Microtest
微测检测

Test Report

FCC ID: XX2-UBIO-TABLET5

Date of issue: June 20, 2019

Report Number:	MTi190620E148
Sample Description:	UBio Tablet5
Model(s):	UBio Tablet5
Applicant:	UNION COMMUNITY
Address:	12F, Munjeong Daemyeong Valeon bldg, 127 Beobwon-ro Songpa-gu, Seoul, South Korea
Date of Test:	May 05, 2019 to June 20, 2019

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Test Result Certification

Applicant's name:	UNION COMMUNITY
Address:	12F, Munjeong Daemyeong Valeon bldg, 127 Beobwon-ro Songpa-gu, Seoul, South Korea
Manufacture's name:	SHENZHEN HEROFUN BIO-TECH.,LTD
Address:	7001B, 7th Floor, LaoBing Building, East Block 2, No. 3012 XingYe Road, BaoAn District, Shenzhen, China
Product name:	UBio Tablet5
Trademark:	UNION COMMUNITY
Model name:	UBio Tablet5
Standards:	FCC CFR 47 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: Jone.Lee

Jone Lee June 20, 2019

Reviewed by: Blue.Zheng

Blue Zheng June 20, 2019

Approved by: Smith Chen

Smith Chen June 20, 2019

1 General information

1.1 Feature of equipment under test (EUT)

Product name:	UBio Tablet5
Model name:	UBio Tablet5
Serial model:	N/A
Difference in series models:	N/A
Operating frequency range:	LTE FDD Band 7: 2500 - 2570MHz LTE FDD Band 38: 2570 - 2620MHz LTE FDD Band 40: 2300 - 2400MHz LTE FDD Band 41: 2496 - 2690MHz
Modulation type:	LTE FDD Band 7(5M): QPSK,16QAM LTE FDD Band 7(10M): QPSK,16QAM LTE FDD Band 7(15M): QPSK,16QAM LTE FDD Band 7(20M): QPSK,16QAM LTE FDD Band 38(5M): QPSK,16QAM LTE FDD Band 38(10M): QPSK,16QAM LTE FDD Band 38(15M): QPSK,16QAM LTE FDD Band 38(20M): QPSK,16QAM LTE FDD Band 40(5M): QPSK,16QAM LTE FDD Band 40(10M): QPSK,16QAM LTE FDD Band 41(5M): QPSK,16QAM LTE FDD Band 41(10M): QPSK,16QAM LTE FDD Band 41(15M): QPSK,16QAM LTE FDD Band 41(20M): QPSK,16QAM
Antenna type:	FPC Antenna
Antenna gain:	Band 7 Gain: 0.92dBi Band 38 Gain: 1.28dBi Band 40: 1.26dBi Band 41: 1.19dBi
Power supply:	DC 3.7V from Battery or DC 5V from adapter
Battery:	DC 3.7V 6000mAh
Adapter information:	N/A
Hardware Version:	HYF_BH502G_V4.0_20190415
Software Version:	SW01_H_BH502G_20190420

1.2 Test frequency channel

LTE Band	Channel	Channel Bandwidth (MHz)	Channel No.	Frequency (MHz)
LTE Band 7	Low	5	20775	2502.5
		10	20800	2505
		15	20825	2507.5
		20	20850	2510
	Middle	5/10/15/20	21100	2535
	High	5	21425	2567.5
		10	21400	2565
		15	21375	2562.5
		20	21350	2560
LTE Band 38	Low	5	40415	2572.5
		10	40440	2575
		15	40465	2577.5
		20	40490	2580
	Middle	5/10/15/20	40640	2595
	High	5	40865	2617.5
		10	40840	2615
		15	40815	2612.5
		20	40790	2610
		10	39600	2395
LTE Band 41	Low	5	39675	2498.5
		10	39700	2501
		15	39725	2503.5
		20	39750	2506
	Middle	5/10/15/20	40620	2593
	High	5	41565	2687.5
		10	41540	2685
		15	41515	2682.5
		20	41490	2680

LTE Band 40 2305-2315MHz	Low	5	38725	2307.5
	High	5	38775	2312.5

LTE Band 40 2350-2360MHz	Low	5	39175	2352.5
	High	5	39225	2357.5

LTE Band 40	2305-2315MHz	10	38750	2310
	2350-2360MHz	10	39200	2355

1.3 EUT operation mode

LTE band 7	Keep the EUT in data communicating mode on LTE band7. (LTE band7(5MHz), LTE band7(10MHz), LTE band7(15MHz), LTE band7(20MHz)
LTE band 38	Keep the EUT in data communicating mode on LTE band 38. (LTE band 38(5MHz), LTE band 38(10MHz), LTE band 38(15MHz), LTE band 38(20MHz)
LTE band 40	Keep the EUT in data communicating mode on LTE band 40. (LTE band 40(5MHz), LTE band 40(10MHz)
LTE band 41	Keep the EUT in data communicating mode on LTE band17. (LTE band 41(5MHz), LTE band 41(10MHz),LTE band 41(15MHz), LTE band 41(20MHz)
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 27.50 (c)(10) Part 27.50 (d)(4) Part 27.50 (h)(2)	RF Output Power	Pass
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 27.50(d)(5)	Peak-to-Average Ratio	Pass
4	Part 2.1049 Part 27.53(g) Part 27.53(h) Part 27.53(m)	99% and -26 dB Occupied Bandwidth	Pass
5	part 2.1051 part 27.53 (g)(h)	Spurious emissions at antenna terminals	Pass
6	part 2.1051 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 27.53 (g) Part 27.53 (h) Part 27.53(m)	Field strength of spurious radiation measurement	Pass
8	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:	15ºC~35ºC
Humidity	20%~75%
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-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-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	16I00054SNO16	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.

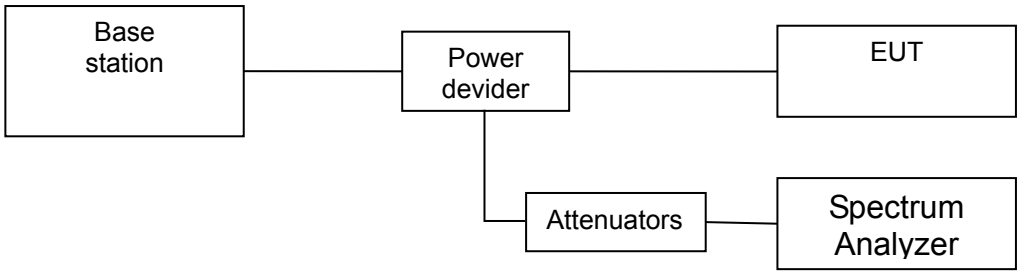
For FCC Part 27.50(c):
The ERP of mobile transmitters and auxiliary test transmitters must not exceed 3 Watts.

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
Band7	5MHz	QPSK	20775	1RB#0	22.94	PASS
Band7	5MHz	QPSK	20775	25RB#0	21.45	PASS
Band7	5MHz	QPSK	21100	1RB#0	23.4	PASS
Band7	5MHz	QPSK	21100	25RB#0	21.71	PASS
Band7	5MHz	QPSK	21425	1RB#0	23.54	PASS
Band7	5MHz	QPSK	21425	25RB#0	21.82	PASS
Band7	5MHz	16QAM	20775	1RB#0	21.93	PASS
Band7	5MHz	16QAM	20775	25RB#0	20.35	PASS
Band7	5MHz	16QAM	21100	1RB#0	22.37	PASS
Band7	5MHz	16QAM	21100	25RB#0	20.63	PASS
Band7	5MHz	16QAM	21425	1RB#0	22.62	PASS
Band7	5MHz	16QAM	21425	25RB#0	21.17	PASS
Band7	10MHz	QPSK	20800	1RB#0	22.5	PASS
Band7	10MHz	QPSK	20800	25RB#0	21.3	PASS
Band7	10MHz	QPSK	20800	50RB#0	20.97	PASS
Band7	10MHz	QPSK	21100	1RB#0	22.75	PASS
Band7	10MHz	QPSK	21100	25RB#0	21.68	PASS
Band7	10MHz	QPSK	21100	50RB#0	21.54	PASS
Band7	10MHz	QPSK	21400	1RB#0	24.21	PASS
Band7	10MHz	QPSK	21400	25RB#0	23.27	PASS
Band7	10MHz	QPSK	21400	50RB#0	22.64	PASS
Band7	10MHz	16QAM	20800	1RB#0	21.74	PASS
Band7	10MHz	16QAM	20800	25RB#0	20.22	PASS
Band7	10MHz	16QAM	20800	50RB#0	19.92	PASS
Band7	10MHz	16QAM	21100	1RB#0	21.71	PASS
Band7	10MHz	16QAM	21100	25RB#0	20.56	PASS
Band7	10MHz	16QAM	21100	50RB#0	20.52	PASS
Band7	10MHz	16QAM	21400	1RB#0	23.2	PASS
Band7	10MHz	16QAM	21400	25RB#0	22.49	PASS
Band7	10MHz	16QAM	21400	50RB#0	21.91	PASS
Band7	15MHz	QPSK	20825	1RB#0	22.85	PASS
Band7	15MHz	QPSK	20825	75RB#0	20.9	PASS
Band7	15MHz	QPSK	21100	1RB#0	22.78	PASS
Band7	15MHz	QPSK	21100	75RB#0	21.41	PASS
Band7	15MHz	QPSK	21375	1RB#0	22.93	PASS
Band7	15MHz	QPSK	21375	75RB#0	22.32	PASS
Band7	15MHz	16QAM	20825	1RB#0	22.09	PASS
Band7	15MHz	16QAM	20825	75RB#0	19.92	PASS
Band7	15MHz	16QAM	21100	1RB#0	21.47	PASS
Band7	15MHz	16QAM	21100	75RB#0	20.36	PASS
Band7	15MHz	16QAM	21375	1RB#0	22.02	PASS
Band7	15MHz	16QAM	21375	75RB#0	21.4	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band38	5MHz	QPSK	37775	1RB#0	23.77	PASS
Band38	5MHz	QPSK	37775	25RB#0	22.63	PASS
Band38	5MHz	QPSK	38000	1RB#0	23.48	PASS
Band38	5MHz	QPSK	38000	25RB#0	22.38	PASS
Band38	5MHz	QPSK	38225	1RB#0	22.94	PASS
Band38	5MHz	QPSK	38225	25RB#0	21.96	PASS
Band38	5MHz	16QAM	37775	1RB#0	22.77	PASS
Band38	5MHz	16QAM	37775	25RB#0	21.66	PASS
Band38	5MHz	16QAM	38000	1RB#0	22.5	PASS
Band38	5MHz	16QAM	38000	25RB#0	21.43	PASS
Band38	5MHz	16QAM	38225	1RB#0	22.2	PASS
Band38	5MHz	16QAM	38225	25RB#0	20.93	PASS
Band38	10MHz	QPSK	37800	1RB#0	23.65	PASS
Band38	10MHz	QPSK	37800	25RB#0	22.56	PASS
Band38	10MHz	QPSK	37800	50RB#0	22.6	PASS
Band38	10MHz	QPSK	38000	1RB#0	23.62	PASS
Band38	10MHz	QPSK	38000	25RB#0	22.51	PASS
Band38	10MHz	QPSK	38000	50RB#0	22.44	PASS
Band38	10MHz	QPSK	38200	1RB#0	23.13	PASS
Band38	10MHz	QPSK	38200	25RB#0	22.04	PASS
Band38	10MHz	QPSK	38200	50RB#0	22	PASS
Band38	10MHz	16QAM	37800	1RB#0	22.88	PASS
Band38	10MHz	16QAM	37800	25RB#0	21.59	PASS
Band38	10MHz	16QAM	37800	50RB#0	21.6	PASS
Band38	10MHz	16QAM	38000	1RB#0	22.72	PASS
Band38	10MHz	16QAM	38000	25RB#0	21.57	PASS
Band38	10MHz	16QAM	38000	50RB#0	21.52	PASS
Band38	10MHz	16QAM	38200	1RB#0	22.02	PASS
Band38	10MHz	16QAM	38200	25RB#0	21.13	PASS
Band38	10MHz	16QAM	38200	50RB#0	21.08	PASS
Band38	15MHz	QPSK	37825	1RB#0	24.96	PASS
Band38	15MHz	QPSK	37825	75RB#0	23.82	PASS
Band38	15MHz	QPSK	38000	1RB#0	24.71	PASS
Band38	15MHz	QPSK	38000	75RB#0	23.58	PASS
Band38	15MHz	QPSK	38175	1RB#0	24.17	PASS
Band38	15MHz	QPSK	38175	75RB#0	23.22	PASS
Band38	15MHz	16QAM	37825	1RB#0	22.88	PASS
Band38	15MHz	16QAM	37825	75RB#0	22.37	PASS
Band38	15MHz	16QAM	38000	1RB#0	21.66	PASS
Band38	15MHz	16QAM	38000	75RB#0	21.44	PASS
Band38	15MHz	16QAM	38175	1RB#0	22.11	PASS
Band38	15MHz	16QAM	38175	75RB#0	21.1	PASS
Band38	20MHz	QPSK	37850	1RB#99	23.67	PASS
Band38	20MHz	QPSK	37850	1RB#0	23.73	PASS

Band38	20MHz	QPSK	37850	50RB#0	22.64	PASS
Band38	20MHz	QPSK	37850	100RB#0	22.59	PASS
Band38	20MHz	QPSK	38000	1RB#0	23.76	PASS
Band38	20MHz	QPSK	38000	1RB#99	23.35	PASS
Band38	20MHz	QPSK	38000	50RB#0	22.55	PASS
Band38	20MHz	QPSK	38000	100RB#0	22.41	PASS
Band38	20MHz	QPSK	38150	1RB#99	23.08	PASS
Band38	20MHz	QPSK	38150	1RB#0	23.28	PASS
Band38	20MHz	QPSK	38150	50RB#0	22.23	PASS
Band38	20MHz	QPSK	38150	100RB#0	22.09	PASS
Band38	20MHz	16QAM	37850	1RB#0	22.78	PASS
Band38	20MHz	16QAM	37850	1RB#99	22.73	PASS
Band38	20MHz	16QAM	37850	50RB#0	21.63	PASS
Band38	20MHz	16QAM	37850	100RB#0	21.59	PASS
Band38	20MHz	16QAM	38000	1RB#0	22.9	PASS
Band38	20MHz	16QAM	38000	1RB#99	22.57	PASS
Band38	20MHz	16QAM	38000	50RB#0	21.59	PASS
Band38	20MHz	16QAM	38000	100RB#0	21.44	PASS
Band38	20MHz	16QAM	38150	1RB#0	22.28	PASS
Band38	20MHz	16QAM	38150	1RB#99	22.01	PASS
Band38	20MHz	16QAM	38150	50RB#0	21.32	PASS
Band38	20MHz	16QAM	38150	100RB#0	21.11	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band40	5MHz	QPSK	38675	1RB#0	22.57	PASS
Band40	5MHz	QPSK	38675	25RB#0	21.54	PASS
Band40	5MHz	QPSK	38725	1RB#0	22.72	PASS
Band40	5MHz	QPSK	38725	25RB#0	21.67	PASS
Band40	5MHz	QPSK	38750	1RB#0	22.75	PASS
Band40	5MHz	QPSK	38750	25RB#0	21.7	PASS
Band40	5MHz	16QAM	38675	1RB#0	21.88	PASS
Band40	5MHz	16QAM	38675	25RB#0	20.56	PASS
Band40	5MHz	16QAM	38725	1RB#0	21.71	PASS
Band40	5MHz	16QAM	38725	25RB#0	20.71	PASS
Band40	5MHz	16QAM	38750	1RB#0	21.76	PASS
Band40	5MHz	16QAM	38750	25RB#0	20.74	PASS
Band40	10MHz	QPSK	38750	1RB#0	22.69	PASS
Band40	10MHz	QPSK	38750	25RB#0	21.65	PASS
Band40	10MHz	QPSK	38750	50RB#0	21.73	PASS
Band40	10MHz	16QAM	38750	1RB#0	21.93	PASS
Band40	10MHz	16QAM	38750	25RB#0	20.7	PASS
Band40	10MHz	16QAM	38750	50RB#0	20.74	PASS

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band41	5MHz	QPSK	40265	1RB#0	24.51	PASS
Band41	5MHz	QPSK	40265	25RB#0	23.61	PASS
Band41	5MHz	QPSK	40690	1RB#0	24.41	PASS

Band41	5MHz	QPSK	40690	25RB#0	23.25	PASS
Band41	5MHz	QPSK	41215	1RB#0	23.5	PASS
Band41	5MHz	QPSK	41215	25RB#0	22.46	PASS
Band41	5MHz	16QAM	40265	1RB#0	23.55	PASS
Band41	5MHz	16QAM	40265	25RB#0	22.63	PASS
Band41	5MHz	16QAM	40690	1RB#0	23.64	PASS
Band41	5MHz	16QAM	40690	25RB#0	22.18	PASS
Band41	5MHz	16QAM	41215	1RB#0	22.52	PASS
Band41	5MHz	16QAM	41215	25RB#0	21.46	PASS
Band41	10MHz	QPSK	40290	1RB#0	23.73	PASS
Band41	10MHz	QPSK	40290	25RB#0	23.58	PASS
Band41	10MHz	QPSK	40290	50RB#0	23.75	PASS
Band41	10MHz	QPSK	40690	1RB#0	24.52	PASS
Band41	10MHz	QPSK	40690	25RB#0	23.38	PASS
Band41	10MHz	QPSK	40690	50RB#0	23.33	PASS
Band41	10MHz	QPSK	41190	1RB#0	23.54	PASS
Band41	10MHz	QPSK	41190	25RB#0	22.53	PASS
Band41	10MHz	QPSK	41190	50RB#0	22.52	PASS
Band41	10MHz	16QAM	40290	1RB#0	23.77	PASS
Band41	10MHz	16QAM	40290	25RB#0	22.72	PASS
Band41	10MHz	16QAM	40290	50RB#0	22.79	PASS
Band41	10MHz	16QAM	40690	1RB#0	23.4	PASS
Band41	10MHz	16QAM	40690	25RB#0	22.44	PASS
Band41	10MHz	16QAM	40690	50RB#0	22.37	PASS
Band41	10MHz	16QAM	41190	1RB#0	22.74	PASS
Band41	10MHz	16QAM	41190	25RB#0	21.55	PASS
Band41	10MHz	16QAM	41190	50RB#0	21.5	PASS
Band41	15MHz	QPSK	40315	1RB#0	24.66	PASS
Band41	15MHz	QPSK	40315	75RB#0	23.81	PASS
Band41	15MHz	QPSK	40690	1RB#0	24.57	PASS
Band41	15MHz	QPSK	40690	75RB#0	23.32	PASS
Band41	15MHz	QPSK	41165	1RB#0	23.54	PASS
Band41	15MHz	QPSK	41165	75RB#0	22.54	PASS
Band41	15MHz	16QAM	40315	1RB#0	23.84	PASS
Band41	15MHz	16QAM	40315	75RB#0	22.8	PASS
Band41	15MHz	16QAM	40690	1RB#0	23.47	PASS
Band41	15MHz	16QAM	40690	75RB#0	22.29	PASS
Band41	15MHz	16QAM	41165	1RB#0	22.67	PASS
Band41	15MHz	16QAM	41165	75RB#0	21.46	PASS
Band41	20MHz	QPSK	40340	1RB#99	24.86	PASS
Band41	20MHz	QPSK	40340	1RB#0	24.7	PASS
Band41	20MHz	QPSK	40340	50RB#0	23.62	PASS
Band41	20MHz	QPSK	40340	100RB#0	23.63	PASS
Band41	20MHz	QPSK	40690	1RB#99	24.2	PASS
Band41	20MHz	QPSK	40690	1RB#0	24.6	PASS
Band41	20MHz	QPSK	40690	50RB#0	23.51	PASS
Band41	20MHz	QPSK	40690	100RB#0	23.35	PASS

Band41	20MHz	QPSK	41140	1RB#99	23.47	PASS
Band41	20MHz	QPSK	41140	1RB#0	23.65	PASS
Band41	20MHz	QPSK	41140	50RB#0	22.52	PASS
Band41	20MHz	QPSK	41140	100RB#0	22.5	PASS
Band41	20MHz	16QAM	40340	1RB#0	23.96	PASS
Band41	20MHz	16QAM	40340	1RB#99	23.98	PASS
Band41	20MHz	16QAM	40340	50RB#0	22.65	PASS
Band41	20MHz	16QAM	40340	100RB#0	22.67	PASS
Band41	20MHz	16QAM	40690	1RB#0	23.59	PASS
Band41	20MHz	16QAM	40690	1RB#99	23.21	PASS
Band41	20MHz	16QAM	40690	50RB#0	22.59	PASS
Band41	20MHz	16QAM	40690	100RB#0	22.36	PASS
Band41	20MHz	16QAM	41140	1RB#0	22.62	PASS
Band41	20MHz	16QAM	41140	1RB#99	22.58	PASS
Band41	20MHz	16QAM	41140	50RB#0	21.56	PASS
Band41	20MHz	16QAM	41140	100RB#0	21.5	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:

   ERP = S.G. output (dBm) + Antenna Gain (dBd) – 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:

    EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)

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

5.2.3 Test setup

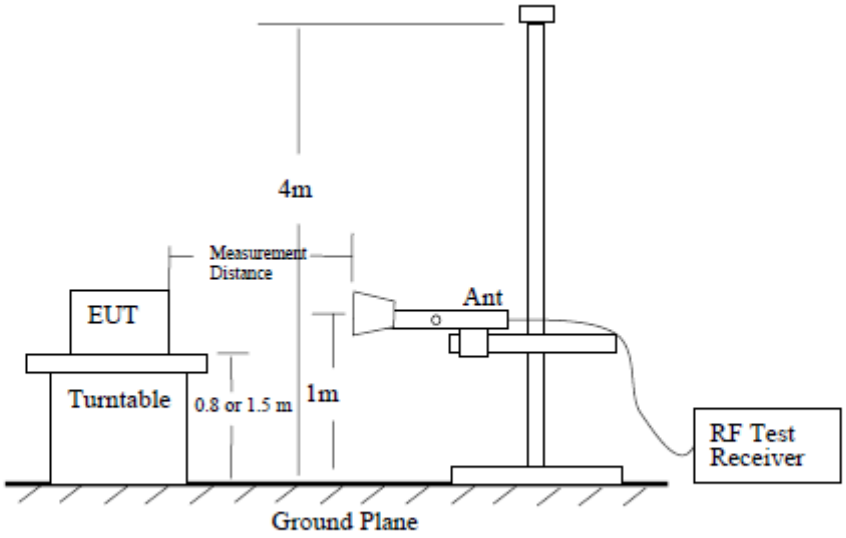


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

5.2.4 Test results

Radiated Spurious Measurement:

LTE Band 7

Radiated Power (EIRP) for Band 7									
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	
5MHz Band QPSK	25/0	2502.5	-0.97	4.54	27.75	22.24	167.626	Horizontal	Pass
		2535	-0.20	4.69	27.72	22.83	191.942	Horizontal	Pass
		2567.5	-0.95	4.71	27.71	22.05	160.155	Horizontal	Pass
5MHz Band 16 QAM	25/0	2502.5	-0.51	4.54	27.75	22.70	186.173	Horizontal	Pass
		2535	-0.19	4.69	27.72	22.84	192.515	Horizontal	Pass
		2567.5	-0.55	4.71	27.71	22.45	175.594	Horizontal	Pass
10MHz Band QPSK	50/0	2505	-0.97	4.55	27.76	22.24	167.359	Horizontal	Pass
		2535	-0.19	4.69	27.72	22.84	192.209	Horizontal	Pass
		2565	-0.64	4.72	27.7	22.34	171.293	Horizontal	Pass
10MHz Band 16 QAM	50/0	2505	-0.73	4.55	27.76	22.48	176.855	Horizontal	Pass
		2535	-0.95	4.69	27.72	22.08	161.434	Horizontal	Pass
		2565	-0.13	4.72	27.7	22.85	192.599	Horizontal	Pass
15MHz Band QPSK	75/0	2507.5	-0.13	4.55	27.77	23.09	203.703	Horizontal	Pass
		2535	-0.10	4.69	27.72	22.93	196.253	Horizontal	Pass
		2562.5	-0.84	4.72	27.69	22.13	163.251	Horizontal	Pass
15MHz Band 16 QAM	75/0	2507.5	-0.96	4.55	27.77	22.26	168.247	Horizontal	Pass
		2535	-0.50	4.69	27.72	22.53	178.868	Horizontal	Pass
		2562.5	-0.49	4.72	27.69	22.48	177.019	Horizontal	Pass
20MHz Band QPSK	100/0	2510	-0.16	4.57	27.78	23.05	201.837	Horizontal	Pass
		2535	-0.08	4.73	27.72	22.91	195.434	Horizontal	Pass
		2560	-0.89	4.75	27.68	22.04	159.956	Horizontal	Pass
20MHz Band 16 QAM	100/0	2510	-0.01	4.57	27.78	23.20	208.930	Horizontal	Pass
		2535	-0.69	4.73	27.72	22.30	169.824	Horizontal	Pass
		2560	-0.74	4.75	27.68	22.19	165.577	Horizontal	Pass

Radiated Power (EIRP) for Band 7									
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	
5.0MHz Band QPSK	25/0	2502.5	-0.59	4.54	27.75	22.62	182.797	Vertical	Pass
		2535	-0.43	4.69	27.72	22.60	182.130	Vertical	Pass
		2567.5	-0.85	4.71	27.71	22.15	164.194	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2502.5	-0.13	4.54	27.75	23.08	203.123	Vertical	Pass
		2535	-0.03	4.69	27.72	23.00	199.627	Vertical	Pass
		2567.5	-0.08	4.71	27.71	22.92	195.823	Vertical	Pass
10.0MHz Band QPSK	50/0	2505	-0.92	4.55	27.76	22.29	169.530	Vertical	Pass
		2535	-0.23	4.69	27.72	22.80	190.327	Vertical	Pass
		2565	-0.16	4.72	27.7	22.82	191.638	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2505	-0.14	4.55	27.76	23.07	202.736	Vertical	Pass
		2535	-0.44	4.69	27.72	22.59	181.638	Vertical	Pass
		2565	-0.78	4.72	27.7	22.20	165.844	Vertical	Pass
15.0MHz Band QPSK	75/0	2507.5	-0.13	4.55	27.77	23.09	203.598	Vertical	Pass
		2535	-0.46	4.69	27.72	22.57	180.710	Vertical	Pass
		2562.5	-0.60	4.72	27.69	22.37	172.619	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2507.5	-0.84	4.55	27.77	22.38	173.142	Vertical	Pass
		2535	-0.70	4.69	27.72	22.33	171.020	Vertical	Pass
		2562.5	-0.72	4.72	27.69	22.25	167.703	Vertical	Pass
20.0MHz Band QPSK	100/0	2510	-0.50	4.57	27.78	22.71	186.748	Vertical	Pass
		2535	-0.41	4.73	27.72	22.58	180.951	Vertical	Pass
		2560	-0.69	4.75	27.68	22.24	167.496	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2510	-0.83	4.57	27.78	22.38	172.793	Vertical	Pass
		2535	-0.41	4.73	27.72	22.58	181.263	Vertical	Pass
		2560	-0.52	4.75	27.68	22.41	174.377	Vertical	Pass

LTE Band 38

Radiated Power (EIRP) for Band 38									
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	
5MHz Band QPSK	25/0	2572.5	-0.30	4.54	27.75	22.91	195.620	Horizontal	Pass
		2595	0.21	4.69	27.72	23.24	210.806	Horizontal	Pass
		2517.5	-0.55	4.71	27.71	22.45	175.776	Horizontal	Pass
5MHz Band 16 QAM	25/0	2572.5	-0.35	4.54	27.75	22.86	193.228	Horizontal	Pass
		2595	-0.04	4.69	27.72	22.99	198.869	Horizontal	Pass
		2517.5	-0.43	4.71	27.71	22.57	180.890	Horizontal	Pass
10MHz Band QPSK	50/0	2575	-0.68	4.55	27.76	22.53	178.962	Horizontal	Pass
		2595	0.72	4.69	27.72	23.75	237.044	Horizontal	Pass
		2615	-0.24	4.72	27.7	22.74	188.060	Horizontal	Pass
10MHz Band 16 QAM	50/0	2575	-0.48	4.55	27.76	22.73	187.393	Horizontal	Pass
		2595	0.00	4.69	27.72	23.03	200.688	Horizontal	Pass
		2615	-0.01	4.72	27.7	22.97	198.139	Horizontal	Pass
15MHz Band QPSK	75/0	2577.5	0.28	4.55	27.77	23.50	223.865	Horizontal	Pass
		2595	0.21	4.69	27.72	23.24	210.839	Horizontal	Pass
		2612.5	-0.25	4.72	27.69	22.72	186.951	Horizontal	Pass
15MHz Band 16 QAM	75/0	2577.5	-0.24	4.55	27.77	22.98	198.384	Horizontal	Pass
		2595	0.03	4.69	27.72	23.06	202.473	Horizontal	Pass
		2612.5	0.01	4.72	27.69	22.98	198.809	Horizontal	Pass
20MHz Band QPSK	100/0	2580	-0.05	4.57	27.78	23.16	207.152	Horizontal	Pass
		2595	-0.07	4.73	27.72	22.92	195.792	Horizontal	Pass
		2610	0.60	4.75	27.68	23.53	225.420	Horizontal	Pass
20MHz Band 16 QAM	100/0	2580	-0.23	4.57	27.78	22.98	198.602	Horizontal	Pass
		2595	-0.02	4.73	27.72	22.97	198.124	Horizontal	Pass
		2610	0.70	4.75	27.68	23.63	230.628	Horizontal	Pass

Radiated Power (EIRP) for Band 38									
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	
5MHz Band QPSK	25/0	2572.5	0.92	4.54	27.75	24.13	258.888	Vertical	Pass
		2595	-0.73	4.69	27.72	22.30	169.823	Vertical	Pass
		2517.5	0.06	4.71	27.71	23.06	202.110	Vertical	Pass
5MHz Band 16 QAM	25/0	2572.5	0.10	4.54	27.75	23.31	214.312	Vertical	Pass
		2595	0.24	4.69	27.72	23.27	212.251	Vertical	Pass
		2517.5	0.93	4.71	27.71	23.93	247.073	Vertical	Pass
10MHz Band QPSK	50/0	2575	0.51	4.55	27.76	23.72	235.441	Vertical	Pass
		2595	-0.45	4.69	27.72	22.58	180.950	Vertical	Pass
		2615	0.24	4.72	27.7	23.22	209.839	Vertical	Pass
10MHz Band 16 QAM	50/0	2575	-0.33	4.55	27.76	22.88	194.124	Vertical	Pass
		2595	-0.38	4.69	27.72	22.65	184.275	Vertical	Pass
		2615	0.50	4.72	27.7	23.48	222.948	Vertical	Pass
15MHz Band QPSK	75/0	2577.5	-0.05	4.55	27.77	23.17	207.275	Vertical	Pass
		2595	-0.57	4.69	27.72	22.46	176.396	Vertical	Pass
		2612.5	0.06	4.72	27.69	23.03	200.747	Vertical	Pass
15MHz Band 16 QAM	75/0	2577.5	0.48	4.55	27.77	23.70	234.444	Vertical	Pass
		2595	-0.46	4.69	27.72	22.57	180.869	Vertical	Pass
		2612.5	-0.72	4.72	27.69	22.25	167.928	Vertical	Pass
20MHz Band QPSK	100/0	2580	0.59	4.57	27.78	23.80	239.688	Vertical	Pass
		2595	-0.09	4.73	27.72	22.90	195.052	Vertical	Pass
		2610	0.84	4.75	27.68	23.77	238.087	Vertical	Pass
20MHz Band 16 QAM	100/0	2580	0.59	4.57	27.78	23.80	239.688	Vertical	Pass
		2595	-0.09	4.73	27.72	22.90	195.052	Vertical	Pass
		2610	0.84	4.75	27.68	23.77	238.087	Vertical	Pass

LTE Band 40

Radiated Power (EIRP) for Band 40 (2305-2315MHz)									
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	
5.0MHz Band QPSK	25/0	2307.5	-0.16	4.54	27.75	23.05	202.032	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2307.5	-0.83	4.54	27.75	22.38	172.870	Horizontal	Pass
5.0MHz Band QPSK	25/0	2312.5	-0.44	4.54	27.75	22.77	189.401	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2312.5	-0.09	4.54	27.75	23.12	205.006	Horizontal	Pass
5.0MHz Band QPSK	25/0	2307.5	-0.91	4.54	27.75	22.30	169.798	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2307.5	-0.94	4.54	27.75	22.27	168.518	Vertical	Pass
5.0MHz Band QPSK	25/0	2312.5	-0.64	4.54	27.75	22.57	180.711	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2312.5	-0.55	4.54	27.75	22.66	184.482	Vertical	Pass
10.0MHz Band QPSK	50/0	2310	-0.66	4.55	27.76	22.55	180.062	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2310	-0.33	4.55	27.76	22.88	193.967	Vertical	Pass

Radiated Power (EIRP) for Band 40 (2350-2360MHz)									
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	
5.0MHz Band QPSK	25/0	2352.5	-0.74	4.54	27.75	22.47	176.793	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2352.5	-0.86	4.54	27.75	22.35	171.610	Horizontal	Pass
5.0MHz Band QPSK	25/0	2357.5	-0.28	4.54	27.75	22.93	196.428	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2357.5	-0.31	4.54	27.75	22.90	194.953	Horizontal	Pass
5.0MHz Band QPSK	25/0	2352.5	-0.56	4.54	27.75	22.65	184.184	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2352.5	-0.52	4.54	27.75	22.69	185.612	Vertical	Pass
5.0MHz Band QPSK	25/0	2357.5	-0.88	4.54	27.75	22.33	171.129	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2357.5	-0.64	4.54	27.75	22.57	180.648	Vertical	Pass
10.0MHz Band QPSK	50/0	2355	-0.29	4.55	27.76	22.92	195.688	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2355	-0.06	4.55	27.76	23.15	206.513	Vertical	Pass

LTE Band 41

Radiated Power (EIRP) for Band 41									
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	
5.0MHz Band QPSK	25/0	2498.5	-0.69	4.54	27.75	22.52	178.463	Horizontal	Pass
		2593	-0.12	4.69	27.72	22.91	195.652	Horizontal	Pass
		2687.5	-0.63	4.71	27.71	22.37	172.721	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2498.5	-0.70	4.54	27.75	22.51	178.355	Horizontal	Pass
		2593	-0.39	4.69	27.72	22.64	183.787	Horizontal	Pass
		2687.5	-0.22	4.71	27.71	22.78	189.596	Horizontal	Pass
10.0MHz Band QPSK	50/0	2501	-0.24	4.55	27.76	22.97	198.363	Horizontal	Pass
		2593	-0.94	4.69	27.72	22.09	161.940	Horizontal	Pass
		2685	-0.15	4.72	27.7	22.83	191.811	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2501	-0.30	4.55	27.76	22.91	195.431	Horizontal	Pass
		2593	-0.21	4.69	27.72	22.82	191.429	Horizontal	Pass
		2685	-0.21	4.72	27.7	22.77	189.072	Horizontal	Pass
15.0MHz Band QPSK	75/0	2503.5	-0.69	4.55	27.77	22.53	179.203	Horizontal	Pass
		2593	-0.16	4.69	27.72	22.87	193.713	Horizontal	Pass
		2682.5	-0.37	4.72	27.69	22.60	181.997	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2503.5	-0.05	4.55	27.77	23.17	207.711	Horizontal	Pass
		2593	-0.07	4.69	27.72	22.96	197.537	Horizontal	Pass
		2682.5	-0.88	4.72	27.69	22.09	161.965	Horizontal	Pass
20.0MHz Band QPSK	100/0	2506	-0.21	4.57	27.78	23.00	199.634	Horizontal	Pass
		2593	-0.44	4.73	27.72	22.55	179.894	Horizontal	Pass
		2680	-0.26	4.75	27.68	22.67	185.070	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2506	-0.14	4.57	27.78	23.07	202.744	Horizontal	Pass
		2593	-0.39	4.73	27.72	22.60	181.964	Horizontal	Pass
		2680	-0.03	4.75	27.68	22.90	195.039	Horizontal	Pass

Radiated Power (EIRP) for Band 41									
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	
5.0MHz Band QPSK	25/0	2502.5	-0.96	4.54	27.75	22.25	167.829	Vertical	Pass
		2535	-0.54	4.69	27.72	22.49	177.492	Vertical	Pass
		2567.5	-0.88	4.71	27.71	22.12	162.838	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2502.5	-0.33	4.54	27.75	22.88	194.224	Vertical	Pass
		2535	-0.25	4.69	27.72	22.78	189.499	Vertical	Pass
		2567.5	-0.98	4.71	27.71	22.02	159.149	Vertical	Pass
10.0MHz Band QPSK	50/0	2505	-0.94	4.55	27.76	22.27	168.581	Vertical	Pass
		2535	-0.84	4.69	27.72	22.19	165.540	Vertical	Pass
		2565	-0.75	4.72	27.7	22.23	167.173	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2505	-0.30	4.55	27.76	22.91	195.223	Vertical	Pass
		2535	-0.77	4.69	27.72	22.26	168.111	Vertical	Pass
		2565	-0.08	4.72	27.7	22.90	195.205	Vertical	Pass
15.0MHz Band QPSK	75/0	2507.5	-0.44	4.55	27.77	22.78	189.790	Vertical	Pass
		2535	-0.69	4.69	27.72	22.34	171.424	Vertical	Pass
		2562.5	-0.01	4.72	27.69	22.96	197.604	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2507.5	-0.84	4.55	27.77	22.38	173.100	Vertical	Pass
		2535	-0.86	4.69	27.72	22.17	164.832	Vertical	Pass
		2562.5	-0.36	4.72	27.69	22.61	182.193	Vertical	Pass
20.0MHz Band QPSK	100/0	2510	-0.36	4.57	27.78	22.85	192.660	Vertical	Pass
		2535	-0.47	4.73	27.72	22.52	178.614	Vertical	Pass
		2560	-0.73	4.75	27.68	22.20	165.832	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2510	-0.98	4.57	27.78	22.23	167.212	Vertical	Pass
		2535	-0.99	4.73	27.72	22.00	158.560	Vertical	Pass
		2560	-0.09	4.75	27.68	22.84	192.188	Vertical	Pass

5.3 Peak-to-Average Ratio

5.3.1 Limit

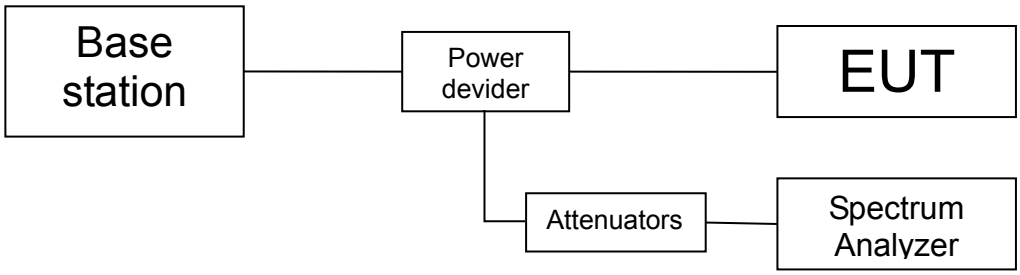
Not exceed 13 dB

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 ≥ 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 (Max. bandwidth, Middle channel) shown in this report.

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band7	20MHz	QPSK	21100	100RB#0	5.5	13	PASS
Band7	20MHz	16QAM	21100	100RB#0	6.35	13	PASS
Band38	20MHz	QPSK	38000	100RB#0	5.82	13	PASS
Band38	20MHz	16QAM	38000	100RB#0	6.64	13	PASS
Band40	10MHz	QPSK	38750	50RB#0	5.97	13	PASS
Band40	10MHz	16QAM	38750	50RB#0	6.82	13	PASS
Band41	20MHz	QPSK	40690	100RB#0	5.95	13	PASS
Band41	20MHz	16QAM	40690	100RB#0	6.72	13	PASS

Test plots

7_20MHz_QPSK_21100_100RB#0

7_20MHz_16QAM_21100_100RB#0


Band38_20MHz_QPSK_38000_100RB#0

Band38_20MHz_16QAM_38000_100RB#0


Band40_10MHz_QPSK_38750_50RB#0

Band40_10MHz_16QAM_38750_50RB#0


Band41_20MHz_QPSK_40690_100RB#0

Band41_20MHz_16QAM_40690_100RB#0


5.4 99% and -26 dB Occupied Bandwidth

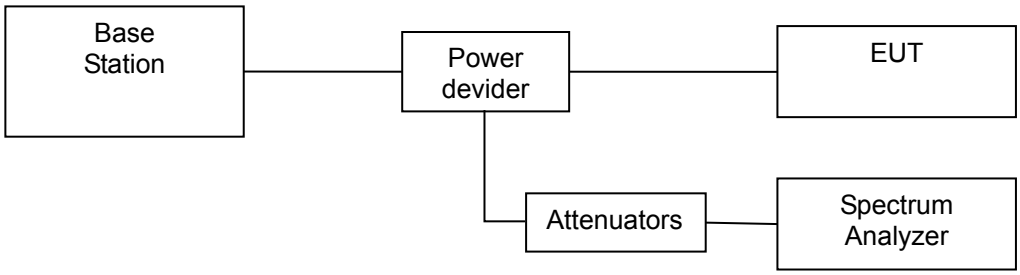
5.4.1 Limit

N/A

5.4.2 Test procedure

1. The EUT' RF output port was connected to Spectrum Analyzer and Base Station via power divider.
2. Spectrum analyzer's occupied bandwidth measure function was used to measure 99% bandwidth and -26dBc bandwidth

5.4.3 Test setup



5.4.4 Test results

Note1: all modes of RB configurations have been tested, and only worst configuration data listed.

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band7	5MHz	QPSK	20775	25RB#0	4.4624	4.721	PASS
Band7	5MHz	QPSK	21100	25RB#0	4.4667	4.695	PASS
Band7	5MHz	QPSK	21425	25RB#0	4.4682	4.892	PASS
Band7	5MHz	16QAM	20775	25RB#0	4.4785	4.858	PASS
Band7	5MHz	16QAM	21100	25RB#0	4.4802	4.87	PASS
Band7	5MHz	16QAM	21425	25RB#0	4.4862	4.841	PASS
Band7	10MHz	QPSK	20800	50RB#0	8.931	9.427	PASS
Band7	10MHz	QPSK	21100	50RB#0	8.9131	9.348	PASS
Band7	10MHz	QPSK	21400	50RB#0	8.9215	9.389	PASS
Band7	10MHz	16QAM	20800	50RB#0	8.93	9.39	PASS
Band7	10MHz	16QAM	21100	50RB#0	8.911	9.315	PASS
Band7	10MHz	16QAM	21400	50RB#0	8.8966	9.439	PASS
Band7	15MHz	QPSK	20825	75RB#0	13.376	13.91	PASS
Band7	15MHz	QPSK	21100	75RB#0	13.375	13.9	PASS
Band7	15MHz	QPSK	21375	75RB#0	13.362	13.92	PASS
Band7	15MHz	16QAM	20825	75RB#0	13.348	13.93	PASS
Band7	15MHz	16QAM	21100	75RB#0	13.383	13.99	PASS
Band7	15MHz	16QAM	21375	75RB#0	13.377	13.9	PASS
Band7	20MHz	QPSK	20850	100RB#0	17.857	18.59	PASS
Band7	20MHz	QPSK	21100	100RB#0	17.827	18.52	PASS
Band7	20MHz	QPSK	21350	100RB#0	17.862	18.56	PASS
Band7	20MHz	16QAM	20850	100RB#0	17.844	18.56	PASS
Band7	20MHz	16QAM	21100	100RB#0	17.806	18.52	PASS
Band7	20MHz	16QAM	21350	100RB#0	17.845	18.56	PASS
Band38	5MHz	QPSK	37775	25RB#0	4.5227	4.814	PASS
Band38	5MHz	QPSK	38000	25RB#0	4.5114	4.956	PASS
Band38	5MHz	QPSK	38225	25RB#0	4.5169	4.855	PASS
Band38	5MHz	16QAM	37775	25RB#0	4.5104	4.893	PASS
Band38	5MHz	16QAM	38000	25RB#0	4.513	4.886	PASS

Band38	5MHz	16QAM	38225	25RB#0	4.5206	4.9	PASS
Band38	10MHz	QPSK	37800	50RB#0	8.9782	9.507	PASS
Band38	10MHz	QPSK	38000	50RB#0	8.979	9.545	PASS
Band38	10MHz	QPSK	38200	50RB#0	8.9792	9.556	PASS
Band38	10MHz	16QAM	37800	50RB#0	8.976	9.539	PASS
Band38	10MHz	16QAM	38000	50RB#0	8.9686	9.538	PASS
Band38	10MHz	16QAM	38200	50RB#0	8.9896	9.565	PASS
Band38	15MHz	QPSK	37825	75RB#0	13.459	14.27	PASS
Band38	15MHz	QPSK	38000	75RB#0	13.476	14.26	PASS
Band38	15MHz	QPSK	38175	75RB#0	13.489	14.3	PASS
Band38	15MHz	16QAM	37825	75RB#0	13.459	14.27	PASS
Band38	15MHz	16QAM	38000	75RB#0	13.489	14.34	PASS
Band38	15MHz	16QAM	38175	75RB#0	13.508	14.33	PASS
Band38	20MHz	QPSK	37850	100RB#0	17.922	18.94	PASS
Band38	20MHz	QPSK	38000	100RB#0	17.963	18.96	PASS
Band38	20MHz	QPSK	38150	100RB#0	17.992	19.02	PASS
Band38	20MHz	16QAM	37850	100RB#0	17.931	18.95	PASS
Band38	20MHz	16QAM	38000	100RB#0	17.982	18.96	PASS
Band38	20MHz	16QAM	38150	100RB#0	18.009	19.04	PASS
Band40	5MHz	QPSK	38675	25RB#0	4.5173	4.873	PASS
Band40	5MHz	QPSK	38725	25RB#0	4.5136	4.831	PASS
Band40	5MHz	QPSK	38750	25RB#0	4.5071	4.941	PASS
Band40	5MHz	16QAM	38675	25RB#0	4.5048	4.873	PASS
Band40	5MHz	16QAM	38725	25RB#0	4.506	4.868	PASS
Band40	5MHz	16QAM	38750	25RB#0	4.5049	4.862	PASS
Band40	10MHz	QPSK	38750	50RB#0	8.9652	9.529	PASS
Band40	10MHz	16QAM	38750	50RB#0	8.9748	9.533	PASS
Band41	5MHz	QPSK	40265	25RB#0	4.512	4.916	PASS
Band41	5MHz	QPSK	40690	25RB#0	4.5096	4.867	PASS
Band41	5MHz	QPSK	41215	25RB#0	4.5109	4.901	PASS
Band41	5MHz	16QAM	40265	25RB#0	4.5093	4.866	PASS
Band41	5MHz	16QAM	40690	25RB#0	4.5101	4.891	PASS
Band41	5MHz	16QAM	41215	25RB#0	4.5088	4.87	PASS
Band41	10MHz	QPSK	40290	50RB#0	8.9757	9.514	PASS
Band41	10MHz	QPSK	40690	50RB#0	8.9867	9.508	PASS
Band41	10MHz	QPSK	41190	50RB#0	8.9684	9.555	PASS
Band41	10MHz	16QAM	40290	50RB#0	8.9799	9.55	PASS
Band41	10MHz	16QAM	40690	50RB#0	8.9835	9.553	PASS

Band41	10MHz	16QAM	41190	50RB#0	8.9785	9.567	PASS
Band41	15MHz	QPSK	40315	75RB#0	13.473	14.27	PASS
Band41	15MHz	QPSK	40690	75RB#0	13.493	14.25	PASS
Band41	15MHz	QPSK	41165	75RB#0	13.49	14.27	PASS
Band41	15MHz	16QAM	40315	75RB#0	13.485	14.32	PASS
Band41	15MHz	16QAM	40690	75RB#0	13.483	14.33	PASS
Band41	15MHz	16QAM	41165	75RB#0	13.489	14.31	PASS
Band41	20MHz	QPSK	40340	100RB#0	17.953	18.95	PASS
Band41	20MHz	QPSK	40690	100RB#0	18.001	18.98	PASS
Band41	20MHz	QPSK	41140	100RB#0	17.972	18.98	PASS
Band41	20MHz	16QAM	40340	100RB#0	17.963	18.97	PASS
Band41	20MHz	16QAM	40690	100RB#0	17.998	19	PASS
Band41	20MHz	16QAM	41140	100RB#0	17.963	18.97	PASS

Test plots

LTE Band 7

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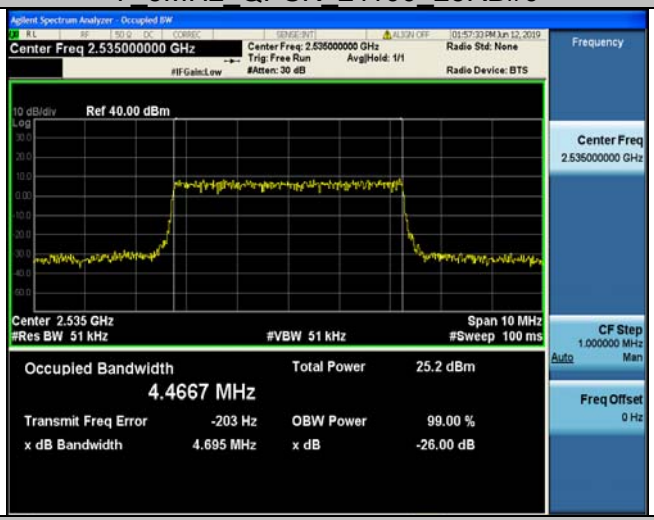
7_5MHz_QPSK_21100_25RB#0

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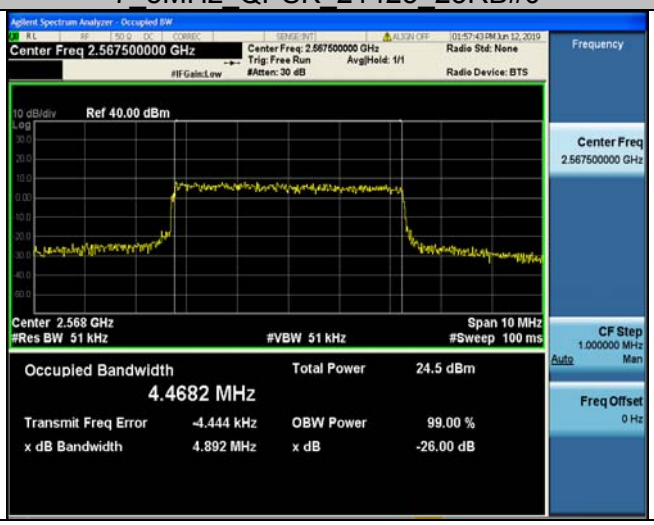

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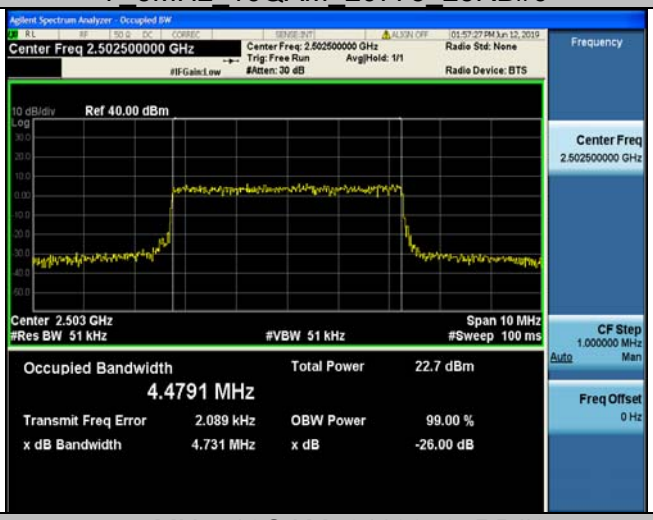
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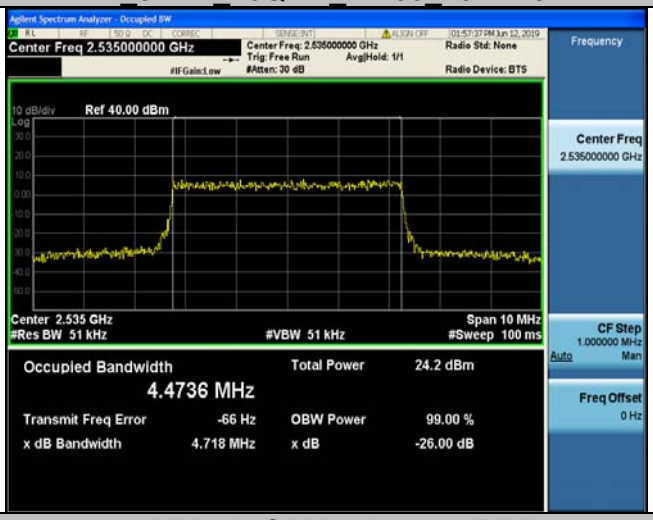
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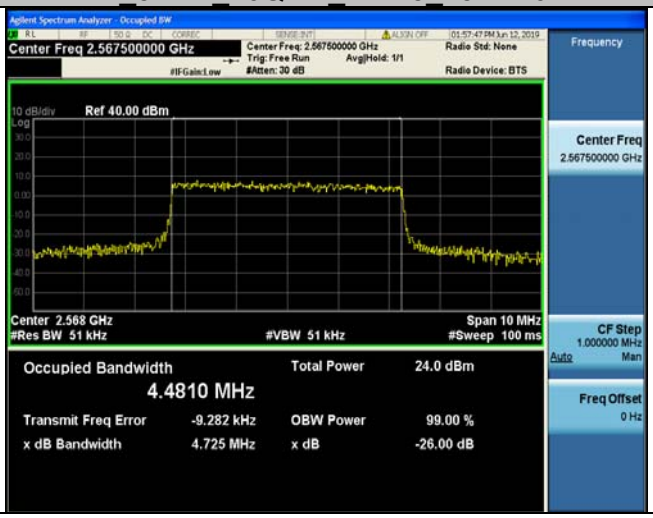

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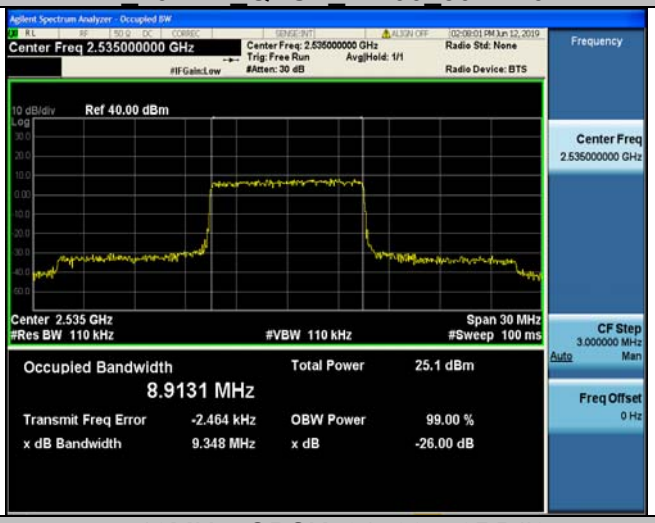
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7_10MHz_16QAM_20800_50RB#0

7_10MHz_16QAM_21100_50RB#0

7_10MHz_16QAM_21400_50RB#0


7_15MHz_QPSK_20825_75RB#0

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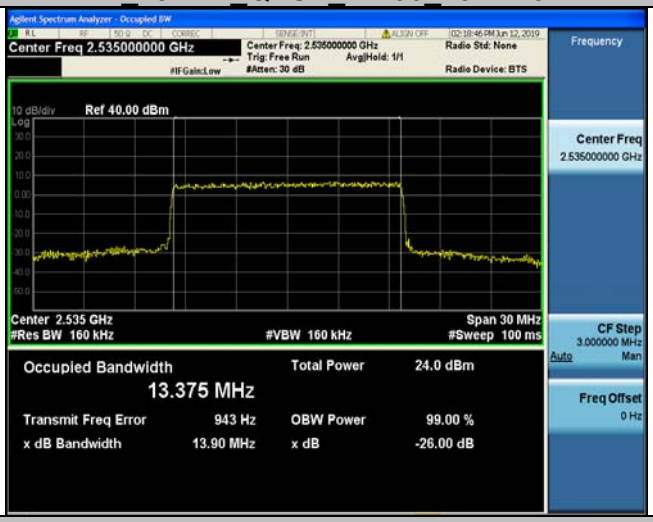
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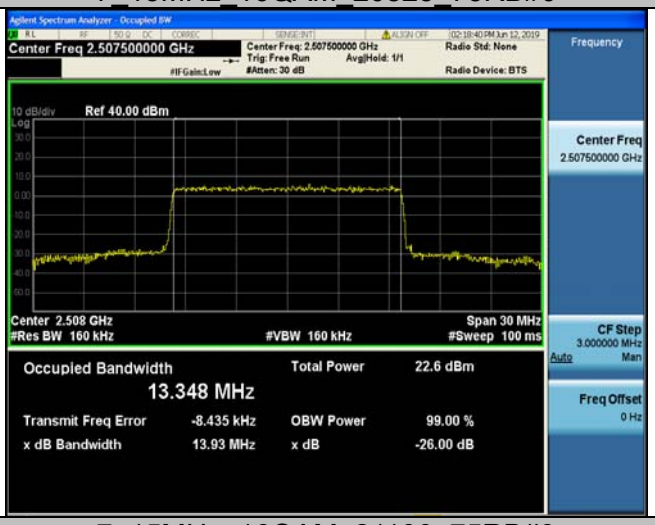
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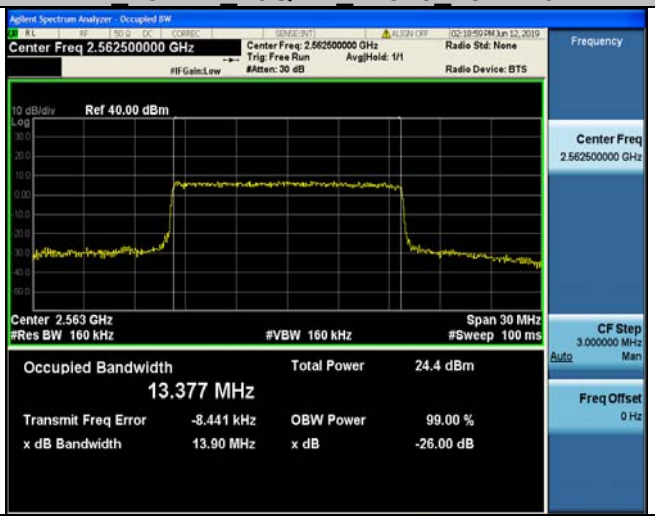

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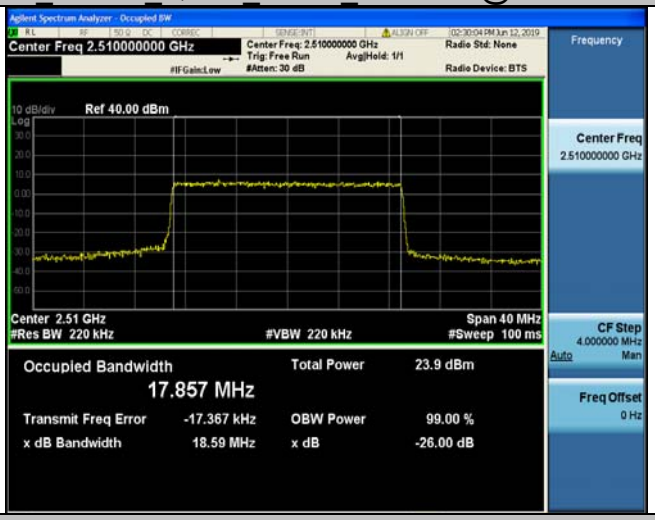
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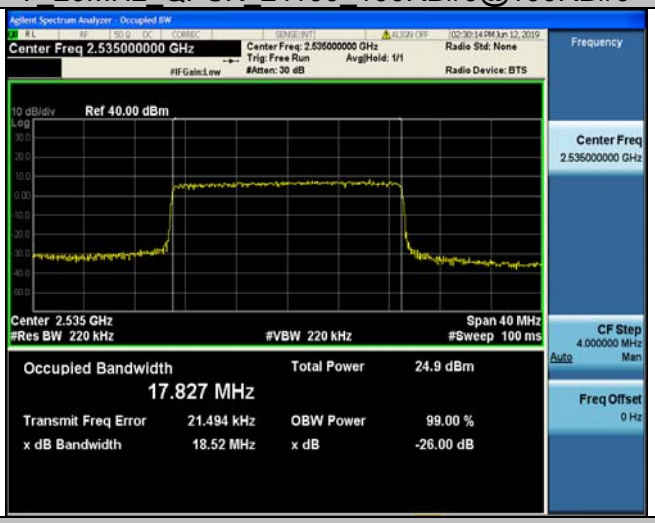
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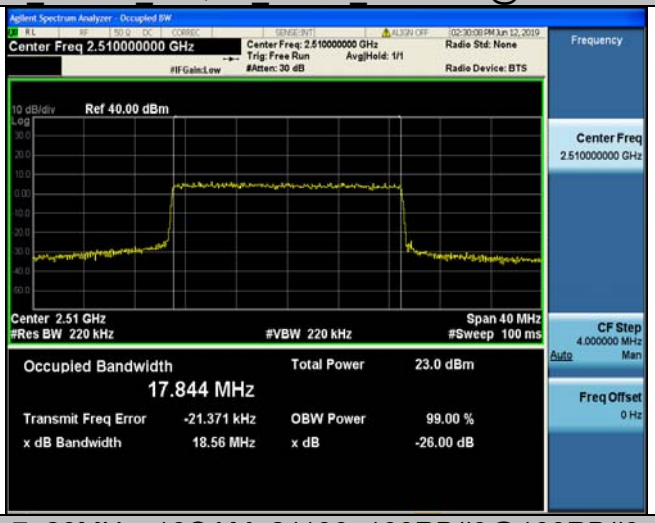
7_20MHz_16QAM_20850_100RB#0@100RB#0

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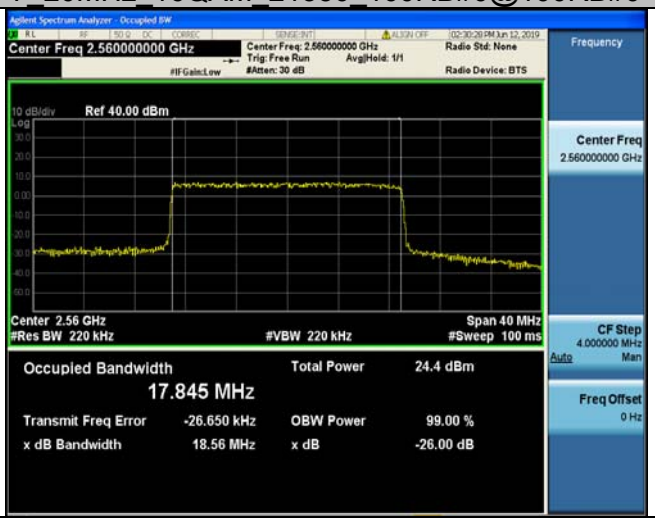

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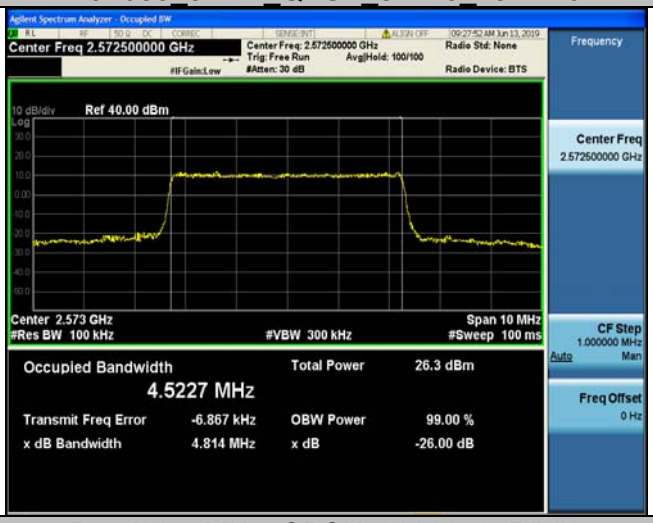
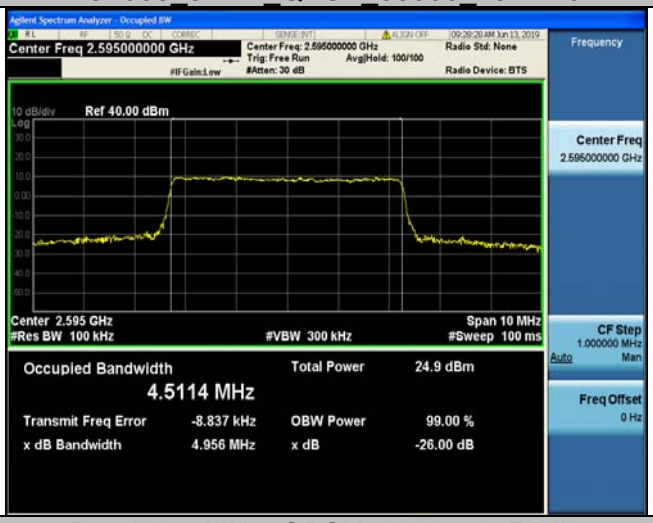

Band38_5MHz_QPSK_38000_25RB#0

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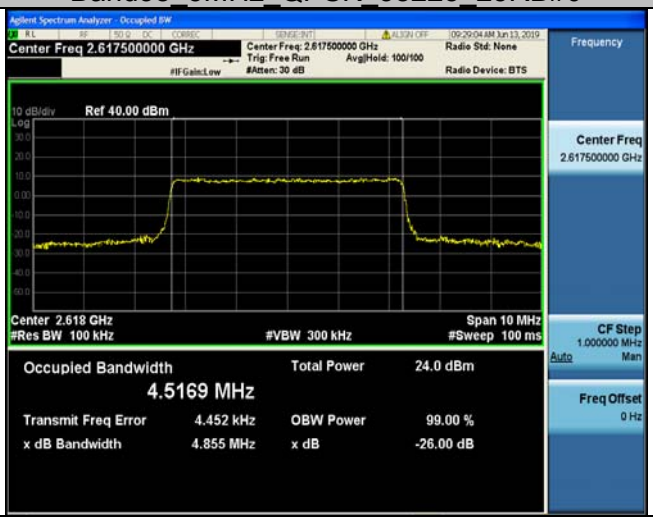
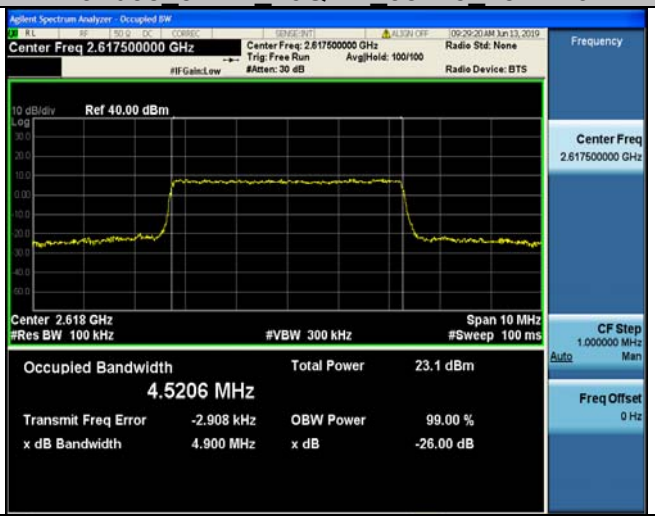


Band38_5MHz_16QAM_37775_25RB#0

Band38_5MHz_16QAM_38000_25RB#0

Band38_5MHz_16QAM_38225_25RB#0


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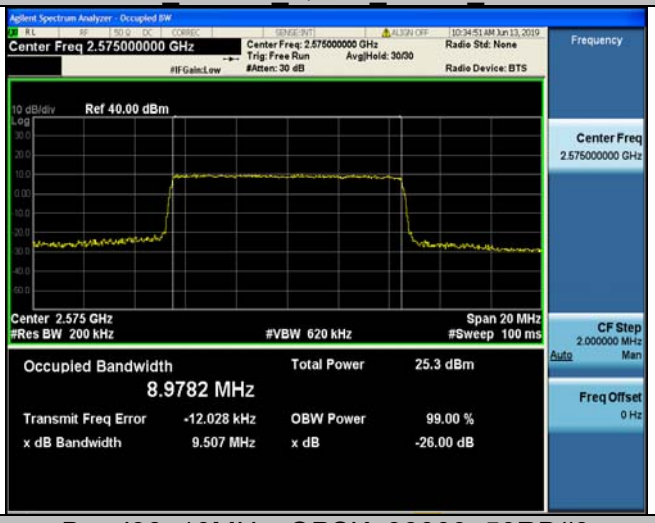
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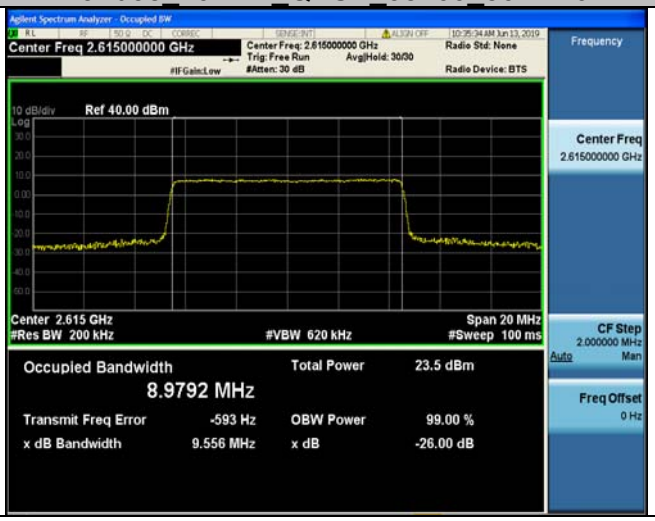

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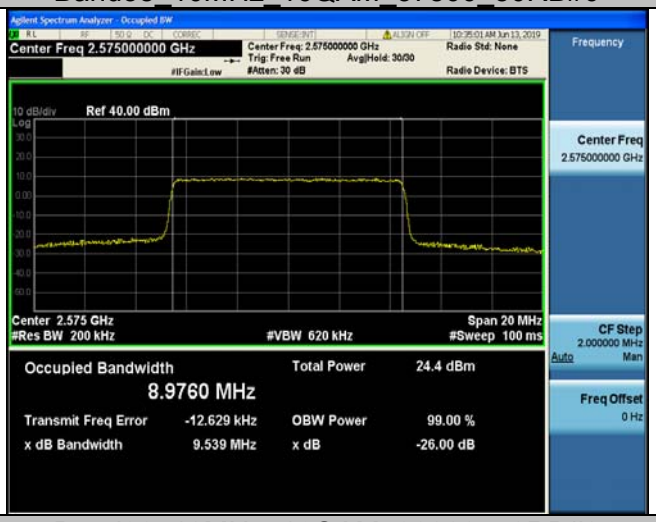
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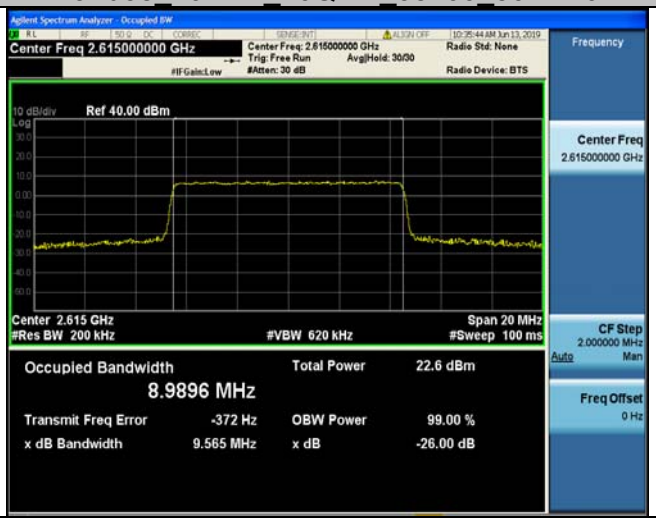

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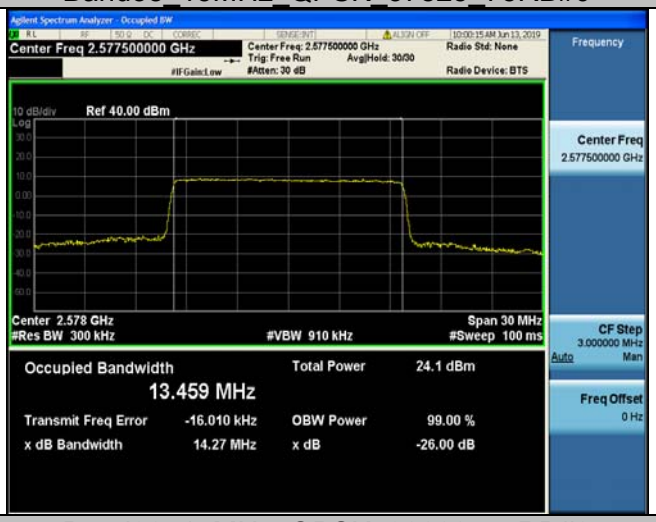
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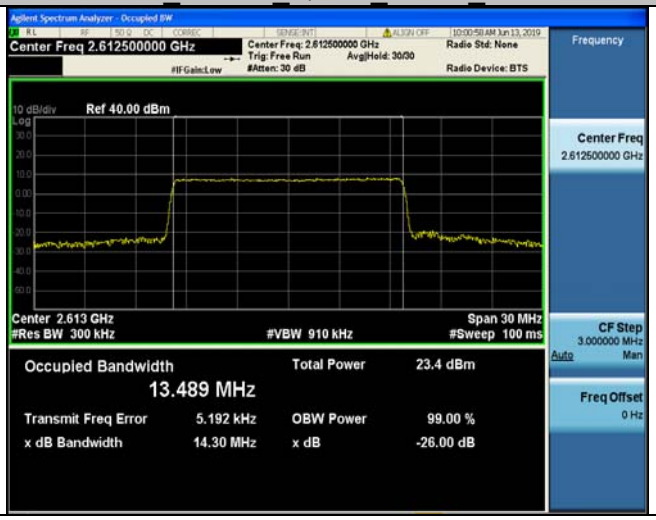
Band38_15MHz_QPSK_38175_75RB#0


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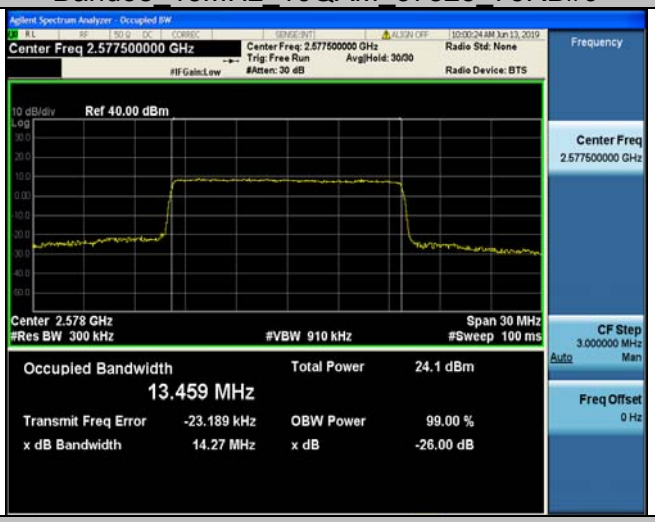
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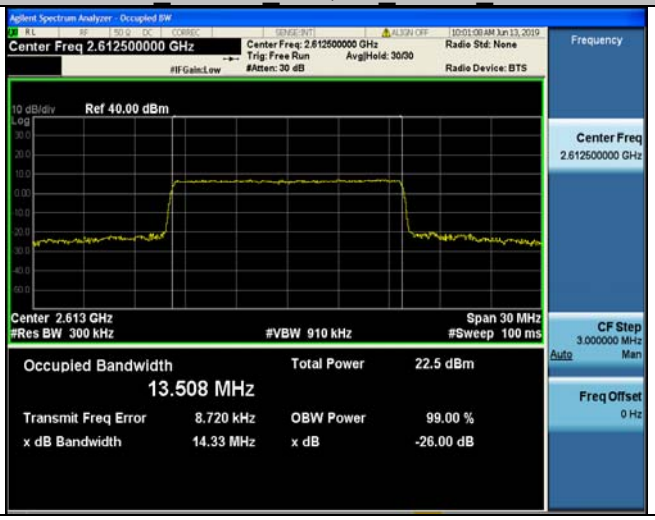
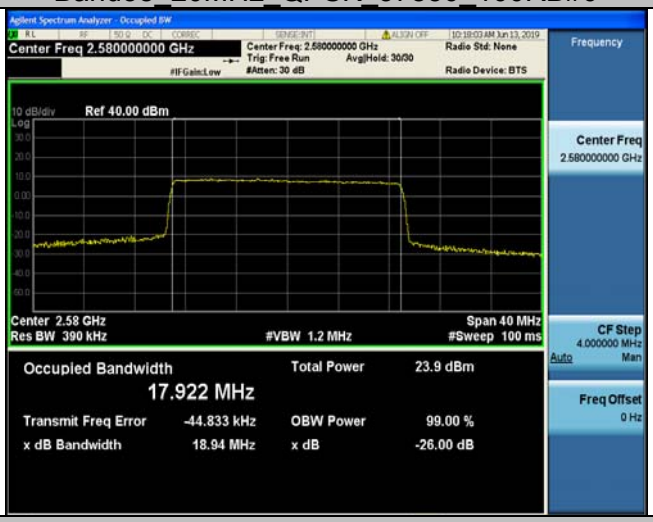
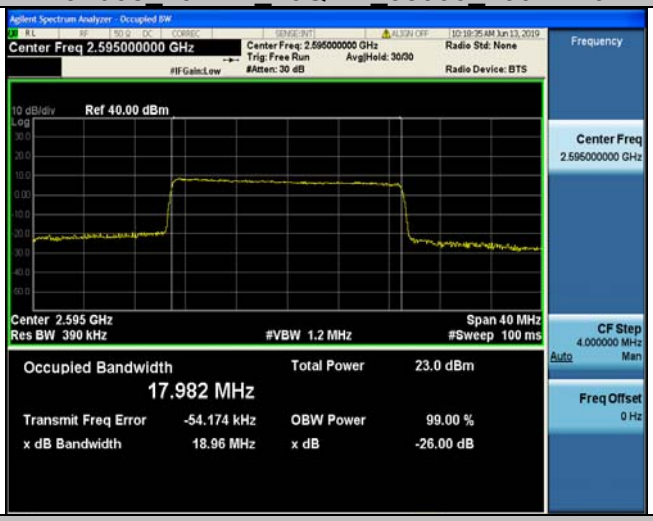
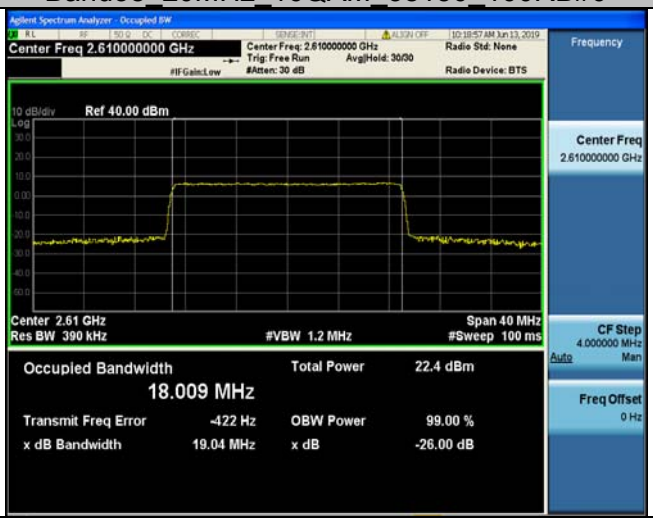


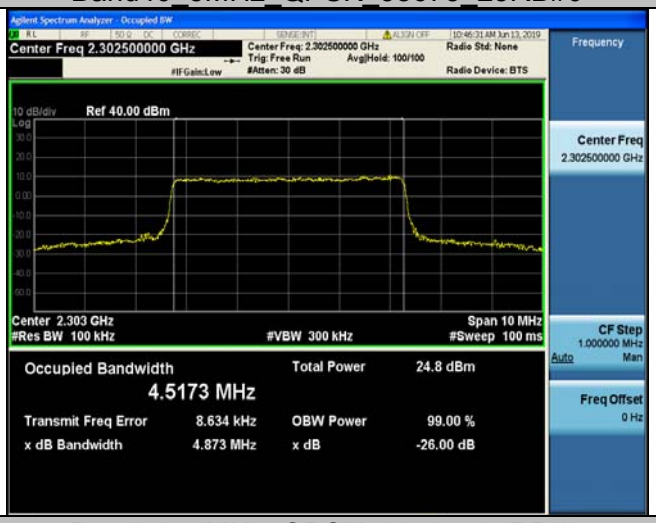
Band38_20MHz_QPSK_37850_100RB#0

Band38_20MHz_QPSK_38000_100RB#0

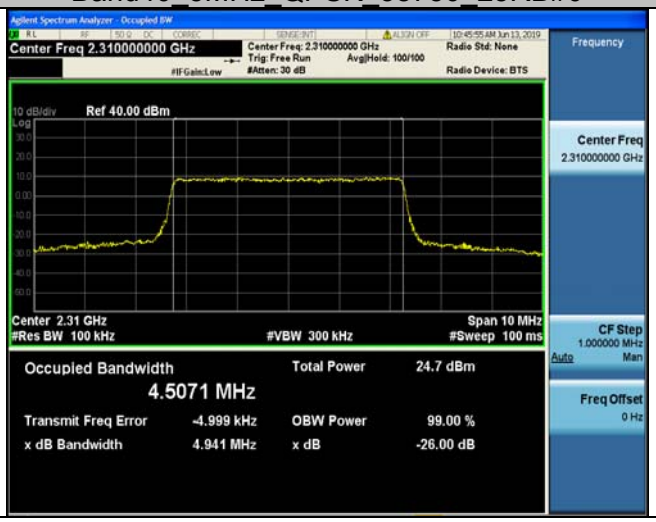
Band38_20MHz_QPSK_38150_100RB#0

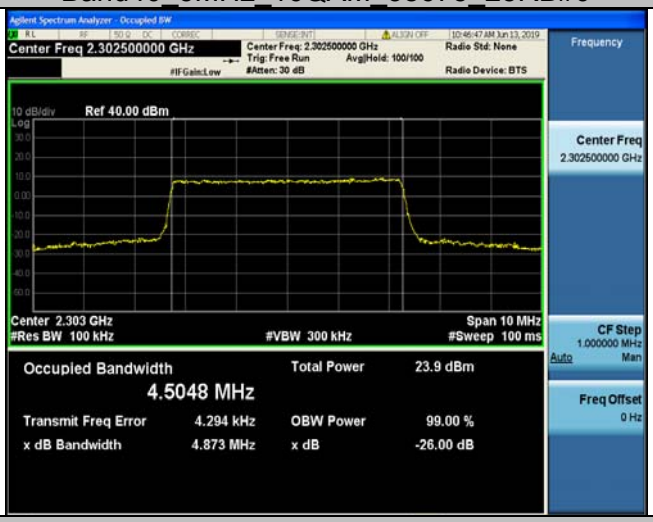
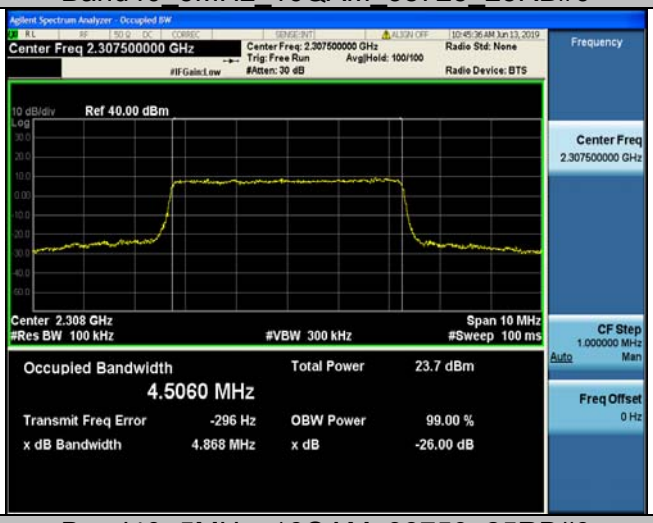

Band38_20MHz_16QAM_37850_100RB#0

Band38_20MHz_16QAM_38000_100RB#0

Band38_20MHz_16QAM_38150_100RB#0


LTE Band 40

Band40_5MHz_QPSK_38675_25RB#0

Band40_5MHz_QPSK_38725_25RB#0

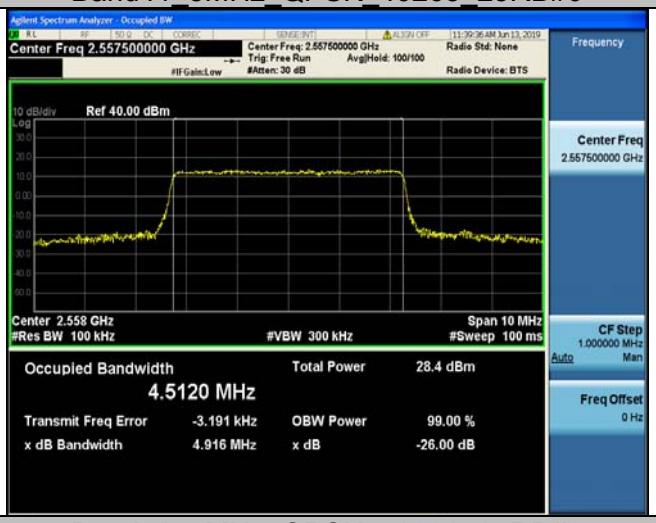
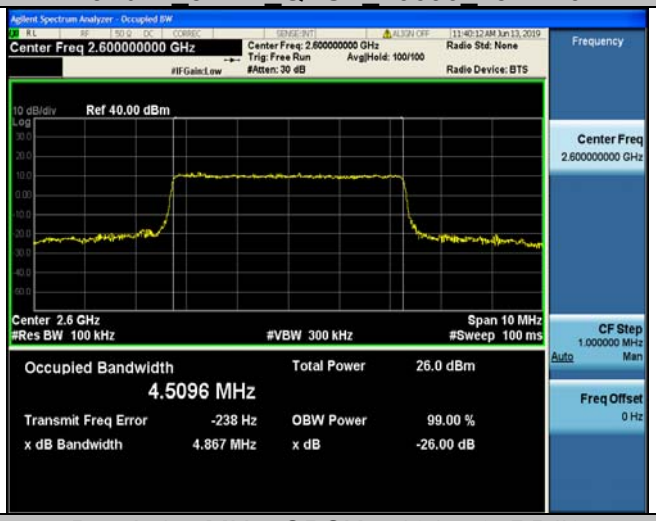
Band40_5MHz_QPSK_38750_25RB#0


Band40_5MHz_16QAM_38675_25RB#0

Band40_5MHz_16QAM_38725_25RB#0

Band40_5MHz_16QAM_38750_25RB#0


Band40_10MHz_QPSK_38750_50RB#0

Band40_10MHz_16QAM_38750_50RB#0


LTE Band 41

Band41_5MHz_QPSK_40265_25RB#0

Band41_5MHz_QPSK_40690_25RB#0

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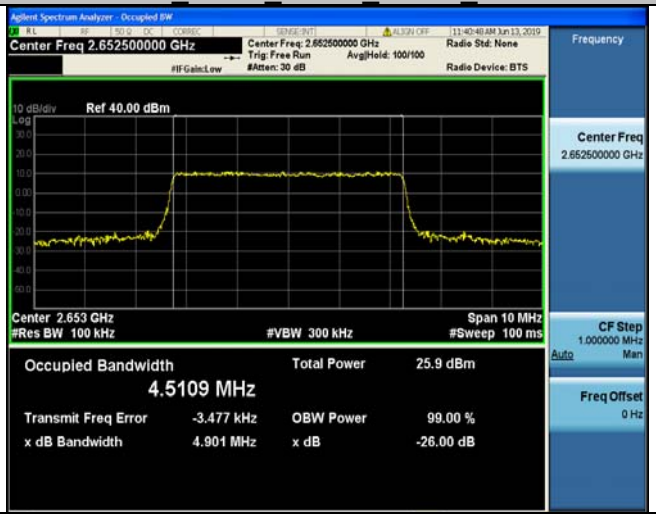
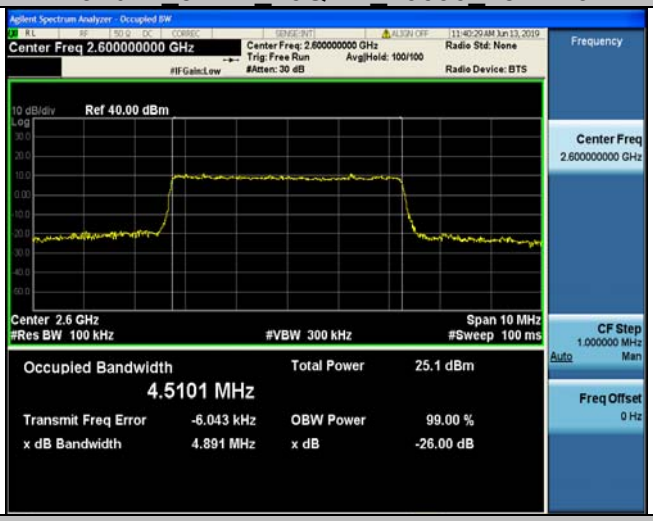
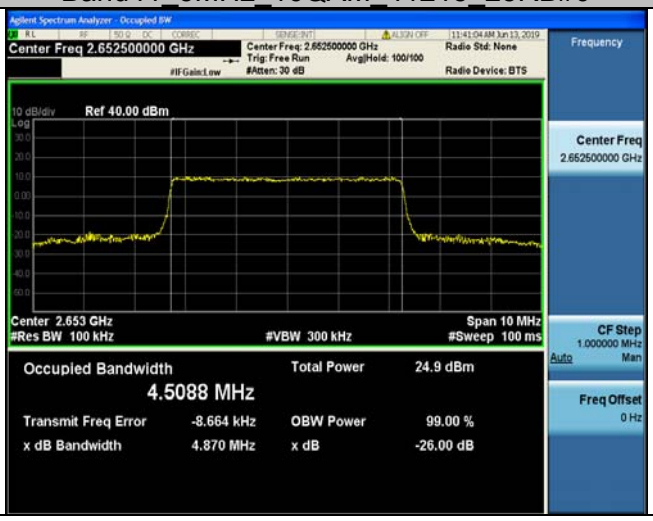
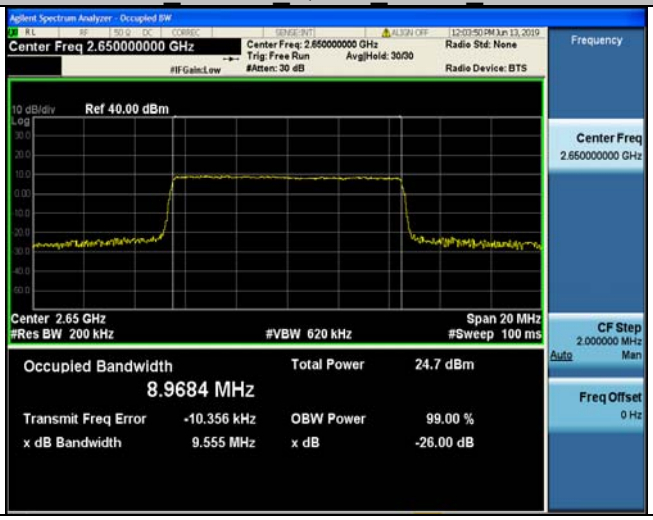


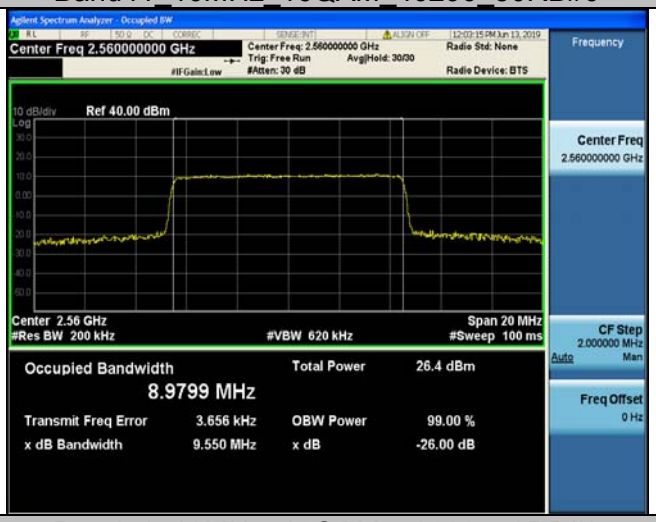
Band41_5MHz_16QAM_40265_25RB#0

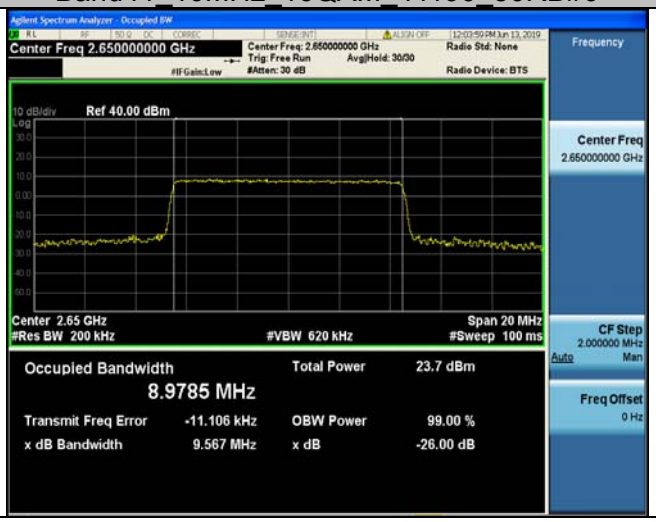
Band41_5MHz_16QAM_40690_25RB#0

Band41_5MHz_16QAM_41215_25RB#0


Band41_10MHz_QPSK_40290_50RB#0

Band41_10MHz_QPSK_40690_50RB#0

Band41_10MHz_QPSK_41190_50RB#0


Band41_10MHz_16QAM_40290_50RB#0

Band41_10MHz_16QAM_40690_50RB#0

Band41_10MHz_16QAM_41190_50RB#0


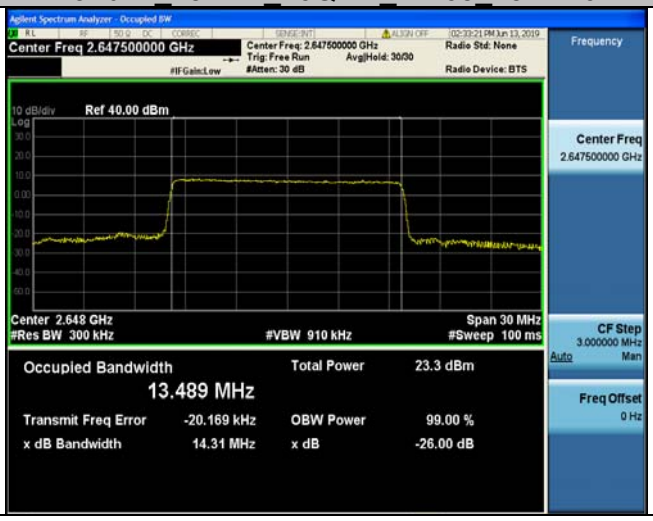
Band41_15MHz_QPSK_40315_75RB#0

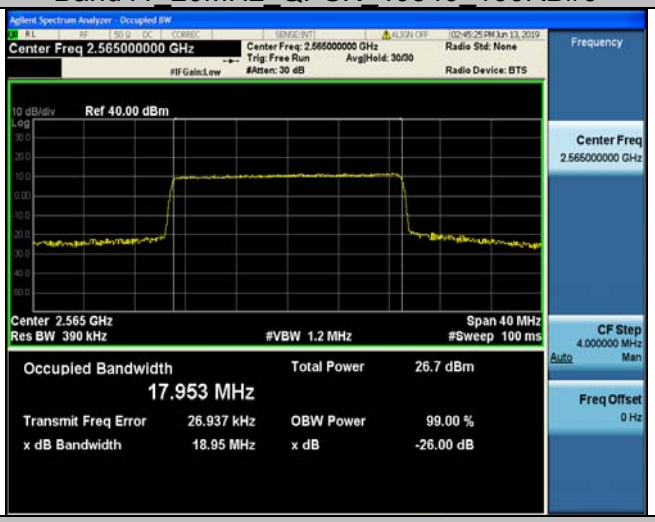
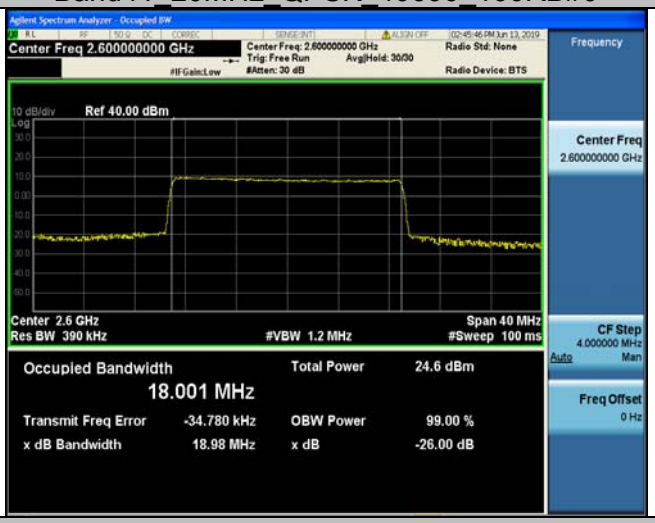
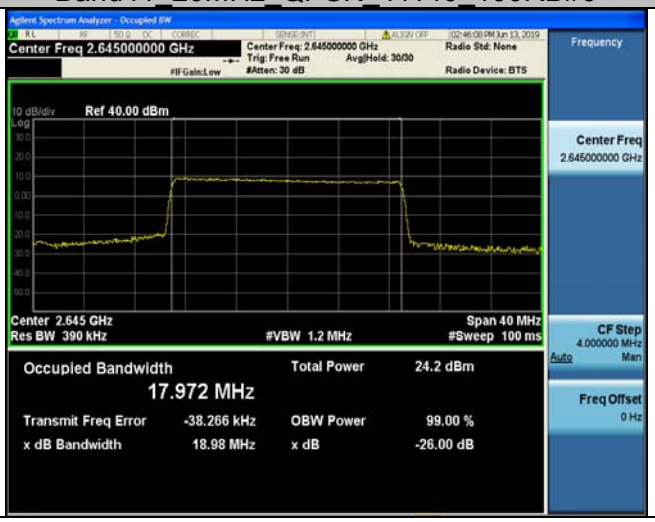
Band41_15MHz_QPSK_40690_75RB#0

Band41_15MHz_QPSK_41165_75RB#0


Band41_15MHz_16QAM_40315_75RB#0

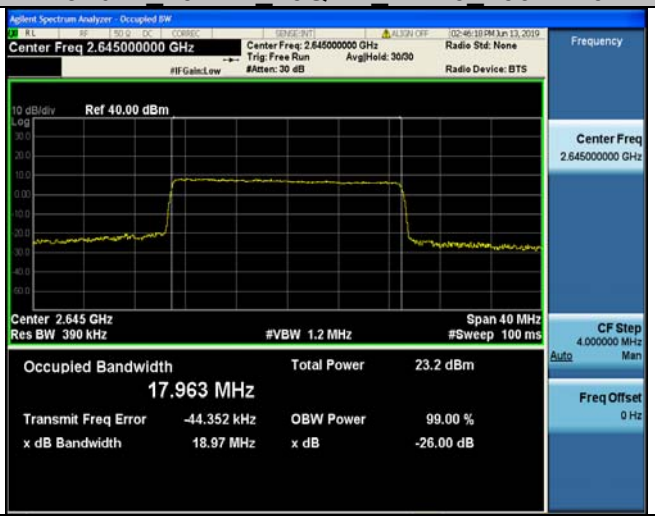
Band41_15MHz_16QAM_40690_75RB#0

Band41_15MHz_16QAM_41165_75RB#0


Band41_20MHz_QPSK_40340_100RB#0

Band41_20MHz_QPSK_40690_100RB#0

Band41_20MHz_QPSK_41140_100RB#0


Band41_20MHz_16QAM_40340_100RB#0

Band41_20MHz_16QAM_40690_100RB#0

Band41_20MHz_16QAM_41140_100RB#0


6 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

6.1.1 Limit

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10(P) dB (-13 dBm).
Band7: For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.

6.1.2 Test procedure

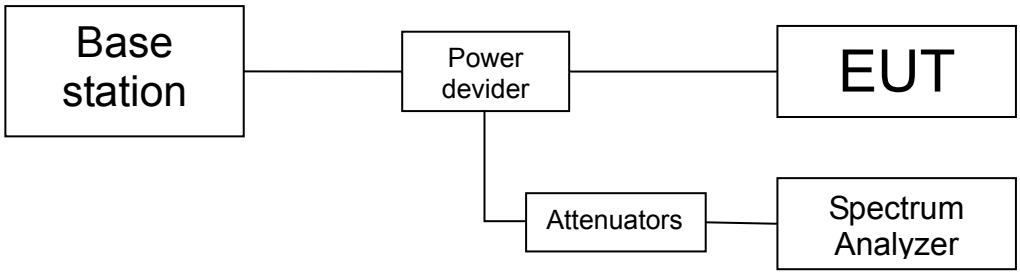
1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.

2. The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

3. For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic.

4. Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.

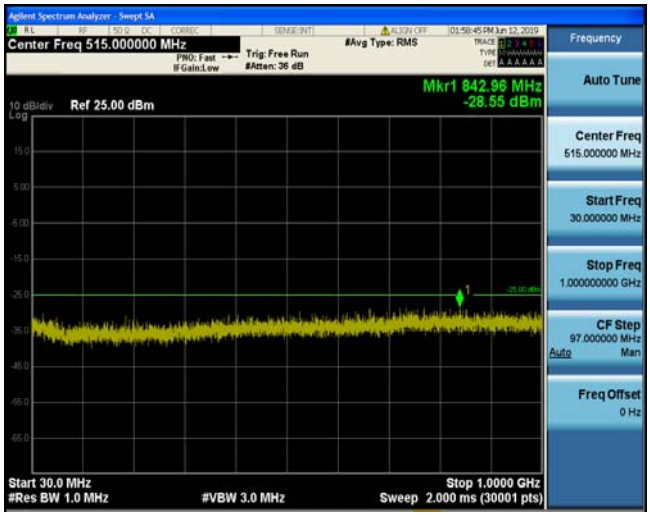
6.1.3 Test setup



6.1.4 Test results

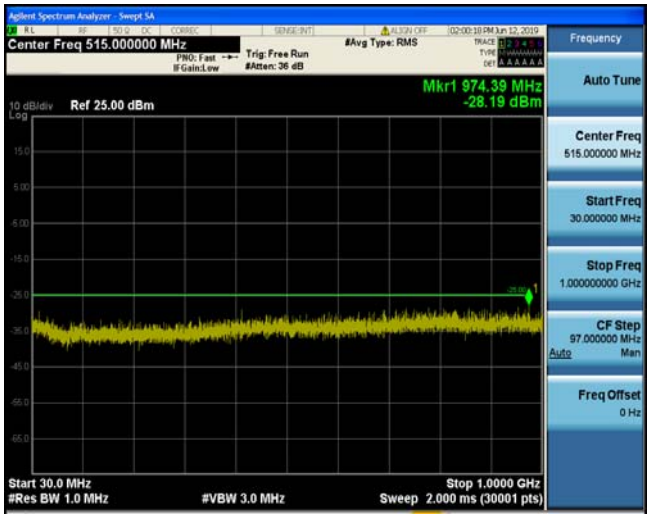
Note: All mode has been tested, only worst data(Middle channel) was shown in this report.

LTE BAND 7

30MHz – 1GHz	*1GHz – 5GHz*
	
5GHz – 12GHz	12GHz – 26.5GHz
	

LTE BAND 38

30MHz – 1GHz

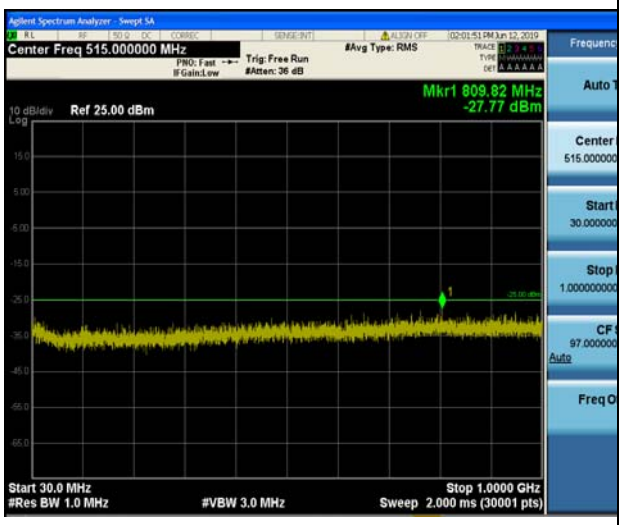


1GHz – 5GHz

5GHz – 12GHz

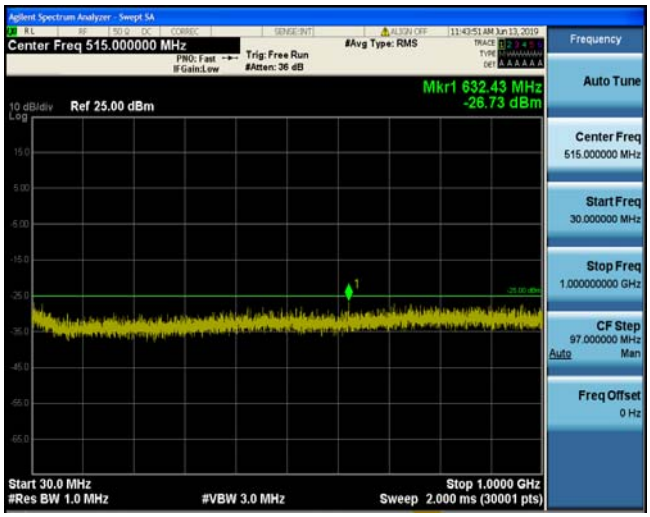
12GHz – 26.5GHz

LTE BAND 40

30MHz – 1GHz	*1GHz – 5GHz*
	
5GHz – 12GHz	12GHz – 26.5GHz
	

LTE BAND 41

30MHz – 1GHz



1GHz – 5GHz

5GHz – 12GHz

12GHz – 26.5GHz

6.2 Band edge at antenna terminals

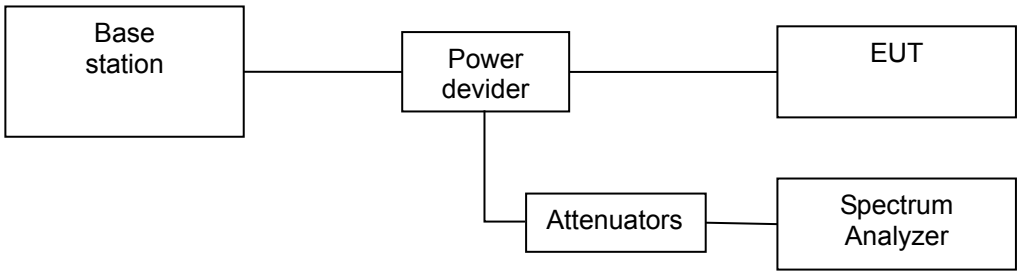
6.2.1 Limit

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

6.2.2 Test procedure

1. The testing follows FCC KDB 971168 v03 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 200kHz, VBW = 620kHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

6.2.3 Test setup

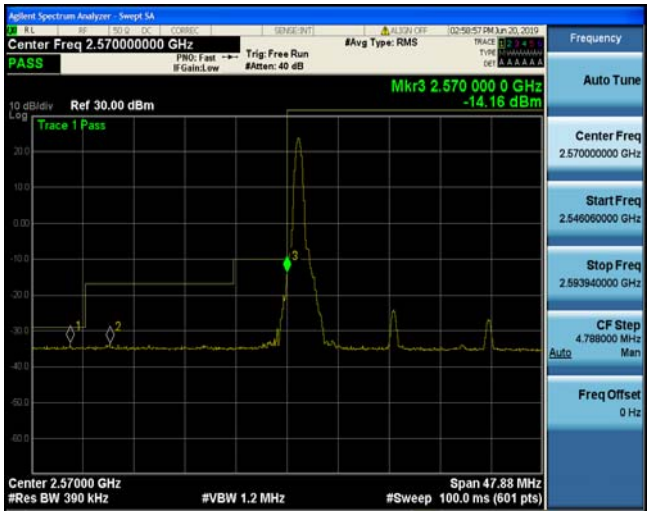


6.2.4 Test results

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

Test plots

LTE Band 7 (Bandwidth 20MHz)	
Low Bandedge RB Size 1,RB offset 0	High Bandedge RB Size 1,RB offset 99
	
Low Bandedge RB Size 100,RB offset 0	High Bandedge RB Size 100,RB offset 0
	

LTE Band 38 (Bandwidth 10MHz)	
Low Bandedge RB Size 1,RB offset 0	High Bandedge RB Size 1,RB offset 99
	
Low Bandedge RB Size 100,RB offset 0	High Bandedge RB Size 100,RB offset 0
	

LTE Band 40 (Bandwidth 10MHz)	
Middle Bandedge RB Size 1,RB offset 0	Band40_10MHz_QPSK_38750_1RB#49
	
Middle Bandedge RB Size 50,RB offset 0	
	--

LTE Band 40 (Bandwidth 20MHz)	
Low Bandedge RB Size 1,RB offset 0	High Bandedge RB Size 1,RB offset 99
	
Low Bandedge RB Size 100,RB offset 0	High Bandedge RB Size 100,RB offset 0
	

6.3 Field strength of spurious radiation measurement

6.3.1 Limit

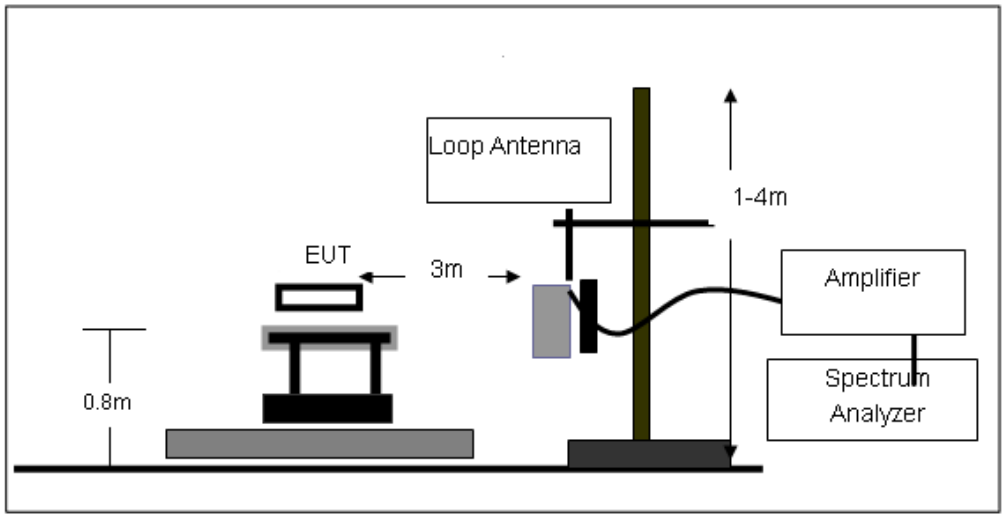
LTE Band 2, LTE Band 4, LTE Band 12: -13dBm

6.3.2 Test procedure

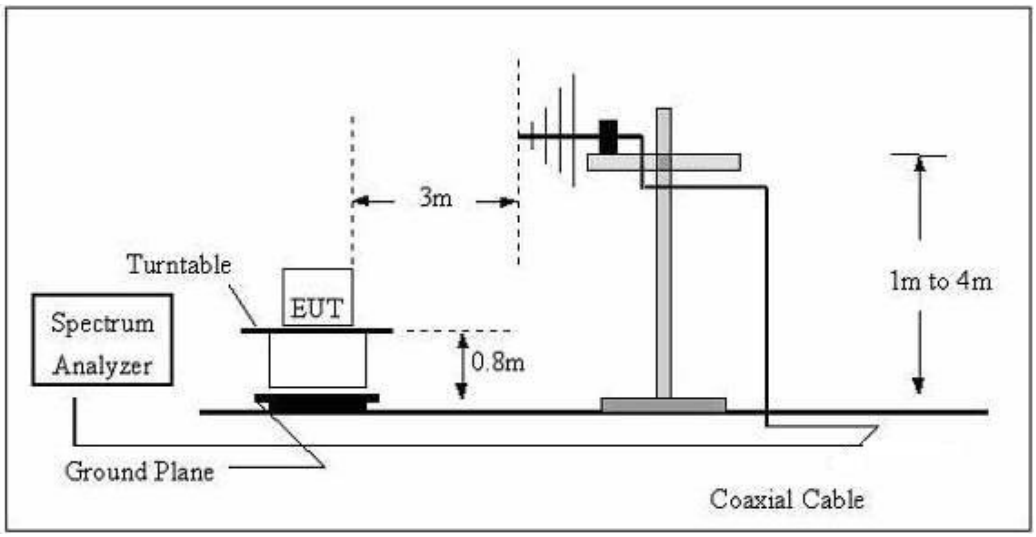
1. The EUT was placed on an non-conductive turntable using a nonconductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.
2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.
3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.
4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB).

6.3.3 Test setup

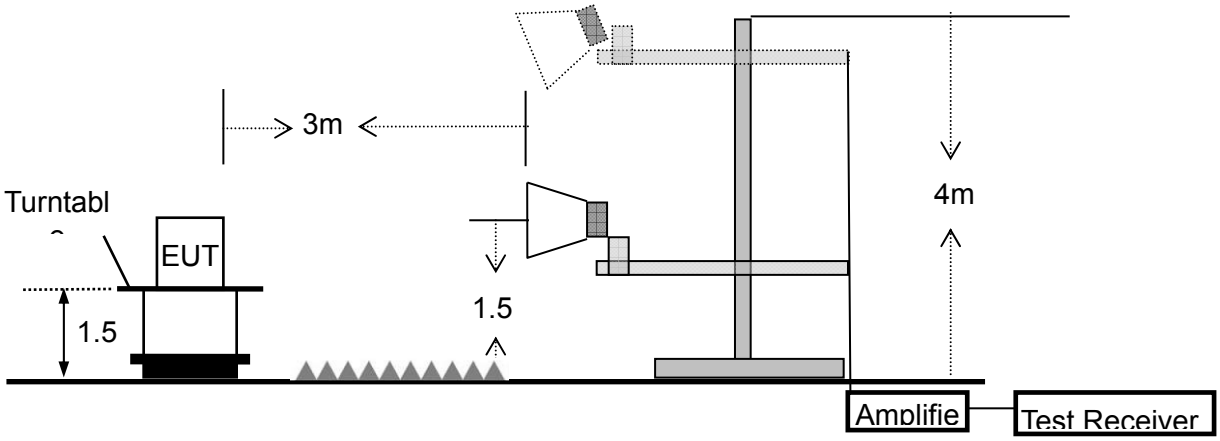
Radiated emission test-up frequency below 30MHz



Radiated emission test-up frequency 30MHz~1GHz



Radiated emission test-up frequency above 1GHz



6.3.4 Test results

Note: All the configuration was tested and only the worse case was reported

LTE Band 2 (30MHz – 19GHz)

No	Frequency (MHz)	Reading Level(dBm)	Correct Factor(dB)	Measurement (dBm)	Limit (dBm)	Margin	Polarization	Result
1	277.0935	-65.26	16.13	-49.13	-13	36.13	H	Pass
2	410.3824	-64.97	19.5	-45.47	-13	32.47	H	Pass
3	603.5392	-64.09	21.6	-42.49	-13	29.49	H	Pass
4	12404.81	-65.61	13.15	-52.46	-13	39.46	H	Pass
5	14905.812	-58.81	16.21	-42.6	-13	29.6	H	Pass
6	15851.703	-61.03	4.08	-56.95	-13	43.95	H	Pass

No.	Frequency (MHz)	Reading Level(dBm)	Correct Factor(dB)	Measurement (dBm)	Limit (dBm)	Margin	Polarization	Result
1	100.2286	-64.27	14.67	-49.60	-13	-36.60	V	Pass
2	148.441	-64.37	12.37	-52.00	-13	-39.00	V	Pass
3	478.8455	-62.52	20.86	-41.66	-13	-28.66	V	Pass
4	11282.565	-59.78	9.96	-49.82	-13	-36.82	V	Pass
5	12340.681	-62.52	11.01	-51.51	-13	-38.51	V	Pass
6	12965.932	-62.02	12.01	-50.01	-13	-37.01	V	Pass
7	17965.3	-61.32	10.36	-50.96	-13	-37.96	V	Pass
8	17984.9	-59.17	11.52	-47.65	-13	-34.65	V	Pass

LTE Band 4 (30MHz – 18GHz)

No.	Frequency (MHz)	Reading Level(dBm)	Correct Factor(dB)	Measurement (dBm)	Limit (dBm)	Margin	Polarization	Result
1	369.4045	-63.33	18.49	-44.84	-13	-31.84	H	Pass
2	459.1143	-63.23	20.47	-42.76	-13	-29.76	H	Pass
3	656.53	-62.16	22.16	-40.00	-13	-27.00	H	Pass
4	12741.483	-62.70	11.68	-51.02	-13	-38.02	H	Pass
5	14008.016	-59.89	17.12	-42.77	-13	-29.77	H	Pass
6	14505.01	-58.41	16.65	-41.76	-13	-28.76	H	Pass
7	17521.14	-58.84	15.98	-42.86	-13	-29.86	H	Pass
8	17634.09	-58.80	17.32	-41.48	-13	-28.48	H	Pass

No.	Frequency (MHz)	Reading Level(dBm)	Correct Factor(dB)	Measurement (dBm)	Limit (dBm)	Margin	Polarization	Result
1	212.2694	-63.26	14.34	-48.92	-13	-35.92	V	Pass
2	325.5957	-64.63	17.34	-47.29	-13	-34.29	V	Pass
3	431.0316	-63.68	19.91	-43.77	-13	-30.77	V	Pass
4	13783.567	-60.21	16.67	-43.54	-13	-30.54	V	Pass
5	14232.465	-58.89	17.11	-41.78	-13	-28.78	V	Pass
6	14905.812	-58.67	16.21	-42.46	-13	-29.46	V	Pass
7	17102.02	-58.56	16.34	-42.22	-13	-29.22	V	Pass
8	17235.61	-53.57	17.42	-36.15	-13	-23.15	V	Pass

LTE Band 12 (30MHz – 18G)

No.	Frequency (MHz)	Reading Level(dBm)	Correct Factor(dB)	Measurement (dBm)	Limit (dBm)	Margin	Polarization	Result
1	293.0842	-62.64	16.51	-46.13	-13	-33.13	H	Pass
2	810.2653	-60.40	24.15	-36.25	-13	-23.25	H	Pass
3	958.7943	-61.95	25.98	-35.97	-13	-22.97	H	Pass
4	11298.597	-63.83	12.03	-51.80	-13	-38.80	H	Pass
5	12693.387	-64.57	13.48	-51.09	-13	-38.09	H	Pass
6	12869.739	-64.15	13.64	-50.51	-13	-37.51	H	Pass

No.	Frequency (MHz)	Reading Level(dBm)	Correct Factor(dB)	Measurement (dBm)	Limit (dBm)	Margin	Polarization	Result
1	325.5957	-63.91	17.34	-46.57	-13	-33.57	V	Pass
2	478.8455	-64.49	20.86	-43.63	-13	-30.63	V	Pass
3	919.2866	-61.58	25.64	-35.94	-13	-22.94	V	Pass
4	14232.465	-58.74	17.11	-41.63	-13	-28.63	V	Pass
5	14905.812	-58.67	16.21	-42.46	-13	-29.46	V	Pass
6	15274.549	-55.14	4.15	-50.99	-13	-37.99	V	Pass

6.4 Frequency Stablity

6.4.1 Limit

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d) (2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.5VDC and 4.4VDC, with a nominal voltage of 3.85VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from over stress. These voltages represent a tolerance from -5.4% to 10.8%. For the purposes of measuring frequency stability these voltage limits are to be used.

6.4.2 Test procedure

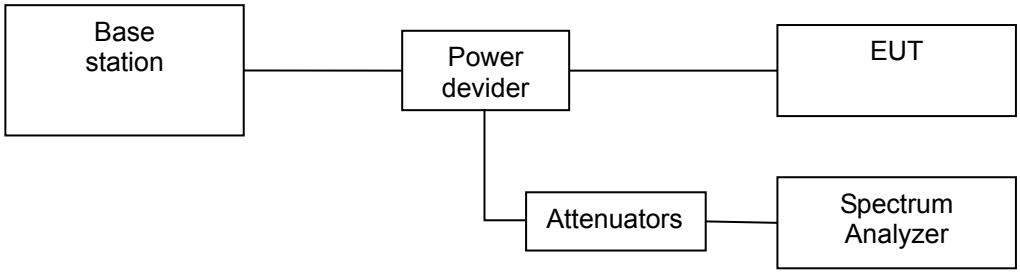
Test Procedures for Temperature Variation:

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simlator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

6.4.3 Test setup

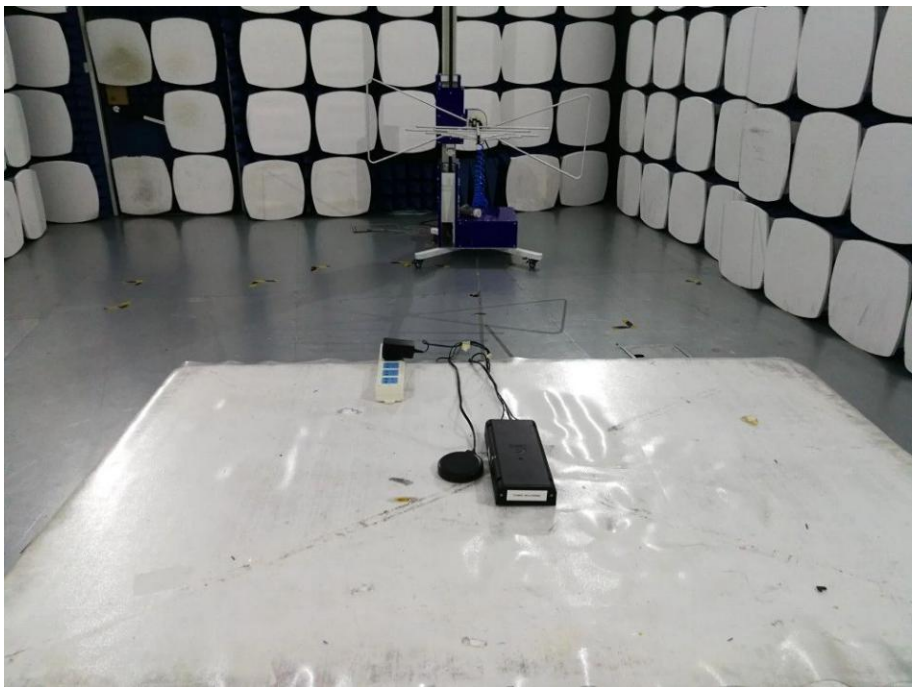
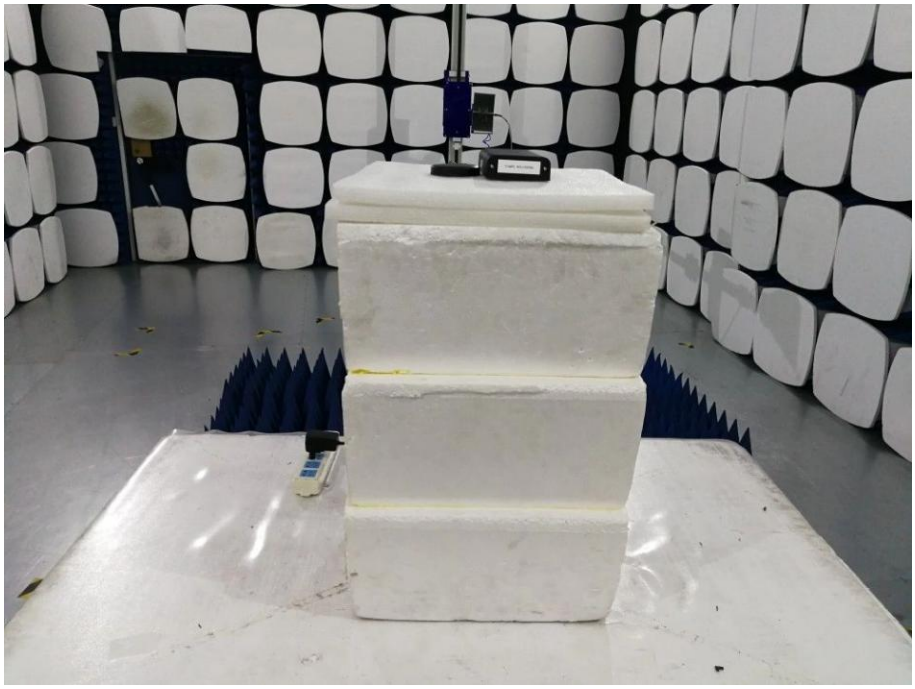


6.4.4 Test results

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	10MHz	QPSK	18650	50RB#0	VL	NT	-8.51	-0.004588	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	VN	NT	-6.72	-0.003623	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	VH	NT	-9.47	-0.005105	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	VL	NT	7.84	0.004170	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	VN	NT	-12.16	-0.006468	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	VH	NT	-7.44	-0.003957	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	VL	NT	-7.71	-0.004047	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	VN	NT	12.92	0.006782	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	VH	NT	5.49	0.002882	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	VL	NT	10.39	0.005997	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	VN	NT	10.83	0.006251	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	VH	NT	10.06	0.005807	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	VL	NT	5.55	0.007845	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	VN	NT	6.31	0.008919	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	VH	NT	5.09	0.007194	±2.5	PASS

Temperature										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	10MHz	QPSK	18650	50RB#0	NV	-30	-9.43	-0.005084	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	-20	-7.97	-0.004296	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	-10	-11.40	-0.006146	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	0	-9.17	-0.004943	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	10	-10.87	-0.005860	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	20	-8.90	-0.004798	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	30	-8.94	-0.004819	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	40	-7.95	-0.004286	±2.5	PASS
Band2	10MHz	QPSK	18650	50RB#0	NV	50	-7.72	-0.004162	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	-30	-8.91	-0.004739	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	-20	7.70	0.004096	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	-10	-8.55	-0.004548	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	0	7.31	0.003888	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	10	-8.01	-0.004261	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	20	-7.01	-0.003729	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	30	7.10	0.003777	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	40	6.79	0.003612	±2.5	PASS
Band2	10MHz	QPSK	18900	50RB#0	NV	50	-7.21	-0.003835	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	-30	8.85	0.004646	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	-20	7.77	0.004079	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	-10	9.91	0.005202	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	0	6.72	0.003528	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	10	8.77	0.004604	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	20	7.00	0.003675	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	30	8.90	0.004672	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	40	8.03	0.004215	±2.5	PASS
Band2	10MHz	QPSK	19150	50RB#0	NV	50	-8.85	-0.004646	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	-30	8.91	0.005143	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	-20	11.87	0.006851	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	-10	11.43	0.006597	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	0	9.84	0.005680	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	10	10.74	0.006199	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	20	9.26	0.005345	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	30	11.93	0.006886	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	40	10.06	0.005807	±2.5	PASS
Band4	10MHz	QPSK	20175	50RB#0	NV	50	12.83	0.007405	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	-30	5.61	0.007929	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	-20	4.28	0.006049	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	-10	4.86	0.006869	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	0	4.63	0.006544	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	10	6.18	0.008735	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	20	5.58	0.007887	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	30	-4.85	-0.006855	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	40	-3.30	-0.004664	±2.5	PASS
Band12	10MHz	QPSK	23095	50RB#0	NV	50	5.15	0.007279	±2.5	PASS

Photographs of the Test Setup

Radiated emission



Photographs of the EUT

See the APPENDIX 1: EUT PHOTO in the report No.: MTi190611E067-1.

----END OF REPORT----