

TEST REPORT

Reference No..... : WTS20S04023741W002
FCC ID : 2AWB8JADEUD100
Applicant..... : Jade Wireless, Inc.
Address..... : 1752 Aspen Village Way, West Covina CA91791, USA
Manufacturer : Jade Wireless, Inc.
Address..... : 1752 Aspen Village Way, West Covina CA91791, USA
Product..... : JADESTICK
Model(s). : UD-100
Brand Name : JADEStcik
Standards..... : FCC CFR47 Part 22 Subpart H: 2019
FCC CFR47 Part 24 Subpart E: 2019
FCC CFR47 Part 27: 2019
FCC CFR47 Part 90: 2019
Date of Receipt sample : 2020-04-30
Date of Test : 2020-05-01 to 2020-05-29
Date of Issue..... : 2020-06-01
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.

Prepared By:

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS20S04023 741W002	2020-04-30	2020-05-01 to 2020-05-29	2020-06-01	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	JADESTICK
Model(s):	UD-100
Model Description:	N/A
WCDMA Band(s):	FDD Band II/IV/V
LTE Band(s):	FDD Band 2/4/5/12/13/14/66/71
Hardware Version:	1.3.0
Software Version:	1.7.2

4.2 Details of E.U.T.

Operation Frequency:	LTE Band 2: 1850~1910MHz LTE Band 4: 1710~1755MHz LTE Band 5: 824~849MHz LTE Band 12: 699~716MHz LTE Band 13: 777~787MHz LTE Band 14: 788~798MHz LTE Band 66: 1710~1780MHz LTE Band 71: 663~698MHz
Max. RF output power:	LTE Band 2: 23.85dBm LTE Band 4: 23.72dBm LTE Band 5: 24.05dBm LTE Band 12: 23.74dBm LTE Band 13: 23.85dBm LTE Band 14: 23.88dBm LTE Band 66: 23.82dBm LTE Band 71: 23.47dBm
Type of Modulation:	LTE: QPSK, 16QAM
Antenna installation:	LTE: Dipole
Antenna Gain:	LTE Band 2: 4.85dBi LTE Band 4: 4.48dBi LTE Band 5: 4.05dBi LTE Band 12: 4.08dBi LTE Band 13: 3.15dBi LTE Band 14: 3.15dBi LTE Band 66: 4.48dBi LTE Band 71: 4.08dBi
Ratings:	DC 5V by USB port
Type of Emission:	LTE Band 2 1.4MHz: 1M14G7D(QPSK), 1M13W7D(16QAM) LTE Band 2 3MHz: 2M75G7D(QPSK), 2M77W7D(16QAM)

LTE Band 2 5MHz: 4M53G7D(QPSK), 4M54W7D(16QAM)
LTE Band 2 10 MHz: 9M05G7D(QPSK), 9M04W7D(16QAM)
LTE Band 2 15MHz: 13M5G7D(QPSK), 13M5W7D(16QAM)
LTE Band 2 20MHz: 17M9G7D(QPSK), 17M9W7D(16QAM)
LTE Band 4 1.4MHz: 1M14G7D(QPSK), 1M13W7D(16QAM)
LTE Band 4 3MHz: 2M75G7D(QPSK), 2M76W7D(16QAM)
LTE Band 4 5MHz: 4M53G7D(QPSK), 4M54W7D(16QAM)
LTE Band 4 10 MHz: 9M04G7D(QPSK), 9M04W7D(16QAM)
LTE Band 4 15MHz: 13M5G7D(QPSK), 13M5W7D(16QAM)
LTE Band 4 20MHz: 17M9G7D(QPSK), 17M9W7D(16QAM)
LTE Band 5 1.4MHz: 1M14G7D(QPSK), 1M13W7D(16QAM)
LTE Band 5 3MHz: 2M75G7D(QPSK), 2M76W7D(16QAM)
LTE Band 5 5MHz: 4M53G7D(QPSK), 4M53W7D(16QAM)
LTE Band 5 10 MHz: 9M04G7D(QPSK), 9M04W7D(16QAM)
LTE Band 12 1.4MHz: 1M14G7D(QPSK), 1M13W7D(16QAM)
LTE Band 12 3MHz: 2M75G7D(QPSK), 2M76W7D(16QAM)
LTE Band 12 5MHz: 4M53G7D(QPSK), 4M54W7D(16QAM)
LTE Band 12 10MHz: 9M05G7D(QPSK), 9M04W7D(16QAM)
LTE Band 13 5MHz: 4M51G7D(QPSK), 4M54W7D(16QAM)
LTE Band 13 10 MHz: 9M03G7D(QPSK), 9M03W7D(16QAM)
LTE Band 14 5MHz: 4M53G7D(QPSK), 4M54W7D(16QAM)
LTE Band 14 10 MHz: 9M02G7D(QPSK), 9M03W7D(16QAM)
LTE Band 66 1.4MHz: 1M14G7D(QPSK), 1M13W7D(16QAM)
LTE Band 66 3MHz: 2M75G7D(QPSK), 2M77W7D(16QAM)
LTE Band 66 5MHz: 4M53G7D(QPSK), 4M54W7D(16QAM)
LTE Band 66 10 MHz: 9M04G7D(QPSK), 9M04W7D(16QAM)
LTE Band 66 15 MHz: 13M5G7D(QPSK), 13M5W7D(16QAM)
LTE Band 66 20 MHz: 17M9G7D(QPSK), 17M9W7D(16QAM)
LTE Band 71 5MHz: 4M52G7D(QPSK), 4M53W7D(16QAM)
LTE Band 71 10 MHz: 9M03G7D(QPSK), 9M04W7D(16QAM)
LTE Band 71 15 MHz: 13M5G7D(QPSK), 13M5W7D(16QAM)
LTE Band 71 20 MHz: 17M9G7D(QPSK), 17M9W7D(16QAM)

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	18700
		1880.0 MHz	18900
		1900.0 MHz	19100
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

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
LTE Band 12	1.4	699.7 MHz	23017
		707.5 MHz	23095
		715.3 MHz	23173
	3	700.5 MHz	23025
		707.5 MHz	23095
		714.5 MHz	23165
	5	701.5 MHz	23035
		707.5 MHz	23095
		713.5 MHz	23155
	10	704.0 MHz	23060
		707.5 MHz	23095
		711.0 MHz	23130
LTE Band 13	5	779.5 MHz	23205
		782.0 MHz	23230
		784.5 MHz	23255
	10	782.0 MHz	23230

LTE Band 14	5	790.5 MHz	23305
		793.0 MHz	23330
		795.5 MHz	23355
	10	793.0 MHz	23330
LTE Band 66	1.4	1701.7MHz	131979
		1745 MHz	132322
		1779.3 MHz	132665
	3	1711.5 MHz	131987
		1745 MHz	132322
		1778.5MHz	132657
	5	1712.5 MHz	131997
		1745 MHz	132322
		1777.5 MHz	132647
	10	1715.0 MHz	132022
		1745 MHz	132322
		1775 MHz	132622
	15	1717.5 MHz	132047
		1745 MHz	132322
		1772.5 MHz	132597
	20	1720.0 MHz	132072
		1745 MHz	132322
		1770 MHz	132572
LTE Band 71	5	665.5 MHz	133147
		680.5 MHz	133297
		695.5 MHz	133447
	10	668 MHz	133172
		680.5MHz	133297
		693 MHz	133422
	15	670.5 MHz	133197
		680.5 MHz	133297
		690.5 MHz	133397
	20	673 MHz	133222
		683 MHz	133322
		688 MHz	133372
Remark: All mode(s) were tested and the worst data was recorded.			

4.4 Test Facility

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

ISED CAB identifier: CN0013. Test Firm 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, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

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 number 523476, September 10, 2019.

5 Test Summary

Test Items	Test Requirement	Result
RF Output Power	2.1046 22.913 (a) 24.232 (c) 27.50(h.2) 27.50(d.4) 90.635	PASS
Peak-to-Average Ratio	24.232 (d) 27.50(d)	PASS
Bandwidth	2.1049 22.905 22.917 24.238 27.53(a) 90.691	PASS
Spurious Emissions at Antenna Terminal	2.1051 22.917 (a) 24.238 (a) 27.53(h) 27.53(m)(4) 90.691	PASS
Field Strength of Spurious Radiation	2.1053 22.917 (a) 24.238 (a) 27.53(h) 27.53(m)(4) 90.691	PASS
Out of band emission	22.917 (a) 24.238 (a) 27.53(h) 27.53(m)(4) 90.691	PASS
Frequency Stability	2.1055 22.355 24.235 27.5(h) 27.54 90.231	PASS
Maximum Permissible Exposure (SAR)	1.1307 2.1093	PASS

Note: Based on the FCC ID: 2AWB8JADEUD100, updated the Antenna Terminal and added the shell.

6 Equipment Used during Test

6.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSP30	100091	2020-04-20	2021-04-19
2	Amplifier	Agilent	8447D	2944A10178	2020-04-20	2021-04-19
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2019-08-11	2020-08-10
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2020-04-20	2021-04-19
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2020-04-20	2021-04-19
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2020-04-20	2021-04-19
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2020-04-20	2021-04-19
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2020-04-20	2021-04-19
9	Signal Generator	R&S	SMP22	100102	2019-07-12	2020-07-11
10	Smart Antenna	SCHWARZBECK	HA08	-	2020-04-20	2021-04-19
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	Equipment	Manufacturer	Model No.	Serial No	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	2020-04-20	2021-04-19
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2020-04-25	2021-04-24
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	2020-04-20	2021-04-19
4	Cable	HUBER+SUHNER	CBL2	525178	2020-04-20	2021-04-19

6.2 Measurement Uncertainty

Parameter	Uncertainty
Radiated Spurious Emissions	± 5.08 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Confidence interval: 95%. Confidence factor:k=2	

6.3 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.

7 RF OUTPUT POWER(ERP/EIRP)

Test Requirement:	FCC Part 2.1046, 22.913 (a), 24.232 (c), 27.50(h.2); 27.50(d.4)
Test Method:	ANSI C63.26:2015 ANSI/TIA-603-E:2016
Test Mode:	TX transmitting

7.1 EUT Operation

Operating Environment :

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

7.2 Test Procedure

Radiated method:

1. The setup of EUT is according with per TIA/EIA Standard 603D:2010.
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.

7.3 Test Result

Remark: Test performed with low/middle/high channels for all bandwidth and two model , only the worst data for GT-100S were recorded.

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	92.00	266	1.1	H	18.03	0.31	10.40	28.12	33	-4.88
1850.70	91.00	286	2.3	V	17.72	0.31	10.40	27.81	33	-5.19
LTE Band 2 Channel 18900 – 1.4MHz – QPSK										
1880.00	91.91	17	1.2	H	18.06	0.31	10.40	28.15	33	-4.85
1880.00	91.10	354	2.5	V	17.98	0.31	10.40	28.07	33	-4.93
LTE Band 2 Channel 19193 – 1.4MHz – QPSK										
1909.30	91.56	298	1.9	H	17.83	0.32	10.40	27.91	33	-5.09
1909.30	91.06	33	2.2	V	18.10	0.32	10.40	28.18	33	-4.82
LTE Band 2 Channel 18607 – 1.4MHz – 16QAM										
1850.70	91.95	233	1.3	H	17.98	0.31	10.40	28.07	33	-4.93
1850.70	91.35	231	1.5	V	18.07	0.31	10.40	28.16	33	-4.84
LTE Band 2 Channel 18900 – 1.4MHz – 16QAM										
1880.00	91.52	8	1.8	H	17.67	0.31	10.40	27.76	33	-5.24
1880.00	91.32	264	1.4	V	18.20	0.31	10.40	28.29	33	-4.71
LTE Band 2 Channel 19193 – 1.4MHz – 16QAM										
1909.30	92.04	195	2.2	H	18.31	0.32	10.40	28.39	33	-4.61
1909.30	91.30	46	1.8	V	18.34	0.32	10.40	28.42	33	-4.58
LTE Band 2 Channel 18615 – 3MHz – QPSK										
1851.50	91.79	336	2.4	H	17.82	0.31	10.40	27.91	33	-5.09
1851.50	91.05	317	1.7	V	17.77	0.31	10.40	27.86	33	-5.14
LTE Band 2 Channel 18900 – 3MHz – QPSK										
1880.00	91.92	273	1.7	H	18.07	0.31	10.40	28.16	33	-4.84
1880.00	91.05	155	1.3	V	17.93	0.31	10.40	28.02	33	-4.98
LTE Band 2 Channel 19185 – 3MHz – QPSK										
1908.50	91.74	260	2.0	H	18.01	0.32	10.40	28.09	33	-4.91
1908.50	91.28	244	2.3	V	18.32	0.32	10.40	28.40	33	-4.60
LTE Band 2 Channel 18615 – 3MHz – 16QAM										
1851.50	92.04	140	2.1	H	18.07	0.31	10.40	28.16	33	-4.84
1851.50	91.86	176	1.3	V	18.58	0.31	10.40	28.67	33	-4.33
LTE Band 2 Channel 18900 – 3MHz – 16QAM										
1880.00	92.05	152	1.0	H	18.20	0.31	10.40	28.29	33	-4.71
1880.00	91.10	80	1.3	V	17.98	0.31	10.40	28.07	33	-4.93
LTE Band 2 Channel 19185 – 3MHz – 16QAM										
1908.50	91.91	92	1.3	H	18.18	0.32	10.40	28.26	33	-4.74
1908.50	91.06	322	1.5	V	18.10	0.32	10.40	28.18	33	-4.82
LTE Band 2 Channel 18625 – 5MHz – QPSK										
1852.50	92.00	218	1.9	H	18.03	0.31	10.40	28.12	33	-4.88
1852.50	91.02	352	2.4	V	17.74	0.31	10.40	27.83	33	-5.17
LTE Band 2 Channel 18900 – 5MHz – QPSK										
1880.00	92.01	283	1.7	H	18.16	0.31	10.40	28.25	33	-4.75

1880.00	91.09	239	2.2	V	17.97	0.31	10.40	28.06	33	-4.94
LTE Band 2 Channel 19175 – 5MHz – QPSK										
1907.50	92.26	287	1.9	H	18.53	0.32	10.40	28.61	33	-4.39
1907.50	91.20	245	2.0	V	18.24	0.32	10.40	28.32	33	-4.68
LTE Band 2 Channel 18625 – 5MHz – 16QAM										
1852.50	92.21	199	2.1	H	18.24	0.31	10.40	28.33	33	-4.67
1852.50	91.83	349	1.2	V	18.55	0.31	10.40	28.64	33	-4.36
LTE Band 2 Channel 18900 – 5MHz – 16QAM										
1880.00	92.12	154	1.3	H	18.27	0.31	10.40	28.36	33	-4.64
1880.00	91.00	127	1.8	V	17.88	0.31	10.40	27.97	33	-5.03
LTE Band 2 Channel 19175 – 5MHz – 16QAM										
1907.50	92.15	229	1.6	H	18.42	0.32	10.40	28.50	33	-4.50
1907.50	91.00	282	1.6	V	18.04	0.32	10.40	28.12	33	-4.88
LTE Band 2 Channel 18650 – 10MHz – QPSK										
1855.00	92.14	207	1.3	H	18.17	0.31	10.40	28.26	33	-4.74
1855.00	92.15	75	2.3	V	18.87	0.31	10.40	28.96	33	-4.04
LTE Band 2 Channel 18900 – 10MHz – QPSK										
1880.00	92.18	283	1.6	H	18.33	0.31	10.40	28.42	33	-4.58
1880.00	91.20	54	2.4	V	18.08	0.31	10.40	28.17	33	-4.83
LTE Band 2 Channel 19150 – 10MHz – QPSK										
1905.00	92.24	229	1.0	H	18.51	0.32	10.40	28.59	33	-4.41
1905.00	91.32	67	2.1	V	18.36	0.32	10.40	28.44	33	-4.56
LTE Band 2 Channel 18650 – 10MHz – 16QAM										
1855.00	92.13	288	2.4	H	18.16	0.31	10.40	28.25	33	-4.75
1855.00	91.06	201	1.2	V	17.78	0.31	10.40	27.87	33	-5.13
LTE Band 2 Channel 18900 – 10MHz – 16QAM										
1880.00	91.94	116	2.4	H	18.09	0.31	10.40	28.18	33	-4.82
1880.00	91.33	327	1.4	V	18.21	0.31	10.40	28.30	33	-4.70
LTE Band 2 Channel 19150 – 10MHz – 16QAM										
1905.00	91.98	75	2.3	H	18.25	0.32	10.40	28.33	33	-4.67
1905.00	91.00	115	2.2	V	18.04	0.32	10.40	28.12	33	-4.88
LTE Band 2 Channel 18675 – 15MHz – QPSK										
1857.50	92.24	233	1.2	H	18.27	0.31	10.40	28.36	33	-4.64
1857.50	91.93	196	1.8	V	18.65	0.31	10.40	28.74	33	-4.26
LTE Band 2 Channel 18900 – 15MHz – QPSK										
1880.00	91.78	23	1.8	H	17.93	0.31	10.40	28.02	33	-4.98
1880.00	91.00	19	1.1	V	17.88	0.31	10.40	27.97	33	-5.03
LTE Band 2 Channel 19125 – 15MHz – QPSK										
1902.50	91.76	214	1.6	H	18.03	0.32	10.40	28.11	33	-4.89
1902.50	91.25	280	1.2	V	18.29	0.32	10.40	28.37	33	-4.63
LTE Band 2 Channel 18675 – 15MHz – 16QAM										
1857.50	92.00	101	1.9	H	18.03	0.31	10.40	28.12	33	-4.88
1857.50	91.81	303	1.3	V	18.53	0.31	10.40	28.62	33	-4.38
LTE Band 2 Channel 18900 – 15MHz – 16QAM										
1880.00	92.11	277	2.4	H	18.26	0.31	10.40	28.35	33	-4.65
1880.00	91.56	289	1.5	V	18.44	0.31	10.40	28.53	33	-4.47
LTE Band 2 Channel 19125 – 15MHz – 16QAM										

1902.50	92.07	238	1.4	H	18.34	0.32	10.40	28.42	33	-4.58
1902.50	91.00	274	1.9	V	18.04	0.32	10.40	28.12	33	-4.88
LTE Band 2 Channel 18700 – 20MHz – QPSK										
1860.00	93.00	182	2.5	H	19.03	0.31	10.40	29.12	33	-3.88
1860.00	92.50	190	1.6	V	19.22	0.31	10.40	29.31	33	-3.69
LTE Band 2 Channel 18900 – 20MHz – QPSK										
1880.00	92.85	185	1.6	H	19.00	0.31	10.40	29.09	33	-3.91
1880.00	92.30	259	1.0	V	19.18	0.31	10.40	29.27	33	-3.73
LTE Band 2 Channel 19100 – 20MHz – QPSK										
1900.00	92.90	93	1.7	H	19.17	0.32	10.40	29.25	33	-3.75
1900.00	91.99	126	1.2	V	19.03	0.32	10.40	29.11	33	-3.89
LTE Band 2 Channel 18670 – 20MHz – 16QAM										
1860.00	92.95	359	1.8	H	18.98	0.31	10.40	29.07	33	-3.93
1860.00	92.35	335	1.3	V	19.07	0.31	10.40	29.16	33	-3.84
LTE Band 2 Channel 18900 – 20MHz – 16QAM										
1880.00	92.86	296	1.8	H	19.01	0.31	10.40	29.10	33	-3.90
1880.00	92.10	73	1.5	V	18.98	0.31	10.40	29.07	33	-3.93
LTE Band 2 Channel 19100 – 20MHz – 16QAM										
1900.00	92.86	329	1.5	H	19.13	0.32	10.40	29.21	33	-3.79
1900.00	92.11	85	2.0	V	19.15	0.32	10.40	29.23	33	-3.77

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	92.50	344	1.2	H	18.39	0.30	9.40	27.49	30	-2.51
1710.70	91.30	187	2.2	V	17.77	0.30	9.40	26.87	30	-3.13
LTE Band 4 Channel 20175 – 1.4MHz – QPSK										
1732.50	92.34	178	1.0	H	18.23	0.30	9.40	27.33	30	-2.67
1732.50	91.68	222	2.1	V	18.15	0.30	9.40	27.25	30	-2.75
LTE Band 4 Channel 20393 – 1.4MHz – QPSK										
1754.30	92.60	46	1.4	H	18.49	0.30	9.40	27.59	30	-2.41
1754.30	91.57	135	1.1	V	18.04	0.30	9.40	27.14	30	-2.86
LTE Band 4 Channel 19957 – 1.4MHz – 16QAM										
1710.70	92.75	56	1.9	H	18.64	0.30	9.40	27.74	30	-2.26
1710.70	91.60	359	2.1	V	18.07	0.30	9.40	27.17	30	-2.83
LTE Band 4 Channel 20175 – 1.4MHz – 16QAM										
1732.50	92.48	207	2.1	H	18.37	0.30	9.40	27.47	30	-2.53
1732.50	92.40	120	1.2	V	18.87	0.30	9.40	27.97	30	-2.03
LTE Band 4 Channel 20393 – 1.4MHz – 16QAM										
1754.30	92.21	137	1.8	H	18.10	0.30	9.40	27.20	30	-2.80
1754.30	92.47	238	1.9	V	18.94	0.30	9.40	28.04	30	-1.96
LTE Band 4 Channel 19965 – 3MHz – QPSK										
1711.50	92.69	194	2.2	H	18.58	0.30	9.40	27.68	30	-2.32
1711.50	91.65	5	2.2	V	18.12	0.30	9.40	27.22	30	-2.78

LTE Band 4 Channel 20175 – 3MHz – QPSK										
1732.50	92.61	245	1.2	H	18.50	0.30	9.40	27.60	30	-2.40
1732.50	91.67	70	1.7	V	18.14	0.30	9.40	27.24	30	-2.76
LTE Band 4 Channel 20385 – 3MHz – QPSK										
1753.50	92.46	212	1.7	H	18.35	0.30	9.40	27.45	30	-2.55
1753.50	91.82	319	1.4	V	18.29	0.30	9.40	27.39	30	-2.61
LTE Band 4 Channel 19965 – 3MHz – 16QAM										
1711.50	92.56	52	1.8	H	18.45	0.30	9.40	27.55	30	-2.45
1711.50	91.89	153	2.4	V	18.36	0.30	9.40	27.46	30	-2.54
LTE Band 4 Channel 20175 – 3MHz – 16QAM										
1732.50	92.13	195	1.3	H	18.02	0.30	9.40	27.12	30	-2.88
1732.50	92.71	113	1.0	V	19.18	0.30	9.40	28.28	30	-1.72
LTE Band 4 Channel 20385 – 3MHz – 16QAM										
1753.50	92.46	144	1.8	H	18.35	0.30	9.40	27.45	30	-2.55
1753.50	91.98	206	1.2	V	18.45	0.30	9.40	27.55	30	-2.45
LTE Band 4 Channel 19975 – 5MHz – QPSK										
1712.50	92.16	258	1.6	H	18.05	0.30	9.40	27.15	30	-2.85
1712.50	91.79	189	1.2	V	18.26	0.30	9.40	27.36	30	-2.64
LTE Band 4 Channel 20175 – 5MHz – QPSK										
1732.50	92.32	316	2.2	H	18.21	0.30	9.40	27.31	30	-2.69
1732.50	91.88	56	1.5	V	18.35	0.30	9.40	27.45	30	-2.55
LTE Band 4 Channel 20375 – 5MHz – QPSK										
1752.50	92.22	77	1.4	H	18.11	0.30	9.40	27.21	30	-2.79
1752.50	91.96	102	1.5	V	18.43	0.30	9.40	27.53	30	-2.47
LTE Band 4 Channel 19975 – 5MHz – 16QAM										
1712.50	92.73	72	1.3	H	18.62	0.30	9.40	27.72	30	-2.28
1712.50	91.83	268	1.1	V	18.30	0.30	9.40	27.40	30	-2.60
LTE Band 4 Channel 20175 – 5MHz – 16QAM										
1732.50	92.53	182	2.1	H	18.42	0.30	9.40	27.52	30	-2.48
1732.50	91.52	193	2.2	V	17.99	0.30	9.40	27.09	30	-2.91
LTE Band 4 Channel 20375 – 5MHz – 16QAM										
1752.50	92.49	275	1.5	H	18.38	0.30	9.40	27.48	30	-2.52
1752.50	91.74	305	2.0	V	18.21	0.30	9.40	27.31	30	-2.69
LTE Band 4 Channel 20000 – 10MHz – QPSK										
1715.00	92.36	351	1.3	H	18.25	0.30	9.40	27.35	30	-2.65
1715.00	91.97	12	1.4	V	18.44	0.30	9.40	27.54	30	-2.46
LTE Band 4 Channel 20175 – 10MHz – QPSK										
1732.50	92.64	276	1.3	H	18.53	0.30	9.40	27.63	30	-2.37
1732.50	91.99	95	2.1	V	18.46	0.30	9.40	27.56	30	-2.44
LTE Band 4 Channel 20350 – 10MHz – QPSK										
1750.00	92.07	338	1.3	H	17.96	0.30	9.40	27.06	30	-2.94
1750.00	91.65	279	1.5	V	18.12	0.30	9.40	27.22	30	-2.78
LTE Band 4 Channel 20000 – 10MHz – 16QAM										
1715.00	92.80	189	2.1	H	18.69	0.30	9.40	27.79	30	-2.21
1715.00	91.96	103	2.3	V	18.43	0.30	9.40	27.53	30	-2.47
LTE Band 4 Channel 20175 – 10MHz – 16QAM										
1732.50	92.55	150	1.5	H	18.44	0.30	9.40	27.54	30	-2.46

1732.50	91.85	357	1.3	V	18.32	0.30	9.40	27.42	30	-2.58
LTE Band 4 Channel 20350 – 10MHz – 16QAM										
1750.00	92.44	86	2.4	H	18.33	0.30	9.40	27.43	30	-2.57
1750.00	91.87	106	1.7	V	18.34	0.30	9.40	27.44	30	-2.56
LTE Band 4 Channel 20025 – 15MHz – QPSK										
1717.50	92.85	342	2.1	H	18.74	0.30	9.40	27.84	30	-2.16
1717.50	91.89	4	1.1	V	18.36	0.30	9.40	27.46	30	-2.54
LTE Band 4 Channel 20175 – 15MHz – QPSK										
1732.50	92.54	342	2.5	H	18.43	0.30	9.40	27.53	30	-2.47
1732.50	91.80	221	1.9	V	18.27	0.30	9.40	27.37	30	-2.63
LTE Band 4 Channel 20325 – 15MHz – QPSK										
1747.50	92.50	328	1.9	H	18.39	0.30	9.40	27.49	30	-2.51
1747.50	91.97	69	1.8	V	18.44	0.30	9.40	27.54	30	-2.46
LTE Band 4 Channel 20025 – 15MHz – 16QAM										
1717.50	92.74	138	2.0	H	18.63	0.30	9.40	27.73	30	-2.27
1717.50	91.88	72	1.0	V	18.35	0.30	9.40	27.45	30	-2.55
LTE Band 4 Channel 20175 – 15MHz – 16QAM										
1732.50	92.92	240	2.0	H	18.81	0.30	9.40	27.91	30	-2.09
1732.50	92.39	9	1.9	V	18.86	0.30	9.40	27.96	30	-2.04
LTE Band 4 Channel 20325 – 15MHz – 16QAM										
1747.50	92.32	130	1.1	H	18.21	0.30	9.40	27.31	30	-2.69
1747.50	91.86	355	2.2	V	18.33	0.30	9.40	27.43	30	-2.57
LTE Band 4 Channel 20050 – 20MHz – QPSK										
1720.00	93.40	141	1.3	H	19.29	0.30	9.40	28.39	30	-1.61
1720.00	92.85	20	1.6	V	19.32	0.30	9.40	28.42	30	-1.58
LTE Band 4 Channel 20175 – 20MHz – QPSK										
1745.00	93.47	186	1.6	H	19.36	0.30	9.40	28.46	30	-1.54
1745.00	92.88	209	1.2	V	19.35	0.30	9.40	28.45	30	-1.55
LTE Band 4 Channel 20300 – 20MHz – QPSK										
1745.00	93.47	129	1.8	H	19.36	0.30	9.40	28.46	30	-1.54
1745.00	92.88	281	2.1	V	19.35	0.30	9.40	28.45	30	-1.55
LTE Band 4 Channel 20050 – 20MHz – 16QAM										
1720.00	93.41	25	1.1	H	19.30	0.30	9.40	28.40	30	-1.60
1720.00	92.89	138	1.8	V	19.36	0.30	9.40	28.46	30	-1.54
LTE Band 4 Channel 20175 – 20MHz – 16QAM										
1732.50	93.46	194	1.2	H	19.35	0.30	9.40	28.45	30	-1.55
1732.50	92.95	207	1.7	V	19.42	0.30	9.40	28.52	30	-1.48
LTE Band 4 Channel 20300 – 20MHz – 16QAM										
1745.00	93.48	252	1.4	H	19.37	0.30	9.40	28.47	30	-1.53
1745.00	92.97	11	1.4	V	19.44	0.30	9.40	28.54	30	-1.46

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	85.60	115	1.5	H	18.49	0.30	9.40	27.59	38.45	-10.86
824.70	85.67	174	1.4	V	18.14	0.30	9.40	27.24	38.45	-11.21
LTE Band 5 Channel 20525 – 1.4MHz – QPSK										
836.50	85.33	299	1.0	H	18.22	0.30	9.40	27.32	38.45	-11.13
836.50	85.28	219	1.3	V	17.75	0.30	9.40	26.85	38.45	-11.60
LTE Band 5 Channel 20643 – 1.4MHz – QPSK										
848.30	85.63	225	1.9	H	18.52	0.30	9.40	27.62	38.45	-10.83
848.30	85.69	64	2.2	V	18.16	0.30	9.40	27.26	38.45	-11.19
LTE Band 5 Channel 20407 – 1.4MHz – 16QAM										
824.70	85.87	203	1.2	H	18.76	0.30	9.40	27.86	38.45	-10.59
824.70	85.62	269	1.6	V	18.09	0.30	9.40	27.19	38.45	-11.26
LTE Band 5 Channel 20525 – 1.4MHz – 16QAM										
836.50	85.29	43	2.5	H	18.18	0.30	9.40	27.28	38.45	-11.17
836.50	85.38	203	1.7	V	17.85	0.30	9.40	26.95	38.45	-11.50
LTE Band 5 Channel 20643 – 1.4MHz – 16QAM										
848.30	85.42	311	2.0	H	18.31	0.30	9.40	27.41	38.45	-11.04
848.30	85.59	2	1.4	V	18.06	0.30	9.40	27.16	38.45	-11.29
LTE Band 5 Channel 20415 – 3MHz – QPSK										
825.50	85.38	303	2.1	H	18.27	0.30	9.40	27.37	38.45	-11.08
825.50	85.81	328	2.4	V	18.28	0.30	9.40	27.38	38.45	-11.07
LTE Band 5 Channel 20525 – 3MHz – QPSK										
836.50	85.73	52	1.7	H	18.62	0.30	9.40	27.72	38.45	-10.73
836.50	85.93	80	2.2	V	18.40	0.30	9.40	27.50	38.45	-10.95
LTE Band 5 Channel 20635 – 3MHz – QPSK										
847.50	85.22	68	2.4	H	18.11	0.30	9.40	27.21	38.45	-11.24
847.50	85.23	230	1.6	V	17.70	0.30	9.40	26.80	38.45	-11.65
LTE Band 5 Channel 20415 – 3MHz – 16QAM										
825.50	85.67	190	2.0	H	18.56	0.30	9.40	27.66	38.45	-10.79
825.50	85.42	68	2.4	V	17.89	0.30	9.40	26.99	38.45	-11.46
LTE Band 5 Channel 20525 – 3MHz – 16QAM										
836.50	85.19	254	2.1	H	18.08	0.30	9.40	27.18	38.45	-11.27
836.50	85.72	278	1.9	V	18.19	0.30	9.40	27.29	38.45	-11.16
LTE Band 5 Channel 20635 – 3MHz – 16QAM										
847.50	85.96	91	2.3	H	18.85	0.30	9.40	27.95	38.45	-10.50
847.50	85.68	354	1.8	V	18.15	0.30	9.40	27.25	38.45	-11.20
LTE Band 5 Channel 20425 – 5MHz – QPSK										
826.50	85.66	360	1.5	H	18.55	0.30	9.40	27.65	38.45	-10.80
826.50	85.45	220	1.8	V	17.92	0.30	9.40	27.02	38.45	-11.43
LTE Band 5 Channel 20525 – 5MHz – QPSK										
836.50	85.28	198	1.5	H	18.17	0.30	9.40	27.27	38.45	-11.18

836.50	85.62	145	1.5	V	18.09	0.30	9.40	27.19	38.45	-11.26
LTE Band 5 Channel 20625 – 5MHz – QPSK										
846.50	85.43	266	1.4	H	18.32	0.30	9.40	27.42	38.45	-11.03
846.50	85.92	330	2.1	V	18.39	0.30	9.40	27.49	38.45	-10.96
LTE Band 5 Channel 20425 – 5MHz – 16QAM										
826.50	85.64	346	2.3	H	18.53	0.30	9.40	27.63	38.45	-10.82
826.50	85.44	210	1.1	V	17.91	0.30	9.40	27.01	38.45	-11.44
LTE Band 5 Channel 20525 – 5MHz – 16QAM										
836.50	85.97	333	1.9	H	18.86	0.30	9.40	27.96	38.45	-10.49
836.50	85.61	293	2.0	V	18.08	0.30	9.40	27.18	38.45	-11.27
LTE Band 5 Channel 20625 – 5MHz – 16QAM										
846.50	85.56	311	1.1	H	18.45	0.30	9.40	27.55	38.45	-10.90
846.50	85.47	36	1.4	V	17.94	0.30	9.40	27.04	38.45	-11.41
LTE Band 5 Channel 20450 – 10MHz – QPSK										
829.00	86.30	28	1.5	H	19.19	0.30	9.40	28.29	38.45	-10.16
829.00	86.80	50	1.9	V	19.27	0.30	9.40	28.37	38.45	-10.08
LTE Band 5 Channel 20525 – 10MHz – QPSK										
836.50	86.21	201	2.3	H	19.10	0.30	9.40	28.20	38.45	-10.25
836.50	86.87	209	2.4	V	19.34	0.30	9.40	28.44	38.45	-10.01
LTE Band 5 Channel 20600 – 10MHz – QPSK										
844.00	86.28	228	1.4	H	19.17	0.30	9.40	28.27	38.45	-10.18
844.00	86.89	75	1.1	V	19.36	0.30	9.40	28.46	38.45	-9.99
LTE Band 5 Channel 20450 – 10MHz – 16QAM										
829.00	86.31	214	1.9	H	19.20	0.30	9.40	28.30	38.45	-10.15
829.00	86.90	80	1.6	V	19.37	0.30	9.40	28.47	38.45	-9.98
LTE Band 5 Channel 20525 – 10MHz – 16QAM										
836.50	86.34	273	1.6	H	19.23	0.30	9.40	28.33	38.45	-10.12
836.50	86.91	198	2.5	V	19.38	0.30	9.40	28.48	38.45	-9.97
LTE Band 5 Channel 20600 – 10MHz – 16QAM										
844.00	86.33	265	1.1	H	19.22	0.30	9.40	28.32	38.45	-10.13
844.00	86.92	13	2.4	V	19.39	0.30	9.40	28.49	38.45	-9.96

LTE Band 12

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 12 Channel 23017 – 1.4MHz – QPSK										
699.70	99.00	277	2.4	H	28.00	0.20	0.00	27.80	34.77	-6.97
699.70	99.60	80	1.3	V	27.32	0.20	0.00	27.12	34.77	-7.65
LTE Band 12 Channel 23095 – 1.4MHz – QPSK										
707.50	99.05	189	2.2	H	28.05	0.20	0.00	27.85	34.77	-6.92
707.50	99.70	134	1.2	V	27.42	0.20	0.00	27.22	34.77	-7.55
LTE Band 12 Channel 23173 – 1.4MHz – QPSK										
715.30	99.02	165	2.4	H	28.02	0.20	0.00	27.82	34.77	-6.95
715.30	99.98	300	1.4	V	27.70	0.20	0.00	27.50	34.77	-7.27
LTE Band 12 Channel 23017 – 1.4MHz – 16QAM										
699.70	98.91	295	1.6	H	27.91	0.20	0.00	27.71	34.77	-7.06
699.70	99.92	118	2.4	V	27.64	0.20	0.00	27.44	34.77	-7.33
LTE Band 12 Channel 23095 – 1.4MHz – 16QAM										
707.50	99.02	137	1.3	H	28.02	0.20	0.00	27.82	34.77	-6.95
707.50	99.78	331	2.1	V	27.50	0.20	0.00	27.30	34.77	-7.47
LTE Band 12 Channel 23173 – 1.4MHz – 16QAM										
715.30	98.95	328	1.9	H	27.95	0.20	0.00	27.75	34.77	-7.02
715.30	99.86	301	1.4	V	27.58	0.20	0.00	27.38	34.77	-7.39
LTE Band 12 Channel 23025 – 3MHz – QPSK										
700.50	99.03	144	2.3	H	28.03	0.20	0.00	27.83	34.77	-6.94
700.50	99.74	43	2.2	V	27.46	0.20	0.00	27.26	34.77	-7.51
LTE Band 12 Channel 23095 – 3MHz – QPSK										
707.50	98.99	281	1.8	H	27.99	0.20	0.00	27.79	34.77	-6.98
707.50	99.79	94	1.4	V	27.51	0.20	0.00	27.31	34.77	-7.46
LTE Band 12 Channel 23165 – 3MHz – QPSK										
714.50	99.00	312	1.6	H	28.00	0.20	0.00	27.80	34.77	-6.97
714.50	99.10	212	1.6	V	26.82	0.20	0.00	26.62	34.77	-8.15
LTE Band 12 Channel 23025 – 3MHz – 16QAM										
700.50	99.04	41	1.3	H	28.04	0.20	0.00	27.84	34.77	-6.93
700.50	99.95	36	1.5	V	27.67	0.20	0.00	27.47	34.77	-7.30
LTE Band 12 Channel 23095 – 3MHz – 16QAM										
707.50	99.00	17	2.2	H	28.00	0.20	0.00	27.80	34.77	-6.97
707.50	99.96	175	1.6	V	27.68	0.20	0.00	27.48	34.77	-7.29
LTE Band 12 Channel 23165 – 3MHz – 16QAM										
714.50	99.07	72	1.9	H	28.07	0.20	0.00	27.87	34.77	-6.90
714.50	99.92	11	1.8	V	27.64	0.20	0.00	27.44	34.77	-7.33
LTE Band 12 Channel 23035 – 5MHz – QPSK										
701.50	99.13	36	1.8	H	28.13	0.20	0.00	27.93	34.77	-6.84
701.50	99.25	299	1.9	V	26.97	0.20	0.00	26.77	34.77	-8.00
LTE Band 12 Channel 23095 – 5MHz – QPSK										
707.50	99.05	265	2.5	H	28.05	0.20	0.00	27.85	34.77	-6.92
707.50	98.85	34	1.7	V	26.57	0.20	0.00	26.37	34.77	-8.40

LTE Band 12 Channel 23155 – 5MHz – QPSK										
713.50	99.03	183	1.6	H	28.03	0.20	0.00	27.83	34.77	-6.94
713.50	99.11	337	2.3	V	26.83	0.20	0.00	26.63	34.77	-8.14
LTE Band 12 Channel 23035 – 5MHz – 16QAM										
701.50	99.10	230	1.8	H	28.10	0.20	0.00	27.90	34.77	-6.87
701.50	99.04	159	2.2	V	26.76	0.20	0.00	26.56	34.77	-8.21
LTE Band 12 Channel 23095 – 5MHz – 16QAM										
707.50	99.14	54	1.7	H	28.14	0.20	0.00	27.94	34.77	-6.83
707.50	99.00	73	2.1	V	26.72	0.20	0.00	26.52	34.77	-8.25
LTE Band 12 Channel 23155 – 5MHz – 16QAM										
713.50	98.88	38	2.1	H	27.88	0.20	0.00	27.68	34.77	-7.09
713.50	98.99	228	2.1	V	26.71	0.20	0.00	26.51	34.77	-8.26
LTE Band 12 Channel 23060 – 10MHz – QPSK										
704.00	99.50	184	2.1	H	28.50	0.20	0.00	28.30	34.77	-6.47
704.00	100.80	275	1.9	V	28.52	0.20	0.00	28.32	34.77	-6.45
LTE Band 12 Channel 23095 – 10MHz – QPSK										
707.50	99.45	260	1.2	H	28.45	0.20	0.00	28.25	34.77	-6.52
707.50	100.70	329	2.3	V	28.42	0.20	0.00	28.22	34.77	-6.55
LTE Band 12 Channel 23130 – 10MHz – QPSK										
711.00	99.58	110	1.6	H	28.58	0.20	0.00	28.38	34.77	-6.39
711.00	100.75	120	2.1	V	28.47	0.20	0.00	28.27	34.77	-6.50
LTE Band 12 Channel 23060 – 10MHz – 16QAM										
704.00	99.57	127	1.0	H	28.57	0.20	0.00	28.37	34.77	-6.40
704.00	100.79	230	1.2	V	28.51	0.20	0.00	28.31	34.77	-6.46
LTE Band 12 Channel 23095 – 10MHz – 16QAM										
707.50	99.59	86	1.6	H	28.59	0.20	0.00	28.39	34.77	-6.38
707.50	100.81	232	1.6	V	28.53	0.20	0.00	28.33	34.77	-6.44
LTE Band 12 Channel 23130 – 10MHz – 16QAM										
711.00	99.63	313	1.4	H	28.63	0.20	0.00	28.43	34.77	-6.34
711.00	100.83	207	2.1	V	28.55	0.20	0.00	28.35	34.77	-6.42

LTE Band 13

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 13 Channel 23205 – 5MHz – QPSK										
779.50	98.00	22	1.4	H	27.00	0.20	0.00	26.80	34.77	-7.97
779.50	99.10	205	2.1	V	26.82	0.20	0.00	26.62	34.77	-8.15
LTE Band 13 Channel 23230 – 5MHz – QPSK										
782.00	98.01	153	2.2	H	27.01	0.20	0.00	26.81	34.77	-7.96
782.00	99.12	252	1.2	V	26.84	0.20	0.00	26.64	34.77	-8.13
LTE Band 13 Channel 23255 – 5MHz – QPSK										
784.50	98.03	277	1.9	H	27.03	0.20	0.00	26.83	34.77	-7.94
784.50	99.13	247	1.4	V	26.85	0.20	0.00	26.65	34.77	-8.12
LTE Band 13 Channel 23205 – 5MHz – 16QAM										
779.50	98.05	279	1.7	H	27.05	0.20	0.00	26.85	34.77	-7.92
779.50	99.15	281	1.1	V	26.87	0.20	0.00	26.67	34.77	-8.10
LTE Band 13 Channel 23230 – 5MHz – 16QAM										
782.00	98.30	140	2.2	H	27.30	0.20	0.00	27.10	34.77	-7.67
782.00	99.59	262	2.2	V	27.31	0.20	0.00	27.11	34.77	-7.66
LTE Band 13 Channel 23255 – 5MHz – 16QAM										
784.50	98.35	265	1.4	H	27.35	0.20	0.00	27.15	34.77	-7.62
784.50	99.62	15	1.4	V	27.34	0.20	0.00	27.14	34.77	-7.63
LTE Band 13 Channel 23230 – 10MHz – QPSK										
782.00	98.37	34	2.0	H	27.37	0.20	0.00	27.17	34.77	-7.60
782.00	99.65	277	2.4	V	27.37	0.20	0.00	27.17	34.77	-7.60
LTE Band 13 Channel 23230 – 10MHz – 16QAM										
782.00	98.42	4	2.0	H	27.42	0.20	0.00	27.22	34.77	-7.55
782.00	99.69	336	2.2	V	27.41	0.20	0.00	27.21	34.77	-7.56

LTE Band 14

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Part 90	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE Band 14 Channel 23305 – 5MHz – QPSK										
790.50	98.10	30	2.1	H	27.10	0.20	0.00	26.90	34.77	-7.87
701.50	99.54	275	1.4	V	27.26	0.20	0.00	27.06	34.77	-7.71
LTE Band 14 Channel 23330 – 5MHz – QPSK										
793.00	98.30	113	1.7	H	27.30	0.20	0.00	27.10	34.77	-7.67
793.00	99.59	25	2.0	V	27.31	0.20	0.00	27.11	34.77	-7.66
LTE Band 14 Channel 23355 – 5MHz – QPSK										
795.50	98.31	221	1.2	H	27.31	0.20	0.00	27.11	34.77	-7.66
795.50	99.54	216	1.9	V	27.26	0.20	0.00	27.06	34.77	-7.71
LTE Band 14 Channel 23305 – 5MHz – 16QAM										
790.50	98.32	317	1.4	H	27.32	0.20	0.00	27.12	34.77	-7.65
701.50	99.51	310	2.1	V	27.23	0.20	0.00	27.03	34.77	-7.74
LTE Band 14 Channel 23330 – 5MHz – 16QAM										
793.00	98.28	140	1.8	H	27.28	0.20	0.00	27.08	34.77	-7.69
793.00	99.48	355	1.4	V	27.20	0.20	0.00	27.00	34.77	-7.77
LTE Band 14 Channel 23355 – 5MHz – 16QAM										
795.50	98.25	107	1.7	H	27.25	0.20	0.00	27.05	34.77	-7.72
795.50	99.46	346	1.7	V	27.18	0.20	0.00	26.98	34.77	-7.79
LTE Band 14 Channel 23330 – 10MHz – QPSK										
782.00	98.85	164	1.2	H	27.85	0.20	0.00	27.65	34.77	-7.12
782.00	99.98	304	2.4	V	27.70	0.20	0.00	27.50	34.77	-7.27
LTE Band 14 Channel 23330 – 10MHz – 16QAM										
793.00	98.42	218	1.6	H	27.42	0.20	0.00	27.22	34.77	-7.55
793.00	99.69	215	1.5	V	27.41	0.20	0.00	27.21	34.77	-7.56

LTE Band 66

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 66 Channel 131979 – 1.4MHz – QPSK										
1710.70	92.00	208	2.1	H	18.00	0.30	9.40	27.10	30	-2.90
1710.70	92.50	115	1.9	V	17.22	0.30	9.40	26.32	30	-3.68
LTE Band 66 Channel 132322 – 1.4MHz – QPSK										
1745.00	92.10	195	1.4	H	18.10	0.30	9.40	27.20	30	-2.80
1745.00	92.69	120	1.8	V	17.41	0.30	9.40	26.51	30	-3.49
LTE Band 66 Channel 132665 – 1.4MHz – QPSK										
1779.30	92.05	65	1.2	H	17.94	0.30	9.40	27.04	30	-2.96
1779.30	91.85	138	1.0	V	16.66	0.30	9.40	25.76	30	-4.24
LTE Band 66 Channel 131979 – 1.4MHz – 16QAM										
1710.70	92.08	31	1.7	H	18.08	0.30	9.40	27.18	30	-2.82
1710.70	92.58	199	1.6	V	17.30	0.30	9.40	26.40	30	-3.60
LTE Band 66 Channel 132322 – 1.4MHz – 16QAM										
1745.00	91.90	131	1.0	H	17.90	0.30	9.40	27.00	30	-3.00
1745.00	92.69	43	1.1	V	17.41	0.30	9.40	26.51	30	-3.49
LTE Band 66 Channel 132665 – 1.4MHz – 16QAM										
1779.30	92.16	315	1.3	H	18.05	0.30	9.40	27.15	30	-2.85
1779.30	92.68	120	1.1	V	17.49	0.30	9.40	26.59	30	-3.41
LTE Band 66 Channel 131987 – 3MHz – QPSK										
1711.50	92.07	39	1.7	H	18.07	0.30	9.40	27.17	30	-2.83
1711.50	92.94	115	1.9	V	17.66	0.30	9.40	26.76	30	-3.24
LTE Band 66 Channel 132322 – 3MHz – QPSK										
1745.00	91.85	106	1.3	H	17.85	0.30	9.40	26.95	30	-3.05
1745.00	92.84	242	1.8	V	17.56	0.30	9.40	26.66	30	-3.34
LTE Band 66 Channel 132657 – 3MHz – QPSK										
1778.50	92.13	85	1.1	H	18.02	0.30	9.40	27.12	30	-2.88
1778.50	92.79	45	2.1	V	17.60	0.30	9.40	26.70	30	-3.30
LTE Band 66 Channel 131987 – 3MHz – 16QAM										
1711.50	92.24	2	2.0	H	18.24	0.30	9.40	27.34	30	-2.66
1711.50	92.83	19	2.5	V	17.55	0.30	9.40	26.65	30	-3.35
LTE Band 66 Channel 132322 – 3MHz – 16QAM										
1745.00	91.72	157	1.5	H	17.72	0.30	9.40	26.82	30	-3.18
1745.00	92.89	5	1.5	V	17.61	0.30	9.40	26.71	30	-3.29
LTE Band 66 Channel 132657 – 3MHz – 16QAM										
1778.50	91.92	166	1.1	H	17.81	0.30	9.40	26.91	30	-3.09
1778.50	92.91	136	2.2	V	17.72	0.30	9.40	26.82	30	-3.18
LTE Band 66 Channel 131997 – 5MHz – QPSK										
1712.50	92.13	333	2.4	H	18.13	0.30	9.40	27.23	30	-2.77
1712.50	92.95	225	2.0	V	17.67	0.30	9.40	26.77	30	-3.23
LTE Band 66 Channel 132322 – 5MHz – QPSK										
1745.00	92.08	244	2.3	H	18.08	0.30	9.40	27.18	30	-2.82
1745.00	92.78	286	1.3	V	17.50	0.30	9.40	26.60	30	-3.40

LTE Band 66 Channel 132647 – 5MHz – QPSK										
1777.50	92.17	146	2.3	H	18.06	0.30	9.40	27.16	30	-2.84
1777.50	92.99	112	1.5	V	17.80	0.30	9.40	26.90	30	-3.10
LTE Band 66 Channel 131997 – 5MHz – 16QAM										
1712.50	92.24	258	1.7	H	18.24	0.30	9.40	27.34	30	-2.66
1712.50	92.85	293	1.9	V	17.57	0.30	9.40	26.67	30	-3.33
LTE Band 66 Channel 132322 – 5MHz – 16QAM										
1745.00	91.75	129	1.1	H	17.75	0.30	9.40	26.85	30	-3.15
1745.00	92.97	178	2.4	V	17.69	0.30	9.40	26.79	30	-3.21
LTE Band 66 Channel 131647 – 5MHz – 16QAM										
1777.50	92.29	79	2.4	H	18.18	0.30	9.40	27.28	30	-2.72
1777.50	92.98	291	2.1	V	17.79	0.30	9.40	26.89	30	-3.11
LTE Band 66 Channel 132022 – 10MHz – QPSK										
1715.00	91.85	261	1.9	H	17.85	0.30	9.40	26.95	30	-3.05
1715.00	92.99	171	2.2	V	17.71	0.30	9.40	26.81	30	-3.19
LTE Band 66 Channel 132322 – 10MHz – QPSK										
1745.00	92.04	235	2.3	H	18.04	0.30	9.40	27.14	30	-2.86
1745.00	93.05	64	2.3	V	17.77	0.30	9.40	26.87	30	-3.13
LTE Band 66 Channel 132622 – 10MHz – QPSK										
1775.00	92.00	239	2.1	H	17.89	0.30	9.40	26.99	30	-3.01
1775.00	93.25	99	1.2	V	18.06	0.30	9.40	27.16	30	-2.84
LTE Band 66 Channel 132022 – 10MHz – 16QAM										
1715.0	92.01	80	1.7	H	18.01	0.30	9.40	27.11	30	-2.89
1715.0	93.07	33	2.2	V	17.79	0.30	9.40	26.89	30	-3.11
LTE Band 66 Channel 132322 – 10MHz – 16QAM										
1745.00	91.95	153	1.3	H	17.95	0.30	9.40	27.05	30	-2.95
1745.00	93.21	340	2.3	V	17.93	0.30	9.40	27.03	30	-2.97
LTE Band 66 Channel 132622 – 10MHz – 16QAM										
1775.00	92.06	284	1.7	H	17.95	0.30	9.40	27.05	30	-2.95
1775.00	92.58	31	1.2	V	17.39	0.30	9.40	26.49	30	-3.51
LTE Band 66 Channel 132047 – 15MHz – QPSK										
1717.50	91.94	348	1.7	H	17.94	0.30	9.40	27.04	30	-2.96
1717.50	93.20	187	1.7	V	17.92	0.30	9.40	27.02	30	-2.98
LTE Band 66 Channel 132322 – 15MHz – QPSK										
1745.00	91.67	100	2.0	H	17.67	0.30	9.40	26.77	30	-3.23
1745.00	93.28	215	1.2	V	18.00	0.30	9.40	27.10	30	-2.90
LTE Band 66 Channel 132597 – 15MHz – QPSK										
1772.50	91.65	20	1.4	H	17.54	0.30	9.40	26.64	30	-3.36
1772.50	93.22	311	2.0	V	18.03	0.30	9.40	27.13	30	-2.87
LTE Band 66 Channel 132047 – 15MHz – 16QAM										
1717.50	92.47	356	2.0	H	18.47	0.30	9.40	27.57	30	-2.43
1717.50	93.27	242	2.2	V	17.99	0.30	9.40	27.09	30	-2.91
LTE Band 66 Channel 132322 – 15MHz – 16QAM										
1745.00	91.97	76	2.2	H	17.97	0.30	9.40	27.07	30	-2.93
1745.00	93.06	309	1.3	V	17.78	0.30	9.40	26.88	30	-3.12
LTE Band 66 Channel 132597 – 15MHz – 16QAM										
1772.50	92.26	303	2.0	H	18.15	0.30	9.40	27.25	30	-2.75

1772.50	93.05	290	2.2	V	17.86	0.30	9.40	26.96	30	-3.04
LTE Band 66 Channel 132072 – 20MHz – QPSK										
1720.00	93.20	71	1.6	H	19.20	0.30	9.40	28.30	30	-1.70
1720.00	94.25	73	2.2	V	18.97	0.30	9.40	28.07	30	-1.93
LTE Band 66 Channel 132322 – 20MHz – QPSK										
1745.00	93.22	206	1.6	H	19.22	0.30	9.40	28.32	30	-1.68
1745.00	94.20	59	1.8	V	18.92	0.30	9.40	28.02	30	-1.98
LTE Band 66 Channel 132572 – 20MHz – QPSK										
1770.00	93.26	334	2.0	H	19.15	0.30	9.40	28.25	30	-1.75
1770.00	94.23	297	1.4	V	19.04	0.30	9.40	28.14	30	-1.86
LTE Band 66 Channel 132072 – 20MHz – 16QAM										
1720.00	93.16	118	1.2	H	19.16	0.30	9.40	28.26	30	-1.74
1720.00	94.18	17	1.2	V	18.90	0.30	9.40	28.00	30	-2.00
LTE Band 66 Channel 132322 – 20MHz – 16QAM										
1745.00	93.11	312	1.9	H	19.11	0.30	9.40	28.21	30	-1.79
1745.00	94.28	121	2.4	V	19.00	0.30	9.40	28.10	30	-1.90
LTE Band 66 Channel 132572 – 20MHz – 16QAM										
1770.00	93.14	119	2.3	H	19.03	0.30	9.40	28.13	30	-1.87
1770.00	94.30	149	2.2	V	19.11	0.30	9.40	28.21	30	-1.79

LTE Band 71

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 71 Channel 133147 – 5MHz – QPSK										
665.50	98.05	102	1.9	H	27.05	0.20	0.00	26.85	34.77	-7.92
665.50	98.85	75	2.1	V	26.57	0.20	0.00	26.37	34.77	-8.40
LTE Band 71 Channel 133297 – 5MHz – QPSK										
680.50	98.14	82	1.5	H	27.14	0.20	0.00	26.94	34.77	-7.83
680.50	98.88	269	2.1	V	26.60	0.20	0.00	26.40	34.77	-8.37
LTE Band 71 Channel 133447 – 5MHz – QPSK										
695.50	97.77	169	1.3	H	26.77	0.20	0.00	26.57	34.77	-8.20
695.50	98.87	347	1.9	V	26.59	0.20	0.00	26.39	34.77	-8.38
LTE Band 71 Channel 133147 – 5MHz – 16QAM										
665.50	98.15	250	2.1	H	27.15	0.20	0.00	26.95	34.77	-7.82
665.50	98.89	117	1.1	V	26.61	0.20	0.00	26.41	34.77	-8.36
LTE Band 71 Channel 133297 – 5MHz – 16QAM										
680.50	97.98	94	1.7	H	26.98	0.20	0.00	26.78	34.77	-7.99
680.50	98.94	228	1.5	V	26.66	0.20	0.00	26.46	34.77	-8.31
LTE Band 71 Channel 133447 – 5MHz – 16QAM										
695.50	98.05	272	2.4	H	27.05	0.20	0.00	26.85	34.77	-7.92
695.50	98.96	147	1.5	V	26.68	0.20	0.00	26.48	34.77	-8.29
LTE Band 71 Channel 133172 – 10MHz – QPSK										
668.00	98.50	189	2.1	H	27.50	0.20	0.00	27.30	34.77	-7.47
668.00	99.82	333	2.1	V	27.54	0.20	0.00	27.34	34.77	-7.43
LTE Band 71 Channel 133297 – 10MHz – QPSK										
680.50	98.51	288	2.3	H	27.51	0.20	0.00	27.31	34.77	-7.46
680.50	99.83	61	2.2	V	27.55	0.20	0.00	27.35	34.77	-7.42
LTE Band 71 Channel 133422 – 10MHz – QPSK										
693.00	98.54	14	2.1	H	27.54	0.20	0.00	27.34	34.77	-7.43
693.00	99.85	279	1.8	V	27.57	0.20	0.00	27.37	34.77	-7.40
LTE Band 71 Channel 133172 – 10MHz – 16QAM										
668.00	98.55	281	2.3	H	27.55	0.20	0.00	27.35	34.77	-7.42
668.00	99.81	317	1.3	V	27.53	0.20	0.00	27.33	34.77	-7.44
LTE Band 71 Channel 133297 – 10MHz – 16QAM										
680.50	98.53	254	1.9	H	27.53	0.20	0.00	27.33	34.77	-7.44
680.50	99.82	272	1.8	V	27.54	0.20	0.00	27.34	34.77	-7.43
LTE Band 71 Channel 133422 – 10MHz – 16QAM										
693.00	98.55	179	1.8	H	27.55	0.20	0.00	27.35	34.77	-7.42
693.00	99.86	142	1.5	V	27.58	0.20	0.00	27.38	34.77	-7.39
LTE Band 71 Channel 133197 – 15MHz – QPSK										
670.50	98.10	290	2.4	H	27.10	0.20	0.00	26.90	34.77	-7.87
670.50	99.54	196	2.1	V	27.26	0.20	0.00	27.06	34.77	-7.71
LTE Band 71 Channel 133297 – 15MHz – QPSK										
680.50	98.30	165	1.1	H	27.30	0.20	0.00	27.10	34.77	-7.67
680.50	99.59	236	2.5	V	27.31	0.20	0.00	27.11	34.77	-7.66

LTE Band 71 Channel 133397 – 15MHz – QPSK										
690.50	98.31	265	1.5	H	27.31	0.20	0.00	27.11	34.77	-7.66
690.50	99.54	200	1.9	V	27.26	0.20	0.00	27.06	34.77	-7.71
LTE Band 71 Channel 133197 – 15MHz – 16QAM										
670.50	98.32	204	2.4	H	27.32	0.20	0.00	27.12	34.77	-7.65
670.50	99.51	152	2.0	V	27.23	0.20	0.00	27.03	34.77	-7.74
LTE Band 71 Channel 133297 – 15MHz – 16QAM										
680.50	98.28	43	2.4	H	27.28	0.20	0.00	27.08	34.77	-7.69
680.50	99.48	177	1.3	V	27.20	0.20	0.00	27.00	34.77	-7.77
LTE Band 71 Channel 133397 – 15MHz – 16QAM										
690.50	98.25	33	1.4	H	27.25	0.20	0.00	27.05	34.77	-7.72
690.50	99.46	317	2.1	V	27.18	0.20	0.00	26.98	34.77	-7.79
LTE Band 71 Channel 133222 – 20MHz – QPSK										
673.00	99.00	190	1.6	H	28.00	0.20	0.00	27.80	34.77	-6.97
673.00	99.98	307	1.5	V	27.70	0.20	0.00	27.50	34.77	-7.27
LTE Band 71 Channel 133322 – 20MHz – QPSK										
683.00	99.05	249	1.1	H	28.05	0.20	0.00	27.85	34.77	-6.92
683.00	99.99	355	2.1	V	27.71	0.20	0.00	27.51	34.77	-7.26
LTE Band 71 Channel 133372 – 20MHz – QPSK										
688.00	98.85	355	2.1	H	27.85	0.20	0.00	27.65	34.77	-7.12
688.00	100.05	121	1.5	V	27.77	0.20	0.00	27.57	34.77	-7.20
LTE Band 71 Channel 133222– 20MHz – 16QAM										
673.00	98.93	238	1.0	H	27.93	0.20	0.00	27.73	34.77	-7.04
673.00	100.07	329	2.5	V	27.79	0.20	0.00	27.59	34.77	-7.18
LTE Band 71 Channel 133322 – 20MHz – 16QAM										
683.00	98.95	87	1.4	H	27.95	0.20	0.00	27.75	34.77	-7.02
683.00	100.08	241	1.1	V	27.80	0.20	0.00	27.60	34.77	-7.17
LTE Band 71 Channel 133372 – 20MHz – 16QAM										
688.00	98.97	301	2.2	H	27.97	0.20	0.00	27.77	34.77	-7.00
688.00	100.09	208	1.6	V	27.81	0.20	0.00	27.61	34.77	-7.16

8 SPURIOUS RADIATED EMISSIONS

Test Requirement:	FCC Part 2.1053, 22.917, 24.238, 27.53(h), 27.53(m)(4)
Test Method:	ANSI C63.26:2015 KDB971168 D01 v03r01
Test Mode:	TX transmitting

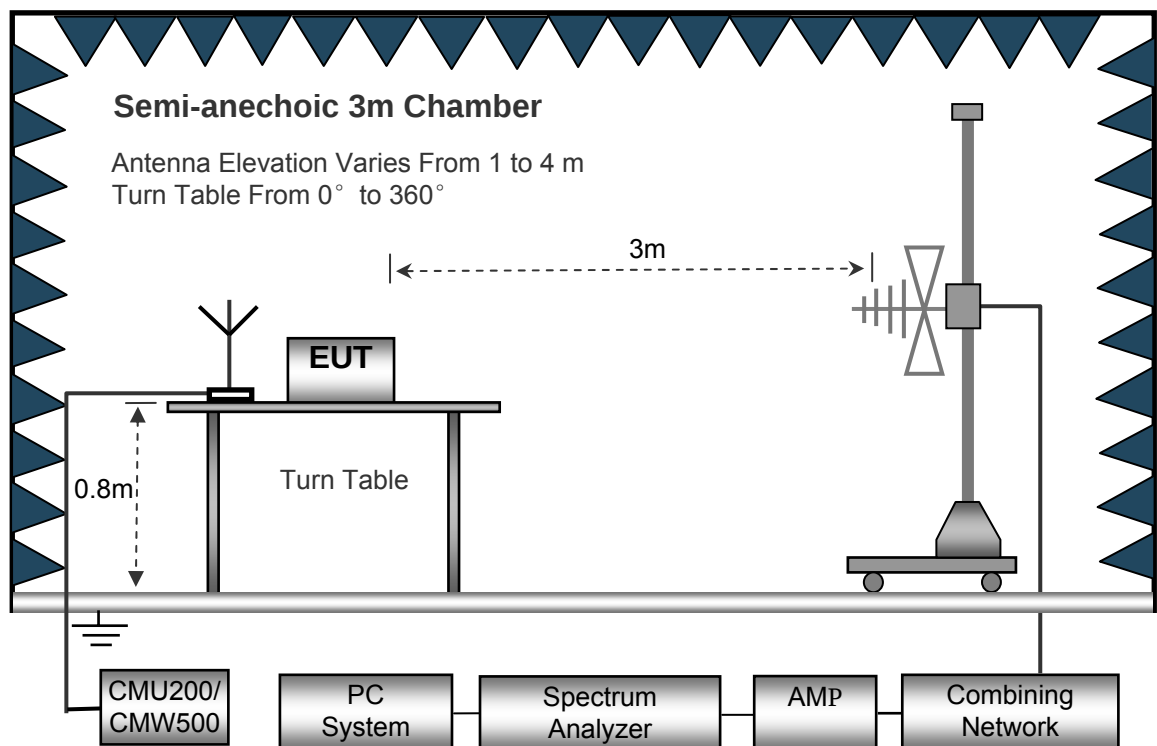
8.1 EUT Operation

Operating Environment :

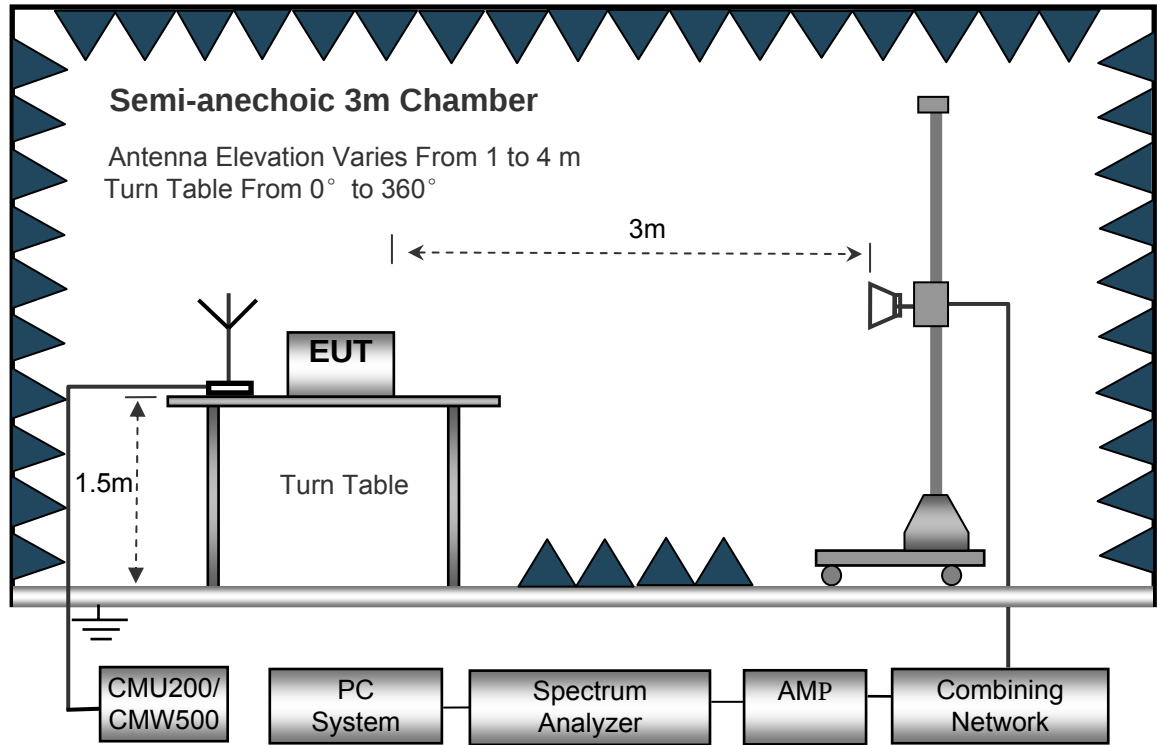
Temperature:	25.5 °C
Humidity:	52.3 % RH
Atmospheric Pressure:	101.4kPa

8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site. The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



8.3 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

8.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m for below 1GHz and 1.5m for above 1GHz 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 Z position. So the data shown was the Z 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 = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level
Spurious attenuation limit in dB = $43 + 10 \lg (\text{power out in Watts})$
8. Repeat above procedures until the measurements for all frequencies are completed.

8.5 Summary of Test Results

Remark: Test performed from 30MHz to 10th harmonics with low/middle/high channels for all bandwidth and two model , only the worst data for GT-100S 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										
243.68	45.40	356	1.7	H	-65.11	0.15	0.00	-65.26	-13.00	-52.26
243.68	39.19	134	1.8	V	-68.40	0.15	0.00	-68.55	-13.00	-55.55
3701.40	65.95	120	1.3	H	-45.59	2.37	12.50	-35.46	-13.00	-22.46
3701.40	59.98	43	1.1	V	-49.83	2.37	12.50	-39.70	-13.00	-26.70
5552.10	53.58	71	1.6	H	-56.03	2.86	12.90	-45.99	-13.00	-32.99
5552.10	44.73	108	1.7	V	-64.15	2.86	12.90	-54.11	-13.00	-41.11
LTE BAND 2 Channel 18900										
243.68	44.41	234	1.7	H	-66.10	0.15	0.00	-66.25	-13.00	-53.25
243.68	38.31	143	1.9	V	-69.28	0.15	0.00	-69.43	-13.00	-56.43
3760.00	59.42	125	1.8	H	-52.12	2.37	12.50	-41.99	-13.00	-28.99
3760.00	53.79	203	1.7	V	-56.02	2.37	12.50	-45.89	-13.00	-32.89
5640.00	45.58	261	1.9	H	-64.03	2.86	12.90	-53.99	-13.00	-40.99
5640.00	38.04	70	1.6	V	-70.84	2.86	12.90	-60.80	-13.00	-47.80
LTE BAND 2 Channel 19193										
243.68	45.18	142	2.2	H	-65.33	0.15	0.00	-65.48	-13.00	-52.48
243.68	37.95	153	1.8	V	-69.64	0.15	0.00	-69.79	-13.00	-56.79
3818.60	51.73	334	1.1	H	-59.12	2.37	12.60	-48.89	-13.00	-35.89
3818.60	47.14	254	1.2	V	-62.17	2.37	12.60	-51.94	-13.00	-38.94
5727.90	37.64	118	1.6	H	-71.71	2.86	12.90	-61.67	-13.00	-48.67
5727.90	30.44	81	1.1	V	-78.06	2.86	12.90	-68.02	-13.00	-55.02

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										
243.68	38.22	15	1.4	H	-72.29	0.15	0.00	-72.44	-13.00	-59.44
243.68	30.23	142	1.0	V	-77.36	0.15	0.00	-77.51	-13.00	-64.51
3421.40	65.95	351	1.3	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
3421.40	59.98	168	2.0	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
5132.10	53.58	308	1.7	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
5132.10	44.73	165	1.6	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 4 Channel 20175										
243.68	37.64	211	2.1	H	-72.87	0.15	0.00	-73.02	-13.00	-60.02
243.68	31.09	124	1.6	V	-76.50	0.15	0.00	-76.65	-13.00	-63.65
3465.00	59.93	149	1.8	H	-53.12	2.37	12.50	-42.99	-13.00	-29.99
3465.00	53.90	79	1.1	V	-57.25	2.37	12.50	-47.12	-13.00	-34.12
5197.50	47.33	27	1.6	H	-62.08	2.79	12.70	-52.17	-13.00	-39.17
5197.50	37.97	332	1.7	V	-70.80	2.79	12.70	-60.89	-13.00	-47.89
LTE BAND 4 Channel 20393										
243.68	38.42	124	1.1	H	-72.09	0.15	0.00	-72.24	-13.00	-59.24
243.68	31.35	318	1.8	V	-76.24	0.15	0.00	-76.39	-13.00	-63.39
3508.60	52.75	155	1.7	H	-59.89	2.37	12.50	-49.76	-13.00	-36.76
3508.60	46.74	31	1.7	V	-63.99	2.37	12.50	-53.86	-13.00	-40.86
5262.90	39.53	100	1.4	H	-70.05	2.81	12.80	-60.06	-13.00	-47.06
5262.90	30.94	276	1.7	V	-77.86	2.81	12.80	-67.87	-13.00	-54.87

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										
223.12	39.74	14	1.4	H	-70.77	0.15	0.00	-70.92	-13.00	-57.92
223.12	29.19	108	1.9	V	-78.40	0.15	0.00	-78.55	-13.00	-65.55
1649.40	65.95	314	1.1	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
1649.40	59.98	68	1.6	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
2474.10	53.58	136	1.2	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
2474.10	44.73	248	2.0	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 5 Channel 20525										
223.12	38.96	130	1.0	H	-71.55	0.15	0.00	-71.70	-13.00	-58.70
223.12	28.76	284	1.8	V	-78.83	0.15	0.00	-78.98	-13.00	-65.98
1673.00	58.59	299	1.7	H	-54.46	2.37	12.50	-44.33	-13.00	-31.33
1673.00	52.41	92	1.5	V	-58.74	2.37	12.50	-48.61	-13.00	-35.61
2509.50	47.14	232	1.9	H	-62.27	2.79	12.70	-52.36	-13.00	-39.36
2509.50	37.47	226	1.4	V	-71.30	2.79	12.70	-61.39	-13.00	-48.39
LTE BAND 5 Channel 20643										
223.12	38.83	19	2.1	H	-71.68	0.15	0.00	-71.83	-13.00	-58.83
223.12	28.58	102	1.4	V	-79.01	0.15	0.00	-79.16	-13.00	-66.16
1696.60	50.92	43	1.2	H	-61.72	2.37	12.50	-51.59	-13.00	-38.59
1696.60	45.45	344	1.3	V	-65.28	2.37	12.50	-55.15	-13.00	-42.15
2544.90	40.11	95	1.6	H	-69.47	2.81	12.80	-59.48	-13.00	-46.48
2544.90	29.91	104	1.1	V	-78.89	2.81	12.80	-68.90	-13.00	-55.90

LTE Band 12

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 12 Channel 23017										
243.68	52.81	41	1.6	H	-57.70	0.15	0.00	-57.85	-13.00	-44.85
243.68	45.41	137	1.8	V	-62.18	0.15	0.00	-62.33	-13.00	-49.33
1399.40	65.95	351	1.0	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
1399.40	59.98	96	1.3	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
2099.10	53.58	228	1.8	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
2099.10	44.73	53	1.9	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 12 Channel 23095										
243.68	52.43	164	2.1	H	-58.08	0.15	0.00	-58.23	-13.00	-45.23
243.68	45.83	340	2.0	V	-61.76	0.15	0.00	-61.91	-13.00	-48.91
1415.00	59.65	169	1.2	H	-53.40	2.37	12.50	-43.27	-13.00	-30.27
1415.00	52.40	38	2.1	V	-58.75	2.37	12.50	-48.62	-13.00	-35.62
2122.50	46.03	183	1.9	H	-63.38	2.79	12.70	-53.47	-13.00	-40.47
2122.50	37.86	59	1.9	V	-70.91	2.79	12.70	-61.00	-13.00	-48.00
LTE BAND 12 Channel 23173										
243.68	53.36	111	1.2	H	-57.15	0.15	0.00	-57.30	-13.00	-44.30
243.68	46.69	300	1.6	V	-60.90	0.15	0.00	-61.05	-13.00	-48.05
1430.60	53.57	163	1.1	H	-59.07	2.37	12.50	-48.94	-13.00	-35.94
1430.60	44.86	178	1.4	V	-65.87	2.37	12.50	-55.74	-13.00	-42.74
2145.90	39.30	349	1.1	H	-70.28	2.81	12.80	-60.29	-13.00	-47.29
2145.90	30.73	2	1.8	V	-78.07	2.81	12.80	-68.08	-13.00	-55.08

LTE Band 13

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 13 Channel 23205										
219.42	39.67	241	2.1	H	-70.84	0.15	0.00	-70.99	-25.00	-45.99
219.42	30.25	83	1.2	V	-77.34	0.15	0.00	-77.49	-25.00	-52.49
5455.00	65.95	93	1.6	H	-43.29	2.79	12.70	-33.38	-25.00	-8.38
5455.00	59.98	235	1.4	V	-48.79	2.79	12.70	-38.88	-25.00	-13.88
7908.50	53.58	134	1.7	H	-52.96	3.12	11.50	-44.58	-25.00	-19.58
7908.50	44.73	291	1.8	V	-60.70	3.12	11.50	-52.32	-25.00	-27.32
LTE BAND 13 Channel 23230										
219.42	38.78	46	1.1	H	-71.73	0.15	0.00	-71.88	-25.00	-46.88
219.42	30.97	272	1.1	V	-76.62	0.15	0.00	-76.77	-25.00	-51.77
5472.00	59.94	321	1.1	H	-49.30	2.37	12.50	-39.17	-25.00	-14.17
5472.00	52.80	149	2.0	V	-55.97	2.37	12.50	-45.84	-25.00	-20.84
7920.00	47.33	159	1.6	H	-59.21	3.12	11.50	-50.83	-25.00	-25.83
7920.00	38.16	293	1.1	V	-67.27	3.12	11.50	-58.89	-25.00	-33.89
LTE BAND 13 Channel 23255										
219.42	38.33	185	1.5	H	-72.18	0.15	0.00	-72.33	-25.00	-47.33
219.42	29.99	201	1.8	V	-77.60	0.15	0.00	-77.75	-25.00	-52.75
5500.00	53.20	37	2.1	H	-56.21	2.37	12.50	-46.08	-25.00	-21.08
5500.00	45.02	167	1.4	V	-63.75	2.37	12.50	-53.62	-25.00	-28.62
7940.00	40.59	233	1.9	H	-64.64	3.12	11.50	-56.26	-25.00	-31.26
7940.00	31.71	344	1.8	V	-73.18	3.12	11.50	-64.80	-25.00	-39.80

LTE Band 14

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 14 Channel 23305										
223.12	53.73	19	2.1	H	-56.78	0.15	0.00	-56.93	-13.00	-43.93
223.12	43.99	33	1.9	V	-63.60	0.15	0.00	-63.75	-13.00	-50.75
1581.00	65.95	316	1.2	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
1581.00	59.98	175	2.1	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
2371.50	53.58	178	1.2	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
2371.50	44.73	273	1.8	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 14 Channel 23330										
223.12	52.89	193	1.8	H	-57.62	0.15	0.00	-57.77	-13.00	-44.77
223.12	44.10	168	2.1	V	-63.49	0.15	0.00	-63.64	-13.00	-50.64
1586.00	58.25	178	1.9	H	-54.80	2.37	12.50	-44.67	-13.00	-31.67
1586.00	53.40	339	1.0	V	-57.75	2.37	12.50	-47.62	-13.00	-34.62
2379.00	46.59	265	1.9	H	-62.82	2.79	12.70	-52.91	-13.00	-39.91
2379.00	38.71	123	1.5	V	-70.06	2.79	12.70	-60.15	-13.00	-47.15
LTE BAND 14 Channel 23335										
223.12	53.85	267	1.2	H	-56.66	0.15	0.00	-56.81	-13.00	-43.81
223.12	44.99	354	1.3	V	-62.60	0.15	0.00	-62.75	-13.00	-49.75
1591.00	51.60	189	1.6	H	-61.04	2.37	12.50	-50.91	-13.00	-37.91
1591.00	45.52	118	1.9	V	-65.21	2.37	12.50	-55.08	-13.00	-42.08
2386.50	38.60	114	1.2	H	-70.98	2.81	12.80	-60.99	-13.00	-47.99
2386.50	32.22	194	1.5	V	-76.58	2.81	12.80	-66.59	-13.00	-53.59

LTE Band 66

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 66 Channel 131979										
223.12	39.81	118	1.4	H	-70.70	0.15	0.00	-70.85	-13.00	-57.85
223.12	30.91	190	2.1	V	-76.68	0.15	0.00	-76.83	-13.00	-63.83
1413.00	65.95	12	1.4	H	-44.29	2.79	12.70	-34.38	-13.00	-21.38
1413.00	59.98	107	1.0	V	-51.79	2.79	12.70	-41.88	-13.00	-28.88
2119.50	53.58	264	1.8	H	-58.96	3.12	11.50	-50.58	-13.00	-37.58
2119.50	44.73	160	1.8	V	-68.70	3.12	11.50	-60.32	-13.00	-47.32
LTE BAND 66 Channel 132322										
223.12	39.15	202	1.1	H	-71.36	0.15	0.00	-71.51	-13.00	-58.51
223.12	30.90	16	1.9	V	-76.69	0.15	0.00	-76.84	-13.00	-63.84
1420.00	59.05	53	1.3	H	-51.19	2.37	12.50	-41.06	-13.00	-28.06
1420.00	53.62	255	1.4	V	-58.15	2.37	12.50	-48.02	-13.00	-35.02
2130.00	46.73	293	1.7	H	-65.81	3.12	11.50	-57.43	-13.00	-44.43
2130.00	36.78	334	1.0	V	-76.65	3.12	11.50	-68.27	-13.00	-55.27
LTE BAND 66 Channel 132665										
223.12	39.52	329	1.3	H	-70.99	0.15	0.00	-71.14	-13.00	-58.14
223.12	30.59	339	2.2	V	-77.00	0.15	0.00	-77.15	-13.00	-64.15
1427.00	51.47	44	1.2	H	-58.77	2.37	12.50	-48.64	-13.00	-35.64
1427.00	46.24	165	1.1	V	-65.53	2.37	12.50	-55.40	-13.00	-42.40
2140.50	38.74	53	2.0	H	-73.80	3.12	11.50	-65.42	-13.00	-52.42
2140.50	30.14	117	1.2	V	-83.29	3.12	11.50	-74.91	-13.00	-61.91

LTE Band 71

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 71 Channel 133147										
223.12	53.70	310	1.6	H	-56.81	0.15	0.00	-56.96	-13.00	-43.96
223.12	44.34	216	2.2	V	-63.25	0.15	0.00	-63.40	-13.00	-50.40
1331.00	59.75	14	1.6	H	-53.30	2.34	12.40	-43.24	-13.00	-30.24
1331.00	52.00	63	1.0	V	-59.15	2.34	12.40	-49.09	-13.00	-36.09
1996.50	46.93	65	1.7	H	-62.48	2.79	12.70	-52.57	-13.00	-39.57
1996.50	37.69	24	2.0	V	-71.08	2.79	12.70	-61.17	-13.00	-48.17
LTE BAND 71 Channel 133297										
223.12	54.20	192	1.4	H	-56.31	0.15	0.00	-56.46	-13.00	-43.46
223.12	44.72	126	2.0	V	-62.87	0.15	0.00	-63.02	-13.00	-50.02
1361.00	51.98	216	1.4	H	-61.07	2.37	12.50	-50.94	-13.00	-37.94
1361.00	45.73	165	2.0	V	-65.42	2.37	12.50	-55.29	-13.00	-42.29
2041.50	40.33	253	1.4	H	-69.08	2.79	12.70	-59.17	-13.00	-46.17
2041.50	30.69	153	1.8	V	-78.08	2.79	12.70	-68.17	-13.00	-55.17
LTE BAND 71 Channel 133447										
223.12	53.67	62	1.8	H	-56.84	0.15	0.00	-56.99	-13.00	-43.99
223.12	45.15	211	1.7	V	-62.44	0.15	0.00	-62.59	-13.00	-49.59
1391.00	44.78	264	1.2	H	-67.86	2.37	12.50	-57.73	-13.00	-44.73
1391.00	39.14	264	1.7	V	-71.59	2.37	12.50	-61.46	-13.00	-48.46
2086.50	32.34	329	1.9	H	-77.24	2.81	12.80	-67.25	-13.00	-54.25
2086.50	23.35	146	2.0	V	-85.45	2.81	12.80	-75.46	-13.00	-62.46

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

2) Margin = Absolute Level - Limit

9 RF Exposure

Remark: refer to FCC MPE report: WTS20S04023741W003.

10 Photographs of test setup and EUT.

Note: Please refer to appendix: Appendix-UD-100-Photos.

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