TEST REPORT

Reference No.	:	WTS16S0243054-4E
FCC ID	:	2AC88-E1
Applicant	:	HONGKONG UCLOUDLINK NETWORK TECHNOLOGY LIMITED
Address	:	Unit D.16F.chenknang plaza 250 Hennessy Road,Wanchai Hongkong
Manufacturer	:	Shenzhen Ukelink New Technology Co.,Ltd
Address	:	3 Floor, Building A, Unit 1, the Software industry base, Xuefuroad, Nanshan district, Shenzhen, Guangdong, China
Product Name	:	4G Free Roaming Hotspot
Model No.	:	E1
Brand	:	GlocalMe
Standards	:	FCC CFR47 Part 22 Subpart H:2015 FCC CFR47 Part 24 Subpart E:2015 FCC CFR47 Part 27 Subpart L:2015
Date of Receipt sample	:	Feb. 17, 2016
Date of Test	:	Feb. 18 – Apr. 07, 2016
Date of Issue	:	Apr. 08, 2016
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Compiled by:

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Approved by:

Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
RF Output Power	2.1046 22.913 (a) 24.232 (c) 27.50(c) 27.50(d)	PASS
Peak-to-Average Ratio	24.232 (d)	PASS
Bandwidth	2.1049 22.905 22.917 24.238 27.53(a)	PASS
Spurious Emissions at Antenna Terminal	2.1051 22.917 (a) 24.238 (a) 27.53(h)	PASS
Field Strength of Spurious Radiation	2.1053 22.917 (a) 24.238 (a) 27.53(h)	PASS
Out of band emission, Band Edge	22.917 (a) 24.238 (a) 27.53(h)	PASS
Frequency Stability	2.1055 22.355 24.235 27.5(h) 27.54	PASS
Maximum Permissible Exposure (SAR)	1.1307 2.1093	PASS

3 Contents

4 General Information

4.1 General Description of E.U.T.

Product Name	: 4G Free Roaming Hotspot
Model No.	: E1
Model Description	: N/A
GSM Band(s)	: GSM 850/900/1800/1900MHz
GPRS/EDGE Class	: 12
CDMA	: 800/1900MHz
WCDMA Band(s)	: FDD Band I/II/IV/V/VIII
LTE Bnad(s)	: LTE Band 2/4/5/17/41
Wi-Fi Specification	: 2.4G: 802.11b/g/n HT20/n
Bluetooth Version	: Bluetooth v4.0 with BLE
GPS	: Support
NFC	: N/A
Hardware Version	: LA0908 Ver.B
Software Version	: E1_CTA_V01
storage location	: Internal Storage
Test Exercise	: The EUT was operated in a normal mode.
Note:	Main board: The EUT Main board support GSM850/900/DCS1800/PCS1900, CDMA 800/1900MHz,WCDMA Band 1/2/4/5/8, LTE Band 2/4/5/17/41 function. It is intended for speech, Multimedia Message Service (MMS) transmission and 4G free roaming hotspot. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/PCS1900, GPS,Bluetooth and Wi-Fi functions. For more information see the following datasheet. Vice board: The EUT Vice board support GSM850/900/DCS1800/PCS1900, CDMA 800/1900MHz, WCDMA Band 1/2/4/5/8. It is intended for system localization. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/PCS1900

4.2 Details of E.U.T.

Operation Frequency	: GSM/GPRS/EDGE 850: 824~849MHz PCS/GPRS/EDGE 1900: 1850~1910MHz CDMA800: 824.70~848.31MHz CDMA1900: 1851.25~1908.75MHz WCDMA Band II: 1850~1910MHz WCDMA Band IV: 1710~1755MHz WCDMA Band V: 824~849MHz LTE Band 2: 1850~1910MHz LTE Band 4: 1710~1755MHz

	LTE Band 5: 824~849MHz LTE Band 17: 706~714MHz LTE Band 41: 2498~2688MHz WiFi: 802.11b/g/n HT20: 2412~2462MHz Bluetooth: 2402~2480MHz
Max. RF output power	: Main Board: GSM 850: 32.62dBm PCS1900:29.68dBm CDMA800:24.64dBm CDMA1900:24.47dBm WCDMA Band II: 22.30dBm WCDMA Band V: 22.25dBm WCDMA Band IV: 22.59dBm LTE Band 2: 23.49dBm LTE Band 4: 23.5dBm LTE Band 5: 23.63dBm LTE Band 17: 23.79dBm LTE Band 41: 23.85dBm Vice Board: GSM 850: 32.75dBm PCS1900:29.75dBm CDMA800:24.81dBm CDMA1900:24.44dBm WCDMA Band II: 22.46dBm WCDMA Band V: 22.55dBm WCDMA Band IV: 22.68dBm WiFi(2.4G): 9.28dBm Bluetooth: -0.37dBm
Type of Modulation	: GSM,GPRS: GMSK CDMA2000:QPSK CDMA2000 1xEV-DO:QPSK,8PSK WCDMA: BPSK LTE: QPSK, 16QAM WiFi: CCK, OFDM Bluetooth: GFSK, Pi/4 DQPSK,8DPSK
Antenna installation	: GSM/CDMA/WCDMA/LTE: internal permanent antenna WiFi/Bluetooth: internal permanent antenna
Antenna Gain	Main Board: GSM 850: -0.95dBi

	PCS1900: -1.9dBi
	CDMA800: -0.95dBi
	CDMA1900: -1.9dBi
	WCDMA Band II: -1.9dBi
	WCDMA Band IV: -2.6dBi
	WCDMA Band V: -0.95dBi
	LTE Band 2: -1.8dBi
	LTE Band 4: 0.05dBi
	LTE Band 5: -0.95dBi
	LTE Band 7: 0.9dBi
	LTE Band 17: -4.5dBi
	LTE Band 41: 1.5dBi
	Vice Board:
	GSM 850: -0.95dBi
	PCS1900: -1.9dBi
	CDMA800: -0.95dBi
	CDMA1900: -1.9dBi
	WCDMA Band II: -1.9dBi
	WCDMA Band IV: -2.6dBi
	WCDMA Band V: -0.95dBi
	WiFi(2.4G): 0dBi
	Bluetooth: 0dBi
Technical Data:	Battery DC 3.8V, 13.3Wh
	DC 5V, 1.0A, charging from mini USB port

4.3 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Support Band	Test Mode BW(MHz)	Channel Frequency	Channel Number
LTE Band 2	1.4	1850.7 MHz	18607
		1880.0 MHz	18900
		1909.3 MHz	19193
	3	1851.5 MHz	18615
		1880.0 MHz	18900
		1908.5 MHz	19185
	5	1852.5 MHz	18625
		1880.0 MHz	18900
		1907.5 MHz	19175
	10	1855.0 MHz	18650
		1880.0 MHz	18900
		1905.0 MHz	19150
	15	1857.5 MHz	18675
		1880.0 MHz	18900
		1902.5 MHz	19125
	20	1860.0 MHz	19193
		1880.0 MHz	18900
		1900.0 MHz	19100
Remark: All mode(s) were tested and the worst data was recorded.			

Support Band	Test Mode BW(MHz)	Channel Frequency	Channel Number
LTE Band 4	1.4	1710.7 MHz	19957
		1732.5 MHz	20175
		1754.3 MHz	20393
	3	1711.5 MHz	19965
		1732.5 MHz	20175
		1753.5 MHz	20385
	5	1712.5 MHz	19975
		1732.5 MHz	20175
		1752.5 MHz	20375
	10	1715.0 MHz	20000
		1732.5 MHz	20175
		1750.0 MHz	20350
	15	1717.5 MHz	20025
		1732.5 MHz	20175
		1747.5 MHz	20325
	20	1720.0 MHz	20050
		1732.5 MHz	20175
		1745.0 MHz	20300
Remark: All mode(s) were tested and the worst data was recorded.			

Support Band	Test Mode BW(MHz)	Channel Frequency	Channel Number
LTE Band 5	1.4	824.7 MHz	20407
		836.5 MHz	20525
		848.3 MHz	20643
	3	825.5 MHz	20415
		836.5 MHz	20525
		847.5 MHz	20635
	5	826.5 MHz	20425
		836.5 MHz	20525
		846.5 MHz	20625
	10	829.0 MHz	20450
		836.5 MHz	20525
		844.0 MHz	20600
Remark: All mode(s) were tested and the worst data was recorded.			

Support Band	Test Mode BW(MHz)	Channel Frequency	Channel Number
LTE Band 17	5	706.5 MHz	23755
		710.0 MHz	23790
		713.5 MHz	23825
	10	709.0 MHz	23780
		710.0 MHz	23790
		711.0 MHz	23800
Remark: All mode(s) were tested and the worst data was recorded.			

Support Band	Test Mode BW(MHz)	Channel Frequency	Channel Number
LTE Band 41	5	2498.5 MHz	39675
		2593.0 MHz	40620
		2687.5MHz	41565
	10	2501.0 MHz	39700
		2593.0 MHz	40620
		2685.0 MHz	41540
	15	2503.5 MHz	39725
		2593.0 MHz	40620
		2682.5 MHz	41515
	20	2687.5 MHz	39750
		2593.0 MHz	40620
		2680.0 MHz	41490
Remark: All mode(s) were tested and the worst data was recorded.			

Note:

Bandwidth (MHz)	RB Number	RB Position	RB Offset	Bandwidth (MHz)	RB Number	RB Position	RB Offset
1.4	1	Low	0	10	1	Low	0
	1	Mid	3		1	Mid	25
	1	High	5		1	High	49
	3	Low	0		25	Low	0
	3	Mid	2		25	Mid	13
	3	High	3		25	High	25
	6	Low/Mid/High	0		50	Low/Mid/High	0
3	1	Low	0	15	1	Low	0
	1	Mid	8		1	Mid	38
	1	High	14		1	High	74
	8	Low	0		36	Low	0
	8	Mid	4		36	Mid	20
	8	High	7		36	High	39
	15	Low/Mid/High	0		75	Low/Mid/High	0
5	1	Low	0	20	1	Low	0
	1	Mid	13		1	Mid	50
	1	High	24		1	High	99
	12	Low	0		50	Low	0
	12	Mid	7		50	Mid	26
	12	High	13		50	High	50
	25	Low/Mid/High	0		100	Low/Mid/High	0

4.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A**

  Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2015.

- **FCC Test Site 1#– Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014.

5 Equipment Used during Test

5.1 Equipments List

RF Conducted Test						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Aug.15,2015	Aug.14,2016
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Aug.15,2015	Aug.14,2016
3.	Humidity Chamber	GF	GTH-225-40-1P	IAA061213	Aug.15,2015	Aug.14,2016
4.	Universal Radio Communication Tester	R&S	CMU 200	112461	Apr.10,2015	Apr.09,2016
3m Semi-anechoic Chamber for Radiated Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.15,2015	Sep.14,2016
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.15,2015	Sep.14,2016
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.18,2015	Apr.17,2016
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.15,2015	Sep.14,2016
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.18,2015	Apr.17,2016
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	669	Apr.18,2015	Apr.17,2016
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Sep.15,2015	Sep.14,2016
8	Coaxial Cable (above 1GHz)	Top	1000MHz-25GHz	EW02014-7	Apr.09,2015	Apr.08,2016
9	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Sep.15,2015	Sep.14,2016
10	Universal Radio Communication Tester	R&S	CMU 200	112461	Apr.10,2015	Apr.09,2016
11	Signal Generator	R&S	SMR20	100046	Sep.15,2015	Sep.14,2016

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 RF OUTPUT POWER

Test Requirement:	FCC Part 2.1046, 27.50(c),27.50(d)
Test Method:	ANSI C63.4:2009, TIA/EIA-603-D:2010
Test Mode:	Transmitting

6.1 EUT Operation

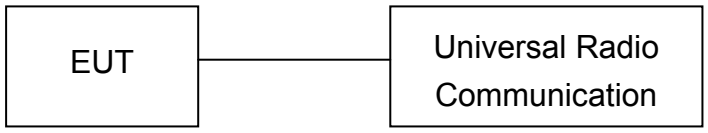
Operating Environment **:**

Temperature:	22.5 °C
Humidity:	52.1 % RH
Atmospheric Pressure:	101.2kPa

6.2 Test Procedure

Conducted method:

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.



Radiated method:

1. The setup of EUT is according with per TIA/EIA Standard 603D:2010 and ANSI C63.4-2009 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

6.3 Test Result

Conducted Power

LTE Band 2：

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
1.4MHz	18607	1850.7	QPSK	1	0	22.28	22.0±1
				1	2	21.23	22.0±1
				1	5	22.34	22.0±1
				3	0	21.41	21.0±1
				3	1	21.45	21.0±1
				3	2	21.53	21.0±1
				6	0	21.17	21.0±1
			16QAM	1	0	21.43	22.0±1
				1	2	21.39	22.0±1
				1	5	22.23	22.0±1
				3	0	22.61	22.0±1
				3	1	21.78	22.0±1
				3	2	21.91	22.0±1
				6	0	21.65	22.0±1
	18900	1880	QPSK	1	0	22.04	22.0±1
				1	2	22.2	22.0±1
				1	5	22.11	22.0±1
				3	0	21.81	21.0±1
				3	1	21.79	21.0±1
				3	2	21.76	21.0±1
				6	0	21.16	21.0±1
			16QAM	1	0	21.45	22.0±1
				1	2	21.47	22.0±1
				1	5	21.72	22.0±1
				3	0	21.24	22.0±1
				3	1	21.21	22.0±1
				3	2	21.17	22.0±1
				6	0	21.02	22.0±1
	19193	1909.3	QPSK	1	0	22.69	22.0±1
				1	2	22.82	22.0±1
				1	5	22.77	22.0±1
				3	0	21.97	21.0±1
				3	1	21.9	21.0±1
				3	2	21.88	21.0±1
				6	0	21.95	21.0±1
			16QAM	1	0	22.26	22.0±1
				1	2	22.12	22.0±1
				1	5	22.11	22.0±1
				3	0	21.98	22.0±1
				3	1	21.96	22.0±1
				3	2	21.93	22.0±1
				6	0	21.08	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
3MHz	18615	1851.5	QPSK	1	0	22.5	22.0±1
				1	8	21.23	22.0±1
				1	14	22.52	22.0±1
				6	0	21.78	21.0±1
				6	4	21.89	21.0±1
				6	9	21.36	21.0±1
				15	0	21.61	21.0±1
			16QAM	1	0	21.98	22.0±1
				1	8	21.96	22.0±1
				1	14	21.93	22.0±1
				6	0	21.08	22.0±1
				6	4	22.5	22.0±1
				6	9	21.23	22.0±1
				15	0	22.52	22.0±1
	18900	1880	QPSK	1	0	22.35	22.0±1
				1	8	22.21	22.0±1
				1	14	22.3	22.0±1
				6	0	21.26	21.0±1
				6	4	21.31	21.0±1
				6	9	21.32	21.0±1
				15	0	21.32	21.0±1
			16QAM	1	0	21.59	22.0±1
				1	8	21.5	22.0±1
				1	14	21.55	22.0±1
				6	0	21.1	22.0±1
				6	4	21.02	22.0±1
				6	9	21	22.0±1
				15	0	21.25	22.0±1
	19185	1908.5	QPSK	1	0	22.71	22.0±1
				1	8	22.62	22.0±1
				1	14	22.81	22.0±1
				6	0	21.91	21.0±1
				6	4	21.94	21.0±1
				6	9	21.67	21.0±1
				15	0	21.98	21.0±1
			16QAM	1	0	22.1	22.0±1
				1	8	22.18	22.0±1
				1	14	22.34	22.0±1
				6	0	21.14	22.0±1
				6	4	21.22	22.0±1
				6	9	21.3	22.0±1
				15	0	21.06	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
5MHz	18625	1852.5	QPSK	1	0	22.47	22.0±1
				1	12	22.25	22.0±1
				1	24	22.38	22.0±1
				12	0	21.5	21.0±1
				12	6	21.43	21.0±1
				12	11	21.42	21.0±1
				25	0	21.48	21.0±1
			16QAM	1	0	21.43	21.0±1
				1	12	21.18	21.0±1
				1	24	21.51	21.0±1
				12	0	20.51	21.0±1
				12	6	20.42	21.0±1
				12	11	20.33	21.0±1
				25	0	20.45	21.0±1
	18900	1880	QPSK	1	0	22.37	22.0±1
				1	12	22.16	22.0±1
				1	24	22.19	22.0±1
				12	0	21.35	21.0±1
				12	6	21.34	21.0±1
				12	11	21.4	21.0±1
				25	0	21.41	21.0±1
			16QAM	1	0	21.13	21.0±1
				1	12	21.46	21.0±1
				1	24	21.28	21.0±1
				12	0	20.38	21.0±1
				12	6	20.38	21.0±1
				12	11	20.34	21.0±1
				25	0	20.37	21.0±1
	19175	1907.5	QPSK	1	0	22.73	22.0±1
				1	12	22.78	22.0±1
				1	24	22.81	22.0±1
				12	0	21.87	21.0±1
				12	6	21.95	21.0±1
				12	11	21.88	21.0±1
				25	0	21.95	21.0±1
			16QAM	1	0	21.7	22.0±1
				1	12	21.7	22.0±1
				1	24	22.27	22.0±1
				12	0	20.93	21.0±1
				12	6	20.99	21.0±1
				12	11	21.14	21.0±1
				25	0	20.92	21.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
10MHz	18650	1855	QPSK	1	0	22.54	22.0±1
				1	24	22.51	22.0±1
				1	49	22.42	22.0±1
				25	0	21.33	21.0±1
				25	12	21.45	21.0±1
				25	24	21.37	21.0±1
				50	0	21.16	21.0±1
			16QAM	1	0	22.19	22.0±1
				1	24	21.35	22.0±1
				1	49	21.34	22.0±1
				25	0	21.4	22.0±1
				25	12	22.22	22.0±1
				25	24	21.13	22.0±1
				50	0	22.20	22.0±1
	18900	1880	QPSK	1	0	22.63	22.0±1
				1	24	22.72	22.0±1
				1	49	22.37	22.0±1
				25	0	21.39	21.0±1
				25	12	21.33	21.0±1
				25	24	21.38	21.0±1
				50	0	21.38	21.0±1
			16QAM	1	0	21.8	21.0±1
				1	24	21.98	21.0±1
				1	49	21.59	21.0±1
				25	0	20.42	21.0±1
				25	12	20.36	21.0±1
				25	24	20.29	21.0±1
				50	0	20.4	21.0±1
	19150	1905	QPSK	1	0	22.68	22.0±1
				1	24	22.14	22.0±1
				1	49	22.33	22.0±1
				25	0	21.78	21.0±1
				25	12	21.81	21.0±1
				25	24	21.95	21.0±1
				50	0	21.86	21.0±1
			16QAM	1	0	22.13	21.0±1
				1	24	21.91	21.0±1
				1	49	22.35	21.0±1
				25	0	20.92	21.0±1
				25	12	21.04	21.0±1
				25	24	21.16	21.0±1
				50	0	20.92	21.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
15MHz	18675	1857.5	QPSK	1	0	22.75	22.0±1
				1	37	22.63	22.0±1
				1	74	22.66	22.0±1
				36	0	21.72	21.0±1
				36	16	21.6	21.0±1
				36	35	21.55	21.0±1
				75	0	21.71	21.0±1
			16QAM	1	0	21.67	21.0±1
				1	37	21.44	21.0±1
				1	74	21.47	21.0±1
				36	0	20.75	21.0±1
				36	16	20.53	21.0±1
				36	35	20.66	21.0±1
				75	0	20.65	21.0±1
	18900	1880	QPSK	1	0	22.78	22.0±1
				1	37	22.48	22.0±1
				1	74	22.44	22.0±1
				36	0	21.43	21.0±1
				36	16	21.36	21.0±1
				36	35	21.38	21.0±1
				75	0	21.4	21.0±1
			16QAM	1	0	21.95	21.0±1
				1	37	21.72	21.0±1
				1	74	21.68	21.0±1
				36	0	20.61	21.0±1
				36	16	20.27	21.0±1
				36	35	20.29	21.0±1
				75	0	20.41	21.0±1
	19125	1902.5	QPSK	1	0	22.58	22.0±1
				1	37	22.6	22.0±1
				1	74	22.78	22.0±1
				36	0	21.75	21.0±1
				36	16	21.73	21.0±1
				36	35	21.9	21.0±1
				75	0	21.77	21.0±1
			16QAM	1	0	22.34	22.0±1
				1	37	22.67	22.0±1
				1	74	22.96	22.0±1
				36	0	20.89	21.0±1
				36	16	20.83	21.0±1
				36	35	20.91	21.0±1
				75	0	20.87	21.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
20MHz	18700	1860	QPSK	1	0	22.82	22.0±1
				1	49	22.7	22.0±1
				1	99	22.77	22.0±1
				50	0	21.78	21.0±1
				50	24	21.61	21.0±1
				50	49	21.56	21.0±1
				100	0	21.69	21.0±1
			16QAM	1	0	22.35	22.0±1
				1	49	22.26	22.0±1
				1	99	22.18	22.0±1
				50	0	20.71	21.0±1
				50	24	20.63	21.0±1
				50	49	20.59	21.0±1
				100	0	20.67	21.0±1
	18900	1880	QPSK	1	0	22.66	22.0±1
				1	49	22.58	22.0±1
				1	99	22.43	22.0±1
				50	0	21.73	21.0±1
				50	24	21.77	21.0±1
				50	49	21.52	21.0±1
				100	0	21.56	21.0±1
			16QAM	1	0	22.06	22.0±1
				1	49	22.24	22.0±1
				1	99	21.74	22.0±1
				50	0	20.64	21.0±1
				50	24	20.59	21.0±1
				50	49	20.65	21.0±1
				100	0	20.58	21.0±1
	19100	1900	QPSK	1	0	22.34	22.0±1
				1	49	22.66	22.0±1
				1	99	22.79	22.0±1
				50	0	21.7	21.0±1
				50	24	21.72	21.0±1
				50	49	21.86	21.0±1
				100	0	21.76	21.0±1
			16QAM	1	0	21.81	22.0±1
				1	49	22.16	22.0±1
				1	99	22.45	22.0±1
				50	0	20.58	21.0±1
				50	24	20.73	21.0±1
				50	49	20.85	21.0±1
				100	0	20.9	21.0±1

LTE Band 4：

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
1.4MHz	19957	1710.7	QPSK	1	0	22.89	23.0±1
				1	2	22.62	23.0±1
				1	5	22.55	23.0±1
				3	0	21.93	22.0±1
				3	1	21.83	22.0±1
				3	2	21.72	22.0±1
				6	0	21.8	22.0±1
			16QAM	1	0	21.62	22.0±1
				1	2	22.25	22.0±1
				1	5	22.10	22.0±1
				3	0	20.57	21.0±1
				3	1	20.64	21.0±1
				3	2	20.51	21.0±1
				6	0	21.96	21.0±1
	20175	1732.5	QPSK	1	0	23	23.0±1
				1	2	23.06	23.0±1
				1	5	22.81	23.0±1
				3	0	22.39	22.0±1
				3	1	22.60	22.0±1
				3	2	22.53	22.0±1
				6	0	21.83	22.0±1
			16QAM	1	0	22.26	22.0±1
				1	2	22.24	22.0±1
				1	5	22.24	22.0±1
				3	0	21.07	21.0±1
				3	1	21.25	21.0±1
				3	2	21.03	21.0±1
				6	0	21.69	21.0±1
	20393	1754.3	QPSK	1	0	22.63	23.0±1
				1	2	22.78	23.0±1
				1	5	22.65	23.0±1
				3	0	22.49	22.0±1
				3	1	22.55	22.0±1
				3	2	22.53	22.0±1
				6	0	21.64	22.0±1
			16QAM	1	0	21.69	22.0±1
				1	2	21.59	22.0±1
				1	5	21.63	22.0±1
				3	0	21.37	21.0±1
				3	1	21.55	21.0±1
				3	2	21.7	21.0±1
				6	0	20.6	21.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
3MHz	19965	1711.5	QPSK	1	0	22.92	23.0±1
				1	8	22.94	23.0±1
				1	14	22.89	23.0±1
				6	0	21.85	22.0±1
				6	4	21.86	22.0±1
				6	9	21.55	22.0±1
				15	0	21.55	22.0±1
			16QAM	1	0	22.63	22.0±1
				1	8	22.54	22.0±1
				1	14	22.81	22.0±1
				8	0	21.61	21.0±1
				8	4	21.73	21.0±1
				8	9	21.35	21.0±1
				15	0	21.4	21.0±1
	20175	1732.5	QPSK	1	0	23.02	23.0±1
				1	8	22.92	23.0±1
				1	14	22.93	23.0±1
				6	0	22.02	22.0±1
				6	4	22.01	22.0±1
				6	9	22.03	22.0±1
				15	0	22.02	22.0±1
			16QAM	1	0	22.21	22.0±1
				1	8	22.04	22.0±1
				1	14	22.03	22.0±1
				6	0	20.83	21.0±1
				6	4	20.74	21.0±1
				6	9	20.75	21.0±1
				15	0	20.92	21.0±1
	20385	1753.5	QPSK	1	0	22.65	23.0±1
				1	8	22.63	23.0±1
				1	14	22.6	23.0±1
				6	0	21.68	22.0±1
				6	4	21.54	22.0±1
				6	9	21.62	22.0±1
				15	0	21.55	22.0±1
			16QAM	1	0	22.03	22.0±1
				1	8	21.83	22.0±1
				1	14	21.72	22.0±1
				8	0	20.8	21.0±1
				8	4	20.57	21.0±1
				8	9	20.64	21.0±1
				15	0	20.51	21.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
5MHz	19975	1712.5	QPSK	1	0	22.83	23.0±1
				1	49	23.08	23.0±1
				1	99	22.72	23.0±1
				12	0	22.18	22.0±1
				12	24	22.19	22.0±1
				12	49	22.27	22.0±1
				25	0	22.24	22.0±1
			16QAM	1	0	21.9	22.0±1
				1	49	22.04	22.0±1
				1	99	21.81	22.0±1
				12	0	21.08	21.0±1
				12	24	21.09	21.0±1
				12	49	21.27	21.0±1
				25	0	21.32	21.0±1
	20175	1732.5	QPSK	1	0	23.18	23.0±1
				1	49	22.92	23.0±1
				1	99	22.8	23.0±1
				12	0	22.06	22.0±1
				12	24	22	22.0±1
				12	49	21.95	22.0±1
				25	0	22.04	22.0±1
			16QAM	1	0	21.92	22.0±1
				1	49	21.85	22.0±1
				1	99	21.84	22.0±1
				12	0	20.94	21.0±1
				12	24	20.89	21.0±1
				12	49	20.85	21.0±1
				25	0	20.86	21.0±1
	20375	1752.5	QPSK	1	0	22.55	23.0±1
				1	49	22.55	23.0±1
				1	99	22.63	23.0±1
				12	0	21.54	22.0±1
				12	24	21.81	22.0±1
				12	49	21.61	22.0±1
				25	0	21.73	22.0±1
			16QAM	1	0	21.35	22.0±1
				1	49	21.4	22.0±1
				1	99	21.94	22.0±1
				12	0	20.48	21.0±1
				12	24	20.62	21.0±1
				12	49	20.66	21.0±1
				25	0	20.85	21.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
10MHz	20000	1715	QPSK	1	0	23.28	23.0±1
				1	49	22.85	23.0±1
				1	99	22.7	23.0±1
				25	0	22.41	22.0±1
				25	24	22.08	22.0±1
				25	49	22.18	22.0±1
				50	0	22.3	22.0±1
			16QAM	1	0	22.25	22.0±1
				1	49	22.19	22.0±1
				1	99	22.34	22.0±1
				25	0	22.59	22.0±1
				25	24	22.41	22.0±1
				25	49	22.34	22.0±1
				50	0	21.38	22.0±1
	20175	1732.5	QPSK	1	0	23.29	23.0±1
				1	49	23.13	23.0±1
				1	99	22.9	23.0±1
				25	0	22.06	22.0±1
				25	24	22.06	22.0±1
				25	49	22.17	22.0±1
				50	0	22.02	22.0±1
			16QAM	1	0	22.73	22.0±1
				1	49	22.34	22.0±1
				1	99	21.95	22.0±1
				25	0	21.11	22.0±1
				25	24	21.09	22.0±1
				25	49	21.06	22.0±1
				50	0	21.1	22.0±1
	20350	1750	QPSK	1	0	22.86	23.0±1
				1	49	22.96	23.0±1
				1	99	22.97	23.0±1
				25	0	21.65	22.0±1
				25	24	21.74	22.0±1
				25	49	21.76	22.0±1
				50	0	21.64	22.0±1
			16QAM	1	0	21.85	22.0±1
				1	49	22.01	22.0±1
				1	99	21.88	22.0±1
				25	0	21.65	22.0±1
				25	24	21.85	22.0±1
				25	49	21.85	22.0±1
				50	0	21.7	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
15MHz	20025	1717.5	QPSK	1	0	23.41	23.0±1
				1	49	23.08	23.0±1
				1	99	23.18	23.0±1
				36	0	22.3	22.0±1
				36	24	22.25	22.0±1
				36	49	22.19	22.0±1
				75	0	22.34	22.0±1
			16QAM	1	0	22.59	22.0±1
				1	49	22.41	22.0±1
				1	99	22.34	22.0±1
				36	0	21.38	21.0±1
				36	24	21.25	21.0±1
				36	49	21.21	21.0±1
				75	0	21.3	21.0±1
	20175	1732.5	QPSK	1	0	23.43	23.0±1
				1	49	23.05	23.0±1
				1	99	22.93	23.0±1
				36	0	22.2	22.0±1
				36	24	22	22.0±1
				36	49	21.92	22.0±1
				75	0	21.99	22.0±1
			16QAM	1	0	22.46	22.0±1
				1	49	22.19	22.0±1
				1	99	21.81	22.0±1
				36	0	21.26	21.0±1
				36	24	21.08	21.0±1
				36	49	20.89	21.0±1
				75	0	21.05	21.0±1
	20325	1747.5	QPSK	1	0	22.91	23.0±1
				1	49	22.6	23.0±1
				1	99	22.69	23.0±1
				36	0	21.71	22.0±1
				36	24	21.74	22.0±1
				36	49	21.72	22.0±1
				75	0	21.56	22.0±1
			16QAM	1	0	22.31	22.0±1
				1	49	22.34	22.0±1
				1	99	22.41	22.0±1
				36	0	20.57	21.0±1
				36	24	20.65	21.0±1
				36	49	20.62	21.0±1
				75	0	20.57	21.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
20MHz	20050	1720	QPSK	1	0	23.5	23.0±1
				1	49	23.33	23.0±1
				1	99	23.14	23.0±1
				50	0	22.35	22.0±1
				50	24	22.3	22.0±1
				50	49	22.27	22.0±1
				100	0	22.31	22.0±1
			16QAM	1	0	22.45	22.0±1
				1	49	22.35	22.0±1
				1	99	22.04	22.0±1
				50	0	21.39	21.0±1
				50	24	21.33	21.0±1
				50	49	21.3	21.0±1
				100	0	21.29	21.0±1
	20175	1732.5	QPSK	1	0	23.37	23.0±1
				1	49	23.45	23.0±1
				1	99	22.76	23.0±1
				50	0	22.25	22.0±1
				50	24	22.4	22.0±1
				50	49	21.93	22.0±1
				100	0	22.13	22.0±1
			16QAM	1	0	22.79	22.0±1
				1	49	22.78	22.0±1
				1	99	21.84	22.0±1
				50	0	21.28	21.0±1
				50	24	21.03	21.0±1
				50	49	21.09	21.0±1
				100	0	21.08	21.0±1
	20300	1745	QPSK	1	0	23.18	23.0±1
				1	49	22.86	23.0±1
				1	99	23.01	23.0±1
				50	0	21.88	22.0±1
				50	24	21.7	22.0±1
				50	49	21.76	22.0±1
				100	0	21.88	22.0±1
			16QAM	1	0	21.94	22.0±1
				1	49	21.89	22.0±1
				1	99	21.62	22.0±1
				50	0	20.73	21.0±1
				50	24	20.51	21.0±1
				50	49	20.67	21.0±1
				100	0	20.69	21.0±1

LTE Band 5：

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
1.4MHz	20407	824.7	QPSK	1	0	22.41	23.0±1
				1	2	22.19	23.0±1
				1	5	22.85	23.0±1
				3	0	22.2	22.0±1
				3	1	22.47	22.0±1
				3	2	21.12	22.0±1
				6	0	21.89	22.0±1
			16QAM	1	0	22.16	22.0±1
				1	2	22.07	22.0±1
				1	5	22.31	22.0±1
				3	0	22.89	22.0±1
				3	1	22.82	22.0±1
				3	2	22.43	22.0±1
				6	0	22.31	22.0±1
	20525	836.5	QPSK	1	0	23.51	23.0±1
				1	2	23.21	23.0±1
				1	5	23.25	23.0±1
				3	0	22.34	22.0±1
				3	1	22.25	22.0±1
				3	2	22.24	22.0±1
				6	0	22.41	22.0±1
			16QAM	1	0	22.95	22.0±1
				1	2	22.84	22.0±1
				1	5	22.66	22.0±1
				3	0	22.28	22.0±1
				3	1	22.32	22.0±1
				3	2	22.11	22.0±1
				6	0	21.99	22.0±1
	20634	848.3	QPSK	1	0	23.19	23.0±1
				1	2	23.51	23.0±1
				1	5	23.33	23.0±1
				3	0	22.15	22.0±1
				3	1	22.19	22.0±1
				3	2	22.22	22.0±1
				6	0	22.14	22.0±1
			16QAM	1	0	22.33	22.0±1
				1	2	22.37	22.0±1
				1	5	22.45	22.0±1
				3	0	22.03	22.0±1
				3	1	22.22	22.0±1
				3	2	22.23	22.0±1
				6	0	21.31	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
3MHz	20415	825.5	QPSK	1	0	23.46	23.0±1
				1	8	22.6	23.0±1
				1	14	22.82	23.0±1
				6	0	22.73	22.0±1
				6	4	22.59	22.0±1
				6	9	22.57	22.0±1
				15	0	22.18	22.0±1
			16QAM	1	0	22.09	22.0±1
				1	8	22.05	22.0±1
				1	14	21.75	22.0±1
				8	0	21.9	22.0±1
				8	4	22.42	22.0±1
				8	9	21.1	22.0±1
				15	0	21.3	22.0±1
	20525	836.5	QPSK	1	0	23.41	23.0±1
				1	8	23.15	23.0±1
				1	14	23.18	23.0±1
				6	0	22.48	22.0±1
				6	4	22.28	22.0±1
				6	9	22.28	22.0±1
				15	0	22.47	22.0±1
			16QAM	1	0	22.94	22.0±1
				1	8	22.86	22.0±1
				1	14	22.61	22.0±1
				6	0	21.61	22.0±1
				6	4	21.43	22.0±1
				6	9	21.38	22.0±1
				15	0	21.59	22.0±1
	20635	847.5	QPSK	1	0	23.1	23.0±1
				1	8	23.12	23.0±1
				1	14	23.37	23.0±1
				6	0	22.01	22.0±1
				6	4	22.21	22.0±1
				6	9	22.06	22.0±1
				15	0	22.19	22.0±1
			16QAM	1	0	21.85	22.0±1
				1	8	22.2	22.0±1
				1	14	22.47	22.0±1
				8	0	21.12	22.0±1
				8	4	21.89	22.0±1
				8	9	21.16	22.0±1
				15	0	21.07	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
5MHz	20425	826.5	QPSK	1	0	23.31	23.0±1
				1	49	22.89	23.0±1
				1	99	22.82	23.0±1
				12	0	22.43	22.0±1
				12	24	22.31	22.0±1
				12	49	22.25	22.0±1
				25	0	22.39	22.0±1
			16QAM	1	0	22	22.0±1
				1	49	21.71	22.0±1
				1	99	21.61	22.0±1
				12	0	21.36	22.0±1
				12	24	21.4	22.0±1
				12	49	21.19	22.0±1
				25	0	21.5	22.0±1
	20525	836.5	QPSK	1	0	23.25	23.0±1
				1	49	23.04	23.0±1
				1	99	23.02	23.0±1
				12	0	22.46	22.0±1
				12	24	22.38	22.0±1
				12	49	22.25	22.0±1
				25	0	22.41	22.0±1
			16QAM	1	0	22.25	22.0±1
				1	49	21.99	22.0±1
				1	99	21.98	22.0±1
				12	0	21.45	22.0±1
				12	24	21.48	22.0±1
				12	49	21.37	22.0±1
				25	0	21.6	22.0±1
	20625	846.5	QPSK	1	0	22.82	23.0±1
				1	49	23.03	23.0±1
				1	99	23.3	23.0±1
				12	0	22.05	22.0±1
				12	24	22.18	22.0±1
				12	49	22.09	22.0±1
				25	0	22.05	22.0±1
			16QAM	1	0	21.75	22.0±1
				1	49	21.9	22.0±1
				1	99	22.42	22.0±1
				12	0	21.1	22.0±1
				12	24	21.3	22.0±1
				12	49	21.98	22.0±1
				25	0	21.08	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
10MHz	20450	829	QPSK	1	0	23.51	23.0±1
				1	49	23.63	23.0±1
				1	99	23.3	23.0±1
				25	0	22.43	22.0±1
				25	24	22.13	22.0±1
				25	49	22.44	22.0±1
				50	0	22.24	22.0±1
			16QAM	1	0	22.01	22.0±1
				1	49	22	22.0±1
				1	99	22.19	22.0±1
				25	0	22.05	22.0±1
				25	24	22.39	22.0±1
				25	49	22.18	22.0±1
				50	0	21.32	22.0±1
	20525	836.5	QPSK	1	0	23.18	23.0±1
				1	49	23.63	23.0±1
				1	99	22.96	23.0±1
				25	0	22.43	22.0±1
				25	24	22.48	22.0±1
				25	49	22.18	22.0±1
				50	0	22.2	22.0±1
			16QAM	1	0	22.46	22.0±1
				1	49	22.95	22.0±1
				1	99	22.13	22.0±1
				25	0	21.52	22.0±1
				25	24	21.63	22.0±1
				25	49	21.3	22.0±1
				50	0	21.43	22.0±1
	20600	844	QPSK	1	0	23.13	23.0±1
				1	49	23.14	23.0±1
				1	99	23.24	23.0±1
				25	0	22.01	22.0±1
				25	24	22	22.0±1
				25	49	22.19	22.0±1
				50	0	22.05	22.0±1
			16QAM	1	0	22.39	22.0±1
				1	49	22.18	22.0±1
				1	99	22.32	22.0±1
				25	0	21.99	22.0±1
				25	24	21.94	22.0±1
				25	49	21.1	22.0±1
				50	0	21.1	22.0±1

LTE Band 17：

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
5MHz	23755	706.5	QPSK	1	0	23.25	23.0±1
				1	49	23.46	23.0±1
				1	99	23.47	23.0±1
				12	0	22.23	22.0±1
				12	24	22.45	22.0±1
				12	49	22.45	22.0±1
				25	0	22.5	22.0±1
			16QAM	1	0	22.64	22.0±1
				1	49	22.82	22.0±1
				1	99	22.75	22.0±1
				12	0	21.25	22.0±1
				12	24	21.48	22.0±1
				12	49	21.52	22.0±1
				25	0	21.25	22.0±1
	23790	710	QPSK	1	0	23.18	23.0±1
				1	49	23.22	23.0±1
				1	99	23.22	23.0±1
				12	0	22.22	22.0±1
				12	24	22.3	22.0±1
				12	49	22.46	22.0±1
				25	0	22.32	22.0±1
			16QAM	1	0	22.47	22.0±1
				1	49	22.51	22.0±1
				1	99	22.33	22.0±1
				12	0	21.37	22.0±1
				12	24	21.46	22.0±1
				12	49	21.26	22.0±1
				25	0	21.33	22.0±1
	23825	713.5	QPSK	1	0	23.36	23.0±1
				1	49	23.46	23.0±1
				1	99	23.2	23.0±1
				12	0	22.58	22.0±1
				12	24	22.49	22.0±1
				12	49	22.29	22.0±1
				25	0	22.62	22.0±1
			16QAM	1	0	22.33	22.0±1
				1	49	22.25	22.0±1
				1	99	21.8	22.0±1
				12	0	21.28	22.0±1
				12	24	21.28	22.0±1
				12	49	21.2	22.0±1
				25	0	21.61	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
10MHz	23780	709	QPSK	1	0	23.49	23.0±1
				1	49	22.23	23.0±1
				1	99	22.45	23.0±1
				25	0	22.45	22.0±1
				25	24	22.5	22.0±1
				25	49	22.64	22.0±1
				50	0	22.82	22.0±1
			16QAM	1	0	22.75	22.0±1
				1	49	21.25	22.0±1
				1	99	21.48	22.0±1
				25	0	23.20	22.0±1
				25	24	21.62	22.0±1
				25	49	22.53	22.0±1
				50	0	22.41	22.0±1
	23790	710	QPSK	1	0	23.25	23.0±1
				1	49	23.79	23.0±1
				1	99	23.39	23.0±1
				25	0	22.44	22.0±1
				25	24	22.6	22.0±1
				25	49	22.48	22.0±1
				50	0	22.49	22.0±1
			16QAM	1	0	22.65	22.0±1
				1	49	23	22.0±1
				1	99	22.5	22.0±1
				25	0	21.6	22.0±1
				25	24	21.46	22.0±1
				25	49	21.32	22.0±1
				50	0	21.4	22.0±1
	23800	711	QPSK	1	0	23.74	23.0±1
				1	49	23.84	23.0±1
				1	99	23.57	23.0±1
				25	0	22.56	22.0±1
				25	24	22.53	22.0±1
				25	49	22.51	22.0±1
				50	0	22.5	22.0±1
			16QAM	1	0	22.41	22.0±1
				1	49	22.87	22.0±1
				1	99	22.34	22.0±1
				25	0	21.45	22.0±1
				25	24	21.56	22.0±1
				25	49	21.41	22.0±1
				50	0	21.46	22.0±1

LTE Band 41：

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
5MHz	39675	2498.5	QPSK	1	0	23.42	23.0±1
				1	49	23.33	23.0±1
				1	99	23.61	23.0±1
				12	0	22.38	22.0±1
				12	24	22.47	22.0±1
				12	49	22.42	22.0±1
				25	0	22.34	22.0±1
			16QAM	1	0	22.09	22.0±1
				1	49	22.05	22.0±1
				1	99	21.93	22.0±1
				12	0	21.14	22.0±1
				12	24	21.17	22.0±1
				12	49	21.14	22.0±1
				25	0	21.31	22.0±1
	40620	2593	QPSK	1	0	23.33	23.0±1
				1	49	23.45	23.0±1
				1	99	23.26	23.0±1
				12	0	22.36	22.0±1
				12	24	22.32	22.0±1
				12	49	22.36	22.0±1
				25	0	22.27	22.0±1
			16QAM	1	0	22.52	22.0±1
				1	49	22.29	22.0±1
				1	99	22.42	22.0±1
				12	0	21.24	22.0±1
				12	24	21.23	22.0±1
				12	49	21.19	22.0±1
				25	0	21.25	22.0±1
	41565	2687.5	QPSK	1	0	23.12	23.0±1
				1	49	22.67	23.0±1
				1	99	22.72	23.0±1
				12	0	22.83	22.0±1
				12	24	22.38	22.0±1
				12	49	22.44	22.0±1
				25	0	22.49	22.0±1
			16QAM	1	0	22.35	22.0±1
				1	49	22.2	22.0±1
				1	99	22.28	22.0±1
				12	0	21.49	22.0±1
				12	24	21.52	22.0±1
				12	49	21.36	22.0±1
				25	0	21.36	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
10MHz	39700	2501	QPSK	1	0	23.61	23.0±1
				1	49	22.33	23.0±1
				1	99	22.52	23.0±1
				25	0	22.45	22.0±1
				25	24	22.37	22.0±1
				25	49	22.20	22.0±1
				50	0	22.21	22.0±1
			16QAM	1	0	22.14	22.0±1
				1	49	22.10	22.0±1
				1	99	22.28	22.0±1
				25	0	21.47	22.0±1
				25	24	22.35	22.0±1
				25	49	21.37	22.0±1
				50	0	22.33	22.0±1
	40620	2593	QPSK	1	0	23.31	23.0±1
				1	49	23.37	23.0±1
				1	99	23.34	23.0±1
				25	0	22.38	22.0±1
				25	24	22.42	22.0±1
				25	49	22.39	22.0±1
				50	0	22.34	22.0±1
			16QAM	1	0	22.59	22.0±1
				1	49	22.53	22.0±1
				1	99	22.43	22.0±1
				25	0	21.21	22.0±1
				25	24	21.34	22.0±1
				25	49	21.31	22.0±1
				50	0	21.38	22.0±1
	41540	2685	QPSK	1	0	22.88	22.0±1
				1	49	22.7	22.0±1
				1	99	22.16	22.0±1
				25	0	22.79	22.0±1
				25	24	22.59	22.0±1
				25	49	22.46	22.0±1
				50	0	22.52	22.0±1
			16QAM	1	0	22.26	22.0±1
				1	49	22.22	22.0±1
				1	99	21.71	22.0±1
				25	0	22.05	22.0±1
				25	24	21.29	22.0±1
				25	49	21.47	22.0±1
				50	0	21.61	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
15MHz	39725	2503.5	QPSK	1	0	23.47	23.0±1
				1	49	23.17	23.0±1
				1	99	22.98	23.0±1
				36	0	22.53	22.0±1
				36	24	22.33	22.0±1
				36	49	22.27	22.0±1
				75	0	22.29	22.0±1
			16QAM	1	0	22.88	22.0±1
				1	49	22.56	22.0±1
				1	99	22.84	22.0±1
				36	0	21.34	22.0±1
				36	24	21.1	22.0±1
				36	49	21.03	22.0±1
				75	0	21.42	22.0±1
	40620	2593	QPSK	1	0	23.56	23.0±1
				1	49	23.24	23.0±1
				1	99	23.32	23.0±1
				36	0	22.47	22.0±1
				36	24	22.39	22.0±1
				36	49	22.34	22.0±1
				75	0	22.3	22.0±1
			16QAM	1	0	22.9	22.0±1
				1	49	22.77	22.0±1
				1	99	22.72	22.0±1
				36	0	21.47	22.0±1
				36	24	21.38	22.0±1
				36	49	21.34	22.0±1
				75	0	21.35	22.0±1
	41515	2682.5	QPSK	1	0	23.52	23.0±1
				1	49	22.74	23.0±1
				1	99	22.45	23.0±1
				36	0	22.54	22.0±1
				36	24	22.45	22.0±1
				36	49	22.48	22.0±1
				75	0	22.49	22.0±1
			16QAM	1	0	22.83	22.0±1
				1	49	22.16	22.0±1
				1	99	21.89	22.0±1
				36	0	22.18	22.0±1
				36	24	21.38	22.0±1
				36	49	21.4	22.0±1
				75	0	21.61	22.0±1

BW(MHz)	Ch	Freq(MHz)	Mode	UL RB Allocation	UL RB Offset	Average Power (dbm)	Tune up limited(dBm)
20MHz	39750	2506	QPSK	1	0	23.75	23.0±1
				1	49	23.61	23.0±1
				1	99	22.87	23.0±1
				50	0	22.45	22.0±1
				50	24	22.38	22.0±1
				50	49	22.18	22.0±1
				100	0	22.27	22.0±1
			16QAM	1	0	22.86	22.0±1
				1	49	22.47	22.0±1
				1	99	22.06	22.0±1
				50	0	21.44	22.0±1
				50	24	21.29	22.0±1
				50	49	21.09	22.0±1
				100	0	21.24	22.0±1
	40620	2593	QPSK	1	0	23.85	23.0±1
				1	49	23.74	23.0±1
				1	99	23.42	23.0±1
				50	0	22.56	22.0±1
				50	24	22.46	22.0±1
				50	49	22.49	22.0±1
				100	0	22.4	22.0±1
			16QAM	1	0	22.47	22.0±1
				1	49	22.01	22.0±1
				1	99	22.19	22.0±1
				50	0	21.69	22.0±1
				50	24	21.57	22.0±1
				50	49	21.61	22.0±1
				100	0	21.41	22.0±1
	41490	2680	QPSK	1	0	23.68	23.0±1
				1	49	22.88	23.0±1
				1	99	22.13	23.0±1
				50	0	23.11	22.0±1
				50	24	22.52	22.0±1
				50	49	22.52	22.0±1
				100	0	22.57	22.0±1
			16QAM	1	0	22.55	22.0±1
				1	49	22.38	22.0±1
				1	99	21.65	22.0±1
				50	0	22.22	22.0±1
				50	24	21.73	22.0±1
				50	49	21.59	22.0±1
				100	0	21.45	22.0±1

Radiated Power

ERP and EIRP

LTE Band 2

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 24E	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 2 Channel 18607 – 1.4MHz – QPSK										
1850.70	78.04	30	1.8	H	4.07	0.31	10.40	14.16	33	-18.84
1850.70	84.08	285	2.3	V	10.80	0.31	10.40	20.89	33	-12.11
LTE Band 2 Channel 18900 – 1.4MHz – QPSK										
1880.00	79.73	293	2.4	H	5.88	0.31	10.40	15.97	33	-17.03
1880.00	84.35	77	2.2	V	11.23	0.31	10.40	21.32	33	-11.68
LTE Band 2 Channel 19193 – 1.4MHz – QPSK										
1909.30	78.57	51	1.1	H	4.84	0.32	10.40	14.92	33	-18.08
1909.30	84.35	193	2.3	V	11.39	0.32	10.40	21.47	33	-11.53
LTE Band 2 Channel 18607 – 1.4MHz – 16QAM										
1850.70	77.15	242	2.1	H	3.18	0.31	10.40	13.27	33	-19.73
1850.70	84.73	95	1.8	V	11.45	0.31	10.40	21.54	33	-11.46
LTE Band 2 Channel 18900 – 1.4MHz – 16QAM										
1880.00	79.00	172	1.0	H	5.15	0.31	10.40	15.24	33	-17.76
1880.00	84.39	201	2.0	V	11.27	0.31	10.40	21.36	33	-11.64
LTE Band 2 Channel 19193 – 1.4MHz – 16QAM										
1909.30	76.89	99	1.7	H	3.16	0.32	10.40	13.24	33	-19.76
1909.30	84.75	268	1.7	V	11.79	0.32	10.40	21.87	33	-11.13
LTE Band 2 Channel 18607 – 3MHz – QPSK										
1850.70	77.14	288	2.0	H	3.17	0.31	10.40	13.26	33	-19.74
1850.70	84.05	288	1.1	V	10.77	0.31	10.40	20.86	33	-12.14
LTE Band 2 Channel 18900 – 3MHz – QPSK										
1880.00	79.12	108	2.0	H	5.27	0.31	10.40	15.36	33	-17.64
1880.00	84.03	193	1.8	V	10.91	0.31	10.40	21.00	33	-12.00
LTE Band 2 Channel 19193 – 3MHz – QPSK										
1909.30	76.45	335	2.4	H	2.72	0.32	10.40	12.80	33	-20.20
1909.30	84.04	150	1.7	V	11.08	0.32	10.40	21.16	33	-11.84
LTE Band 2 Channel 18607 – 3MHz – 16QAM										
1850.70	78.05	307	1.9	H	4.08	0.31	10.40	14.17	33	-18.83
1850.70	84.44	54	1.1	V	11.16	0.31	10.40	21.25	33	-11.75
LTE Band 2 Channel 18900 – 3MHz – 16QAM										
1880.00	76.13	120	2.2	H	2.28	0.31	10.40	12.37	33	-20.63
1880.00	84.16	21	1.9	V	11.04	0.31	10.40	21.13	33	-11.87
LTE Band 2 Channel 19193 – 3MHz – 16QAM										
1909.30	76.63	81	1.5	H	2.90	0.32	10.40	12.98	33	-20.02
1909.30	84.39	229	1.7	V	11.43	0.32	10.40	21.51	33	-11.49
LTE Band 2 Channel 18607 – 5MHz – QPSK										
1850.70	77.36	337	2.0	H	3.39	0.31	10.40	13.48	33	-19.52

1850.70	84.91	68	2.3	V	11.63	0.31	10.40	21.72	33	-11.28
LTE Band 2 Channel 18900 – 5MHz – QPSK										
1880.00	78.19	213	1.6	H	4.34	0.31	10.40	14.43	33	-18.57
1880.00	84.67	96	1.4	V	11.55	0.31	10.40	21.64	33	-11.36
LTE Band 2 Channel 19193 – 5MHz – QPSK										
1909.30	78.96	233	1.9	H	5.23	0.32	10.40	15.31	33	-17.69
1909.30	84.18	226	1.9	V	11.22	0.32	10.40	21.30	33	-11.70
LTE Band 2 Channel 18607 – 5MHz – 16QAM										
1850.70	78.48	115	1.6	H	4.51	0.31	10.40	14.60	33	-18.40
1850.70	84.88	204	1.2	V	11.60	0.31	10.40	21.69	33	-11.31
LTE Band 2 Channel 18900 – 5MHz – 16QAM										
1880.00	76.25	53	2.1	H	2.40	0.31	10.40	12.49	33	-20.51
1880.00	84.75	246	1.9	V	11.63	0.31	10.40	21.72	33	-11.28
LTE Band 2 Channel 19193 – 5MHz – 16QAM										
1909.30	76.05	265	1.7	H	2.32	0.32	10.40	12.40	33	-20.60
1909.30	84.58	185	2.0	V	11.62	0.32	10.40	21.70	33	-11.30
LTE Band 2 Channel 18607 – 10MHz – QPSK										
1850.70	77.84	235	2.1	H	3.87	0.31	10.40	13.96	33	-19.04
1850.70	84.67	244	1.3	V	11.39	0.31	10.40	21.48	33	-11.52
LTE Band 2 Channel 18900 – 10MHz – QPSK										
1880.00	76.24	122	1.2	H	2.39	0.31	10.40	12.48	33	-20.52
1880.00	84.01	187	2.4	V	10.89	0.31	10.40	20.98	33	-12.02
LTE Band 2 Channel 19193 – 10MHz – QPSK										
1909.30	79.05	153	1.9	H	5.32	0.32	10.40	15.40	33	-17.60
1909.30	84.78	300	2.1	V	11.82	0.32	10.40	21.90	33	-11.10
LTE Band 2 Channel 18607 – 10MHz – 16QAM										
1850.70	79.26	166	1.3	H	5.29	0.31	10.40	15.38	33	-17.62
1850.70	84.66	330	1.1	V	11.38	0.31	10.40	21.47	33	-11.53
LTE Band 2 Channel 18900 – 10MHz – 16QAM										
1880.00	77.00	231	1.2	H	3.15	0.31	10.40	13.24	33	-19.76
1880.00	84.69	139	2.3	V	11.57	0.31	10.40	21.66	33	-11.34
LTE Band 2 Channel 19193 – 10MHz – 16QAM										
1909.30	79.36	117	1.8	H	5.63	0.32	10.40	15.71	33	-17.29
1909.30	84.85	249	2.2	V	11.89	0.32	10.40	21.97	33	-11.03
LTE Band 2 Channel 18607 – 15MHz – QPSK										
1850.70	76.95	3	2.0	H	2.98	0.31	10.40	13.07	33	-19.93
1850.70	84.13	180	1.5	V	10.85	0.31	10.40	20.94	33	-12.06
LTE Band 2 Channel 18900 – 15MHz – QPSK										
1880.00	79.23	90	1.1	H	5.38	0.31	10.40	15.47	33	-17.53
1880.00	84.77	65	1.1	V	11.65	0.31	10.40	21.74	33	-11.26
LTE Band 2 Channel 19193 – 15MHz – QPSK										
1909.30	76.76	157	1.3	H	3.03	0.32	10.40	13.11	33	-19.89
1909.30	84.23	314	1.3	V	11.27	0.32	10.40	21.35	33	-11.65
LTE Band 2 Channel 18607 – 15MHz – 16QAM										
1850.70	76.54	5	2.1	H	2.57	0.31	10.40	12.66	33	-20.34
1850.70	84.13	187	1.7	V	10.85	0.31	10.40	20.94	33	-12.06
LTE Band 2 Channel 18900 – 15MHz – 16QAM										
1880.00	79.15	137	2.3	H	5.30	0.31	10.40	15.39	33	-17.61

1880.00	84.35	129	1.7	V	11.23	0.31	10.40	21.32	33	-11.68
LTE Band 2 Channel 19193 – 15MHz – 16QAM										
1909.30	78.09	135	1.1	H	4.36	0.32	10.40	14.44	33	-18.56
1909.30	84.51	66	1.6	V	11.55	0.32	10.40	21.63	33	-11.37
LTE Band 2 Channel 18607 – 20MHz – QPSK										
1850.70	79.31	71	2.5	H	5.34	0.31	10.40	15.43	33	-17.57
1850.70	84.98	238	1.7	V	11.70	0.31	10.40	21.79	33	-11.21
LTE Band 2 Channel 18900 – 20MHz – QPSK										
1880.00	76.48	219	1.5	H	2.63	0.31	10.40	12.72	33	-20.28
1880.00	84.34	183	2.2	V	11.22	0.31	10.40	21.31	33	-11.69
LTE Band 2 Channel 19193 – 20MHz – QPSK										
1909.30	78.87	329	2.0	H	5.14	0.32	10.40	15.22	33	-17.78
1909.30	84.92	193	1.6	V	11.96	0.32	10.40	22.04	33	-10.96
LTE Band 2 Channel 18607 – 20MHz – 16QAM										
1850.70	78.19	112	2.1	H	4.22	0.31	10.40	14.31	33	-18.69
1850.70	84.73	163	1.5	V	11.45	0.31	10.40	21.54	33	-11.46
LTE Band 2 Channel 18900 – 20MHz – 16QAM										
1880.00	77.82	92	2.2	H	3.97	0.31	10.40	14.06	33	-18.94
1880.00	84.32	312	1.5	V	11.20	0.31	10.40	21.29	33	-11.71
LTE Band 2 Channel 19193 – 20MHz – 16QAM										
1909.30	77.68	316	1.2	H	3.95	0.32	10.40	14.03	33	-18.97
1909.30	84.35	99	1.6	V	11.39	0.32	10.40	21.47	33	-11.53

LTE Band 4

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 27	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 4 Channel 19957 – 1.4MHz – QPSK										
1710.70	79.37	307	2.0	H	5.26	0.31	10.40	15.35	30	-14.65
1710.70	84.66	242	2.4	V	11.13	0.31	10.40	21.22	30	-8.78
LTE Band 4 Channel 20175 – 1.4MHz – QPSK										
1732.50	77.46	206	1.8	H	3.35	0.31	10.40	13.44	30	-16.56
1732.50	84.29	122	2.3	V	10.76	0.31	10.40	20.85	30	-9.15
LTE Band 4 Channel 20393 – 1.4MHz – QPSK										
1754.30	76.27	215	1.8	H	2.16	0.32	10.40	12.24	30	-17.76
1754.30	84.94	123	1.9	V	11.41	0.32	10.40	21.49	30	-8.51
LTE Band 4 Channel 19957 – 1.4MHz – 16QAM										
1710.70	79.70	82	1.7	H	5.59	0.31	10.40	15.68	30	-14.32
1710.70	84.31	325	1.3	V	10.78	0.31	10.40	20.87	30	-9.13
LTE Band 4 Channel 20175 – 1.4MHz – 16QAM										
1732.50	78.91	98	1.6	H	4.80	0.31	10.40	14.89	30	-15.11
1732.50	84.83	110	1.5	V	11.30	0.31	10.40	21.39	30	-8.61
LTE Band 4 Channel 20393 – 1.4MHz – 16QAM										

1754.30	77.50	244	1.4	H	3.39	0.32	10.40	13.47	30	-16.53
1754.30	84.05	258	2.1	V	10.52	0.32	10.40	20.60	30	-9.40
LTE Band 4 Channel 19965 – 3MHz – QPSK										
1711.50	77.82	272	1.3	H	3.71	0.31	10.40	13.80	30	-16.20
1711.50	84.24	249	2.1	V	10.71	0.31	10.40	20.80	30	-9.20
LTE Band 4 Channel 20175 – 3MHz – QPSK										
1732.50	79.20	159	1.4	H	5.09	0.31	10.40	15.18	30	-14.82
1732.50	84.29	130	2.5	V	10.76	0.31	10.40	20.85	30	-9.15
LTE Band 4 Channel 20385 – 3MHz – QPSK										
1753.50	76.48	116	1.4	H	2.37	0.32	10.40	12.45	30	-17.55
1753.50	84.29	249	1.3	V	10.76	0.32	10.40	20.84	30	-9.16
LTE Band 4 Channel 19965 – 3MHz – 16QAM										
1711.50	77.64	280	2.4	H	3.53	0.31	10.40	13.62	30	-16.38
1711.50	84.15	117	1.3	V	10.62	0.31	10.40	20.71	30	-9.29
LTE Band 4 Channel 20175 – 3MHz – 16QAM										
1732.50	79.67	33	2.3	H	5.56	0.31	10.40	15.65	30	-14.35
1732.50	84.16	97	2.4	V	10.63	0.31	10.40	20.72	30	-9.28
LTE Band 4 Channel 20383 – 3MHz – 16QAM										
1753.50	77.87	322	1.6	H	3.76	0.32	10.40	13.84	30	-16.16
1753.50	84.78	235	1.8	V	11.25	0.32	10.40	21.33	30	-8.67
LTE Band 4 Channel 19975 – 5MHz – QPSK										
1712.50	79.41	82	2.3	H	5.30	0.31	10.40	15.39	30	-14.61
1712.50	84.57	266	1.4	V	11.04	0.31	10.40	21.13	30	-8.87
LTE Band 4 Channel 20175 – 5MHz – QPSK										
1732.50	78.08	14	1.2	H	3.97	0.31	10.40	14.06	30	-15.94
1732.50	84.86	321	1.9	V	11.33	0.31	10.40	21.42	30	-8.58
LTE Band 4 Channel 20375 – 5MHz – QPSK										
1752.50	76.72	62	2.2	H	2.61	0.32	10.40	12.69	30	-17.31
1752.50	84.26	246	1.3	V	10.73	0.32	10.40	20.81	30	-9.19
LTE Band 4 Channel 19975 – 5MHz – 16QAM										
1712.50	79.89	46	2.3	H	5.78	0.31	10.40	15.87	30	-14.13
1712.50	84.20	327	1.6	V	10.67	0.31	10.40	20.76	30	-9.24
LTE Band 4 Channel 20175 – 5MHz – 16QAM										
1732.50	79.79	134	1.7	H	5.68	0.31	10.40	15.77	30	-14.23
1732.50	84.95	356	1.4	V	11.42	0.31	10.40	21.51	30	-8.49
LTE Band 4 Channel 20375 – 5MHz – 16QAM										
1752.50	79.82	44	2.3	H	5.71	0.32	10.40	15.79	30	-14.21
1752.50	84.80	61	1.2	V	11.27	0.32	10.40	21.35	30	-8.65
LTE Band 4 Channel 20000 – 10MHz – QPSK										
1715.00	78.44	274	1.3	H	4.33	0.31	10.40	14.42	30	-15.58

1715.00	84.96	310	1.9	V	11.43	0.31	10.40	21.52	30	-8.48
LTE Band 4 Channel 20175 – 10MHz – QPSK										
1750.00	78.43	70	2.0	H	4.32	0.31	10.40	14.41	30	-15.59
1750.00	84.96	288	2.3	V	11.43	0.31	10.40	21.52	30	-8.48
LTE Band 4 Channel 20350 – 10MHz – QPSK										
1754.30	76.08	7	1.1	H	1.97	0.32	10.40	12.05	30	-17.95
1754.30	84.14	60	1.0	V	10.61	0.32	10.40	20.69	30	-9.31
LTE Band 4 Channel 20000 – 10MHz – 16QAM										
1715.00	78.02	333	1.5	H	3.91	0.31	10.40	14.00	30	-16.00
1715.00	84.82	248	2.3	V	11.29	0.31	10.40	21.38	30	-8.62
LTE Band 4 Channel 20175 – 10MHz – 16QAM										
1732.50	78.19	50	1.1	H	4.08	0.31	10.40	14.17	30	-15.83
1732.50	84.78	115	1.6	V	11.25	0.31	10.40	21.34	30	-8.66
LTE Band 4 Channel 20350 – 10MHz – 16QAM										
1750.00	76.22	77	2.4	H	2.11	0.32	10.40	12.19	30	-17.81
1750.00	84.35	176	1.7	V	10.82	0.32	10.40	20.90	30	-9.10
LTE Band 4 Channel 20025 – 15MHz – QPSK										
1717.50	77.62	134	2.4	H	3.51	0.31	10.40	13.60	30	-16.40
1717.50	84.13	94	2.1	V	10.60	0.31	10.40	20.69	30	-9.31
LTE Band 4 Channel 20175 – 15MHz – QPSK										
1732.50	78.15	127	1.8	H	4.04	0.31	10.40	14.13	30	-15.87
1732.50	84.25	301	1.9	V	10.72	0.31	10.40	20.81	30	-9.19
LTE Band 4 Channel 20325 – 15MHz – QPSK										
1747.50	77.88	147	1.8	H	3.77	0.32	10.40	13.85	30	-16.15
1747.50	84.22	27	2.3	V	10.69	0.32	10.40	20.77	30	-9.23
LTE Band 4 Channel 20025 – 15MHz – 16QAM										
1717.50	78.07	205	2.0	H	3.96	0.31	10.40	14.05	30	-15.95
1717.50	84.42	93	2.2	V	10.89	0.31	10.40	20.98	30	-9.02
LTE Band 4 Channel 20175 – 15MHz – 16QAM										
1732.50	78.42	344	2.4	H	4.31	0.31	10.40	14.40	30	-15.60
1732.50	84.66	288	1.6	V	11.13	0.31	10.40	21.22	30	-8.78
LTE Band 4 Channel 20350 – 15MHz – 16QAM										
1747.50	78.20	348	1.3	H	4.09	0.32	10.40	14.17	30	-15.83
1747.50	84.07	292	2.3	V	10.54	0.32	10.40	20.62	30	-9.38
LTE Band 4 Channel 20050 – 20MHz – QPSK										
1720.00	76.26	45	1.0	H	2.15	0.31	10.40	12.24	30	-17.76
1720.00	84.71	56	2.0	V	11.18	0.31	10.40	21.27	30	-8.73
LTE Band 4 Channel 20175 – 20MHz – QPSK										
1732.50	77.52	341	1.1	H	3.41	0.31	10.40	13.50	30	-16.50
1732.50	84.48	233	1.4	V	10.95	0.31	10.40	21.04	30	-8.96

LTE Band 4 Channel 20300 – 20MHz – QPSK										
1745.00	77.68	228	2.4	H	3.57	0.32	10.40	13.65	30	-16.35
1745.00	84.92	184	1.0	V	11.39	0.32	10.40	21.47	30	-8.53
LTE Band 4 Channel 20035 – 20MHz – 16QAM										
1720.00	78.13	257	1.5	H	4.02	0.31	10.40	14.11	30	-15.89
1720.00	84.73	248	1.2	V	11.20	0.31	10.40	21.29	30	-8.71
LTE Band 4 Channel 20175 – 20MHz – 16QAM										
1732.50	77.16	201	1.7	H	3.05	0.31	10.40	13.14	30	-16.86
1732.50	84.70	165	1.2	V	11.17	0.31	10.40	21.26	30	-8.74
LTE Band 4 Channel 20300 – 20MHz – 16QAM										
1745.00	77.26	249	1.1	H	3.15	0.32	10.40	13.23	30	-16.77
1745.00	84.16	132	2.3	V	10.63	0.32	10.40	20.71	30	-9.29

LTE Band 5

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 22H	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 5 Channel 20407 – 1.4MHz – QPSK										
824.70	77.51	291	1.2	H	10.40	0.30	9.40	19.50	38.45	-18.95
824.70	84.97	85	1.1	V	17.44	0.30	9.40	26.54	38.45	-11.91
LTE Band 5 Channel 20525 – 1.4MHz – QPSK										
836.50	77.74	46	1.4	H	10.63	0.30	9.40	19.73	38.45	-18.72
836.50	84.29	35	2.1	V	16.76	0.30	9.40	25.86	38.45	-12.59
LTE Band 5 Channel 20643 – 1.4MHz – QPSK										
848.30	79.55	242	1.0	H	12.44	0.30	9.40	21.54	38.45	-16.91
848.30	84.20	221	1.5	V	16.67	0.30	9.40	25.77	38.45	-12.68
LTE Band 5 Channel 20407 – 1.4MHz – 16QAM										
824.70	77.63	162	2.1	H	10.52	0.30	9.40	19.62	38.45	-18.83
824.70	84.55	35	1.1	V	17.02	0.30	9.40	26.12	38.45	-12.33
LTE Band 5 Channel 20525 – 1.4MHz – 16QAM										
836.50	76.12	147	1.1	H	9.01	0.30	9.40	18.11	38.45	-20.34
836.50	84.20	27	1.2	V	16.67	0.30	9.40	25.77	38.45	-12.68
LTE Band 5 Channel 20643 – 1.4MHz – 16QAM										
848.30	77.29	277	1.2	H	10.18	0.30	9.40	19.28	38.45	-19.17
848.30	84.56	203	2.5	V	17.03	0.30	9.40	26.13	38.45	-12.32
LTE Band 5 Channel 20415 – 3MHz – QPSK										
825.50	79.99	208	1.9	H	12.88	0.30	9.40	21.98	38.45	-16.47
825.50	84.77	228	1.3	V	17.24	0.30	9.40	26.34	38.45	-12.11
LTE Band 5 Channel 20525 – 3MHz – QPSK										
836.50	76.71	33	1.6	H	9.60	0.30	9.40	18.70	38.45	-19.75
836.50	84.26	3	1.7	V	16.73	0.30	9.40	25.83	38.45	-12.62
LTE Band 5 Channel 20635 – 3MHz – QPSK										
847.50	77.71	85	1.2	H	10.60	0.30	9.40	19.70	38.45	-18.75

847.50	84.67	231	1.4	V	17.14	0.30	9.40	26.24	38.45	-12.21
LTE Band 5 Channel 20415 – 3MHz – 16QAM										
825.50	78.94	29	2.2	H	11.83	0.30	9.40	20.93	38.45	-17.52
825.50	84.26	243	1.3	V	16.73	0.30	9.40	25.83	38.45	-12.62
LTE Band 5 Channel 20525 – 3MHz – 16QAM										
836.50	76.44	328	2.4	H	9.33	0.30	9.40	18.43	38.45	-20.02
836.50	84.56	339	2.3	V	17.03	0.30	9.40	26.13	38.45	-12.32
LTE Band 5 Channel 20635 – 3MHz – 16QAM										
847.50	77.98	56	2.5	H	10.87	0.30	9.40	19.97	38.45	-18.48
847.50	84.46	304	1.4	V	16.93	0.30	9.40	26.03	38.45	-12.42
LTE Band 5 Channel 20425 – 5MHz – QPSK										
826.50	76.30	52	1.1	H	9.19	0.30	9.40	18.29	38.45	-20.16
826.50	84.40	200	1.3	V	16.87	0.30	9.40	25.97	38.45	-12.48
LTE Band 5 Channel 20525 – 5MHz – QPSK										
836.50	76.96	212	1.4	H	9.85	0.30	9.40	18.95	38.45	-19.50
836.50	84.17	260	1.1	V	16.64	0.30	9.40	25.74	38.45	-12.71
LTE Band 5 Channel 20625 – 5MHz – QPSK										
846.50	78.01	22	1.3	H	10.90	0.30	9.40	20.00	38.45	-18.45
846.50	84.02	114	1.8	V	16.49	0.30	9.40	25.59	38.45	-12.86
LTE Band 5 Channel 20425 – 5MHz – 16QAM										
826.50	78.12	157	1.7	H	11.01	0.30	9.40	20.11	38.45	-18.34
826.50	84.57	191	1.9	V	17.04	0.30	9.40	26.14	38.45	-12.31
LTE Band 5 Channel 20525 – 5MHz – 16QAM										
836.50	79.81	301	2.1	H	12.70	0.30	9.40	21.80	38.45	-16.65
836.50	84.89	292	2.0	V	17.36	0.30	9.40	26.46	38.45	-11.99
LTE Band 5 Channel 20625 – 5MHz – 16QAM										
846.50	78.08	125	2.4	H	10.97	0.30	9.40	20.07	38.45	-18.38
846.50	84.50	18	2.2	V	16.97	0.30	9.40	26.07	38.45	-12.38
LTE Band 5 Channel 20450 – 10MHz – QPSK										
829.00	76.30	95	1.2	H	9.19	0.30	9.40	18.29	38.45	-20.16
829.00	84.05	123	1.3	V	16.52	0.30	9.40	25.62	38.45	-12.83
LTE Band 5 Channel 20525 – 10MHz – QPSK										
836.50	79.94	181	2.5	H	12.83	0.30	9.40	21.93	38.45	-16.52
836.50	84.69	142	2.3	V	17.16	0.30	9.40	26.26	38.45	-12.19
LTE Band 5 Channel 20600 – 10MHz – QPSK										
844.00	76.04	9	1.5	H	8.93	0.30	9.40	18.03	38.45	-20.42
844.00	84.23	35	1.2	V	16.70	0.30	9.40	25.80	38.45	-12.65
LTE Band 5 Channel 20450 – 10MHz – 16QAM										
829.00	76.89	38	2.0	H	9.78	0.30	9.40	18.88	38.45	-19.57
829.00	84.25	61	1.2	V	16.72	0.30	9.40	25.82	38.45	-12.63
LTE Band 5 Channel 20525 – 10MHz – 16QAM										
836.50	77.01	44	2.1	H	9.90	0.30	9.40	19.00	38.45	-19.45
836.50	84.42	186	2.1	V	16.89	0.30	9.40	25.99	38.45	-12.46
LTE Band 5 Channel 20600 – 10MHz – 16QAM										
844.00	76.53	111	1.6	H	9.42	0.30	9.40	18.52	38.45	-19.93
844.00	84.11	233	2.1	V	16.58	0.30	9.40	25.68	38.45	-12.77

LTE Band 17

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 22H	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 17 Channel 23755 – 5MHz – QPSK										
706.50	79.05	195	1.6	H	8.05	0.20	0.00	7.85	30	-22.15
706.50	81.20	43	1.1	V	8.92	0.20	0.00	8.72	30	-21.28
LTE Band 17 Channel 23790 – 5MHz – QPSK										
710.00	76.64	184	1.0	H	5.64	0.20	0.00	5.44	30	-24.56
710.00	81.88	263	2.5	V	9.60	0.20	0.00	9.40	30	-20.60
LTE Band 17 Channel 23825 – 5MHz – QPSK										
713.50	77.66	234	1.3	H	6.66	0.20	0.00	6.46	30	-23.54
713.50	81.64	312	1.4	V	9.36	0.20	0.00	9.16	30	-20.84
LTE Band 17 Channel 23755 – 5MHz – 16QAM										
706.50	77.03	349	1.3	H	6.03	0.20	0.00	5.83	30	-24.17
706.50	81.96	355	1.3	V	9.68	0.20	0.00	9.48	30	-20.52
LTE Band 17 Channel 23790 – 5MHz – 16QAM										
710.00	79.97	239	2.1	H	8.97	0.20	0.00	8.77	30	-21.23
710.00	81.17	304	1.8	V	8.89	0.20	0.00	8.69	30	-21.31
LTE Band 17 Channel 23825 – 5MHz – 16QAM										
713.50	76.36	214	1.9	H	5.36	0.20	0.00	5.16	30	-24.84
713.50	81.48	259	2.3	V	9.20	0.20	0.00	9.00	30	-21.00
LTE Band 17 Channel 23780 – 10MHz – QPSK										
709.00	78.59	107	1.5	H	7.59	0.20	0.00	7.39	30	-22.61
709.00	81.10	26	2.1	V	8.82	0.20	0.00	8.62	30	-21.38
LTE Band 17 Channel 23790 – 10MHz – QPSK										
710.00	77.33	317	1.2	H	6.33	0.20	0.00	6.13	30	-23.87
710.00	81.64	235	1.8	V	9.36	0.20	0.00	9.16	30	-20.84
LTE Band 17 Channel 23800 – 10MHz – QPSK										
711.00	76.21	93	1.1	H	5.21	0.20	0.00	5.01	30	-24.99
711.00	81.76	74	2.2	V	9.48	0.20	0.00	9.28	30	-20.72
LTE Band 17 Channel 23780 – 10MHz – 16QAM										
709.00	76.82	102	2.3	H	5.82	0.20	0.00	5.62	30	-24.38
709.00	81.03	116	1.2	V	8.75	0.20	0.00	8.55	30	-21.45
LTE Band 17 Channel 23790 – 10MHz – 16QAM										
710.00	79.43	320	1.3	H	8.43	0.20	0.00	8.23	30	-21.77
710.00	81.14	256	1.4	V	8.86	0.20	0.00	8.66	30	-21.34
LTE Band 17 Channel 23800 – 10MHz – 16QAM										
711.00	78.39	287	2.4	H	7.39	0.20	0.00	7.19	30	-22.81
711.00	81.18	256	1.1	V	8.90	0.20	0.00	8.70	30	-21.30

LTE Band 41

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 24E	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 41 Channel 39675 – 5MHz – QPSK										
2498.50	79.37	197	1.0	H	5.37	0.43	10.60	15.54	30	-14.46
2498.50	81.38	77	1.9	V	6.10	0.43	10.60	16.27	30	-13.73
LTE Band 41 Channel 40620 – 5MHz – QPSK										
2593.00	79.46	231	2.1	H	5.46	0.43	10.60	15.63	30	-14.37
2593.00	81.18	33	2.2	V	5.90	0.43	10.60	16.07	30	-13.93
LTE Band 41 Channel 41565 – 5MHz – QPSK										
2687.50	76.15	211	1.5	H	2.04	0.43	10.60	12.21	30	-17.79
2687.50	81.93	150	1.8	V	6.74	0.43	10.60	16.91	30	-13.09
LTE Band 41 Channel 39675 – 5MHz – 16QAM										
2498.50	78.85	53	1.4	H	4.85	0.43	10.60	15.02	30	-14.98
2498.50	81.00	19	1.0	V	5.72	0.43	10.60	15.89	30	-14.11
LTE Band 41 Channel 40620 – 5MHz – 16QAM										
2593.00	76.17	209	1.5	H	2.17	0.43	10.60	12.34	30	-17.66
2593.00	81.97	157	1.2	V	6.69	0.43	10.60	16.86	30	-13.14
LTE Band 41 Channel 41565 – 5MHz – 16QAM										
2687.50	77.25	47	1.1	H	3.14	0.43	10.60	13.31	30	-16.69
2687.50	81.04	64	1.0	V	5.85	0.43	10.60	16.02	30	-13.98
LTE Band 41 Channel 39700 – 10MHz – QPSK										
2501.00	79.91	335	1.6	H	5.91	0.43	10.60	16.08	30	-13.92
2501.00	81.29	100	1.8	V	6.01	0.43	10.60	16.18	30	-13.82
LTE Band 41 Channel 40620 – 10MHz – QPSK										
2593.00	78.22	207	2.3	H	4.22	0.43	10.60	14.39	30	-15.61
2593.00	81.44	293	2.2	V	6.16	0.43	10.60	16.33	30	-13.67
LTE Band 41 Channel 41540 – 10MHz – QPSK										
2685.00	79.30	183	2.2	H	5.19	0.43	10.60	15.36	30	-14.64
2685.00	81.90	230	2.5	V	6.71	0.43	10.60	16.88	30	-13.12
LTE Band 41 Channel 39700 – 10MHz – 16QAM										
2501.00	76.25	324	1.1	H	2.25	0.43	10.60	12.42	30	-17.58
2501.00	81.90	138	1.3	V	6.62	0.43	10.60	16.79	30	-13.21
LTE Band 41 Channel 40620 – 10MHz – 16QAM										
2593.00	78.97	257	1.2	H	4.97	0.43	10.60	15.14	30	-14.86
2593.00	81.27	183	1.1	V	5.99	0.43	10.60	16.16	30	-13.84
LTE Band 41 Channel 41540 – 10MHz – 16QAM										
2685.00	79.69	314	2.4	H	5.58	0.43	10.60	15.75	30	-14.25
2685.00	81.24	27	1.0	V	6.05	0.43	10.60	16.22	30	-13.78
LTE Band 41 Channel 39725 – 15MHz – QPSK										
2503.50	76.55	255	1.8	H	2.55	0.43	10.60	12.72	30	-17.28
2503.50	81.23	67	2.4	V	5.95	0.43	10.60	16.12	30	-13.88
LTE Band 41 Channel 40620 – 15MHz – QPSK										
2593.00	79.27	323	1.6	H	5.27	0.43	10.60	15.44	30	-14.56
2593.00	81.58	272	1.9	V	6.30	0.43	10.60	16.47	30	-13.53
LTE Band 41 Channel 41515 – 15MHz – QPSK										

2682.50	78.91	123	1.4	H	4.80	0.43	10.60	14.97	30	-15.03
2682.50	81.22	211	1.6	V	6.03	0.43	10.60	16.20	30	-13.80
LTE Band 41 Channel 39725 – 15MHz – 16QAM										
2503.50	78.97	293	2.2	H	4.97	0.43	10.60	15.14	30	-14.86
2503.50	81.41	123	1.3	V	6.13	0.43	10.60	16.30	30	-13.70
LTE Band 41 Channel 40620 – 15MHz – 16QAM										
2593.00	76.84	7	1.6	H	2.84	0.43	10.60	13.01	30	-16.99
2593.00	81.67	296	2.1	V	6.39	0.43	10.60	16.56	30	-13.44
LTE Band 41 Channel 41515 – 15MHz – 16QAM										
2682.50	79.08	232	2.3	H	4.97	0.43	10.60	15.14	30	-14.86
2682.50	81.07	344	2.4	V	5.88	0.43	10.60	16.05	30	-13.95
LTE Band 41 Channel 39750 – 20MHz – QPSK										
2687.50	78.86	62	1.4	H	4.86	0.43	10.60	15.03	30	-14.97
2687.50	81.81	256	2.5	V	6.53	0.43	10.60	16.70	30	-13.30
LTE Band 41 Channel 40620 – 20MHz – QPSK										
2593.00	77.80	170	1.5	H	3.80	0.43	10.60	13.97	30	-16.03
2593.00	81.17	223	1.7	V	5.89	0.43	10.60	16.06	30	-13.94
LTE Band 41 Channel 41490 – 20MHz – QPSK										
2680.00	77.84	183	2.0	H	3.73	0.43	10.60	13.90	30	-16.10
2680.00	81.66	193	1.7	V	6.47	0.43	10.60	16.64	30	-13.36
LTE Band 41 Channel 39750 – 20MHz – 16QAM										
2687.50	76.76	128	2.1	H	2.76	0.43	10.60	12.93	30	-17.07
2687.50	81.47	68	1.6	V	6.19	0.43	10.60	16.36	30	-13.64
LTE Band 41 Channel 40620 – 20MHz – 16QAM										
2593.00	78.83	123	1.3	H	4.83	0.43	10.60	15.00	30	-15.00
2593.00	81.69	290	1.2	V	6.41	0.43	10.60	16.58	30	-13.42
LTE Band 41 Channel 41490 – 20MHz – 16QAM										
2680.00	76.58	330	2.3	H	2.47	0.43	10.60	12.64	30	-17.36
2680.00	81.52	284	2.3	V	6.33	0.43	10.60	16.50	30	-13.50

7 Peak-to-Average Ratio

Test Requirement: 27.50(d)

Test Method: N/A

Test Mode: Transmitting

7.1 EUT Operation

Operating Environment **:**

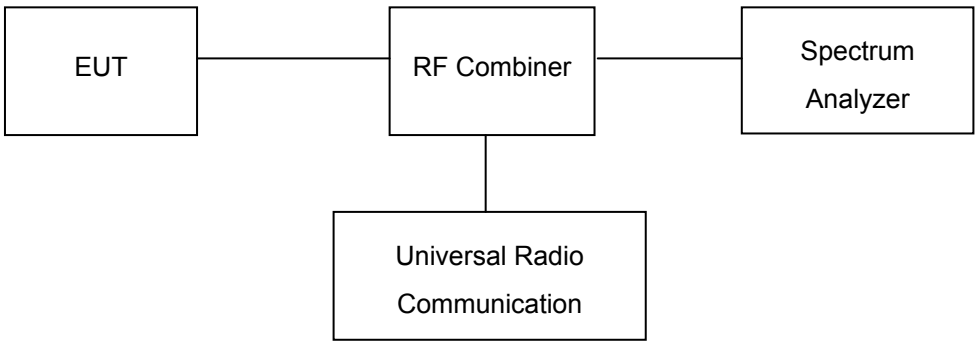
Temperature: 22.5 °C

Humidity: 52.3% RH

Atmospheric Pressure: 101.2kPa

7.2 Test Procedure

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. Set EUT to transmit at maximum output power.
3. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
4. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.



7.3 Test Result

PASS

LTE Band 2/4/5/17/41

Please refer to the Appendix Band 2/4/5/17/41 LTE Peak to Average Ratio.

8 BANDWIDTH

Test Requirement:	FCC Part 2.1049, 27.53(a)
Test Method:	ANSI C63.4:2009, TIA/EIA-603-D:2010
Test Mode:	Transmitting

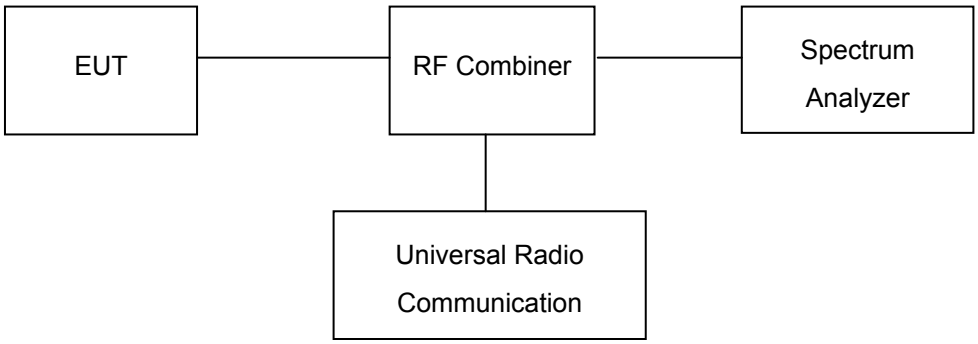
8.1 EUT Operation

Operating Environment **:**

Temperature:	22.5 °C
Humidity:	52.3% RH
Atmospheric Pressure:	101.2kPa

8.2 Test Procedure

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.
The resolution bandwidth of the spectrum analyzer was set at 3 kHz (Cellular /PCS) and the 26 dB & 99%bandwidth was recorded.



8.3 Test Result

LTE Band 2:

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	18607	1850.7	QPSK	1.15	1.35
			16QAM	1.15	1.34
1.4	18900	1880	QPSK	1.15	1.34
			16QAM	1.16	1.31
1.4	19193	1909.3	QPSK	1.16	1.36
			16QAM	1.15	1.37
3	18615	1851.5	QPSK	2.73	2.98
			16QAM	2.72	2.97
3	18900	1880	QPSK	2.72	2.97
			16QAM	2.72	2.97
3	19185	1908.5	QPSK	2.73	2.98
			16QAM	2.73	2.98
5	18625	1852.5	QPSK	4.49	4.88
			16QAM	4.49	4.82
5	18900	1880	QPSK	4.5	4.86
			16QAM	4.49	4.83
5	19175	1907.5	QPSK	4.49	4.87
			16QAM	4.49	4.86
10	18650	1855	QPSK	8.92	9.37
			16QAM	8.91	9.38
10	18900	1880	QPSK	8.92	9.38
			16QAM	8.91	9.34
10	19150	1905	QPSK	8.93	9.4
			16QAM	8.92	9.39
15	18675	1857.5	QPSK	13.37	14
			16QAM	13.37	13.91
15	18900	1880	QPSK	13.39	13.93
			16QAM	13.38	13.94
15	19125	1902.5	QPSK	13.38	13.98
			16QAM	13.38	13.92

20	18700	1860	QPSK	17.82	18.4
			16QAM	17.82	18.45
20	18900	1880	QPSK	17.84	18.47
			16QAM	17.83	18.43
20	19100	1900	QPSK	17.82	18.45
			16QAM	17.82	18.47

LTE Band 4:

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	19957	1710.7	QPSK	1.15	1.34
			16QAM	1.15	1.34
1.4	20175	1732.5	QPSK	1.16	1.35
			16QAM	1.16	1.34
1.4	20393	1754.3	QPSK	1.16	1.34
			16QAM	1.35	1.4
3	19965	1711.5	QPSK	2.72	2.97
			16QAM	2.72	2.96
3	20175	1732.5	QPSK	2.73	2.98
			16QAM	2.73	2.97
3	20385	1753.5	QPSK	2.73	2.98
			16QAM	2.72	2.98
5	19975	1712.5	QPSK	4.49	4.87
			16QAM	4.49	4.82
5	20175	1732.5	QPSK	4.5	4.85
			16QAM	4.49	4.86
5	20375	1752.5	QPSK	4.49	4.86
			16QAM	4.49	4.85
10	20000	1715	QPSK	8.93	9.41
			16QAM	8.92	9.39
10	20175	1732.5	QPSK	8.91	9.39
			16QAM	8.91	9.35
10	20350	1750	QPSK	8.93	9.38
			16QAM	8.92	9.38

15	20025	1717.5	QPSK	13.38	14
			16QAM	13.38	13.96
15	20175	1732.5	QPSK	13.38	13.96
			16QAM	13.37	13.94
15	20325	1747.5	QPSK	13.39	14
			16QAM	13.38	13.93
20	20050	1720	QPSK	17.83	18.45
			16QAM	17.83	18.43
20	20175	1732.5	QPSK	17.8	18.44
			16QAM	17.79	18.41
20	20300	1745	QPSK	17.84	18.5
			16QAM	17.84	18.51

LTE Band 5:

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1.4	20407	824.7	QPSK	1.15	1.35
			16QAM	1.15	1.35
1.4	20525	836.5	QPSK	1.15	1.34
			16QAM	1.15	1.34
1.4	20643	848.3	QPSK	1.15	1.33
			16QAM	1.15	1.34
3	20415	825.5	QPSK	2.72	2.97
			16QAM	2.72	2.97
3	20525	836.5	QPSK	2.72	2.95
			16QAM	2.72	2.96
3	20635	847.5	QPSK	2.72	2.97
			16QAM	2.72	2.98
5	20425	826.5	QPSK	4.5	4.85
			16QAM	4.49	4.82
5	20525	836.5	QPSK	4.48	4.82
			16QAM	4.48	4.83
5	20625	846.5	QPSK	4.49	4.82
			16QAM	4.49	4.85

10	20450	829	QPSK	8.93	9.34
			16QAM	8.93	9.39
10	20525	836.5	QPSK	8.9	9.3
			16QAM	8.9	9.29
10	20600	844	QPSK	8.94	9.37
			16QAM	8.94	9.38

LTE Band 17:

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	23755	706.5	QPSK	4.5	4.77
			16QAM	4.5	4.81
5	23790	710	QPSK	4.47	4.8
			16QAM	4.48	4.8
5	23825	713.5	QPSK	4.47	4.83
			16QAM	4.47	4.81
10	23780	709	QPSK	8.88	9.27
			16QAM	8.88	9.29
10	23790	710	QPSK	8.85	9.25
			16QAM	8.85	9.23
10	23800	711	QPSK	8.83	9.24
			16QAM	8.84	9.24

LTE Band 41:

BW(MHz)	Channel	Frequency (MHz)	Modulation	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
5	39675	2498.5	QPSK	4.49	4.84
			16QAM	4.49	4.8
5	40620	2593	QPSK	4.49	4.81
			16QAM	4.48	4.82
5	41565	2687.5	QPSK	4.49	4.82
			16QAM	4.49	4.81

10	39700	2501	QPSK	8.91	9.33
			16QAM	8.92	9.36
10	40620	2593	QPSK	8.91	9.34
			16QAM	8.91	9.34
10	41540	2685	QPSK	8.92	9.33
			16QAM	8.91	9.38
15	39725	2503.5	QPSK	13.37	13.9
			16QAM	13.36	13.89
15	40620	2593	QPSK	13.37	13.9
			16QAM	13.37	13.9
15	41515	2682.5	QPSK	13.37	13.99
			16QAM	13.37	13.87
20	39750	2506	QPSK	17.8	18.38
			16QAM	17.8	18.34
20	40620	2593	QPSK	17.82	18.38
			16QAM	17.82	18.34
20	41490	2680	QPSK	17.81	18.42
			16QAM	17.81	18.41

LTE Band 2/4/5/17/41 Test Plots

Please refer to the Appendix LTE Transmitter Occupied Bandwidth(SA).

9 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Test Requirement: FCC Part 2.1051, 27.53(h)

Test Method: ANSI C63.4:2009, TIA/EIA-603-D:2010

Test Mode: Transmitting

9.1 EUT Operation

Operating Environment **:**

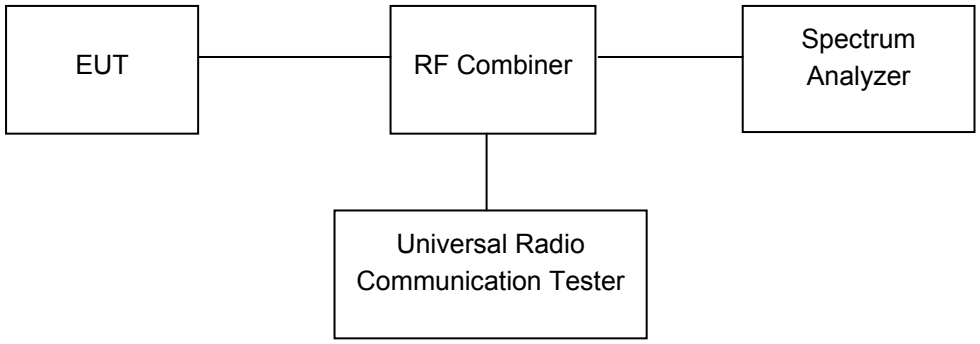
Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.3kPa

9.2 Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonics.



9.3 Test Result

PASS

LTE Band 2/4/5/17/41

Please refer to the Appendix Band 2/4/5/17/41 LTE Transmitter Spurious Emissions.

10 SPURIOUS RADIATED EMISSIONS

Test Requirement:	FCC Part 2.1053, 27.53(h)
Test Method:	ANSI C63.4:2009, TIA/EIA-603-D:2010
Test Mode:	Transmitting

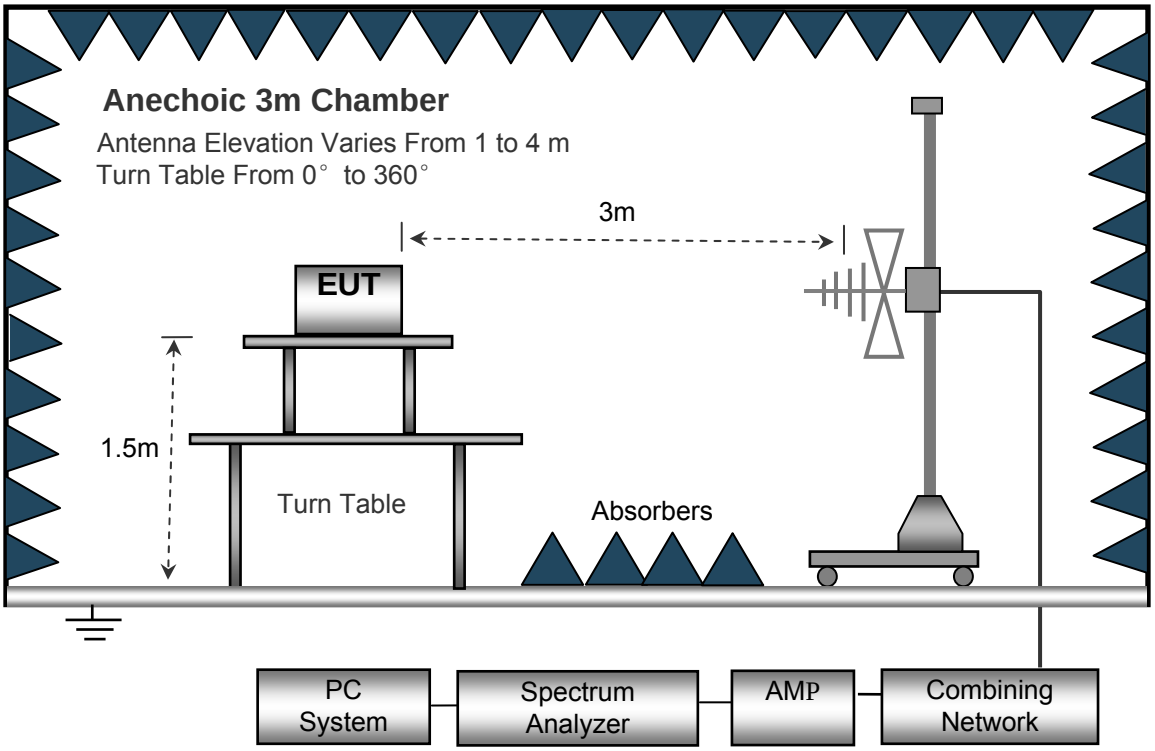
10.1 EUT Operation

Operating Environment **:**

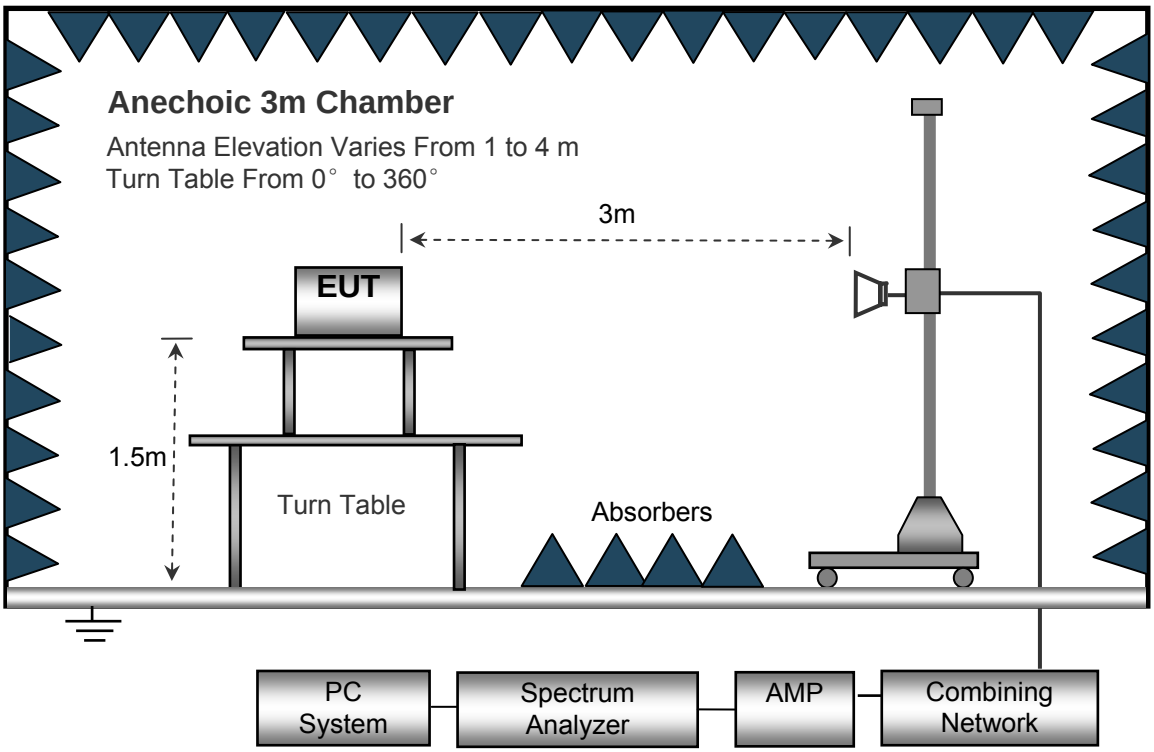
Temperature:	23.5 °C
Humidity:	52.1 % RH
Atmospheric Pressure:	101.2kPa

10.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4: 2009.
The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



10.3 Spectrum Analyzer Setup

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 100kHz
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

10.4 Test Procedure

1. The EUT is placed on a turntable, which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from 30MHz up to the tenth harmonic of the highest fundamental frequency.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
7. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
   Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level
   Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts)
8. Repeat above procedures until the measurements for all frequencies are completed.

10.5 Summary of Test Results

Remark: Test performed from 30MHz to 10th harmonics with low/middle/high channels, only the worst data were recorded.

LTE Band 2

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 2 Channel 18607										
199.38	46.16	236	2.0	H	-64.35	0.15	0.00	-64.50	-13.00	-51.50
199.38	38.04	180	1.9	V	-69.55	0.15	0.00	-69.70	-13.00	-56.70
3701.40	65.95	165	1.8	H	-45.59	2.37	12.50	-35.46	-13.00	-22.46
3701.40	59.98	133	1.5	V	-49.83	2.37	12.50	-39.70	-13.00	-26.70
5552.10	53.58	256	1.6	H	-56.03	2.86	12.90	-45.99	-13.00	-32.99
5552.10	44.73	278	1.6	V	-64.15	2.86	12.90	-54.11	-13.00	-41.11
LTE BAND 2 Channel 18900										
199.38	45.87	60	1.6	H	-64.64	0.15	0.00	-64.79	-13.00	-51.79
199.38	38.25	344	2.2	V	-69.34	0.15	0.00	-69.49	-13.00	-56.49
3760.00	59.61	112	1.2	H	-51.93	2.37	12.50	-41.80	-13.00	-28.80
3760.00	53.32	110	1.4	V	-56.49	2.37	12.50	-46.36	-13.00	-33.36
5640.00	45.62	245	1.4	H	-63.99	2.86	12.90	-53.95	-13.00	-40.95
5640.00	37.33	51	1.5	V	-71.55	2.86	12.90	-61.51	-13.00	-48.51
LTE BAND 2 Channel 19193										
199.38	46.84	299	1.4	H	-63.67	0.15	0.00	-63.82	-13.00	-50.82
199.38	38.37	219	1.3	V	-69.22	0.15	0.00	-69.37	-13.00	-56.37
3818.60	52.44	140	1.2	H	-58.41	2.37	12.60	-48.18	-13.00	-35.18
3818.60	46.01	335	1.8	V	-63.30	2.37	12.60	-53.07	-13.00	-40.07
5727.90	39.56	164	1.5	H	-69.79	2.86	12.90	-59.75	-13.00	-46.75
5727.90	30.20	240	1.4	V	-78.30	2.86	12.90	-68.26	-13.00	-55.26

LTE Band 4

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 4 Channel 19957										
199.38	39.95	287	1.8	H	-70.56	0.15	0.00	-70.71	-13.00	-57.71
199.38	29.57	344	1.8	V	-78.02	0.15	0.00	-78.17	-13.00	-65.17
3421.40	65.95	161	1.5	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
3421.40	59.98	109	1.6	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
5132.10	53.58	321	1.5	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
5132.10	44.73	357	1.9	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 4 Channel 20175										
199.38	39.66	173	1.6	H	-70.85	0.15	0.00	-71.00	-13.00	-58.00
199.38	28.79	121	1.3	V	-78.80	0.15	0.00	-78.95	-13.00	-65.95
3465.00	58.08	205	2.2	H	-54.97	2.37	12.50	-44.84	-13.00	-31.84
3465.00	52.86	194	2.0	V	-58.29	2.37	12.50	-48.16	-13.00	-35.16
5197.50	47.15	197	1.5	H	-62.26	2.79	12.70	-52.35	-13.00	-39.35
5197.50	38.71	204	1.8	V	-70.06	2.79	12.70	-60.15	-13.00	-47.15
LTE BAND 4 Channel 20393										
199.38	39.91	128	2.0	H	-70.60	0.15	0.00	-70.75	-13.00	-57.75
199.38	28.08	326	1.0	V	-79.51	0.15	0.00	-79.66	-13.00	-66.66
3508.60	52.01	308	1.0	H	-60.63	2.37	12.50	-50.50	-13.00	-37.50
3508.60	45.93	118	1.3	V	-64.80	2.37	12.50	-54.67	-13.00	-41.67
5262.90	39.40	113	2.1	H	-70.18	2.81	12.80	-60.19	-13.00	-47.19
5262.90	32.01	150	1.9	V	-76.79	2.81	12.80	-66.80	-13.00	-53.80

LTE Band 5

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 5 Channel 20407										
199.38	38.77	1	1.1	H	-71.74	0.15	0.00	-71.89	-13.00	-58.89
199.38	32.20	56	1.5	V	-75.39	0.15	0.00	-75.54	-13.00	-62.54
1649.40	65.95	348	1.6	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
1649.40	59.98	240	1.7	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
2474.10	53.58	315	1.9	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
2474.10	44.73	281	2.0	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 5 Channel 20525										
199.38	39.21	282	1.9	H	-71.30	0.15	0.00	-71.45	-13.00	-58.45
199.38	32.66	258	1.0	V	-74.93	0.15	0.00	-75.08	-13.00	-62.08
1673.00	59.06	201	2.0	H	-53.99	2.37	12.50	-43.86	-13.00	-30.86
1673.00	53.00	249	1.6	V	-58.15	2.37	12.50	-48.02	-13.00	-35.02
2509.50	47.03	56	1.4	H	-62.38	2.79	12.70	-52.47	-13.00	-39.47
2509.50	37.50	321	1.7	V	-71.27	2.79	12.70	-61.36	-13.00	-48.36
LTE BAND 5 Channel 20643										
199.38	39.40	326	1.7	H	-71.11	0.15	0.00	-71.26	-13.00	-58.26
199.38	33.13	272	2.1	V	-74.46	0.15	0.00	-74.61	-13.00	-61.61
1696.60	52.76	295	1.9	H	-59.88	2.37	12.50	-49.75	-13.00	-36.75
1696.60	46.44	261	1.2	V	-64.29	2.37	12.50	-54.16	-13.00	-41.16
2544.90	40.30	226	1.4	H	-69.28	2.81	12.80	-59.29	-13.00	-46.29
2544.90	29.82	190	1.7	V	-78.98	2.81	12.80	-68.99	-13.00	-55.99

LTE Band 17

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 17 Channel 23755										
199.38	40.65	197	2.1	H	-69.86	0.15	0.00	-70.01	-13.00	-57.01
199.38	30.28	147	1.9	V	-77.31	0.15	0.00	-77.46	-13.00	-64.46
1413.00	65.95	39	1.2	H	-44.29	2.79	12.70	-34.38	-13.00	-21.38
1413.00	59.98	330	2.2	V	-51.79	2.79	12.70	-41.88	-13.00	-28.88
2119.50	53.58	59	1.0	H	-58.96	3.12	11.50	-50.58	-13.00	-37.58
2119.50	44.73	237	1.8	V	-68.70	3.12	11.50	-60.32	-13.00	-47.32
LTE BAND 17 Channel 23790										
199.38	40.05	197	1.2	H	-70.46	0.15	0.00	-70.61	-13.00	-57.61
199.38	30.18	38	1.5	V	-77.41	0.15	0.00	-77.56	-13.00	-64.56
1420.00	58.45	133	1.4	H	-51.79	2.37	12.50	-41.66	-13.00	-28.66
1420.00	52.29	25	1.6	V	-59.48	2.37	12.50	-49.35	-13.00	-36.35
2130.00	47.11	285	2.0	H	-65.43	3.12	11.50	-57.05	-13.00	-44.05
2130.00	37.10	224	1.5	V	-76.33	3.12	11.50	-67.95	-13.00	-54.95
LTE BAND 17 Channel 23825										
199.38	39.06	98	1.5	H	-71.45	0.15	0.00	-71.60	-13.00	-58.60
199.38	30.16	138	1.6	V	-77.43	0.15	0.00	-77.58	-13.00	-64.58
1427.00	51.37	225	1.8	H	-58.87	2.37	12.50	-48.74	-13.00	-35.74
1427.00	44.84	328	1.1	V	-66.93	2.37	12.50	-56.80	-13.00	-43.80
2140.50	40.79	60	1.1	H	-71.75	3.12	11.50	-63.37	-13.00	-50.37
2140.50	31.07	139	1.5	V	-82.36	3.12	11.50	-73.98	-13.00	-60.98

LTE Band 41

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 41 Channel 39675										
199.38	40.66	300	1.7	H	-69.85	0.15	0.00	-70.00	-13.00	-57.00
199.38	30.80	124	1.9	V	-76.79	0.15	0.00	-76.94	-13.00	-63.94
5010.00	65.95	176	1.5	H	-43.29	2.79	12.70	-33.38	-13.00	-20.38
5010.00	59.98	191	1.2	V	-48.79	2.79	12.70	-38.88	-13.00	-25.88
7515.00	53.58	33	1.3	H	-52.96	3.12	11.50	-44.58	-13.00	-31.58
7515.00	44.73	272	1.7	V	-60.70	3.12	11.50	-52.32	-13.00	-39.32
LTE BAND 41 Channel 40620										
199.38	41.42	102	1.2	H	-69.09	0.15	0.00	-69.24	-13.00	-56.24
199.38	31.18	34	2.0	V	-76.41	0.15	0.00	-76.56	-13.00	-63.56
5070.00	59.85	64	1.3	H	-49.39	2.37	12.50	-39.26	-13.00	-26.26
5070.00	53.68	351	1.4	V	-55.09	2.37	12.50	-44.96	-13.00	-31.96
7605.00	47.29	337	2.2	H	-59.25	3.12	11.50	-50.87	-13.00	-37.87
7605.00	37.81	301	1.6	V	-67.62	3.12	11.50	-59.24	-13.00	-46.24
LTE BAND 41 Channel 41565										
199.38	42.08	172	1.8	H	-68.43	0.15	0.00	-68.58	-13.00	-55.58
199.38	30.62	120	1.7	V	-76.97	0.15	0.00	-77.12	-13.00	-64.12
5135.00	52.06	131	1.7	H	-57.35	2.37	12.50	-47.22	-13.00	-34.22
5135.00	47.65	120	1.2	V	-61.12	2.37	12.50	-50.99	-13.00	-37.99
7702.50	39.87	17	1.2	H	-65.36	3.12	11.50	-56.98	-13.00	-43.98
7702.50	31.09	277	1.1	V	-73.80	3.12	11.50	-65.42	-13.00	-52.42

Note: 1) Absolute Level = SG Level - Cable loss + Antenna Gain

2) Margin = Limit- Absolute Level

11 Band Edge Measurement

Test Requirement:	FCC Part 2.1051, 27.53(h)
Test Method:	ANSI C63.4:2009, TIA/EIA-603-D:2010
Test Mode:	Transmitting

11.1 EUT Operation

Operating Environment **:**

Temperature:	23.5 °C
Humidity:	52.3 % RH
Atmospheric Pressure:	101.3kPa

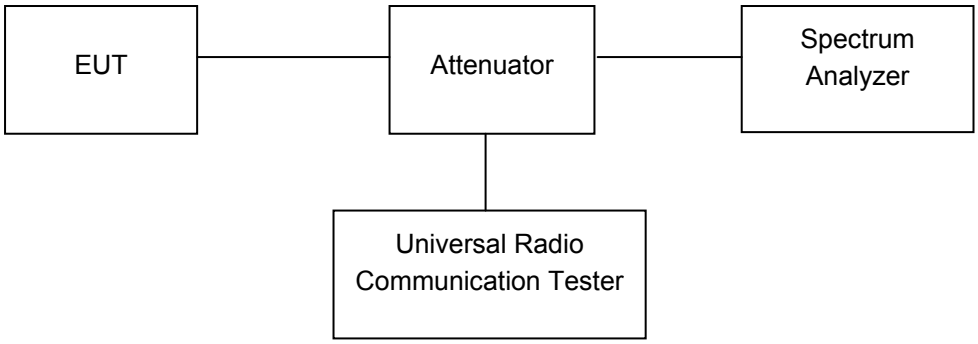
11.2 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

According to FCC Part 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC Part 24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

The center of the spectrum analyzer was set to block edge frequency



11.3 Test Result

PASS

LTE Band 2/4/5/17/41

Please refer to the Appendix Band 2/4/5/17/41 LTE Band Edge.

12 FREQUENCY STABILITY

Test Requirement: FCC Part 2.1055, 24.235, 27.5(h),27.54

Test Method: ANSI C63.4:2009, TIA/EIA-603-D:2010

Test Mode: Transmitting

12.1 EUT Operation

Operating Environment **:**

Temperature: 22.9 °C

Humidity: 52.0 % RH

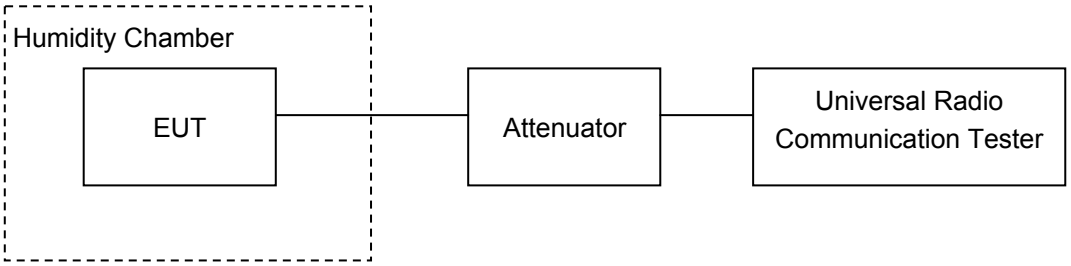
Atmospheric Pressure: 101.3kPa

12.2 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



12.3 Test Result

LTE Band 2

LTE Band 2 Test Frequency:1880.0MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-8	-0.0043	2.5
40		-3	-0.0016	2.5
30		-4	-0.0021	2.5
20		-2	-0.0011	2.5
10		-4	-0.0021	2.5
0		-8	-0.0043	2.5
-10		-9	-0.0048	2.5
-20		-9	-0.0048	2.5
-30		0	0.0000	2.5
20	3.3	-6	-0.0032	2.5
20	4.2	1	0.0005	2.5

LTE Band 4

LTE Band 4 Test Frequency:1732.5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-9	-0.0052	2.5
40		2	0.0012	2.5
30		-12	-0.0069	2.5
20		-4	-0.0023	2.5
10		-5	-0.0029	2.5
0		-12	-0.0069	2.5
-10		3	0.0017	2.5
-20		-6	-0.0035	2.5
-30		-6	-0.0035	2.5
20	3.3	3	0.0017	2.5
20	4.2	3	0.0017	2.5

LTE Band 5

LTE Band 5 Test Frequency:836.5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	6	0.0072	2.5
40		5	0.0060	2.5
30		11	0.0132	2.5
20		3	0.0036	2.5
10		-6	-0.0072	2.5
0		-3	-0.0036	2.5
-10		-2	-0.0024	2.5
-20		-1	-0.0012	2.5
20		9	0.0108	2.5
20	3.3	6	0.0072	2.5
50	4.2	11	0.0132	2.5

LTE Band 17

LTE Band 17 Test Frequency:710.0MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-5	-0.0070	2.5
40		2	0.0028	2.5
30		-11	-0.0155	2.5
20		-2	-0.0028	2.5
10		-3	-0.0042	2.5
0		-6	-0.0085	2.5
-10		5	0.0070	2.5
-20		2	0.0028	2.5
-30		6	0.0085	2.5
20	3.3	-5	-0.0070	2.5
20	4.2	-8	-0.0113	2.5

LTE Band 41

LTE Band 41 Test Frequency:2593MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-6	-0.0023	2.5
40		-10	-0.0039	2.5
30		-12	-0.0046	2.5
20		-4	-0.0015	2.5
10		-12	-0.0046	2.5
0		-11	-0.0042	2.5
-10		0	0.0000	2.5
-20		-8	-0.0031	2.5
-30		-6	-0.0023	2.5
20	3.3	-6	-0.0023	2.5
20	4.2	4	0.0015	2.5

13 RF Exposure

Remark: refer to SAR test report: WTS16S0243054E.

====== End of Report ======