TEST REPORT

Product Name:	Global LTE Cat.M1/LTE Cat.NB2 Data-Only Module
Trade Mark:	CINTERION
Model No. / HVIN:	EXS62-W
Report Number:	191019009RFM-2R1
Test Standards:	FCC 47 CFR Part 22 FCC 47 CFR Part 24 FCC 47 CFR Part 27 FCC 47 CFR Part 90 RSS-130 Issue 2, RSS-132 Issue 3 RSS-133 Issue 6, RSS-139 Issue 3 RSS-Gen Issue 5
FCC ID:	QIPEXS62-W
IC:	7830A-EXS62W
Test Result:	PASS
Date of Issue:	August 30, 2021

Prepared for:

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Date: August 30, 2021

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Version

Version No.	Date	Description
V1.0	December 21, 2019	Original (Report No. : 191019009RFM-2)
V1.1	August 30, 2021	1. About the requirements of the test report in Chapter 6.3 of RSS-Gen Issue 5. For equipment certification, the test report shall not be dated more than 12 months before the application for equipment certification is submitted. So update the report release date. 2. Change applicant information.

Note: This report will supersede the original report no. : 191019009RFM-2 dated December 21, 2019.

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	THALES DIS AIS Deutschland GmbH
Address of Applicant:	Siemensdamm 50 Berlin, 13629 Germany
Manufacturer:	THALES DIS AIS Deutschland GmbH
Address of Manufacturer:	Siemensdamm 50 Berlin, 13629 Germany

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	Global LTE Cat.M1/LTE Cat.NB2 Data-Only Module	
Model No.:	EXS62-W(See Note)	
Trade Mark:	CINTERION	
DUT Stage:	Identical Prototype	
EUT Supports Function:	E-UTRA Bands:	Band 2/ Band 4/ Band 5/ Band 12/ Band 13/ Band 25/ Band 26/ Band 66
Sample Received Date:	September 19, 2019	
Sample Tested Date:	September 19, 2019 to December 2, 2019	
Note: This product EXS62-W has two forms of SIM and ESIM.		

1.2.2 Description of Accessories

None.

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Support Networks:	LTE	
Type of Modulation:	LTE Band 2/4/5/12/13/25/26/66:	QPSK, 16QAM
Antenna Type:	External Antenna	
Antenna Gain:	LTE Band 2:	2.17 dBi
	LTE Band 4:	2.17 dBi
	LTE Band 5:	5.17 dBi
	LTE Band 12:	3.17 dBi
	LTE Band 13:	3.17 dBi
	LTE Band 25:	2.17 dBi
	LTE Band 26:	5.17 dBi
	LTE Band 66:	2.17 dBi
Normal Test Voltage:	3.8 Vdc	
Extreme Test Voltage:	2.8 to 4.6Vdc	
Extreme Test Temperature:	-40 °C to +70 °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	21.37	23.54	0.226	1.11	1M11G7D
		16QAM		20.15	22.32	0.171	1.28	1M28W7D
	3	QPSK	1851.5-1908.5	21.07	23.24	0.211	1.13	1M13G7D
		16QAM		19.90	22.08	0.161	1.87	1M87W7D
	5	QPSK	1852.5-1907.5	21.32	23.79	0.239	1.13	1M13G7D
		16QAM		21.77	23.94	0.248	0.97	970KW7D
	10	QPSK	1855.0-1905.0	21.11	23.28	0.213	1.12	1M12G7D
		16QAM		21.04	23.18	0.208	0.99	990KW7D
	15	QPSK	1857.5-1902.5	21.47	23.26	0.212	1.15	1M15G7D
		16QAM		21.54	23.22	0.210	0.99	990KW7D
	20	QPSK	1860.0-1900.0	21.55	23.72	0.236	1.15	1M15G7D
		16QAM		21.75	23.92	0.247	0.99	990KW7D
4	1.4	QPSK	1710.7-1754.3	21.26	23.43	0.220	1.11	1M11G7D
		16QAM		20.55	22.72	0.187	0.99	990KW7D
	3	QPSK	1711.5-1753.5	21.23	23.51	0.224	1.13	1M13G7D
		16QAM		20.40	22.57	0.181	0.98	980KW7D
	5	QPSK	1712.5-1752.5	21.26	23.43	0.220	1.13	1M13G7D
		16QAM		21.33	23.50	0.224	1.00	1M00W7D
	10	QPSK	1715-1750	21.25	23.42	0.220	1.12	1M12G7D
		16QAM		21.34	23.51	0.224	0.94	940KW7D
	15	QPSK	1717.5-1747.5	21.18	23.35	0.216	1.15	1M15G7D
		16QAM		21.26	23.43	0.220	0.96	960KW7D
	20	QPSK	1720-1745	21.80	23.97	0.249	1.15	1M15G7D
		16QAM		21.25	23.42	0.220	0.99	990KW7D
5	1.4	QPSK	824.7-848.3	21.14	24.16	0.261	1.12	1M12G7D
		16QAM		21.01	24.03	0.253	0.95	950KW7D
	3	QPSK	825.5-847.5	21.40	24.42	0.277	1.12	1M12G7D
		16QAM		20.55	23.57	0.228	0.95	950KW7D
	5	QPSK	826.5-846.5	21.43	24.45	0.279	1.12	1M12G7D
		16QAM		21.41	24.43	0.277	0.97	970KW7D
	10	QPSK	829-844	21.41	24.43	0.277	1.12	1M12G7D
		16QAM		21.59	24.49	0.281	0.99	990KW7D
12	1.4	QPSK	699.7-715.3	21.02	22.04	0.160	1.11	1M11G7D
		16QAM		20.67	21.69	0.148	0.95	950KW7D
	3	QPSK	700.5-714.5	21.41	22.43	0.175	1.12	1M12G7D
		16QAM		20.56	21.58	0.144	0.96	960KW7D
	5	QPSK	701.5-713.5	21.44	22.46	0.176	1.13	1M13G7D
		16QAM		21.42	22.44	0.175	0.97	970KW7D

	10	QPSK	704-711	21.09	22.11	0.163	1.12	1M12G7D
		16QAM		21.34	22.36	0.172	0.99	990KW7D

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	21.40	22.42	0.175	1.13	1M13G7D
		16QAM		21.42	22.44	0.175	0.97	970KW7D
	10	QPSK	782-782	21.09	22.09	0.162	1.12	1M12G7D
		16QAM		21.31	22.15	0.164	0.99	990KW7D
25	1.4	QPSK	1850.7-1914.3	21.11	23.28	0.213	1.12	1M12G7D
		16QAM		20.57	22.74	0.188	0.95	950KW7D
	3	QPSK	1851.5-1913.5	21.42	23.59	0.229	1.13	1M13G7D
		16QAM		20.57	22.74	0.188	0.96	960KW7D
	5	QPSK	1852.5-1912.5	21.47	23.64	0.231	1.13	1M13G7D
		16QAM		21.43	23.60	0.229	0.96	960KW7D
	10	QPSK	1855.0-1910.0	21.08	23.25	0.211	1.13	1M13G7D
		16QAM		21.36	23.53	0.225	0.96	960KW7D
	15	QPSK	1857.5-1907.5	21.18	23.35	0.216	1.13	1M13G7D
		16QAM		21.15	23.29	0.213	1.01	1M01W7D
	20	QPSK	1860.0-1905.0	21.35	23.68	0.233	1.12	1M12G7D
		16QAM		21.36	23.60	0.229	1.03	1M03W7D
26	1.4	QPSK	824.7-848.3	21.07	24.09	0.256	1.12	1M12G7D
		16QAM		19.90	22.92	0.196	0.96	960KW7D
	3	QPSK	825.5-847.5	21.18	24.20	0.263	1.12	1M12G7D
		16QAM		21.26	24.28	0.268	0.95	950KW7D
	5	QPSK	826.5-846.5	21.62	24.64	0.291	1.13	1M13G7D
		16QAM		21.77	24.79	0.301	0.97	970KW7D
	10	QPSK	829-844	21.10	24.12	0.258	1.12	1M12G7D
		16QAM		21.04	24.03	0.253	0.98	980KW7D
	15	QPSK	831.5-841.5	21.92	24.94	0.312	1.15	1M15G7D
		16QAM		21.86	23.27	0.212	0.99	990KW7D
26 (Part 90S)	1.4	QPSK	814.7-823.3	21.40	24.42	0.277	1.11	1M11G7D
		16QAM		21.42	24.44	0.278	0.99	990KW7D
	3	QPSK	815.5-822.5	21.41	24.43	0.277	1.12	1M12G7D
		16QAM		21.59	24.49	0.281	1.00	1M00W7D
	5	QPSK	816.5-821.5	21.40	24.42	0.277	1.13	1M13G7D
		16QAM		21.42	24.44	0.278	0.97	970KW7D
	10	QPSK	819	21.46	24.48	0.281	1.14	1M14G7D
		16QAM		21.57	24.59	0.288	0.98	980KW7D

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
66	1.4	QPSK	1710.7-1779.3	21.15	23.32	0.215	1.11	1M11G7D
		16QAM		20.14	22.31	0.170	0.95	950KW7D
	3	QPSK	1711.5-1778.5	21.09	23.26	0.212	1.12	1M12G7D
		16QAM		19.97	22.14	0.164	0.96	960KW7D
	5	QPSK	1712.5-1777.5	20.62	23.21	0.209	1.12	1M12G7D
		16QAM		20.33	22.50	0.178	0.96	960KW7D
	10	QPSK	1715-1775	21.11	23.28	0.213	1.12	1M12G7D
		16QAM		21.04	23.19	0.208	0.99	990KW7D
	15	QPSK	1717.5-1772.5	21.06	23.28	0.213	1.13	1M13G7D
		16QAM		21.05	23.22	0.210	1.01	1M01W7D
	20	QPSK	1720-1770	21.17	23.34	0.216	1.12	1M12G7D
		16QAM		21.35	23.52	0.225	1.03	1M03W7D

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
Antenna	SMARTEQ	MiniMag	--	Applicant
Adapter	Lenovo	HKA02412020-3K	N/A	Applicant
PCB board	N/A	W30880-Q9812-X-2	N/A	Applicant

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: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua 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 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 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 &	ANSI C63.26-2015 &	PASS

	FCC 47 CFR Part 22.355	KDB 971168 D01v03r01	
FCC 47 CFR Part 27 Test Cases (LTE Band 12)			
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

RSS-130 Issue 2 Test Cases (LTE Band 12 & 13)			
Test Item	**Test Requirement**	**Test Method**	**Result**
Effective Radiated Power (ERP)	RSS-130 Issue 2, Section 4.6	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	RSS-130 Issue 2, Section 4.6	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	RSS-130 Issue 2, Section 4.6	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	RSS-Gen Issue 5, Section 6.7	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	RSS-130 Issue 2, Section 4.7	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	RSS-130 Issue 2, Section 4.7	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	RSS-130 Issue 2, Section 4.7	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	RSS-130 Issue 2, Section 4.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

RSS-132 Issue 3 Test Cases (Band 5)			
Test Item	**Test Requirement**	**Test Method**	**Result**
Effective Radiated Power (ERP)	RSS-132 Issue 3, Section 5.4	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	RSS-132 Issue 3, Section 5.4	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	RSS-132 Issue 3, Section 5.4	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	RSS-Gen Issue 5, Section 6.7	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	RSS-132 Issue 3, Section 5.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	RSS-132 Issue 3, Section 5.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	RSS-132 Issue 3, Section 5.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	RSS-132 Issue 3, Section 5.3	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

RSS-133 Issue 6 Test Cases (Band 2 & Band 25)			
Test Item	**Test Requirement**	**Test Method**	**Result**
Equivalent Isotropic Radiated Power (EIRP)	RSS-133 Issue 6, Section 6.4	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	RSS-133 Issue 6, Section 6.4	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	RSS-133 Issue 6, Section 6.4	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	RSS-Gen Issue 5, Section 6.7	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	RSS-133 Issue 6, Section 6.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	RSS-133 Issue 6, Section 6.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of	RSS-133 Issue 6, Section 6.5	ANSI C63.26-2015 &	PASS

spurious radiation		KDB 971168 D01v03r01	
Frequency stability	RSS-133 Issue 6, Section 6.3	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

RSS-139 Issue 3 Test Cases (LTE Band 4 & Band 66)			
Test Item	**Test Requirement**	**Test Method**	**Result**
Equivalent Isotropic Radiated Power (EIRP)	RSS-139 Issue 3, Section 6.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	RSS-139 Issue 3, Section 6.5	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	RSS-139 Issue 3, Section 6.5	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	RSS-Gen Issue 5, Section 6.7	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	RSS-139 Issue 3, Section 6.6	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	RSS-139 Issue 3, Section 6.6	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	RSS-139 Issue 3, Section 6.6	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	RSS-139 Issue 3, Section 6.4	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

Remark: Except Field strength of spurious radiation .All technical data is referred to previous report no. 191019004 RFM-3 dated December 21, 2019.

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
☒	Receiver	R&S	ESIB26	100114	Nov. 24, 2019	Nov. 23, 2020
☐	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
☒	Preamplifier	HP	8447F	2805A02960	Nov. 24, 2019	Nov. 23, 2020
☐	Broadband Antenna (Pre-amplifier)	ETS-LINDGREN	3142E-PA	00201891	May 18, 2019	May 18, 2020
☐	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: 9.160323		

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
☒	Receiver	R&S	ESR7	1316.3003K07 -101181-K3	Nov. 24, 2019	Nov. 23, 2020
☒	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	Nov. 24, 2018	Nov. 24, 2019
☒	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	Nov. 24, 2019	Nov. 23, 2020
☒	Wideband Radio Communication Tester	R&S	CMW500	120932	Jul. 19, 2019	Jul. 19, 2020
☐	Wideband Radio Communication Tester	R&S	CMW500	119583	Jul. 31, 2019	Jul. 31, 2020
☒	DC Source	KIKUSUI	PWR400L	LK003024	Sep. 18, 2019	Sep. 18, 2020
☒	Temp & Humidity chamber	Votisch	VT4002	58566133290 020	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	3.8	20 to 75
TL/VL	-40	2.8	20 to 75
TH/VL	+70	2.8	20 to 75
TL/VH	-40	4.6	20 to 75
TH/VH	+70	4.6	20 to 75

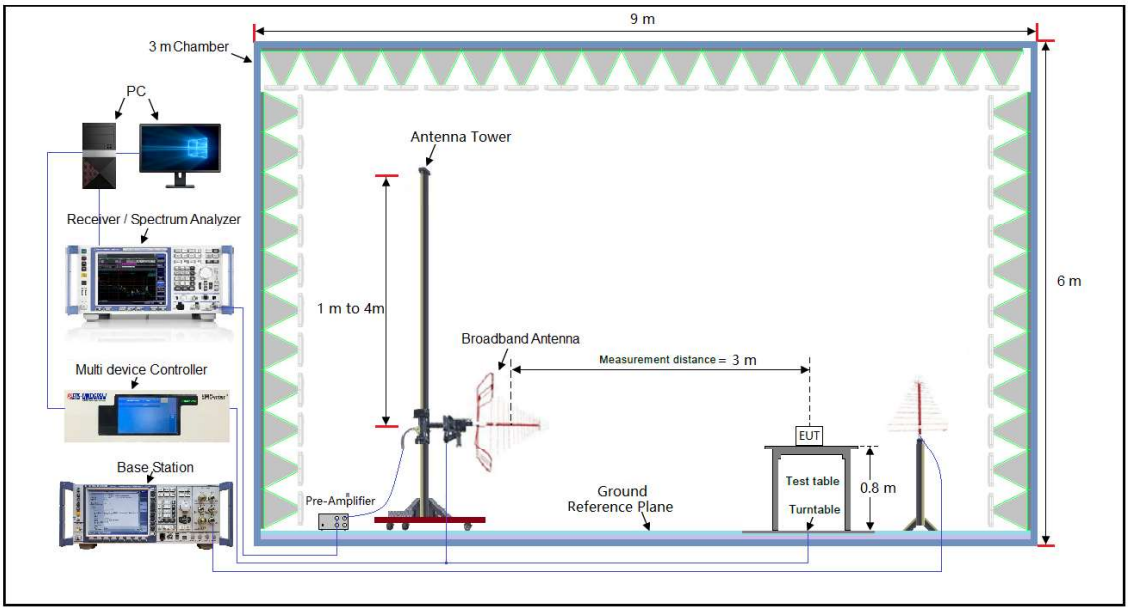
Remark:

1) The EUT just work in such extreme temperature of -40 °C to +70 °C and the extreme voltage of 2.8 V to 4.6V, so here the EUT is tested in the temperature of -40 °C to +70 °C and the voltage of 2.8 V to 4.6V.
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.

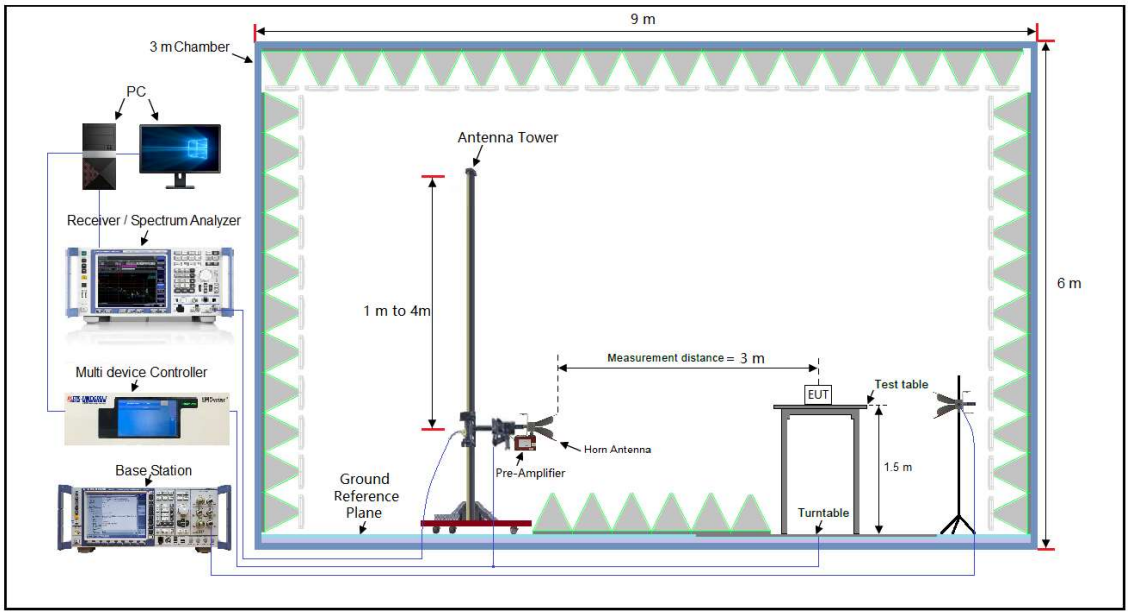
4.2 TEST SETUP

4.2.1 For Radiated Emissions test setup

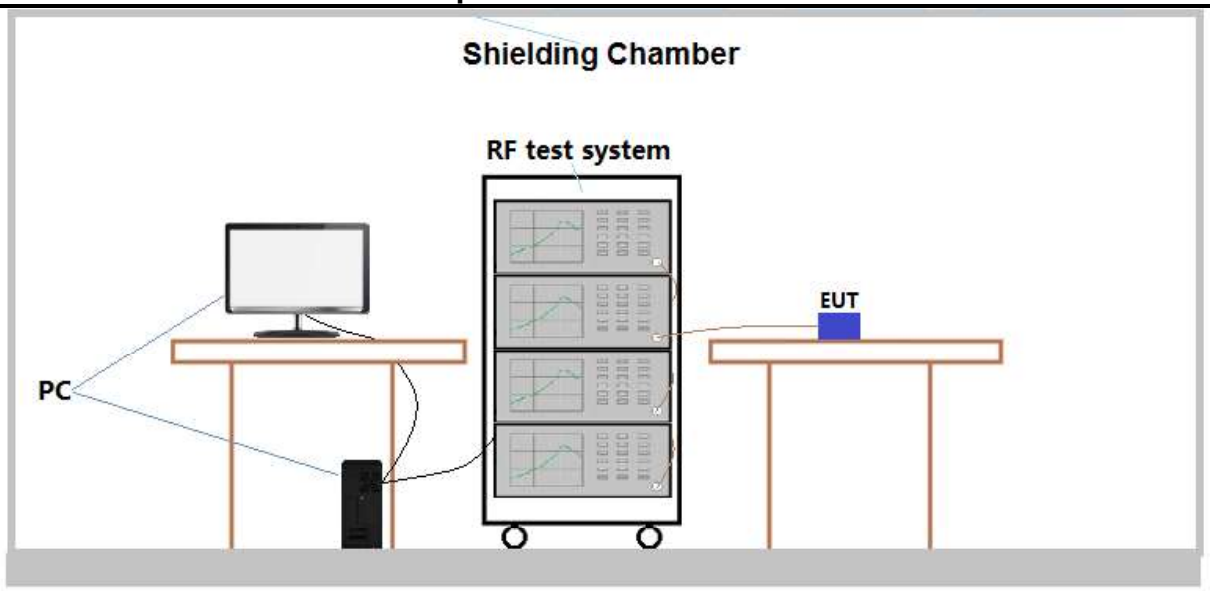
Radiated Emissions 30MHz to 1GHz Test setup



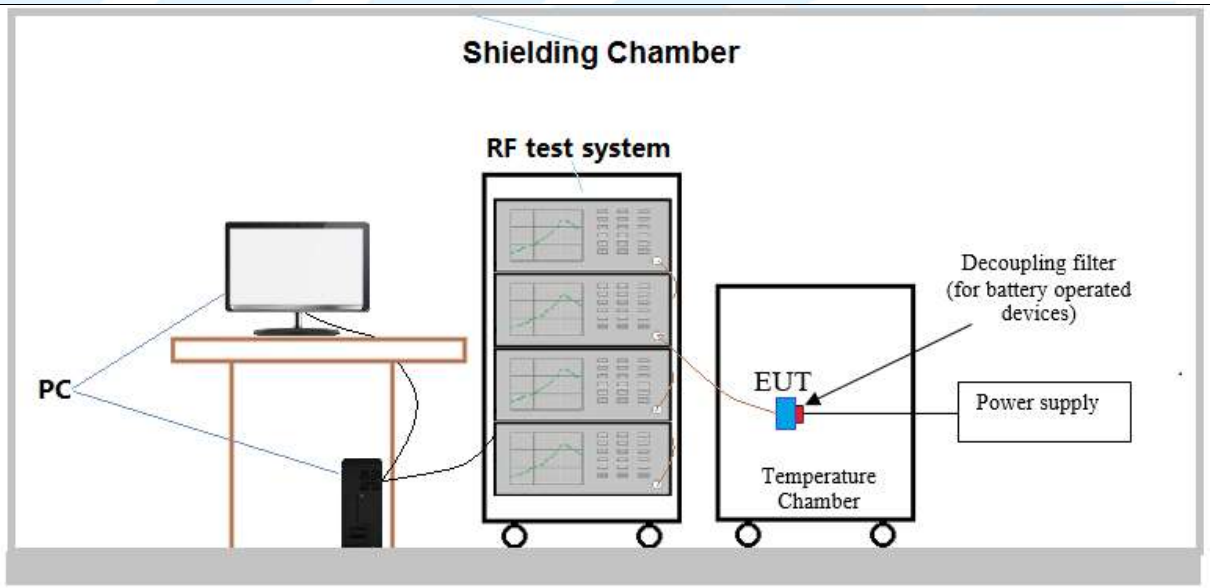
Radiated Emissions Above 1GHz Test setup



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 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 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. 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 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 66	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

CAT M1 LTE Band 2 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	18607/1850.7	0	1#0	20.97	20.15
		0	6#0	19.98	19.00
	18900/1880	0	1#0	21.37	20.04
		0	6#0	19.28	19.2
	19193/1909.3	0	1#5	20.97	19.87
		0	6#0	20.17	19.37
3MHz	8615/1851.5	0	1#0	21.07	19.82
		0	3#0	19.02	19.12
	18900/1880	0	1#0	21.01	19.86
		0	3#0	19.15	19.14
	19185/1908.5	1	1#5	20.94	19.90
		1	3#0	19.07	19.15
5MHz	18625/1852.5	3	1#0	21.32	20.15
		0	6#0	19.99	20.01
	18900/1880	0	1#0	21.62	21.77
		0	6#0	20.17	20.26
	19175/1907.5	0	1#5	21.54	20.39
		3	6#0	20.09	20.21
10MHz	18650/1855	3	1#0	20.89	21.01
		0	5#0	19.98	19.93
	18900/1880	0	1#0	21.00	21.01
		0	5#0	20.92	21.04
	19150/1905	4	1#5	21.11	20.08
		7	5#1	19.99	19.78
15MHz	18675/1857.5	3	1#0	21.09	19.98
		0	6#0	20.01	20.02
	18900/1880	0	1#0	21.06	21.05
		0	6#0	21.12	21.01
	19125/1902.5	8	1#5	21.04	21.05
		11	6#0	21.00	20.78
20MHz	18700/1860	3	1#0	21.47	21.54
		0	6#0	21.35	21.44
	18900/1880	0	1#0	21.54	21.75
		0	6#0	21.49	21.52
	19100/1900	12	1#5	21.55	21.57
		15	6#0	21.34	21.41

4.5.2 LTE Band 4

CAT M1 LTE Band 4 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	19957 1710.7	0	1#0	21.22	20.45
		0	6#0	19.37	19.09
	20175/1732.5	0	1#0	21.26	20.55
		0	6#0	19.22	19.18
	20393/1754.3	0	1#5	21.21	20.43
		0	6#0	19.32	19.23
3MHz	19965/1711.5	0	1#0	21.23	20.17
		0	3#0	19.98	19.23
	20175/1732.5	0	1#0	21.34	20.40
		0	3#0	20.21	19.39
	20385/1753.5	1	1#5	21.00	20.12
		1	3#0	19.79	19.76
5MHz	19975/1712.5	0	1#0	21.22	21.13
		0	6#0	20.17	20.34
	20175/1732.5	0	1#0	21.26	21.33
		0	6#0	20.25	20.35
	20375/1752.5	3	1#5	21.23	21.32
		3	6#0	19.98	20.08
10MHz	20000/1715	0	1#0	21.21	21.32
		0	5#0	20.98	21.02
	20175/1732.5	0	1#0	21.25	21.34
		0	5#0	21.13	21.22
	20350/1750	7	1#5	21.22	21.00
		7	5#1	21.13	21.01
15MHz	20025/1717.5	0	1#0	21.13	21.11
		0	6#0	21.11	21.13
	20175/1732.5	0	1#0	21.15	21.26
		0	6#0	21.14	21.25
	20325/1747.5	11	1#5	21.18	20.89
		11	6#0	21.01	20.78
20MHz	20050/1720	0	1#0	21.70	21.21
		0	6#0	21.00	21.00
	20175/1732.5	0	1#0	21.80	21.25
		0	6#0	21.10	21.18
	20300/1745	15	1#5	21.77	21.13
		15	6#0	21.09	21.11

4.5.3 LTE Band 5

CAT M1 LTE Band 5 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	20407/824.7	0	1#0	21.13	20.66
		0	6#0	19.87	19.00
	20525/836.5	0	1#0	21.14	20.72
		0	6#0	19.08	18.92
	20643/848.3	0	1#5	21.09	21.01
		0	6#0	19.56	19.66
3MHz	20415/825.5	0	1#0	20.99	20.32
		0	3#0	20.00	19.23
	20525/836.5	0	1#0	21.40	20.55
		0	3#0	20.10	19.03
	20635/847.5	1	1#5	21.37	20.45
		1	3#0	19.96	19.95
5MHz	20425/826.5	0	1#0	21.13	21.37
		0	6#0	20.45	20.67
	20525/836.5	0	1#0	21.43	21.41
		0	6#0	20.20	20.51
	20625/846.5	3	1#5	21.12	20.43
		3	6#0	20.17	20.43
10MHz	20450/829	0	1#0	21.23	21.34
		0	5#0	20.21	20.45
	20525/836.5	0	1#0	21.38	21.47
		0	5#0	20.22	21.59
	20600/844	7	1#5	21.41	21.37
		7	5#1	20.45	20.54

4.5.4 LTE Band 12

CAT M1 LTE Band 12 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	23017/699.7	0	1#0	21.02	20.34
		0	6#0	19.34	19.23
	23095/707.5	0	1#0	21.01	19.95
		0	6#0	19.12	19.02
	23173/715.3	0	1#5	20.78	20.67
		0	6#0	19.45	19.56
3MHz	23025/700.5	0	1#0	20.37	20.36
		0	6#0	20.01	19.24
	23095/707.5	0	1#0	21.41	20.56
		0	6#0	20.10	19.03
	23165/714.5	1	1#5	21.37	20.45
		1	6#0	19.96	19.95
5MHz	23035/701.5	3	1#0	21.08	20.76
		0	6#0	20.46	20.61
	23095/707.5	0	1#0	21.44	21.42
		0	6#0	20.20	20.51
	23155/713.5	0	1#5	21.12	20.43
		3	6#0	20.17	20.43
10MHz	23060/704	3	1#0	21.09	21.34
		0	5#0	20.89	21.01
	23095/707.5	0	1#0	21.03	21.06
		0	5#0	21.05	21.15
	23130/711	4	1#5	20.01	20.22
		7	5#1	20.02	21.03

4.5.5 LTE Band 13

CAT M1 LTE Band 12 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
5MHz	23205/779.5	0	1#0	21.25	21.37
		0	6#0	20.46	20.63
	23230/782	0	1#0	21.40	21.42
		0	6#0	20.20	20.51
	23255/784.5	3	1#5	21.11	20.45
		3	6#0	20.18	20.49
10MHz	23230/782	0	1#0	21.07	21.13
		0	5#0	21.09	21.31

4.5.6 LTE Band 25

CAT M1 LTE Band 25 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	26047/1850.7	0	1#0	21.11	20.34
		0	6#0	20.34	19.23
	26365/1882,5	0	1#0	21.01	19.97
		0	6#0	19.34	19.32
	26683/1914.3	0	1#5	20.77	20.57
		0	6#0	19.25	19.46
3MHz	26055/1851.5	0	1#0	20.98	20.37
		0	6#0	20.02	19.26
	26365/1882,5	0	1#0	21.42	20.57
		0	6#0	20.11	19.23
	26675/1913.5	1	1#5	21.38	20.46
		1	6#0	19.97	19.96
5MHz	26065/1852.5	0	1#0	21.28	21.34
		0	6#0	20.43	20.60
	26365/1882,5	0	1#0	21.47	21.43
		0	6#0	20.21	20.50
	26665/1912.5	3	1#5	21.13	20.42
		3	6#0	20.18	20.42
10MHz	26090/1855	0	1#0	21.08	21.36
		0	4#0	20.90	21.02
	26365/1882,5	0	1#0	21.04	21.05
		0	4#0	21.02	21.13
	26640/1910	7	1#5	20.00	20.23
		7	4#2	20.02	21.01
15MHz	26115/1857.5	0	1#0	21.18	21.12
		0	6#0	21.14	21.15
	26365/1882,5	0	1#0	21.17	21.06
		0	6#0	21.16	21.12
	26615/1907.5	11	1#5	21.15	20.82
		11	6#0	21.03	20.80
20MHz	26140/1860	0	1#0	21.19	20.90
		0	6#0	21.03	20.80
	26365/1882,5	0	1#0	21.51	21.43
		0	6#0	21.35	21.36
	26590/1905	15	1#5	21.16	21.13
		15	6#0	21.17	21.15

4.5.7 LTE Band 26

CAT M1 LTE Band 26 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	26797/824.7	0	1#0	21.07	19.82
		0	6#0	19.02	19.12
	26915/836.5	0	1#0	21.01	19.86
		0	6#0	19.15	19.14
	27033/848.3	0	1#5	20.94	19.90
		0	6#0	19.07	19.15
3MHz	26805/825.5	0	1#0	21.13	21.11
		0	6#0	21.11	21.13
	26915/836.5	0	1#0	21.15	21.26
		0	6#0	21.14	21.25
	27025/847.5	1	1#5	21.18	20.89
		1	6#0	21.01	20.78
5MHz	26815/826.5	3	1#0	21.32	20.15
		0	6#0	19.99	20.01
	26915/836.5	0	1#0	21.62	21.77
		0	6#0	20.17	20.26
	27015/846.5	0	1#5	21.07	20.39
		3	6#0	20.09	20.21
10MHz	26840/829	3	1#0	20.89	21.01
		0	4#0	19.98	19.93
	26915/836.5	0	1#0	21.00	21.01
		0	4#0	20.92	21.04
	26990/844	4	1#5	21.10	20.02
		7	4#2	20.00	19.81
15MHz	26865/831.5	3	1#0	20.87	20.25
		0	6#0	19.93	19.01
	26915/836.5	0	1#0	21.92	20.17
		0	6#0	21.75	21.86
	26965/841.5	8	1#5	20.97	19.87
		11	6#0	20.17	19.37

4.5.8 LTE Band 26 (Part 90S)

CAT M1 LTE Band 26 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	26697/814.7	0	1#0	21.25	21.37
		0	6#0	20.46	20.63
	26740/819	0	1#0	21.40	21.42
		0	6#0	20.20	20.51
	26783/823.3	0	1#5	21.11	20.45
		0	6#0	20.18	20.49
3MHz	26705/815.5	0	1#0	21.23	21.34
		0	6#0	20.21	20.45
	26740/819	0	1#0	21.38	21.47
		0	6#0	20.22	21.59
	26775/822.5	1	1#5	21.41	21.37
		1	6#0	20.45	20.54
5MHz	26715/816.5	3	1#0	21.25	21.37
		0	6#0	20.46	20.63
	26740/819	0	1#0	21.40	21.42
		0	6#0	20.20	20.51
	26765/821.5	0	1#5	21.11	20.45
		3	6#0	20.18	20.49
10MHz	26740/819	0	1#0	21.46	21.57
		0	5#0	21.36	21.47

4.5.9 LTE Band 66

CAT M1 LTE Band 66 Maximum Average Power (dBm)					
Bandwidth	Channel/ Frequency(MHz)	Index	RB# RBstart	Conducted Power (dBm)	
				QPSK	16QAM
1.4MHz	131979/1710.7	0	1#0	20.87	20.05
		0	6#0	19.91	19.21
	132422/1755	0	1#0	21.15	20.14
		0	6#0	19.26	19.27
	132665/1779.3	0	1#5	20.87	19.88
		0	6#0	20.37	19.17
3MHz	131987/1711.5	0	1#0	21.09	19.83
		0	6#0	19.03	19.11
	132422/1755	0	1#0	21.06	19.84
		0	6#0	19.16	19.13
	132657/1778.5	1	1#5	20.91	19.97
		1	6#0	19.02	19.12
5MHz	131997/1712.5	0	1#0	20.33	20.15
		0	6#0	19.99	20.01
	132422/1755	0	1#0	20.62	20.24
		0	6#0	20.11	20.22
	132647/1777.5	3	1#5	21.04	20.33
		3	6#0	20.04	20.23
10MHz	132022/1715	0	1#0	20.87	21.02
		0	4#0	19.99	19.93
	132422/1755	0	1#0	21.00	21.01
		0	4#0	20.92	21.04
	132622/1775	7	1#5	21.11	20.08
		7	4#2	19.99	19.73
15MHz	132047/1717.5	0	1#0	21.11	19.92
		0	6#0	20.02	20.02
	132422/1755	0	1#0	21.06	21.05
		0	6#0	20.18	20.01
	132597/1772.5	11	1#5	21.04	21.05
		11	6#0	20.01	20.78
20MHz	132072/1720	0	1#0	21.13	21.12
		0	6#0	21.00	20.92
	132422/1755	0	1#0	21.17	21.35
		0	6#0	21.11	21.13
	132572/1770	15	1#5	20.78	20.90
		15	6#0	20.45	20.46

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	☒	☒	☒	☒	--	--	☒	☒	☐	☒	☐	☐	☒	☒	☒
	12	☒	☒	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☒	☒	☒
	13	-	-	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☒	☒	☒
	25	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☒	☒	☒
	26	☒	☒	☒	☒	☒	--	☒	☒	☐	☒	☐	☐	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☒	☒	☒
Conducted output power	2	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☒	☒	☒
	4	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☒	☒	☒
	5	☒	☒	☒	☒	--	--	☒	☒	☐	☒	☐	☐	☒	☒	☒
	12	☒	☒	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☒	☒	☒
	13	-	-	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☒	☒	☒
	25	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☒	☒	☒
	26	☒	☒	☒	☒	☒	--	☒	☒	☐	☒	☐	☐	☒	☒	☒
	66	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☒	☒	☒

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	☒	☒	☒	☒	--	--	☒	☒	☐	☒	☐	☐	☐	☒	☐
	12	☒	☒	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☐	☒	☐
	13	-	-	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☐	☒	☐
	25	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
	26	☒	☒	☒	☒	☒	--	☒	☒	☐	☒	☐	☐	☐	☒	☐
	66	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
peak-to-average ratio	2	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
	4	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
	5	☒	☒	☒	☒	--	--	☒	☒	☐	☒	☐	☐	☐	☒	☐
	12	☒	☒	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☐	☒	☐
	13	-	-	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☐	☒	☐
	25	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
	26	☒	☒	☒	☒	☒	--	☒	☒	☐	☒	☐	☐	☐	☒	☐
	66	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐

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	☒	☐	☐	☒	--	--	☒	☐	☐	☒	☐	☐	☒	☐	☒
	12	☒	☐	☐	☒	-	-	☒	☐	☐	☒	☐	☐	☒	☐	☒
	13	-	-	☒	☒	-	-	☒	☐	☐	☒	☐	☐	☒	☐	☒
	25	☒	☐	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☐	☒
	26	☒	☐	☐	☐	☒	--	☒	☐	☐	☒	☐	☐	☒	☐	☒
	66	☒	☐	☐	☐	☐	☒	☒	☐	☐	☒	☐	☐	☒	☐	☒
Spurious emissions at antenna terminals	2	☒	☐	☐	☐	☐	☐	☒	☐	☐	☒	☐	☐	☐	☒	☐
	4	☒	☐	☐	☐	☐	☐	☒	☐	☐	☒	☐	☐	☐	☒	☐
	5	☒	☐	☐	☐	--	--	☒	☐	☐	☒	☐	☐	☐	☒	☐
	12	☒	☐	☐	☐	-	-	☒	☐	☐	☒	☐	☐	☐	☒	☐
	13	-	-	☒	☐	-	-	☒	☐	☐	☒	☐	☐	☐	☒	☐
	25	☒	☐	☐	☐	☐	☐	☒	☐	☐	☒	☐	☐	☐	☒	☐
	26	☒	☐	☐	☐	☐	--	☒	☐	☐	☒	☐	☐	☐	☒	☐
	66	☒	☐	☐	☐	☐	☐	☒	☐	☐	☒	☐	☐	☐	☒	☐

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	☐	☐	☐	☐	--	--	☐	☐	☐	☐	☐	☐	☐	☐	☐
	12	☒	☐	☐	☐	-	-	☒	☐	☐	☒	☐	☐	☒	☒	☒
	13	-	-	☐	☐	-	-	☐	☐	☐	☐	☐	☐	☐	☐	☐
	25	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	26	☐	☐	☐	☐	☐	--	☐	☐	☐	☐	☐	☐	☐	☐	☐
	66	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Frequency stability	2	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
	4	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
	5	☒	☒	☒	☒	--	--	☒	☒	☐	☒	☐	☐	☐	☒	☐
	12	☒	☒	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☐	☒	☐
	13	-	-	☒	☒	-	-	☒	☒	☐	☒	☐	☐	☐	☒	☐
	25	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐
	26	☒	☒	☒	☒	☒	--	☒	☒	☐	☒	☐	☐	☐	☒	☐
	66	☒	☒	☒	☒	☒	☒	☒	☒	☐	☒	☐	☐	☐	☒	☐

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	RSS-Gen Issue 5	General Requirements for Compliance of Radio Apparatus
7	RSS-130 Issue 2	Equipment Operating in the Frequency Bands 617-652 MHz, 663-698 MHz, 698-756 MHz and 777-787 MHz
8	RSS-132 Issue 3	Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz
9	RSS-133 Issue 6	2 GHz Personal Communications Services Aussi disponible
10	RSS-139 Issue 3	Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz
11	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
12	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 12: 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

LTE Band 2 & LTE Band 25: RSS-133 Issue 6, Section 6.4
LTE Band 4 & LTE Band 66: RSS-139 Issue 3, Section 6.5
LTE Band 5: RSS-132 Issue 3, Section 5.4
LTE Band 12 & LTE Band 13: RSS-130 Issue 2, Section 4.6

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(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.

RSS-130 Issue 2, Section 4.6,
4.6.2 Frequency bands 617-652 MHz and 663-698 MHz

The e.r.p. shall not exceed 3 watts for mobile equipment, fixed subscriber equipment and portable equipment.

4.6.3 Frequency bands 698-756 MHz and 777-787 MHz

The e.r.p. shall not exceed 30 watts for mobile equipment and outdoor fixed subscriber equipment. The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.

RSS-132 Issue 3, Section 5.4,
The transmitter output power shall be measured in terms of average power. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts.

RSS-133 Issue 6, Section 6.4
The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510. Moreover, base station transmitters operating in the band 1930-1995 MHz shall not have output power exceeding 100 watts.

RSS-139 Issue 3, Section 6.5
The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed one watt.

Test Procedure:

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

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)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	18607/1850.7	H	1#0	0	23.14	33.01
		18900/1880	H	1#2	0	23.54	33.01
		19193/1909.3	H	1#5	0	23.14	33.01
	16QAM	18607/1850.7	H	1#0	0	22.32	33.01
		18900/1880	H	1#2	0	22.21	33.01
		19193/1909.3	H	1#5	0	22.04	33.01
3MHz	QPSK	18615/1851.5	H	1#0	0	23.24	33.01
		18900/1880	H	1#5	0	23.18	33.01
		19185/1908.5	H	1#5	1	23.11	33.01
	16QAM	18615/1851.5	H	1#0	0	21.99	33.01
		18900/1880	H	1#5	0	22.03	33.01
		19185/1908.5	H	1#5	1	22.07	33.01
5MHz	QPSK	18625/1852.5	H	1#0	0	23.49	33.01
		18900/1880	H	1#5	1	23.79	33.01
		19175/1907.5	H	1#5	3	23.71	33.01
	16QAM	18625/1852.5	H	1#0	0	22.32	33.01
		18900/1880	H	1#5	1	23.94	33.01
		19175/1907.5	H	1#5	3	22.56	33.01
10MHz	QPSK	18650/1855	H	4#0	0	23.06	33.01
		18900/1880	H	4#2	3	23.17	33.01
		19150/1905	H	4#2	7	23.28	33.01
	16QAM	18650/1855	H	4#0	0	23.18	33.01
		18900/1880	H	4#2	3	23.18	33.01
		19150/1905	H	4#2	7	22.25	33.01
15MHz	QPSK	18675/1857.5	H	1#0	0	23.26	33.01
		18900/1880	H	1#5	5	23.23	33.01
		19125/1902.5	H	1#5	11	23.21	33.01
	16QAM	18675/1857.5	H	1#0	0	22.15	33.01
		18900/1880	H	1#5	5	23.22	33.01
		19125/1902.5	H	1#5	11	23.22	33.01
20MHz	QPSK	18700/1860	H	6#0	0	23.64	33.01
		18900/1880	H	6#0	7	23.71	33.01
		19100/1900	H	6#0	15	23.72	33.01
	16QAM	18700/1860	H	6#0	0	23.71	33.01
		18900/1880	H	6#0	7	23.92	33.01
		19100/1900	H	6#0	15	23.74	33.01

5.2.2 LTE Band 4

LTE Band4 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	19957 1710.7	H	1#0	0	23.39	30.00
		20175/1732.5	H	1#2	0	23.43	30.00
		20393/1754.3	H	1#5	0	23.38	30.00
	16QAM	19957 1710.7	H	1#0	0	22.62	30.00
		20175/1732.5	H	1#2	0	22.72	30.00
		20393/1754.3	H	1#5	0	22.60	30.00
3MHz	QPSK	19965/1711.5	H	1#0	0	23.40	30.00
		20175/1732.5	H	1#5	0	23.51	30.00
		20385/1753.5	H	1#5	1	23.17	30.00
	16QAM	19965/1711.5	H	1#0	0	22.34	30.00
		20175/1732.5	H	1#5	0	22.57	30.00
		20385/1753.5	H	1#5	1	22.29	30.00
5MHz	QPSK	19975/1712.5	H	1#0	0	23.39	30.00
		20175/1732.5	H	1#5	1	23.43	30.00
		20375/1752.5	H	1#5	3	23.40	30.00
	16QAM	19975/1712.5	H	1#0	0	23.30	30.00
		20175/1732.5	H	1#5	1	23.50	30.00
		20375/1752.5	H	1#5	3	23.49	30.00
10MHz	QPSK	20000/1715	H	4#0	0	23.38	30.00
		20175/1732.5	H	4#2	3	23.42	30.00
		20350/1750	H	4#2	7	23.39	30.00
	16QAM	20000/1715	H	4#0	0	23.49	30.00
		20175/1732.5	H	4#2	3	23.51	30.00
		20350/1750	H	4#2	7	23.17	30.00
15MHz	QPSK	20025/1717.5	H	1#0	0	23.30	30.00
		20175/1732.5	H	1#5	5	23.32	30.00
		20325/1747.5	H	1#5	11	23.35	30.00
	16QAM	20025/1717.5	H	1#0	0	23.28	30.00
		20175/1732.5	H	1#5	5	23.43	30.00
		20325/1747.5	H	1#5	11	23.06	30.00
20MHz	QPSK	20050/1720	H	6#0	0	23.87	30.00
		20175/1732.5	H	6#0	7	23.97	30.00
		20300/1745	H	6#0	15	23.94	30.00
	16QAM	20050/1720	H	6#0	0	23.38	30.00
		20175/1732.5	H	6#0	7	23.42	30.00
		20300/1745	H	6#0	15	23.30	30.00

5.2.3 LTE Band 5

LTE Band5 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	20407/824.7	H	1#0	0	24.15	38.45
		20525/836.5	H	1#2	0	24.16	38.45
		20643/848.3	H	1#5	0	24.11	38.45
	16QAM	20407/824.7	H	1#0	0	23.68	38.45
		20525/836.5	H	1#2	0	23.74	38.45
		20643/848.3	H	1#5	0	24.03	38.45
3MHz	QPSK	20415/825.5	H	1#0	0	24.01	38.45
		20525/836.5	H	1#5	0	24.42	38.45
		20635/847.5	H	1#5	1	24.39	38.45
	16QAM	20415/825.5	H	1#0	0	23.34	38.45
		20525/836.5	H	1#5	0	23.57	38.45
		20635/847.5	H	1#5	1	23.47	38.45
5MHz	QPSK	20425/826.5	H	1#0	0	24.15	38.45
		20525/836.5	H	1#5	1	24.45	38.45
		20625/846.5	H	1#5	3	24.14	38.45
	16QAM	20425/826.5	H	1#0	0	24.39	38.45
		20525/836.5	H	1#5	1	24.43	38.45
		20625/846.5	H	1#5	3	23.45	38.45
10MHz	QPSK	20450/829	H	4#0	0	24.25	38.45
		20525/836.5	H	4#2	3	24.40	38.45
		20600/844	H	4#2	7	24.43	38.45
	16QAM	20450/829	H	4#0	0	24.36	38.45
		20525/836.5	H	4#2	3	24.49	38.45
		20600/844	H	4#2	7	24.39	38.45

5.2.4 LTE Band 12

LTE Band12 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	23017/699.7	H	1#0	0	22.04	34.77
		23095/707.5	H	1#2	0	22.03	34.77
		23173/715.3	H	1#5	0	21.80	34.77
	16QAM	23017/699.7	H	1#0	0	21.36	34.77
		23095/707.5	H	1#2	0	20.97	34.77
		23173/715.3	H	1#5	0	21.69	34.77
3MHz	QPSK	23025/700.5	H	1#0	0	21.39	34.77
		23095/707.5	H	1#5	0	22.43	34.77
		23165/714.5	H	1#5	1	22.39	34.77
	16QAM	23025/700.5	H	1#0	0	21.38	34.77
		23095/707.5	H	1#5	0	21.58	34.77
		23165/714.5	H	1#5	1	21.47	34.77
5MHz	QPSK	23035/701.5	H	1#0	0	22.10	34.77
		23095/707.5	H	1#5	1	22.46	34.77
		23155/713.5	H	1#5	3	22.14	34.77
	16QAM	23035/701.5	H	1#0	0	21.78	34.77
		23095/707.5	H	1#5	1	22.44	34.77
		23155/713.5	H	1#5	3	21.45	34.77
10MHz	QPSK	23060/704	H	4#0	0	22.11	34.77
		23095/707.5	H	4#2	3	22.05	34.77
		23130/711	H	4#2	7	21.03	34.77
	16QAM	23060/704	H	4#0	0	22.36	34.77
		23095/707.5	H	4#2	3	22.08	34.77
		23130/711	H	4#2	7	21.24	34.77

5.2.5 LTE Band 13

LTE Band13 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
5MHz	QPSK	23205/779.5	H	1#0	0	22.27	34.77
		23230/782	H	1#5	1	22.42	34.77
		23255/784.5	H	1#5	3	22.13	34.77
	16QAM	23205/779.5	H	1#0	0	22.39	34.77
		23230/782	H	1#5	1	22.44	34.77
		23255/784.5	H	1#5	3	21.47	34.77
10MHz	QPSK	23230/782	H	4#2	3	22.09	34.77
	16QAM	23230/782	H	4#2	3	22.15	34.77

5.2.6 LTE Band 25

LTE Band25 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	26047/1850.7	H	1#0	0	23.28	30.01
		26365/1882.5	H	1#2	0	23.18	30.01
		26683/1914.3	H	1#5	0	22.94	30.01
	16QAM	26047/1850.7	H	1#0	0	22.51	30.01
		26365/1882.5	H	1#2	0	22.14	30.01
		26683/1914.3	H	1#5	0	22.74	30.01
3MHz	QPSK	26055/1851.5	H	1#0	0	23.15	30.01
		26365/1882.5	H	1#5	0	23.59	30.01
		26675/1913.5	H	1#5	1	23.55	30.01
	16QAM	26055/1851.5	H	1#0	0	22.54	30.01
		26365/1882.5	H	1#5	0	22.74	30.01
		26675/1913.5	H	1#5	1	22.63	30.01
5MHz	QPSK	26065/1852.5	H	1#0	0	23.45	30.01
		26365/1882.5	H	1#5	1	23.64	30.01
		26665/1912.5	H	1#5	3	23.30	30.01
	16QAM	26065/1852.5	H	1#0	0	23.51	30.01
		26365/1882.5	H	1#5	1	23.60	30.01
		26665/1912.5	H	1#5	3	22.59	30.01
10MHz	QPSK	26090/1855	H	4#0	0	23.25	30.01
		26365/1882.5	H	4#2	3	23.21	30.01
		26640/1910	H	4#2	7	22.17	30.01
	16QAM	26090/1855	H	4#0	0	23.53	30.01
		26365/1882.5	H	4#2	3	23.22	30.01
		26640/1910	H	4#2	7	22.40	30.01
15MHz	QPSK	26115/1857.5	H	1#0	0	23.35	30.01
		26365/1882.5	H	1#5	5	23.34	30.01
		26615/1907.5	H	1#5	11	23.32	30.01
	16QAM	26115/1857.5	H	1#0	0	23.29	30.01
		26365/1882.5	H	1#5	5	23.23	30.01
		26615/1907.5	H	1#5	11	22.99	30.01
20MHz	QPSK	26140/1860	H	6#0	0	23.36	30.01
		26365/1882.5	H	6#0	7	23.68	30.01
		26590/1905	H	6#0	15	23.33	30.01
	16QAM	26140/1860	H	6#0	0	23.07	30.01
		26365/1882.5	H	6#0	7	23.60	30.01
		26590/1905	H	6#0	15	23.30	30.01

5.2.7 LTE Band 26

LTE Band26 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	26797/824.7	H	1#0	0	24.09	38.45
		26915/836.5	H	1#2	0	24.03	38.45
		27033/848.3	H	1#5	0	23.96	38.45
	16QAM	26797/824.7	H	1#0	0	22.84	38.45
		26915/836.5	H	1#2	0	22.88	38.45
		27033/848.3	H	1#5	0	22.92	38.45
3MHz	QPSK	26805/825.5	H	1#0	0	24.15	38.45
		26915/836.5	H	1#5	0	24.17	38.45
		27025/847.5	H	1#5	1	24.20	38.45
	16QAM	26805/825.5	H	1#0	0	24.13	38.45
		26915/836.5	H	1#5	0	24.28	38.45
		27025/847.5	H	1#5	1	23.91	38.45
5MHz	QPSK	26815/826.5	H	1#0	0	24.34	38.45
		26915/836.5	H	1#5	1	24.64	38.45
		27015/846.5	H	1#5	3	24.09	38.45
	16QAM	26815/826.5	H	1#0	0	23.17	38.45
		26915/836.5	H	1#5	1	24.79	38.45
		27015/846.5	H	1#5	3	23.41	38.45
10MHz	QPSK	26840/829	H	4#0	0	23.91	38.45
		26915/836.5	H	4#2	3	24.02	38.45
		26990/844	H	4#2	7	24.12	38.45
	16QAM	26840/829	H	4#0	0	24.03	38.45
		26915/836.5	H	4#2	3	24.03	38.45
		26990/844	H	4#2	7	23.04	38.45
15MHz	QPSK	26865/831.5	H	1#0	0	23.89	38.45
		26915/836.5	H	1#5	5	24.94	38.45
		26965/841.5	H	1#5	11	23.99	38.45
	16QAM	26865/831.5	H	1#0	0	23.27	38.45
		26915/836.5	H	1#5	5	23.19	38.45
		26965/841.5	H	1#5	11	22.89	38.45

5.2.8 LTE Band 26 (Part 90S)

LTE Band26 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	26697/814.7	H	1#0	0	24.27	50.00
		26740/819	H	1#2	0	24.42	50.00
		26783/823.3	H	1#5	0	24.13	50.00
	16QAM	26697/814.7	H	1#0	0	24.39	50.00
		26740/819	H	1#2	0	24.44	50.00
		26783/823.3	H	1#5	0	23.47	50.00
3MHz	QPSK	26705/815.5	H	1#0	0	24.25	50.00
		26740/819	H	1#5	0	24.40	50.00
		26775/822.5	H	1#5	1	24.43	50.00
	16QAM	26705/815.5	H	1#0	0	24.36	50.00
		26740/819	H	1#5	0	24.49	50.00
		26775/822.5	H	1#5	1	24.39	50.00
5MHz	QPSK	26715/816.5	H	1#0	0	24.27	50.00
		26740/819	H	1#5	1	24.42	50.00
		26765/821.5	H	1#5	3	24.13	50.00
	16QAM	26715/816.5	H	1#0	0	24.39	50.00
		26740/819	H	1#5	1	24.44	50.00
		26765/821.5	H	1#5	3	23.47	50.00
10MHz	QPSK	26740/819	H	4#2	3	24.48	50.00
	16QAM	26740/819	H	4#2	3	24.59	50.00

5.2.9 LTE Band 66

LTE Band66 Maximum EIRP (dBm)							
Bandwidth	Modulation	Channel/ Frequency(MHz)	Polarization	RB	Index	EIRP(dBm)	Limit(dBm)
1.4MHz	QPSK	131979/1710.7	H	1#0	0	23.04	30.00
		132422/1755	H	1#2	0	23.32	30.00
		132665/1779.3	H	1#5	0	23.04	30.00
	16QAM	131979/1710.7	H	1#0	0	22.22	30.00
		132422/1755	H	1#2	0	22.31	30.00
		132665/1779.3	H	1#5	0	22.05	30.00
3MHz	QPSK	131987/1711.5	H	1#0	0	23.26	30.00
		132422/1755	H	1#5	0	23.23	30.00
		132657/1778.5	H	1#5	1	23.08	30.00
	16QAM	131987/1711.5	H	1#0	0	22.00	30.00
		132422/1755	H	1#5	0	22.01	30.00
		132657/1778.5	H	1#5	1	22.14	30.00
5MHz	QPSK	131997/1712.5	H	1#0	0	22.50	30.00
		132422/1755	H	1#5	1	22.79	30.00
		132647/1777.5	H	1#5	3	23.21	30.00
	16QAM	131997/1712.5	H	1#0	0	22.32	30.00
		132422/1755	H	1#5	1	22.41	30.00
		132647/1777.5	H	1#5	3	22.50	30.00
10MHz	QPSK	132022/1715	H	4#0	0	23.04	30.00
		132422/1755	H	4#2	3	23.17	30.00
		132622/1775	H	4#2	7	23.28	30.00
	16QAM	132022/1715	H	4#0	0	23.19	30.00
		132422/1755	H	4#2	3	23.18	30.00
		132622/1775	H	4#2	7	22.25	30.00
15MHz	QPSK	132047/1717.5	H	1#0	0	23.28	30.00
		132422/1755	H	1#5	5	23.23	30.00
		132597/1772.5	H	1#5	11	23.21	30.00
	16QAM	132047/1717.5	H	1#0	0	22.09	30.00
		132422/1755	H	1#5	5	23.22	30.00
		132597/1772.5	H	1#5	11	23.22	30.00
20MHz	QPSK	132072/1720	H	6#0	0	23.30	30.00
		132422/1755	H	6#0	7	23.34	30.00
		132572/1770	H	6#0	15	22.95	30.00
	16QAM	132072/1720	H	6#0	0	23.29	30.00
		132422/1755	H	6#0	7	23.52	30.00
		132572/1770	H	6#0	15	23.07	30.00

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 12: 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:
LTE Band 2 & LTE Band 25: RSS-133 Issue 6, Section 6.4
LTE Band 4 & LTE Band 66: RSS-139 Issue 3, Section 6.5
LTE Band 5: RSS-132 Issue 3, Section 5.4
LTE Band 12 & LTE Band 13 : RSS-130 Issue 2, Section 4.6
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(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.

RSS-130 Issue 2, Section 4.6,
4.6.2 Frequency bands 617-652 MHz and 663-698 MHz

The e.r.p. shall not exceed 3 watts for mobile equipment, fixed subscriber equipment and portable equipment.

4.6.3 Frequency bands 698-756 MHz and 777-787 MHz

The e.r.p. shall not exceed 30 watts for mobile equipment and outdoor fixed subscriber equipment. The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.

RSS-132 Issue 3, Section 5.4,
The transmitter output power shall be measured in terms of average power. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts.

RSS-133 Issue 6, Section 6.4
The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510. Moreover, base station transmitters operating in the band 1930-1995 MHz shall not have output power exceeding 100 watts.

RSS-139 Issue 3, Section 6.5
The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed one watt.

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 12 & Band 17: FCC 47 CFR Part 27.50(d)(5)
LTE Band 13: FCC 47 CFR Part 27.50(d)(5)

LTE Band 2 & LTE Band 25: RSS-133 Issue 6, Section 6.4
LTE Band 4 & LTE Band 66: RSS-139 Issue 3, Section 6.5
LTE Band 5: RSS-132 Issue 3, Section 5.4
LTE Band 12 & LTE Band 13: RSS-130 Issue 2, Section 4.6

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)					
Bandwidth	**Modulation**	**Channel/ Frequency(MHz)**	**Peak-to-Average Power Ratio (PAPR)**	**Limit (dB)**	**Result**
1.4MHz	QPSK	18900/1880	8.39	13	Pass
	16QAM	18900/1880	8.44	13	Pass
3MHz	QPSK	18900/1880	8.39	13	Pass
	16QAM	18900/1880	8.44	13	Pass
5MHz	QPSK	18900/1880	8.37	13	Pass
	16QAM	18900/1880	8.44	13	Pass
10MHz	QPSK	18900/1880	8.29	13	Pass
	16QAM	18900/1880	8.31	13	Pass
15MHz	QPSK	18900/1880	8.29	13	Pass
	16QAM	18900/1880	8.56	13	Pass
20MHz	QPSK	18900/1880	8.41	13	Pass
	16QAM	18900/1880	8.94	13	Pass

5.4.2 LTE Band 4

LTE Band 4 Peak-to-average ratio (dB)					
Bandwidth	Modulation	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)	Limit (dB)	Result
1.4MHz	QPSK	20175/1732.5	8.21	13	Pass
	16QAM	20175/1732.5	8.36	13	Pass
3MHz	QPSK	20175/1732.5	8.40	13	Pass
	16QAM	20175/1732.5	8.58	13	Pass
5MHz	QPSK	20175/1732.5	8.31	13	Pass
	16QAM	20175/1732.5	8.55	13	Pass
10MHz	QPSK	20175/1732.5	8.34	13	Pass
	16QAM	20175/1732.5	8.56	13	Pass
15MHz	QPSK	20175/1732.5	8.19	13	Pass
	16QAM	20175/1732.5	8.47	13	Pass
20MHz	QPSK	20175/1732.5	8.34	13	Pass
	16QAM	20175/1732.5	8.43	13	Pass

5.4.3 LTE Band 5

LTE Band 5 Peak-to-average ratio (dB)					
Bandwidth	Modulation	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)	Limit (dB)	Result
1.4MHz	QPSK	20525/836.5	8.94	13	Pass
	16QAM	20525/836.5	9.64	13	Pass
3MHz	QPSK	20525/836.5	8.97	13	Pass
	16QAM	20525/836.5	9.95	13	Pass
5MHz	QPSK	20525/836.5	9.06	13	Pass
	16QAM	20525/836.5	9.36	13	Pass
10MHz	QPSK	20525/836.5	8.82	13	Pass
	16QAM	20525/836.5	9.22	13	Pass

5.4.4 LTE Band 12

LTE Band 12 Peak-to-average ratio (dB)					
Bandwidth	Modulation	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)	Limit (dB)	Result
1.4MHz	QPSK	23095/707.5	8.45	13	Pass
	16QAM	23095/707.5	9.53	13	Pass
3MHz	QPSK	23095/707.5	8.64	13	Pass
	16QAM	23095/707.5	9.26	13	Pass
5MHz	QPSK	23095/707.5	8.43	13	Pass
	16QAM	23095/707.5	8.96	13	Pass
10MHz	QPSK	23095/707.5	8.43	13	Pass
	16QAM	23095/707.5	8.84	13	Pass

5.4.5 LTE Band 13

LTE Band 13 Peak-to-average ratio (dB)					
Bandwidth	**Modulation**	**Channel/ Frequency(MHz)**	**Peak-to-Average Power Ratio (PAPR)**	**Limit (dB)**	**Result**
5MHz	QPSK	23230/782	8.59	13	Pass
	16QAM	23230/782	9.39	13	Pass
10MHz	QPSK	23230/782	8.68	13	Pass
	16QAM	23230/782	9.09	13	Pass

5.4.6 LTE Band 25

LTE Band 25 Peak-to-average ratio (dB)					
Bandwidth	**Modulation**	**Channel/ Frequency(MHz)**	**Peak-to-Average Power Ratio (PAPR)**	**Limit (dB)**	**Result**
1.4MHz	QPSK	26365/1882,5	8.34	13	Pass
	16QAM	26365/1882,5	8.49	13	Pass
3MHz	QPSK	26365/1882,5	8.31	13	Pass
	16QAM	26365/1882,5	8.41	13	Pass
5MHz	QPSK	26365/1882,5	8.25	13	Pass
	16QAM	26365/1882,5	8.49	13	Pass
10MHz	QPSK	26365/1882,5	8.21	13	Pass
	16QAM	26365/1882,5	8.46	13	Pass
15MHz	QPSK	26365/1882,5	8.20	13	Pass
	16QAM	26365/1882,5	8.67	13	Pass
20MHz	QPSK	26365/1882,5	8.34	13	Pass
	16QAM	26365/1882,5	8.89	13	Pass

5.4.7 LTE Band 26

LTE Band 26 Peak-to-average ratio (dB)					
Bandwidth	Modulation	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)	Limit (dB)	Result
1.4MHz	QPSK	26915/836.5	8.48	13	Pass
	16QAM	26915/836.5	8.78	13	Pass
3MHz	QPSK	26915/836.5	8.32	13	Pass
	16QAM	26915/836.5	8.54	13	Pass
5MHz	QPSK	26915/836.5	8.49	13	Pass
	16QAM	26915/836.5	8.94	13	Pass
10MHz	QPSK	26915/836.5	8.37	13	Pass
	16QAM	26915/836.5	8.71	13	Pass

5.4.8 LTE Band 26 (Part 90S)

LTE Band 26 Peak-to-average ratio (dB)					
Bandwidth	Modulation	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)	Limit (dB)	Result
1.4MHz	QPSK	26740/819	8.46	13	Pass
	16QAM	26740/819	8.75	13	Pass
3MHz	QPSK	26740/819	8.23	13	Pass
	16QAM	26740/819	8.97	13	Pass
5MHz	QPSK	26740/819	8.38	13	Pass
	16QAM	26740/819	9.01	13	Pass
10MHz	QPSK	26740/819	8.56	13	Pass
	16QAM	26740/819	8.97	13	Pass
15MHz	QPSK	26740/819	8.57	13	Pass
	16QAM	26740/819	8.86	13	Pass

5.4.9 LTE Band 66

LTE Band 66 Peak-to-average ratio (dB)					
Bandwidth	Modulation	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)	Limit (dB)	Result
1.4MHz	QPSK	132422/1755	8.41	13	Pass
	16QAM	132422/1755	9.01	13	Pass
3MHz	QPSK	132422/1755	8.54	13	Pass
	16QAM	132422/1755	9.11	13	Pass
5MHz	QPSK	132422/1755	8.54	13	Pass
	16QAM	132422/1755	8.99	13	Pass
10MHz	QPSK	132422/1755	8.65	13	Pass
	16QAM	132422/1755	8.84	13	Pass
15MHz	QPSK	132422/1755	8.41	13	Pass
	16QAM	132422/1755	8.72	13	Pass
20MHz	QPSK	132422/1755	8.45	13	Pass
	16QAM	132422/1755	9.01	13	Pass

5.5 99%&26DB BANDWIDTH

Test Requirement: FCC 47 CFR Part 2.1049(h)
RSS-Gen Issue 5, Section 6.7

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

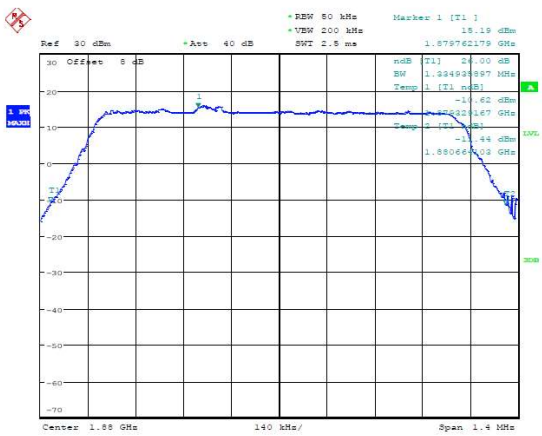
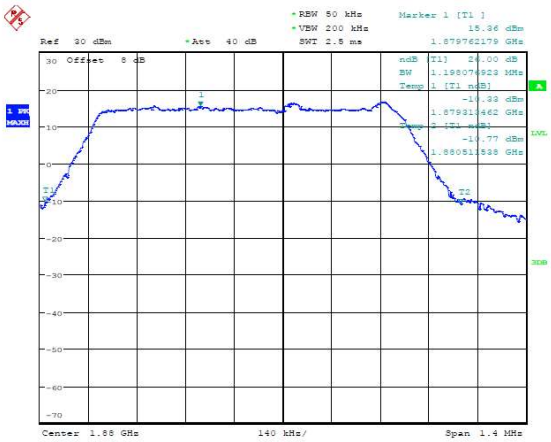
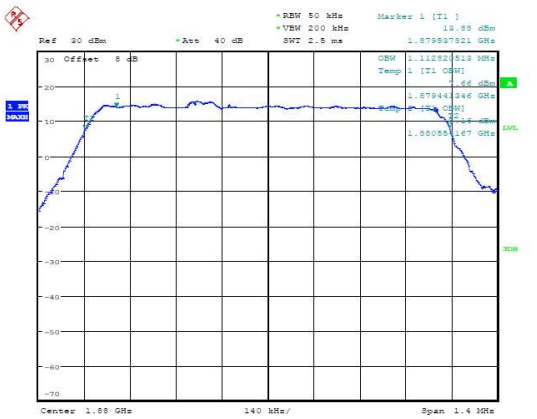
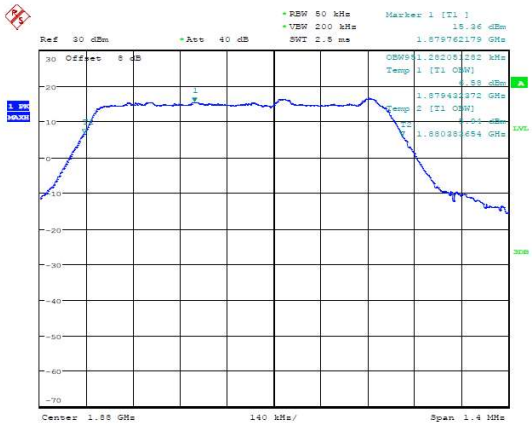
Test Mode: Link mode

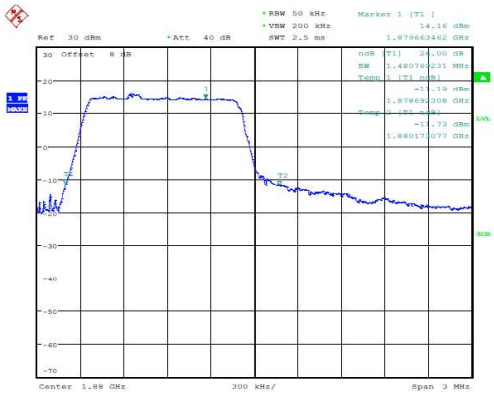
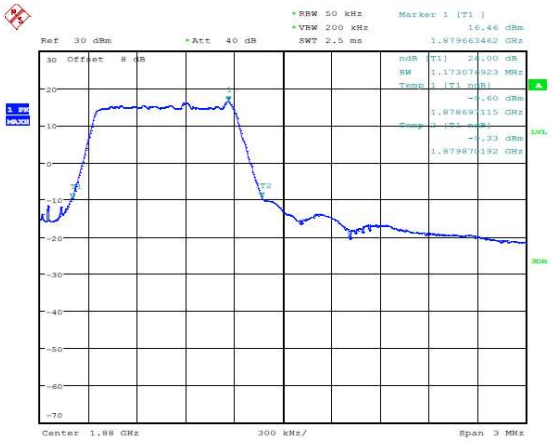
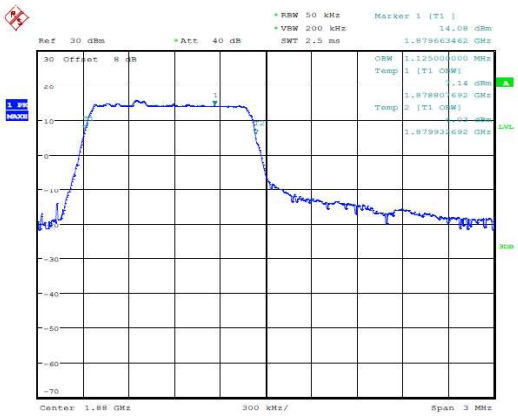
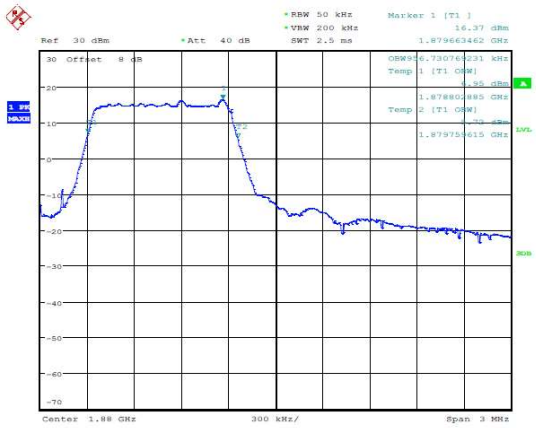
Test Results: Pass

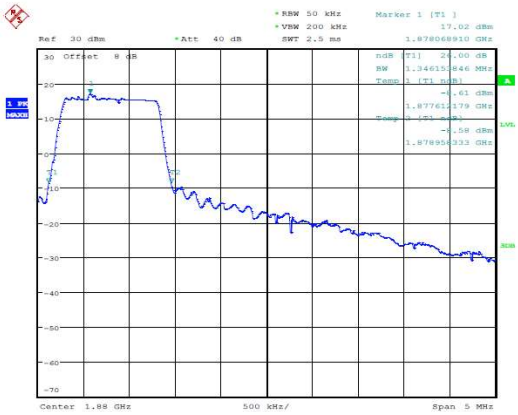
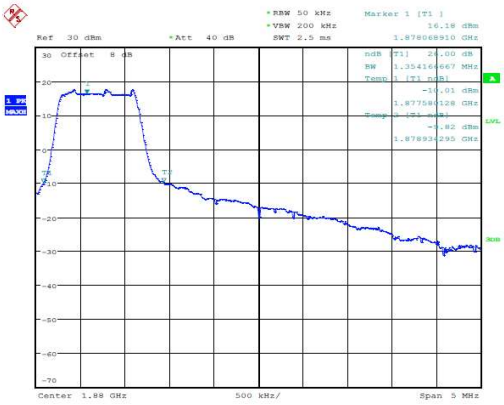
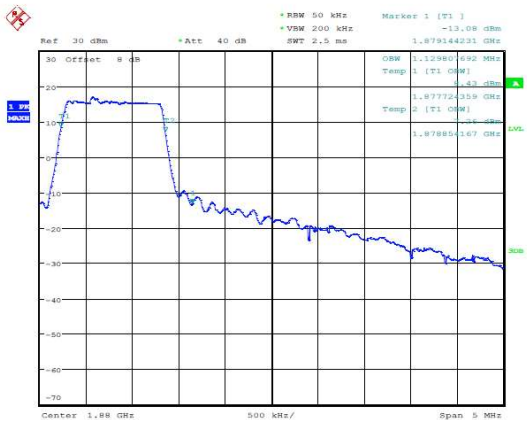
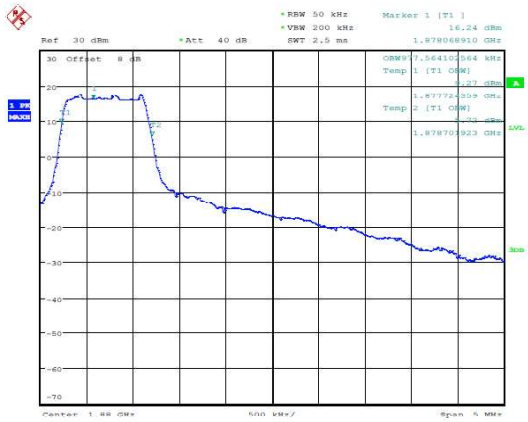
Test Data: See table below

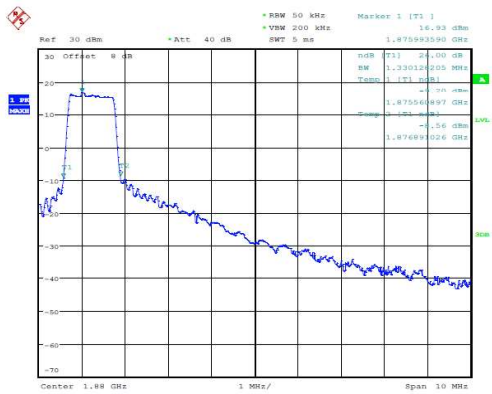
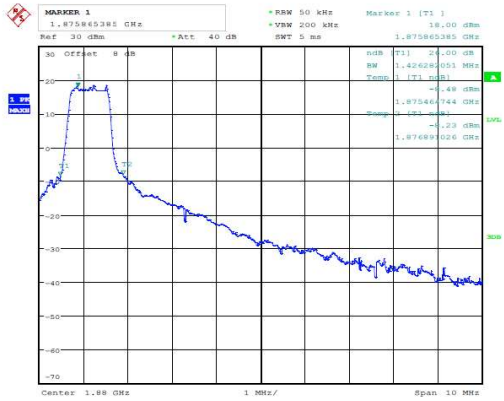
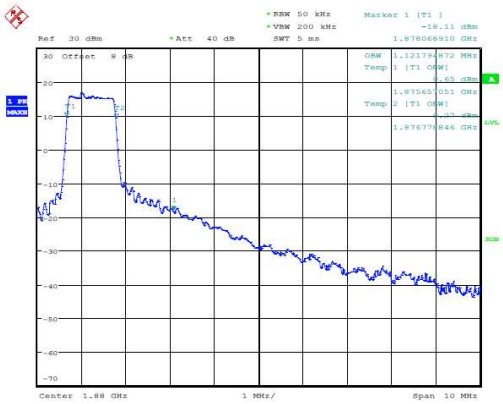
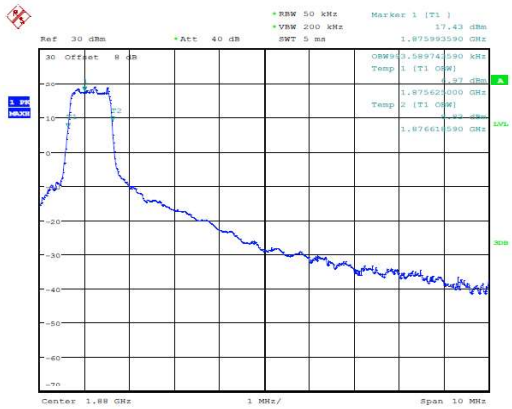
5.5.1 LTE Band 2

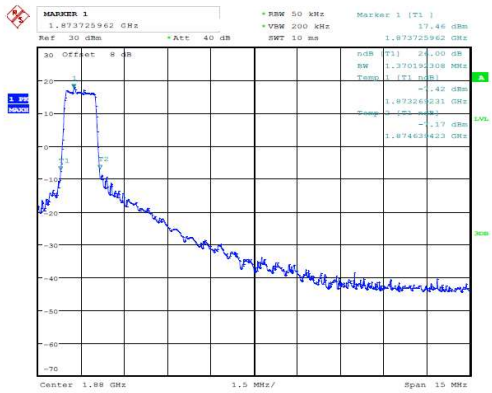
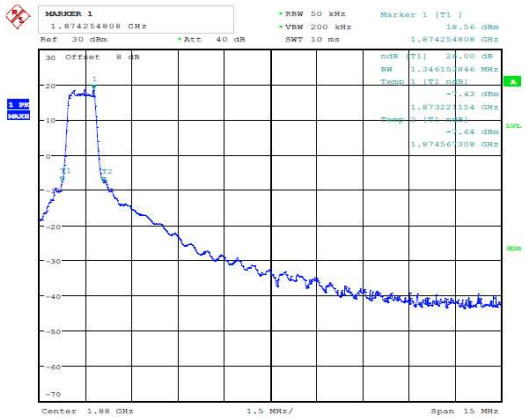
LTE Band 2			
Bandwidth	Modulation	Bandwidth(MHz)	
		99% Power	-26dBc
1.4MHz	QPSK	1.11	1.33
	16QAM	1.28	1.20
3MHz	QPSK	1.13	1.48
	16QAM	1.87	1.17
5MHz	QPSK	1.13	1.35
	16QAM	0.97	1.35
10MHz	QPSK	1.12	1.33
	16QAM	0.99	1.42
15MHz	QPSK	1.15	1.37
	16QAM	0.99	1.35
20MHz	QPSK	1.15	1.41
	16QAM	0.99	1.53

LTE Band 2_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 2_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 2_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 2_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 2_ Channel Bandwidth: 15 MHz	
QPSK	16QAM
-26dBc	
	
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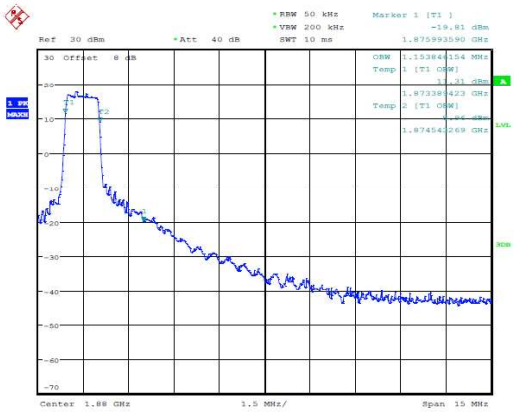
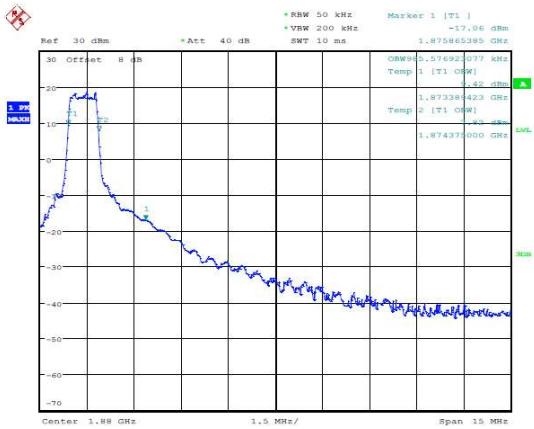
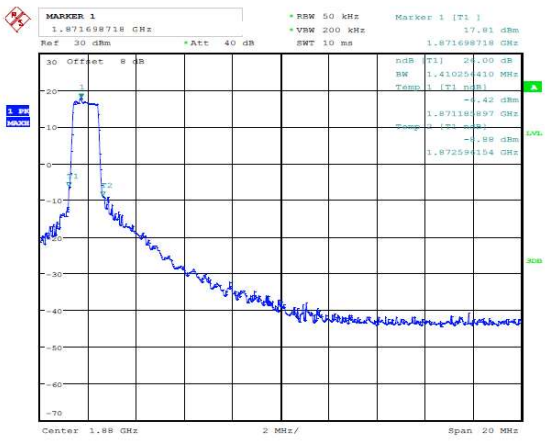
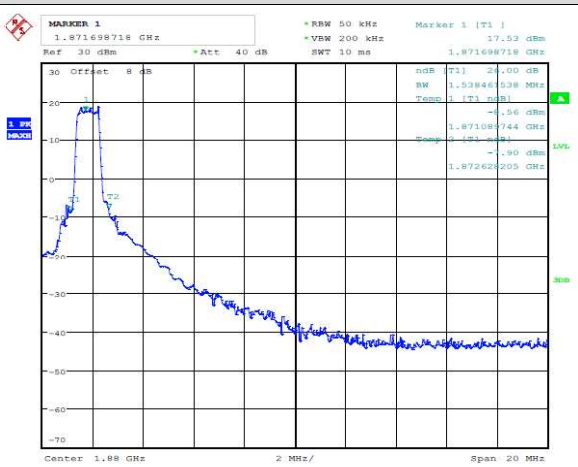
	

LTE Band 2_ Channel Bandwidth: 20 MHz	
QPSK	16QAM
-26dBc	
	
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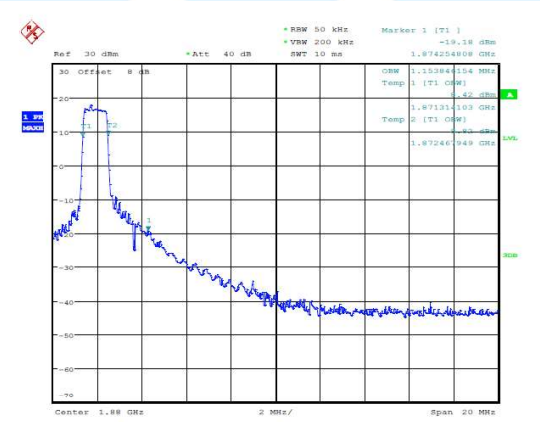
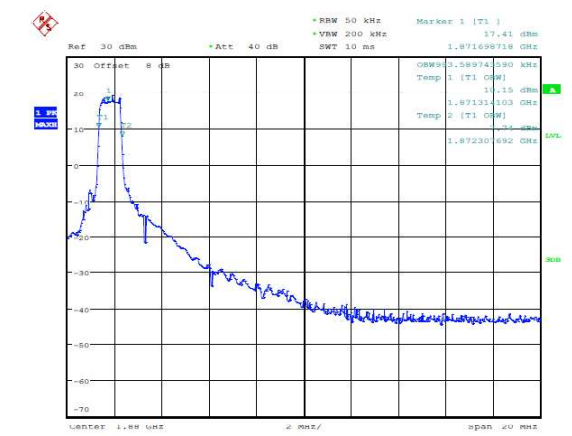
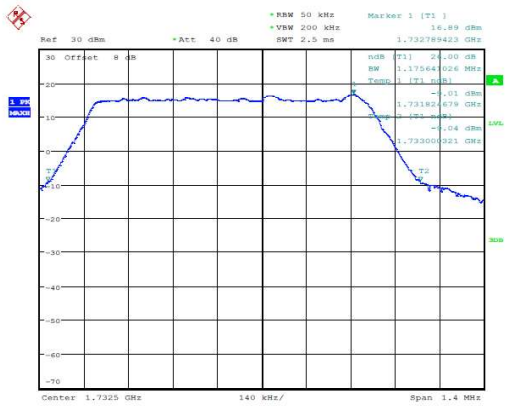
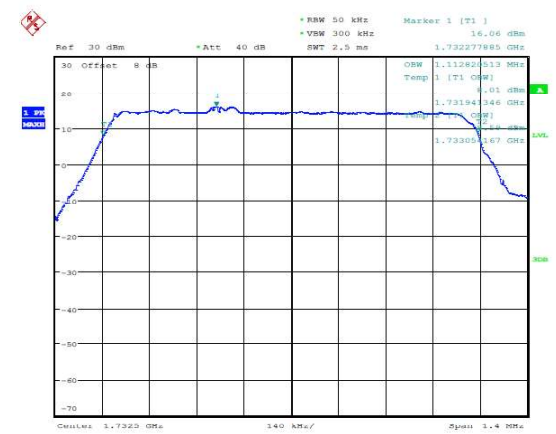
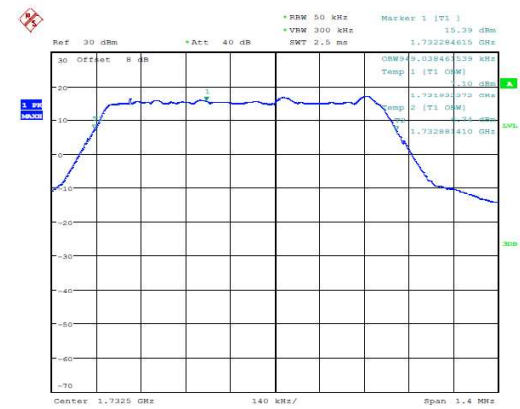
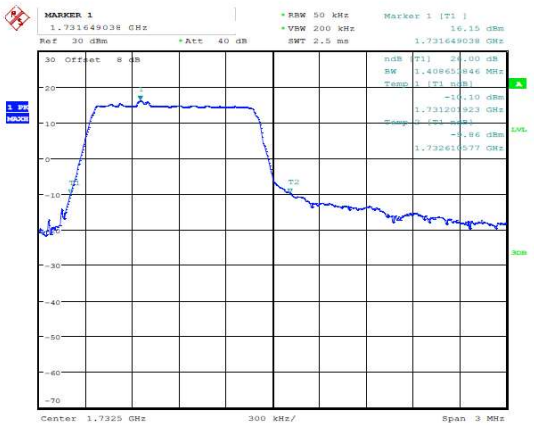
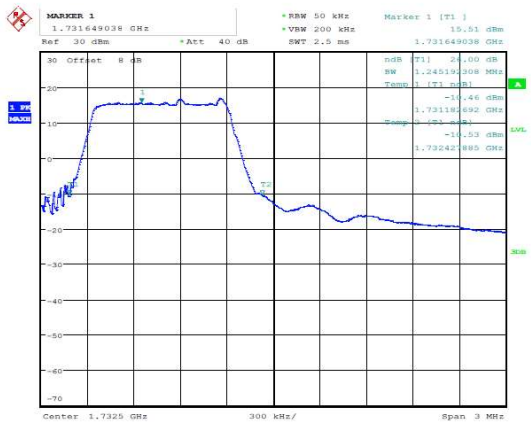
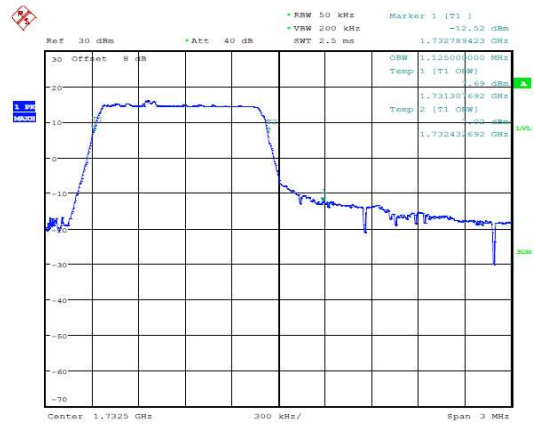
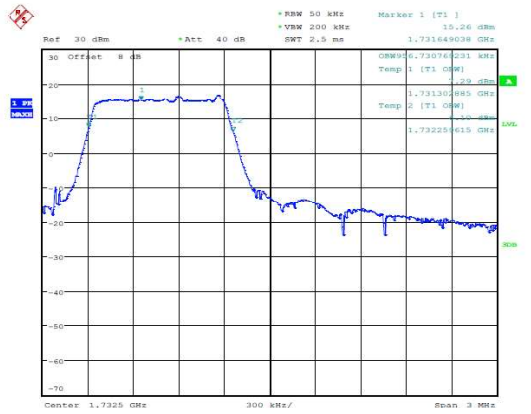
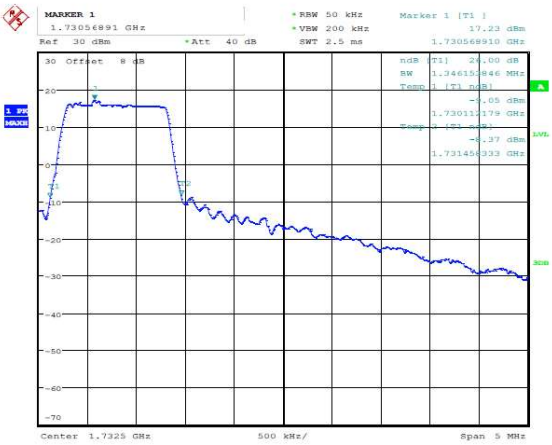
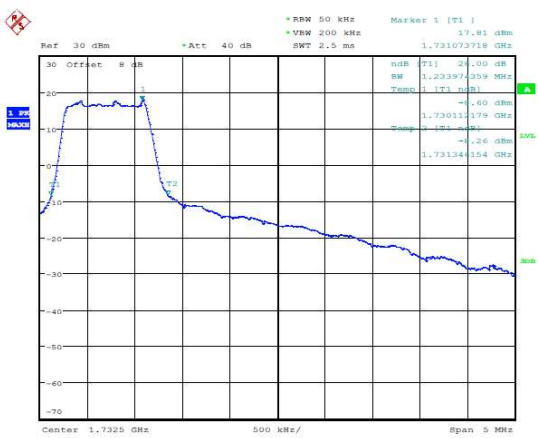
	

5.5.2 LTE Band 4

LTE Band 4			
Bandwidth	Modulation	Bandwidth(MHz)	
		99% Power	-26dBc
1.4MHz	QPSK	1.11	1.33
	16QAM	0.99	1.18
3MHz	QPSK	1.13	1.41
	16QAM	0.98	1.25
5MHz	QPSK	1.13	1.35
	16QAM	1.00	1.23
10MHz	QPSK	1.12	1.33
	16QAM	0.94	1.43
15MHz	QPSK	1.15	1.39
	16QAM	0.96	1.32
20MHz	QPSK	1.15	1.41
	16QAM	0.99	1.12

LTE Band 4_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 4_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 4_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
-26dBc	
	
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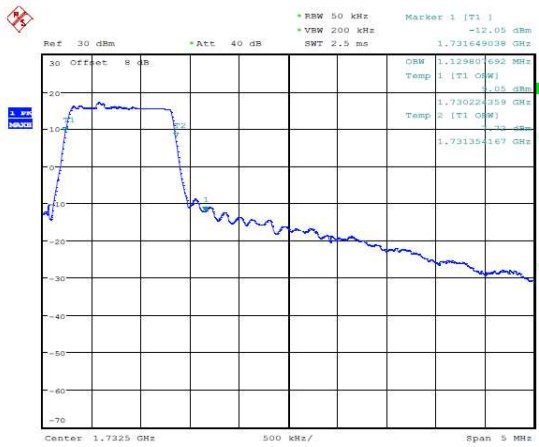
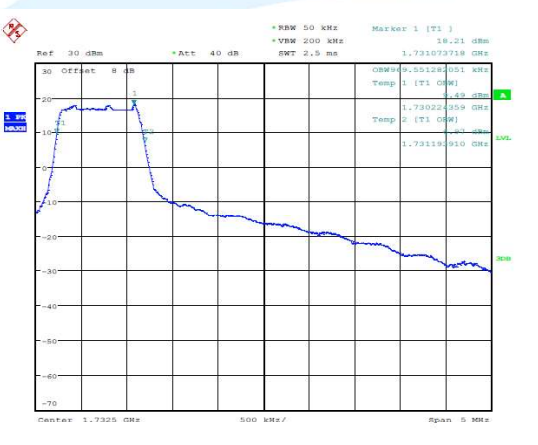
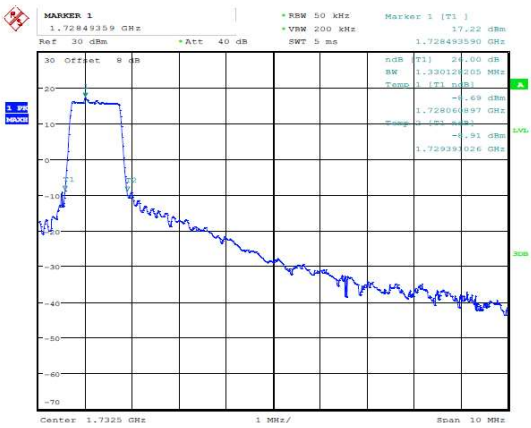
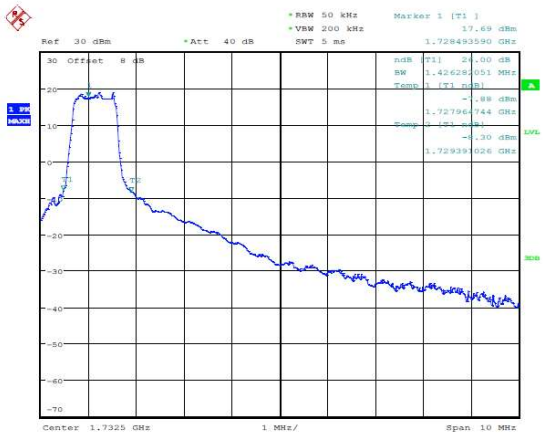
	

LTE Band 4_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
-26dBc	
	
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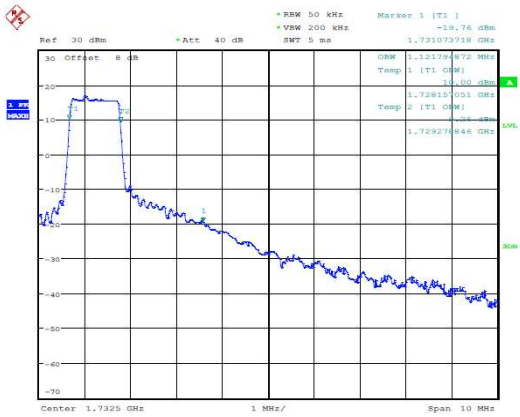
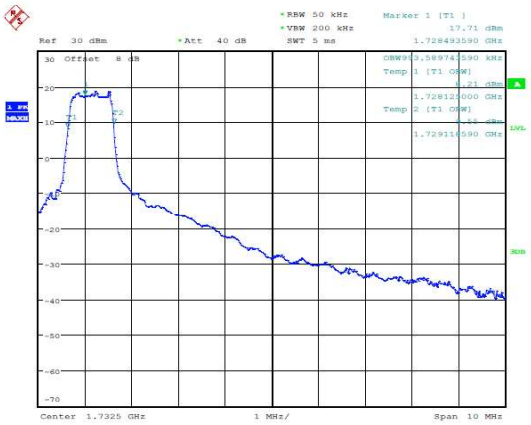
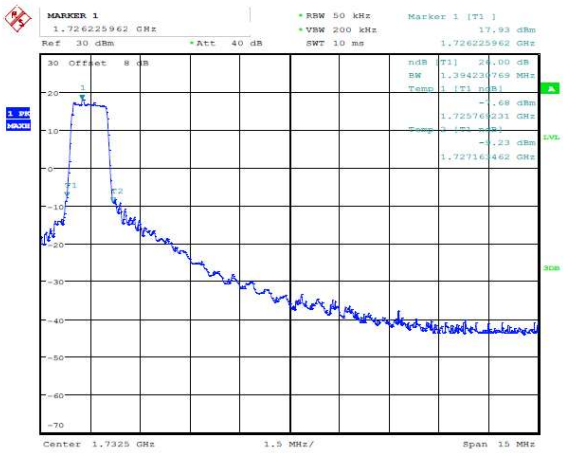
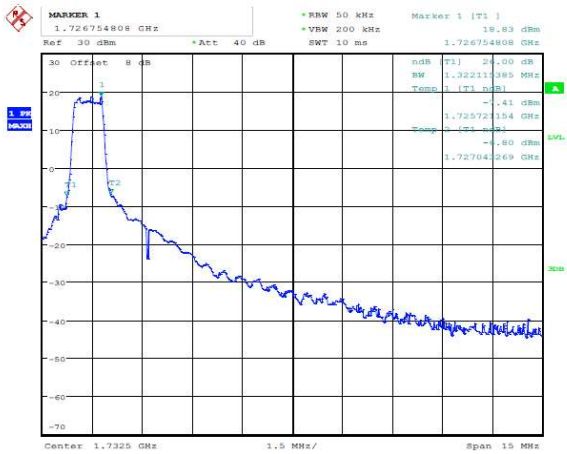
	

LTE Band 2_ Channel Bandwidth: 15 MHz	
QPSK	16QAM
-26dBc	
	
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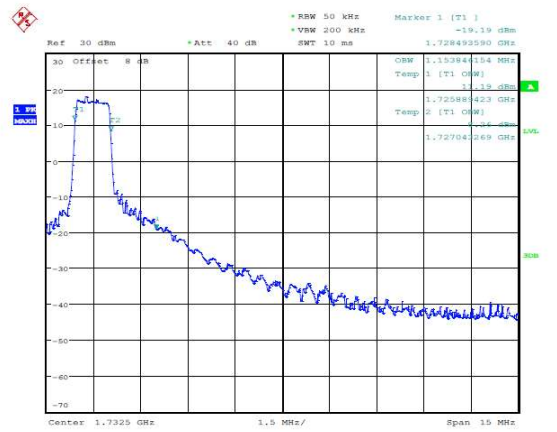
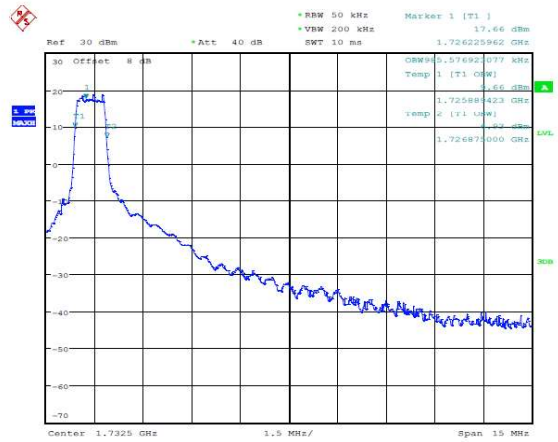
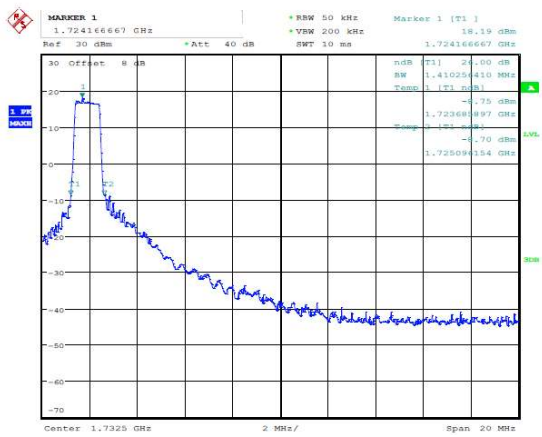
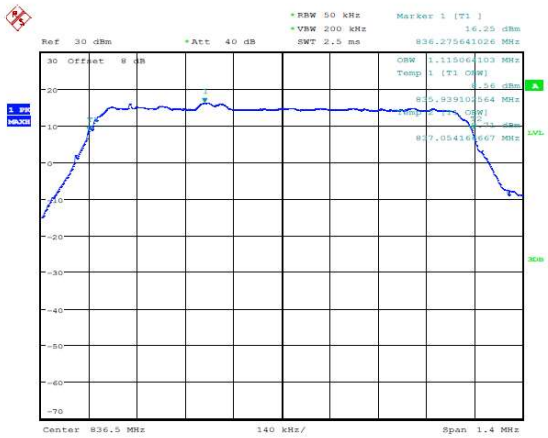
	

LTE Band 4_ Channel Bandwidth: 20 MHz	
QPSK	16QAM
-26dBc	
	
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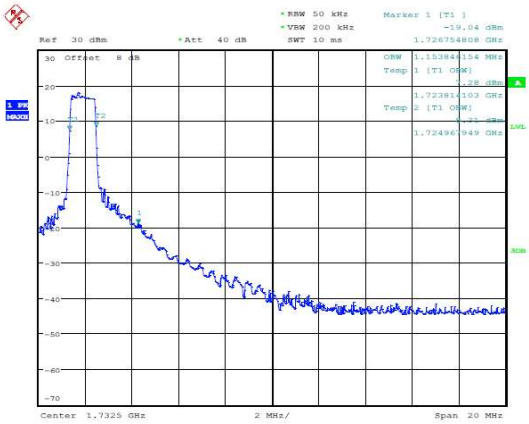
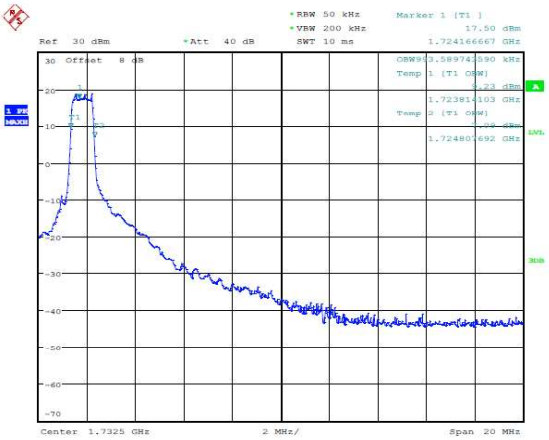
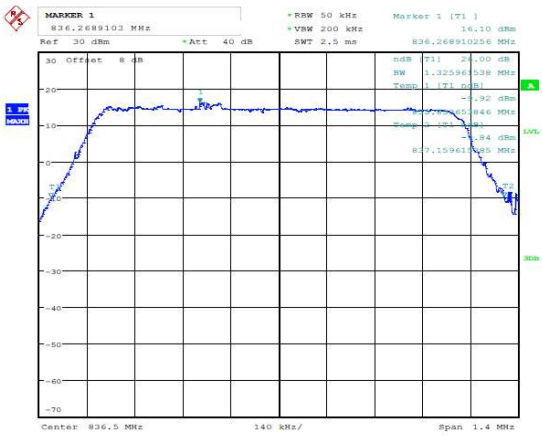
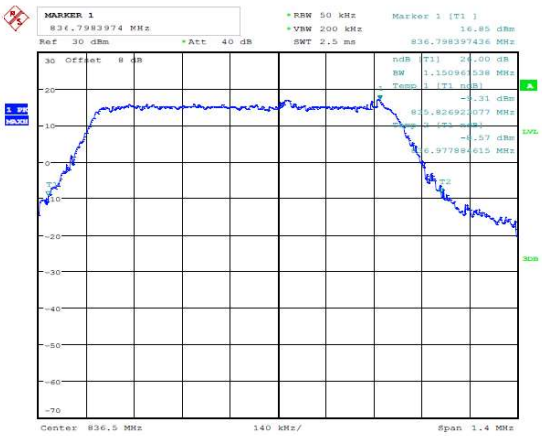
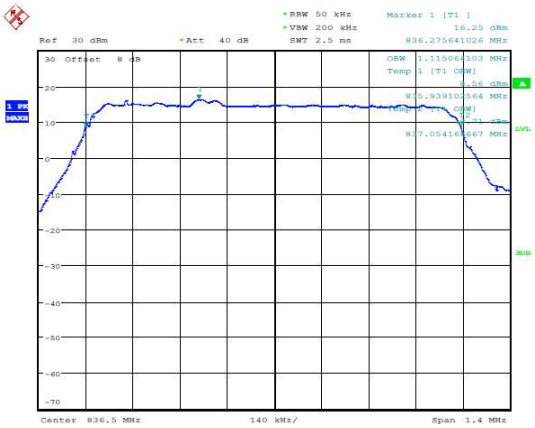
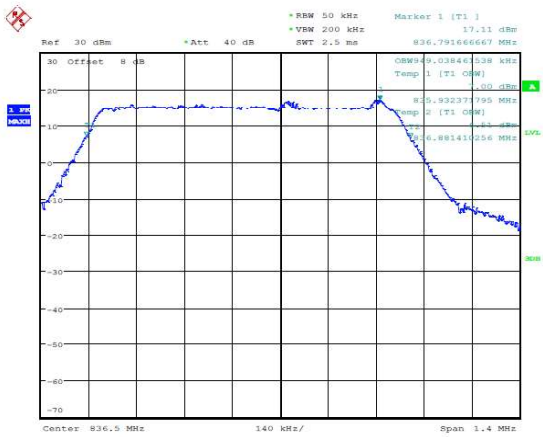
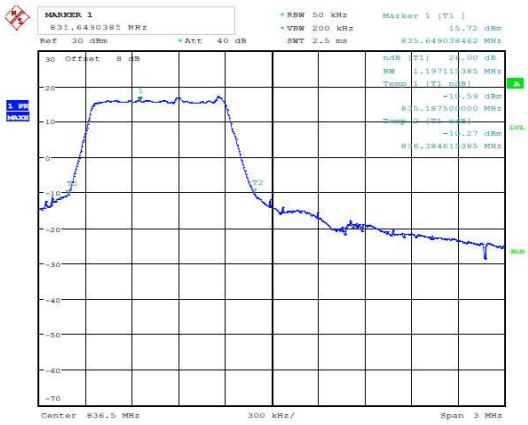
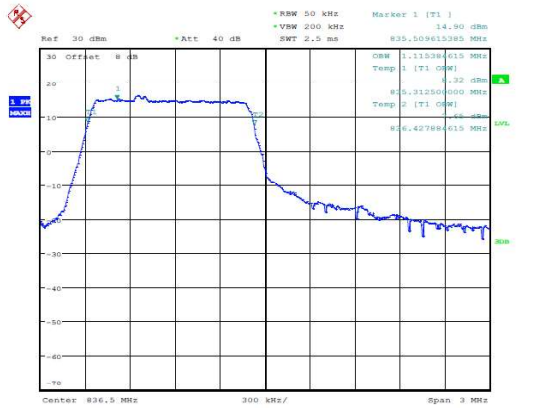
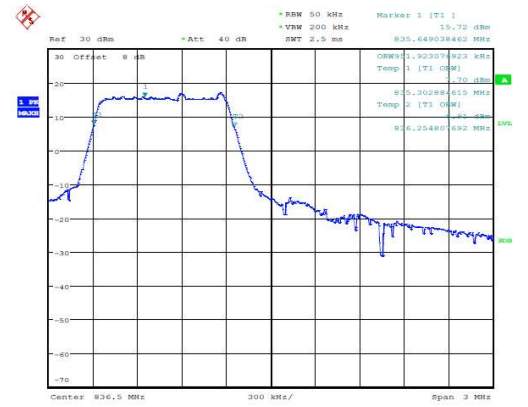
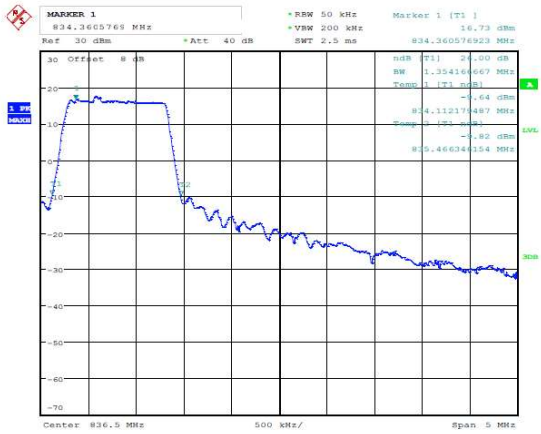
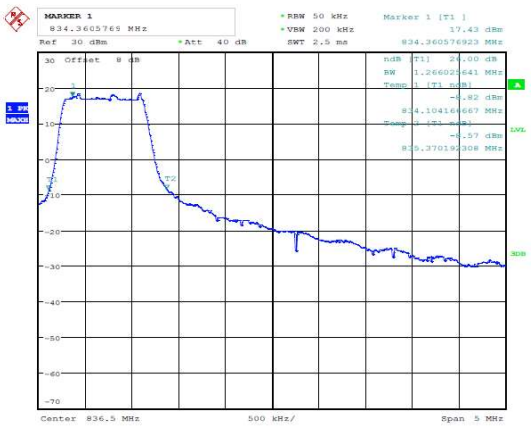
	

5.5.3 LTE Band 5

LTE Band 5			
Bandwidth	Modulation	Bandwidth(MHz)	
		99% Power	-26dBc
1.4MHz	QPSK	1.12	1.40
	16QAM	0.95	1.20
3MHz	QPSK	1.12	1.40
	16QAM	0.95	1.20
5MHz	QPSK	1.12	1.35
	16QAM	0.97	1.27
10MHz	QPSK	1.12	1.33
	16QAM	0.99	1.31

LTE Band 5_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 5_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 5_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
-26dBc	
	
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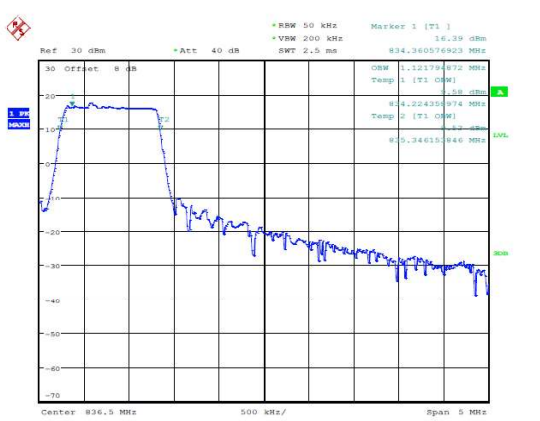
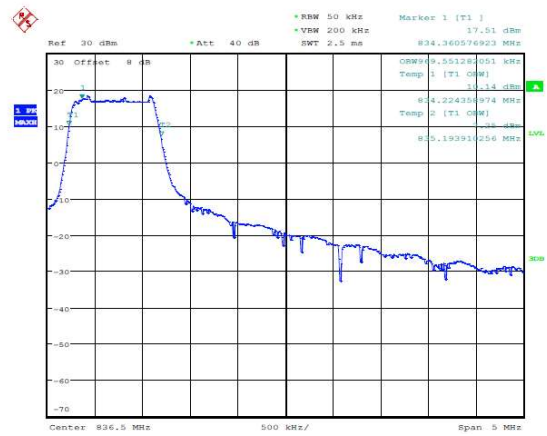
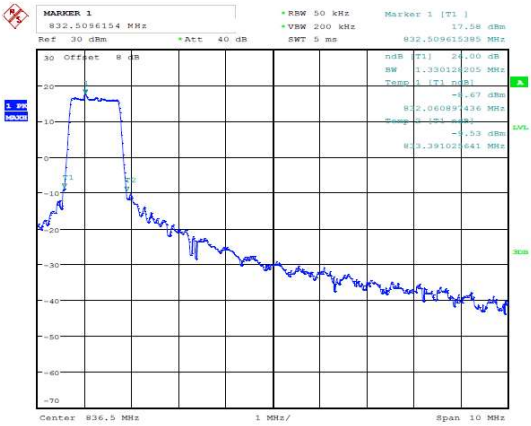
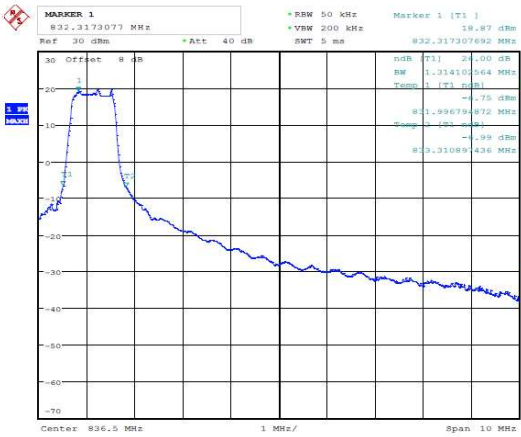
	

LTE Band 5_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
-26dBc	
	
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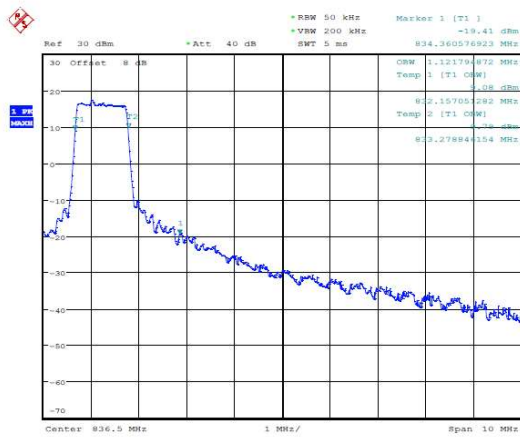
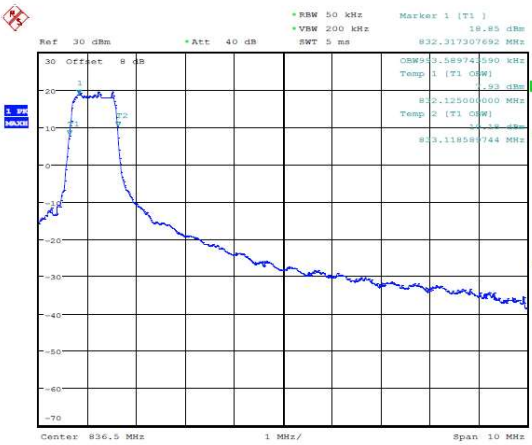
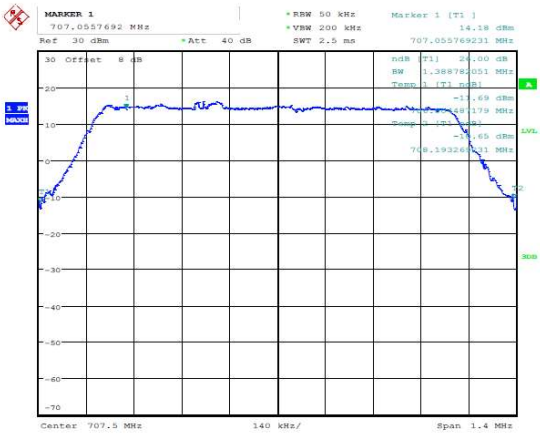
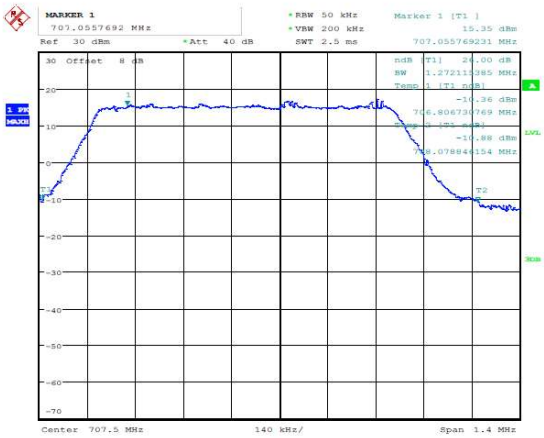
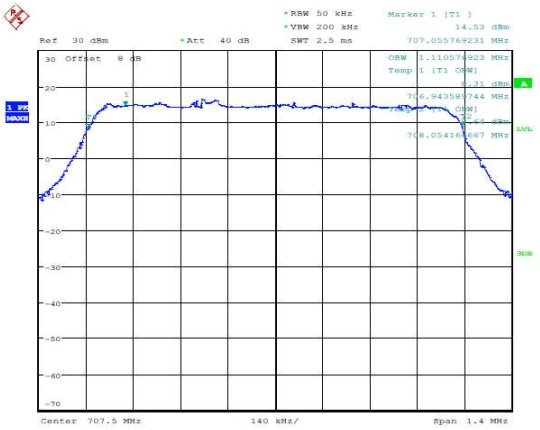
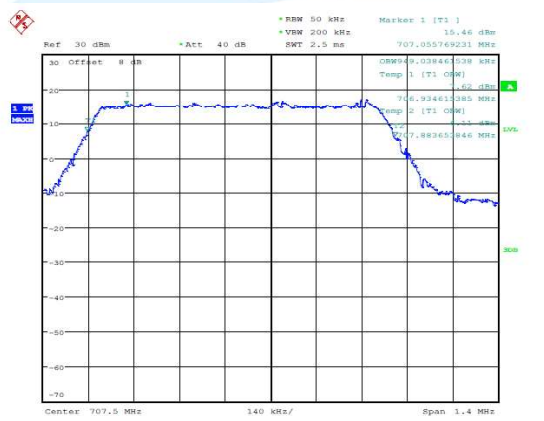
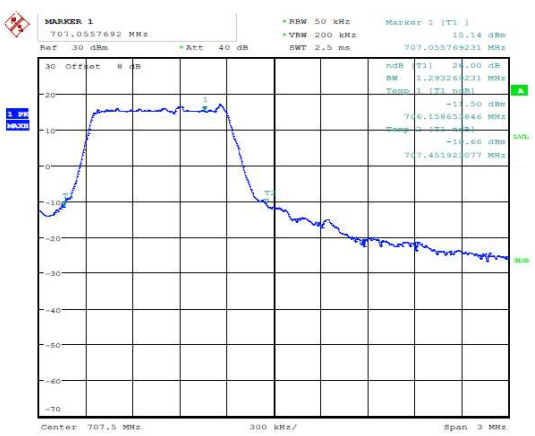
	

5.5.4 LTE Band 12

LTE Band 12			
Bandwidth	Modulation	Bandwidth(MHz)	
		99% Power	-26dBc
1.4MHz	QPSK	1.11	1.39
	16QAM	0.95	1.27
3MHz	QPSK	1.12	1.39
	16QAM	0.96	1.29
5MHz	QPSK	1.13	1.37
	16QAM	0.97	1.34
10MHz	QPSK	1.12	1.36
	16QAM	0.99	1.51

LTE Band 12_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 12_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
-26dBc	
	
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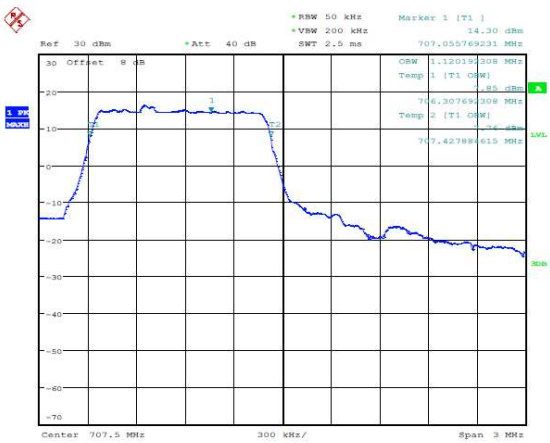
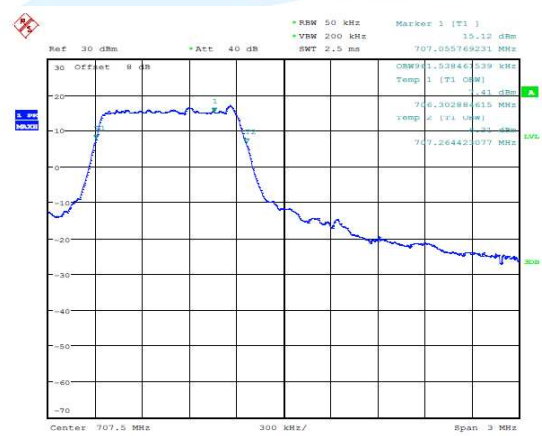
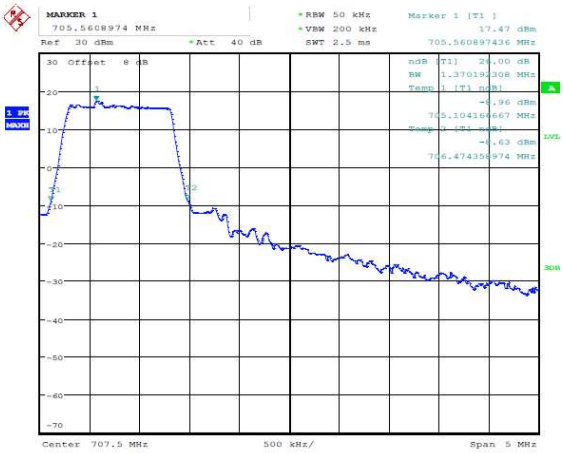
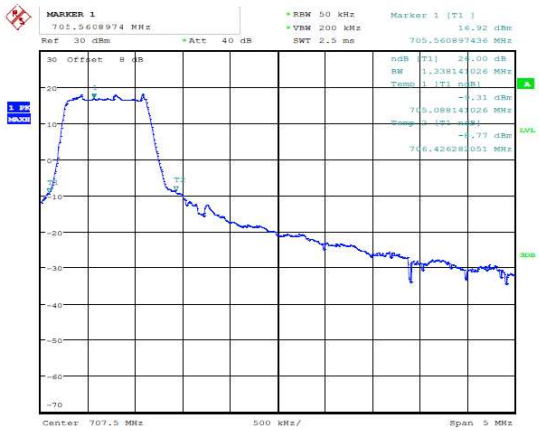
	

LTE Band 12_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
-26dBc	
	
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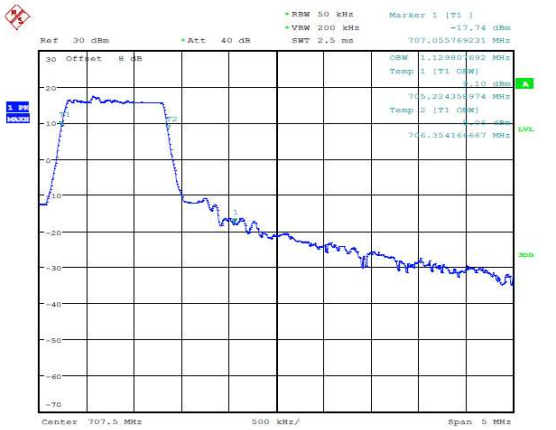
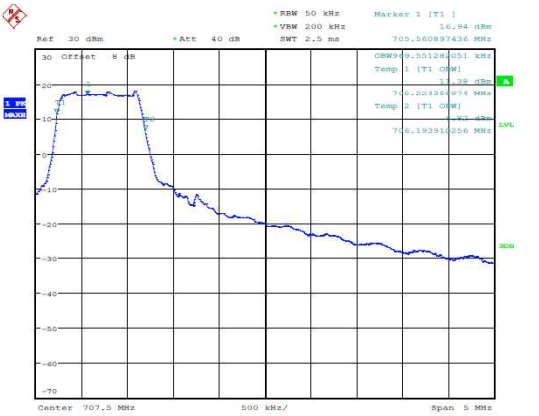
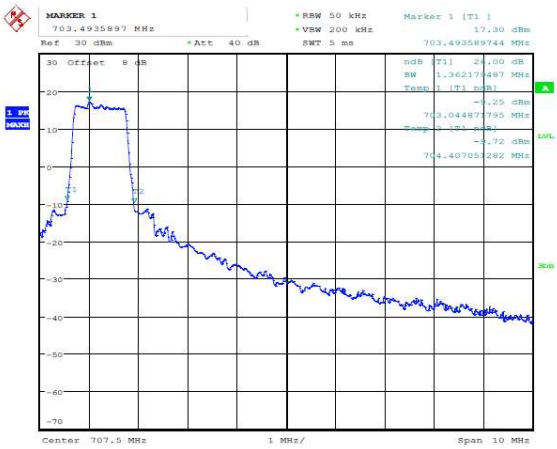
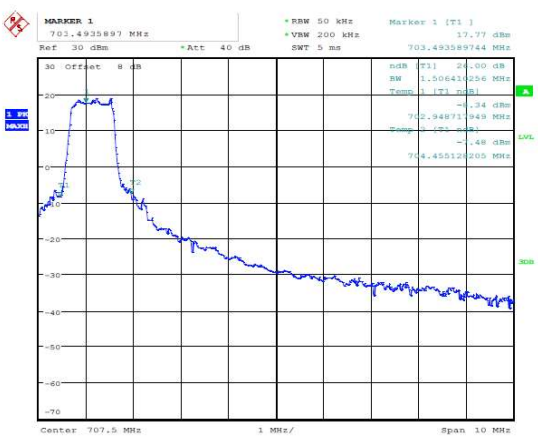
	

LTE Band 12_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
-26dBc	
	
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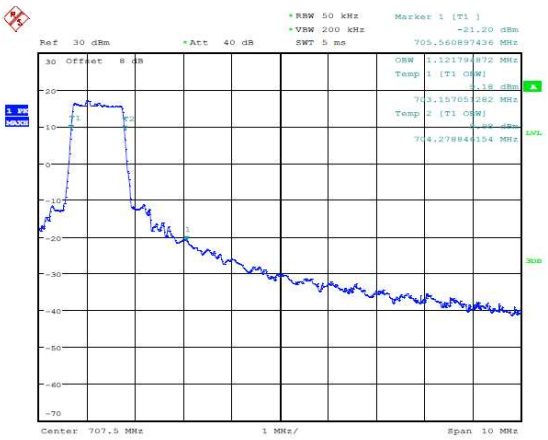
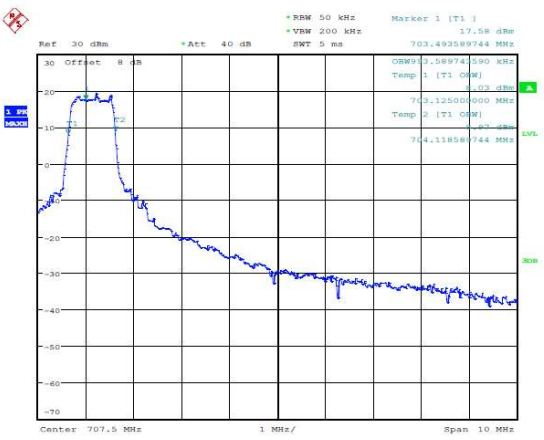
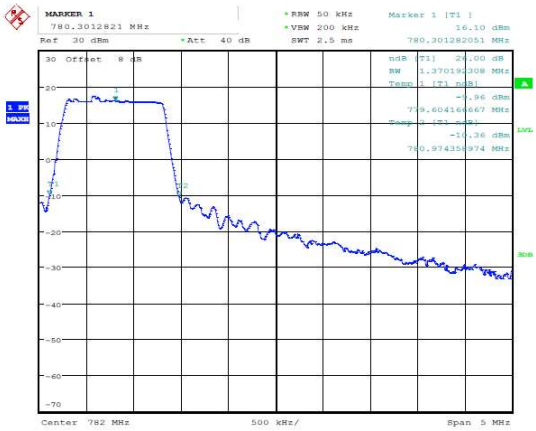
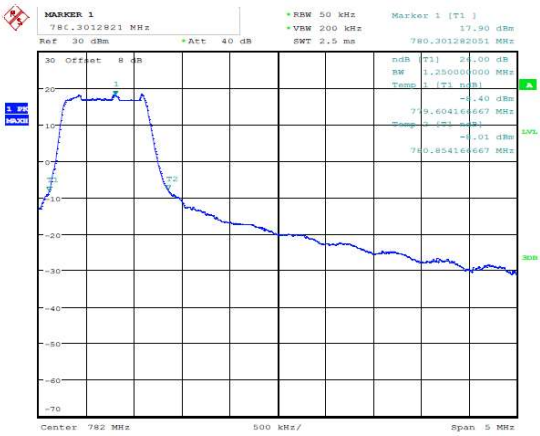
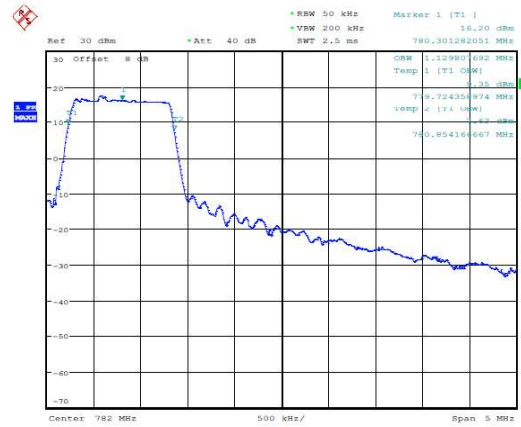
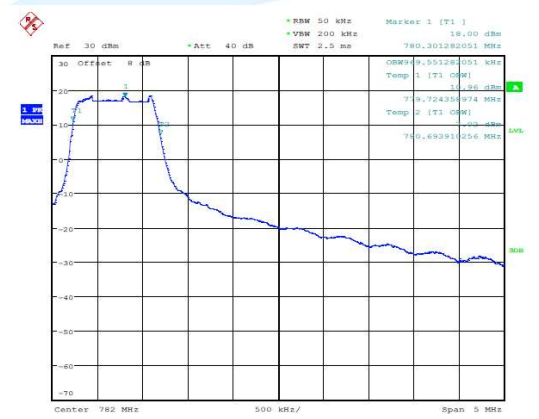
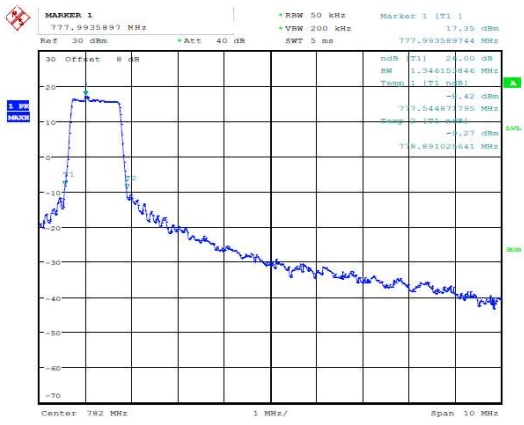
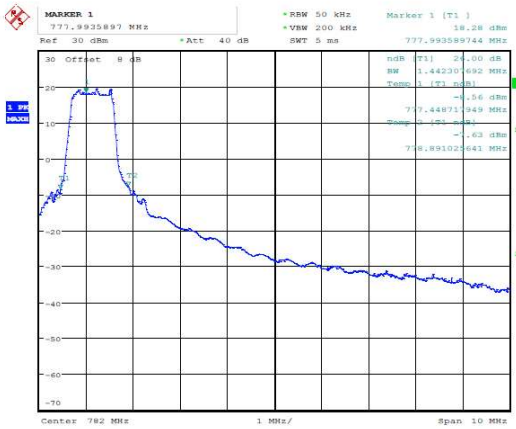
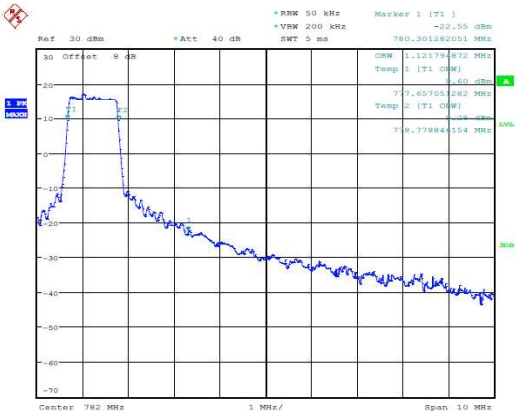
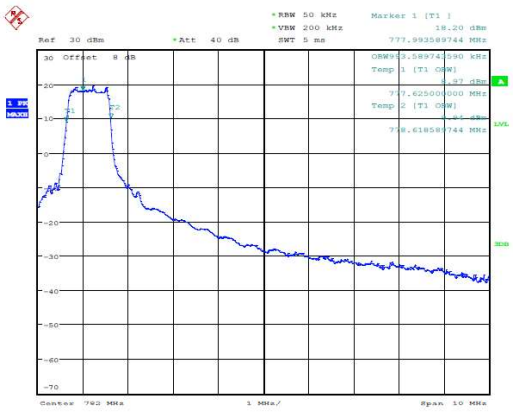
	

5.5.5 LTE Band 13

LTE Band 13			
Bandwidth	Modulation	Bandwidth(MHz)	
		99% Power	-26dBc
5MHz	QPSK	1.13	1.37
	16QAM	0.97	1.25
10MHz	QPSK	1.12	1.35
	16QAM	0.99	1.44

LTE Band 13_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
-26dBc	
	
99%	
	

LTE Band 13_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
-26dBc	
	
99%