	38200
			2575 MHz	2595 MHz	2615 MHz	2575 MHz	2595 MHz	2615 MHz
38	10	1RB#0	22.96	22.92	22.86	22.43	22.00	22.36
		1RB#24	22.64	22.29	22.24	22.41	22.12	22.48
		1RB#49	22.80	22.98	22.88	22.29	22.27	21.76
		25RB#0	21.95	21.91	22.00	21.07	20.87	21.19
		25RB#12	21.96	21.91	22.01	21.07	20.87	21.19
		25RB#25	21.97	21.95	22.04	20.95	20.90	21.21
		50RB#0	22.02	21.93	22.06	21.13	21.10	21.00
Band	Bandwidth (MHz)	RB	37825	38000	38175	37825	38000	38175
			2577.5 MHz	2595 MHz	2612.5 MHz	2577.5 MHz	2595 MHz	2612.5 MHz
38	15	1RB#0	23.00	22.97	23.02	21.91	22.08	22.37
		1RB#38	22.64	22.47	22.27	21.88	22.35	22.10
		1RB#74	22.75	22.99	22.92	21.78	22.09	22.20
		38RB#0	21.93	21.89	22.17	21.86	22.00	22.18
		38RB#18	21.94	22.00	22.17	21.94	22.00	22.18
		38RB#37	21.93	22.01	22.18	21.85	22.02	22.19
		75RB#0	21.85	22.02	22.27	21.01	21.10	21.38
Band	Bandwidth (MHz)	RB	37850	38000	38150	37850	38000	38150
			2580 MHz	2595 MHz	2610 MHz	2580 MHz	2595 MHz	2610 MHz
38	20	1RB#0	23.00	23.03	22.94	22.65	22.24	21.93
		1RB#49	23.28	23.18	23.09	22.59	22.32	21.83
		1RB#99	22.98	23.17	22.87	22.43	22.27	21.80
		50RB#0	22.02	21.99	22.18	21.31	21.17	21.24
		50RB#25	22.03	22.01	22.11	21.17	21.17	21.24
		50RB#50	21.93	22.14	22.16	21.14	21.35	21.21
		100RB#0	22.01	22.26	22.17	21.07	21.09	21.25

5.2.9 LTE Band 66

			Conducted Power(dBm)					
Modulation			QPSK			16QAM		
Band	Bandwidth (MHz)	RB	131979	132322	132665	131979	132322	132665
			1710.7 MHz	1745 MHz	1779.3 MHz	1710.7 MHz	1745 MHz	1779.3 MHz
66	1.4	1RB#0	23.74	23.84	23.93	22.63	22.86	23.34
		1RB#2	23.62	24.26	24.03	22.91	22.80	23.27
		1RB#5	23.72	24.21	23.96	22.50	22.50	23.20
		3RB#0	23.70	23.96	23.79	22.28	23.08	22.69
		3RB#1	23.74	24.03	23.79	22.26	22.36	22.49
		3RB#3	23.68	24.00	23.82	22.20	23.12	22.74
		6RB#0	22.86	22.72	22.79	21.55	21.72	21.95
Band	Bandwidth (MHz)	RB	131987	132322	132657	131987	132322	132657
			1711.5 MHz	1745 MHz	1778.5 MHz	1711.5 MHz	1745 MHz	1778.5 MHz
66	3	1RB#0	23.55	23.80	23.68	22.32	22.74	22.86
		1RB#8	23.41	23.77	23.84	22.62	22.49	22.89
		1RB#14	23.58	23.90	23.83	22.34	22.77	23.58
		8RB#0	22.72	23.00	22.76	21.89	21.80	21.78
		8RB#4	22.79	22.96	22.78	21.89	22.07	21.79
		8RB#7	22.80	22.95	22.80	21.95	21.75	21.69
		15RB#0	22.86	23.01	22.76	21.92	21.73	21.64
Band	Bandwidth (MHz)	RB	131997	132322	132647	131997	132322	132647
			1712.5 MHz	1745 MHz	1777.5 MHz	1712.5 MHz	1745 MHz	1777.5 MHz
66	5	1RB#0	23.57	23.90	23.76	22.63	22.79	22.87
		1RB#12	23.58	23.95	23.75	22.29	22.78	23.17
		1RB#24	23.65	23.91	23.89	22.65	22.78	22.72
		12RB#0	22.66	22.96	22.69	21.70	21.96	21.51
		12RB#6	22.67	22.97	22.71	21.70	21.97	21.52
		12RB#13	22.79	22.96	22.84	21.59	21.72	21.64
		25RB#0	22.50	22.94	22.77	21.55	21.93	21.80
Band	Bandwidth (MHz)	RB	132022	132322	132622	132022	132322	132622
			1715 MHz	1745 MHz	1775 MHz	1715 MHz	1745 MHz	1775 MHz
66	10	1RB#0	23.36	23.79	23.80	23.03	22.78	22.96
		1RB#24	23.49	24.12	23.95	23.25	23.12	23.36
		1RB#49	23.74	24.21	23.79	22.94	23.11	23.16
		25RB#0	22.76	22.99	22.71	21.76	22.16	21.76
		25RB#12	22.76	23.01	22.68	21.76	22.17	21.78
		25RB#25	22.80	22.99	22.83	21.74	22.07	21.82
		50RB#0	22.80	23.00	22.68	21.81	21.99	21.66
Band	Bandwidth (MHz)	RB	132047	132322	132597	132047	132322	132597
			1717.5 MHz	1745 MHz	1772.5 MHz	1717.5 MHz	1745 MHz	1772.5 MHz
66	15	1RB#0	23.67	23.98	23.84	22.73	22.66	23.14
		1RB#38	23.54	23.80	23.57	22.70	22.60	23.32
		1RB#74	23.81	23.80	23.73	22.74	22.86	22.76
		38RB#0	22.85	22.92	22.68	22.85	22.92	22.63
		38RB#18	22.85	22.93	22.81	22.85	22.93	22.65
		38RB#37	22.85	22.93	22.65	22.85	22.93	22.65
		75RB#0	22.85	22.93	22.65	21.68	21.94	21.74
Band	Bandwidth (MHz)	RB	132072	132322	132572	132072	132322	132572
			1720 MHz	1745 MHz	1770 MHz	1720 MHz	1745 MHz	1770 MHz
66	20	1RB#0	23.70	23.82	23.81	22.80	23.57	22.73
		1RB#49	23.76	23.98	23.86	23.31	23.59	22.88
		1RB#99	23.88	24.44	23.85	22.74	23.60	22.58
		50RB#0	22.64	22.96	22.79	21.88	22.06	21.96
		50RB#25	22.77	22.99	22.76	21.88	22.06	21.88
		50RB#50	22.83	22.92	22.74	21.88	21.87	21.88
		100RB#0	22.82	22.92	22.75	21.83	21.96	21.84

5.3 ERP OR EIRP

Test Requirement: FCC 47 CFR Part 2.1046(a)

LTE Band 2: FCC 47 CFR Part 24.232(c)

LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.50(d)(4)

LTE Band 5: FCC 47 CFR Part 22.913(a)

LTE Band 7 & Band 38: FCC 47 CFR Part 27.50(h)(2)

LTE Band 12 & Band 17: FCC 47 CFR Part 27.50(c)(10)

LTE Band 13: FCC 47 CFR Part 27.50(b)(10)

Test Method: KDB 971168 D01v03r01 Section 5.6 & ANSI C63.26-2015

Limit:

FCC 47 CFR Part 22.913(a):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

FCC 47 CFR Part 24.232(c):

Mobile and portable stations are limited to 2 watts EIRP.

FCC 47 CFR Part 27.50(d)(4):

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

FCC 47 CFR Part 27.50(c)(10):

Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

FCC 47 CFR Part 27.50(h)(2):

Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

FCC 47 CFR Part 27.50(b)(10):

Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

Test Procedure:

According to KDB 412172 D01 Power Approach,

- $ERP \text{ or } EIRP = P_T + G_T - L_c$
- $ERP = EIRP - 2.15$

where

- P_T = transmitter output power, expressed in dBW, dBm, or PSD;
- G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
- L_c = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

Test Setup: Refer to section 4.2.1 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: See table below

Note: The maximum ERP/EIRP is calculated from max output power and antenna gain, the antenna gain provided by the customer, and the customer takes all the responsibilities for the accuracy of antenna gain.

5.3.1 LTE Band 2

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 1.4MHz							
Lowest	24.57	23.64	33.01	0.2864	0.2312	2	Pass
Middle	24.62	23.65	33.01	0.2897	0.2317	2	Pass
Highest	24.65	23.59	33.01	0.2917	0.2286	2	Pass
Channel Bandwidth: 3MHz							
Lowest	24.25	23.23	33.01	0.2661	0.2104	2	Pass
Middle	24.43	23.09	33.01	0.2773	0.2037	2	Pass
Highest	24.58	23.61	33.01	0.2871	0.2296	2	Pass
Channel Bandwidth: 5MHz							
Lowest	24.55	23.28	33.01	0.2851	0.2128	2	Pass
Middle	24.49	23.39	33.01	0.2812	0.2183	2	Pass
Highest	24.50	23.86	33.01	0.2818	0.2432	2	Pass
Channel Bandwidth: 10MHz							
Lowest	24.50	23.59	33.01	0.2818	0.2286	2	Pass
Middle	24.49	23.67	33.01	0.2812	0.2328	2	Pass
Highest	24.65	24.01	33.01	0.2917	0.2518	2	Pass
Channel Bandwidth: 15MHz							
Lowest	24.35	23.54	33.01	0.2723	0.2259	2	Pass
Middle	24.38	23.53	33.01	0.2742	0.2254	2	Pass
Highest	24.32	23.97	33.01	0.2704	0.2495	2	Pass
Channel Bandwidth: 20MHz							
Lowest	24.73	23.76	33.01	0.2972	0.2377	2	Pass
Middle	24.53	24.29	33.01	0.2838	0.2685	2	Pass
Highest	24.60	23.44	33.01	0.2884	0.2208	2	Pass

5.3.2 LTE Band 4

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 1.4MHz							
Lowest	24.48	23.39	30.00	0.2805	0.2183	1	Pass
Middle	24.43	23.87	30.00	0.2773	0.2438	1	Pass
Highest	24.59	23.54	30.00	0.2877	0.2259	1	Pass
Channel Bandwidth: 3MHz							
Lowest	24.06	23.24	30.00	0.2547	0.2109	1	Pass
Middle	24.48	23.41	30.00	0.2805	0.2193	1	Pass
Highest	24.49	23.96	30.00	0.2812	0.2489	1	Pass
Channel Bandwidth: 5MHz							
Lowest	24.14	23.69	30.00	0.2594	0.2339	1	Pass
Middle	24.31	23.75	30.00	0.2698	0.2371	1	Pass
Highest	24.59	23.39	30.00	0.2877	0.2183	1	Pass
Channel Bandwidth: 10MHz							
Lowest	24.54	23.97	30.00	0.2844	0.2495	1	Pass
Middle	24.31	23.23	30.00	0.2698	0.2104	1	Pass
Highest	24.58	23.98	30.00	0.2871	0.2500	1	Pass
Channel Bandwidth: 15MHz							
Lowest	24.25	23.66	30.00	0.2661	0.2323	1	Pass
Middle	24.31	23.31	30.00	0.2698	0.2143	1	Pass
Highest	24.57	23.59	30.00	0.2864	0.2286	1	Pass
Channel Bandwidth: 20MHz							
Lowest	24.61	23.80	30.00	0.2891	0.2399	1	Pass
Middle	24.67	24.03	30.00	0.2931	0.2529	1	Pass
Highest	24.57	23.37	30.00	0.2864	0.2173	1	Pass

5.3.3 LTE Band 5

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 1.4MHz							
Lowest	23.14	22.62	30.00	0.2061	0.1828	7	Pass
Middle	23.04	22.02	30.00	0.2014	0.1592	7	Pass
Highest	23.10	22.62	30.00	0.2042	0.1828	7	Pass
Channel Bandwidth: 3MHz							
Lowest	22.87	22.07	30.00	0.1936	0.1611	7	Pass
Middle	23.06	22.41	30.00	0.2023	0.1742	7	Pass
Highest	23.10	22.83	30.00	0.2042	0.1919	7	Pass
Channel Bandwidth: 5MHz							
Lowest	23.04	22.10	30.00	0.2014	0.1622	7	Pass
Middle	22.87	22.48	30.00	0.1936	0.1770	7	Pass
Highest	23.13	22.64	30.00	0.2056	0.1837	7	Pass
Channel Bandwidth: 10MHz							
Lowest	22.96	22.27	30.00	0.1977	0.1687	7	Pass
Middle	23.18	22.54	30.00	0.2080	0.1795	7	Pass
Highest	22.92	22.21	30.00	0.1959	0.1663	7	Pass

5.3.4 LTE Band 7

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 5MHz							
Lowest	25.43	24.81	30.00	0.3491	0.3027	2	Pass
Middle	25.33	24.61	30.00	0.3412	0.2891	2	Pass
Highest	25.19	24.27	30.00	0.3304	0.2673	2	Pass
Channel Bandwidth: 10MHz							
Lowest	25.34	24.62	30.00	0.3420	0.2897	2	Pass
Middle	25.31	24.43	30.00	0.3396	0.2773	2	Pass
Highest	25.29	24.42	30.00	0.3381	0.2767	2	Pass
Channel Bandwidth: 15MHz							
Lowest	25.37	24.73	30.00	0.3443	0.2972	2	Pass
Middle	25.21	24.32	30.00	0.3319	0.2704	2	Pass
Highest	25.31	24.45	30.00	0.3396	0.2786	2	Pass
Channel Bandwidth: 20MHz							
Lowest	25.27	24.84	30.00	0.3365	0.3048	2	Pass
Middle	25.31	24.70	30.00	0.3396	0.2951	2	Pass
Highest	25.46	25.28	30.00	0.3516	0.3373	2	Pass

5.3.5 LTE Band 12

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 1.4MHz							
Lowest	22.19	21.08	30.00	0.1656	0.1282	3	Pass
Middle	22.28	21.42	30.00	0.1690	0.1387	3	Pass
Highest	22.23	21.42	30.00	0.1671	0.1387	3	Pass
Channel Bandwidth: 3MHz							
Lowest	21.90	20.78	30.00	0.1549	0.1197	3	Pass
Middle	22.31	21.03	30.00	0.1702	0.1268	3	Pass
Highest	21.98	21.37	30.00	0.1578	0.1371	3	Pass
Channel Bandwidth: 5MHz							
Lowest	22.01	21.02	30.00	0.1589	0.1265	3	Pass
Middle	22.19	20.95	30.00	0.1656	0.1245	3	Pass
Highest	22.25	21.02	30.00	0.1679	0.1265	3	Pass
Channel Bandwidth: 10MHz							
Lowest	21.89	21.12	30.00	0.1545	0.1294	3	Pass
Middle	22.30	21.33	30.00	0.1698	0.1358	3	Pass
Highest	22.46	21.73	30.00	0.1762	0.1489	3	Pass

5.3.6 LTE Band 13

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 5MHz							
Lowest	21.99	20.92	30.00	0.1581	0.1236	3	Pass
Middle	22.08	20.78	30.00	0.1614	0.1197	3	Pass
Highest	22.09	21.30	30.00	0.1618	0.1349	3	Pass
Channel Bandwidth: 10MHz							
Middle	22.14	21.31	30.00	0.1637	0.1352	3	Pass

5.3.7 LTE Band 17

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 5MHz							
Lowest	22.34	21.61	30.00	0.1714	0.1449	3	Pass
Middle	22.26	21.13	30.00	0.1683	0.1297	3	Pass
Highest	22.37	21.55	30.00	0.1726	0.1429	3	Pass
Channel Bandwidth: 10MHz							
Lowest	22.19	21.22	30.00	0.1656	0.1324	3	Pass
Middle	22.13	21.10	30.00	0.1633	0.1288	3	Pass
Highest	22.43	21.87	30.00	0.1750	0.1538	3	Pass

5.3.8 LTE Band 38

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 5MHz							
Lowest	24.57	23.98	30.00	0.2864	0.2500	2	Pass
Middle	24.72	24.13	30.00	0.2965	0.2588	2	Pass
Highest	24.79	24.54	30.00	0.3013	0.2844	2	Pass
Channel Bandwidth: 10MHz							
Lowest	24.76	24.23	30.00	0.2992	0.2649	2	Pass
Middle	24.78	24.07	30.00	0.3006	0.2553	2	Pass
Highest	24.68	24.28	30.00	0.2938	0.2679	2	Pass
Channel Bandwidth: 15MHz							
Lowest	24.80	23.74	30.00	0.3020	0.2366	2	Pass
Middle	24.79	24.15	30.00	0.3013	0.2600	2	Pass
Highest	24.82	24.17	30.00	0.3034	0.2612	2	Pass
Channel Bandwidth: 20MHz							
Lowest	25.08	24.45	30.00	0.3221	0.2786	2	Pass
Middle	24.98	24.12	30.00	0.3148	0.2582	2	Pass
Highest	24.89	23.73	30.00	0.3083	0.2360	2	Pass

5.3.9 LTE Band 66

Channel	Maximum EIRP (dBm)			Maximum EIRP (W)			Result
	QPSK	16QAM	Limit (dBm)	QPSK	16QAM	Limit (W)	
Channel Bandwidth: 1.4MHz							
Lowest	24.34	23.51	30.00	0.2716	0.2244	1	Pass
Middle	24.86	23.72	30.00	0.3062	0.2355	1	Pass
Highest	24.63	23.94	30.00	0.2904	0.2477	1	Pass
Channel Bandwidth: 3MHz							
Lowest	24.18	23.22	30.00	0.2618	0.2099	1	Pass
Middle	24.50	23.37	30.00	0.2818	0.2173	1	Pass
Highest	24.44	24.18	30.00	0.2780	0.2618	1	Pass
Channel Bandwidth: 5MHz							
Lowest	24.25	23.25	30.00	0.2661	0.2113	1	Pass
Middle	24.55	23.39	30.00	0.2851	0.2183	1	Pass
Highest	24.49	23.77	30.00	0.2812	0.2382	1	Pass
Channel Bandwidth: 10MHz							
Lowest	24.34	23.85	30.00	0.2716	0.2427	1	Pass
Middle	24.81	23.72	30.00	0.3027	0.2355	1	Pass
Highest	24.55	23.96	30.00	0.2851	0.2489	1	Pass
Channel Bandwidth: 15MHz							
Lowest	24.41	23.45	30.00	0.2761	0.2213	1	Pass
Middle	24.58	23.53	30.00	0.2871	0.2254	1	Pass
Highest	24.44	23.92	30.00	0.2780	0.2466	1	Pass
Channel Bandwidth: 20MHz							
Lowest	24.48	23.91	30.00	0.2805	0.2460	1	Pass
Middle	25.04	24.20	30.00	0.3192	0.2630	1	Pass
Highest	24.46	23.48	30.00	0.2793	0.2228	1	Pass

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5.4 PEAK-TO-AVERAGE RATIO

LTE Band 2: FCC 47 CFR Part 24.232(d)

LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.50(d)(5)

LTE Band 5: FCC 47 CFR Part 22.913(a)

LTE Band 7 & Band 38: FCC 47 CFR Part 27.50(d)(5)

LTE Band 12 & Band 17: FCC 47 CFR Part 27.50(d)(5)

LTE Band 13: FCC 47 CFR Part 27.50(d)(5)

Test Requirement:

KDB 971168 D01v03r01 Section 5.7

Test Method:

In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

- a) Set resolution/measurement bandwidth \geq signal's occupied bandwidth
- b) Set the number of counts to a value that stabilizes the measured CCDF curve
- c) Record the maximum PAPR level associated with a probability of 0.1 %

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: Please refer to Appendix A

5.5 99%&26DB BANDWIDTH

Test Requirement: FCC 47 CFR Part 2.1049(h)

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01 Section 4

Limit: No Limit, for reporting purposes only.

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: Please refer to Appendix A



5.6 BAND EDGE AT ANTENNA TERMINALS

Test Requirement: **LTE Band 2:** FCC 47 CFR Part 24.238(a)
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.53(h)(1)
LTE Band 5: FCC 47 CFR Part 22.917(a)
LTE Band 12 & Band 71: FCC 47 CFR Part 27.53(g)
LTE Band 13: FCC 47 CFR Part 27.53(c)(2)

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limit:

FCC 47 CFR Part 24.238(a), 27.53(h)(1), 22.917(a):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(g):

For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC 47 CFR Part 27.53(c)(2):

On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

For each band edge measurement:

- 1) Set the spectrum analyzer span to include the block edge frequency.
- 2) Set a marker to point the corresponding band edge frequency in each test case.
- 3) Set display line at -13 dBm
- 4) Set resolution bandwidth to at least 1% of emission bandwidth.
- 5) Set spectrum analyzer with RMS detector.
- 6) Record the max trace plot into the test report

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: Please refer to Appendix A

5.7 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Test Requirement: **LTE Band 2:** FCC 47 CFR Part 24.238(a)
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.53(h)
LTE Band 5: FCC 47 CFR Part 22.917(a)
LTE Band 7: FCC 47 CFR Part 27.53(m)(4)
LTE Band 12 & Band 17: FCC 47 CFR Part 27.53(g)
LTE Band 13: FCC 47 CFR Part 27.53

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limit:

FCC 47 CFR Part 24.238(a), 27.53(h)(1), 22.917(a), 27.53(g), 27.53(c)(2):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(m)(4):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log(P)$ dB. The emission limit equal to -25 dBm.

Test Procedure:

The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range. b. Measuring frequency range is from 30 MHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: Please refer to Appendix A

5.8 FIELD STRENGTH OF SPURIOUS RADIATION

Test Requirement: **LTE Band 2:** FCC 47 CFR Part 24.238(a)
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.53(h)
LTE Band 5: FCC 47 CFR Part 22.917(a)
LTE Band 7: FCC 47 CFR Part 27.53(m)(4)
LTE Band 12 & Band 17: FCC 47 CFR Part 27.53(g)
LTE Band 13: FCC 47 CFR Part 27.53

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009 MHz-30 MHz	Peak	10 kHz	30 KHz	Peak
30 MHz-1 GHz	Quasi-peak	100 kHz	300 KHz	Peak
Above 1 GHz	Peak	1 MHz	3 MHz	Peak

Limits:

FCC 47 CFR Part 24.238(a), 27.53(h)(1), 22.917(a), 27.53(g), 27.53(c)(2):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(m)(4):

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log(P)$ dB. The emission limit equal to -25 dBm.

FCC 47 CFR Part 27.53:

(c) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

(f) Emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).

Test Setup: Refer to section 4.2.1 for details.

Test Procedures: KDB 971168 D01v03r01 Section 7

Equipment Used: Refer to section 3 for details.

Test Result: Pass

The measurement data as follows: