FCC TEST REPORT

Product Name:	Smart Phone
Trade Mark:	ecom
Model No.:	Smart-Ex 02
Add. Model No.:	N/A
Report Number:	190518039RFM-2
Test Standards:	FCC 47 CFR Part 22 FCC 47 CFR Part 24 FCC 47 CFR Part 27 FCC 47 CFR Part 90
FCC ID:	XAM500079GR01
Test Result:	PASS
Date of Issue:	July 20, 2019

Prepared for:

ecom instruments GmbH
Industriestrasse 2, Assamstadt, 97959, Germany

Prepared by:

Shenzhen UnionTrust Quality and Technology Co., Ltd.
16/F, Block A, Building 6, Baoneng Science and Technology Park,
Qingxiang Road No.1, Longhua New District, Shenzhen, China
TEL: +86-755-2823 0888
FAX: +86-755-2823 0886

Prepared by: Henry Lu, Team Leader

Reviewed by: Kevin Liang, Assistant Manager

Approved by: Billy Li, Technical Director

Date: July 20, 2019

Version

Version No.	Date	Description
V1.0	July 20, 2019	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	ecom instruments GmbH
Address of Applicant:	Industriestrasse 2, Assamstadt, 97959, Germany
Manufacturer:	Pepperl+Fuchs GmbH
Address of Manufacturer:	Lilienthalstrasse 200, 68307 Mannheim, Germany

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	Smart Phone		
Model No.:	Smart-Ex 02		
Add. Model No.:	N/A		
Trade Mark:	ecom		
DUT Stage:	Identical Prototype		
EUT Supports Function:	GSM Bands:	GSM 850/ PCS 1900	
	UTRA Bands:	Band II/ Band IV/ Band V	
	E-UTRA Bands:	FDD Band 2/ Band 4/ Band 5/ Band 7/ Band 12/ Band 13/ Band 25/ Band 26/ Band 66/ Band 71	
		TDD Band 38/ Band 41	
	2.4 GHz ISM Band:	IEEE 802.11b/g/n	
		Bluetooth V4.2	
	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
		5 725 MHz to 5 850 MHz	IEEE 802.11a/n/ac
	RNSS Bands:	1559 MHz to 1610 MHz	GPS/ GNSS/ GLONASS/ BDS
	NFC:	13.553 MHz to 13.567 MHz	
Sample Received Date:	May 20, 2019		
Sample Tested Date:	May 29, 2019 to July 20, 2019		

1.2.2 Description of Accessories

Adapter(1)	
Model No.:	S008ACM0500200
Input:	100-240 V~50/60 Hz 0.3 A Max
Output:	5.0 V ⎓ 2 A
AC Cable:	N/A
DC Cable:	N/A

Battery (1)	
Model No.:	EX-BP S02
Battery Type:	Lithium-ion Rechargeable Battery
Rated Voltage:	3.7 Vdc
Rated Capacity:	4400 mAh

Battery (2)	
Model No.:	EX-BP S02C
Battery Type:	Lithium-ion Rechargeable Battery
Rated Voltage:	3.7 Vdc
Rated Capacity:	3920 mAh

Cable	
Description:	USB Changing Cable
Cable Type:	Shielded without ferrite
Length:	1.2 Meter

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Support Networks:	LTE	
Type of Modulation:	LTE Band 2/4/5/7/12/13/25/26/38/41/66/71:	QPSK, 16QAM
Antenna Type:	Integral Antenna	
Antenna Gain:	LTE Band 2:	-4.89 dBi
	LTE Band 4:	-3.21 dBi
	LTE Band 5:	-6.47 dBi
	LTE Band 7:	-5.40 dBi
	LTE Band 12:	-9.64 dBi
	LTE Band 13:	-8.39 dBi
	LTE Band 25:	-4.89 dBi
	LTE Band 26:	-6.47 dBi
	LTE Band 38:	-6.16 dBi
	LTE Band 41:	-4.33 dBi
	LTE Band 66:	-3.21 dBi
	LTE Band 71:	-10.19 dBi
Normal Test Voltage:	3.7 Vdc	
Extreme Test Voltage:	3.5 to 4.2Vdc	
Extreme Test Temperature:	-30 °C to +50 °C	

Summary of Results:

Bands	BW (MHz)	Modulation	Frequency Range (MHz)	Max RF Output Power (dBm) Conducted (Average)	Max RF Output Power (dBm) ERP/EIRP (Average)	EIRP (W)	99% BW (MHz)	Emission Designator
2	1.4	QPSK	1850.7-1909.3	23.27	18.38	0.06887	1.1117	1M11G7D
		16QAM		22.38	17.49	0.05610	1.1123	1M11W7D
	3	QPSK	1851.5-1908.5	23.25	18.36	0.06855	2.7172	2M71G7D
		16QAM		22.38	17.49	0.05610	2.7193	2M72W7D
	5	QPSK	1852.5-1907.5	23.28	18.39	0.06902	4.5329	4M53G7D
		16QAM		22.31	17.42	0.05521	4.5349	4M53W7D
	10	QPSK	1855.0-1905.0	23.16	18.27	0.06714	9.0003	9M00G7D
		16QAM		22.36	17.47	0.05585	8.9983	9M00W7D
	15	QPSK	1857.5-1902.5	23.14	18.25	0.06683	13.503	13M5G7D
		16QAM		22.33	17.44	0.05546	13.500	13M5W7D
	20	QPSK	1860.0-1900.0	23.28	18.39	0.06902	13.594	13M6G7D
		16QAM		22.42	17.53	0.05662	13.593	13M6W7D

Summary of Results:

Bands	BW (MHz)	Modulation	Frequency Range (MHz)	Max RF Output Power (dBm) Conducted (Average)	Max RF Output Power (dBm) ERP/EIRP (Average)	EIRP (W)	99% BW (MHz)	Emission Designator
4	1.4	QPSK	1710.7-1754.3	23.18	19.97	0.09931	1.1015	1M10G7D
		16QAM		22.18	18.97	0.07889	1.1025	1M10W7D
	3	QPSK	1711.5-1753.5	23.22	20.01	0.10023	2.6985	2M70G7D
		16QAM		22.27	19.06	0.08054	2.6978	2M70W7D
	5	QPSK	1712.5-1752.5	23.17	19.96	0.09908	4.5009	4M50G7D
		16QAM		22.27	19.06	0.08054	4.5019	4M50W7D
	10	QPSK	1715-1750	23.15	19.94	0.09863	8.9570	8M96G7D
		16QAM		22.22	19.01	0.07962	8.9586	8M96W7D
	15	QPSK	1717.5-1747.5	23.22	20.01	0.10023	13.463	13M5G7D
		16QAM		22.24	19.03	0.07998	13.480	13M5W7D
	20	QPSK	1720-1745	23.26	20.05	0.10116	18.008	18M0G7D
		16QAM		22.28	19.07	0.08072	18.006	18M0W7D
5	1.4	QPSK	824.7-848.3	23.04	14.42	0.02767	1.1071	1M11G7D
		16QAM		22.23	13.61	0.02296	1.1064	1M11W7D
	3	QPSK	825.5-847.5	23.13	14.51	0.02825	2.7064	2M71G7D
		16QAM		22.29	13.67	0.02328	2.7087	2M71W7D
	5	QPSK	826.5-846.5	23.01	14.39	0.02748	4.5106	4M51G7D
		16QAM		22.25	13.63	0.02307	4.5103	4M51W7D
	10	QPSK	829-844	23.15	14.53	0.02838	8.9673	8M97G7D
		16QAM		22.32	13.70	0.02344	8.9643	8M96W7D
7	5	QPSK	2502.5-2567.5	23.51	18.11	0.06471	4.5080	4M51G7D
		16QAM		22.64	17.24	0.05297	4.5094	4M51W7D
	10	QPSK	2505-2565	23.61	18.21	0.06622	8.9926	8M99G7D
		16QAM		22.61	17.21	0.05260	8.9769	8M98W7D
	15	QPSK	2507.5-2562.5	23.60	18.20	0.06607	13.490	13M5G7D
		16QAM		22.63	17.23	0.05284	13.490	13M5W7D
	20	QPSK	2510-2560	23.64	18.24	0.06668	18.157	18M2G7D
		16QAM		22.74	17.34	0.05420	18.125	18M1W7D
12	1.4	QPSK	699.7-715.3	23.15	11.36	0.01368	1.0993	1M10G7D
		16QAM		22.35	10.56	0.01138	1.0995	1M10W7D
	3	QPSK	700.5-714.5	22.82	11.10	0.01288	2.7111	2M71G7D
		16QAM		22.13	10.34	0.01081	2.7099	2M71W7D
	5	QPSK	701.5-713.5	22.91	11.12	0.01294	4.5147	4M51G7D
		16QAM		22.13	10.34	0.01081	4.5154	4M52W7D
	10	QPSK	704-711	22.99	11.20	0.01318	9.0575	9M06G7D
		16QAM		22.17	10.38	0.01091	9.0377	9M04W7D

Summary of Results:

Bands	BW (MHz)	Modulation	Frequency Range (MHz)	Max RF Output Power (dBm) Conducted (Average)	Max RF Output Power (dBm) ERP/EIRP (Average)	EIRP (W)	99% BW (MHz)	Emission Designator
13	5	QPSK	779.5-784.5	23.33	12.79	0.01901	4.5039	4M50G7D
		16QAM		22.31	11.77	0.01503	4.5043	4M50W7D
	10	QPSK	782-782	23.34	12.80	0.01905	8.9825	8M98G7D
		16QAM		22.34	11.80	0.01514	8.9969	9M00W7D
25	1.4	QPSK	1850.7-1914.3	23.29	18.40	0.06918	1.1028	1M10G7D
		16QAM		23.15	18.26	0.06699	1.1011	1M10W7D
	3	QPSK	1851.5-1913.5	23.33	18.44	0.06982	2.7008	2M70G7D
		16QAM		22.29	17.40	0.05495	2.7061	2M71W7D
	5	QPSK	1852.5-1912.5	23.35	18.46	0.07015	4.5124	4M51G7D
		16QAM		22.33	17.44	0.05546	4.5141	4M51W7D
	10	QPSK	1855.0-1910.0	23.32	18.43	0.06966	9.0317	9M03G7D
		16QAM		22.28	17.39	0.05483	9.0349	9M03W7D
	15	QPSK	1857.5-1907.5	23.28	18.39	0.06902	13.543	13M5G7D
		16QAM		22.25	17.42	0.05521	13.566	13M6W7D
	20	QPSK	1860.0-1905.0	23.45	18.56	0.07178	18.054	18M1G7D
		16QAM		22.36	17.47	0.05585	18.055	18M1W7D
26	1.4	QPSK	824.7-848.3	23.38	14.76	0.02992	1.1061	1M11G7D
		16QAM		22.83	14.21	0.02636	1.1055	1M11W7D
	3	QPSK	825.5-847.5	23.33	14.71	0.02958	2.7123	2M71G7D
		16QAM		22.89	14.29	0.02685	2.7067	2M71W7D
	5	QPSK	826.5-846.5	23.37	14.75	0.02985	4.5251	4M53G7D
		16QAM		22.79	14.17	0.02612	4.5423	4M54W7D
	10	QPSK	829-844	23.39	14.77	0.02999	9.0025	9M00G7D
		16QAM		22.80	14.18	0.02618	8.9929	9M00W7D
	15	QPSK	831.5-841.5	23.48	14.86	0.03062	13.501	13M5G7D
		16QAM		22.99	14.37	0.02735	13.504	13M5W7D
26 (Part 90S)	1.4	QPSK	814.7-823.3	23.56	14.94	0.03119	1.1099	1M11G7D
		16QAM		22.94	14.32	0.02704	1.1049	1M10W7D
	3	QPSK	815.5-822.5	23.50	14.88	0.03076	2.7172	2M72G7D
		16QAM		22.85	14.23	0.02649	2.7131	2M71W7D
	5	QPSK	816.5-821.5	23.65	15.03	0.03184	4.5260	4M53G7D
		16QAM		22.84	14.22	0.02642	4.5227	4M52W7D
	10	QPSK	819	23.50	14.88	0.03076	8.9704	8M97G7D
		16QAM		22.88	14.26	0.02667	8.9640	8M96W7D
	15	QPSK	821.5	23.67	15.05	0.03199	13.529	13M5G7D
		16QAM		22.96	14.34	0.02716	13.518	13M5W7D

Summary of Results:								
Bands	BW (MHz)	Modulation	Frequency Range (MHz)	Max RF Output Power (dBm) Conducted (Average)	Max RF Output Power (dBm) ERP/EIRP (Average)	EIRP (W)	99% BW (MHz)	Emission Designator
38	5	QPSK	2572.5-2617.5	23.58	17.42	0.05521	4.4991	4M50G7D
		16QAM		22.79	16.63	0.04603	4.5015	4M52W7D
	10	QPSK	2575-2615	23.57	17.41	0.05508	8.9796	8M98G7D
		16QAM		22.77	16.61	0.04581	8.9920	8M99W7D
	15	QPSK	2577.5-2612.5	23.56	17.40	0.05495	13.470	13M5G7D
		16QAM		22.64	16.48	0.04446	13.482	13M5W7D
	20	QPSK	2580-2610	23.68	17.52	0.05649	17.971	18M0G7D
		16QAM		22.80	16.64	0.04613	17.993	18M0W7D
41	5	QPSK	2557.5-2562.5	23.41	19.08	0.08091	4.5142	4M51G7D
		16QAM		22.72	18.39	0.06902	4.4986	4M50W7D
	10	QPSK	2560-2650	23.47	19.14	0.08204	8.9796	8M98G7D
		16QAM		22.69	18.36	0.06855	8.9882	8M99W7D
	15	QPSK	2562.5-2647.5	23.42	19.09	0.08110	13.482	13M5G7D
		16QAM		22.72	18.39	0.06902	13.487	13M5W7D
	20	QPSK	2565-2645	23.55	19.22	0.08356	17.963	18M0G7D
		16QAM		22.79	18.46	0.07015	17.961	18M0W7D
66	1.4	QPSK	1710.7-1779.3	24.20	20.99	0.12560	1.1010	1M10G7D
		16QAM		23.08	19.87	0.09705	1.1023	1M10W7D
	3	QPSK	1711.5-1778.5	24.04	20.83	0.12106	2.7138	2M71G7D
		16QAM		23.09	19.88	0.09727	2.7004	2M70W7D
	5	QPSK	1712.5-1777.5	24.15	20.94	0.12417	4.5135	4M51G7D
		16QAM		23.02	19.81	0.09572	4.5201	4M52W7D
	10	QPSK	1715-1775	24.13	20.92	0.12359	8.9812	8M98G7D
		16QAM		23.04	19.83	0.09616	8.9780	8M98W7D
	15	QPSK	1717.5-1772.5	24.22	21.01	0.12618	13.465	13M5G7D
		16QAM		23.03	19.82	0.09594	13.473	13M5W7D
	20	QPSK	1720-1770	24.23	21.02	0.12647	17.962	18M0G7D
		16QAM		23.14	19.93	0.09840	17.973	18M0W7D
71	5	QPSK	665.5-695.5	24.20	11.86	0.01535	4.5187	4M52G7D
		16QAM		23.25	10.91	0.01233	4.5168	4M52W7D
	10	QPSK	668-693	24.23	11.89	0.01545	8.9898	8M99G7D
		16QAM		22.95	10.88	0.01225	8.9907	8M99W7D
	15	QPSK	670.5-690.5	24.34	12.00	0.01585	13.487	13M5G7D
		16QAM		23.26	10.92	0.01236	13.503	13M5W7D
	20	QPSK	673-688	24.38	12.04	0.01600	17.962	18M0G7D
		16QAM		23.39	11.05	0.01274	17.992	18M0W7D

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
--	--	--	--	--

2) Support Cable

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

1.5 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China 518109
Telephone: +86 (0) 755 2823 0888
Fax: +86 (0) 755 2823 0886

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/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01
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: 2005 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 emission 9KHz-150KHz	±3.8 dB
2	Conducted emission 150KHz-30MHz	±3.4 dB
3	Radiated emission 9KHz-30MHz	±4.9 dB
4	Radiated emission 30MHz-1GHz	±4.7 dB
5	Radiated emission 1GHz-18GHz	±5.1 dB
6	Radiated emission 18GHz-26GHz	±5.2 dB
7	Radiated emission 26GHz-40GHz	±5.2 dB

2. TEST SUMMARY

FCC 47 CFR Part 24 Test Cases (Band 2 & Band 25)			
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 & Band 26)			
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 & Band 41)			
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 & 71)			
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

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

FCC 47 CFR Part 90 Test Cases (LTE Band 26)			
Test Item	**Test Requirement**	**Test Method**	**Result**
Effective Radiated Power (ERP)	FCC 47 CFR Part 2.1046 & FCC 47 CFR Part 90.635	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 90.635	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	N/A	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h)	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Emission Mask	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 90.691	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 90.691	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 90.691	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 90.213	ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01	PASS

3. EQUIPMENT LIST

Radiated Emission Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
☒	3M Chamber & Accessory Equipment	ETS-LINDGREN	3M	N/A	Dec. 03, 2018	Dec. 03, 2021
☒	Receiver	R&S	ESIB26	100114	Nov. 24, 2018	Nov. 24, 2019
☐	Loop Antenna	ETS-LINDGREN	6502	00202525	Dec. 03, 2018	Dec. 03, 2019
☒	Broadband Antenna	ETS-LINDGREN	3142E	00201566	Dec. 08, 2018	Dec. 08, 2019
☒	6dB Attenuator	Talent	RA6A5-N-18	18103001	Dec. 08, 2018	Dec. 08, 2019
☒	Preamplifier	HP	8447F	2805A02960	Nov. 24, 2018	Nov. 24, 2019
☐	Broadband Antenna (Pre-amplifier)	ETS-LINDGREN	3142E-PA	00201891	May 18, 2019	May 18, 2020
☐	6dB Attenuator	Talent	RA6A5-N-18	18103002	Nov. 24, 2018	Nov. 24, 2019
☐	Horn Antenna	ETS-LINDGREN	3117	00164202	Dec. 08, 2018	Dec. 08, 2019
☒	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3117-PA	00201874	May 18, 2019	May 18, 2020
☐	Horn Antenna	ETS-LINDGREN	3116C	00200180	Jun. 23, 2019	Jun. 23, 2020
☒	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3116C-PA	00202652	Jan. 05, 2019	Jan. 05, 2020
☒	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
☒	Test Software	Audix	e3	Software Version: 9.160333		

RF Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
☒	Receiver	R&S	ESR7	1316.3003K07-101181-K3	Nov. 24, 2018	Nov. 24, 2019
☒	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	Nov. 24, 2018	Nov. 24, 2019
☒	EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY57471561	Nov. 24, 2018	Nov. 24, 2019
☒	Wideband Radio Communication Tester	R&S	CMW500	119583	Jun. 07, 2019	Jun. 07, 2020
☐	Universal Radio Communication Tester	R&S	CMU200	114713	Nov. 24, 2018	Nov. 24, 2019
☒	DC Source	KIKUSUI	PWR400L	LK003024	Sep. 18, 2018	Sep. 18, 2019
☐	Temp & Humidity chamber	Espec	GL(U)04KA(W)	16921H201P3	Sep. 20, 2018	Sep. 20, 2019
☒	Temp & Humidity chamber	Votisch	VT4002	58566133290020	Jun. 05, 2018	Jun. 05, 2020

4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

Test Environment	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage (V)	Relative Humidity (%)
TN/VN	+15 to +35	3.7	20 to 75
TL/VL	-30	3.5	20 to 75
TH/VL	+50	3.5	20 to 75
TL/VH	-30	4.2	20 to 75
TH/VH	+50	4.2	20 to 75

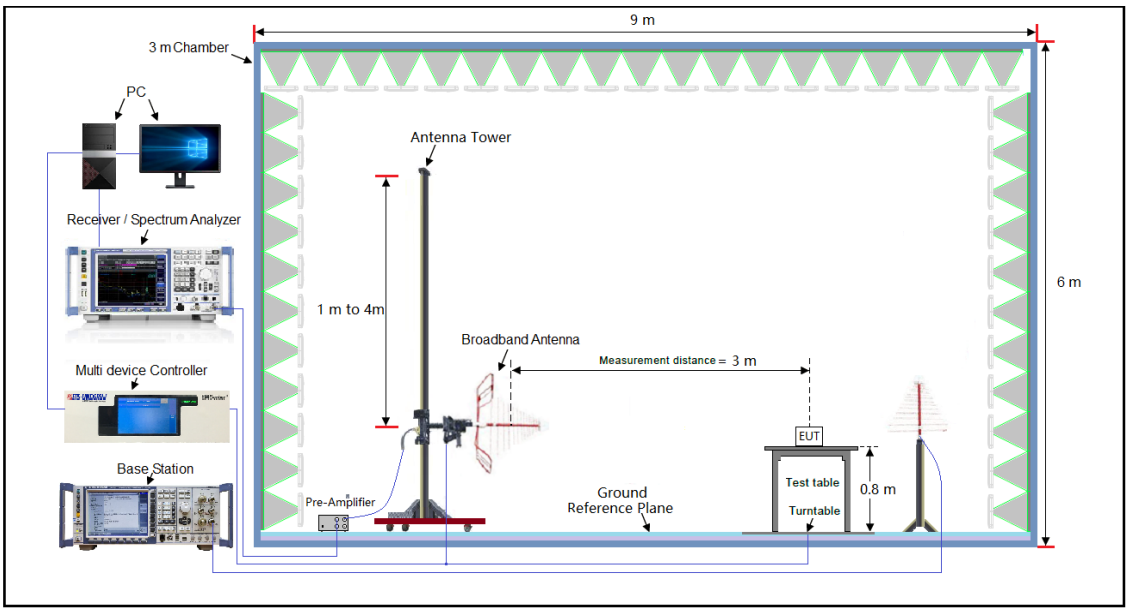
Remark:

1) The EUT just work in such extreme temperature of -30 °C to +50 °C and the extreme voltage of 3.5 V to 4.2 V, so here the EUT is tested in the temperature of -30 °C to +50 °C and the voltage of 3.5 V to 4.2 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.

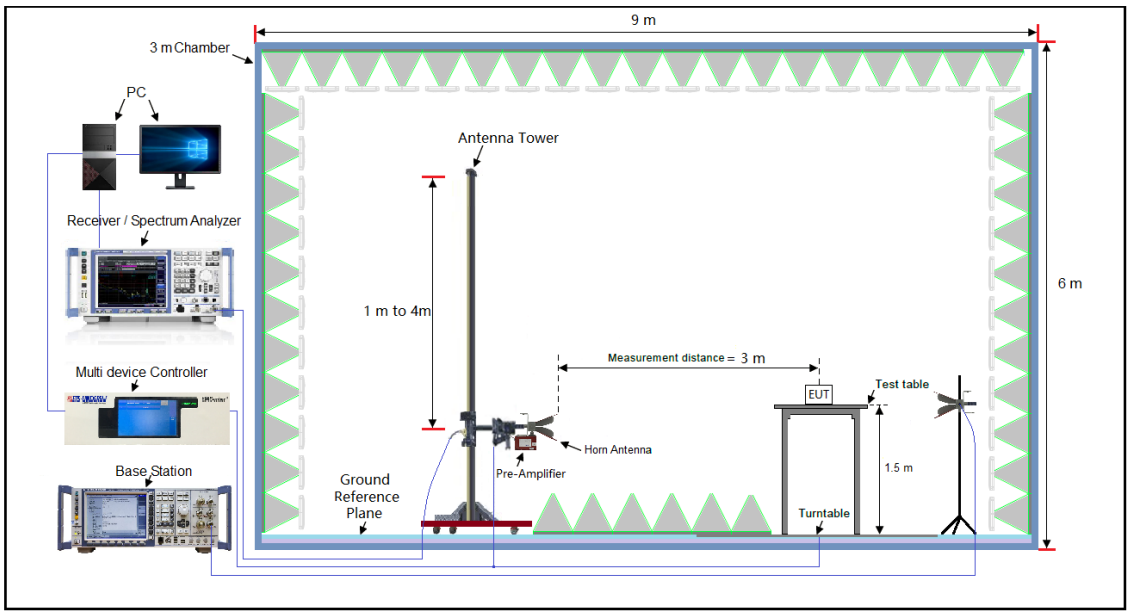
4.2 TEST SETUP

4.2.1 For Radiated Emissions test setup

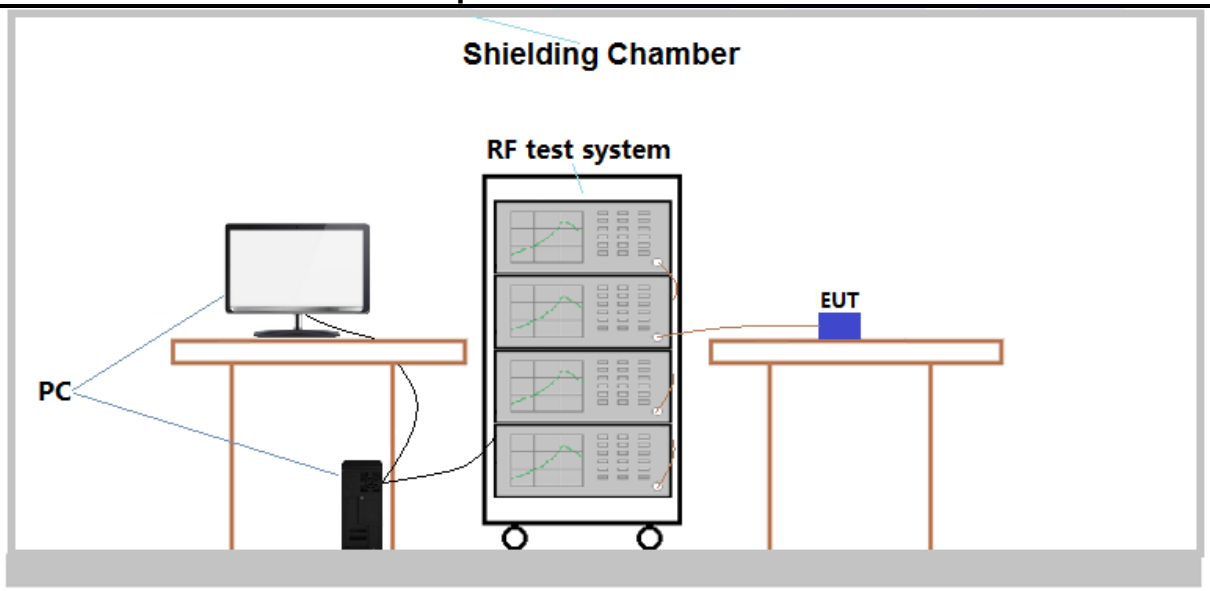
Radiated Emissions 30MHz to 1GHz Test setup



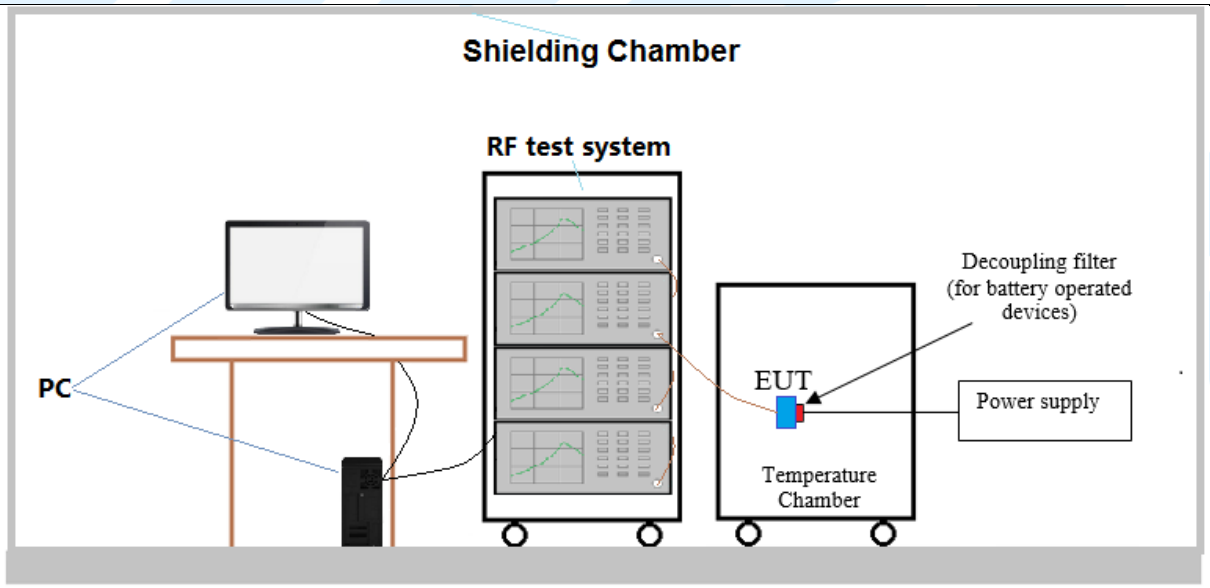
Radiated Emissions Above 1GHz Test setup



4.2.2 For Conducted RF test setup



Normal Environment



Extreme Environment

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
LTE Band 13 TX: 777-787MHz	Low Range	5	23205	779.5
		10	23230	782
	Middle Range	5/10	23230	782
	High Range	5	23255	784.5
		10	23230	782
LTE Band 25 TX: 1850-1915MHz	Low Range	1.4	26047	1850.7
		3	26055	1851.5
		5	26065	1852.5
		10	26090	1855
		15	26115	1857.5
		20	26140	1860
	Middle Range	1.4/3/5/10/15/20	26340	1880
	High Range	1.4	26683	1914.3
		3	26675	1913.5
		5	26665	1912.5
		10	26640	1910
		15	26615	1907.5
		20	26590	1905
LTE band 26 TX:824–849MHz	Low Range	1.4	26797	824.7
		3	26805	825.5
		5	26815	826.5
		10	26840	829
		15	26865	831.5
	Middle Range	1.4/3/5/10/15	26915	836.5
	High Range	1.4	27033	848.3
		3	27025	847.5
		5	27015	846.5
		10	26990	844
		15	26965	841.5
LTE band 26 TX: 814-824MHz	Low Range	1.4	26697	814.7
		3	26705	815.5
		5	26715	816.5
		10	/	/
		15	26765	821.5
	Middle Range	1.4/3/5/10	26740	819
	High Range	1.4	26783	823.3
		3	26775	822.5

		5	26765	821.5
		10	/	/
		15	/	/
LTE Band 38 TX: 2570-2620MHz	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 41 TX: 2496-2690MHz	Low Range	5	39675	2498.5
		10	39700	2501
		15	39725	2503.5
		20	39750	2506
	Middle Range	5/10/ 15/20	40620	2593
	High Range	5	41565	2687.5
		10	41540	2685
		15	41515	2682.5
		20	41490	2680
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
LTE Band 71 TX: 663–698MHz	Low Range	5	133147	665.5
		10	133172	668
		15	133197	670.5
		20	133222	673
	Middle Range	5/10/15	133297	680.5
		20	133322	683
	High Range	5	133447	695.5
		10	133422	693
		15	133397	690.5
		20	133372	688

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 3.7V 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.
The worst case was found when positioned as the table below.

Band	Mode	Antenna Port	Worst-case axis positioning
LTE Band 2	1TX	Chain 0	Y axis
LTE Band 4	1TX	Chain 0	Y axis
LTE Band 5	1TX	Chain 0	Y axis
LTE Band 7	1TX	Chain 0	Y axis
LTE Band 12	1TX	Chain 0	Y axis
LTE Band 13	1TX	Chain 0	Y axis
LTE Band 25	1TX	Chain 0	Y axis
LTE Band 26	1TX	Chain 0	Y axis
LTE Band 38	1TX	Chain 0	Y axis
LTE Band 41	1TX	Chain 0	Y axis
LTE Band 66	1TX	Chain 0	Y axis
LTE Band 71	1TX	Chain 0	Y axis

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 under all rate at lowest middle and highest channel, find the transmitter power as below.

4.5.1 LTE Band 2

LTE Band 2 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	22.85	23.27	23.05	1	0	22.83	23.25	23.12
	1	2	22.71	22.88	22.94	1	7	22.79	22.81	22.86
	1	5	22.59	22.59	22.57	1	14	22.62	22.48	22.64
	3	0	23.05	23.03	23.05	8	0	22.04	22.03	22.01
	3	1	22.89	23.04	22.93	8	3	21.94	22.07	21.94
	3	3	22.74	23.10	23.14	8	7	21.73	22.10	22.23
	6	0	21.88	22.20	22.08	15	0	21.95	22.28	22.09
16QAM	1	0	21.97	22.38	22.24	1	0	22.02	22.38	22.36
	1	2	22.00	22.00	22.18	1	7	21.89	21.90	22.09
	1	5	21.96	21.76	21.98	1	14	21.82	21.93	21.97
	3	0	22.07	22.20	22.03	8	0	20.94	21.05	21.14
	3	1	22.00	22.06	21.96	8	3	21.03	20.99	21.10
	3	3	21.75	22.03	22.05	8	7	20.84	21.03	21.03
	6	0	21.05	20.97	21.21	15	0	20.98	21.02	21.15
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	22.89	23.28	23.14	1	0	22.95	23.16	23.12
	1	12	22.64	22.87	22.87	1	24	22.75	22.98	22.95
	1	24	22.69	22.56	22.69	1	49	22.61	22.60	22.64
	12	0	21.99	22.12	21.97	25	0	22.03	22.13	22.13
	12	6	21.81	22.05	22.08	25	12	21.94	22.04	22.00
	12	13	21.85	22.12	22.22	25	25	21.71	21.96	22.09
	25	0	21.96	22.23	22.22	50	0	21.95	22.21	22.21
16QAM	1	0	22.11	22.31	22.19	1	0	22.12	22.35	22.36
	1	12	22.05	22.07	22.11	1	24	21.96	21.88	22.06
	1	24	21.86	21.87	21.89	1	49	21.96	21.87	21.87
	12	0	20.95	21.17	21.10	25	0	20.95	21.04	21.13
	12	6	20.90	21.14	21.12	25	12	20.89	20.98	21.07
	12	13	20.71	21.11	21.16	25	25	20.76	21.05	21.00
	25	0	20.96	21.14	21.24	50	0	21.02	21.00	21.12
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	22.97	23.14	23.14	1	0	23.00	23.28	23.19
	1	37	22.61	22.94	22.78	1	50	22.81	22.99	22.97
	1	74	22.68	22.51	22.66	1	99	22.75	22.66	22.73
	37	0	22.05	22.10	22.02	50	0	22.09	22.18	22.15
	37	19	21.93	22.05	22.06	50	25	21.99	22.21	22.12
	37	39	21.81	22.08	22.19	50	50	21.88	22.13	22.24
	75	0	21.92	22.19	22.10	100	0	22.02	22.30	22.26
16QAM	1	0	22.07	22.33	22.28	1	0	22.14	22.42	22.38
	1	37	22.04	22.07	22.12	1	50	22.05	22.08	22.24
	1	74	21.93	21.82	22.00	1	99	22.01	21.96	22.06
	37	0	20.90	21.17	21.11	50	0	21.08	21.22	21.19
	37	19	21.02	21.09	21.06	50	25	21.04	21.18	21.13
	37	39	20.82	21.07	21.15	50	50	20.86	21.14	21.17
	75	0	20.91	21.07	21.11	100	0	21.07	21.15	21.25

4.5.2 LTE Band 4

LTE Band 4 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	23.15	23.13	22.82	1	0	23.11	23.22	22.95
	1	2	22.86	22.95	22.76	1	7	22.98	22.89	22.77
	1	5	22.94	23.02	23.18	1	14	22.93	22.93	23.07
	3	0	23.04	23.09	22.92	8	0	22.12	22.11	21.86
	3	1	22.99	23.05	22.82	8	3	21.92	22.07	21.96
	3	3	23.04	22.87	22.92	8	7	21.94	21.89	21.87
	6	0	22.04	22.10	22.12	15	0	22.13	22.04	22.10
16QAM	1	0	22.06	22.18	22.09	1	0	22.13	22.27	22.11
	1	2	21.95	22.10	21.74	1	7	22.07	21.97	21.81
	1	5	22.14	22.13	22.09	1	14	22.10	22.14	22.08
	3	0	22.13	22.09	21.89	8	0	21.07	21.09	20.89
	3	1	22.02	21.95	21.87	8	3	21.03	20.92	20.98
	3	3	22.02	21.95	21.80	8	7	21.00	20.94	20.91
	6	0	20.94	21.12	21.05	15	0	21.10	21.15	21.08
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.15	23.10	22.87	1	0	23.15	23.10	22.84
	1	12	22.96	22.89	22.74	1	24	22.87	22.93	22.76
	1	24	22.98	23.09	23.17	1	49	22.98	22.92	23.09
	12	0	22.23	22.06	21.85	25	0	22.10	22.08	21.99
	12	6	21.87	22.01	21.93	25	12	21.87	21.96	21.94
	12	13	21.95	22.05	21.83	25	25	22.05	21.91	21.81
	25	0	22.09	22.04	22.17	50	0	22.04	21.96	22.13
16QAM	1	0	22.17	22.27	22.08	1	0	22.15	22.22	22.15
	1	12	21.91	22.15	21.75	1	24	21.94	22.00	21.87
	1	24	22.17	22.16	22.09	1	49	22.04	22.06	22.03
	12	0	21.09	21.16	21.04	25	0	21.13	21.14	21.03
	12	6	20.92	20.98	20.90	25	12	20.87	20.94	20.98
	12	13	21.00	20.99	20.94	25	25	21.00	20.99	20.89
	25	0	21.10	21.09	21.11	50	0	21.07	21.11	21.08
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	23.19	23.21	22.81	1	0	23.23	23.26	22.98
	1	37	22.81	23.00	22.83	1	50	22.98	23.05	22.87
	1	74	22.80	23.04	23.22	1	99	23.00	23.11	23.24
	37	0	22.05	22.02	21.96	50	0	22.23	22.20	21.99
	37	19	21.98	22.07	21.95	50	25	22.05	22.08	21.96
	37	39	21.92	21.96	21.90	50	50	22.06	22.06	21.93
	75	0	22.06	22.02	22.14	100	0	22.15	22.15	22.19
16QAM	1	0	22.05	22.24	22.11	1	0	22.22	22.28	22.21
	1	37	22.09	22.00	21.80	1	50	22.09	22.15	21.92
	1	74	22.13	22.05	22.18	1	99	22.21	22.19	22.21
	37	0	21.21	21.09	20.91	50	0	21.22	21.22	21.07
	37	19	20.92	20.91	20.98	50	25	21.07	21.09	21.03
	37	39	20.89	21.01	20.81	50	50	21.08	21.07	20.95
	75	0	20.92	21.20	20.95	100	0	21.11	21.21	21.11

4.5.3 LTE Band 5

LTE Band 5 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	22.75	22.79	22.81	1	0	22.76	22.82	22.86
	1	2	22.59	22.66	22.76	1	7	22.58	22.80	22.81
	1	5	22.96	22.88	22.95	1	14	23.13	22.97	22.81
	3	0	22.93	22.60	23.04	8	0	21.95	21.76	22.03
	3	1	22.79	22.54	22.74	8	3	21.73	21.55	21.77
	3	3	22.66	22.70	22.70	8	7	21.73	21.74	21.78
	6	0	21.66	21.66	21.80	15	0	21.70	21.73	21.80
16QAM	1	0	21.98	21.86	22.05	1	0	21.89	21.78	22.02
	1	2	21.84	21.74	21.98	1	7	21.95	21.66	21.90
	1	5	22.14	22.23	22.12	1	14	22.11	22.21	22.29
	3	0	21.87	21.67	21.80	8	0	20.84	20.68	20.85
	3	1	21.72	21.65	21.78	8	3	20.73	20.61	20.81
	3	3	21.85	21.74	21.72	8	7	20.85	20.73	20.81
	6	0	20.76	20.67	20.77	15	0	20.72	20.62	20.76
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	22.82	22.78	22.89	1	0	22.86	22.92	22.97
	1	12	22.57	22.84	22.89	1	24	22.76	22.85	22.92
	1	24	22.95	23.01	22.90	1	49	23.15	23.03	22.97
	12	0	21.83	21.65	22.03	25	0	21.97	21.76	22.04
	12	6	21.69	21.49	21.72	25	12	21.82	21.69	21.89
	12	13	21.72	21.70	21.74	25	25	21.83	21.79	21.78
	25	0	21.77	21.77	21.76	50	0	21.80	21.85	21.86
16QAM	1	0	21.89	21.92	21.97	1	0	22.01	21.95	22.15
	1	12	21.77	21.60	21.97	1	24	21.95	21.75	22.02
	1	24	22.21	22.20	22.25	1	49	22.27	22.26	22.32
	12	0	20.83	20.69	20.79	25	0	20.91	20.76	20.94
	12	6	20.64	20.54	20.73	25	12	20.77	20.68	20.86
	12	13	20.85	20.75	20.83	25	25	20.87	20.81	20.91
	25	0	20.68	20.68	20.64	50	0	20.83	20.75	20.79

4.5.4 LTE Band 7

LTE Band 7 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.51	22.33	22.83	1	0	23.61	22.49	22.90
	1	12	23.40	23.21	21.97	1	24	23.39	23.09	22.04
	1	24	22.00	23.29	22.01	1	49	21.89	23.39	21.93
	12	0	22.42	22.27	21.84	25	0	22.37	22.34	21.92
	12	6	22.45	22.21	21.43	25	12	22.48	22.21	21.52
	12	13	22.35	22.20	21.37	25	25	22.32	22.31	21.42
	25	0	22.63	22.27	21.19	50	0	22.70	22.24	21.28
16QAM	1	0	22.52	21.27	22.35	1	0	22.36	21.25	22.43
	1	12	22.64	22.33	21.46	1	24	22.61	22.30	21.42
	1	24	21.22	22.58	21.39	1	49	21.27	22.40	21.39
	12	0	21.43	20.86	20.36	25	0	21.51	20.77	20.33
	12	6	21.41	21.36	20.43	25	12	21.37	21.30	20.48
	12	13	21.35	21.19	20.00	25	25	21.39	21.33	19.92
	25	0	21.57	21.31	20.49	50	0	21.51	21.33	20.52
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	23.60	22.38	22.78	1	0	23.64	22.51	22.98
	1	37	23.26	23.26	22.02	1	50	23.44	23.27	22.13
	1	74	22.01	23.42	22.04	1	99	22.07	23.47	22.05
	37	0	22.48	22.34	21.77	50	0	22.55	22.47	21.96
	37	19	22.50	22.29	21.49	50	25	22.52	22.39	21.58
	37	39	22.30	22.26	21.49	50	50	22.42	22.34	21.54
	75	0	22.69	22.20	21.29	100	0	22.73	22.37	21.30
16QAM	1	0	22.43	21.40	22.35	1	0	22.55	21.40	22.51
	1	37	22.63	22.19	21.56	1	50	22.74	22.37	21.59
	1	74	21.19	22.47	21.34	1	99	21.31	22.59	21.40
	37	0	21.49	20.88	20.41	50	0	21.59	20.94	20.51
	37	19	21.42	21.28	20.42	50	25	21.56	21.38	20.58
	37	39	21.48	21.20	19.95	50	50	21.54	21.35	20.03
	75	0	21.62	21.38	20.57	100	0	21.62	21.51	20.62

4.5.5 LTE Band 12

LTE Band 12 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	22.60	22.21	22.76	1	0	22.58	22.15	22.65
	1	2	22.55	22.85	22.93	1	7	22.46	22.89	22.82
	1	5	22.65	22.32	22.34	1	14	22.68	22.38	22.44
	3	0	23.00	23.15	23.03	8	0	22.01	22.25	22.20
	3	1	23.13	23.13	23.01	8	3	22.09	22.14	22.15
	3	3	23.08	23.00	23.06	8	7	21.98	21.90	22.04
	6	0	21.86	21.95	22.15	15	0	21.91	22.00	22.18
16QAM	1	0	21.75	21.52	22.02	1	0	21.78	21.56	22.02
	1	2	21.78	21.98	22.11	1	7	21.81	22.07	22.13
	1	5	22.07	21.64	21.52	1	14	21.99	21.75	21.70
	3	0	21.83	22.10	22.35	8	0	20.89	21.01	21.25
	3	1	21.96	21.94	22.07	8	3	21.03	20.94	21.08
	3	3	21.92	22.16	22.04	8	7	20.94	21.08	21.11
	6	0	20.94	20.95	21.13	15	0	20.95	20.94	20.99
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	22.58	22.15	22.81	1	0	22.64	22.31	22.85
	1	12	22.49	22.90	22.91	1	24	22.61	22.95	22.99
	1	24	22.56	22.27	22.46	1	49	22.73	22.47	22.49
	12	0	22.11	22.21	22.05	25	0	22.13	22.27	22.21
	12	6	22.04	22.07	21.99	25	12	22.18	22.18	22.17
	12	13	21.92	22.05	21.92	25	25	22.12	22.09	22.06
	25	0	21.99	22.03	22.05	50	0	22.00	22.07	22.18
16QAM	1	0	21.85	21.47	22.02	1	0	21.92	21.59	22.11
	1	12	21.81	21.99	22.13	1	24	21.87	22.09	22.17
	1	24	21.93	21.62	21.55	1	49	22.07	21.78	21.71
	12	0	20.88	21.08	21.23	25	0	21.03	21.16	21.37
	12	6	21.00	21.01	21.15	25	12	21.09	21.08	21.16
	12	13	20.93	20.98	21.08	25	25	21.10	21.18	21.11
	25	0	20.85	20.92	21.06	50	0	20.97	21.10	21.15

4.5.6 LTE Band 13

LTE Band 13 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
	Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
QPSK	1	0	22.34	22.47	22.43	1	0	/	22.50	/
	1	12	23.07	23.02	22.99	1	24	/	23.11	/
	1	24	23.20	23.33	23.18	1	49	/	23.34	/
	12	0	22.28	22.41	22.25	25	0	/	22.41	/
	12	6	22.07	22.12	22.24	25	12	/	22.24	/
	12	13	22.02	21.86	21.93	25	25	/	22.05	/
	25	0	22.19	22.13	22.13	50	0	/	22.28	/
16QAM	1	0	21.64	21.71	21.81	1	0	/	21.81	/
	1	12	22.20	22.23	22.11	1	24	/	22.23	/
	1	24	22.25	22.31	22.19	1	49	/	22.34	/
	12	0	20.99	21.06	20.99	25	0	/	21.18	/
	12	6	21.11	21.04	21.09	25	12	/	21.12	/
	12	13	21.01	20.97	20.90	25	25	/	21.06	/
	25	0	21.27	21.28	21.16	50	0	/	21.31	/

4.5.7 LTE Band 25

LTE Band 25 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
	Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
QPSK	1	0	23.04	23.29	23.29	1	0	23.03	23.28	23.33
	1	2	22.82	23.03	22.99	1	7	22.97	23.11	23.10
	1	5	22.81	22.90	21.90	1	14	22.98	22.89	22.01
	3	0	23.01	23.09	23.26	8	0	22.02	22.17	22.09
	3	1	22.89	23.15	23.15	8	3	21.88	22.09	22.20
	3	3	22.97	23.07	23.17	8	7	21.99	22.14	22.34
	6	0	22.02	22.19	22.50	15	0	21.92	22.33	22.48
16QAM	1	0	22.06	22.27	22.29	1	0	21.97	22.16	22.29
	1	2	22.01	22.02	22.07	1	7	22.05	22.00	22.19
	1	5	22.06	22.09	21.41	1	14	22.00	22.08	21.42
	3	0	21.98	22.22	23.15	8	0	20.95	21.13	22.08
	3	1	22.03	22.05	22.16	8	3	20.96	21.06	21.21
	3	3	21.98	22.12	22.34	8	7	21.06	21.17	21.34
	6	0	21.17	21.07	21.21	15	0	21.13	21.09	21.30

LTE Band 25 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.08	23.33	23.35	1	0	23.13	23.32	23.26
	1	12	22.98	23.04	23.02	1	24	22.83	23.14	23.07
	1	24	22.83	22.90	21.89	1	49	22.88	22.85	21.87
	12	0	22.07	22.17	22.19	25	0	22.10	22.20	22.20
	12	6	21.97	22.03	22.32	25	12	22.00	22.03	22.24
	12	13	21.83	22.20	22.33	25	25	21.93	22.17	22.35
	25	0	21.94	22.33	22.45	50	0	21.92	22.22	22.43
16QAM	1	0	22.11	22.33	22.28	1	0	22.12	22.21	22.28
	1	12	22.05	22.09	22.21	1	24	21.96	21.94	22.09
	1	24	22.10	22.19	21.23	1	49	22.13	22.06	21.33
	12	0	20.96	21.04	22.20	25	0	21.00	21.13	22.14
	12	6	20.92	20.97	21.13	25	12	21.02	21.06	21.21
	12	13	21.03	21.05	21.36	25	25	20.95	21.03	21.27
	25	0	21.03	21.16	21.28	50	0	21.11	21.11	21.20
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	23.03	23.21	23.28	1	0	23.19	23.36	23.45
	1	37	22.87	23.20	23.11	1	50	22.98	23.23	23.16
	1	74	22.91	22.80	21.88	1	99	23.01	22.98	22.05
	37	0	21.99	22.08	22.28	50	0	22.11	22.25	22.28
	37	19	21.92	22.06	22.32	50	25	22.03	22.17	22.33
	37	39	21.93	22.06	22.21	50	50	22.00	22.21	22.37
	75	0	22.06	22.25	22.48	100	0	22.08	22.37	22.58
16QAM	1	0	21.99	22.25	22.31	1	0	22.15	22.36	22.35
	1	37	22.03	22.04	22.08	1	50	22.13	22.09	22.23
	1	74	22.11	22.13	21.39	1	99	22.17	22.21	21.43
	37	0	21.06	21.19	22.13	50	0	21.11	21.24	22.22
	37	19	20.97	21.03	21.16	50	25	21.06	21.15	21.24
	37	39	21.04	21.16	21.22	50	50	21.10	21.20	21.41
	75	0	21.15	21.08	21.25	100	0	21.18	21.25	21.38

4.5.8 LTE Band 26

LTE Band 26 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	23.16	23.12	23.25	1	0	23.28	23.33	23.24
	1	2	22.66	22.68	22.79	1	7	22.74	22.81	22.72
	1	5	23.35	23.37	22.89	1	14	23.27	23.25	22.91
	3	0	23.16	23.17	23.38	8	0	22.26	22.24	22.26
	3	1	22.94	23.01	23.06	8	3	21.98	21.94	22.16
	3	3	22.79	22.79	22.97	8	7	21.83	21.81	21.81
	6	0	21.96	22.02	22.21	15	0	22.12	22.06	22.07
16QAM	1	0	22.80	22.83	22.30	1	0	22.91	22.89	22.31
	1	2	22.68	22.66	22.31	1	7	22.72	22.80	22.25
	1	5	22.80	22.79	22.25	1	14	22.75	22.74	22.34
	3	0	22.35	22.33	22.39	8	0	21.14	21.18	21.31
	3	1	22.04	22.07	22.15	8	3	20.99	20.94	21.29
	3	3	21.76	21.73	21.85	8	7	20.80	20.71	20.86
	6	0	20.85	20.83	21.18	15	0	20.77	20.73	21.11
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.37	23.29	23.16	1	0	23.24	23.24	23.22
	1	12	22.64	22.68	22.79	1	24	22.57	22.63	22.68
	1	24	23.31	23.27	23.00	1	49	23.37	23.39	22.88
	12	0	22.14	22.21	22.26	25	0	22.21	22.21	22.31
	12	6	22.10	22.06	21.99	25	12	22.00	21.98	22.00
	12	13	21.71	21.78	21.97	25	25	21.89	21.90	21.97
	25	0	22.12	22.12	22.19	50	0	22.13	22.11	22.09
16QAM	1	0	22.79	22.77	22.37	1	0	22.77	22.80	22.36
	1	12	22.72	22.73	22.32	1	24	22.63	22.71	22.26
	1	24	22.77	22.79	22.42	1	49	22.73	22.71	22.26
	12	0	21.30	21.34	21.29	25	0	21.23	21.17	21.28
	12	6	20.90	20.82	21.22	25	12	20.88	20.95	21.19
	12	13	20.75	20.76	20.90	25	25	20.85	20.86	20.87
	25	0	20.78	20.79	21.19	50	0	20.81	20.87	21.23
Channel Bandwidth: 15 MHz										
QPSK	1	0	23.40	23.37	23.36					
	1	12	22.85	22.77	22.88					
	1	24	23.48	23.43	23.08					
	12	0	22.37	22.31	22.42					
	12	6	22.19	22.17	22.17					
	12	13	21.98	21.96	21.99					
	25	0	22.19	22.14	22.27					
16QAM	1	0	22.99	22.93	22.38					
	1	12	22.87	22.81	22.34					
	1	24	22.87	22.80	22.42					
	12	0	21.43	21.36	21.41					
	12	6	21.09	21.00	21.29					
	12	13	20.94	20.90	20.97					
	25	0	20.94	20.87	21.29					

4.5.9 LTE Band 26 (Part 90S)

LTE Band 26 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	23.21	23.14	23.19	1	0	23.18	23.27	23.33
	1	2	22.91	22.70	22.62	1	7	22.85	22.75	22.75
	1	5	23.56	23.38	23.38	1	14	23.50	23.25	23.26
	3	0	23.35	23.20	23.15	8	0	22.29	22.22	22.22
	3	1	23.02	22.96	23.01	8	3	22.13	21.92	21.91
	3	3	22.99	22.85	22.76	8	7	22.04	21.83	21.87
	6	0	22.16	22.02	21.93	15	0	22.12	22.07	22.12
16QAM	1	0	22.39	22.80	22.81	1	0	22.50	22.85	22.85
	1	2	22.33	22.67	22.65	1	7	22.35	22.76	22.79
	1	5	22.94	22.80	22.80	1	14	22.79	22.74	22.77
	3	0	22.30	22.38	22.29	8	0	21.33	21.19	21.20
	3	1	22.27	21.98	22.04	8	3	21.30	20.94	21.00
	3	3	22.17	21.73	21.73	8	7	21.04	20.73	20.79
	6	0	21.08	20.78	20.80	15	0	21.18	20.77	20.76
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.12	23.30	23.31	1	0	/	23.22	/
	1	12	22.78	22.61	22.68	1	24	/	22.92	/
	1	24	23.65	23.26	23.24	1	49	/	23.50	/
	12	0	22.19	22.19	22.20	25	0	/	22.23	/
	12	6	22.15	22.10	22.11	25	12	/	22.09	/
	12	13	21.91	21.77	21.75	25	25	/	22.00	/
	25	0	22.23	22.08	22.10	50	0	/	22.09	/
16QAM	1	0	22.52	22.84	22.80	1	0	/	22.34	/
	1	12	22.23	22.72	22.73	1	24	/	22.17	/
	1	24	22.82	22.76	22.84	1	49	/	22.88	/
	12	0	21.24	21.35	21.30	25	0	/	21.33	/
	12	6	21.25	20.83	20.89	25	12	/	21.29	/
	12	13	21.06	20.77	20.70	25	25	/	21.09	/
	25	0	21.14	20.72	20.80	50	0	/	21.03	/
Channel Bandwidth: 15 MHz										
QPSK	1	0	23.31	/	/					
	1	37	22.95	/	/					
	1	74	23.67	/	/					
	37	0	22.38	/	/					
	37	19	22.22	/	/					
	37	39	22.07	/	/					
	75	0	22.24	/	/					
16QAM	1	0	22.53	/	/					
	1	37	22.36	/	/					
	1	74	22.96	/	/					
	37	0	21.41	/	/					
	37	19	21.30	/	/					
	37	39	21.21	/	/					
	75	0	21.23	/	/					

4.5.10 LTE Band 38

LTE Band 38 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.58	23.46	23.26	1	0	23.57	23.33	23.32
	1	12	23.18	23.14	22.88	1	24	23.22	23.14	22.98
	1	24	23.38	23.19	23.11	1	49	23.47	23.16	23.10
	12	0	22.43	22.15	22.04	25	0	22.42	22.30	22.00
	12	6	22.47	22.20	21.97	25	12	22.43	22.08	21.94
	12	13	22.41	22.29	22.00	25	25	22.30	22.24	22.02
	25	0	22.42	22.29	21.99	50	0	22.36	22.45	22.08
16QAM	1	0	22.61	22.79	22.53	1	0	22.57	22.77	22.56
	1	12	22.36	22.41	22.06	1	24	22.38	22.37	22.11
	1	24	22.49	22.62	22.26	1	49	22.49	22.55	22.31
	12	0	21.38	21.20	21.05	25	0	21.38	21.26	21.04
	12	6	21.44	21.27	21.11	25	12	21.43	21.12	21.16
	12	13	21.39	21.34	20.95	25	25	21.42	21.31	20.85
	25	0	21.53	21.24	21.22	50	0	21.44	21.37	21.11
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	23.56	23.38	23.22	1	0	23.68	23.51	23.37
	1	37	23.29	23.28	22.86	1	50	23.36	23.29	22.99
	1	74	23.43	23.30	23.27	1	99	23.56	23.34	23.28
	37	0	22.45	22.13	22.04	50	0	22.55	22.31	22.17
	37	19	22.29	22.09	21.98	50	25	22.48	22.28	22.06
	37	39	22.38	22.31	22.02	50	50	22.50	22.34	22.09
	75	0	22.52	22.39	22.00	100	0	22.53	22.45	22.11
16QAM	1	0	22.58	22.64	22.44	1	0	22.76	22.80	22.61
	1	37	22.45	22.32	22.22	1	50	22.54	22.45	22.24
	1	74	22.49	22.49	22.32	1	99	22.66	22.66	22.33
	37	0	21.29	21.34	21.01	50	0	21.47	21.39	21.15
	37	19	21.26	21.11	21.05	50	25	21.44	21.29	21.18
	37	39	21.26	21.17	20.85	50	50	21.45	21.37	21.03
	75	0	21.44	21.27	21.26	100	0	21.58	21.40	21.27

4.5.11 LTE Band 41

LTE Band 41 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.40	23.06	22.67	1	0	23.42	23.21	22.76
	1	12	23.22	22.76	22.59	1	24	23.32	22.87	22.75
	1	24	23.41	23.13	22.74	1	49	23.47	23.32	22.81
	12	0	22.45	22.21	21.91	25	0	22.42	22.19	21.99
	12	6	22.45	22.03	21.92	25	12	22.43	21.96	21.85
	12	13	22.41	22.12	21.86	25	25	22.37	21.99	21.71
	25	0	22.58	22.01	22.03	50	0	22.42	21.94	22.00
16QAM	1	0	22.55	22.39	22.27	1	0	22.60	22.34	22.25
	1	12	22.52	22.12	21.90	1	24	22.36	21.98	21.84
	1	24	22.72	22.34	22.14	1	49	22.69	22.38	21.96
	12	0	21.39	21.21	20.92	25	0	21.46	21.18	21.00
	12	6	21.44	20.99	20.79	25	12	21.44	20.95	20.94
	12	13	21.60	21.02	20.89	25	25	21.51	21.05	20.94
	25	0	21.74	21.06	21.08	50	0	21.69	21.04	21.07
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	23.32	23.21	22.77	1	0	23.48	23.26	22.85
	1	37	23.29	22.72	22.68	1	50	23.40	22.90	22.78
	1	74	23.42	23.16	22.85	1	99	23.55	23.32	22.91
	37	0	22.43	22.09	22.01	50	0	22.54	22.25	22.10
	37	19	22.37	22.01	21.84	50	25	22.50	22.05	21.93
	37	39	22.46	22.06	21.85	50	50	22.55	22.15	21.89
	75	0	22.52	22.02	21.97	100	0	22.62	22.08	22.11
16QAM	1	0	22.66	22.35	22.29	1	0	22.75	22.39	22.32
	1	37	22.41	21.98	21.88	1	50	22.55	22.15	21.97
	1	74	22.72	22.41	22.12	1	99	22.79	22.50	22.14
	37	0	21.46	21.13	21.00	50	0	21.55	21.25	21.09
	37	19	21.49	20.99	20.99	50	25	21.52	21.07	20.99
	37	39	21.42	21.17	20.92	50	50	21.61	21.20	20.94
	75	0	21.65	21.12	20.99	100	0	21.74	21.22	21.18

4.5.12 LTE Band 66

LTE Band 66 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 1.4 MHz						Channel Bandwidth: 3 MHz				
QPSK	1	0	24.02	23.59	23.34	1	0	23.88	23.49	23.26
	1	2	23.54	23.52	23.33	1	7	23.48	23.45	23.28
	1	5	24.20	23.97	23.93	1	14	24.04	23.98	23.80
	3	0	23.88	23.48	23.39	8	0	22.78	22.47	22.49
	3	1	23.80	23.36	23.48	8	3	22.76	22.51	22.42
	3	3	23.89	23.40	23.38	8	7	22.77	22.50	22.52
	6	0	22.72	22.76	22.60	15	0	22.71	22.62	22.55
16QAM	1	0	23.08	23.02	22.90	1	0	23.09	23.02	22.74
	1	2	22.93	22.92	22.54	1	7	22.85	22.98	22.52
	1	5	22.52	22.69	22.64	1	14	22.43	22.71	22.75
	3	0	22.78	22.53	22.36	8	0	21.67	21.64	21.35
	3	1	22.73	22.46	22.45	8	3	21.69	21.53	21.42
	3	3	22.67	22.52	22.68	8	7	21.73	21.54	21.68
	6	0	21.71	21.75	21.34	15	0	21.84	21.58	21.44
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	24.03	23.51	23.33	1	0	23.97	23.53	23.38
	1	12	23.59	23.35	23.33	1	24	23.64	23.38	23.29
	1	24	24.15	23.97	23.89	1	49	24.11	24.13	23.87
	12	0	22.71	22.43	22.50	25	0	22.86	22.40	22.42
	12	6	22.83	22.44	22.38	25	12	22.77	22.44	22.41
	12	13	22.94	22.44	22.41	25	25	22.83	22.41	22.46
	25	0	22.81	22.66	22.54	50	0	22.76	22.75	22.60
16QAM	1	0	23.02	22.95	22.75	1	0	22.97	23.04	22.92
	1	12	22.75	23.02	22.60	1	24	22.76	22.87	22.63
	1	24	22.45	22.55	22.78	1	49	22.43	22.54	22.75
	12	0	21.77	21.68	21.26	25	0	21.65	21.69	21.42
	12	6	21.61	21.51	21.54	25	12	21.70	21.55	21.38
	12	13	21.76	21.43	21.68	25	25	21.69	21.56	21.57
	25	0	21.81	21.63	21.46	50	0	21.67	21.65	21.46
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	23.96	23.58	23.33	1	0	24.04	23.64	23.45
	1	37	23.46	23.49	23.28	1	50	23.66	23.53	23.39
	1	74	24.22	24.13	23.86	1	99	24.23	24.15	23.99
	37	0	22.83	22.55	22.39	50	0	22.91	22.59	22.55
	37	19	22.75	22.46	22.48	50	25	22.86	22.53	22.53
	37	39	22.82	22.49	22.43	50	50	22.97	22.56	22.55
	75	0	22.68	22.74	22.49	100	0	22.87	22.78	22.61
16QAM	1	0	22.95	23.03	22.87	1	0	23.10	23.14	22.92
	1	37	22.92	22.94	22.63	1	50	22.94	23.05	22.67
	1	74	22.57	22.59	22.70	1	99	22.62	22.72	22.82
	37	0	21.73	21.66	21.40	50	0	21.83	21.73	21.46
	37	19	21.57	21.53	21.42	50	25	21.76	21.59	21.55
	37	39	21.75	21.60	21.66	50	50	21.78	21.63	21.72
	75	0	21.66	21.57	21.44	100	0	21.86	21.76	21.51

4.5.13 LTE Band 71

LTE Band 71 Maximum Average Power (dBm)										
Modulation	RB		Test Channel			RB		Test Channel		
	Size	Offset	Low	Mid	High	Size	Offset	Low	Mid	High
Channel Bandwidth: 5 MHz						Channel Bandwidth: 10 MHz				
QPSK	1	0	23.57	23.32	23.83	1	0	23.51	23.34	23.88
	1	12	23.47	24.20	23.49	1	24	23.52	24.23	23.45
	1	24	23.77	23.67	23.85	1	49	23.73	23.83	23.83
	12	0	22.50	22.63	22.77	25	0	22.65	22.60	22.69
	12	6	22.63	22.63	22.55	25	12	22.57	22.63	22.58
	12	13	22.70	22.66	22.72	25	25	22.59	22.63	22.77
	25	0	22.60	22.61	22.71	50	0	22.55	22.70	22.77
16QAM	1	0	22.95	22.86	23.05	1	0	22.90	22.95	23.22
	1	12	22.65	23.10	22.92	1	24	22.66	22.95	22.95
	1	24	23.11	23.22	23.25	1	49	23.09	23.21	23.22
	12	0	21.60	21.66	21.70	25	0	21.48	21.67	21.86
	12	6	21.45	21.59	21.74	25	12	21.54	21.63	21.58
	12	13	21.69	21.66	21.62	25	25	21.62	21.79	21.51
	25	0	21.75	21.75	21.76	50	0	21.61	21.77	21.76
Channel Bandwidth: 15 MHz						Channel Bandwidth: 20 MHz				
QPSK	1	0	23.50	23.39	23.83	1	0	23.58	23.45	23.95
	1	37	23.34	24.34	23.44	1	50	23.54	24.38	23.55
	1	74	23.84	23.83	23.82	1	99	23.85	23.85	23.95
	37	0	22.62	22.75	22.66	50	0	22.70	22.79	22.82
	37	19	22.55	22.65	22.65	50	25	22.66	22.72	22.70
	37	39	22.58	22.71	22.74	50	50	22.73	22.78	22.86
	75	0	22.47	22.69	22.66	100	0	22.66	22.73	22.78
16QAM	1	0	22.88	22.94	23.17	1	0	23.03	23.05	23.22
	1	37	22.82	23.02	22.95	1	50	22.84	23.13	22.99
	1	74	23.23	23.26	23.17	1	99	23.28	23.39	23.29
	37	0	21.56	21.64	21.84	50	0	21.66	21.71	21.90
	37	19	21.41	21.61	21.62	50	25	21.60	21.67	21.75
	37	39	21.68	21.83	21.60	50	50	21.71	21.86	21.66
	75	0	21.60	21.69	21.74	100	0	21.80	21.88	21.81

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
ERP/EIRP	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	5	☒	☒	☒	☒	--	--	☒	☒	☒	☒	☐	☐	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	12	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☐	☐	☒	☒	☒
	17	-	-	☒	☒	-	-	☒	☒	☒	☒	☐	☐	☒	☒	☒
	25	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	26	☒	☒	☒	☒	☒	--	☒	☒	☒	☒	☐	☐	☒	☒	☒
	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	41	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	71	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
Conducted output power	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	5	☒	☒	☒	☒	--	--	☒	☒	☒	☒	☒	☒	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	12	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒
	17	-	-	☒	☒	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒
	25	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	26	☒	☒	☒	☒	☒	--	☒	☒	☒	☒	☒	☒	☒	☒	☒
	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	41	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒
	71	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒

Item	Band	Bandwidth(MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
99%&26dB Bandwidth	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
	5	☒	☒	☒	☒	--	--	☒	☒	☒	☐	☐	☒	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
	12	☒	☒	☒	☒	-	-	☒	☒	☒	☐	☐	☒	☒	☒	☒
	13	-	-	☒	☒	-	-	☒	☒	☒	☐	☐	☒	☒	☒	☒
	25	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
	26	☒	☒	☒	☒	☒	--	☒	☒	☒	☐	☐	☒	☒	☒	☒
	38	-	-	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
	41	-	-	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
	71	-	-	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒	☒
peak-to-average ratio	2	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	4	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	5	☐	☐	☐	☒	--	--	☒	☒	☒	☒	☐	☒	☒	☐	☒
	7	-	-	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	12	☐	☐	☐	☒	-	-	☒	☒	☒	☒	☐	☒	☒	☐	☒
	13	-	-	☐	☒	-	-	☒	☒	☒	☒	☐	☒	☒	☐	☒
	25	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	26	☐	☐	☐	☐	☒	--	☒	☒	☒	☒	☐	☒	☒	☐	☒
	38	-	-	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	41	-	-	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	66	☐	☐	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	71	-	-	☐	☐	☐	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒

Item	Band	Bandwidth(MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Band Edge at antenna terminals	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	5	☒	☒	☒	☒	--	--	☒	☒	☒	☒	☐	☒	☒	☐	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	12	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☐	☒	☒	☐	☒
	13	-	-	☒	☒	-	-	☒	☒	☒	☒	☐	☒	☒	☐	☒
	25	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	26	☒	☒	☒	☒	☒	--	☒	☒	☒	☒	☐	☒	☒	☐	☒
	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	41	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
	71	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☒	☐	☒
Spurious emissions at antenna terminals	2	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	5	☒	☒	☒	☒	--	--	☒	☒	☒	☒	☐	☐	☒	☒	☒
	7	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	12	☒	☒	☒	☒	-	-	☒	☒	☒	☒	☐	☐	☒	☒	☒
	13	-	-	☒	☒	-	-	☒	☒	☒	☒	☐	☐	☒	☒	☒
	25	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	26	☒	☒	☒	☒	☒	--	☒	☒	☒	☒	☐	☐	☒	☒	☒
	38	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	41	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒
	71	-	-	☒	☒	☒	☒	☒	☒	☒	☒	☐	☐	☒	☒	☒

Item	Band	Bandwidth(MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Field strength of spurious radiation	2	☐	☐	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
	4	☐	☐	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
	5	☐	☐	☐	☒	--	--	☒	☐	☐	☒	☐	☐	☒	☒	☒
	7	-	-	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
	12	☐	☐	☐	☒	-	-	☒	☐	☐	☒	☐	☐	☒	☒	☒
	13	-	-	☐	☒	-	-	☒	☐	☐	☒	☐	☐	☒	☒	☒
	25	☐	☐	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
	26	☐	☐	☐	☐	☒	--	☒	☐	☐	☒	☐	☐	☒	☒	☒
	38	-	-	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
	41	-	-	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
	66	☐	☐	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
	71	-	-	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☒	☒
Frequency stability	2	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐
	4	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐
	5	☐	☐	☐	☒	--	--	☒	☐	☐	☐	☐	☒	☐	☒	☐
	7	-	-	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐
	12	☐	☐	☐	☒	-	-	☒	☐	☐	☐	☐	☒	☐	☒	☐
	13	-	-	☐	☒	-	-	☒	☐	☐	☐	☐	☒	☐	☒	☐
	25	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐
	26	☐	☐	☐	☐	☒	--	☒	☐	☐	☐	☐	☒	☐	☒	☐
	38	-	-	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐
	41	-	-	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐
	66	☐	☐	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐
	71	-	-	☐	☐	☐	☒	☒	☐	☐	☐	☐	☒	☐	☒	☐

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	FCC 47 CFR Part 90	Private Land Mobile Radio Services
6	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
7	KDB 971168 D01	KDB 971168 D01 Power Meas License Digital Systems v03r01

5.2 ERP OR EIRP

Test Requirement: FCC 47 CFR Part 2.1046(a)
LTE Band 2 & LTE Band 25: FCC 47 CFR Part 24.232(c)
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.50(d)(4)
LTE Band 5 & LTE Band 26: FCC 47 CFR Part 22.913(a)
LTE Band 7 & Band 38 & Band 41: FCC 47 CFR Part 27.50(h)(2)
LTE Band 12 & Band 71: FCC 47 CFR Part 27.50(c)(10)
LTE Band 13: FCC 47 CFR Part 27.50(b)(10)
LTE Band 26: FCC 47 CFR Part 90.635

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.

FCC 47 CFR Part 90.635:
(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.
(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).
Table—Equivalent Power and Antenna Heights for Base Stations in the 851–869 MHz and 935–940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

Antenna height (ATT) meters (feet)	Effective radiated power (watts)[1 2 4]
Above 1,372 (4,500)	65
Above 1,220 (4,000) to 1,372 (4,500)	70
Above 1,067 (3,500) to 1,220 (4,000)	75
Above 915 (3,000) to 1,067 (3,500)	100
Above 763 (2,500) to 915 (3,000)	140
Above 610 (2,000) to 763 (2,500)	200
Above 458 (1,500) to 610 (2,000)	350
Above 305 (1,000) to 458 (1,500)	600
Up to 305 (1,000)	[3]1,000

1. Power is given in terms of effective radiated power (ERP).
2. Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.
3. Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).
4. Licensees in San Diego, CA, will be permitted to utilize an ERP of 500 watts at the following mountaintop sites: Palomar, Otay, Woodson and Miguel.

Test Procedure:

$$\textbf{ERP or EIRP} = P_{Meas} + G_T - L_C$$

where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

1) 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

5.2.1 LTE Band 2

LTE Band 2 Maximum EIRP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 1.4MHz					
Lowest	17.96	17.08	/	33.01	Pass
Middle	18.38	17.49	/	33.01	Pass
Highest	18.16	17.35	/	33.01	Pass
Channel Bandwidth: 3MHz					
Lowest	17.94	17.13	/	33.01	Pass
Middle	18.36	17.49	/	33.01	Pass
Highest	18.23	17.47	/	33.01	Pass
Channel Bandwidth: 5MHz					
Lowest	18.00	17.22	/	33.01	Pass
Middle	18.39	17.42	/	33.01	Pass
Highest	18.25	17.30	/	33.01	Pass
Channel Bandwidth: 10MHz					
Lowest	18.06	17.23	/	33.01	Pass
Middle	18.27	17.46	/	33.01	Pass
Highest	18.23	17.47	/	33.01	Pass
Channel Bandwidth: 15MHz					
Lowest	18.08	17.18	/	33.01	Pass
Middle	18.25	17.44	/	33.01	Pass
Highest	18.25	17.39	/	33.01	Pass
Channel Bandwidth: 20MHz					
Lowest	18.11	17.25	/	33.01	Pass
Middle	18.39	17.53	/	33.01	Pass
Highest	18.30	17.49	/	33.01	Pass

5.2.2 LTE Band 4

LTE Band 4 Maximum EIRP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 1.4MHz					
Lowest	19.73	18.85	/	30.00	Pass
Middle	19.81	18.97	/	30.00	Pass
Highest	19.97	18.88	/	30.00	Pass
Channel Bandwidth: 3MHz					
Lowest	19.90	18.92	/	30.00	Pass
Middle	20.01	19.06	/	30.00	Pass
Highest	19.74	18.90	/	30.00	Pass
Channel Bandwidth: 5MHz					
Lowest	19.77	18.96	/	30.00	Pass
Middle	19.88	19.06	/	30.00	Pass
Highest	19.96	18.87	/	30.00	Pass
Channel Bandwidth: 10MHz					
Lowest	19.94	18.94	/	30.00	Pass
Middle	19.89	19.01	/	30.00	Pass
Highest	19.63	18.94	/	30.00	Pass
Channel Bandwidth: 15MHz					
Lowest	19.59	18.84	/	30.00	Pass
Middle	19.83	19.03	/	30.00	Pass
Highest	20.01	18.90	/	30.00	Pass
Channel Bandwidth: 20MHz					
Lowest	20.02	19.01	/	30.00	Pass
Middle	20.05	19.07	/	30.00	Pass
Highest	19.77	19.00	/	30.00	Pass

5.2.3 LTE Band 5

LTE Band 5 Maximum ERP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 1.4MHz					
Lowest	14.31	13.52	/	38.45	Pass
Middle	13.98	13.61	/	38.45	Pass
Highest	14.42	13.50	/	38.45	Pass
Channel Bandwidth: 3MHz					
Lowest	14.51	13.49	/	38.45	Pass
Middle	14.35	13.59	/	38.45	Pass
Highest	14.19	13.67	/	38.45	Pass
Channel Bandwidth: 5MHz					
Lowest	14.33	13.59	/	38.45	Pass
Middle	14.39	13.58	/	38.45	Pass
Highest	14.28	13.63	/	38.45	Pass
Channel Bandwidth: 10MHz					
Lowest	14.53	13.65	/	38.45	Pass
Middle	14.41	13.64	/	38.45	Pass
Highest	14.35	13.70	/	38.45	Pass

5.2.4 LTE Band 7

LTE Band 7 Maximum EIRP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 5MHz					
Lowest	18.11	17.24	/	33.01	Pass
Middle	16.93	16.93	/	33.01	Pass
Highest	17.43	16.06	/	33.01	Pass
Channel Bandwidth: 10MHz					
Lowest	18.21	17.21	/	33.01	Pass
Middle	17.09	16.90	/	33.01	Pass
Highest	17.50	16.02	/	33.01	Pass
Channel Bandwidth: 15MHz					
Lowest	18.20	17.23	/	33.01	Pass
Middle	16.98	16.79	/	33.01	Pass
Highest	17.38	16.16	/	33.01	Pass
Channel Bandwidth: 20MHz					
Lowest	18.24	17.34	/	33.01	Pass
Middle	17.11	16.97	/	33.01	Pass
Highest	17.58	16.19	/	33.01	Pass

5.2.5 LTE Band 12

LTE Band 12 Maximum ERP (dBm)					
Channel	**QPSK; RB:1**	**16QAM; RB:1**	**64QAM; RB:1**	**Limit (dBm)**	**Result**
Channel Bandwidth: 1.4MHz					
Lowest	11.21	10.04	/	34.77	Pass
Middle	11.36	10.31	/	34.77	Pass
Highest	11.24	10.56	/	34.77	Pass
Channel Bandwidth: 3MHz					
Lowest	10.67	10.02	/	34.77	Pass
Middle	11.10	10.28	/	34.77	Pass
Highest	11.03	10.34	/	34.77	Pass
Channel Bandwidth: 5MHz					
Lowest	10.70	10.02	/	34.77	Pass
Middle	11.11	10.20	/	34.77	Pass
Highest	11.12	10.34	/	34.77	Pass
Channel Bandwidth: 10MHz					
Lowest	10.82	10.08	/	34.77	Pass
Middle	11.16	10.30	/	34.77	Pass
Highest	11.20	10.38	/	34.77	Pass

5.2.6 LTE Band 13

LTE Band 13 Maximum ERP (dBm)					
Channel	**QPSK; RB:1**	**16QAM; RB:1**	**64QAM; RB:1**	**Limit (dBm)**	**Result**
Channel Bandwidth: 5MHz					
Lowest	12.66	11.71	/	34.77	Pass
Middle	12.79	11.77	/	34.77	Pass
Highest	12.64	11.65	/	34.77	Pass
Channel Bandwidth: 10MHz					
Lowest	/	/	/	34.77	Pass
Middle	12.80	11.80	/	34.77	Pass
Highest	/	/	/	34.77	Pass

5.2.7 LTE Band 25

LTE Band 25 Maximum EIRP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 1.4MHz					
Lowest	18.15	17.09	/	33.01	Pass
Middle	18.40	17.33	/	33.01	Pass
Highest	18.40	18.26	/	33.01	Pass
Channel Bandwidth: 3MHz					
Lowest	18.14	17.08	/	33.01	Pass
Middle	18.39	17.27	/	33.01	Pass
Highest	18.44	17.40	/	33.01	Pass
Channel Bandwidth: 5MHz					
Lowest	18.19	17.22	/	33.01	Pass
Middle	18.44	17.44	/	33.01	Pass
Highest	18.46	17.39	/	33.01	Pass
Channel Bandwidth: 10MHz					
Lowest	18.24	17.23	/	33.01	Pass
Middle	18.43	17.32	/	33.01	Pass
Highest	18.37	17.39	/	33.01	Pass
Channel Bandwidth: 15MHz					
Lowest	18.14	17.10	/	33.01	Pass
Middle	18.32	17.36	/	33.01	Pass
Highest	18.39	17.42	/	33.01	Pass
Channel Bandwidth: 20MHz					
Lowest	18.30	17.26	/	33.01	Pass
Middle	18.47	17.47	/	33.01	Pass
Highest	18.56	17.46	/	33.01	Pass

5.2.8 LTE Band 26

LTE Band 26 Maximum ERP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 1.4MHz					
Lowest	14.54	14.18	/	38.45	Pass
Middle	14.55	14.21	/	38.45	Pass
Highest	14.76	13.68	/	38.45	Pass
Channel Bandwidth: 3MHz					
Lowest	14.66	14.29	/	38.45	Pass
Middle	14.71	14.27	/	38.45	Pass
Highest	14.62	13.69	/	38.45	Pass
Channel Bandwidth: 5MHz					
Lowest	14.75	14.17	/	38.45	Pass
Middle	14.67	14.15	/	38.45	Pass
Highest	14.54	13.75	/	38.45	Pass
Channel Bandwidth: 10MHz					
Lowest	14.75	14.15	/	38.45	Pass
Middle	14.77	14.18	/	38.45	Pass
Highest	14.26	13.74	/	38.45	Pass
Channel Bandwidth: 15MHz					
Lowest	14.86	14.37	/	38.45	Pass
Middle	14.81	14.31	/	38.45	Pass
Highest	14.46	13.76	/	38.45	Pass

5.2.9 LTE Band 26 (Part 90S)

LTE Band 26 Maximum ERP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 1.4MHz					
Lowest	14.94	14.32	/	50	Pass
Middle	14.76	14.18	/	50	Pass
Highest	14.76	14.18	/	50	Pass
Channel Bandwidth: 3MHz					
Lowest	14.88	13.88	/	50	Pass
Middle	14.63	14.23	/	50	Pass
Highest	14.64	14.23	/	50	Pass
Channel Bandwidth: 5MHz					
Lowest	15.03	14.20	/	50	Pass
Middle	14.64	14.14	/	50	Pass
Highest	14.62	14.22	/	50	Pass
Channel Bandwidth: 10MHz					
Middle	14.88	14.26	/	50	Pass
Channel Bandwidth: 15MHz					
Lowest	15.05	14.34	/	50	Pass

5.2.10 LTE Band 38

LTE Band 38 Maximum EIRP (dBm)					
Channel	**QPSK; RB:1**	**16QAM; RB:1**	**64QAM; RB:1**	**Limit (dBm)**	**Result**
Channel Bandwidth: 5MHz					
Lowest	17.42	16.45	/	33.01	Pass
Middle	17.30	16.63	/	33.01	Pass
Highest	17.10	16.37	/	33.01	Pass
Channel Bandwidth: 10MHz					
Lowest	17.41	16.41	/	33.01	Pass
Middle	17.17	16.61	/	33.01	Pass
Highest	17.16	16.40	/	33.01	Pass
Channel Bandwidth: 15MHz					
Lowest	17.40	16.42	/	33.01	Pass
Middle	17.22	16.48	/	33.01	Pass
Highest	17.06	16.28	/	33.01	Pass
Channel Bandwidth: 20MHz					
Lowest	17.52	16.60	/	33.01	Pass
Middle	17.35	16.64	/	33.01	Pass
Highest	17.21	16.45	/	33.01	Pass

5.2.11 LTE Band 41

LTE Band 41 Maximum EIRP (dBm)					
Channel	**QPSK; RB:1**	**16QAM; RB:1**	**64QAM; RB:1**	**Limit (dBm)**	**Result**
Channel Bandwidth: 5MHz					
Lowest	19.08	18.39	/	33.01	Pass
Middle	18.80	18.01	/	33.01	Pass
Highest	18.41	17.81	/	33.01	Pass
Channel Bandwidth: 10MHz					
Lowest	19.14	18.36	/	33.01	Pass
Middle	18.99	18.05	/	33.01	Pass
Highest	18.48	17.63	/	33.01	Pass
Channel Bandwidth: 15MHz					
Lowest	19.09	18.39	/	33.01	Pass
Middle	18.83	18.08	/	33.01	Pass
Highest	18.52	17.79	/	33.01	Pass
Channel Bandwidth: 20MHz					
Lowest	19.22	18.46	/	33.01	Pass
Middle	18.99	18.17	/	33.01	Pass
Highest	18.58	17.81	/	33.01	Pass

5.2.12 LTE Band 66

LTE Band 66 Maximum EIRP (dBm)					
Channel	QPSK; RB:1	16QAM; RB:1	64QAM; RB:1	Limit (dBm)	Result
Channel Bandwidth: 1.4MHz					
Lowest	20.99	19.87	/	30.00	Pass
Middle	20.76	19.81	/	30.00	Pass
Highest	20.72	19.69	/	30.00	Pass
Channel Bandwidth: 3MHz					
Lowest	20.83	19.88	/	30.00	Pass
Middle	20.77	19.81	/	30.00	Pass
Highest	20.59	19.53	/	30.00	Pass
Channel Bandwidth: 5MHz					
Lowest	20.94	19.81	/	30.00	Pass
Middle	20.76	19.74	/	30.00	Pass
Highest	20.68	19.54	/	30.00	Pass
Channel Bandwidth: 10MHz					
Lowest	20.90	19.76	/	30.00	Pass
Middle	20.92	19.83	/	30.00	Pass
Highest	20.66	19.71	/	30.00	Pass
Channel Bandwidth: 15MHz					
Lowest	21.01	19.74	/	30.00	Pass
Middle	20.92	19.82	/	30.00	Pass
Highest	20.65	19.66	/	30.00	Pass
Channel Bandwidth: 20MHz					
Lowest	21.02	19.89	/	30.00	Pass
Middle	20.94	19.93	/	30.00	Pass
Highest	20.78	19.71	/	30.00	Pass

5.2.13 LTE 71

LTE Band 71 Maximum ERP (dBm)					
Channel	**QPSK; RB:1**	**16QAM; RB:1**	**64QAM; RB:1**	**Limit (dBm)**	**Result**
Channel Bandwidth: 5MHz					
Lowest	11.13	10.77	/	33.01	Pass
Middle	11.86	10.88	/	33.01	Pass
Highest	11.15	10.91	/	33.01	Pass
Channel Bandwidth: 10MHz					
Lowest	11.18	10.56	/	33.01	Pass
Middle	11.89	10.61	/	33.01	Pass
Highest	11.11	10.88	/	33.01	Pass
Channel Bandwidth: 15MHz					
Lowest	11.00	10.89	/	33.01	Pass
Middle	12.00	10.92	/	33.01	Pass
Highest	11.10	10.83	/	33.01	Pass
Channel Bandwidth: 20MHz					
Lowest	11.20	10.94	/	33.01	Pass
Middle	12.04	11.05	/	33.01	Pass
Highest	11.21	10.95	/	33.01	Pass

5.3 CONDUCTED OUTPUT POWER

Test Requirement:
FCC 47 CFR Part 2.1046(a)
LTE Band 2 & LTE Band 25: FCC 47 CFR Part 24.232(c)
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.50(d)(4)
LTE Band 5 & LTE Band 26: FCC 47 CFR Part 22.913(a)
LTE Band 7 & Band 38 & Band 41: FCC 47 CFR Part 27.50(h)(2)
LTE Band 12 & Band 71: FCC 47 CFR Part 27.50(c)(10)
LTE Band 13: FCC 47 CFR Part 27.50(b)(10)
LTE Band 26: FCC 47 CFR Part 90.635

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.

FCC 47 CFR Part 90.635:
(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.
(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).
Table—Equivalent Power and Antenna Heights for Base Stations in the 851–869 MHz and 935–940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

Antenna height (ATT) meters (feet)	Effective radiated power (watts)[1 2 4]
Above 1,372 (4,500)	65
Above 1,220 (4,000) to 1,372 (4,500)	70
Above 1,067 (3,500) to 1,220 (4,000)	75
Above 915 (3,000) to 1,067 (3,500)	100
Above 763 (2,500) to 915 (3,000)	140
Above 610 (2,000) to 763 (2,500)	200
Above 458 (1,500) to 610 (2,000)	350
Above 305 (1,000) to 458 (1,500)	600
Up to 305 (1,000)	[3]1,000

1. Power is given in terms of effective radiated power (ERP).
2. Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe

areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.

3. Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).
4. Licensees in San Diego, CA, will be permitted to utilize an ERP of 500 watts at the following mountaintop sites: Palomar, Otay, Woodson and Miguel.

Test Procedure:

The EUT was set up for the maximum power with 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
Test Data:	The full result refer to section 4.5 for details.

5.4 PEAK-TO-AVERAGE RATIO

Test Requirement:
LTE Band 2 & LTE Band 25: FCC 47 CFR Part 24.232(d)
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.50(d)(5)
LTE Band 5 & LTE Band 26: FCC 47 CFR Part 22.913(a)
LTE Band 7 & Band 38 & Band 41: 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 Method: KDB 971168 D01v03r01 Section 5.7

Limit: 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 ≥ 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: See table below

5.4.1 LTE Band 2

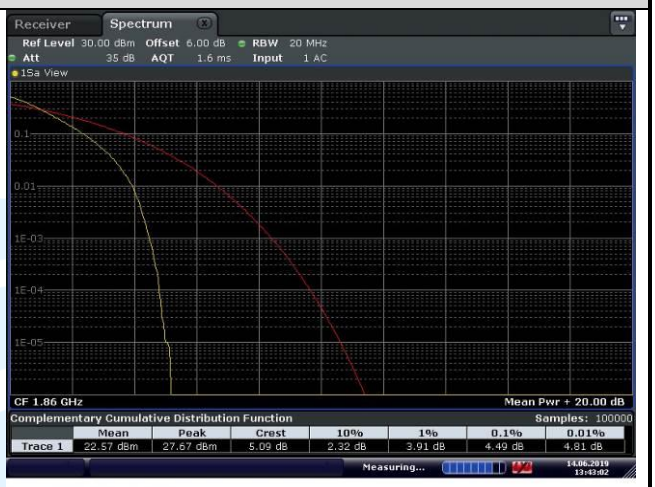
LTE Band 2 Peak-to-average ratio (dB)						
Channel	RB Configuration	Channel Bandwidth: 20 MHz			Limit (dB)	Result
		QPSK	16QAM	64QAM		
Lowest	1 RB	2.64	2.61	/	13	Pass
	Full RB	4.41	4.49	/	13	Pass
Middle	1 RB	2.67	2.61	/	13	Pass
	Full RB	3.94	3.97	/	13	Pass
Highest	1 RB	3.28	3.28	/	13	Pass
	Full RB	4.06	4.03	/	13	Pass

LTE Band 2 / 20 MHz / QPSK	
1 RB	**Full RB**
Lowest Channel	
Middle Channel	
Highest Channel	

LTE Band 2 / 20 MHz / 16QAM

1 RB	Full RB

Lowest Channel



Middle Channel

Highest Channel

5.4.2 LTE Band 4

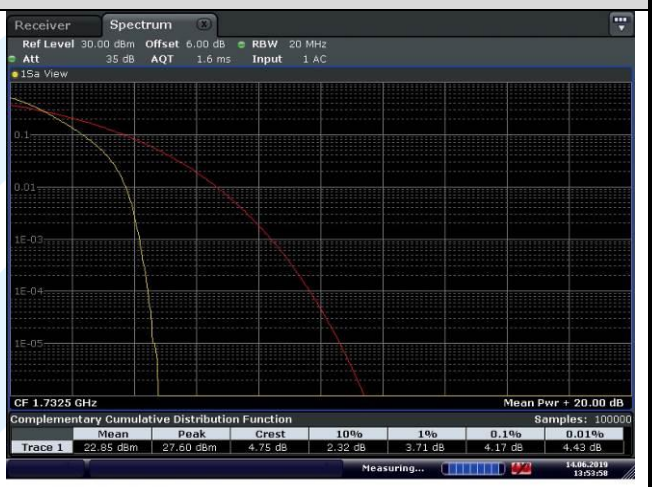
LTE Band 4 Peak-to-average ratio (dB)						
Channel	RB Configuration	Channel Bandwidth: 20 MHz			Limit (dB)	Result
		QPSK	16QAM	64QAM		
Lowest	1 RB	2.93	2.99	/	13	Pass
	Full RB	4.35	4.29	/	13	Pass
Middle	1 RB	3.42	3.42	/	13	Pass
	Full RB	4.17	4.17	/	13	Pass
Highest	1 RB	3.36	3.36	/	13	Pass
	Full RB	4.23	3.80	/	13	Pass

LTE Band 4 / 20MHz / QPSK

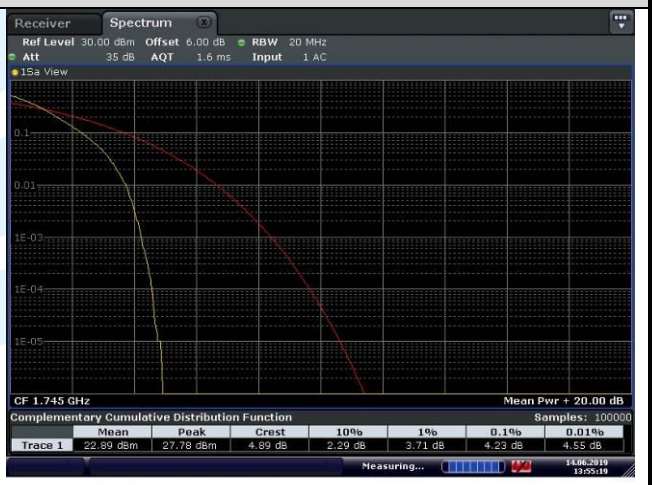
1 RB	Full RB

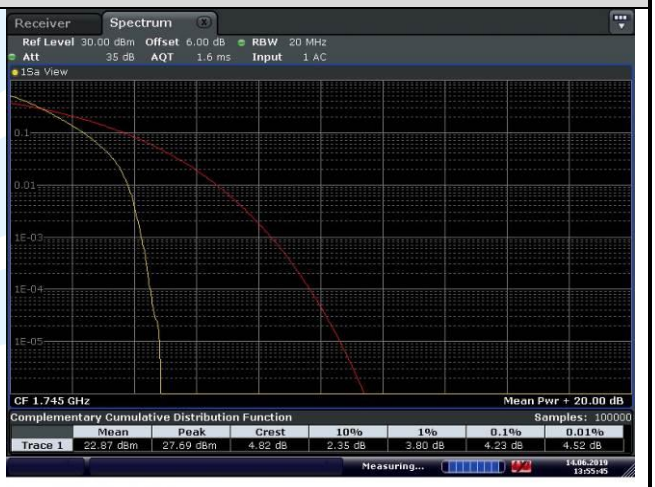
Lowest Channel

Middle Channel



Highest Channel



LTE Band 4 / 20MHz / 16QAM	
1 RB	Full RB
Lowest Channel	
Middle Channel	
Highest Channel	
	

5.4.3 LTE Band 5

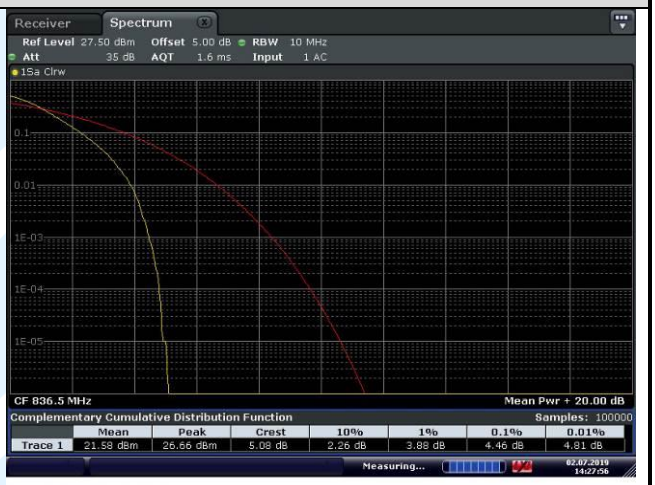
LTE Band 5 Peak-to-average ratio (dB)						
Channel	RB Configuration	Channel Bandwidth: 10 MHz			Limit (dB)	Result
		QPSK	16QAM	64QAM		
Lowest	1 RB	3.77	4.84	/	13	Pass
	Full RB	4.93	5.97	/	13	Pass
Middle	1 RB	2.99	3.71	/	13	Pass
	Full RB	4.46	5.39	/	13	Pass
Highest	1 RB	4.06	4.67	/	13	Pass
	Full RB	4.87	5.91	/	13	Pass

LTE Band 5 / 10 MHz / QPSK

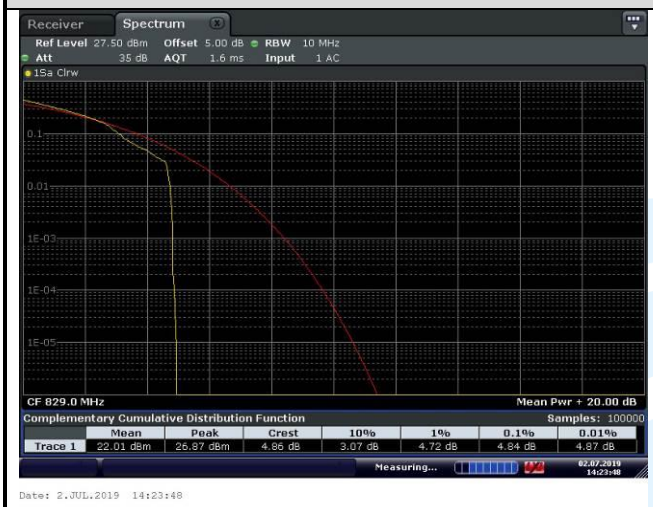
1 RB	Full RB

Lowest Channel

Middle Channel



Highest Channel

LTE Band 5 / 10 MHz / 16QAM	
1 RB	Full RB
Lowest Channel	
	
Middle Channel	
Highest Channel	

5.4.4 LTE Band 7

LTE Band 7 Peak-to-average ratio (dB)						
Channel	RB Configuration	Channel Bandwidth: 20 MHz			Limit (dB)	Result
		QPSK	16QAM	64QAM		
Lowest	1 RB	3.01	3.80	/	13	Pass
	Full RB	3.57	5.30	/	13	Pass
Middle	1 RB	3.19	3.97	/	13	Pass
	Full RB	3.74	5.51	/	13	Pass
Highest	1 RB	3.22	3.97	/	13	Pass
	Full RB	3.62	5.33	/	13	Pass