

Test Report

FCC ID: 2ASJR-CM2-1112120

Date of issue: June 15, 2019

Report Number:	MTi190614E100
Sample Description:	GT-Sense SMA Connectors
Model(s):	CM2-1112120, CM2-1102120
Applicant:	Globetracker, ApS
Address:	Strandgade 91, 4th Floor, DK-1401 Copenhagen K, DK
Date of Test:	Feb. 25, 2019 to June 15, 2019

Shenzhen Microtest Co., Ltd.
<http://www.mtitest.com>

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Test Result Certification

Applicant's name: Globetracker, ApS

Address: Strandgade 91, 4th Floor, DK-1401 Copenhagen K, DK

Manufacture's name: Danchell

Address: Lyngvej 8-DK-4450 4450 Jyderup Denmark

Product name: GT-Sense SMA Connectors

Trademark: GT-Sense

Model name: CM2-1112120, CM2-1102120

Standards: FCC CFR 47 Part 22H, Part 24E, Part 27

Test Procedure: ANSI C63.26:2015
ANSI/TIA-603-E-2016
KDB 971168 D01 Power Meas License Digital Systems v03r01

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

Tested by:



Demi Mu

June 15, 2019

Reviewed by:



Blue Zheng

June 15, 2019

Approved by:



Smith Chen

June 15, 2019

1 General information

1.1 Feature of equipment under test (EUT)

Product name:	GT-Sense SMA Connectors
Model name:	CM2-1112120
Serial model:	CM2-1102120
Difference in series models:	All the model are the same circuit and RF module, except the CM2-110210 has some temperature, humidity and pressure sensors removed.
Operating frequency range:	LTE FDD Band 2: 1850.7 - 1909.3MHz LTE FDD Band 4: 1710.7 - 1754.3MHz LTE FDD Band 12: 699 - 716MHz
Modulation type:	LTE FDD Band 2(1.4M): QPSK,16QAM LTE FDD Band 2(3M): QPSK,16QAM LTE FDD Band 2(5M): QPSK,16QAM LTE FDD Band 2(10M): QPSK LTE FDD Band 4(1.4M): QPSK,16QAM LTE FDD Band 4(3M): QPSK,16QAM LTE FDD Band 4(5M): QPSK,16QAM LTE FDD Band 4(10M): QPSK LTE FDD Band 12(1.4M): QPSK,16QAM LTE FDD Band 12(3M): QPSK,16QAM LTE FDD Band 12(5M): QPSK,16QAM LTE FDD Band 12(10M): QPSK
Antenna type:	External Antenna
Antenna gain:	LTE FDD Band 2: 3.8dBi LTE FDD Band 4: 3.9dBi LTE FDD Band 12: 1.1dBi
Power supply:	DC 3.7V from battery or DC 36V from adapter
Battery:	DC 3.7V 1800mAh
Adapter information:	N/A
Hardware Version:	3
Software Version:	60_3

1.2 Test frequency channel

LTE Band	Channel	Channel Bandwidth (MHz)	Channel No.	Frequency (MHz)
LTE Band 2	Low	1.4	18607	1850.7
		3	18615	1851.5
		5	18625	1852.5
		10	18650	1855
	Middle	1.4/3/5/10	18900	1880
	High	1.4	19193	1909.3
		3	19185	1908.5
		5	19175	1907.5
10		19150	1905	
LTE Band 4	Low	1.4	19957	1710.7
		3	19965	1711.5
		5	19975	1712.5
		10	20000	1715
	Middle	1.4/3/5/10	20175	1732.5
	High	1.4	20393	1754.3
		3	20385	1753.5
		5	20375	1752.5
10		20350	1750	
LTE Band 12	Low	1.4	23017	699.7
		3	23025	700.5
		5	23035	701.5
		10	23060	704.0
	Middle	1.4/3/5/10	20395	707.5
	High	1.4	23713	715.3
		3	23165	714.5
		5	23155	713.5
10		23130	711.0	

1.3 EUT operation mode

LTE band 2	Keep the EUT in data communicating mode on LTE band 2. (LTE band2(1.4MHz), LTE band2(3MHz), LTE band2(5MHz), LTE band2(10MHz)
LTE band 4	Keep the EUT in data communicating mode on LTE band 4. (LTE band 4(1.4MHz), LTE band 4(3MHz), LTE band 4(5MHz), LTE band 4(10MHz)
LTE band 12	Keep the EUT in data communicating mode on LTE band17. (LTE band 12(1.4MHz), LTE band 12(3MHz),LTE band12(5MHz), LTE band12(10MHz)
Note: Only the worst case data were shown in the report.	

1.4 Ancillary equipment list

Equipment	Model	S/N	Manufacturer	Certificate type
Adapter	/	/	/	/

2 Summary of test results

Item	FCC Part No.	Description of Test	Result
1	part2.1046 Part 22.913(a)(2) Part 24.232 (c) Part 27.50 (c)(10) Part 27.50 (d)(4) Part 27.50 (h)(2)	RF Output Power	Pass
2	part 22.913(a) part 24.232(c.2) part 27.50(h)(2) part 27.50(b)(10) part 27.50(c)(10) part 27.50(d)(4) part 27.50(a)(3)	Radiated Power (ERP/EIRP)	Pass
3	Part 24.232 (d) Part 27.50(d)(5)	Peak-to-Average Ratio	Pass
4	Part 2.1049 Part 22.917(b) Part 24.238(b) Part 27.53(g) Part 27.53(h) Part 27.53(m)	99% and -26 dB Occupied Bandwidth	Pass
5	part 2.1051 part 22.917(a) part 24.238(a) part 24.50(d) part 27.53 (g)(h)	Spurious emissions at antenna terminals	Pass
6	part 2.1051 part 22.917(a) part 24.238(a) part 27.53(c)(2)(4) part 27.53(g) part 27.53(h)	Band edge at antenna terminals	Pass
7	Part 2.1053 Part 22.917(a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h) Part 27.53(m)	Field strength of spurious radiation measurement	Pass
8	Part 22.355 Part 24.235 Part 27.54 Part 2.1055(a)(1)(b) Part 2.1055(d)(2)	Frequency Stability for Temperature & Voltage	Pass

3 Test facilities and accreditations

3.1 TEST LABORATORY

Test Laboratory	Shenzhen Microtest Co., Ltd
Location	No.102A & 302A, East Block, Hengfang Industrial Park, Xingye Road, Xixiang, Bao'an District, Shenzhen, Guangdong, China
FCC Registration No.:	448573

3.2 ENVIRONMENTAL CONDITIONS

Temperature:	20°C~30°C
Humidity	30%~70%
Atmospheric pressure	98kPa~101kPa

3.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty for a Level of Confidence of 95 %, $U=2xUc(y)$

RF frequency	1 x 10 ⁻⁷
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %

3.4 TEST SOFTWARE

Software Name	Manufacturer	Model	Version
RF Test System	Farad	LZ-RF	Lz_Rf 3A3

4 LIST OF TEST EQUIPMENT

Equipment No.	Equipment Name	Manufacturer	Model	Serial No.	Calibration date	Due date
MTI-E001	Spectrum Analyzer	Agilent	E4407B	MY41441082	2018/09/18	2019/09/17
MTI-E002	CMU 200 universal radio communication tester	Rohde&schwarz	CMU 200	114587	2018/09/18	2019/09/17
MTI-E004	EMI Test Receiver	Rohde&schwarz	ESPI	1000314	2018/09/18	2019/09/17
MTI-E006	Broadband antenna	schwarabeck	VULB9163	872	2018/09/18	2019/09/17
MTI-E007	Horn antenna	schwarabeck	BBHA9120D	1201	2018/09/18	2019/09/17
MTI-E014	amplifier	America	8447D	3113A06150	2018/09/18	2019/09/17
MTI-E015	Conduction Immunity Signal Generator	Schloder	CDG6000	126A1343/2015	2018/09/18	2019/09/17
MTI-E016	Coupled decoupling network	Schloder	CDA M2/M3	A2210332/2015	2018/09/18	2019/09/17
MTI-E032	Comprehensive test instrument	Rohde&schwarz	CMW500	124192	2018/09/13	2019/09/12
MTI-E034	amplifier	Agilent	8449B	3008A02400	2018/08/22	2019/08/21
MTI-E040	Spectrum analyzer	Agilent	N9020A	MY49100060	2018/09/04	2019/09/03
MTI-E041	Signal generator	Agilent	N5182A	MY49060455	2018/09/22	2019/09/21
MTI-E042	Analog signal generator	Agilent	E4421B	GB40051240	2018/09/22	2019/09/21
MTI-E043	Power probe	Dare Instruments	RPR3006W	16100054SN016	2018/09/28	2019/09/27
MTI-E047	10dB attenuator	Mini-Circuits	UNAT-10+	15542	2018/09/23	2019/09/22
MTI-E049	spectrum analyzer	Rohde&schwarz	FSP-38	100019	2018/09/18	2019/09/17
MTI-E050	PSG Signal generator	Agilent	E8257D	MY46520873	2018/09/24	2019/09/23
MTI-E061	Active Loop Antenna 9kHz - 30MHz	Schwarzbeek	FMZB 1519 B	00044	2018/09/26	2019/09/25
MTI-E052	18-40GHz amplifier	Chengdu step Micro Technology	ZLNA-18-40G-21	1608001	2018/09/18	2019/09/17
MTI-E053	15-40G Antenna	Schwarzbeek	BBHA9170	BBHA9170582	2018/09/18	2019/09/17

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

5 Test result

5.1 RF output power

5.1.1 Limit

For FCC Part 22.913(a)(2):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(c):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

For FCC Part 27.50(d):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 1 Watt.

For FCC Part 27.50(c):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 3 Watts.

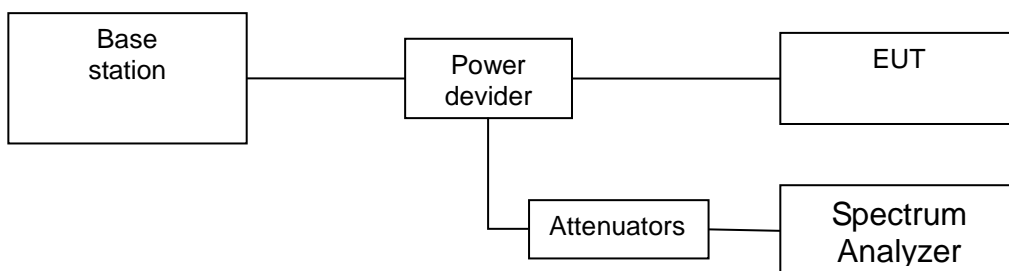
For FCC Part 27.50(a)(3):

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.

5.1.2 Test procedure

- 1) The EUT's RF output port was connected to base station.
- 2) A call is set up by the SS according to the generic call set up procedure.
- 3) Set EUT at maximum power level through base station by power level command.
- 4) Measure the maximum output power of EUT at each frequency band and mode by base station.
- 5) The EUT was set up for the max output power with pseudo random data modulation.
- 6) These measurements were done at 3 frequencies (bottom, middle and top of operational frequency range) for each bandwidth.

5.1.3 Test setup



5.1.4 Test results

The following table shows the conducted power measured:

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band2	1.4MHz	QPSK	18607	1RB#2	23.17	PASS
Band2	1.4MHz	QPSK	18607	1RB#5	23.29	PASS
Band2	1.4MHz	QPSK	18607	1RB#0	23.23	PASS
Band2	1.4MHz	QPSK	18607	3RB#0	23.22	PASS
Band2	1.4MHz	QPSK	18607	3RB#1	23.20	PASS
Band2	1.4MHz	QPSK	18607	3RB#3	23.23	PASS
Band2	1.4MHz	QPSK	18607	6RB#0	22.49	PASS
Band2	1.4MHz	QPSK	18900	1RB#2	24.02	PASS
Band2	1.4MHz	QPSK	18900	1RB#5	23.99	PASS
Band2	1.4MHz	QPSK	18900	1RB#0	24.02	PASS
Band2	1.4MHz	QPSK	18900	3RB#0	23.89	PASS
Band2	1.4MHz	QPSK	18900	3RB#1	23.89	PASS
Band2	1.4MHz	QPSK	18900	3RB#3	23.87	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	23.05	PASS
Band2	1.4MHz	QPSK	19193	1RB#0	23.42	PASS
Band2	1.4MHz	QPSK	19193	1RB#5	23.20	PASS
Band2	1.4MHz	QPSK	19193	1RB#2	23.18	PASS
Band2	1.4MHz	QPSK	19193	3RB#0	23.35	PASS
Band2	1.4MHz	QPSK	19193	3RB#1	23.32	PASS
Band2	1.4MHz	QPSK	19193	3RB#3	23.28	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	22.70	PASS
Band2	1.4MHz	16QAM	18607	1RB#0	22.44	PASS
Band2	1.4MHz	16QAM	18607	1RB#2	22.45	PASS
Band2	1.4MHz	16QAM	18607	1RB#5	22.50	PASS
Band2	1.4MHz	16QAM	18607	3RB#0	22.29	PASS
Band2	1.4MHz	16QAM	18607	3RB#1	22.27	PASS
Band2	1.4MHz	16QAM	18607	3RB#3	22.29	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	21.68	PASS
Band2	1.4MHz	16QAM	18900	1RB#2	22.95	PASS
Band2	1.4MHz	16QAM	18900	1RB#5	22.86	PASS
Band2	1.4MHz	16QAM	18900	1RB#0	22.89	PASS
Band2	1.4MHz	16QAM	18900	3RB#0	22.69	PASS
Band2	1.4MHz	16QAM	18900	3RB#1	22.70	PASS
Band2	1.4MHz	16QAM	18900	3RB#3	22.66	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	21.93	PASS
Band2	1.4MHz	16QAM	19193	1RB#0	22.66	PASS
Band2	1.4MHz	16QAM	19193	1RB#2	22.58	PASS
Band2	1.4MHz	16QAM	19193	1RB#5	22.63	PASS
Band2	1.4MHz	16QAM	19193	3RB#1	22.49	PASS
Band2	1.4MHz	16QAM	19193	3RB#0	22.51	PASS
Band2	1.4MHz	16QAM	19193	3RB#3	22.50	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	21.78	PASS
Band2	3MHz	QPSK	18615	1RB#0	22.90	PASS
Band2	3MHz	QPSK	18615	1RB#8	22.88	PASS
Band2	3MHz	QPSK	18615	1RB#14	22.91	PASS
Band2	3MHz	QPSK	18615	8RB#7	22.37	PASS
Band2	3MHz	QPSK	18615	8RB#4	22.33	PASS
Band2	3MHz	QPSK	18615	8RB#0	22.32	PASS
Band2	3MHz	QPSK	18615	15RB#0	22.35	PASS
Band2	3MHz	QPSK	18900	1RB#0	23.95	PASS
Band2	3MHz	QPSK	18900	1RB#14	23.88	PASS
Band2	3MHz	QPSK	18900	1RB#8	23.90	PASS
Band2	3MHz	QPSK	18900	8RB#7	23.00	PASS
Band2	3MHz	QPSK	18900	8RB#0	23.02	PASS
Band2	3MHz	QPSK	18900	8RB#4	23.02	PASS
Band2	3MHz	QPSK	18900	15RB#0	22.90	PASS
Band2	3MHz	QPSK	19185	1RB#0	23.25	PASS
Band2	3MHz	QPSK	19185	1RB#14	22.92	PASS
Band2	3MHz	QPSK	19185	1RB#8	23.06	PASS

Band2	3MHz	QPSK	19185	8RB#0	22.61	PASS
Band2	3MHz	QPSK	19185	8RB#4	22.58	PASS
Band2	3MHz	QPSK	19185	8RB#7	22.63	PASS
Band2	3MHz	QPSK	19185	15RB#0	22.61	PASS
Band2	3MHz	16QAM	18615	1RB#0	22.30	PASS
Band2	3MHz	16QAM	18615	1RB#8	22.23	PASS
Band2	3MHz	16QAM	18615	1RB#14	22.24	PASS
Band2	3MHz	16QAM	18615	8RB#7	21.53	PASS
Band2	3MHz	16QAM	18615	8RB#4	21.47	PASS
Band2	3MHz	16QAM	18615	8RB#0	21.48	PASS
Band2	3MHz	16QAM	18615	15RB#0	21.47	PASS
Band2	3MHz	16QAM	18900	1RB#14	22.82	PASS
Band2	3MHz	16QAM	18900	1RB#0	22.93	PASS
Band2	3MHz	16QAM	18900	1RB#8	22.88	PASS
Band2	3MHz	16QAM	18900	8RB#4	21.91	PASS
Band2	3MHz	16QAM	18900	8RB#7	21.91	PASS
Band2	3MHz	16QAM	18900	8RB#0	21.92	PASS
Band2	3MHz	16QAM	18900	15RB#0	21.76	PASS
Band2	3MHz	16QAM	19185	1RB#0	22.34	PASS
Band2	3MHz	16QAM	19185	1RB#14	22.31	PASS
Band2	3MHz	16QAM	19185	1RB#8	22.38	PASS
Band2	3MHz	16QAM	19185	8RB#0	21.75	PASS
Band2	3MHz	16QAM	19185	8RB#4	21.74	PASS
Band2	3MHz	16QAM	19185	8RB#7	21.85	PASS
Band2	3MHz	16QAM	19185	15RB#0	21.64	PASS
Band2	5MHz	QPSK	18625	1RB#24	22.99	PASS
Band2	5MHz	QPSK	18625	1RB#12	22.65	PASS
Band2	5MHz	QPSK	18625	1RB#0	22.99	PASS
Band2	5MHz	QPSK	18625	12RB#0	22.09	PASS
Band2	5MHz	QPSK	18625	12RB#6	22.09	PASS
Band2	5MHz	QPSK	18625	12RB#13	22.11	PASS
Band2	5MHz	QPSK	18625	25RB#0	22.04	PASS
Band2	5MHz	QPSK	18900	1RB#24	23.80	PASS
Band2	5MHz	QPSK	18900	1RB#12	23.54	PASS
Band2	5MHz	QPSK	18900	1RB#0	24.04	PASS
Band2	5MHz	QPSK	18900	12RB#6	23.01	PASS
Band2	5MHz	QPSK	18900	12RB#13	22.92	PASS
Band2	5MHz	QPSK	18900	12RB#0	23.00	PASS
Band2	5MHz	QPSK	18900	25RB#0	22.91	PASS
Band2	5MHz	QPSK	19175	1RB#24	22.97	PASS
Band2	5MHz	QPSK	19175	1RB#12	22.81	PASS
Band2	5MHz	QPSK	19175	1RB#0	23.12	PASS
Band2	5MHz	QPSK	19175	12RB#6	22.18	PASS
Band2	5MHz	QPSK	19175	12RB#13	22.31	PASS
Band2	5MHz	QPSK	19175	12RB#0	22.21	PASS
Band2	5MHz	QPSK	19175	25RB#0	22.23	PASS
Band2	5MHz	16QAM	18625	1RB#12	21.82	PASS
Band2	5MHz	16QAM	18625	1RB#24	22.22	PASS
Band2	5MHz	16QAM	18625	1RB#0	22.18	PASS
Band2	5MHz	16QAM	18625	12RB#13	21.21	PASS
Band2	5MHz	16QAM	18625	12RB#6	21.19	PASS
Band2	5MHz	16QAM	18625	12RB#0	21.20	PASS
Band2	5MHz	16QAM	18625	25RB#0	21.16	PASS
Band2	5MHz	16QAM	18900	1RB#12	22.88	PASS
Band2	5MHz	16QAM	18900	1RB#0	23.10	PASS
Band2	5MHz	16QAM	18900	1RB#24	22.98	PASS
Band2	5MHz	16QAM	18900	12RB#13	21.88	PASS
Band2	5MHz	16QAM	18900	12RB#0	21.94	PASS
Band2	5MHz	16QAM	18900	12RB#6	21.93	PASS
Band2	5MHz	16QAM	18900	25RB#0	21.81	PASS
Band2	5MHz	16QAM	19175	1RB#24	22.31	PASS
Band2	5MHz	16QAM	19175	1RB#12	22.03	PASS
Band2	5MHz	16QAM	19175	1RB#0	22.24	PASS
Band2	5MHz	16QAM	19175	12RB#0	21.36	PASS
Band2	5MHz	16QAM	19175	12RB#13	21.50	PASS
Band2	5MHz	16QAM	19175	12RB#6	21.35	PASS

Band2	5MHz	16QAM	19175	25RB#0	21.41	PASS
Band2	10MHz	QPSK	18650	1RB#49	22.94	PASS
Band2	10MHz	QPSK	18650	1RB#24	22.83	PASS
Band2	10MHz	QPSK	18650	1RB#0	22.71	PASS
Band2	10MHz	QPSK	18650	25RB#0	22.18	PASS
Band2	10MHz	QPSK	18650	25RB#25	22.35	PASS
Band2	10MHz	QPSK	18650	25RB#12	22.17	PASS
Band2	10MHz	QPSK	18650	50RB#0	22.26	PASS
Band2	10MHz	QPSK	18900	1RB#0	23.71	PASS
Band2	10MHz	QPSK	18900	1RB#49	23.41	PASS
Band2	10MHz	QPSK	18900	1RB#24	23.64	PASS
Band2	10MHz	QPSK	18900	25RB#25	22.90	PASS
Band2	10MHz	QPSK	18900	25RB#12	22.98	PASS
Band2	10MHz	QPSK	18900	25RB#0	22.97	PASS
Band2	10MHz	QPSK	18900	50RB#0	22.88	PASS
Band2	10MHz	QPSK	19150	1RB#24	22.68	PASS
Band2	10MHz	QPSK	19150	1RB#49	22.74	PASS
Band2	10MHz	QPSK	19150	1RB#0	22.33	PASS
Band2	10MHz	QPSK	19150	25RB#0	21.97	PASS
Band2	10MHz	QPSK	19150	25RB#12	21.96	PASS
Band2	10MHz	QPSK	19150	25RB#25	22.28	PASS
Band2	10MHz	QPSK	19150	50RB#0	22.10	PASS
Band4	1.4MHz	QPSK	19957	1RB#0	23.60	PASS
Band4	1.4MHz	QPSK	19957	1RB#5	23.60	PASS
Band4	1.4MHz	QPSK	19957	1RB#2	23.65	PASS
Band4	1.4MHz	QPSK	19957	3RB#1	23.53	PASS
Band4	1.4MHz	QPSK	19957	3RB#3	23.50	PASS
Band4	1.4MHz	QPSK	19957	3RB#0	23.53	PASS
Band4	1.4MHz	QPSK	19957	6RB#0	22.63	PASS
Band4	1.4MHz	QPSK	20175	1RB#5	23.41	PASS
Band4	1.4MHz	QPSK	20175	1RB#2	23.33	PASS
Band4	1.4MHz	QPSK	20175	1RB#0	23.64	PASS
Band4	1.4MHz	QPSK	20175	3RB#0	23.43	PASS
Band4	1.4MHz	QPSK	20175	3RB#1	23.41	PASS
Band4	1.4MHz	QPSK	20175	3RB#3	23.34	PASS
Band4	1.4MHz	QPSK	20175	6RB#0	22.59	PASS
Band4	1.4MHz	QPSK	20393	1RB#2	23.75	PASS
Band4	1.4MHz	QPSK	20393	1RB#5	23.80	PASS
Band4	1.4MHz	QPSK	20393	1RB#0	24.00	PASS
Band4	1.4MHz	QPSK	20393	3RB#3	23.89	PASS
Band4	1.4MHz	QPSK	20393	3RB#1	23.96	PASS
Band4	1.4MHz	QPSK	20393	3RB#0	23.97	PASS
Band4	1.4MHz	QPSK	20393	6RB#0	23.05	PASS
Band4	1.4MHz	16QAM	19957	1RB#2	22.60	PASS
Band4	1.4MHz	16QAM	19957	1RB#0	22.49	PASS
Band4	1.4MHz	16QAM	19957	1RB#5	22.48	PASS
Band4	1.4MHz	16QAM	19957	3RB#3	22.32	PASS
Band4	1.4MHz	16QAM	19957	3RB#1	22.36	PASS
Band4	1.4MHz	16QAM	19957	3RB#0	22.36	PASS
Band4	1.4MHz	16QAM	19957	6RB#0	21.58	PASS
Band4	1.4MHz	16QAM	20175	1RB#5	22.62	PASS
Band4	1.4MHz	16QAM	20175	1RB#2	22.57	PASS
Band4	1.4MHz	16QAM	20175	1RB#0	22.69	PASS
Band4	1.4MHz	16QAM	20175	3RB#0	22.46	PASS
Band4	1.4MHz	16QAM	20175	3RB#1	22.43	PASS
Band4	1.4MHz	16QAM	20175	3RB#3	22.36	PASS
Band4	1.4MHz	16QAM	20175	6RB#0	21.74	PASS
Band4	1.4MHz	16QAM	20393	1RB#5	22.96	PASS
Band4	1.4MHz	16QAM	20393	1RB#2	22.96	PASS
Band4	1.4MHz	16QAM	20393	1RB#0	22.95	PASS
Band4	1.4MHz	16QAM	20393	3RB#0	22.78	PASS
Band4	1.4MHz	16QAM	20393	3RB#3	22.74	PASS
Band4	1.4MHz	16QAM	20393	3RB#1	22.79	PASS
Band4	1.4MHz	16QAM	20393	6RB#0	21.82	PASS
Band4	3MHz	QPSK	19965	1RB#14	23.49	PASS
Band4	3MHz	QPSK	19965	1RB#8	23.53	PASS

Band4	3MHz	QPSK	19965	1RB#0	23.48	PASS
Band4	3MHz	QPSK	19965	8RB#0	22.62	PASS
Band4	3MHz	QPSK	19965	8RB#7	22.64	PASS
Band4	3MHz	QPSK	19965	8RB#4	22.62	PASS
Band4	3MHz	QPSK	19965	15RB#0	22.56	PASS
Band4	3MHz	QPSK	20175	1RB#0	23.54	PASS
Band4	3MHz	QPSK	20175	1RB#14	23.33	PASS
Band4	3MHz	QPSK	20175	1RB#8	23.38	PASS
Band4	3MHz	QPSK	20175	8RB#4	22.74	PASS
Band4	3MHz	QPSK	20175	8RB#7	22.70	PASS
Band4	3MHz	QPSK	20175	8RB#0	22.75	PASS
Band4	3MHz	QPSK	20175	15RB#0	22.67	PASS
Band4	3MHz	QPSK	20385	1RB#0	23.97	PASS
Band4	3MHz	QPSK	20385	1RB#14	23.76	PASS
Band4	3MHz	QPSK	20385	1RB#8	23.91	PASS
Band4	3MHz	QPSK	20385	8RB#7	23.06	PASS
Band4	3MHz	QPSK	20385	8RB#4	23.07	PASS
Band4	3MHz	QPSK	20385	8RB#0	23.08	PASS
Band4	3MHz	QPSK	20385	15RB#0	22.99	PASS
Band4	3MHz	16QAM	19965	1RB#0	22.33	PASS
Band4	3MHz	16QAM	19965	1RB#8	22.41	PASS
Band4	3MHz	16QAM	19965	1RB#14	22.37	PASS
Band4	3MHz	16QAM	19965	8RB#0	21.56	PASS
Band4	3MHz	16QAM	19965	8RB#4	21.56	PASS
Band4	3MHz	16QAM	19965	8RB#7	21.58	PASS
Band4	3MHz	16QAM	19965	15RB#0	21.55	PASS
Band4	3MHz	16QAM	20175	1RB#8	22.72	PASS
Band4	3MHz	16QAM	20175	1RB#0	22.73	PASS
Band4	3MHz	16QAM	20175	1RB#14	22.68	PASS
Band4	3MHz	16QAM	20175	8RB#7	21.79	PASS
Band4	3MHz	16QAM	20175	8RB#0	21.81	PASS
Band4	3MHz	16QAM	20175	8RB#4	21.78	PASS
Band4	3MHz	16QAM	20175	15RB#0	21.73	PASS
Band4	3MHz	16QAM	20385	1RB#0	22.97	PASS
Band4	3MHz	16QAM	20385	1RB#14	22.90	PASS
Band4	3MHz	16QAM	20385	1RB#8	22.96	PASS
Band4	3MHz	16QAM	20385	8RB#7	21.98	PASS
Band4	3MHz	16QAM	20385	8RB#4	21.98	PASS
Band4	3MHz	16QAM	20385	8RB#0	21.98	PASS
Band4	3MHz	16QAM	20385	15RB#0	21.88	PASS
Band4	5MHz	QPSK	19975	1RB#24	23.60	PASS
Band4	5MHz	QPSK	19975	1RB#12	23.39	PASS
Band4	5MHz	QPSK	19975	1RB#0	23.59	PASS
Band4	5MHz	QPSK	19975	12RB#6	22.60	PASS
Band4	5MHz	QPSK	19975	12RB#13	22.62	PASS
Band4	5MHz	QPSK	19975	12RB#0	22.61	PASS
Band4	5MHz	QPSK	19975	25RB#0	22.57	PASS
Band4	5MHz	QPSK	20175	1RB#24	23.49	PASS
Band4	5MHz	QPSK	20175	1RB#12	22.87	PASS
Band4	5MHz	QPSK	20175	1RB#0	23.27	PASS
Band4	5MHz	QPSK	20175	12RB#6	22.35	PASS
Band4	5MHz	QPSK	20175	12RB#13	22.38	PASS
Band4	5MHz	QPSK	20175	12RB#0	22.39	PASS
Band4	5MHz	QPSK	20175	25RB#0	22.29	PASS
Band4	5MHz	QPSK	20375	1RB#0	24.12	PASS
Band4	5MHz	QPSK	20375	1RB#12	23.70	PASS
Band4	5MHz	QPSK	20375	1RB#24	23.77	PASS
Band4	5MHz	QPSK	20375	12RB#0	23.01	PASS
Band4	5MHz	QPSK	20375	12RB#13	22.95	PASS
Band4	5MHz	QPSK	20375	12RB#6	22.99	PASS
Band4	5MHz	QPSK	20375	25RB#0	22.94	PASS
Band4	5MHz	16QAM	19975	1RB#12	22.68	PASS
Band4	5MHz	16QAM	19975	1RB#0	22.64	PASS
Band4	5MHz	16QAM	19975	1RB#24	22.71	PASS
Band4	5MHz	16QAM	19975	12RB#6	21.59	PASS
Band4	5MHz	16QAM	19975	12RB#0	21.60	PASS

Band4	5MHz	16QAM	19975	12RB#13	21.62	PASS
Band4	5MHz	16QAM	19975	25RB#0	21.50	PASS
Band4	5MHz	16QAM	20175	1RB#0	22.33	PASS
Band4	5MHz	16QAM	20175	1RB#12	22.02	PASS
Band4	5MHz	16QAM	20175	1RB#24	22.79	PASS
Band4	5MHz	16QAM	20175	12RB#0	21.53	PASS
Band4	5MHz	16QAM	20175	12RB#13	21.49	PASS
Band4	5MHz	16QAM	20175	12RB#6	21.47	PASS
Band4	5MHz	16QAM	20175	25RB#0	21.34	PASS
Band4	5MHz	16QAM	20375	1RB#0	23.01	PASS
Band4	5MHz	16QAM	20375	1RB#12	22.84	PASS
Band4	5MHz	16QAM	20375	1RB#24	22.93	PASS
Band4	5MHz	16QAM	20375	12RB#6	22.03	PASS
Band4	5MHz	16QAM	20375	12RB#0	22.03	PASS
Band4	5MHz	16QAM	20375	12RB#13	21.99	PASS
Band4	5MHz	16QAM	20375	25RB#0	21.98	PASS
Band4	10MHz	QPSK	20000	1RB#0	23.28	PASS
Band4	10MHz	QPSK	20000	1RB#24	23.33	PASS
Band4	10MHz	QPSK	20000	1RB#49	23.03	PASS
Band4	10MHz	QPSK	20000	25RB#12	22.53	PASS
Band4	10MHz	QPSK	20000	25RB#25	22.56	PASS
Band4	10MHz	QPSK	20000	25RB#0	22.53	PASS
Band4	10MHz	QPSK	20000	50RB#0	22.52	PASS
Band4	10MHz	QPSK	20175	1RB#0	23.19	PASS
Band4	10MHz	QPSK	20175	1RB#24	22.95	PASS
Band4	10MHz	QPSK	20175	1RB#49	22.77	PASS
Band4	10MHz	QPSK	20175	25RB#0	22.28	PASS
Band4	10MHz	QPSK	20175	25RB#12	22.29	PASS
Band4	10MHz	QPSK	20175	25RB#25	22.20	PASS
Band4	10MHz	QPSK	20175	50RB#0	22.25	PASS
Band4	10MHz	QPSK	20350	1RB#49	23.33	PASS
Band4	10MHz	QPSK	20350	1RB#0	23.41	PASS
Band4	10MHz	QPSK	20350	1RB#24	23.51	PASS
Band4	10MHz	QPSK	20350	25RB#0	22.82	PASS
Band4	10MHz	QPSK	20350	25RB#12	22.78	PASS
Band4	10MHz	QPSK	20350	25RB#25	22.94	PASS
Band4	10MHz	QPSK	20350	50RB#0	22.90	PASS
Band12	1.4MHz	QPSK	23017	1RB#5	23.34	PASS
Band12	1.4MHz	QPSK	23017	1RB#2	23.43	PASS
Band12	1.4MHz	QPSK	23017	1RB#0	23.92	PASS
Band12	1.4MHz	QPSK	23017	3RB#0	23.38	PASS
Band12	1.4MHz	QPSK	23017	3RB#1	23.38	PASS
Band12	1.4MHz	QPSK	23017	3RB#3	23.35	PASS
Band12	1.4MHz	QPSK	23017	6RB#0	22.34	PASS
Band12	1.4MHz	QPSK	23095	1RB#0	23.01	PASS
Band12	1.4MHz	QPSK	23095	1RB#2	22.98	PASS
Band12	1.4MHz	QPSK	23095	1RB#5	22.99	PASS
Band12	1.4MHz	QPSK	23095	3RB#3	23.12	PASS
Band12	1.4MHz	QPSK	23095	3RB#0	23.18	PASS
Band12	1.4MHz	QPSK	23095	3RB#1	23.17	PASS
Band12	1.4MHz	QPSK	23095	6RB#0	22.04	PASS
Band12	1.4MHz	QPSK	23173	1RB#5	23.42	PASS
Band12	1.4MHz	QPSK	23173	1RB#0	23.33	PASS
Band12	1.4MHz	QPSK	23173	1RB#2	23.33	PASS
Band12	1.4MHz	QPSK	23173	3RB#1	23.37	PASS
Band12	1.4MHz	QPSK	23173	3RB#3	23.39	PASS
Band12	1.4MHz	QPSK	23173	3RB#0	23.37	PASS
Band12	1.4MHz	QPSK	23173	6RB#0	22.35	PASS
Band12	1.4MHz	16QAM	23017	1RB#0	22.40	PASS
Band12	1.4MHz	16QAM	23017	1RB#5	22.37	PASS
Band12	1.4MHz	16QAM	23017	1RB#2	22.50	PASS
Band12	1.4MHz	16QAM	23017	3RB#3	22.20	PASS
Band12	1.4MHz	16QAM	23017	3RB#1	22.24	PASS
Band12	1.4MHz	16QAM	23017	3RB#0	22.24	PASS
Band12	1.4MHz	16QAM	23017	6RB#0	21.37	PASS
Band12	1.4MHz	16QAM	23095	1RB#0	22.21	PASS

Band12	1.4MHz	16QAM	23095	1RB#5	22.20	PASS
Band12	1.4MHz	16QAM	23095	1RB#2	22.24	PASS
Band12	1.4MHz	16QAM	23095	3RB#3	22.07	PASS
Band12	1.4MHz	16QAM	23095	3RB#1	22.12	PASS
Band12	1.4MHz	16QAM	23095	3RB#0	22.12	PASS
Band12	1.4MHz	16QAM	23095	6RB#0	21.17	PASS
Band12	1.4MHz	16QAM	23173	1RB#5	22.34	PASS
Band12	1.4MHz	16QAM	23173	1RB#2	22.35	PASS
Band12	1.4MHz	16QAM	23173	1RB#0	22.25	PASS
Band12	1.4MHz	16QAM	23173	3RB#1	22.23	PASS
Band12	1.4MHz	16QAM	23173	3RB#3	22.25	PASS
Band12	1.4MHz	16QAM	23173	3RB#0	22.24	PASS
Band12	1.4MHz	16QAM	23173	6RB#0	21.37	PASS
Band12	3MHz	QPSK	23025	1RB#0	23.17	PASS
Band12	3MHz	QPSK	23025	1RB#14	23.04	PASS
Band12	3MHz	QPSK	23025	1RB#8	23.14	PASS
Band12	3MHz	QPSK	23025	8RB#0	22.32	PASS
Band12	3MHz	QPSK	23025	8RB#4	22.32	PASS
Band12	3MHz	QPSK	23025	8RB#7	22.24	PASS
Band12	3MHz	QPSK	23025	15RB#0	22.23	PASS
Band12	3MHz	QPSK	23095	1RB#8	22.97	PASS
Band12	3MHz	QPSK	23095	1RB#14	22.95	PASS
Band12	3MHz	QPSK	23095	1RB#0	22.97	PASS
Band12	3MHz	QPSK	23095	8RB#0	22.05	PASS
Band12	3MHz	QPSK	23095	8RB#4	22.05	PASS
Band12	3MHz	QPSK	23095	8RB#7	22.01	PASS
Band12	3MHz	QPSK	23095	15RB#0	22.05	PASS
Band12	3MHz	QPSK	23165	1RB#0	23.15	PASS
Band12	3MHz	QPSK	23165	1RB#14	23.34	PASS
Band12	3MHz	QPSK	23165	1RB#8	23.25	PASS
Band12	3MHz	QPSK	23165	8RB#7	22.40	PASS
Band12	3MHz	QPSK	23165	8RB#4	22.34	PASS
Band12	3MHz	QPSK	23165	8RB#0	22.34	PASS
Band12	3MHz	QPSK	23165	15RB#0	22.31	PASS
Band12	3MHz	16QAM	23025	1RB#0	22.33	PASS
Band12	3MHz	16QAM	23025	1RB#14	22.21	PASS
Band12	3MHz	16QAM	23025	1RB#8	22.27	PASS
Band12	3MHz	16QAM	23025	8RB#7	21.26	PASS
Band12	3MHz	16QAM	23025	8RB#0	21.31	PASS
Band12	3MHz	16QAM	23025	8RB#4	21.31	PASS
Band12	3MHz	16QAM	23025	15RB#0	21.26	PASS
Band12	3MHz	16QAM	23095	1RB#8	22.17	PASS
Band12	3MHz	16QAM	23095	1RB#0	22.17	PASS
Band12	3MHz	16QAM	23095	1RB#14	22.13	PASS
Band12	3MHz	16QAM	23095	8RB#0	21.12	PASS
Band12	3MHz	16QAM	23095	8RB#4	21.12	PASS
Band12	3MHz	16QAM	23095	8RB#7	21.10	PASS
Band12	3MHz	16QAM	23095	15RB#0	21.05	PASS
Band12	3MHz	16QAM	23165	1RB#0	22.04	PASS
Band12	3MHz	16QAM	23165	1RB#14	22.22	PASS
Band12	3MHz	16QAM	23165	1RB#8	22.15	PASS
Band12	3MHz	16QAM	23165	8RB#0	21.29	PASS
Band12	3MHz	16QAM	23165	8RB#4	21.28	PASS
Band12	3MHz	16QAM	23165	8RB#7	21.37	PASS
Band12	3MHz	16QAM	23165	15RB#0	21.24	PASS
Band12	5MHz	QPSK	23035	1RB#12	23.25	PASS
Band12	5MHz	QPSK	23035	1RB#24	23.10	PASS
Band12	5MHz	QPSK	23035	1RB#0	23.37	PASS
Band12	5MHz	QPSK	23035	12RB#0	22.34	PASS
Band12	5MHz	QPSK	23035	12RB#6	22.33	PASS
Band12	5MHz	QPSK	23035	12RB#13	22.25	PASS
Band12	5MHz	QPSK	23035	25RB#0	22.21	PASS
Band12	5MHz	QPSK	23095	1RB#24	22.99	PASS
Band12	5MHz	QPSK	23095	1RB#12	23.04	PASS
Band12	5MHz	QPSK	23095	1RB#0	23.08	PASS
Band12	5MHz	QPSK	23095	12RB#0	22.14	PASS

Band12	5MHz	QPSK	23095	12RB#6	22.13	PASS
Band12	5MHz	QPSK	23095	12RB#13	22.07	PASS
Band12	5MHz	QPSK	23095	25RB#0	22.06	PASS
Band12	5MHz	QPSK	23155	1RB#12	23.33	PASS
Band12	5MHz	QPSK	23155	1RB#24	23.42	PASS
Band12	5MHz	QPSK	23155	1RB#0	23.18	PASS
Band12	5MHz	QPSK	23155	12RB#6	22.24	PASS
Band12	5MHz	QPSK	23155	12RB#0	22.23	PASS
Band12	5MHz	QPSK	23155	12RB#13	22.35	PASS
Band12	5MHz	QPSK	23155	25RB#0	22.22	PASS
Band12	5MHz	16QAM	23035	1RB#0	22.31	PASS
Band12	5MHz	16QAM	23035	1RB#12	22.22	PASS
Band12	5MHz	16QAM	23035	1RB#24	22.10	PASS
Band12	5MHz	16QAM	23035	12RB#0	21.35	PASS
Band12	5MHz	16QAM	23035	12RB#13	21.30	PASS
Band12	5MHz	16QAM	23035	12RB#6	21.35	PASS
Band12	5MHz	16QAM	23035	25RB#0	21.28	PASS
Band12	5MHz	16QAM	23095	1RB#0	22.28	PASS
Band12	5MHz	16QAM	23095	1RB#12	22.28	PASS
Band12	5MHz	16QAM	23095	1RB#24	22.21	PASS
Band12	5MHz	16QAM	23095	12RB#13	21.19	PASS
Band12	5MHz	16QAM	23095	12RB#0	21.27	PASS
Band12	5MHz	16QAM	23095	12RB#6	21.27	PASS
Band12	5MHz	16QAM	23095	25RB#0	21.10	PASS
Band12	5MHz	16QAM	23155	1RB#0	22.17	PASS
Band12	5MHz	16QAM	23155	1RB#12	22.24	PASS
Band12	5MHz	16QAM	23155	1RB#24	22.37	PASS
Band12	5MHz	16QAM	23155	12RB#6	21.29	PASS
Band12	5MHz	16QAM	23155	12RB#13	21.38	PASS
Band12	5MHz	16QAM	23155	12RB#0	21.29	PASS
Band12	5MHz	16QAM	23155	25RB#0	21.27	PASS
Band12	10MHz	QPSK	23060	1RB#0	23.28	PASS
Band12	10MHz	QPSK	23060	1RB#24	22.95	PASS
Band12	10MHz	QPSK	23060	1RB#49	22.93	PASS
Band12	10MHz	QPSK	23060	25RB#25	22.11	PASS
Band12	10MHz	QPSK	23060	25RB#12	22.24	PASS
Band12	10MHz	QPSK	23060	25RB#0	22.24	PASS
Band12	10MHz	QPSK	23060	50RB#0	22.22	PASS
Band12	10MHz	QPSK	23095	1RB#0	23.13	PASS
Band12	10MHz	QPSK	23095	1RB#24	22.90	PASS
Band12	10MHz	QPSK	23095	1RB#49	23.02	PASS
Band12	10MHz	QPSK	23095	25RB#25	22.07	PASS
Band12	10MHz	QPSK	23095	25RB#0	22.09	PASS
Band12	10MHz	QPSK	23095	25RB#12	22.11	PASS
Band12	10MHz	QPSK	23095	50RB#0	22.07	PASS
Band12	10MHz	QPSK	23130	1RB#24	22.99	PASS
Band12	10MHz	QPSK	23130	1RB#49	23.28	PASS
Band12	10MHz	QPSK	23130	1RB#0	23.03	PASS
Band12	10MHz	QPSK	23130	25RB#0	22.09	PASS
Band12	10MHz	QPSK	23130	25RB#12	22.09	PASS
Band12	10MHz	QPSK	23130	25RB#25	22.17	PASS
Band12	10MHz	QPSK	23130	50RB#0	22.17	PASS

5.2 Radiated Power (ERP/EIRP)

5.2.1 Limit

- 1) 22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
- 2) 27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
- 3) 27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
- 4) 27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
- 5) 27.50(h) The following power limits shall apply in the BRS and EBS:
(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.
- 6) 27.50(a)(3):For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.

5.2.2 Test procedure

- 7) The EUT was placed on an non-conductive turntable using a nonconductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.
- 8) During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.
- 9) ERP in frequency band below 1GHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable Loss (dB)}$$

- 10) EIRP in frequency band above 1GHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$$

- 11) The worse case was relating to the conducted output power.

5.2.3 Test setup

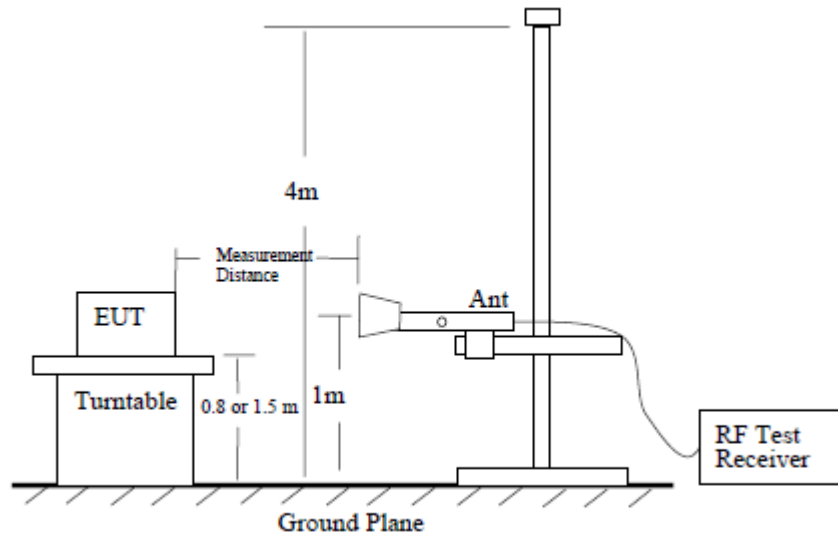


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

5.2.4 Test results

Radiated Spurious Measurement:
LTE Band 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
1.4MHz Band QPSK	6/0	1850.7	-2.56	3.76	28.24	21.92	155.461	Horizontal	Pass
		1880	-2.45	3.91	28.22	21.86	153.384	Horizontal	Pass
		1909.3	-2.15	3.93	28.2	22.12	162.893	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	-2.37	3.76	28.24	22.11	162.458	Horizontal	Pass
		1880	-2.19	3.91	28.22	22.12	162.744	Horizontal	Pass
		1909.3	-2.87	3.93	28.2	21.40	138.190	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	-2.37	3.77	28.23	22.09	161.874	Horizontal	Pass
		1880	-2.94	3.91	28.24	21.39	137.591	Horizontal	Pass
		1908.5	-2.25	3.94	28.25	22.06	160.809	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	-2.49	3.77	28.23	21.97	157.520	Horizontal	Pass
		1880	-2.76	3.91	28.24	21.57	143.546	Horizontal	Pass
		1908.5	-2.63	3.94	28.25	21.68	147.268	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	-2.11	3.77	28.31	22.43	175.117	Horizontal	Pass
		1880	-2.53	3.91	28.22	21.78	150.811	Horizontal	Pass
		1907.5	-2.03	3.94	28.2	22.23	167.235	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	-2.81	3.77	28.31	21.73	148.852	Horizontal	Pass
		1880	-2.33	3.91	28.22	21.98	157.727	Horizontal	Pass
		1907.5	-2.23	3.94	28.2	22.03	159.543	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	-2.06	3.79	28.33	22.48	176.927	Horizontal	Pass
		1880	-2.19	3.95	28.22	22.08	161.358	Horizontal	Pass
		1905	-2.21	3.97	28.19	22.01	158.936	Horizontal	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1850.7	-2.58	3.76	28.24	21.90	154.926	Vertical	Pass
		1880	-2.48	3.91	28.22	21.83	152.334	Vertical	Pass
		1909.3	-2.21	3.93	28.2	22.06	160.800	Vertical	Pass
1.4MHz Band 16 QAM	6/0	1850.7	-2.01	3.76	28.24	22.47	176.672	Vertical	Pass
		1880	-2.34	3.91	28.22	21.97	157.523	Vertical	Pass
		1909.3	-2.90	3.93	28.2	21.37	137.236	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	-2.91	3.77	28.23	21.55	142.955	Vertical	Pass
		1880	-2.30	3.91	28.24	22.03	159.724	Vertical	Pass
		1908.5	-2.81	3.94	28.25	21.50	141.400	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	-2.79	3.77	28.23	21.67	146.791	Vertical	Pass
		1880	-2.70	3.91	28.24	21.63	145.598	Vertical	Pass
		1908.5	-2.92	3.94	28.25	21.39	137.755	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	-2.12	3.77	28.31	22.42	174.687	Vertical	Pass
		1880	-2.42	3.91	28.22	21.89	154.632	Vertical	Pass
		1907.5	-2.26	3.94	28.2	22.00	158.470	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	-2.92	3.77	28.31	21.62	145.192	Vertical	Pass
		1880	-2.78	3.91	28.22	21.53	142.182	Vertical	Pass
		1907.5	-2.30	3.94	28.2	21.96	156.931	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	-2.27	3.79	28.33	22.27	168.494	Vertical	Pass
		1880	-2.03	3.95	28.22	22.24	167.454	Vertical	Pass
		1905	-2.94	3.97	28.19	21.28	134.167	Vertical	Pass

LTE Band 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	-2.05	3.12	27.58	22.41	174.129	Horizontal	Pass
		1732.5	-2.49	3.27	27.61	21.85	153.162	Horizontal	Pass
		1754.3	-2.31	3.29	27.63	22.03	159.489	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	-2.72	3.12	27.58	21.74	149.156	Horizontal	Pass
		1732.5	-2.12	3.27	27.61	22.22	166.610	Horizontal	Pass
		1754.3	-2.69	3.29	27.63	21.65	146.211	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	-2.97	3.13	27.61	21.51	141.615	Horizontal	Pass
		1732.5	-2.75	3.27	27.61	21.59	144.073	Horizontal	Pass
		1753.5	-2.76	3.3	27.62	21.56	143.121	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-2.99	3.13	27.61	21.49	141.037	Horizontal	Pass
		1732.5	-2.85	3.27	27.61	21.49	140.956	Horizontal	Pass
		1753.5	-2.94	3.3	27.62	21.38	137.489	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	-2.13	3.13	27.63	22.37	172.536	Horizontal	Pass
		1732.5	-2.33	3.27	27.61	22.01	159.027	Horizontal	Pass
		1752.5	-2.12	3.3	27.6	22.18	165.343	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	-2.13	3.13	27.63	22.37	172.646	Horizontal	Pass
		1732.5	-2.90	3.27	27.61	21.44	139.425	Horizontal	Pass
		1752.5	-2.49	3.3	27.6	21.81	151.552	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	-2.56	3.15	27.64	21.93	156.079	Horizontal	Pass
		1732.5	-2.93	3.31	27.61	21.37	137.055	Horizontal	Pass
		1750	-2.68	3.33	27.59	21.58	143.916	Horizontal	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	-2.69	3.12	27.58	21.77	150.406	Vertical	Pass
		1732.5	-2.06	3.27	27.61	22.28	168.906	Vertical	Pass
		1754.3	-2.22	3.29	27.63	22.12	162.952	Vertical	Pass
1.4MHz Band 16 QAM	6/0	1710.7	-2.08	3.12	27.58	22.38	172.891	Vertical	Pass
		1732.5	-2.23	3.27	27.61	22.11	162.688	Vertical	Pass
		1754.3	-2.96	3.29	27.63	21.38	137.482	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	-2.33	3.13	27.61	22.15	163.990	Vertical	Pass
		1732.5	-2.59	3.27	27.61	21.75	149.521	Vertical	Pass
		1753.5	-2.14	3.3	27.62	22.18	165.165	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-2.18	3.13	27.61	22.30	169.758	Vertical	Pass
		1732.5	-2.56	3.27	27.61	21.78	150.559	Vertical	Pass
		1753.5	-2.27	3.3	27.62	22.05	160.143	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	-2.93	3.13	27.63	21.57	143.453	Vertical	Pass
		1732.5	-2.77	3.27	27.61	21.57	143.698	Vertical	Pass
		1752.5	-2.52	3.3	27.6	21.78	150.578	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	-2.85	3.13	27.63	21.65	146.228	Vertical	Pass
		1732.5	-2.26	3.27	27.61	22.08	161.476	Vertical	Pass
		1752.5	-2.85	3.3	27.6	21.45	139.637	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	-2.66	3.15	27.64	21.83	152.446	Vertical	Pass
		1732.5	-2.35	3.31	27.61	21.95	156.778	Vertical	Pass
		1750	-2.52	3.33	27.59	21.74	149.333	Vertical	Pass

LTE Band 12

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)			
1.4MHz Band QPSK	6/0	699.7	7.34	2.01	19.68	2.15	22.86	193.307	Horizontal	Pass	
		707.5	7.81	2.01	19.77	2.15	23.42	219.963	Horizontal	Pass	
		715.3	7.64	2.02	19.82	2.15	23.29	213.308	Horizontal	Pass	
1.4MHz Band 16 QAM	6/0	699.7	7.79	2.01	19.68	2.15	23.31	214.238	Horizontal	Pass	
		707.5	7.77	2.01	19.77	2.15	23.38	217.687	Horizontal	Pass	
		715.3	7.36	2.02	19.82	2.15	23.01	199.951	Horizontal	Pass	
3.0MHz Band QPSK	15/0	700.5	7.45	2.01	19.7	2.15	22.99	198.961	Horizontal	Pass	
		707.5	7.63	2.01	19.77	2.15	23.24	211.060	Horizontal	Pass	
		714.5	7.16	2.02	19.81	2.15	22.80	190.458	Horizontal	Pass	
3.0MHz Band 16 QAM	15/0	700.5	7.80	2.01	19.7	2.15	23.34	215.980	Horizontal	Pass	
		707.5	7.86	2.01	19.77	2.15	23.47	222.102	Horizontal	Pass	
		714.5	7.72	2.02	19.81	2.15	23.36	216.708	Horizontal	Pass	
5.0MHz Band QPSK	25/0	701.5	7.66	2.01	19.71	2.15	23.21	209.539	Horizontal	Pass	
		707.5	7.64	2.01	19.77	2.15	23.25	211.273	Horizontal	Pass	
		713.5	7.43	2.02	19.79	2.15	23.05	202.006	Horizontal	Pass	
5.0MHz Band 16 QAM	25/0	701.5	7.18	2.01	19.71	2.15	22.73	187.345	Horizontal	Pass	
		707.5	7.10	2.01	19.77	2.15	22.71	186.614	Horizontal	Pass	
		713.5	7.05	2.02	19.79	2.15	22.67	184.873	Horizontal	Pass	
10.0MHz Band QPSK	50/0	704.0	7.57	2.01	19.73	2.15	23.14	205.917	Horizontal	Pass	
		707.5	7.08	2.01	19.77	2.15	22.69	185.973	Horizontal	Pass	
		711.0	7.60	2.02	19.78	2.15	23.21	209.547	Horizontal	Pass	

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)			
1.4MHz Band QPSK	6/0	699.7	7.25	2.01	19.68	2.15	22.77	189.264	Vertical	Pass	
		707.5	8.00	2.01	19.77	2.15	23.61	229.570	Vertical	Pass	
		715.3	7.33	2.02	19.82	2.15	22.98	198.739	Vertical	Pass	
1.4MHz Band 16 QAM	6/0	699.7	7.19	2.01	19.68	2.15	22.71	186.471	Vertical	Pass	
		707.5	7.75	2.01	19.77	2.15	23.36	216.837	Vertical	Pass	
		715.3	7.03	2.02	19.82	2.15	22.68	185.375	Vertical	Pass	
3.0MHz Band QPSK	15/0	700.5	7.61	2.01	19.7	2.15	23.15	206.618	Vertical	Pass	
		707.5	7.32	2.01	19.77	2.15	22.93	196.348	Vertical	Pass	
		714.5	7.32	2.02	19.81	2.15	22.96	197.689	Vertical	Pass	
3.0MHz Band 16 QAM	15/0	700.5	7.26	2.01	19.7	2.15	22.80	190.617	Vertical	Pass	
		707.5	7.72	2.01	19.77	2.15	23.33	215.239	Vertical	Pass	
		714.5	7.02	2.02	19.81	2.15	22.66	184.543	Vertical	Pass	
5.0MHz Band QPSK	25/0	701.5	7.11	2.01	19.71	2.15	22.66	184.651	Vertical	Pass	
		707.5	7.58	2.01	19.77	2.15	23.19	208.280	Vertical	Pass	
		713.5	7.55	2.02	19.79	2.15	23.17	207.558	Vertical	Pass	
5.0MHz Band 16 QAM	25/0	701.5	7.67	2.01	19.71	2.15	23.22	209.739	Vertical	Pass	
		707.5	7.67	2.01	19.77	2.15	23.28	213.039	Vertical	Pass	
		713.5	7.93	2.02	19.79	2.15	23.55	226.507	Vertical	Pass	
10.0MHz Band QPSK	50/0	704.0	7.25	2.01	19.73	2.15	22.82	191.446	Vertical	Pass	
		707.5	7.81	2.01	19.77	2.15	23.42	219.790	Vertical	Pass	
		711.0	7.68	2.02	19.78	2.15	23.29	213.514	Vertical	Pass	

5.3 Peak-to-Average Ratio

5.3.1 Limit

Not exceed 13 dB

5.3.2 Test procedure

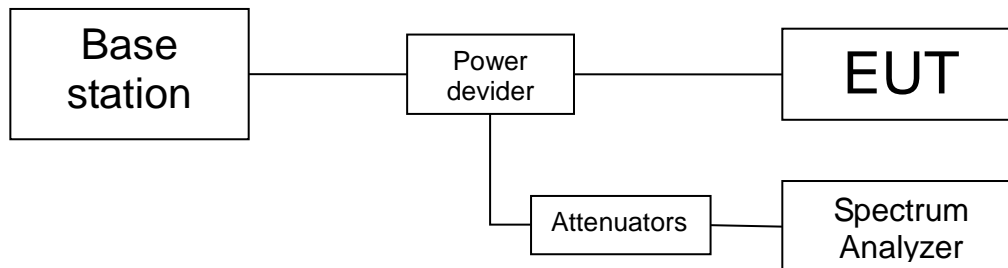
FCC: CFR Part 24.232 (d), 27.50(a)

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

According to KDB 971168 5.7.1:

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval to 1 ms
- e) Record the maximum PAPR level associated with a probability of 0.1%

5.3.3 Test setup



5.3.4 Test results

Note: All mode has been tested, only worst data shown in this report.

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	10MHz	QPSK	18900	1RB#0	3.00	13	PASS
Band2	10MHz	16QAM	18900	1RB#0	3.98	13	PASS
Band4	10MHz	QPSK	20175	1RB#0	2.97	13	PASS
Band4	10MHz	16QAM	20175	1RB#0	4.38	13	PASS
Band12	10MHz	QPSK	23095	1RB#0	3.10	13	PASS
Band12	10MHz	16QAM	23095	1RB#0	5.03	13	PASS

Test plots

