

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT

FCC ID: 2AZYA-AX61

Product: Mobile Phone

Trade Mark: ACER

Model Number: SOSPIRO-AX61

Family Model: SOSPIRO-AX61-B, SOSPIRO-AX61-N

Report No.: S23081105002005

Prepared for

Senwa Global International, S.A. de C.V.
Carretera Mexico-Toluca No. 5324 PB, Colonia El Yaqui Del. Cuajimalpa de
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TEST RESULT CERTIFICATION

Applicant's name..... : Senwa Global International, S.A. de C.V.
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Manufacturer's Name..... : Senwa Mobile China Ltd
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 Guangdong Province
Product name : Mobile Phone
Model and/or type reference : SOSPIRO-AX61
Family Model: : SOSPIRO-AX61-B, SOSPIRO-AX61-N
Test sample number : S230811050003
Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27
Test procedure : ANSI C63.26:2015
 ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date (s) of performance of tests Aug 14, 2023 ~ Aug 31, 2023

Date of Issue Aug 31, 2023

Test Result **Pass**

Testing Engineer :



(Allen Liu)

Authorized Signatory :



(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone
Trade Mark	ACER
Model Name	SOSPIRO-AX61
Family Model	SOSPIRO-AX61-B, SOSPIRO-AX61-N
Model Difference	All models are the same circuit and RF module, except the model name and colour.
FCC ID:	2AZYA-AX61
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 13, 17, 66 LTE TDD Band 38, 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 38: Uplink & Downlink: 2570 MHz to 2620 MHz LTE TDD Band 41 :Uplink & Downlink: 2535MHz-2655MHz, (see note 2) LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	PIFA Antenna
Antenna gain:	Band 2:-0.61 dBi; Band 4:-0.68 dBi; Band 5:-0.94 dBi; Band 7:-1.2 dBi; Band 12:-1.34 dBi; Band 13:-1 dBi; Band 17:-1.35 dBi; Band 38:-0.68 dBi; Band 41:-1.63 dBi; Band 66:-0.71 dBi;
Power Supply:	DC 3.87V/4900mAh from battery or DC 5V from Adapter.
Adapter:	Model: SGCH0018

	Input: 100-240Vca 50/60Hz 0.5A Output: 5.0Vcc 3A, 9.0Vcc 2A 18W		
Extreme Vol. Limits:	DC 3.4V to DC 4.4V (Nominal DC 3.87V) (Note 1)		
HW Version	ums5121h10_V1.0		
SW Version	Acer_AX61_Ver01		
** Note1: The High Voltage DC 4.4V and Low Voltage DC 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.			
Note2: channel list:			
Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	40065	2537.5
	10	40090	2540
	15	40115	2542.5
	20	40140	2545
Mid Range	5/10/15/20	40640	2595
High Range	5	41215	2652.5
	10	41190	2650
	15	41165	2647.5
	20	41140	2645

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AZYA-AX61** filing to comply with the FCC Part 22H&24E &27.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27 ,ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1&5/F, Building C, 1&2/F, Building E, Fenda Science Park, Sanwei Community, Hangcheng Street, Baoan District, Shenzhen ,Guangdong, China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.26:2015& ANSI C63.4: 2014.

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: Band 2, Band 4, Band 5, Band 7, Band 12, Band 13, Band 17, Band 38, Band 41, Band 66.

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

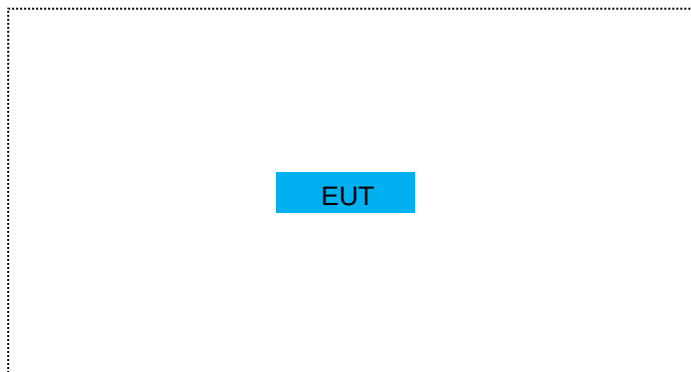
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	SOSPIRO-AX61	FCC ID: 2AZYA-AX61	EUT

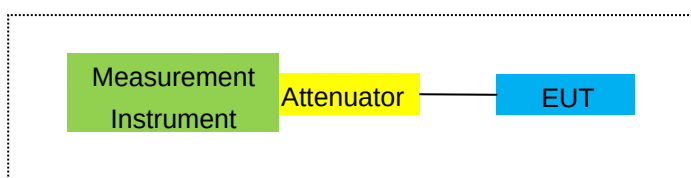
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

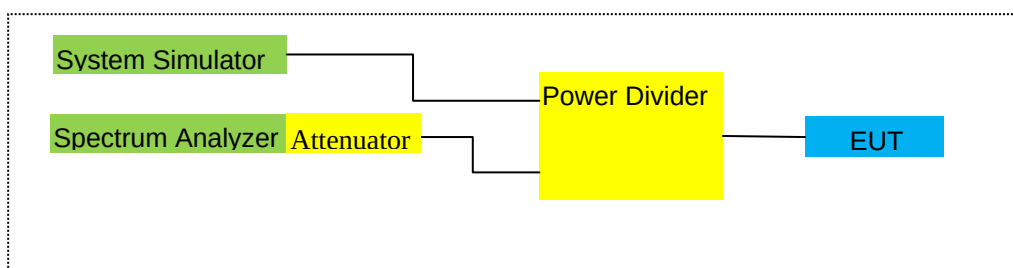
For Radiated Test Cases



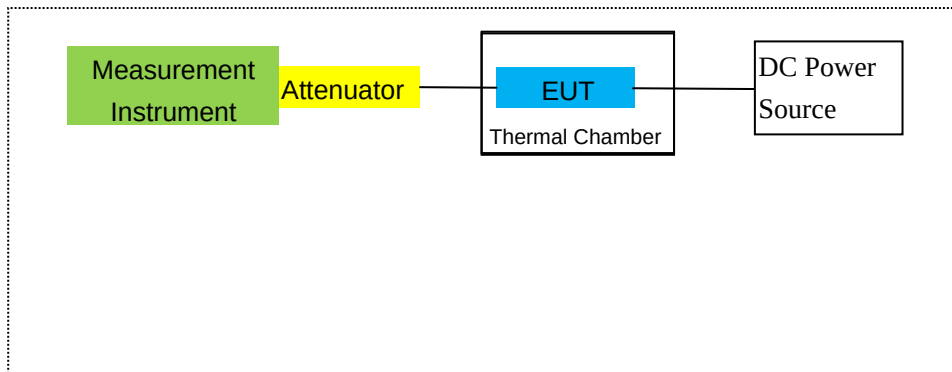
For Conducted Output Power



For Peak-to Average Ratio, Occupied Bandwidth, Conducted Band edge and Conducted Spurious Emission



For Frequency Stability



Note: EUT built-in battery-powered, the battery is fully-charged.

3.TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2023.05.29	2024.05.28	1 year
2	Test Receiver	R&S	ESPI	101318	2023.03.27	2024.03.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2023.03.27	2024.03.26	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
5	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2023/1/12	2024/1/11	1 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2023/1/12	2024/1/11	1 year
7	Amplifier	EM	EM-30180	060538	2023.05.29	2024.05.28	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2023.03.27	2024.03.26	1 year
9	Power Meter	R&S	NRVS	100696	2023.05.29	2024.05.28	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2023.03.27	2024.03.26	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2023.03.27	2024.03.26	1 year
15	LISN	R&S	ENV216	101313	2023.03.27	2024.03.26	1 year
16	LISN	EMCO	3816/2	00042990	2023.03.27	2024.03.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2023.03.27	2024.03.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2023.03.27	2024.03.26	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Attenuator	MCE	24-10-34	BN9258	2023.03.27	2024.03.26	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2023.03.27	2024.03.26	1 year
24	test receiver	R&S	ESCI	a0304218	2023.03.27	2024.03.26	1 year

25	Communication Tester	R&S	CMU200	A0304247	2023.05.29	2024.05.28	1 year
26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2023.03.27	2024.03.26	1 year
27	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2022/11/8	2023/11/7	1 year
29	Communication Tester	R&S	CMW500	148500	2023.05.29	2024.05.28	1 year
30	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2023/1/11	2024/1/10	1 year
31	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2023/1/11	2024/1/10	1 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".3

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10, 15, 20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

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 -26dB bandwidth was also measured and recorded.

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 38
- LTE Band 41
- LTE Band 66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

FCC: §2.1046, §22.913, §24.232

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is $65 + 10\log_{10}(P) = -35\text{dBm}$ in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

Set a marker to point the corresponding band edge frequency in each test case.

Set display line

Set resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

- ☐ LTE Band2/4/5/7/12/13/17/38/41/66

RESULTS

Test data reference attachment.

Note: Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is $65 + 10\log_{10}(P) = -35\text{dBm}$ in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- ☐ Set display line
- ☐ Set RBW & VBW to 100kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17

LTE Band 38
LTE Band 41
LTE Band 66

7.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Test data reference attachment.

Note: Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913(a)(2), §24.232(c) and §27.50 (h)(2), (b)(10), (c)(10), (d)(4)

LIMITS:

22.913(a) (2)- The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232 (c) Mobile and portable stations are limited to 2 watts EIRP.

27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.

27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

27.50 (h)(2) Mobile and other user stations in the 2500–2570 MHz and 2620–2690 MHz bands. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

KDB 971168 D01 Power Meas License Digital Systems v02r01, "Measurement Guidance for Certification of Licensed Digital Transmitters"

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 38
- LTE Band 41
- LTE Band 66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz	1/#Mid	1850.7	-2.93	3.76	28.24	21.55	142.889	Horizontal	Pass
Band		1880	-2.74	3.91	28.22	21.57	143.549	Horizontal	Pass
QPSK		1909.3	-2.65	3.93	28.20	21.62	145.211	Horizontal	Pass
3.0MHz	1/#Mid	1851.5	-2.99	3.77	28.23	21.47	140.281	Horizontal	Pass
Band		1880	-2.84	3.91	28.24	21.49	140.929	Horizontal	Pass
QPSK		1908.5	-2.71	3.94	28.25	21.60	144.544	Horizontal	Pass
5.0MHz	1/#Mid	1852.5	-2.88	3.77	28.31	21.66	146.555	Horizontal	Pass
Band		1880	-2.50	3.91	28.22	21.81	151.705	Horizontal	Pass
QPSK		1907.5	-2.43	3.94	28.20	21.83	152.405	Horizontal	Pass
10.0MHz	1/#Mid	1855	-2.74	3.79	28.33	21.80	151.356	Horizontal	Pass
Band		1880	-2.44	3.95	28.22	21.83	152.405	Horizontal	Pass
QPSK		1905	-2.33	3.97	28.19	21.89	154.525	Horizontal	Pass
15.0MHz	1/#Mid	1857.5	-2.70	3.79	28.34	21.85	153.109	Horizontal	Pass
Band		1880	-2.49	3.95	28.22	21.78	150.661	Horizontal	Pass
QPSK		1902.5	-2.35	3.97	28.18	21.86	153.462	Horizontal	Pass
20.0MHz	1/#Mid	1860	-2.69	3.81	28.35	21.85	153.109	Horizontal	Pass
Band		1880	-2.36	3.96	28.22	21.90	154.882	Horizontal	Pass
QPSK		1900	-2.30	4.00	28.16	21.86	153.462	Horizontal	Pass
1.4MHz	1/#Mid	1850.7	-4.19	3.76	28.24	20.29	106.905	Vertical	Pass
Band		1880	-3.21	3.91	28.22	21.10	128.825	Vertical	Pass
QPSK		1909.3	-3.40	3.93	28.20	20.87	122.180	Vertical	Pass
3.0MHz	1/#Mid	1851.5	-4.04	3.77	28.23	20.42	110.154	Vertical	Pass
Band		1880	-3.69	3.91	28.24	20.64	115.878	Vertical	Pass
QPSK		1908.5	-3.86	3.94	28.25	20.45	110.917	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-3.58	3.77	28.31	20.96	124.738	Vertical	Pass
Band		1880	-3.32	3.91	28.22	20.99	125.603	Vertical	Pass
QPSK		1907.5	-3.50	3.94	28.20	20.76	119.124	Vertical	Pass
10.0MHz	1/#Mid	1855	-3.39	3.79	28.33	21.15	130.317	Vertical	Pass
Band		1880	-3.37	3.95	28.22	20.90	123.027	Vertical	Pass
QPSK		1905	-3.24	3.97	28.19	20.98	125.314	Vertical	Pass

15.0MHz		1857.5	-3.78	3.79	28.34	20.77	119.399	Vertical	Pass
Band	1/#Mid	1880	-3.71	3.95	28.22	20.56	113.763	Vertical	Pass
QPSK		1902.5	-3.82	3.97	28.18	20.39	109.396	Vertical	Pass
20.0MHz		1860	-4.23	3.81	28.35	20.31	107.399	Vertical	Pass
Band	1/#Mid	1880	-3.75	3.96	28.22	20.51	112.460	Vertical	Pass
QPSK		1900	-3.57	4.00	28.16	20.59	114.551	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain(dB) + SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz	1/#Mid	1850.7	-4.05	3.76	28.24	20.43	110.408	Horizontal	Pass
Band 16		1880	-3.52	3.91	28.22	20.79	119.950	Horizontal	Pass
QAM		1909.3	-3.45	3.93	28.20	20.82	120.781	Horizontal	Pass
3.0MHz	1/#Mid	1851.5	-3.55	3.77	28.23	20.91	123.310	Horizontal	Pass
Band 16		1880	-3.63	3.91	28.24	20.70	117.490	Horizontal	Pass
QAM		1908.5	-3.84	3.94	28.25	20.47	111.429	Horizontal	Pass
5.0MHz	1/#Mid	1852.5	-3.49	3.77	28.31	21.05	127.350	Horizontal	Pass
Band 16		1880	-3.40	3.91	28.22	20.91	123.310	Horizontal	Pass
QAM		1907.5	-3.08	3.94	28.20	21.18	131.220	Horizontal	Pass
10.0MHz	1/#Mid	1855	-3.54	3.79	28.33	21.00	125.893	Horizontal	Pass
Band 16		1880	-3.53	3.95	28.22	20.74	118.577	Horizontal	Pass
QAM		1905	-3.00	3.97	28.19	21.22	132.434	Horizontal	Pass
15.0MHz	1/#Mid	1857.5	-3.52	3.79	28.34	21.03	126.765	Horizontal	Pass
Band 16		1880	-3.31	3.95	28.22	20.96	124.738	Horizontal	Pass
QAM		1902.5	-3.27	3.97	28.18	20.94	124.165	Horizontal	Pass
20.0MHz	1/#Mid	1860	-3.41	3.81	28.35	21.13	129.718	Horizontal	Pass
Band 16		1880	-3.11	3.96	28.22	21.15	130.317	Horizontal	Pass
QAM		1900	-2.93	4.00	28.16	21.23	132.739	Horizontal	Pass
1.4MHz	1/#Mid	1850.7	-4.43	3.76	28.24	20.05	101.158	Vertical	Pass
Band 16		1880	-4.27	3.91	28.22	20.04	100.925	Vertical	Pass
QAM		1909.3	-4.16	3.93	28.20	20.11	102.565	Vertical	Pass
3.0MHz	1/#Mid	1851.5	-4.69	3.77	28.23	19.77	94.842	Vertical	Pass
Band 16		1880	-4.10	3.91	28.24	20.23	105.439	Vertical	Pass
QAM		1908.5	-4.62	3.94	28.25	19.69	93.111	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-4.78	3.77	28.31	19.76	94.624	Vertical	Pass
Band 16		1880	-4.98	3.91	28.22	19.33	85.704	Vertical	Pass
QAM		1907.5	-4.59	3.94	28.20	19.67	92.683	Vertical	Pass
10.0MHz	1/#Mid	1855	-4.36	3.79	28.33	20.18	104.232	Vertical	Pass
Band 16		1880	-4.19	3.95	28.22	20.08	101.859	Vertical	Pass
QAM		1905	-4.35	3.97	28.19	19.87	97.051	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-4.98	3.79	28.34	19.57	90.573	Vertical	Pass
Band 16		1880	-4.20	3.95	28.22	20.07	101.625	Vertical	Pass
QAM		1902.5	-4.33	3.97	28.18	19.88	97.275	Vertical	Pass

20.0MHz	1/#Mid	1860	-4.38	3.81	28.35	20.16	103.753	Vertical	Pass
Band 16		1880	-4.83	3.96	28.22	19.43	87.700	Vertical	Pass
QAM		1900	-4.88	4.00	28.16	19.28	84.723	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain (dB) + SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss	Factor	Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.84	3.12	27.58	21.62	145.211	Horizontal	Pass
		1732.5	-2.83	3.27	27.61	21.51	141.579	Horizontal	Pass
		1754.3	-2.81	3.29	27.63	21.53	142.233	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.01	3.13	27.61	21.47	140.281	Horizontal	Pass
		1732.5	-2.93	3.27	27.61	21.41	138.357	Horizontal	Pass
		1753.5	-2.85	3.30	27.62	21.47	140.281	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.78	3.13	27.63	21.72	148.594	Horizontal	Pass
		1732.5	-2.68	3.27	27.61	21.66	146.555	Horizontal	Pass
		1752.5	-2.56	3.30	27.60	21.74	149.279	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.72	3.15	27.64	21.77	150.314	Horizontal	Pass
		1732.5	-2.49	3.31	27.61	21.81	151.705	Horizontal	Pass
		1750	-2.51	3.33	27.59	21.75	149.624	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.73	3.15	27.65	21.77	150.314	Horizontal	Pass
		1732.5	-2.57	3.31	27.61	21.73	148.936	Horizontal	Pass
		1747.5	-2.51	3.33	27.57	21.73	148.936	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.67	3.17	27.66	21.82	152.055	Horizontal	Pass
		1732.5	-2.50	3.32	27.61	21.79	151.008	Horizontal	Pass
		1745	-2.44	3.36	27.56	21.76	149.968	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-4.16	3.12	27.58	20.30	107.152	Vertical	Pass
		1732.5	-3.82	3.27	27.61	20.52	112.720	Vertical	Pass
		1754.3	-3.09	3.29	27.63	21.25	133.352	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.88	3.13	27.61	20.60	114.815	Vertical	Pass
		1732.5	-3.12	3.27	27.61	21.22	132.434	Vertical	Pass
		1753.5	-3.56	3.30	27.62	20.76	119.124	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.34	3.13	27.63	21.16	130.617	Vertical	Pass
		1732.5	-3.75	3.27	27.61	20.59	114.551	Vertical	Pass
		1752.5	-3.30	3.30	27.60	21.00	125.893	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.85	3.15	27.64	20.64	115.878	Vertical	Pass
		1732.5	-3.21	3.31	27.61	21.09	128.529	Vertical	Pass
		1750	-3.75	3.33	27.59	20.51	112.460	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.80	3.15	27.65	20.70	117.490	Vertical	Pass

Band		1732.5	-3.47	3.31	27.61	20.83	121.060	Vertical	Pass
QPSK		1747.5	-3.12	3.33	27.57	21.12	129.420	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.46	3.17	27.66	21.03	126.765	Vertical	Pass
Band		1732.5	-3.39	3.32	27.61	20.90	123.027	Vertical	Pass
QPSK		1745	-3.46	3.36	27.56	20.74	118.577	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain (dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss	Factor	Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
1.4MHz	1/#Mid	1710.7	-3.65	3.12	27.58	20.81	120.504	Horizontal	Pass
Band 16		1732.5	-3.50	3.27	27.61	20.84	121.339	Horizontal	Pass
QAM		1754.3	-3.50	3.29	27.63	20.84	121.339	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.59	3.13	27.61	20.89	122.744	Horizontal	Pass
Band 16		1732.5	-3.72	3.27	27.61	20.62	115.345	Horizontal	Pass
QAM		1753.5	-3.94	3.30	27.62	20.38	109.144	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.42	3.13	27.63	21.08	128.233	Horizontal	Pass
Band 16		1732.5	-3.38	3.27	27.61	20.96	124.738	Horizontal	Pass
QAM		1752.5	-3.07	3.30	27.60	21.23	132.739	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.49	3.15	27.64	21.00	125.893	Horizontal	Pass
Band 16		1732.5	-3.68	3.31	27.61	20.62	115.345	Horizontal	Pass
QAM		1750	-3.06	3.33	27.59	21.20	131.826	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-3.29	3.15	27.65	21.21	132.130	Horizontal	Pass
Band 16		1732.5	-3.35	3.31	27.61	20.95	124.451	Horizontal	Pass
QAM		1747.5	-3.37	3.33	27.57	20.87	122.180	Horizontal	Pass
20.0MHz	1/#Mid	1720	-3.24	3.17	27.66	21.25	133.352	Horizontal	Pass
Band 16		1732.5	-3.25	3.32	27.61	21.04	127.057	Horizontal	Pass
QAM		1745	-3.06	3.36	27.56	21.14	130.017	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-5.17	3.12	27.58	19.29	84.918	Vertical	Pass
Band 16		1732.5	-4.96	3.27	27.61	19.38	86.696	Vertical	Pass
QAM		1754.3	-4.48	3.29	27.63	19.86	96.828	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-4.58	3.13	27.61	19.90	97.724	Vertical	Pass
Band 16		1732.5	-4.29	3.27	27.61	20.05	101.158	Vertical	Pass
QAM		1753.5	-4.06	3.30	27.62	20.26	106.170	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-5.10	3.13	27.63	19.40	87.096	Vertical	Pass
Band 16		1732.5	-4.26	3.27	27.61	20.08	101.859	Vertical	Pass
QAM		1752.5	-4.37	3.30	27.60	19.93	98.401	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.75	3.15	27.64	19.74	94.189	Vertical	Pass
Band 16		1732.5	-4.73	3.31	27.61	19.57	90.573	Vertical	Pass
QAM		1750	-4.77	3.33	27.59	19.49	88.920	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-4.63	3.15	27.65	19.87	97.051	Vertical	Pass
Band 16		1732.5	-4.04	3.31	27.61	20.26	106.170	Vertical	Pass
QAM		1747.5	-3.99	3.33	27.57	20.25	105.925	Vertical	Pass

20.0MHz	1/#Mid	1720	-4.24	3.17	27.66	20.25	105.925	Vertical	Pass
Band 16		1732.5	-4.26	3.32	27.61	20.03	100.693	Vertical	Pass
QAM		1745	-4.11	3.36	27.56	20.09	102.094	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain (dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max.	Polarization	
			Level	Loss	Factor		EIRP	EIRP	Of Max.	
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
1.4MHz Band QPSK	3/#Mid	824.7	6.46	2.01	19.68	2.15	21.98	157.761	Horizontal	Pass
		836.5	6.34	2.01	19.77	2.15	21.95	156.675	Horizontal	Pass
		848.3	6.14	2.02	19.82	2.15	21.79	151.008	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.23	2.01	19.70	2.15	21.77	150.314	Horizontal	Pass
		836.5	6.13	2.01	19.77	2.15	21.74	149.279	Horizontal	Pass
		847.5	6.00	2.02	19.81	2.15	21.64	145.881	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.51	2.01	19.71	2.15	22.06	160.694	Horizontal	Pass
		836.5	6.39	2.01	19.77	2.15	22.00	158.489	Horizontal	Pass
		846.5	6.23	2.02	19.79	2.15	21.85	153.109	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	6.53	2.01	19.73	2.15	22.10	162.181	Horizontal	Pass
		836.5	6.48	2.01	19.77	2.15	22.09	161.808	Horizontal	Pass
		844	6.38	2.02	19.78	2.15	21.99	158.125	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	5.09	2.01	19.68	2.15	20.61	115.080	Vertical	Pass
		836.5	4.86	2.01	19.77	2.15	20.47	111.429	Vertical	Pass
		848.3	4.76	2.02	19.82	2.15	20.41	109.901	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.53	2.01	19.70	2.15	21.07	127.938	Vertical	Pass
		836.5	5.01	2.01	19.77	2.15	20.62	115.345	Vertical	Pass
		847.5	4.78	2.02	19.81	2.15	20.42	110.154	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.26	2.01	19.71	2.15	20.81	120.504	Vertical	Pass
		836.5	5.14	2.01	19.77	2.15	20.75	118.850	Vertical	Pass
		846.5	5.22	2.02	19.79	2.15	20.84	121.339	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.49	2.01	19.73	2.15	21.06	127.644	Vertical	Pass
		836.5	4.74	2.01	19.77	2.15	20.35	108.393	Vertical	Pass
		844	5.31	2.02	19.78	2.15	20.92	123.595	Vertical	Pass

Radiated Power (ERP) for Band 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max.	Polarization	
			Level	Loss	Factor		EIRP	Of Max.		
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
1.4MHz	3/#Mid	824.7	5.61	2.01	19.68	2.15	21.13	129.718	Horizontal	Pass
Band 16		836.5	5.54	2.01	19.77	2.15	21.15	130.317	Horizontal	Pass
QAM		848.3	5.38	2.02	19.82	2.15	21.03	126.765	Horizontal	Pass
3.0MHz	1/#Mid	825.5	5.69	2.01	19.70	2.15	21.23	132.739	Horizontal	Pass
Band 16		836.5	5.40	2.01	19.77	2.15	21.01	126.183	Horizontal	Pass
QAM		847.5	4.88	2.02	19.81	2.15	20.52	112.720	Horizontal	Pass
5.0MHz	1/#Mid	826.5	6.01	2.01	19.71	2.15	21.56	143.219	Horizontal	Pass
Band 16		836.5	5.78	2.01	19.77	2.15	21.39	137.721	Horizontal	Pass
QAM		846.5	5.53	2.02	19.79	2.15	21.15	130.317	Horizontal	Pass
10.0MHz	1/#Mid	829	6.01	2.01	19.73	2.15	21.58	143.880	Horizontal	Pass
Band 16		836.5	5.73	2.01	19.77	2.15	21.34	136.144	Horizontal	Pass
QAM		844	5.27	2.02	19.78	2.15	20.88	122.462	Horizontal	Pass
1.4MHz	1/#Mid	824.7	3.94	2.01	19.68	2.15	19.46	88.308	Vertical	Pass
Band 16		836.5	5.36	2.01	19.77	2.15	20.97	125.026	Vertical	Pass
QAM		848.3	4.45	2.02	19.82	2.15	20.10	102.329	Vertical	Pass
3.0MHz	1/#Mid	825.5	4.88	2.01	19.70	2.15	20.42	110.154	Vertical	Pass
Band 16		836.5	4.62	2.01	19.77	2.15	20.23	105.439	Vertical	Pass
QAM		847.5	3.68	2.02	19.81	2.15	19.32	85.507	Vertical	Pass
5.0MHz	1/#Mid	826.5	4.80	2.01	19.71	2.15	20.35	108.393	Vertical	Pass
Band 16		836.5	4.05	2.01	19.77	2.15	19.66	92.470	Vertical	Pass
QAM		846.5	3.72	2.02	19.79	2.15	19.34	85.901	Vertical	Pass
10.0MHz	1/#Mid	829	4.21	2.01	19.73	2.15	19.78	95.060	Vertical	Pass
Band 16		836.5	4.80	2.01	19.77	2.15	20.41	109.901	Vertical	Pass
QAM		844	3.85	2.02	19.78	2.15	19.46	88.308	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain (dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2502.5	-1.12	4.54	27.75	22.09	161.808	Horizontal	Pass
		2535	-0.95	4.69	27.72	22.08	161.436	Horizontal	Pass
		2567.5	-0.88	4.71	27.71	22.12	162.930	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-1.05	4.55	27.76	22.16	164.437	Horizontal	Pass
		2535	-0.86	4.69	27.72	22.17	164.816	Horizontal	Pass
		2565	-0.78	4.72	27.70	22.20	165.959	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-1.06	4.55	27.77	22.16	164.437	Horizontal	Pass
		2535	-0.92	4.69	27.72	22.11	162.555	Horizontal	Pass
		2562.5	-0.82	4.72	27.69	22.15	164.059	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.00	4.57	27.78	22.21	166.341	Horizontal	Pass
		2535	-0.82	4.73	27.72	22.17	164.816	Horizontal	Pass
		2560	-0.78	4.75	27.68	22.15	164.059	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-2.54	4.54	27.75	20.67	116.681	Vertical	Pass
		2535	-1.99	4.69	27.72	21.04	127.057	Vertical	Pass
		2567.5	-1.92	4.71	27.71	21.08	128.233	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.35	4.55	27.76	20.86	121.899	Vertical	Pass
		2535	-2.07	4.69	27.72	20.96	124.738	Vertical	Pass
		2565	-1.71	4.72	27.70	21.27	133.968	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.82	4.55	27.77	20.40	109.648	Vertical	Pass
		2535	-2.00	4.69	27.72	21.03	126.765	Vertical	Pass
		2562.5	-2.22	4.72	27.69	20.75	118.850	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.19	4.57	27.78	21.02	126.474	Vertical	Pass
		2535	-2.71	4.73	27.72	20.28	106.660	Vertical	Pass
		2560	-2.20	4.75	27.68	20.73	118.304	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss	Factor	Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
5.0MHz	1/#Mid	2502.5	-1.81	4.54	27.75	21.40	138.038	Horizontal	Pass
Band 16		2535	-1.50	4.69	27.72	21.53	142.233	Horizontal	Pass
QAM		2567.5	-1.58	4.71	27.71	21.42	138.676	Horizontal	Pass
10.0MHz	1/#Mid	2505	-1.70	4.55	27.76	21.51	141.579	Horizontal	Pass
Band 16		2535	-1.71	4.69	27.72	21.32	135.519	Horizontal	Pass
QAM		2565	-1.98	4.72	27.70	21.00	125.893	Horizontal	Pass
15.0MHz	1/#Mid	2507.5	-1.88	4.55	27.77	21.34	136.144	Horizontal	Pass
Band 16		2535	-1.85	4.69	27.72	21.18	131.220	Horizontal	Pass
QAM		2562.5	-1.46	4.72	27.69	21.51	141.579	Horizontal	Pass
20.0MHz	1/#Mid	2510	-1.76	4.57	27.78	21.45	139.637	Horizontal	Pass
Band 16		2535	-1.43	4.73	27.72	21.56	143.219	Horizontal	Pass
QAM		2560	-1.53	4.75	27.68	21.40	138.038	Horizontal	Pass
5.0MHz	1/#Mid	2502.5	-3.76	4.54	27.75	19.45	88.105	Vertical	Pass
Band 16		2535	-3.41	4.69	27.72	19.62	91.622	Vertical	Pass
QAM		2567.5	-2.56	4.71	27.71	20.44	110.662	Vertical	Pass
10.0MHz	1/#Mid	2505	-3.53	4.55	27.76	19.68	92.897	Vertical	Pass
Band 16		2535	-2.73	4.69	27.72	20.30	107.152	Vertical	Pass
QAM		2565	-2.68	4.72	27.70	20.30	107.152	Vertical	Pass
15.0MHz	1/#Mid	2507.5	-3.59	4.55	27.77	19.63	91.833	Vertical	Pass
Band 16		2535	-3.60	4.69	27.72	19.43	87.700	Vertical	Pass
QAM		2562.5	-2.54	4.72	27.69	20.43	110.408	Vertical	Pass
20.0MHz	1/#Mid	2510	-3.32	4.57	27.78	19.89	97.499	Vertical	Pass
Band 16		2535	-2.02	4.73	27.72	20.97	125.026	Vertical	Pass
QAM		2560	-2.46	4.75	27.68	20.47	111.429	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain (dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max.	Polarization	
			Level	Loss	Factor		EIRP	Of Max.		
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
1.4MHz	1/#Mid	699.7	6.83	1.91	19.21	2.15	21.98	157.761	Vertical	Pass
Band		707.5	6.75	1.91	19.26	2.15	21.95	156.675	Vertical	Pass
QPSK		715.3	6.53	1.93	19.34	2.15	21.79	151.008	Vertical	Pass
3.0MHz	1/#Mid	700.5	6.62	1.91	19.21	2.15	21.77	150.314	Vertical	Pass
Band		707.5	6.54	1.91	19.26	2.15	21.74	149.279	Vertical	Pass
QPSK		714.5	6.38	1.93	19.34	2.15	21.64	145.881	Vertical	Pass
5.0MHz	1/#Mid	701.5	6.89	1.91	19.23	2.15	22.06	160.694	Vertical	Pass
Band		707.5	6.80	1.91	19.26	2.15	22.00	158.489	Vertical	Pass
QPSK		713.5	6.59	1.92	19.33	2.15	21.85	153.109	Vertical	Pass
10.0MHz	1/#Mid	704	6.91	1.91	19.25	2.15	22.10	162.181	Vertical	Pass
Band		707.5	6.89	1.91	19.26	2.15	22.09	161.808	Vertical	Pass
QPSK		711	6.74	1.92	19.32	2.15	21.99	158.125	Vertical	Pass
1.4MHz	1/#Mid	699.7	5.20	1.91	19.21	2.15	20.35	108.393	Horizontal	Pass
Band		707.5	6.06	1.91	19.26	2.15	21.26	133.660	Horizontal	Pass
QPSK		715.3	5.52	1.93	19.34	2.15	20.78	119.674	Horizontal	Pass
3.0MHz	1/#Mid	700.5	5.17	1.91	19.21	2.15	20.32	107.647	Horizontal	Pass
Band		707.5	5.89	1.91	19.26	2.15	21.09	128.529	Horizontal	Pass
QPSK		714.5	5.32	1.93	19.34	2.15	20.58	114.288	Horizontal	Pass
5.0MHz	1/#Mid	701.5	5.93	1.91	19.23	2.15	21.10	128.825	Horizontal	Pass
Band		707.5	5.96	1.91	19.26	2.15	21.16	130.617	Horizontal	Pass
QPSK		713.5	5.60	1.92	19.33	2.15	20.86	121.899	Horizontal	Pass
10.0MHz	1/#Mid	704	5.61	1.91	19.25	2.15	20.80	120.226	Horizontal	Pass
Band		707.5	5.61	1.91	19.26	2.15	20.81	120.504	Horizontal	Pass
QPSK		711	5.49	1.92	19.32	2.15	20.74	118.577	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz	1/#Mid	699.7	6.87	1.91	19.21	2.15	22.02	159.221	Vertical	Pass
Band 16		707.5	6.79	1.91	19.26	2.15	21.99	158.125	Vertical	Pass
QAM		715.3	6.57	1.93	19.34	2.15	21.83	152.405	Vertical	Pass
3.0MHz	1/#Mid	700.5	6.66	1.91	19.21	2.15	21.81	151.705	Vertical	Pass
Band 16		707.5	6.58	1.91	19.26	2.15	21.78	150.661	Vertical	Pass
QAM		714.5	6.42	1.93	19.34	2.15	21.68	147.231	Vertical	Pass
5.0MHz	1/#Mid	701.5	6.93	1.91	19.23	2.15	22.10	162.181	Vertical	Pass
Band 16		707.5	6.84	1.91	19.26	2.15	22.04	159.956	Vertical	Pass
QAM		713.5	6.63	1.92	19.33	2.15	21.89	154.525	Vertical	Pass
10.0MHz	1/#Mid	704	6.95	1.91	19.25	2.15	22.14	163.682	Vertical	Pass
Band 16		707.5	6.93	1.91	19.26	2.15	22.13	163.305	Vertical	Pass
QAM		711	6.78	1.92	19.32	2.15	22.03	159.588	Vertical	Pass
1.4MHz	1/#Mid	699.7	5.18	1.91	19.21	2.15	20.33	107.895	Horizontal	Pass
Band 16		707.5	6.10	1.91	19.26	2.15	21.30	134.896	Horizontal	Pass
QAM		715.3	5.17	1.93	19.34	2.15	20.43	110.408	Horizontal	Pass
3.0MHz	1/#Mid	700.5	5.87	1.91	19.21	2.15	21.02	126.474	Horizontal	Pass
Band 16		707.5	5.23	1.91	19.26	2.15	20.43	110.408	Horizontal	Pass
QAM		714.5	5.61	1.93	19.34	2.15	20.87	122.180	Horizontal	Pass
5.0MHz	1/#Mid	701.5	6.13	1.91	19.23	2.15	21.30	134.896	Horizontal	Pass
Band 16		707.5	5.69	1.91	19.26	2.15	20.89	122.744	Horizontal	Pass
QAM		713.5	5.15	1.92	19.33	2.15	20.41	109.901	Horizontal	Pass
10.0MHz	1/#Mid	704	5.18	1.91	19.25	2.15	20.37	108.893	Horizontal	Pass
Band 16		707.5	6.06	1.91	19.26	2.15	21.26	133.660	Horizontal	Pass
QAM		711	5.37	1.92	19.32	2.15	20.62	115.345	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Factor (dB)+ SG Level (dBm)- Cable Loss(dBm)

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna		Max. EIRP	Max.	Polarization	
			Level	Loss	Factor	Correction		EIRP	Of Max.	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	ERP	
							(dBm)	(mW)		
5.0MHz	25/0	779.5	6.86	1.91	19.23	2.15	22.03	159.59	Horizontal	Pass
Band		782	6.71	1.91	19.26	2.15	21.91	155.24	Horizontal	Pass
QPSK		784.5	5.99	1.92	19.33	2.15	21.25	133.35	Horizontal	Pass
10.0MHz	50/0	782	7.01	1.91	19.26	2.15	22.21	166.34	Horizontal	Pass
Band										
QPSK										
5.0MHz	25/0	779.5	5.18	1.91	19.23	2.15	20.35	108.39	Vertical	Pass
Band		782	5.76	1.91	19.26	2.15	20.96	124.74	Vertical	Pass
QPSK		784.5	5.34	1.92	19.33	2.15	20.60	114.82	Vertical	Pass
10.0MHz	50/0	782	6.01	1.91	19.26	2.15	21.21	132.13	Vertical	Pass
Band										
QPSK										

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization Of Max.	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	ERP	
							(dBm)	(mW)		
5.0MHz	25/0	779.5	6.80	1.91	19.23	2.15	21.97	157.40	Horizontal	Pass
Band 16		782	5.31	1.91	19.26	2.15	20.51	112.46	Horizontal	Pass
QAM		784.5	5.84	1.92	19.33	2.15	21.10	128.82	Horizontal	Pass
10.0MHz	50/0	782	6.79	1.91	19.26	2.15	21.99	158.12	Horizontal	Pass
Band 16										
QAM										
5.0MHz	25/0	779.5	6.05	1.91	19.23	2.15	21.22	132.43	Vertical	Pass
Band 16		782	5.25	1.91	19.26	2.15	20.45	110.92	Vertical	Pass
QAM		784.5	5.97	1.92	19.33	2.15	21.23	132.74	Vertical	Pass
10.0MHz	50/0	782	5.94	1.91	19.26	2.15	21.14	130.02	Vertical	Pass
Band 16										
QAM										

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max. EIRP	Polarization	
			Level	Loss	Factor		Average	Average	Of Max.	
			(dBm)	(dBm)	(dB)		(dBm)	(mW)	ERP	
5.0MHz	1/#Mid	706.5	7.27	1.91	19.23	2.15	22.44	175.388	Vertical	Pass
Band		710	7.13	1.91	19.26	2.15	22.33	171.002	Vertical	Pass
QPSK		713.5	7.03	1.92	19.33	2.15	22.29	169.434	Vertical	Pass
10.0MHz	1/#Mid	709	7.28	1.91	19.25	2.15	22.47	176.604	Vertical	Pass
Band		710	7.23	1.91	19.26	2.15	22.43	174.985	Vertical	Pass
QPSK		711	7.19	1.92	19.32	2.15	22.44	175.388	Vertical	Pass
5.0MHz	1/#Mid	706.5	6.03	1.91	19.23	2.15	21.20	131.826	Horizontal	Pass
Band		710	6.30	1.91	19.26	2.15	21.50	141.254	Horizontal	Pass
QPSK		713.5	6.32	1.92	19.33	2.15	21.58	143.880	Horizontal	Pass
10.0MHz	1/#Mid	709	7.00	1.91	19.25	2.15	22.19	165.577	Horizontal	Pass
Band		710	5.12	1.91	19.26	2.15	20.32	107.647	Horizontal	Pass
QPSK		711	5.16	1.92	19.32	2.15	20.41	109.901	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor		Max. EIRP	Max. EIRP	Polarization Of Max.	
			(dBm)	(dBm)	(dB)	Correction	Average	Average	ERP	
						(dB)	(dBm)	(mW)		
5.0MHz	1/#Mid	706.5	6.60	1.91	19.23	2.15	21.77	150.314	Vertical	Pass
Band 16		710	6.51	1.91	19.26	2.15	21.71	148.252	Vertical	Pass
QAM		713.5	6.31	1.92	19.33	2.15	21.57	143.549	Vertical	Pass
10.0MHz	1/#Mid	709	6.14	1.91	19.25	2.15	21.33	135.831	Vertical	Pass
Band 16		710	6.67	1.91	19.26	2.15	21.87	153.815	Vertical	Pass
QAM		711	6.40	1.92	19.32	2.15	21.65	146.218	Vertical	Pass
5.0MHz	1/#Mid	706.5	5.14	1.91	19.23	2.15	20.31	107.399	Horizontal	Pass
Band 16		710	5.05	1.91	19.26	2.15	20.25	105.925	Horizontal	Pass
QAM		713.5	5.38	1.92	19.33	2.15	20.64	115.878	Horizontal	Pass
10.0MHz	1/#Mid	709	5.17	1.91	19.25	2.15	20.36	108.643	Horizontal	Pass
Band 16		710	5.21	1.91	19.26	2.15	20.41	109.901	Horizontal	Pass
QAM		711	5.44	1.92	19.32	2.15	20.69	117.220	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.9 LTE BAND 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Antenna	Max.	Max. EIRP	Polarization	
			Level	Loss	Gain	EIRP		Of Max.	
			(dBm)	(dBm)	(dB)	Average	Average	ERP	
						(dBm)	(mW)		
5.0MHz	25/0	2572.5	-2.12	4.95	27.79	20.29	106.905	Vertical	Pass
Band		2595	-2.64	4.88	27.71	21.01	126.183	Vertical	Pass
QPSK		2617.5	-2.58	4.93	27.95	20.70	117.490	Vertical	Pass
5.0MHz	25/0	2572.5	-2.37	4.81	27.73	20.50	112.202	Vertical	Pass
Band 16		2595	-2.47	4.95	27.81	20.66	116.413	Vertical	Pass
QAM		2617.5	-2.59	5.03	27.69	21.01	126.183	Vertical	Pass
10.0MHz	50/0	2575	-2.98	5.01	27.86	21.08	128.233	Vertical	Pass
Band		2595	-2.6	5	27.65	21.25	133.352	Vertical	Pass
QPSK		2615	-2.67	4.87	27.89	21.03	126.765	Vertical	Pass
10.0MHz	50/0	2575	-2.71	4.77	27.78	20.61	115.080	Vertical	Pass
Band 16		2595	-2.38	4.87	27.87	20.95	124.451	Vertical	Pass
QAM		2615	-2.56	4.94	27.77	20.50	112.202	Vertical	Pass
15.0MHz	75/0	2577.5	-2.9	4.89	27.88	20.65	116.145	Vertical	Pass
Band		2595	-2.32	4.87	27.84	21.22	132.434	Vertical	Pass
QPSK		2612.5	-2.52	4.92	27.93	20.70	117.490	Vertical	Pass
15.0MHz	75/0	2577.5	-2.53	4.75	27.78	20.76	119.124	Vertical	Pass
Band 16		2595	-2.53	4.98	27.82	21.00	125.893	Vertical	Pass
QAM		2612.5	-2.6	4.95	27.83	21.14	130.017	Vertical	Pass
20.0MHz	100/0	2580	-2.53	4.86	27.8	21.17	130.918	Vertical	Pass
Band		2595	-2.37	4.79	27.83	21.87	153.815	Vertical	Pass
QPSK		2610	-2.68	4.89	27.87	20.84	121.339	Vertical	Pass
20.0MHz	100/0	2580	-2.87	4.95	27.73	20.73	118.304	Vertical	Pass
Band 16		2595	-2.88	4.91	27.71	20.73	118.304	Vertical	Pass
QAM		2610	-2.81	4.96	27.92	20.60	114.815	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.81	120.504	Horizontal	Pass
		2595	-2.64	4.88	27.71	20.94	124.165	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	20.72	118.032	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	20.59	114.551	Horizontal	Pass
		2595	-2.47	4.95	27.81	20.80	120.226	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	20.47	111.429	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	21.22	132.434	Horizontal	Pass
		2595	-2.6	5	27.65	20.68	116.950	Horizontal	Pass
		2615	-2.67	4.87	27.89	21.15	130.317	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	20.58	114.288	Horizontal	Pass
		2595	-2.38	4.87	27.87	21.19	131.522	Horizontal	Pass
		2615	-2.56	4.94	27.77	20.63	115.611	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.57	114.025	Horizontal	Pass
		2595	-2.32	4.87	27.84	20.41	109.901	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	20.49	111.944	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	21.08	128.233	Horizontal	Pass
		2595	-2.53	4.98	27.82	21.20	131.826	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	20.57	114.025	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.49	111.944	Horizontal	Pass
		2595	-2.37	4.79	27.83	21.96	157.036	Horizontal	Pass
		2610	-2.68	4.89	27.87	21.10	128.825	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	20.97	125.026	Horizontal	Pass
		2595	-2.88	4.91	27.71	22.46	176.198	Horizontal	Pass
		2610	-2.81	4.96	27.92	21.19	131.522	Horizontal	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor Gain (dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.10 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2537.50	-1.46	4.54	27.75	21.75	149.624	Horizontal	Pass
		2595.00	-1.31	4.69	27.72	21.72	148.594	Horizontal	Pass
		2652.50	-1.19	4.71	27.71	21.81	151.705	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2540.00	-1.54	4.55	27.76	21.67	146.893	Horizontal	Pass
		2595.00	-1.40	4.69	27.72	21.63	145.546	Horizontal	Pass
		2650.00	-1.39	4.72	27.70	21.59	144.212	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2542.50	-1.37	4.55	27.77	21.85	153.109	Horizontal	Pass
		2595.00	-1.09	4.69	27.72	21.94	156.315	Horizontal	Pass
		2647.50	-1.14	4.72	27.69	21.83	152.405	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2545.00	-0.98	4.57	27.78	22.23	167.109	Horizontal	Pass
		2595.00	-1.03	4.73	27.72	21.96	157.036	Horizontal	Pass
		2645.00	-1.03	4.75	27.68	21.90	154.882	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2537.50	-1.26	4.54	27.75	21.95	156.675	Vertical	Pass
		2595.00	-1.17	4.69	27.72	21.86	153.462	Vertical	Pass
		2652.50	-1.15	4.71	27.71	21.85	153.109	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2540.00	-1.24	4.55	27.76	21.97	157.398	Vertical	Pass
		2595.00	-1.08	4.69	27.72	21.95	156.675	Vertical	Pass
		2650.00	-1.15	4.72	27.70	21.83	152.405	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2542.50	-2.50	4.55	27.77	20.72	118.032	Vertical	Pass
		2595.00	-2.49	4.69	27.72	20.54	113.240	Vertical	Pass
		2647.50	-2.53	4.72	27.69	20.44	110.662	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2545.00	-2.95	4.57	27.78	20.26	106.170	Vertical	Pass
		2595.00	-1.88	4.73	27.72	21.11	129.122	Vertical	Pass
		2645.00	-2.00	4.75	27.68	20.93	123.880	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization	
			(dBm)			Average	Average	Of Max.	
						(dBm)	(mW)	ERP	
5.0MHz	1/#Mid	2537.50	-1.31	4.54	27.75	21.90	154.882	Horizontal	Pass
Band 16		2595.00	-1.16	4.69	27.72	21.87	153.815	Horizontal	Pass
QAM		2652.50	-1.04	4.71	27.71	21.96	157.036	Horizontal	Pass
10.0MHz	1/#Mid	2540.00	-1.39	4.55	27.76	21.82	152.055	Horizontal	Pass
Band 16		2595.00	-1.25	4.69	27.72	21.78	150.661	Horizontal	Pass
QAM		2650.00	-1.24	4.72	27.70	21.74	149.279	Horizontal	Pass
15.0MHz	1/#Mid	2542.50	-1.22	4.55	27.77	22.00	158.489	Horizontal	Pass
Band 16		2595.00	-0.94	4.69	27.72	22.09	161.808	Horizontal	Pass
QAM		2647.50	-0.99	4.72	27.69	21.98	157.761	Horizontal	Pass
20.0MHz	1/#Mid	2545.00	-0.94	4.57	27.78	22.27	168.655	Horizontal	Pass
Band 16		2595.00	-0.88	4.73	27.72	22.11	162.555	Horizontal	Pass
QAM		2645.00	-0.88	4.75	27.68	22.05	160.325	Horizontal	Pass
5.0MHz	1/#Mid	2537.50	-1.11	4.54	27.75	22.10	162.181	Vertical	Pass
Band 16		2595.00	-1.02	4.69	27.72	22.01	158.855	Vertical	Pass
QAM		2652.50	-1.00	4.71	27.71	22.00	158.489	Vertical	Pass
10.0MHz	1/#Mid	2540.00	-1.09	4.55	27.76	22.12	162.930	Vertical	Pass
Band 16		2595.00	-0.93	4.69	27.72	22.10	162.181	Vertical	Pass
QAM		2650.00	-1.00	4.72	27.70	21.98	157.761	Vertical	Pass
15.0MHz	1/#Mid	2542.50	-2.74	4.55	27.77	20.48	111.686	Vertical	Pass
Band 16		2595.00	-2.22	4.69	27.72	20.81	120.504	Vertical	Pass
QAM		2647.50	-1.66	4.72	27.69	21.31	135.207	Vertical	Pass
20.0MHz	1/#Mid	2545.00	-2.00	4.57	27.78	21.21	132.130	Vertical	Pass
Band 16		2595.00	-2.60	4.73	27.72	20.39	109.396	Vertical	Pass
QAM		2645.00	-1.80	4.75	27.68	21.13	129.718	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.11 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
				Loss					
				(dBm)					
1.4MHz	1/#Mid	1710.7	-2.58	3.76	28.24	21.90	154.882	Horizontal	Pass
Band		1745	-2.44	3.91	28.22	21.87	153.815	Horizontal	Pass
QPSK		1779.3	-2.31	3.93	28.2	21.96	157.036	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-2.64	3.77	28.23	21.82	152.055	Horizontal	Pass
Band		1745	-2.55	3.91	28.24	21.78	150.661	Horizontal	Pass
QPSK		1778.5	-2.57	3.94	28.25	21.74	149.279	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-2.54	3.77	28.31	22.00	158.489	Horizontal	Pass
Band		1745	-2.22	3.91	28.22	22.09	161.808	Horizontal	Pass
QPSK		1777.5	-2.28	3.94	28.2	21.98	157.761	Horizontal	Pass
10.0MHz	1/#Mid	1715	-2.43	3.79	28.33	22.11	162.555	Horizontal	Pass
Band		1745	-2.16	3.95	28.22	22.11	162.555	Horizontal	Pass
QPSK		1775	-2.17	3.97	28.19	22.05	160.325	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-2.45	3.79	28.34	22.10	162.181	Horizontal	Pass
Band		1745	-2.26	3.95	28.22	22.01	158.855	Horizontal	Pass
QPSK		1772.5	-2.21	3.97	28.18	22.00	158.489	Horizontal	Pass
20.0MHz	1/#Mid	1720	-2.42	3.81	28.35	22.12	162.930	Horizontal	Pass
Band		1745	-2.16	3.96	28.22	22.10	162.181	Horizontal	Pass
QPSK		1770	-2.18	4	28.16	21.98	157.761	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-3.16	3.76	28.24	21.32	135.519	Vertical	Pass
Band		1745	-2.96	3.91	28.22	21.35	136.458	Vertical	Pass
QPSK		1779.3	-3.80	3.93	28.2	20.47	111.429	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-3.14	3.77	28.23	21.32	135.519	Vertical	Pass
Band		1745	-3.25	3.91	28.24	21.08	128.233	Vertical	Pass
QPSK		1778.5	-3.63	3.94	28.25	20.68	116.950	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-3.23	3.77	28.31	21.31	135.207	Vertical	Pass
Band		1745	-3.76	3.91	28.22	20.55	113.501	Vertical	Pass
QPSK		1777.5	-3.52	3.94	28.2	20.74	118.577	Vertical	Pass
10.0MHz	1/#Mid	1715	-3.57	3.79	28.34	20.98	125.314	Vertical	Pass
Band		1745	-3.08	3.95	28.22	21.19	131.522	Vertical	Pass
QPSK		1775	-3.19	3.97	28.18	21.02	126.474	Vertical	Pass

15.0MHz	1/#Mid	1717.5	-3.72	3.81	28.35	20.82	120.781	Vertical	Pass
Band		1745	-3.35	3.96	28.22	20.91	123.310	Vertical	Pass
QPSK		1772.5	-3.74	4	28.16	20.42	110.154	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.96	3.79	28.34	20.59	114.551	Vertical	Pass
Band		1745	-3.50	3.95	28.22	20.77	119.399	Vertical	Pass
QPSK		1770	-3.23	3.97	28.18	20.98	125.314	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
				Loss		Average (dBm)	Average (mW)		
				(dBm)					
1.4MHz	1/#Mid	1710.7	-3.52	3.76	28.24	20.96	124.738	Horizontal	Pass
Band 16		1745	-3.13	3.91	28.22	21.18	131.220	Horizontal	Pass
QAM		1779.3	-3.31	3.93	28.2	20.96	124.738	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.91	3.77	28.23	20.55	113.501	Horizontal	Pass
Band 16		1745	-3.16	3.91	28.24	21.17	130.918	Horizontal	Pass
QAM		1778.5	-3.45	3.94	28.25	20.86	121.899	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.33	3.77	28.31	21.21	132.130	Horizontal	Pass
Band 16		1745	-3.39	3.91	28.22	20.92	123.595	Horizontal	Pass
QAM		1777.5	-3.06	3.94	28.2	21.20	131.826	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.38	3.79	28.33	21.16	130.617	Horizontal	Pass
Band 16		1745	-3.04	3.95	28.22	21.23	132.739	Horizontal	Pass
QAM		1775	-3.36	3.97	28.19	20.86	121.899	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-3.37	3.79	28.34	21.18	131.220	Horizontal	Pass
Band 16		1745	-3.19	3.95	28.22	21.08	128.233	Horizontal	Pass
QAM		1772.5	-2.98	3.97	28.18	21.23	132.739	Horizontal	Pass
20.0MHz	1/#Mid	1720	-3.20	3.81	28.35	21.34	136.144	Horizontal	Pass
Band 16		1745	-2.98	3.96	28.22	21.28	134.276	Horizontal	Pass
QAM		1770	-2.92	4	28.16	21.24	133.045	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-3.67	3.76	28.24	20.81	120.504	Vertical	Pass
Band 16		1745	-3.16	3.91	28.22	21.15	130.317	Vertical	Pass
QAM		1779.3	-4.65	3.93	28.2	19.62	91.622	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-4.34	3.77	28.23	20.12	102.802	Vertical	Pass
Band 16		1745	-3.40	3.91	28.24	20.93	123.880	Vertical	Pass
QAM		1778.5	-3.59	3.94	28.25	20.72	118.032	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.39	3.77	28.31	20.15	103.514	Vertical	Pass
Band 16		1745	-4.95	3.91	28.22	19.36	86.298	Vertical	Pass
QAM		1777.5	-4.11	3.94	28.2	20.15	103.514	Vertical	Pass
10.0MHz	1/#Mid	1715	-3.79	3.79	28.34	20.76	119.124	Vertical	Pass
Band 16		1745	-4.83	3.95	28.22	19.44	87.902	Vertical	Pass
QAM		1775	-4.34	3.97	28.18	19.87	97.051	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.34	3.81	28.35	21.20	131.826	Vertical	Pass
Band 16		1745	-3.83	3.96	28.22	20.43	110.408	Vertical	Pass

QAM		1772.5	-3.00	4	28.16	21.16	130.617	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.65	3.79	28.34	19.90	97.724	Vertical	Pass
Band 16		1745	-3.75	3.95	28.22	20.52	112.720	Vertical	Pass
QAM		1770	-3.57	3.97	28.18	20.64	115.878	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10} (P \text{ [Watts]})$.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10} (P \text{ [Watts]})$, where P is the transmitter power in Watts.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB at the channel edges and $55 + 10 \log_{10}(p)$ at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 38
- LTE Band 41
- LTE Band 66

RESULTS

PASS

9.1 LTE BAND 2

QPSK EIRP POWER FOR LTE BAND 2 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-47.99	4.04	33.51	-18.52	-13	-5.52	Horizontal
3701.4	-50.92	4.04	33.51	-21.45	-13	-8.45	Vertical
5552.1	-51.06	5.24	35.84	-20.46	-13	-7.46	Vertical
5552.1	-52.80	5.24	35.84	-22.20	-13	-9.20	Horizontal
193.0	-39.15	1.43	16.02	-24.56	-13	-11.56	Vertical
385.2	-35.18	1.30	17.99	-18.49	-13	-5.49	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.40	4.04	33.56	-17.88	-13	-4.88	Horizontal
3760.0	-53.08	4.04	33.56	-23.56	-13	-10.56	Vertical
5640.0	-51.65	5.24	35.91	-20.98	-13	-7.98	Vertical
5640.0	-51.48	5.24	35.91	-20.81	-13	-7.81	Horizontal
204.7	-37.43	1.62	16.97	-22.08	-13	-9.08	Vertical
282.2	-38.97	1.74	15.98	-24.74	-13	-11.74	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-53.35	4.04	34.00	-23.39	-13	-10.39	Horizontal
3818.6	-52.34	4.04	34.00	-22.38	-13	-9.38	Vertical
5727.9	-51.02	5.24	36.04	-20.22	-13	-7.22	Vertical
5727.9	-49.01	5.24	36.04	-18.21	-13	-5.21	Horizontal
175.8	-44.17	1.42	17.29	-28.30	-13	-15.30	Vertical
396.2	-35.46	1.50	17.90	-19.05	-13	-6.05	Horizontal

QPSK EIRP POWER FOR LTE BAND 2 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-51.10	4.07	33.54	-21.63	-13	-8.63	Horizontal
3720.0	-47.88	4.07	33.54	-18.41	-13	-5.41	Vertical
5580.0	-48.95	5.28	35.86	-18.37	-13	-5.37	Vertical
5580.0	-50.19	5.28	35.86	-19.61	-13	-6.61	Horizontal
206.5	-34.39	1.58	16.89	-19.07	-13	-6.07	Vertical
426.6	-41.89	1.76	17.26	-26.39	-13	-13.39	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-51.01	4.04	33.56	-21.49	-13	-8.49	Horizontal
3760.0	-53.38	4.04	33.56	-23.86	-13	-10.86	Vertical
5640.0	-50.65	5.24	35.91	-19.98	-13	-6.98	Vertical
5640.0	-53.95	5.24	35.91	-23.28	-13	-10.28	Horizontal
199.9	-37.35	1.46	16.27	-22.54	-13	-9.54	Vertical
439.7	-40.89	1.59	15.15	-27.33	-13	-14.33	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-50.20	4.04	34.00	-20.24	-13	-7.24	Horizontal
3800.0	-49.30	4.04	34.00	-19.34	-13	-6.34	Vertical
5700.0	-51.25	5.24	36.04	-20.45	-13	-7.45	Vertical
5700.0	-52.50	5.24	36.04	-21.70	-13	-8.70	Horizontal
179.2	-37.49	1.36	17.39	-21.45	-13	-8.45	Vertical
280.8	-42.21	1.66	15.39	-28.48	-13	-15.48	Horizontal

9.2 LTE BAND 4

QPSK EIRP POWER FOR LTE BAND 4 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-45.69	4.02	29.80	-19.91	-13	-6.91	Horizontal
3421.4	-48.03	4.02	29.80	-22.25	-13	-9.25	Vertical
5132.1	-49.16	5.24	35.84	-18.56	-13	-5.56	Vertical
5132.1	-53.57	5.24	35.84	-22.97	-13	-9.97	Horizontal
181.0	-34.91	1.68	16.04	-20.55	-13	-7.55	Vertical
363.4	-35.20	1.78	17.74	-19.24	-13	-6.24	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-50.74	4.03	30.00	-24.77	-13	-11.77	Horizontal
3465.0	-49.14	4.03	30.00	-23.17	-13	-10.17	Vertical
5197.5	-48.16	5.25	35.86	-17.55	-13	-4.55	Vertical
5197.5	-50.35	5.25	35.86	-19.74	-13	-6.74	Horizontal
185.3	-39.47	1.72	17.69	-23.50	-13	-10.50	Vertical
265.9	-37.70	1.62	16.02	-23.29	-13	-10.29	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-51.78	4.05	30.01	-25.82	-13	-12.82	Horizontal
3508.6	-52.25	4.05	30.01	-26.29	-13	-13.29	Vertical
5262.9	-52.03	5.26	35.86	-21.43	-13	-8.43	Vertical
5262.9	-53.53	5.26	35.86	-22.93	-13	-9.93	Horizontal
194.5	-41.76	1.80	16.69	-26.87	-13	-13.87	Vertical
388.4	-40.95	1.75	16.66	-26.05	-13	-13.05	Horizontal

QPSK EIRP POWER FOR LTE BAND 4 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-49.72	4.02	29.80	-23.94	-13	-10.94	Horizontal
3440.0	-44.52	4.02	29.80	-18.74	-13	-5.74	Vertical
5160.0	-47.66	5.24	35.84	-17.06	-13	-4.06	Vertical
5160.0	-50.80	5.24	35.84	-20.20	-13	-7.20	Horizontal
204.4	-40.11	1.57	17.26	-24.42	-13	-11.42	Vertical
280.8	-39.25	1.78	16.35	-24.68	-13	-11.68	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.62	4.03	30.00	-22.65	-13	-9.65	Horizontal
3465.0	-44.07	4.03	30.00	-18.10	-13	-5.10	Vertical
5197.5	-53.36	5.25	35.86	-22.75	-13	-9.75	Vertical
5197.5	-51.77	5.25	35.86	-21.16	-13	-8.16	Horizontal
181.7	-41.54	1.44	17.95	-25.03	-13	-12.03	Vertical
363.6	-39.07	1.65	16.09	-24.63	-13	-11.63	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-46.86	2.91	27.68	-22.09	-13	-9.09	Horizontal
3490.0	-48.44	2.91	27.68	-23.67	-13	-10.67	Vertical
5235.0	-51.69	5.26	35.86	-21.09	-13	-8.09	Vertical
5235.0	-50.66	5.26	35.86	-20.06	-13	-7.06	Horizontal
182.6	-39.61	1.61	16.85	-24.37	-13	-11.37	Vertical
361.3	-39.71	1.61	15.19	-26.13	-13	-13.13	Horizontal

9.3 LTE BAND 5

QPSK EIRP POWER FOR LTE BAND 5 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-47.19	2.78	27.50	-22.47	-13	-9.47	Horizontal
1649.4	-53.44	2.78	27.50	-28.72	-13	-15.72	Vertical
2474.1	-49.00	2.90	27.80	-24.10	-13	-11.10	Vertical
2474.1	-52.43	2.90	27.80	-27.53	-13	-14.53	Horizontal
184.1	-39.32	1.76	17.59	-23.49	-13	-10.49	Vertical
432.3	-40.75	1.63	15.87	-26.51	-13	-13.51	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-47.33	2.80	27.48	-22.65	-13	-9.65	Horizontal
1673.0	-45.90	2.80	27.48	-21.22	-13	-8.22	Vertical
2509.5	-44.23	2.91	27.70	-19.44	-13	-6.44	Vertical
2509.5	-50.30	2.91	27.70	-25.51	-13	-12.51	Horizontal
210.6	-34.83	1.61	15.68	-20.76	-13	-7.76	Vertical
433.9	-35.99	1.59	17.52	-20.07	-13	-7.07	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-46.41	2.82	27.43	-21.80	-13	-8.80	Horizontal
1696.6	-46.59	2.82	27.43	-21.98	-13	-8.98	Vertical
2544.9	-52.47	2.92	27.74	-27.65	-13	-14.65	Vertical
2544.9	-50.12	2.92	27.74	-25.30	-13	-12.30	Horizontal
188.7	-34.71	1.69	16.67	-19.72	-13	-6.72	Vertical
465.2	-43.49	1.70	17.18	-28.01	-13	-15.01	Horizontal

QPSK EIRP POWER FOR LTE BAND 5 (10MHZ BANDWIDTH)

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-50.13	2.78	27.50	-25.41	-13	-12.41	Horizontal
1658.0	-51.93	2.78	27.50	-27.21	-13	-14.21	Vertical
2487.0	-44.52	2.90	27.80	-19.62	-13	-6.62	Vertical
2487.0	-50.23	2.90	27.80	-25.33	-13	-12.33	Horizontal
212.3	-43.01	1.71	15.57	-29.15	-13	-16.15	Vertical
358.4	-40.15	1.34	16.40	-25.09	-13	-12.09	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-46.01	2.80	27.48	-21.33	-13	-8.33	Horizontal
1673.0	-49.20	2.80	27.48	-24.52	-13	-11.52	Vertical
2509.5	-50.05	2.91	27.70	-25.26	-13	-12.26	Vertical
2509.5	-51.64	2.91	27.70	-26.85	-13	-13.85	Horizontal
192.3	-38.95	1.44	17.04	-23.35	-13	-10.35	Vertical
375.3	-37.65	1.76	17.62	-21.79	-13	-8.79	Horizontal
Test Results for High Channel 844MHz							
1688.0	-50.07	2.82	27.43	-25.46	-13	-12.46	Horizontal
1688.0	-48.04	2.82	27.43	-23.43	-13	-10.43	Vertical
2532.0	-53.19	2.92	27.74	-28.37	-13	-15.37	Vertical
2532.0	-51.96	2.92	27.74	-27.14	-13	-14.14	Horizontal
176.9	-42.68	1.74	17.70	-26.72	-13	-13.72	Vertical
283.6	-39.11	1.41	17.46	-23.05	-13	-10.05	Horizontal

9.4 LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (5.0MHZ BANDWIDTH)

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-60.96	5.23	35.81	-30.38	-25	-5.38	Horizontal
5005.0	-64.78	5.23	35.81	-34.20	-25	-9.20	Vertical
7507.5	-62.75	5.67	36.85	-31.57	-25	-6.57	Vertical
7507.5	-60.94	5.67	36.85	-29.76	-25	-4.76	Horizontal
175.2	-53.54	1.73	17.97	-37.30	-25	-12.30	Vertical
463.4	-50.53	1.38	15.11	-36.80	-25	-11.80	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.00	5.23	35.82	-30.41	-25	-5.41	Horizontal
5070.0	-60.28	5.23	35.82	-29.69	-25	-4.69	Vertical
7605.0	-62.97	5.67	36.85	-31.79	-25	-6.79	Vertical
7605.0	-62.59	5.67	36.85	-31.41	-25	-6.41	Horizontal
181.0	-50.74	1.77	16.17	-36.33	-25	-11.33	Vertical
460.7	-51.84	1.63	15.21	-38.26	-25	-13.26	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-62.64	5.24	35.83	-32.05	-25	-7.05	Horizontal
5135.0	-64.56	5.24	35.83	-33.97	-25	-8.97	Vertical
7702.5	-63.80	5.68	36.87	-32.61	-25	-7.61	Vertical
7702.5	-62.38	5.68	36.87	-31.19	-25	-6.19	Horizontal
208.0	-52.88	1.58	17.56	-36.90	-25	-11.90	Vertical
357.7	-46.98	1.45	16.58	-31.85	-25	-6.85	Horizontal

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-61.97	5.23	35.82	-31.38	-25	-6.38	Horizontal
5020.0	-62.30	5.23	35.82	-31.71	-25	-6.71	Vertical
7530.0	-64.81	5.67	36.86	-33.62	-25	-8.62	Vertical
7530.0	-65.60	5.67	36.86	-34.41	-25	-9.41	Horizontal
175.8	-49.43	1.63	15.76	-35.30	-25	-10.30	Vertical
311.1	-51.08	1.71	15.44	-37.35	-25	-12.35	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.65	5.23	35.82	-32.06	-25	-7.06	Horizontal
5070.0	-62.98	5.23	35.82	-32.39	-25	-7.39	Vertical
7605.0	-64.64	5.67	36.85	-33.46	-25	-8.46	Vertical
7605.0	-64.14	5.67	36.85	-32.96	-25	-7.96	Horizontal
207.4	-48.87	1.79	16.84	-33.81	-25	-8.81	Vertical
390.4	-52.84	1.71	17.64	-36.91	-25	-11.91	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-63.20	5.24	35.83	-32.61	-25	-7.61	Horizontal
5120.0	-65.80	5.24	35.83	-35.21	-25	-10.21	Vertical
7680.0	-60.73	5.70	36.88	-29.55	-25	-4.55	Vertical
7680.0	-63.30	5.70	36.88	-32.12	-25	-7.12	Horizontal
203.5	-46.20	1.79	16.84	-31.14	-25	-6.14	Vertical
343.6	-50.20	1.71	17.64	-34.27	-25	-9.27	Horizontal

9.5 LTE BAND 12

QPSK EIRP POWER FOR LTE BAND 12 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-50.38	2.60	27.20	-25.78	-13	-12.78	Horizontal
1399.4	-53.55	2.60	27.20	-28.95	-13	-15.95	Vertical
2099.1	-45.86	2.85	27.54	-21.17	-13	-8.17	Vertical
2099.1	-51.05	2.85	27.54	-26.36	-13	-13.36	Horizontal
194.8	-34.87	1.49	17.78	-18.58	-13	-5.58	Vertical
429.1	-39.65	1.36	17.33	-23.68	-13	-10.68	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-48.65	2.61	27.28	-23.98	-13	-10.98	Horizontal
1415.0	-45.23	2.61	27.28	-20.56	-13	-7.56	Vertical
2122.5	-45.10	2.87	27.59	-20.38	-13	-7.38	Vertical
2122.5	-53.41	2.87	27.59	-28.69	-13	-15.69	Horizontal
191.1	-44.79	1.73	15.74	-30.78	-13	-17.78	Vertical
255.5	-42.85	1.62	15.79	-28.68	-13	-15.68	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-51.84	2.63	27.28	-27.19	-13	-14.19	Horizontal
1430.6	-53.66	2.63	27.28	-29.01	-13	-16.01	Vertical
2145.9	-53.25	2.88	27.60	-28.53	-13	-15.53	Vertical
2145.9	-53.69	2.88	27.60	-28.97	-13	-15.97	Horizontal
198.2	-40.36	1.61	18.00	-23.97	-13	-10.97	Vertical
387.9	-42.90	1.45	15.49	-28.87	-13	-15.87	Horizontal

QPSK EIRP POWER FOR LTE BAND 12 (10MHZ BANDWIDTH)

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-45.77	2.61	27.26	-21.12	-13	-8.12	Horizontal
1408.0	-45.19	2.61	27.26	-20.54	-13	-7.54	Vertical
2112.0	-46.33	2.87	27.58	-21.62	-13	-8.62	Vertical
2112.0	-51.65	2.87	27.58	-26.94	-13	-13.94	Horizontal
186.7	-35.16	1.31	16.97	-19.50	-13	-6.50	Vertical
260.2	-35.30	1.65	16.70	-20.25	-13	-7.25	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-48.12	2.61	27.28	-23.45	-13	-10.45	Horizontal
1415.0	-49.20	2.61	27.28	-24.53	-13	-11.53	Vertical
2122.5	-49.73	2.87	27.59	-25.01	-13	-12.01	Vertical
2122.5	-52.14	2.87	27.59	-27.42	-13	-14.42	Horizontal
196.0	-34.38	1.72	17.99	-18.11	-13	-5.11	Vertical
251.8	-35.41	1.73	17.94	-19.20	-13	-6.20	Horizontal
Test Results for High Channel 711MHz							
1422.0	-46.68	2.62	27.28	-22.02	-13	-9.02	Horizontal
1422.0	-48.44	2.62	27.28	-23.78	-13	-10.78	Vertical
2133.0	-49.89	2.87	27.60	-25.16	-13	-12.16	Vertical
2133.0	-49.07	2.87	27.60	-24.34	-13	-11.34	Horizontal
181.8	-37.93	1.58	15.93	-23.58	-13	-10.58	Vertical
266.5	-36.60	1.36	15.59	-22.37	-13	-9.37	Horizontal

Note: Spurious Emission Level = Spectrum Analyzer Read Value + Cable Loss+ Antenna Factor + 11.74

. Margin = Spurious Emission Level - Limit

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case

9.6 LTE BAND 13

QPSK EIRP POWER FOR LTE BAND 13 (5MHZ BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-73.03	2.61	27.28	-48.36	-40	-8.36	Horizontal
1559.0	-72.04	2.61	27.28	-47.37	-40	-7.37	Vertical
2338.5	-47.25	2.87	27.59	-22.53	-13	-9.53	Vertical
2338.5	-45.20	2.87	27.59	-20.48	-13	-7.48	Horizontal
120.1	-38.88	1.54	15.61	-24.81	-13	-11.81	Vertical
197.8	-34.89	1.51	15.21	-21.19	-13	-8.19	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-74.20	2.62	27.30	-49.52	-40	-9.52	Horizontal
1564.0	-71.30	2.62	27.30	-46.62	-40	-6.62	Vertical
2346.0	-42.40	2.87	27.62	-17.65	-13	-4.65	Vertical
2346.0	-43.90	2.87	27.62	-19.15	-13	-6.15	Horizontal
131.2	-38.08	1.65	16.17	-23.56	-13	-10.56	Vertical
267.5	-38.17	1.48	16.88	-22.77	-13	-9.77	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-72.57	2.66	27.28	-47.95	-40	-7.95	Horizontal
1569.0	-74.50	2.66	27.28	-49.88	-40	-9.88	Vertical
2353.5	-41.85	2.88	27.60	-17.13	-13	-4.13	Vertical
2353.5	-45.30	2.88	27.60	-20.58	-13	-7.58	Horizontal
80.8	-34.49	1.54	16.40	-19.63	-13	-6.63	Vertical
155.6	-35.78	1.43	15.77	-21.44	-13	-8.44	Horizontal

QPSK EIRP POWER FOR LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-70.42	2.62	27.30	-45.74	-40	-5.74	Horizontal
1564.0	-71.48	2.62	27.30	-46.80	-40	-6.80	Vertical
2346.0	-46.32	2.87	27.62	-21.57	-13	-8.57	Vertical
2346.0	-43.32	2.87	27.62	-18.57	-13	-5.57	Horizontal
129.1	-36.71	1.43	17.03	-21.11	-13	-8.11	Vertical
86.9	-34.05	1.62	16.63	-19.04	-13	-6.04	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + ARpl(dBm)$

. Over Limit = : $P_{Mea}(dBm) - Limit(dBm)$

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.7 LTE BAND 17

QPSK EIRP POWER FOR LTE BAND 17 (5MHZ BANDWIDTH)

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-45.44	2.61	27.28	-20.77	-13	-7.77	Horizontal
1413.0	-45.84	2.61	27.28	-21.17	-13	-8.17	Vertical
2119.5	-47.80	2.87	27.59	-23.08	-13	-10.08	Vertical
2119.5	-51.69	2.87	27.59	-26.97	-13	-13.97	Horizontal
204.0	-43.00	1.71	16.15	-28.56	-13	-15.56	Vertical
231.6	-37.89	1.41	17.32	-21.98	-13	-8.98	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-44.87	2.62	27.30	-20.19	-13	-7.19	Horizontal
1420.0	-49.68	2.62	27.30	-25.00	-13	-12.00	Vertical
2130.0	-46.18	2.87	27.62	-21.43	-13	-8.43	Vertical
2130.0	-51.26	2.87	27.62	-26.51	-13	-13.51	Horizontal
208.9	-44.92	1.42	15.25	-31.10	-13	-18.10	Vertical
240.2	-38.53	1.36	17.19	-22.70	-13	-9.70	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-51.05	2.66	27.28	-26.43	-13	-13.43	Horizontal
1427.0	-51.75	2.66	27.28	-27.13	-13	-14.13	Vertical
2140.5	-46.02	2.88	27.60	-21.30	-13	-8.30	Vertical
2140.5	-53.33	2.88	27.60	-28.61	-13	-15.61	Horizontal
192.6	-35.84	1.32	17.29	-19.87	-13	-6.87	Vertical
328.9	-37.20	1.72	16.89	-22.03	-13	-9.03	Horizontal

QPSK EIRP POWER FOR LTE BAND 17 (10MHZ BANDWIDTH)

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-48.27	2.62	27.30	-23.59	-13	-10.59	Horizontal
1418.0	-51.97	2.62	27.30	-27.29	-13	-14.29	Vertical
2127.0	-49.49	2.87	27.62	-24.74	-13	-11.74	Vertical
2127.0	-49.39	2.87	27.62	-24.64	-13	-11.64	Horizontal
202.3	-37.87	1.35	16.91	-22.31	-13	-9.31	Vertical
437.5	-43.39	1.62	16.31	-28.70	-13	-15.70	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-44.30	2.62	27.30	-19.62	-13	-6.62	Horizontal
1420.0	-52.81	2.62	27.30	-28.13	-13	-15.13	Vertical
2130.0	-51.73	2.87	27.62	-26.98	-13	-13.98	Vertical
2130.0	-50.89	2.87	27.62	-26.14	-13	-13.14	Horizontal
205.4	-36.62	1.51	17.14	-20.99	-13	-7.99	Vertical
404.2	-42.16	1.77	16.88	-27.05	-13	-14.05	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.34	2.62	27.30	-22.66	-13	-9.66	Horizontal
1422.0	-50.28	2.62	27.30	-25.60	-13	-12.60	Vertical
2133.0	-49.16	2.87	27.62	-24.41	-13	-11.41	Vertical
2133.0	-52.57	2.87	27.62	-27.82	-13	-14.82	Horizontal
196.6	-37.37	1.78	15.95	-23.20	-13	-10.20	Vertical
240.1	-42.57	1.34	17.95	-25.97	-13	-12.97	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + AR_{pl}(dBm)$

. Over Limit = : $P_{Mea}(dBm) - Limit(dBm)$

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.8 LTE BAND 38

QPSK EIRP POWER FOR LTE BAND 38 (5MHZ BANDWIDTH)

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145	-56.80	4.01	27.5	-33.31	-25	-8.31	Horizontal
5145	-59.82	4.01	27.5	-36.33	-25	-11.33	Vertical
7717.5	-57.55	5.09	27.8	-34.84	-25	-9.84	Vertical
7717.5	-62.04	5.09	27.8	-39.33	-25	-14.33	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-61.99	4.1	27.48	-38.61	-25	-13.61	Horizontal
5190	-60.45	4.1	27.48	-37.07	-25	-12.07	Vertical
7785	-61.96	5.42	27.7	-39.68	-25	-14.68	Vertical
7785	-60.80	5.42	27.7	-38.52	-25	-13.52	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-59.76	4.11	27.43	-36.44	-25	-11.44	Horizontal
5234	-60.49	4.11	27.43	-37.17	-25	-12.17	Vertical
7851	-58.45	5.31	27.74	-36.02	-25	-11.02	Vertical
7851	-61.26	5.31	27.74	-38.83	-25	-13.83	Horizontal

QPSK EIRP POWER FOR LTE BAND 38 (20MHZ BANDWIDTH)

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-60.44	3.89	27.5	-36.83	-25	-11.83	Horizontal
5160	-59.15	3.89	27.5	-35.54	-25	-10.54	Vertical
7740	-61.57	5.33	27.8	-39.10	-25	-14.10	Vertical
7740	-56.97	5.33	27.8	-34.50	-25	-9.50	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-57.02	4.1	27.48	-33.64	-25	-8.64	Horizontal
5190	-60.06	4.1	27.48	-36.68	-25	-11.68	Vertical
7785	-58.93	5.42	27.7	-36.65	-25	-11.65	Vertical
7785	-62.26	5.42	27.7	-39.98	-25	-14.98	Horizontal
Test Results for High Channel 2610MHz							
5220	-59.59	4.01	27.43	-36.17	-25	-11.17	Horizontal
5220	-59.07	4.01	27.43	-35.65	-25	-10.65	Vertical
7830	-60.24	5.34	27.74	-37.84	-25	-12.84	Vertical
7830	-56.95	5.34	27.74	-34.55	-25	-9.55	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. We test both H direction and V direction, recorded worst case direction.

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.9 LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2537.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5075	-62.79	5.23	35.81	-32.21	-25	-7.21	Horizontal
5075	-61.47	5.23	35.81	-30.89	-25	-5.89	Vertical
7612.5	-61.57	5.67	36.85	-30.39	-25	-5.39	Vertical
7612.5	-60.27	5.67	36.85	-29.09	-25	-4.09	Horizontal
435.3	-46.37	1.38	15.98	-31.77	-25	-6.77	Vertical
465.8	-46.82	1.62	15.66	-32.78	-25	-7.78	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-62.23	5.23	35.82	-31.64	-25	-6.64	Horizontal
5190.0	-64.27	5.23	35.82	-33.68	-25	-8.68	Vertical
7785.0	-63.52	5.67	36.85	-32.34	-25	-7.34	Vertical
7785.0	-63.92	5.67	36.85	-32.74	-25	-7.74	Horizontal
510.4	-44.38	1.62	16.17	-29.83	-25	-4.83	Vertical
562.9	-46.06	1.74	17.63	-30.17	-25	-5.17	Horizontal
Test Results for High Channel 2652.5MHz							
5305	-63.87	5.24	35.83	-33.28	-25	-8.28	Horizontal
5305	-62.57	5.24	35.83	-31.98	-25	-6.98	Vertical
7957.5	-62.43	5.68	36.87	-31.24	-25	-6.24	Vertical
7957.5	-63.94	5.68	36.87	-32.75	-25	-7.75	Horizontal
197.6	-46.51	1.55	15.84	-32.22	-25	-7.22	Vertical
353.1	-48.60	1.51	17.06	-33.05	-25	-8.05	Horizontal

QPSK EIRP POWER FOR LTE BAND 41 (20MHZ BANDWIDTH)

Test Results for Low Channel 2545MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5090	-66.88	5.23	35.82	-36.29	-25	-11.29	Horizontal
5090	-67.39	5.23	35.82	-36.80	-25	-11.80	Vertical
7635	-71.57	5.67	36.86	-40.38	-25	-15.38	Vertical
7635	-70.02	5.67	36.86	-38.83	-25	-13.83	Horizontal
128.9	-53.24	1.43	15.51	-39.16	-25	-14.16	Vertical
344.8	-56.65	1.40	16.97	-41.08	-25	-16.08	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-70.23	5.23	35.82	-39.64	-25	-14.64	Horizontal
5190.0	-68.74	5.23	35.82	-38.15	-25	-13.15	Vertical
7785.0	-71.35	5.67	36.85	-40.17	-25	-15.17	Vertical
7785.0	-68.30	5.67	36.85	-37.12	-25	-12.12	Horizontal
100.8	-51.73	1.77	16.72	-36.78	-25	-11.78	Vertical
263.5	-52.64	1.31	16.99	-36.96	-25	-11.96	Horizontal
Test Results for High Channel 2645MHz							
5290	-70.93	5.24	35.83	-40.34	-25	-15.34	Horizontal
5290	-66.63	5.24	35.83	-36.04	-25	-11.04	Vertical
7935	-66.48	5.70	36.88	-35.30	-25	-10.30	Vertical
7935	-72.04	5.70	36.88	-40.86	-25	-15.86	Horizontal
349.9	-54.57	1.70	15.73	-40.54	-25	-15.54	Vertical
110.3	-53.33	1.75	17.33	-37.75	-25	-12.75	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + AR_{pl}(dBm)$

. Over Limit = : $P_{Mea}(dBm) - Limit(dBm)$

. We test both H direction and V direction, recorded worst case direction.

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.10 LTE BAND 66

QPSK EIRP POWER FOR LTE BAND 66 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-44.82	4.02	29.80	-19.04	-13	-6.04	Horizontal
3421.4	-47.50	4.02	29.80	-21.72	-13	-8.72	Vertical
5132.1	-54.40	5.24	35.84	-23.80	-13	-10.80	Vertical
5132.1	-47.38	5.24	35.84	-16.78	-13	-3.78	Horizontal
112.6	-47.53	1.52	15.57	-33.48	-13	-20.48	Vertical
220.5	-51.62	1.33	17.14	-35.81	-13	-22.81	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-45.60	4.03	30.00	-19.63	-13	-6.63	Horizontal
3490.0	-45.04	4.03	30.00	-19.07	-13	-6.07	Vertical
5235.0	-51.71	5.25	35.86	-21.10	-13	-8.10	Vertical
5235.0	-49.51	5.25	35.86	-18.90	-13	-5.90	Horizontal
157.3	-49.79	1.53	17.13	-34.19	-13	-21.19	Vertical
213.1	-51.29	1.41	15.95	-36.75	-13	-23.75	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-54.37	4.05	30.01	-28.41	-13	-15.41	Horizontal
3558.6	-52.59	4.05	30.01	-26.63	-13	-13.63	Vertical
5337.9	-52.02	5.26	35.86	-21.42	-13	-8.42	Vertical
5337.9	-49.64	5.26	35.86	-19.04	-13	-6.04	Horizontal
170.6	-51.74	1.44	15.51	-37.67	-13	-24.67	Vertical
169.0	-47.75	1.78	15.76	-33.77	-13	-20.77	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (20MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-47.96	4.02	29.80	-22.18	-13	-9.18	Horizontal
3440.0	-47.63	4.02	29.80	-21.85	-13	-8.85	Vertical
5160.0	-50.11	5.24	35.84	-19.51	-13	-6.51	Vertical
5160.0	-53.15	5.24	35.84	-22.55	-13	-9.55	Horizontal
268.8	-50.99	1.62	17.02	-35.59	-13	-22.59	Vertical
161.4	-44.09	1.32	17.31	-28.10	-13	-15.10	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-53.85	4.03	30.00	-27.88	-13	-14.88	Horizontal
3490.0	-48.86	4.03	30.00	-22.89	-13	-9.89	Vertical
5235.0	-50.61	5.25	35.86	-20.00	-13	-7.00	Vertical
5235.0	-51.62	5.25	35.86	-21.01	-13	-8.01	Horizontal
159.9	-52.50	1.45	15.17	-38.78	-13	-25.78	Vertical
172.1	-52.98	1.48	17.82	-36.64	-13	-23.64	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-47.21	2.91	27.68	-22.44	-13	-9.44	Horizontal
3540.0	-51.57	2.91	27.68	-26.80	-13	-13.80	Vertical
5310.0	-52.35	5.26	35.86	-21.75	-13	-8.75	Vertical
5310.0	-48.91	5.26	35.86	-18.31	-13	-5.31	Horizontal
197.3	-47.39	1.76	16.38	-32.77	-13	-19.77	Vertical
158.5	-50.96	1.43	17.13	-35.26	-13	-22.26	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

Over Limit= : P_{Mea}(dBm)-Limit(dBm)

We test both H direction and V direction, recorded worst case direction.

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54,

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.4V, Normal, DC 3.87V and High voltage, DC 4.4V.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to -30°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 38
- LTE Band 41
- LTE Band 66

RESULTS

See the following pages.

10.1 LTE BAND 2

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	12.2	0.006501	2.5
3.87	1880	13.6	0.007223	2.5
4.4	1880	13.6	0.007259	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	12.7	0.006763	2.5
Extreme (50C)	1880	11.5	0.006127	2.5
Extreme (40C)	1880	13.5	0.007177	2.5
Extreme (30C)	1880	13.4	0.007103	2.5
Extreme (10C)	1880	13.5	0.007185	2.5
Extreme (0C)	1880	12.1	0.006458	2.5
Extreme (-10C)	1880	12.8	0.006816	2.5
Extreme (-20C)	1880	13.7	0.007273	2.5
Extreme (-30C)	1880	14.4	0.007676	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	9.3	0.004953	2.5
3.87	1880	8.6	0.004554	2.5
4.4	1880	8.2	0.004382	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	10.1	0.005359	2.5
Extreme (50C)	1880	9.2	0.004890	2.5
Extreme (40C)	1880	7.7	0.004091	2.5
Extreme (30C)	1880	9.1	0.004863	2.5
Extreme (10C)	1880	9.4	0.004996	2.5
Extreme (0C)	1880	8.2	0.004339	2.5
Extreme (-10C)	1880	9.1	0.004848	2.5
Extreme (-20C)	1880	9.4	0.004994	2.5
Extreme (-30C)	1880	7.8	0.004133	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.2 LTE BAND 4

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	9.2	0.005304	2.5
3.87	1732.5	9.3	0.005361	2.5
4.4	1732.5	8.4	0.004864	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	8.0	0.004591	2.5
Extreme (50C)	1732.5	8.7	0.005031	2.5
Extreme (40C)	1732.5	7.9	0.004539	2.5
Extreme (30C)	1732.5	6.1	0.003495	2.5
Extreme (10C)	1732.5	6.6	0.003819	2.5
Extreme (0C)	1732.5	9.1	0.005242	2.5
Extreme (-10C)	1732.5	8.0	0.004595	2.5
Extreme (-20C)	1732.5	7.2	0.004166	2.5
Extreme (-30C)	1732.5	8.5	0.004893	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	9.9	0.005716	2.5
3.87	1732.5	8.8	0.005054	2.5
4.4	1732.5	7.8	0.004510	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	10.1	0.005808	2.5
Extreme (50C)	1732.5	9.0	0.005188	2.5
Extreme (40C)	1732.5	8.1	0.004678	2.5
Extreme (30C)	1732.5	8.6	0.004955	2.5
Extreme (10C)	1732.5	8.5	0.004905	2.5
Extreme (0C)	1732.5	7.9	0.004582	2.5
Extreme (-10C)	1732.5	8.7	0.005021	2.5
Extreme (-20C)	1732.5	8.8	0.005107	2.5
Extreme (-30C)	1732.5	8.1	0.004670	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.3 LTE BAND 5

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	5.5	0.006549	2.5
3.87	836.5	6.4	0.007665	2.5
4.4	836.5	4.4	0.005314	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	6.2	0.007465	2.5
Extreme (50C)	836.5	5.9	0.007045	2.5
Extreme (40C)	836.5	6.0	0.007175	2.5
Extreme (30C)	836.5	6.6	0.007945	2.5
Extreme (10C)	836.5	5.7	0.006866	2.5
Extreme (0C)	836.5	4.8	0.005772	2.5
Extreme (-10C)	836.5	5.3	0.006328	2.5
Extreme (-20C)	836.5	5.6	0.006740	2.5
Extreme (-30C)	836.5	6.5	0.007788	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	5.3	0.006339	2.5
3.87	836.5	6.9	0.008256	2.5
4.4	836.5	4.7	0.005676	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	6.6	0.007877	2.5
Extreme (50C)	836.5	6.2	0.007407	2.5
Extreme (40C)	836.5	5.8	0.006916	2.5
Extreme (30C)	836.5	6.3	0.007477	2.5
Extreme (10C)	836.5	5.4	0.006445	2.5
Extreme (0C)	836.5	4.9	0.005805	2.5
Extreme (-10C)	836.5	5.2	0.006197	2.5
Extreme (-20C)	836.5	6.6	0.007832	2.5
Extreme (-30C)	836.5	6.4	0.007662	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.4 LTE BAND 7

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	10.2	0.004042	2.5
3.87	2535	8.4	0.003320	2.5
4.4	2535	8.6	0.003405	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	9.8	0.003848	2.5
Extreme (50C)	2535	9.3	0.003658	2.5
Extreme (40C)	2535	8.4	0.003320	2.5
Extreme (30C)	2535	8.9	0.003505	2.5
Extreme (10C)	2535	8.3	0.003282	2.5
Extreme (0C)	2535	8.2	0.003244	2.5
Extreme (-10C)	2535	9.9	0.003889	2.5
Extreme (-20C)	2535	8.6	0.003399	2.5
Extreme (-30C)	2535	8.4	0.003309	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	7.2	0.002823	2.5
3.87	2535	6.8	0.002670	2.5
4.4	2535	6.0	0.002350	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	7.1	0.002790	2.5
Extreme (50C)	2535	5.2	0.002033	2.5
Extreme (40C)	2535	5.5	0.002166	2.5
Extreme (30C)	2535	6.7	0.002632	2.5
Extreme (10C)	2535	6.0	0.002359	2.5
Extreme (0C)	2535	5.6	0.002203	2.5
Extreme (-10C)	2535	5.2	0.002046	2.5
Extreme (-20C)	2535	6.2	0.002443	2.5
Extreme (-30C)	2535	6.2	0.002442	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.5 LTE BAND 12

Band 12 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	8.2	0.011604	2.5
3.87	707.5	9.9	0.014003	2.5
4.4	707.5	8.6	0.012137	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.9	0.012530	2.5
Extreme (50C)	707.5	7.3	0.010324	2.5
Extreme (40C)	707.5	7.5	0.010633	2.5
Extreme (30C)	707.5	8.3	0.011786	2.5
Extreme (10C)	707.5	7.8	0.010980	2.5
Extreme (0C)	707.5	8.6	0.012108	2.5
Extreme (-10C)	707.5	8.6	0.012219	2.5
Extreme (-20C)	707.5	8.6	0.012094	2.5
Extreme (-30C)	707.5	7.3	0.010387	2.5

Band 12 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	7.8	0.010963	2.5
3.87	707.5	8.3	0.011732	2.5
4.4	707.5	7.1	0.010079	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	6.5	0.009175	2.5
Extreme (50C)	707.5	5.5	0.007765	2.5
Extreme (40C)	707.5	6.4	0.009110	2.5
Extreme (30C)	707.5	-7.7	-0.010912	2.5
Extreme (10C)	707.5	-8.2	-0.011590	2.5
Extreme (0C)	707.5	2.9	0.004100	2.5
Extreme (-10C)	707.5	-5.2	-0.007292	2.5
Extreme (-20C)	707.5	-8.7	-0.012302	2.5
Extreme (-30C)	707.5	-10.2	-0.014350	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.6 LTE BAND 13

Band 13 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	782.0	12.5	0.017567	2.5
3.87	782.0	13.4	0.018850	2.5
4.4	782.0	13.3	0.018734	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	13.9	0.019591	2.5
Extreme (50C)	782.0	14.1	0.019798	2.5
Extreme (40C)	782.0	15.2	0.021353	2.5
Extreme (30C)	782.0	14.5	0.020491	2.5
Extreme (10C)	782.0	13.7	0.019254	2.5
Extreme (0C)	782.0	14.0	0.019719	2.5
Extreme (-10C)	782.0	14.4	0.020334	2.5
Extreme (-20C)	782.0	14.1	0.019812	2.5
Extreme (-30C)	782.0	13.6	0.019088	2.5

Band 13 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	782.0	13.0	0.018338	2.5
3.87	782.0	14.1	0.019834	2.5
4.4	782.0	13.7	0.019309	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	12.2	0.017240	2.5
Extreme (50C)	782.0	11.9	0.016694	2.5
Extreme (40C)	782.0	13.7	0.019256	2.5
Extreme (30C)	782.0	13.2	0.018536	2.5
Extreme (10C)	782.0	14.3	0.020096	2.5
Extreme (0C)	782.0	12.5	0.017535	2.5
Extreme (-10C)	782.0	13.2	0.018650	2.5
Extreme (-20C)	782.0	13.7	0.019351	2.5
Extreme (-30C)	782.0	14.5	0.020485	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.7 LTE BAND 17

Band 17 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	710.0	9.3	0.013168	2.5
3.87	710.0	8.4	0.011897	2.5
4.4	710.0	8.1	0.011444	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.4	0.013261	2.5
Extreme (50C)	710.0	8.6	0.012171	2.5
Extreme (40C)	710.0	7.9	0.011159	2.5
Extreme (30C)	710.0	8.7	0.012213	2.5
Extreme (10C)	710.0	8.7	0.012243	2.5
Extreme (0C)	710.0	8.2	0.011588	2.5
Extreme (-10C)	710.0	8.8	0.012326	2.5
Extreme (-20C)	710.0	8.4	0.011880	2.5
Extreme (-30C)	710.0	7.7	0.010915	2.5

Band 17 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	710.0	10.4	0.014589	2.5
3.87	710.0	9.0	0.012607	2.5
4.4	710.0	7.9	0.011146	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.1	0.012883	2.5
Extreme (50C)	710.0	9.4	0.013205	2.5
Extreme (40C)	710.0	8.9	0.012526	2.5
Extreme (30C)	710.0	8.7	0.012188	2.5
Extreme (10C)	710.0	8.2	0.011552	2.5
Extreme (0C)	710.0	8.0	0.011327	2.5
Extreme (-10C)	710.0	9.1	0.012821	2.5
Extreme (-20C)	710.0	9.4	0.013223	2.5
Extreme (-30C)	710.0	8.3	0.011657	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.8 LTE BAND 38

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 QPSK, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2595	8.6	0.003327	2.5
3.87	2595	6.8	0.002623	2.5
4.4	2595	7.2	0.002772	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 QPSK, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	7.3	0.002821	2.5
Extreme (50C)	2595	4.9	0.001881	2.5
Extreme (40C)	2595	5.2	0.002011	2.5
Extreme (30C)	2595	4.6	0.001762	2.5
Extreme (10C)	2595	6.9	0.002673	2.5
Extreme (0C)	2595	4.7	0.001804	2.5
Extreme (-10C)	2595	9.7	0.003751	2.5
Extreme (-20C)	2595	11.2	0.004329	2.5
Extreme (-30C)	2595	5.9	0.002281	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 16QAM, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2595	8.4	0.003231	2.5
3.87	2595	6.0	0.002313	2.5
4.4	2595	6.6	0.002555	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 16QAM, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	7.8	0.003023	2.5
Extreme (50C)	2595	4.7	0.001807	2.5
Extreme (40C)	2595	5.2	0.002018	2.5
Extreme (30C)	2595	4.7	0.001810	2.5
Extreme (10C)	2595	6.5	0.002522	2.5
Extreme (0C)	2595	4.5	0.001727	2.5
Extreme (-10C)	2595	9.7	0.003722	2.5
Extreme (-20C)	2595	11.3	0.004355	2.5
Extreme (-30C)	2595	6.5	0.002498	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.9 LTE BAND 41

Band 41 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2595	8.5	0.003296	2.5
3.87	2595	6.6	0.002534	2.5
4.4	2595	7.3	0.002823	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.1	0.002736	2.5
Extreme (50C)	2595	5.2	0.002016	2.5
Extreme (40C)	2595	5.8	0.002249	2.5
Extreme (30C)	2595	4.9	0.001879	2.5
Extreme (10C)	2595	6.6	0.002553	2.5
Extreme (0C)	2595	4.9	0.001900	2.5
Extreme (-10C)	2595	9.1	0.003527	2.5
Extreme (-20C)	2595	10.7	0.004138	2.5
Extreme (-30C)	2595	5.8	0.002251	2.5

Band 41 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2595	8.5	0.003264	2.5
3.87	2595	6.6	0.002543	2.5
4.4	2595	6.4	0.002466	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.3	0.002811	2.5
Extreme (50C)	2595	4.7	0.001797	2.5
Extreme (40C)	2595	5.9	0.002267	2.5
Extreme (30C)	2595	4.4	0.001692	2.5
Extreme (10C)	2595	6.8	0.002624	2.5
Extreme (0C)	2595	4.6	0.001774	2.5
Extreme (-10C)	2595	9.2	0.003560	2.5
Extreme (-20C)	2595	10.6	0.004092	2.5
Extreme (-30C)	2595	6.3	0.002440	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.10 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	12.7	0.00727	2.5
3.87	1745	14.3	0.00819	2.5
4.4	1745	13.3	0.00764	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	7.1	0.004078	2.5
Extreme (50C)	1745	4.4	0.002500	2.5
Extreme (40C)	1745	5.7	0.003283	2.5
Extreme (30C)	1745	4.7	0.002676	2.5
Extreme (10C)	1745	6.2	0.003564	2.5
Extreme (0C)	1745	4.7	0.002670	2.5
Extreme (-10C)	1745	10.0	0.005722	2.5
Extreme (-20C)	1745	10.5	0.005994	2.5
Extreme (-30C)	1745	6.6	0.003779	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	13.1	0.007495	2.5
3.87	1745	14.0	0.008019	2.5
4.4	1745	12.9	0.007386	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	7.1	0.004082	2.5
Extreme (50C)	1745	5.3	0.003028	2.5
Extreme (40C)	1745	5.4	0.003121	2.5
Extreme (30C)	1745	4.5	0.002559	2.5
Extreme (10C)	1745	6.6	0.003806	2.5
Extreme (0C)	1745	4.9	0.002829	2.5
Extreme (-10C)	1745	9.2	0.005276	2.5
Extreme (-20C)	1745	11.1	0.006350	2.5
Extreme (-30C)	1745	6.5	0.003716	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

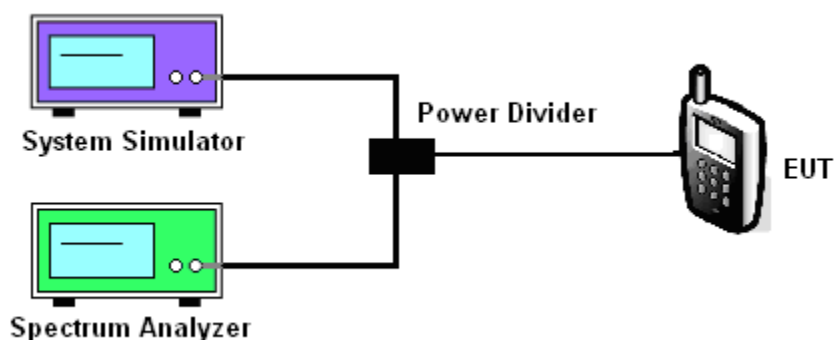
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For GSM/EGPRS operating modes:
 - a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
 - b. Set EUT in maximum power output, and triggered the burst signal.
 - c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
4. For UMTS operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



MODES TESTED

- ☐ LTE Band2/4/5/7/12/13/17/38/41/66
- ☐

Test data reference attachment.

-----END OF REPORT-----