



RF TEST REPORT

Applicant ZTE Corporation
FCC ID SRQ-MF289F
Product MF289F
Model MF289F
Report No. R2102A0149-R3
Issue Date July 7, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2020)/ FCC CFR47 Part 27C (2020)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Isotropic Radiated Power	2.1046 /27.50(h)(2)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	/27.53(m)	PASS
4	Peak-to-Average Power Ratio	27.50(d)/KDB971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 27.54	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 /27.53(m)	PASS
7	Radiates Spurious Emission	2.1053 /27.53(m)	PASS

Date of Testing: March 9, 2021 ~ March 17, 2021
Date of Sample Received: February 22, 2021

Note: PASS: The EUT complies with the essential requirements in the standard.
FAIL: The EUT does not comply with the essential requirements in the standard.
All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.



1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City: Shanghai
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2 General Description of Equipment under Test

2.1 Applicant and Manufacturer Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2.2 General information

EUT Description			
Model	MF289F		
IMEI	864781050000249		
Hardware Version	mb5B		
Software Version	VDF_DE_MF289FV1.0.0B01		
Power Supply	AC adapter		
Antenna Type	Internal Antenna		
Antenna Gain	2dBi		
Test Mode(s)	LTE Band 7/38;		
Test Modulation	(LTE)QPSK 16QAM,64QAM;		
LTE Release	14		
Maximum E.I.R.P./ E.R.P.	LTE Band 7:	25.75dBm	
	LTE Band 38:	25.94dBm	
Rated Power Supply Voltage	12V		
Operating Voltage	Minimum: 10.8V Maximum: 13.2V		
Operating Temperature	Lowest: -20°C Highest: +55°C		
Extreme Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	LTE Band 7	2500 ~ 2570	2620 ~ 2690
	LTE Band 38	2570 ~ 2620	2570 ~ 2620
EUT Accessory			
Adapter	Manufacturer: Shenzhen Ruijing Industrial Co., Ltd. Model: STC-A1215C55-A		
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			



3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 27C (2020)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2020)

KDB 971168 D01 Power Meas License Digital Systems v03r01

4 Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, vertical polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated. Subsequently, only the worst case emissions are reported.

The following testing in LTE is set based on the maximum RF Output Power.

The following testing in different Bandwidth is set to detail in the following table:

Test modes are chosen to be reported as the worst case configuration below:

Test modes are chosen to be reported as the worst case configuration below for LTE Band 7/38:

Test items	Modes	Bandwidth (MHz)				Modulation			RB			Test Channel		
		5	10	15	20	QPSK	16QAM	64QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic Radiated Power	LTE 7	O	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 38	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 7	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 38	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 7	O	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 38	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 7	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 38	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 7	O	O	O	O	O	O	O	O	-	-	-	O	-
	LTE 38	O	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	LTE 7	O	O	O	O	O	-	-	O	-	-	O	O	O
	LTE 38	O	O	O	O	O	-	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 7	O	-	-	O	O	-	-	O	-	-	-	O	-
	LTE 38	O	-	-	O	O	-	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.													



5 Test Case Results

5.1 RF Power Output and Effective Isotropic Radiated Power

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

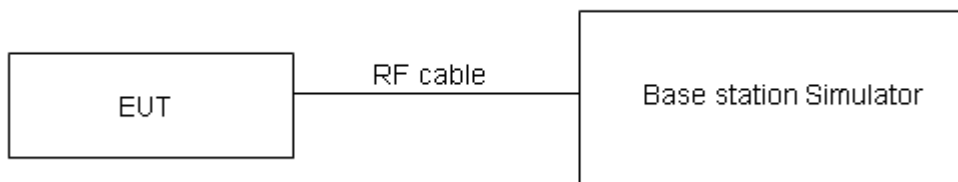
ERP can then be calculated as follows:

$$\text{EIRP (dBm)} = \text{Output Power (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBi)}$$

where:dBd refers to gain relative to an ideal dipole.

$$\text{EIRP (dBm)} = \text{ERP (dBm)} + 2.15 \text{ (dB.)}$$

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 27.50(b) (10) specifies that “Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP”

Rule Part 27.50(c) (10) specifies that “Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP”

Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

Rule Part 27.50(h) (2) specifies that “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.”

Rule Part 27.50(a) (3) specifies that “(i) 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. ”

Part 27.50(h)(2) Limit	$\leq 2 \text{ W}$ (33 dBm)
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U=0.4$ dB for RF power output, $k = 2$, $U= 1.19$ dB for ERP/EIRP.



Test Results

LTE Band 7				Maximum Output Power(dBm)			EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20775/ 2502.5	21100/ 2535	21425/ 2567.5	20775/ 2502.5	21100/ 2535	21425/ 2567.5
5MHz	QPSK	1	0	23.26	23.03	22.92	25.26	25.03	24.92
		1	13	23.32	23.28	23.14	25.32	25.28	25.14
		1	24	23.37	23.36	23.13	25.37	25.36	25.13
		12	0	22.34	22.17	21.99	24.34	24.17	23.99
		12	6	22.34	22.15	21.93	24.34	24.15	23.93
		12	13	22.35	22.39	22.12	24.35	24.39	24.12
		25	0	22.37	22.38	22.01	24.37	24.38	24.01
	16QAM	1	0	22.40	22.29	22.18	24.40	24.29	24.18
		1	13	22.50	22.62	22.38	24.50	24.62	24.38
		1	24	22.52	22.56	22.37	24.52	24.56	24.37
		12	0	21.27	21.08	20.93	23.27	23.08	22.93
		12	6	21.27	21.12	20.90	23.27	23.12	22.90
		12	13	21.35	21.38	21.03	23.35	23.38	23.03
		25	0	21.27	21.09	20.98	23.27	23.09	22.98
	64QAM	1	0	21.21	21.47	21.42	23.21	23.47	23.42
		1	13	21.46	21.66	21.59	23.46	23.66	23.59
		1	24	21.43	21.61	21.58	23.43	23.61	23.58
		12	0	20.13	20.21	20.19	22.13	22.21	22.19
		12	6	20.13	20.21	20.22	22.13	22.21	22.22
		12	13	20.24	20.31	20.36	22.24	22.31	22.36
		25	0	20.10	20.27	20.22	22.10	22.27	22.22
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20800/ 2505	21100/ 2535	21400/ 2565	20800/ 2505	21100/ 2535	21400/ 2565
10MHz	QPSK	1	0	23.25	23.07	23.05	25.25	25.07	25.05
		1	25	23.09	23.23	22.77	25.09	25.23	24.77
		1	49	23.09	23.55	22.94	25.09	25.55	24.94
		25	0	22.33	22.14	22.02	24.33	24.14	24.02
		25	13	22.21	22.09	22.01	24.21	24.09	24.01
		25	25	22.20	22.36	21.98	24.20	24.36	23.98
		50	0	22.23	22.30	21.91	24.23	24.30	23.91



	16QAM	1	0	22.55	21.88	22.22	24.55	23.88	24.22
		1	25	22.32	21.90	22.00	24.32	23.90	24.00
		1	49	22.28	22.23	22.28	24.28	24.23	24.28
		25	0	21.37	21.09	21.09	23.37	23.09	23.09
		25	13	21.36	21.11	21.01	23.36	23.11	23.01
		25	25	21.17	21.30	21.02	23.17	23.30	23.02
		50	0	21.18	21.19	20.97	23.18	23.19	22.97
	64QAM	1	0	21.28	21.31	21.11	23.28	23.31	23.11
		1	25	21.22	21.21	21.06	23.22	23.21	23.06
		1	49	21.43	21.33	21.17	23.43	23.33	23.17
		25	0	20.17	20.26	20.27	22.17	22.26	22.27
		25	13	20.18	20.26	20.26	22.18	22.26	22.26
		25	25	20.21	20.29	20.28	22.21	22.29	22.28
		50	0	20.05	20.23	20.27	22.05	22.23	22.27
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20825/ 2507.5	21100/ 2535	21375/ 2562.5	20825/ 2507.5	21100/ 2535	21375/ 2562.5
15MHz	QPSK	1	0	23.39	23.07	23.49	25.39	25.07	25.49
		1	38	23.20	23.39	23.24	25.20	25.39	25.24
		1	74	23.07	23.54	23.29	25.07	25.54	25.29
		36	0	22.43	22.27	22.39	24.43	24.27	24.39
		36	18	22.42	22.35	22.37	24.42	24.35	24.37
		36	39	22.28	22.66	22.24	24.28	24.66	24.24
		75	0	22.34	22.42	22.30	24.34	24.42	24.30
	16QAM	1	0	22.62	22.21	22.37	24.62	24.21	24.37
		1	38	22.44	22.57	22.19	24.44	24.57	24.19
		1	74	22.30	22.76	22.20	24.30	24.76	24.20
		36	0	21.38	21.29	21.31	23.38	23.29	23.31
		36	18	21.82	21.36	21.32	23.82	23.36	23.32
		36	39	21.19	21.58	21.16	23.19	23.58	23.16
		75	0	21.29	21.47	21.25	23.29	23.47	23.25
	64QAM	1	0	21.38	21.48	21.43	23.38	23.48	23.43
		1	38	21.48	21.53	21.46	23.48	23.53	23.46
		1	74	21.54	21.52	21.45	23.54	23.52	23.45
		36	0	20.25	20.45	20.48	22.25	22.45	22.48
		36	18	20.24	20.44	20.46	22.24	22.44	22.46
		36	39	20.37	20.41	20.47	22.37	22.41	22.47



BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20850/2510	21100/2535	21350/2560	20850/2510	21100/2535	21350/2560
				75	0	20.30	20.39	20.51	22.30
20MHz	QPSK	1	0	23.56	23.17	23.58	25.56	25.17	25.58
		1	50	23.23	23.63	23.35	25.23	25.63	25.35
		1	99	23.21	23.75	23.35	25.21	25.75	25.35
		50	0	22.27	22.26	22.43	24.27	24.26	24.43
		50	25	22.32	22.28	22.42	24.32	24.28	24.42
		50	50	22.09	22.59	22.13	24.09	24.59	24.13
		100	0	22.18	22.41	22.31	24.18	24.41	24.31
	16QAM	1	0	22.72	21.88	22.32	24.72	23.88	24.32
		1	50	22.38	22.32	21.99	24.38	24.32	23.99
		1	99	22.14	22.54	22.06	24.14	24.54	24.06
		50	0	21.32	21.20	21.38	23.32	23.20	23.38
		50	25	21.27	21.21	21.38	23.27	23.21	23.38
		50	50	21.04	21.54	21.16	23.04	23.54	23.16
		100	0	21.17	21.44	21.26	23.17	23.44	23.26
	64QAM	1	0	21.40	21.27	21.19	23.40	23.27	23.19
		1	50	21.50	21.29	21.19	23.50	23.29	23.19
		1	99	21.52	21.30	21.19	23.52	23.30	23.19
		50	0	20.26	20.34	20.40	22.26	22.34	22.40
		50	25	20.24	20.32	20.39	22.24	22.32	22.39
		50	50	20.38	20.37	20.37	22.38	22.37	22.37
		100	0	20.28	20.40	20.37	22.28	22.40	22.37



LTE Band 38				Maximum Output Power(dBm)			EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				37775/ 2572.5	38000/ 2595	38225/ 2617.5	37775/ 2572.5	38000/ 2595	38225/ 2617.5
5MHz	QPSK	1	0	23.42	23.39	23.46	25.42	25.39	25.46
		1	13	23.58	23.57	23.66	25.58	25.57	25.66
		1	24	23.46	23.54	23.64	25.46	25.54	25.64
		12	0	22.49	22.44	22.61	24.49	24.44	24.61
		12	6	22.50	22.41	22.56	24.50	24.41	24.56
		12	13	22.47	22.59	22.70	24.47	24.59	24.70
		25	0	22.38	22.50	22.67	24.38	24.50	24.67
	16QAM	1	0	22.81	22.57	22.78	24.81	24.57	24.78
		1	13	22.88	22.73	23.01	24.88	24.73	25.01
		1	24	22.77	22.71	22.93	24.77	24.71	24.93
		12	0	21.39	21.43	21.62	23.39	23.43	23.62
		12	6	21.45	21.32	21.63	23.45	23.32	23.63
		12	13	21.41	21.58	21.77	23.41	23.58	23.77
		25	0	21.43	21.45	21.71	23.43	23.45	23.71
	64QAM	1	0	21.35	21.38	21.35	23.35	23.38	23.35
		1	13	21.42	21.54	21.55	23.42	23.54	23.55
		1	24	21.35	21.5	21.51	23.35	23.50	23.51
		12	0	20.13	20.05	20.15	22.13	22.05	22.15
		12	6	20.08	19.98	20.16	22.08	21.98	22.16
		12	13	20.12	20.14	20.33	22.12	22.14	22.33
		25	0	20.09	20.17	20.31	22.09	22.17	22.31
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				37800/ 2575	38000/ 2595	38200/ 2615	37800/ 2575	38000/ 2595	38200/ 2615
10MHz	QPSK	1	0	23.36	23.41	23.58	25.36	25.41	25.58
		1	25	23.39	23.37	23.54	25.39	25.37	25.54
		1	49	23.38	23.47	23.65	25.38	25.47	25.65
		25	0	22.49	22.46	22.67	24.49	24.46	24.67
		25	13	22.49	22.51	22.66	24.49	24.51	24.66
		25	25	22.48	22.53	22.64	24.48	24.53	24.64
		50	0	22.48	22.46	22.63	24.48	24.46	24.63
	16QAM	1	0	22.72	22.43	22.48	24.72	24.43	24.48
		1	25	22.71	22.41	22.46	24.71	24.41	24.46



		1	49	22.76	22.53	22.51	24.76	24.53	24.51
		25	0	21.56	21.48	21.62	23.56	23.48	23.62
		25	13	21.56	21.47	21.62	23.56	23.47	23.62
		25	25	21.57	21.52	21.66	23.57	23.52	23.66
		50	0	21.48	21.45	21.64	23.48	23.45	23.64
	64QAM	1	0	21.34	21.08	21.11	23.34	23.08	23.11
		1	25	21.33	21.04	21.07	23.33	23.04	23.07
		1	49	21.41	21.13	21.17	23.41	23.13	23.17
		25	0	20.18	20.15	20.26	22.18	22.15	22.26
		25	13	20.21	20.14	20.23	22.21	22.14	22.23
		25	25	20.22	20.20	20.28	22.22	22.20	22.28
		50	0	20.09	20.09	20.31	22.09	22.09	22.31
	BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)				
37825/ 2577.5					38000/ 2595	38175/ 2612.5	37825/ 2577.5	38000/ 2595	38175/ 2612.5
15MHz	QPSK	1	0	23.65	23.63	23.92	25.65	25.63	25.92
		1	38	23.61	23.61	23.94	25.61	25.61	25.94
		1	74	23.60	23.70	23.93	25.60	25.70	25.93
		36	0	22.69	22.69	22.85	24.69	24.69	24.85
		36	18	22.67	22.69	22.85	24.67	24.69	24.85
		36	39	22.71	22.73	22.88	24.71	24.73	24.88
		75	0	22.65	22.68	22.85	24.65	24.68	24.85
	16QAM	1	0	23.03	22.70	22.85	25.03	24.70	24.85
		1	38	22.95	22.66	22.83	24.95	24.66	24.83
		1	74	22.93	22.73	22.86	24.93	24.73	24.86
		36	0	21.71	21.63	21.77	23.71	23.63	23.77
		36	18	21.64	21.65	21.79	23.64	23.65	23.79
		36	39	21.71	21.71	21.81	23.71	23.71	23.81
		75	0	21.68	21.64	21.82	23.68	23.64	23.82
	64QAM	1	0	21.60	21.35	21.50	23.60	23.35	23.50
		1	38	21.53	21.35	21.47	23.53	23.35	23.47
		1	74	21.56	21.32	21.47	23.56	23.32	23.47
		36	0	20.28	20.30	20.43	22.28	22.30	22.43
		36	18	20.31	20.30	20.43	22.31	22.30	22.43
		36	39	20.34	20.31	20.49	22.34	22.31	22.49
		75	0	20.30	20.30	20.47	22.30	22.30	22.47
BW	Modulation	RB	RB	Channel/Frequency(MHz)					



		size	offset	37850/ 2580	38000/ 2595	38150/ 2610	37850/ 2580	38000/ 2595	38150/ 2610
20MHz	QPSK	1	0	23.69	23.74	23.82	25.69	25.74	25.82
		1	50	23.61	23.61	23.75	25.61	25.61	25.75
		1	99	23.70	23.81	23.87	25.70	25.81	25.87
		50	0	22.62	22.63	22.75	24.62	24.63	24.75
		50	25	22.63	22.60	22.75	24.63	24.60	24.75
		50	50	22.65	22.69	22.76	24.65	24.69	24.76
		100	0	22.58	22.62	22.73	24.58	24.62	24.73
	16QAM	1	0	22.84	22.64	22.41	24.84	24.64	24.41
		1	50	22.74	22.53	22.41	24.74	24.53	24.41
		1	99	22.87	22.65	22.49	24.87	24.65	24.49
		50	0	21.65	21.56	21.73	23.65	23.56	23.73
		50	25	21.66	21.56	21.74	23.66	23.56	23.74
		50	50	21.67	21.63	21.80	23.67	23.63	23.80
		100	0	21.61	21.62	21.76	23.61	23.62	23.76
	64QAM	1	0	21.49	21.28	21.08	23.49	23.28	23.08
		1	50	21.39	21.20	21.01	23.39	23.20	23.01
		1	99	21.46	21.31	21.10	23.46	23.31	23.10
		50	0	20.26	20.24	20.40	22.26	22.24	22.40
		50	25	20.27	20.21	20.41	22.27	22.21	22.41
		50	50	20.27	20.25	20.43	22.27	22.25	22.43
		100	0	20.24	20.31	20.39	22.24	22.31	22.39

5.2 Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 7/38 (5MHz).

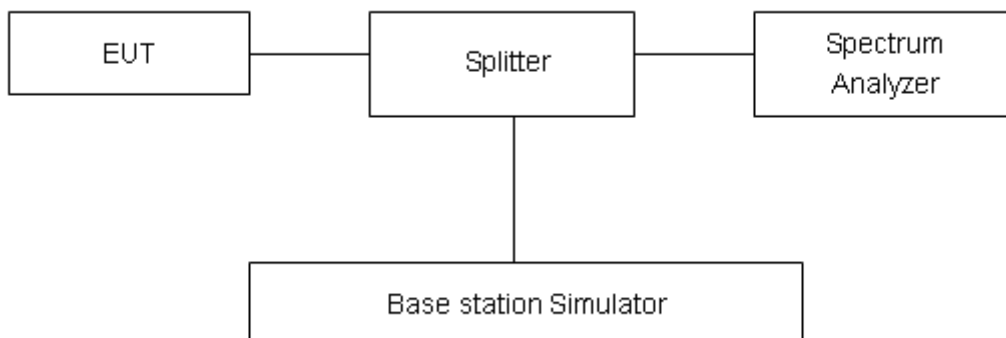
RBW is set to 200 kHz, VBW is set to 620 kHz for LTE Band 7/38 (10MHz).

RBW is set to 300 kHz, VBW is set to 910 kHz for LTE Band 7/38 (15MHz).

RBW is set to 430 kHz, VBW is set to 1.2MHz for LTE Band 7/38 (20MHz).

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U=624\text{Hz}$.



Test Result

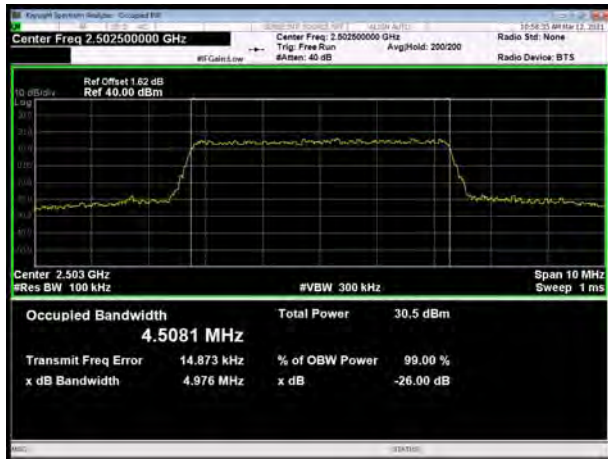
LTE Band 7						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	20775	2502.5	4.5081	4.976
			21100	2535	4.5198	4.961
			21425	2567.5	4.5086	4.955
		10	20800	2505	8.9803	9.752
			21100	2535	8.9657	9.791
			21400	2565	8.9754	9.751
		15	20825	2507.5	13.4680	14.580
			21100	2535	13.4690	14.470
			21375	2562.5	13.4520	14.500
		20	20850	2510	17.9290	19.270
			21100	2535	17.9230	19.390
			21350	2560	17.9540	19.550
	16QAM	5	20775	2502.5	4.5161	4.994
			21100	2535	4.5038	4.926
			21425	2567.5	4.5188	4.931
		10	20800	2505	8.9859	9.742
			21100	2535	8.9585	9.625
			21400	2565	8.9882	9.776
		15	20825	2507.5	13.4500	14.640
			21100	2535	13.4670	14.700
			21375	2562.5	13.4660	14.550
		20	20850	2510	17.9610	19.280
			21100	2535	17.9480	19.430
			21350	2560	17.9690	19.410
	64QAM	5	20775	2502.5	4.5082	5.026
			21100	2535	4.5030	4.939
			21425	2567.5	4.5176	4.955
		10	20800	2505	8.9694	9.723
			21100	2535	8.9607	9.612
			21400	2565	8.9989	9.667
15		20825	2507.5	13.4990	14.700	
		21100	2535	13.4970	14.580	
		21375	2562.5	13.4730	14.540	
20		20850	2510	18.0230	19.280	
		21100	2535	17.9680	19.600	
		21350	2560	17.9810	19.410	



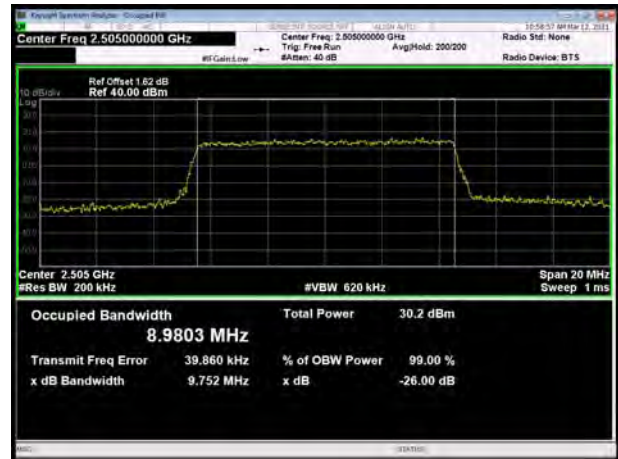
LTE Band 38						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	37775	2572.5	4.5204	4.929
			38000	2595	4.5095	4.900
			38225	2617.5	4.5072	4.924
		10	37800	2575	8.9937	9.588
			38000	2595	8.9923	9.819
			38200	2615	9.0063	9.607
		15	37825	2577.5	13.4720	14.530
			38000	2595	13.4390	14.340
			38175	2612.5	13.4220	14.620
		20	37850	2580	18.0160	19.340
			38000	2595	17.9060	19.340
			38150	2610	17.9590	19.490
	16QAM	5	37775	2572.5	4.4982	4.896
			38000	2595	4.5005	4.965
			38225	2617.5	4.4993	4.926
		10	37800	2575	9.0042	9.707
			38000	2595	8.9691	9.539
			38200	2615	8.9891	9.782
		15	37825	2577.5	13.4280	14.520
			38000	2595	13.4520	14.550
			38175	2612.5	13.4690	14.340
		20	37850	2580	17.9570	19.220
			38000	2595	17.9380	19.430
			38150	2610	17.8910	19.150
	64QAM	5	37775	2572.5	4.4866	4.909
			38000	2595	4.5084	4.924
			38225	2617.5	4.5078	4.942
		10	37800	2575	8.9819	9.678
			38000	2595	8.9914	9.641
			38200	2615	9.0006	9.645
15		37825	2577.5	13.4400	14.500	
		38000	2595	13.4960	14.440	
		38175	2612.5	13.4310	14.530	
20		37850	2580	17.9210	19.330	
		38000	2595	17.9040	19.280	
		38150	2610	17.9450	19.240	



LTE Band 7 QPSK 5MHz CH-Low



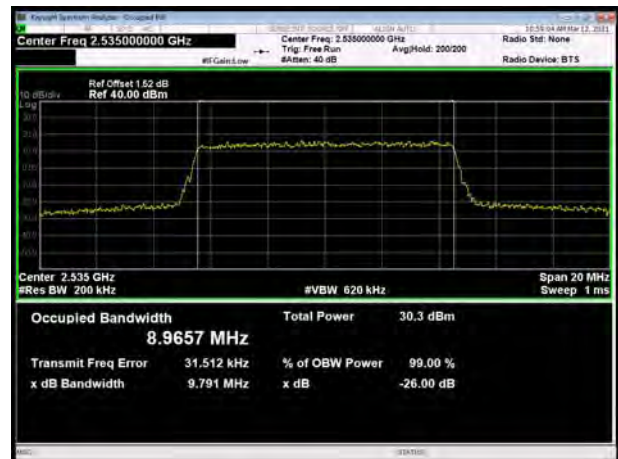
LTE Band 7 QPSK 10MHz CH-Low



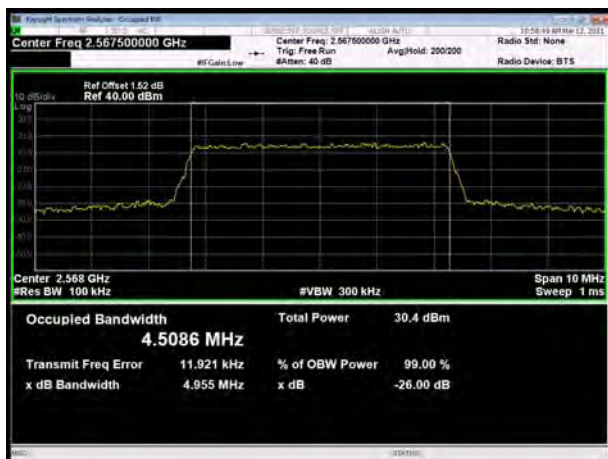
LTE Band 7 QPSK 5MHz CH-Middle



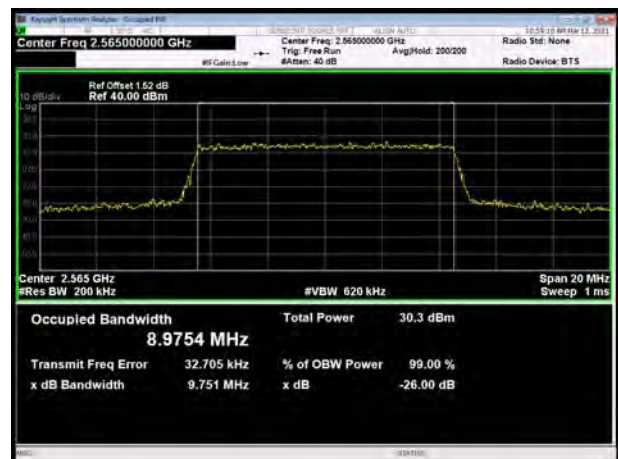
LTE Band 7 QPSK 10MHz CH-Middle



LTE Band 7 QPSK 5MHz CH-High



LTE Band 7 QPSK 10MHz CH-High





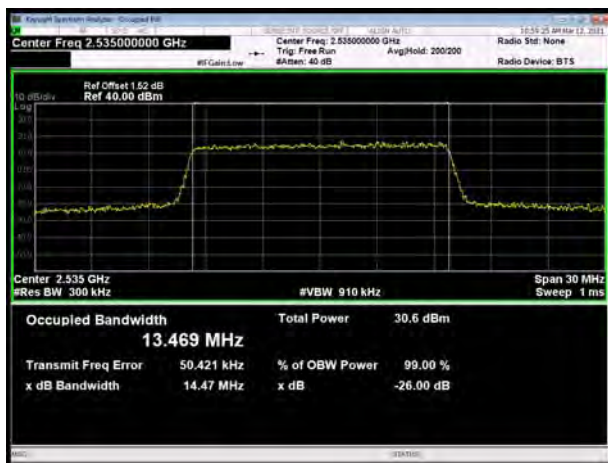
LTE Band 7 QPSK 15MHz CH-Low



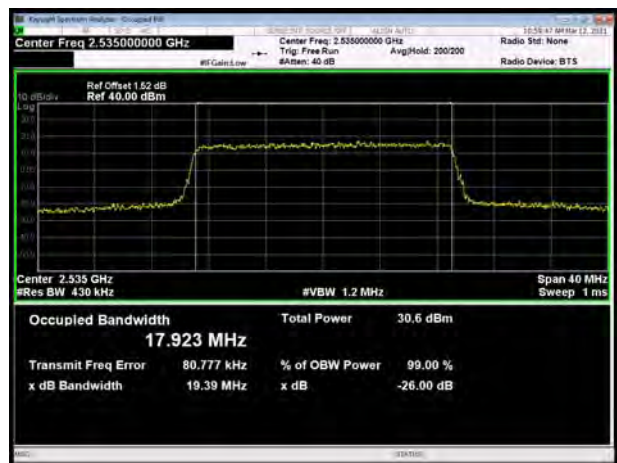
LTE Band 7 QPSK 20MHz CH-Low



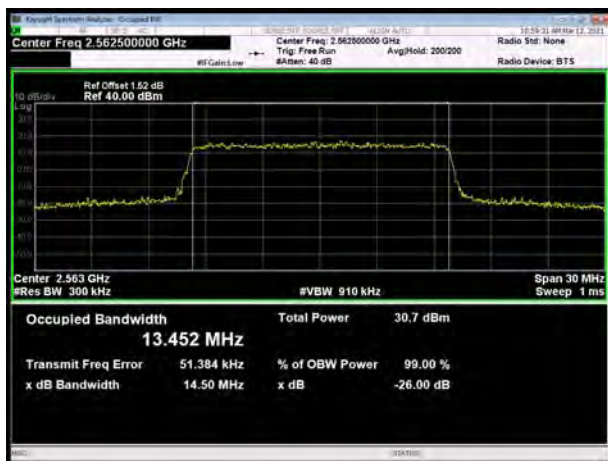
LTE Band 7 QPSK 15MHz CH-Middle



LTE Band 7 QPSK 20MHz CH-Middle



LTE Band 7 QPSK 15MHz CH-High



LTE Band 7 QPSK 20MHz CH-High

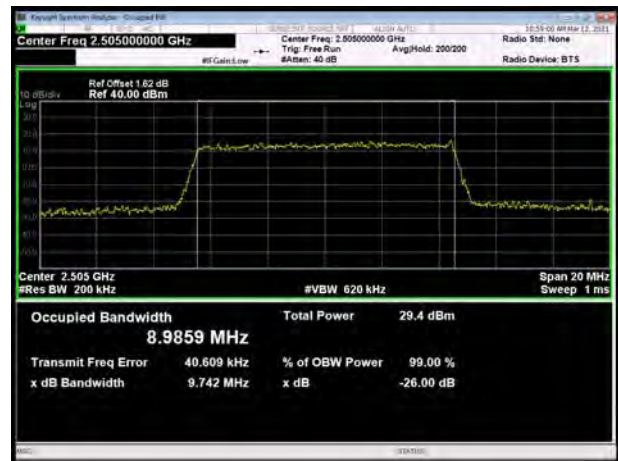




LTE Band 7 16QAM 5MHz CH-Low



LTE Band 7 16QAM 10MHz CH-Low



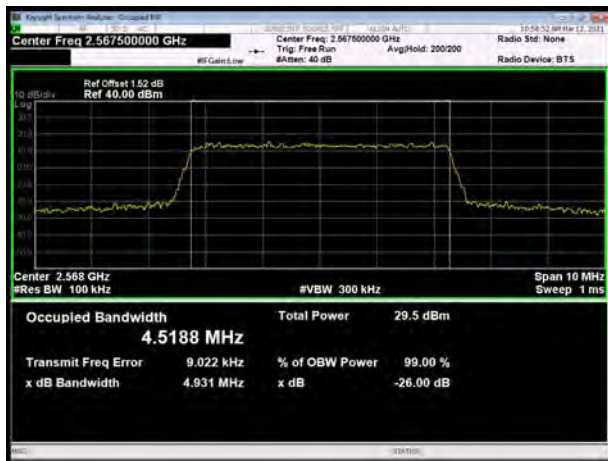
LTE Band 7 16QAM 5MHz CH-Middle



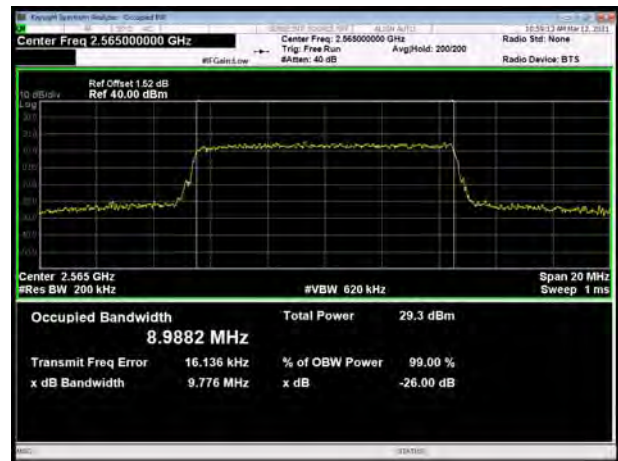
LTE Band 7 16QAM 10MHz CH-Middle



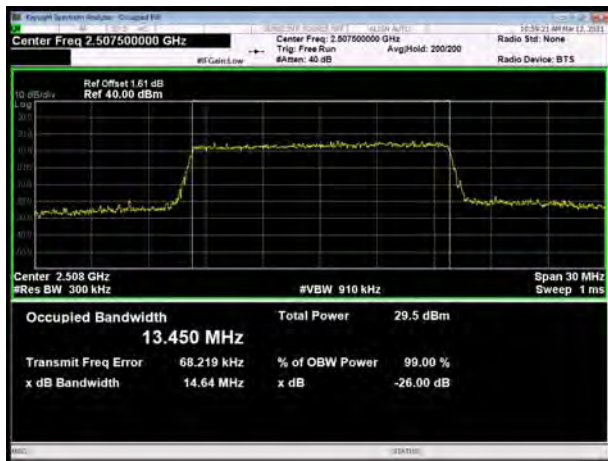
LTE Band 7 16QAM 5MHz CH-High



LTE Band 7 16QAM 10MHz CH-High



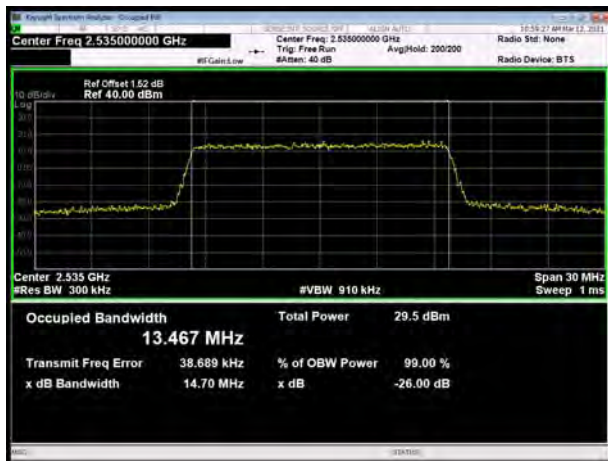
LTE Band 7 16QAM 15MHz CH-Low



LTE Band 7 16QAM 20MHz CH-Low



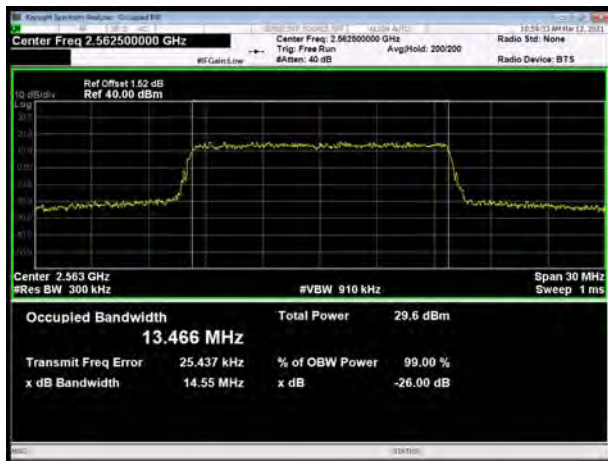
LTE Band 7 16QAM 15MHz CH-Middle



LTE Band 7 16QAM 20MHz CH-Middle



LTE Band 7 16QAM 15MHz CH-High

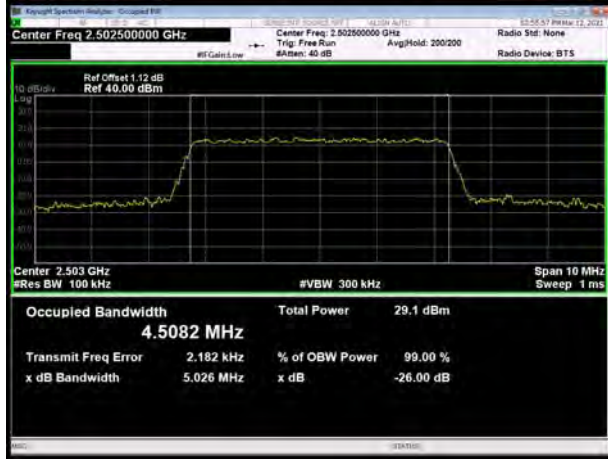


LTE Band 7 16QAM 20MHz CH-High

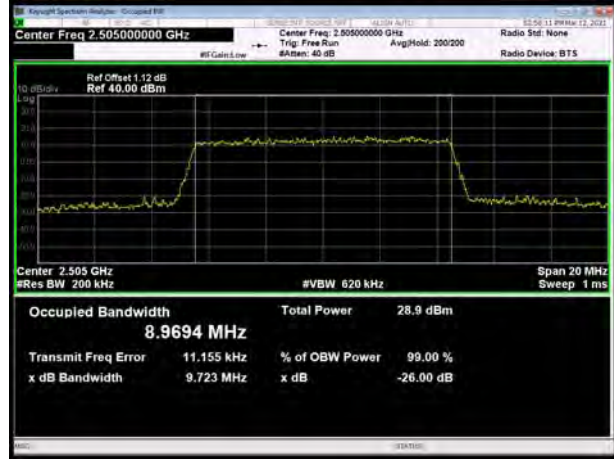




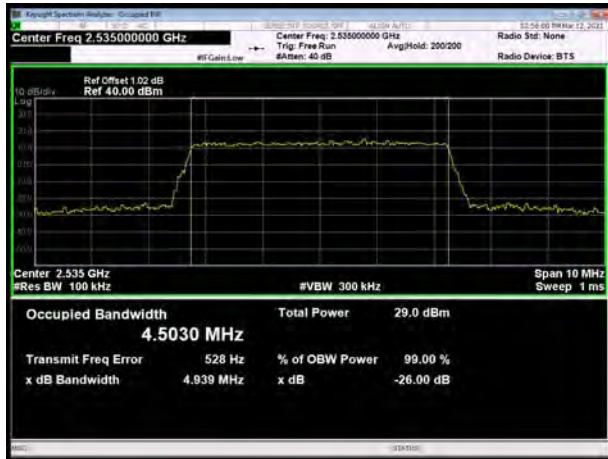
LTE Band 7 64QAM 5MHz CH-Low



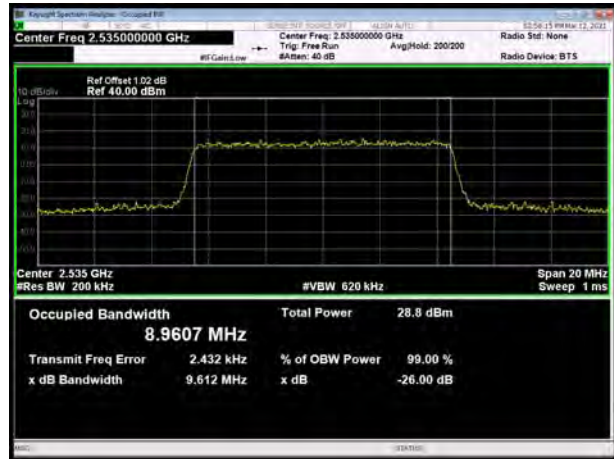
LTE Band 7 64QAM 10MHz CH-Low



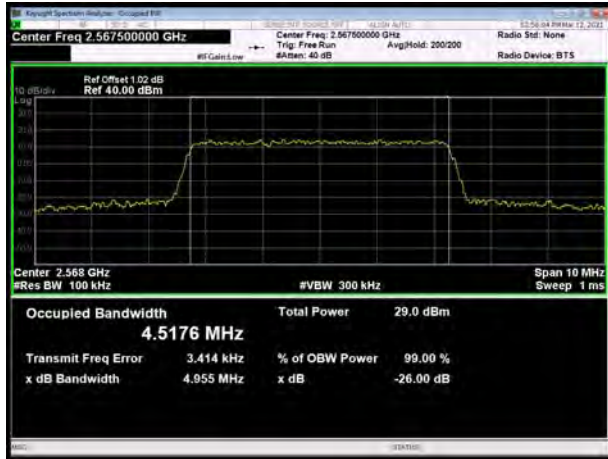
LTE Band 7 64QAM 5MHz CH-Middle



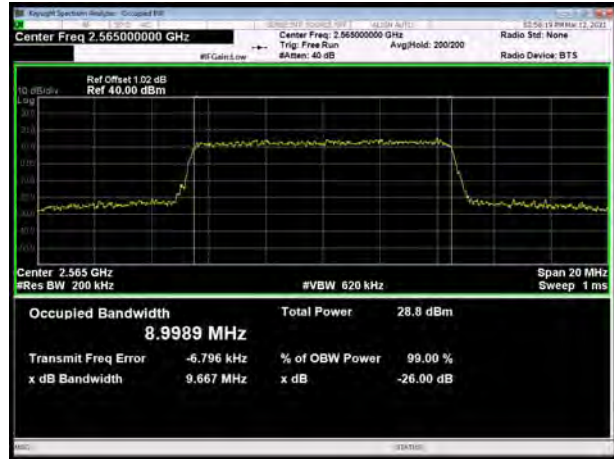
LTE Band 7 64QAM 10MHz CH-Middle



LTE Band 7 64QAM 5MHz CH-High

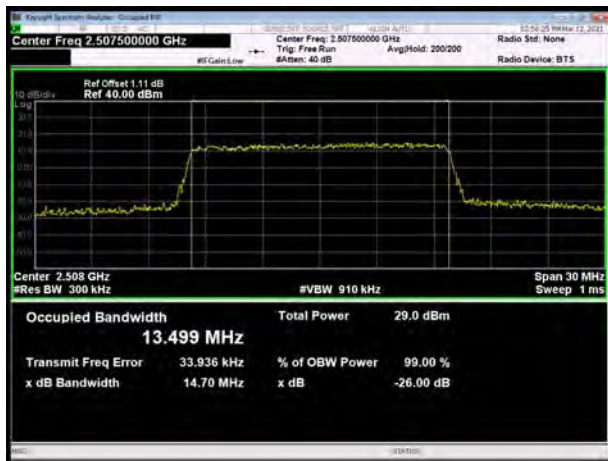


LTE Band 7 64QAM 10MHz CH-High





LTE Band 7 64QAM 15MHz CH-Low



LTE Band 7 64QAM 20MHz CH-Low



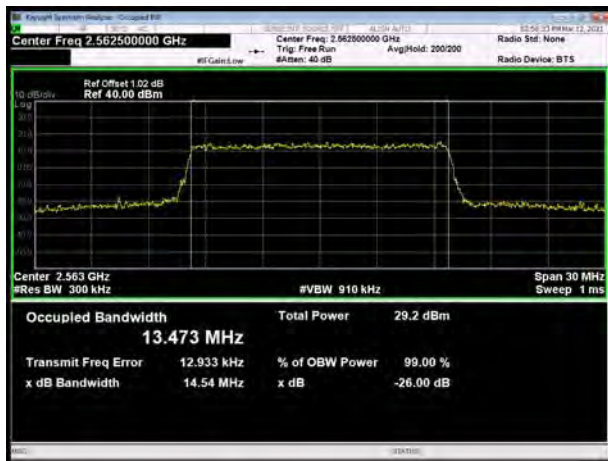
LTE Band 7 64QAM 15MHz CH-Middle



LTE Band 7 64QAM 20MHz CH-Middle



LTE Band 7 64QAM 15MHz CH-High

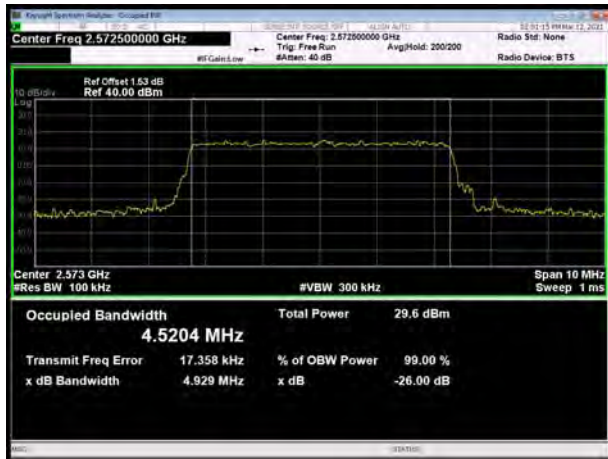


LTE Band 7 64QAM 20MHz CH-High

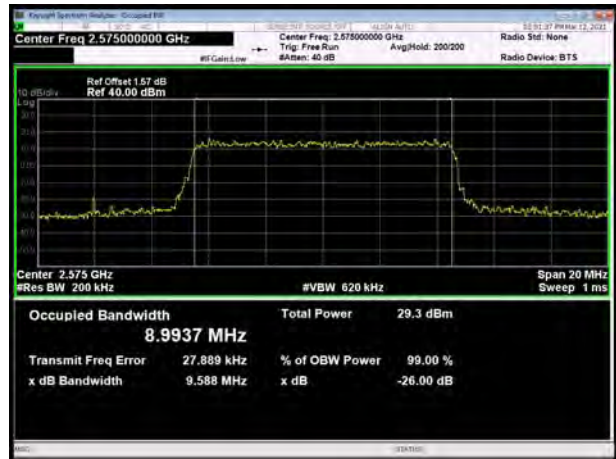




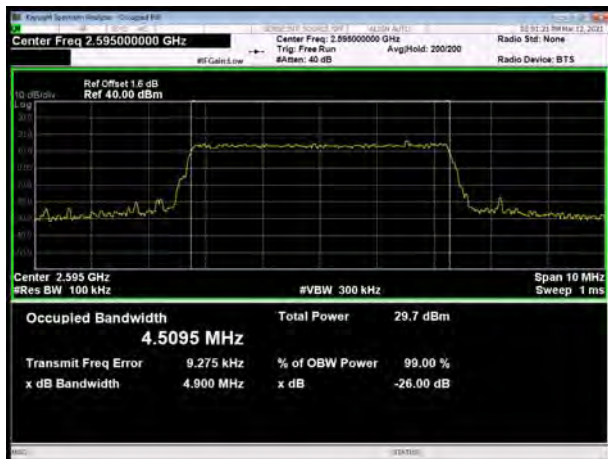
LTE Band 38 QPSK 5MHz CH-Low



LTE Band 38 QPSK 10MHz CH-Low



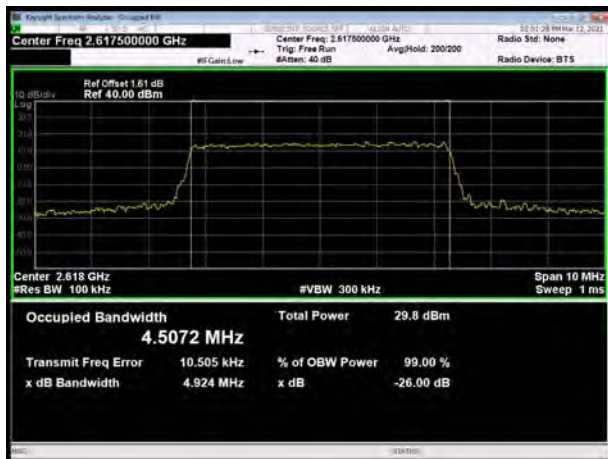
LTE Band 38 QPSK 5MHz CH-Middle



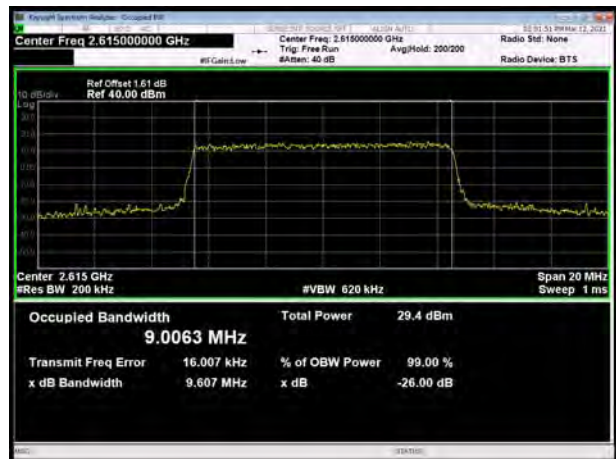
LTE Band 38 QPSK 10MHz CH-Middle



LTE Band 38 QPSK 5MHz CH-High

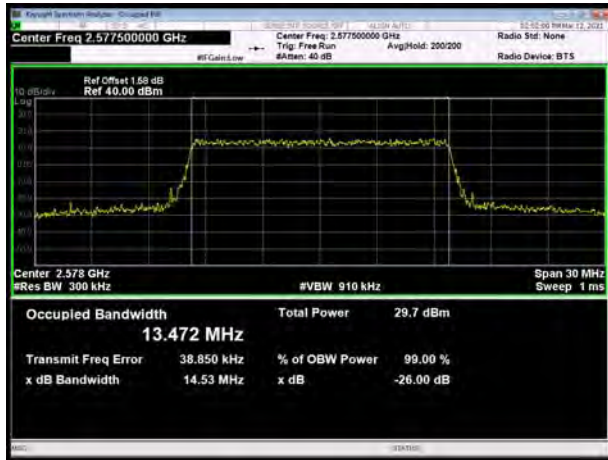


LTE Band 38 QPSK 10MHz CH-High

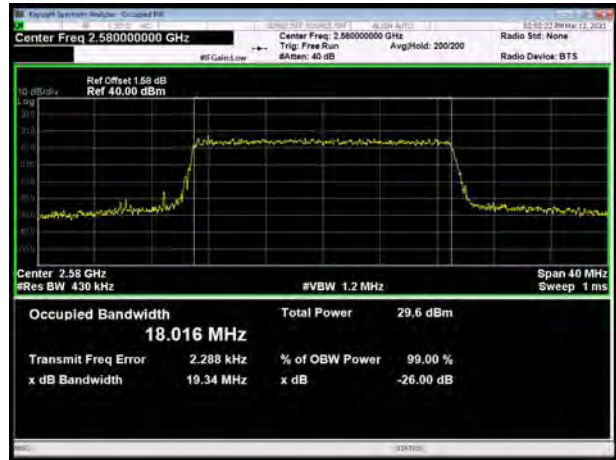




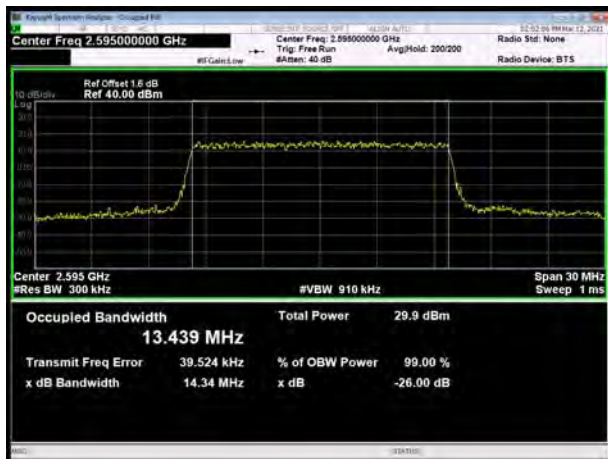
LTE Band 38 QPSK 15MHz CH-Low



LTE Band 38 QPSK 20MHz CH-Low



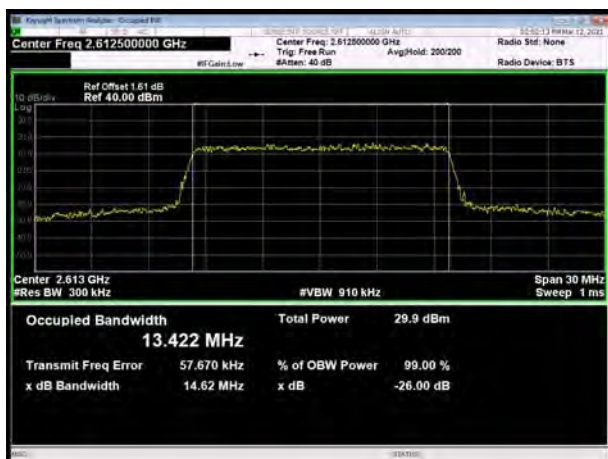
LTE Band 38 QPSK 15MHz CH-Middle



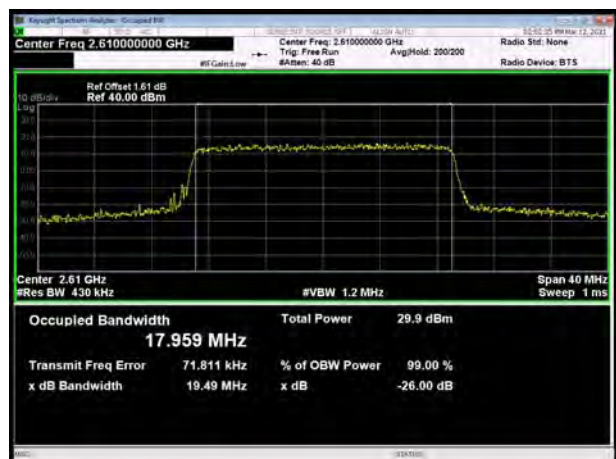
LTE Band 38 QPSK 20MHz CH-Middle



LTE Band 38 QPSK 15MHz CH-High

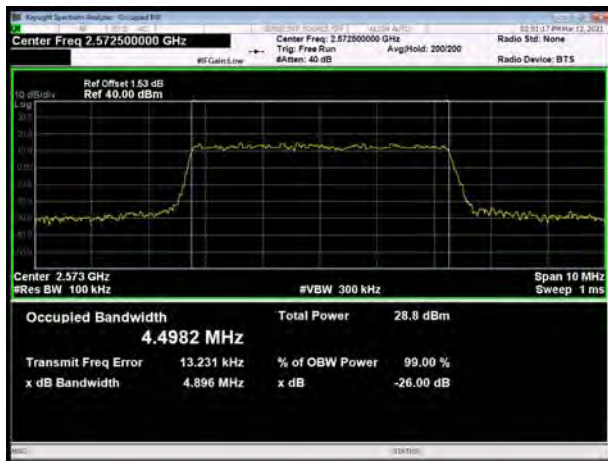


LTE Band 38 QPSK 20MHz CH-High

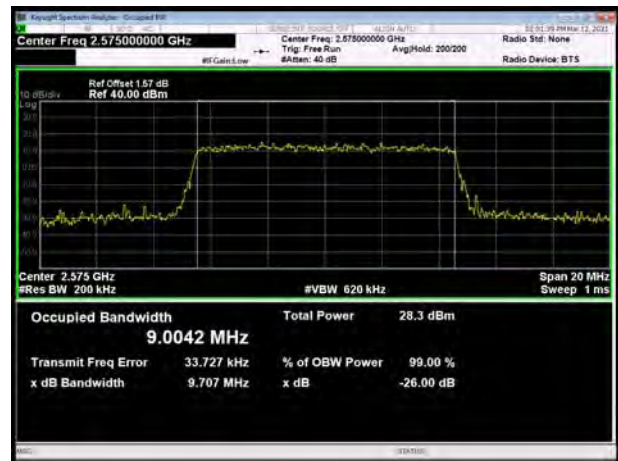




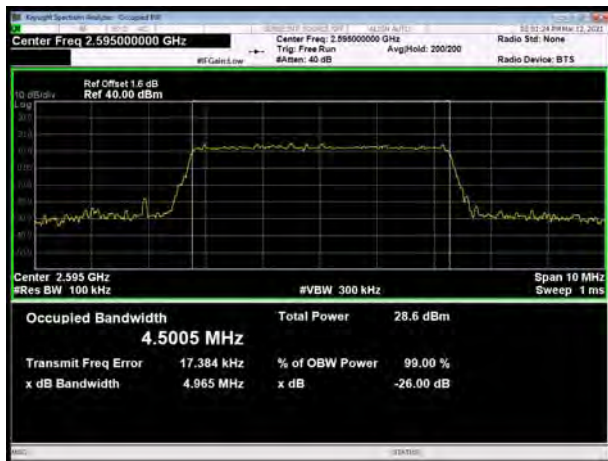
LTE Band 38 16QAM 5MHz CH-Low



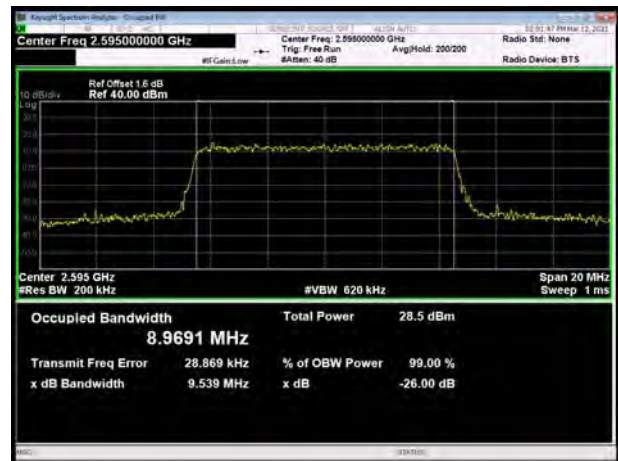
LTE Band 38 16QAM 10MHz CH-Low



LTE Band 38 16QAM 5MHz CH-Middle



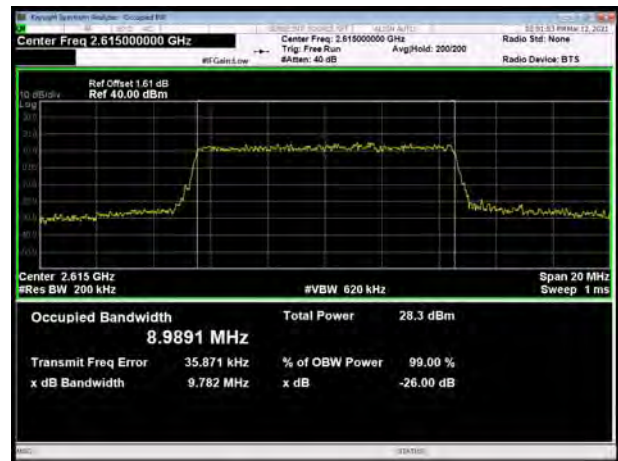
LTE Band 38 16QAM 10MHz CH-Middle



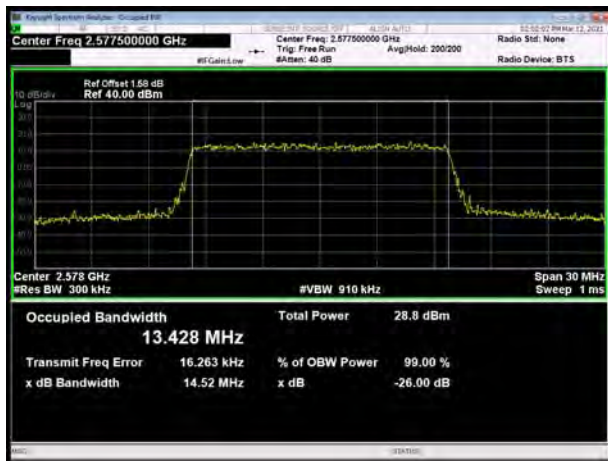
LTE Band 38 16QAM 5MHz CH-High



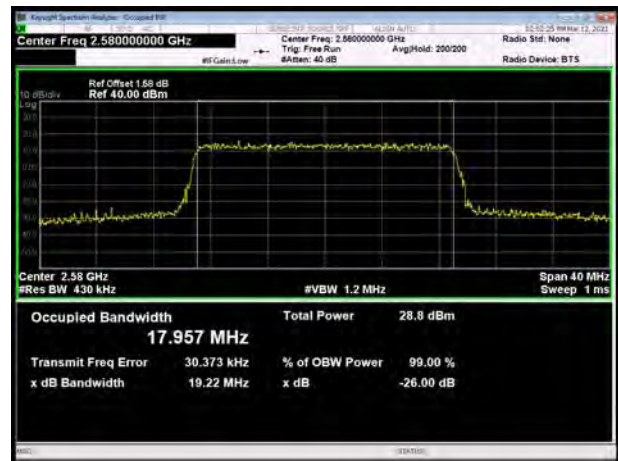
LTE Band 38 16QAM 10MHz CH-High



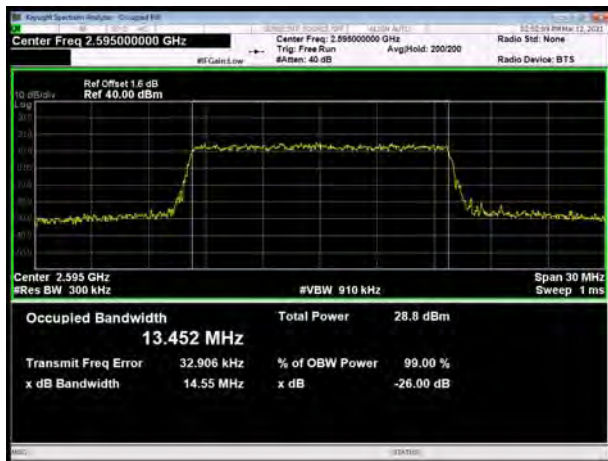
LTE Band 38 16QAM 15MHz CH-Low



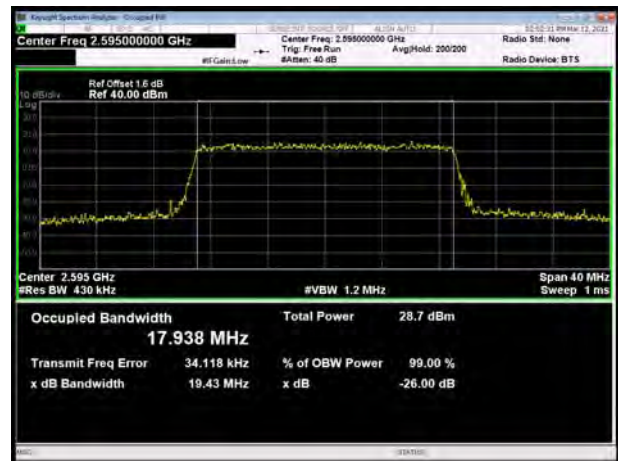
LTE Band 38 16QAM 20MHz CH-Low



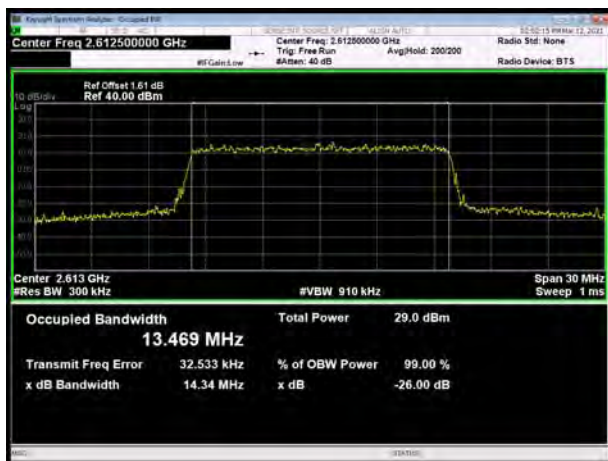
LTE Band 38 16QAM 15MHz CH-Middle



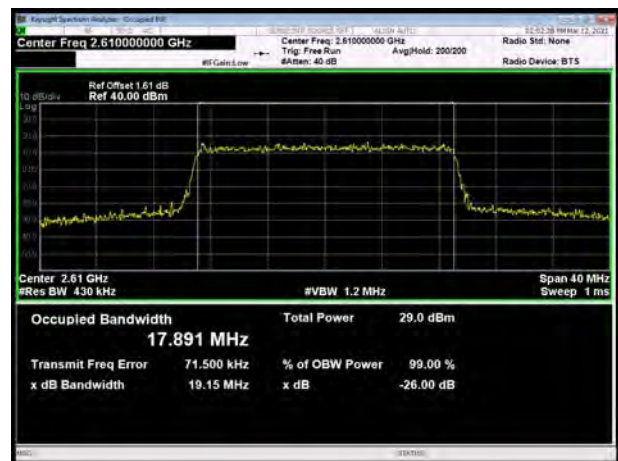
LTE Band 38 16QAM 20MHz CH-Middle



LTE Band 38 16QAM 15MHz CH-High

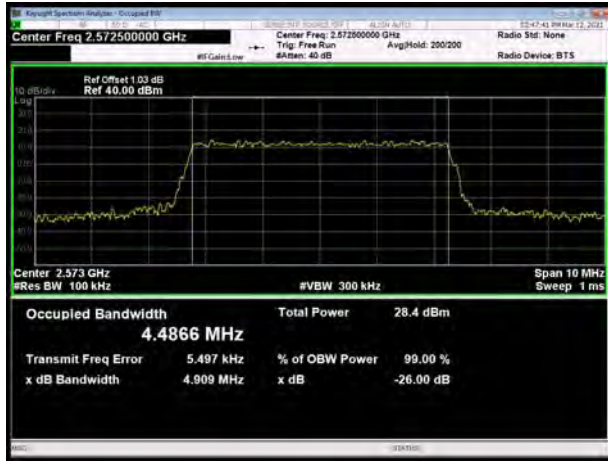


LTE Band 38 16QAM 20MHz CH-High

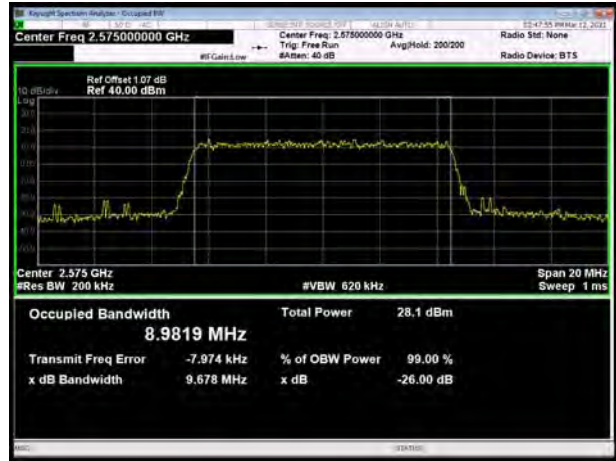




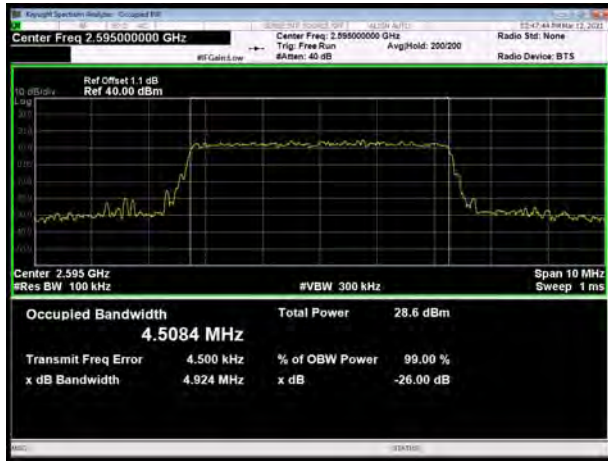
LTE Band 38 64QAM 5MHz CH-Low



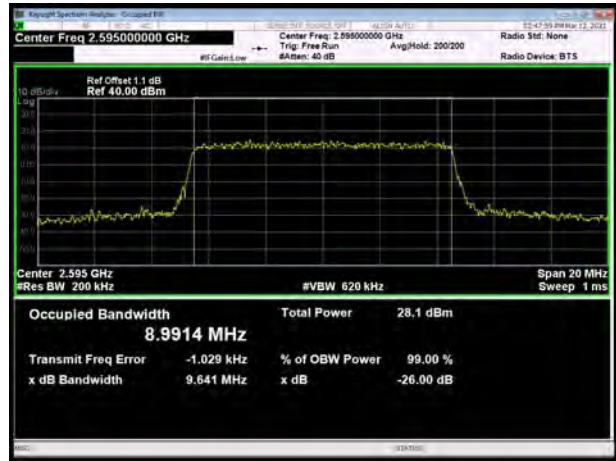
LTE Band 38 64QAM 10MHz CH-Low



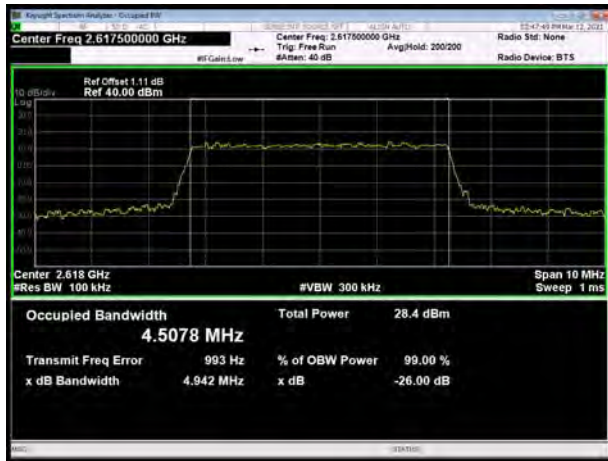
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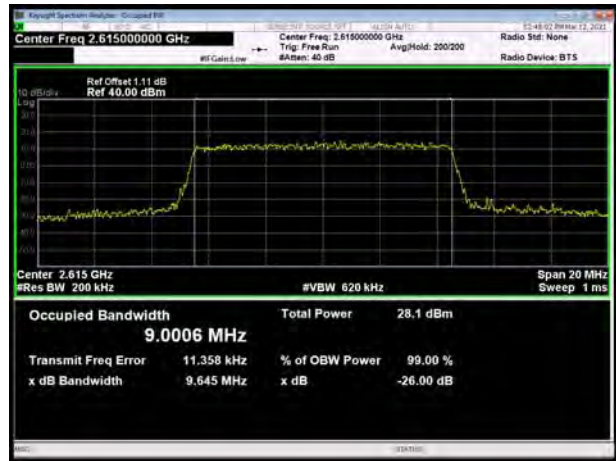
LTE Band 38 64QAM 10MHz CH-Middle



LTE Band 38 64QAM 5MHz CH-High

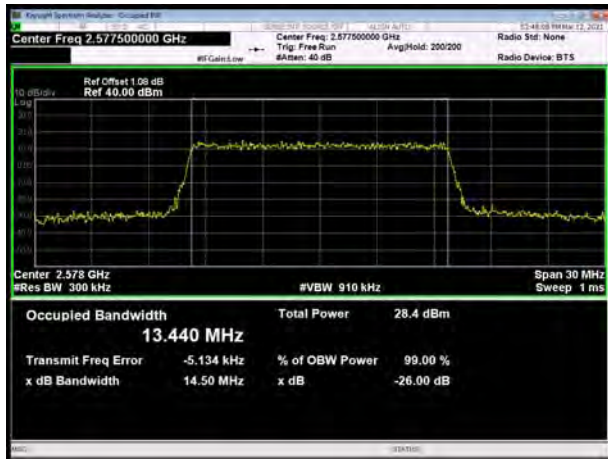


LTE Band 38 64QAM 10MHz CH-High

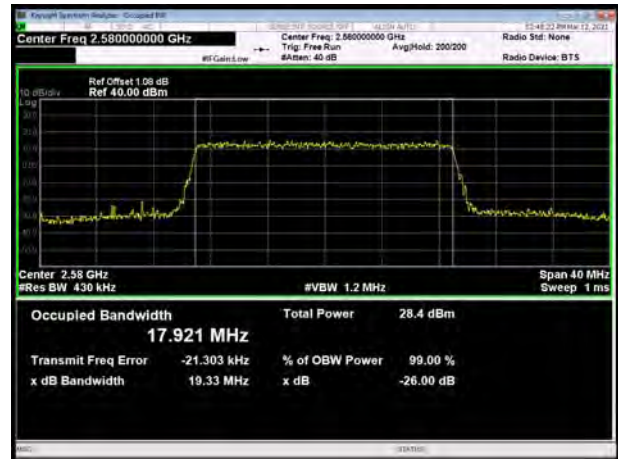




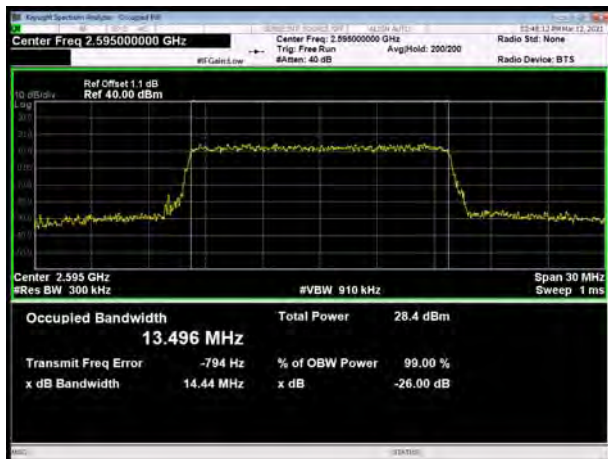
LTE Band 38 64QAM 15MHz CH-Low



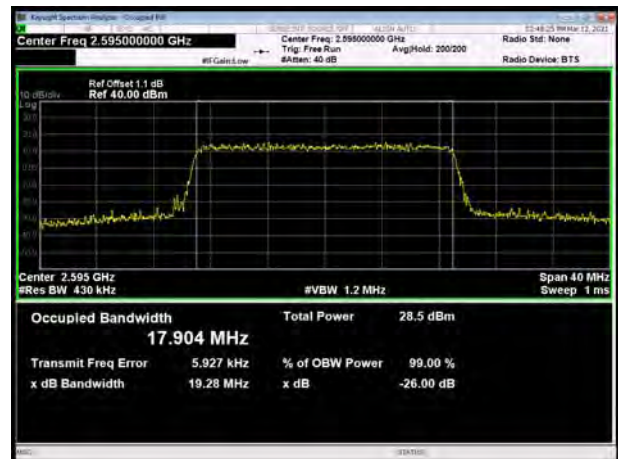
LTE Band 38 64QAM 20MHz CH-Low



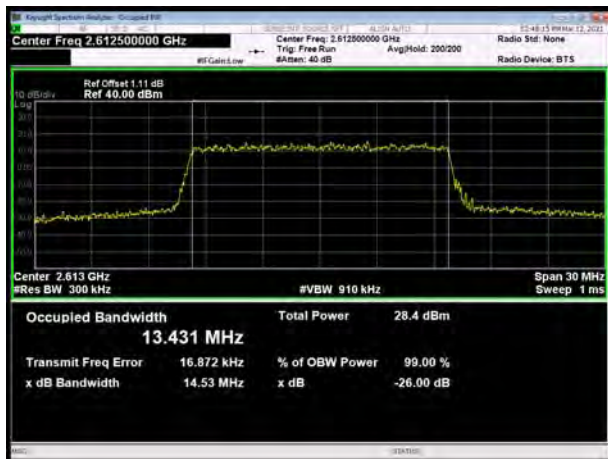
LTE Band 38 64QAM 15MHz CH-Middle



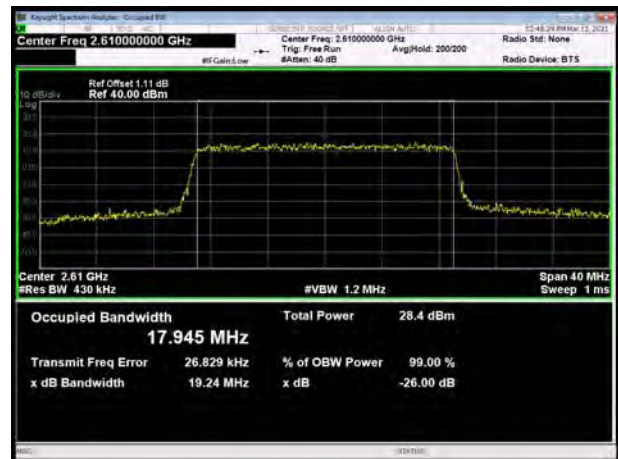
LTE Band 38 64QAM 20MHz CH-Middle



LTE Band 38 64QAM 15MHz CH-High



LTE Band 38 64QAM 20MHz CH-High



5.3 Band Edge Compliance

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured.

The testing follows KDB 971168 D01 v03r01 Section 6.0

The EUT was connected to spectrum analyzer and system simulator via a power divider.

The band edges of low and high channels for the highest RF powers were measured.

For LTE Band 7/38/ the middle channel, high channel of LTE Band 41 set RBW \geq 1% EBW in the 1MHz band immediately outside and adjacent to the band edge. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.

RBW is set to \geq 1%EBW, VBW is set to 3x RBW.

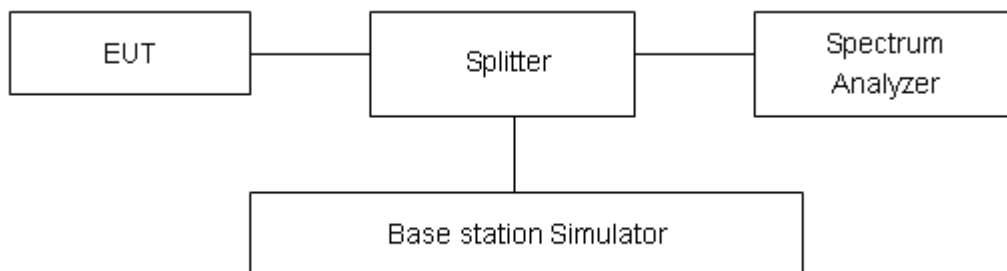
on spectrum analyzer.

Set spectrum analyzer with RMS detector.

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

Checked that all the results comply with the emission limit line.

Test Setup



Limits

Rule Part 27.53(i) By a factor of not less than $43 + 10 \log (P)$ dB on all frequencies between 2305 and 2320 MHz.

Rule Part 27.53(m) (4) specifies that “for BRS and EBS stations. 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)(4) 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. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Example:

The limit line is derived from 43 + 10log (P) dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log (P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} = -13\text{dBm}.$$

Measurement Uncertainty

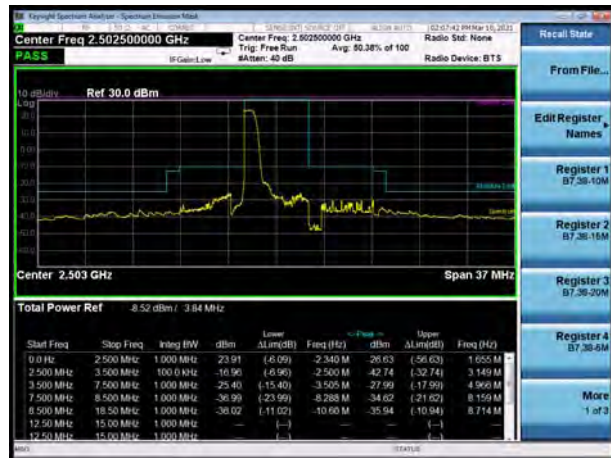
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684\text{dB}$.



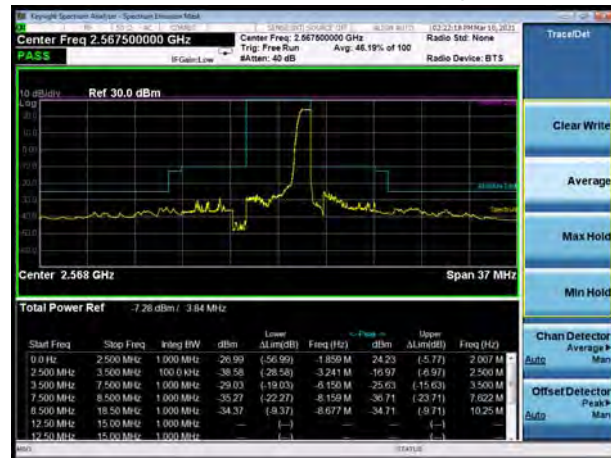
Test Result

All the test traces in the plots shows the test results clearly.

LTE Band 7 QPSK 5MHz CH-Low, 1 RB



LTE Band 7 QPSK 5MHz CH-High, 1 RB



LTE Band 7 QPSK 5MHz CH-Low, 100%RB



LTE Band 7 QPSK 5MHz CH-High, 100%RB



LTE Band 7 QPSK 10MHz CH-Low, 1 RB



LTE Band 7 QPSK 10MHz CH-High, 1 RB





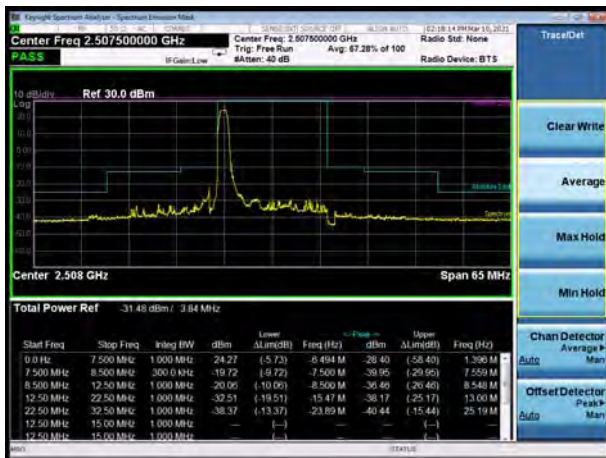
LTE Band 7 QPSK 10MHz CH-Low, 100%RB



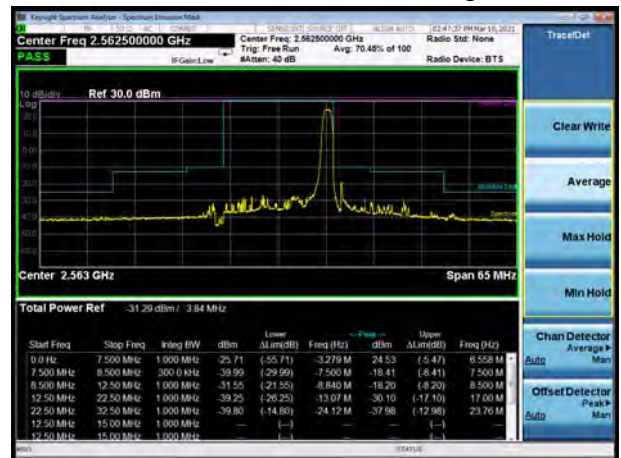
LTE Band 7 QPSK 10MHz CH-High, 100%RB



LTE Band 7 QPSK 15MHz CH-Low, 1 RB



LTE Band 7 QPSK 15MHz CH-High, 1 RB



LTE Band 7 QPSK 15MHz CH-Low, 100%RB



LTE Band 7 QPSK 15MHz CH-High, 100%RB

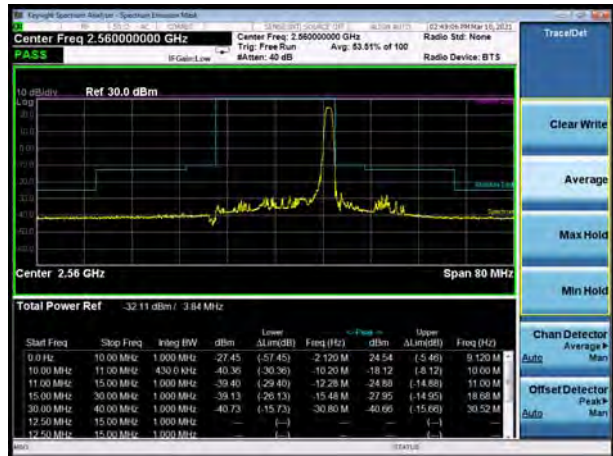




LTE Band 7 QPSK 20MHz CH-Low, 1 RB



LTE Band 7 QPSK 20MHz CH-High, 1 RB



LTE Band 7 QPSK 20MHz CH-Low, 100%RB



LTE Band 7 QPSK 20MHz CH-High, 100%RB



LTE Band 7 16QAM 5MHz CH-Low, 1 RB



LTE Band 7 16QAM 5MHz CH-High, 1 RB





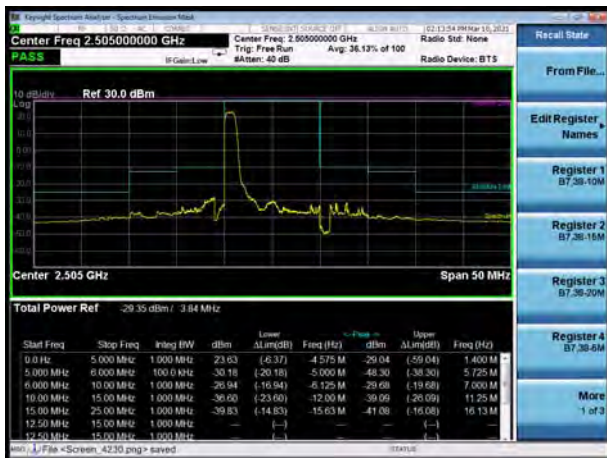
LTE Band 7 16QAM 5MHz CH-Low, 100%RB



LTE Band 7 16QAM 5MHz CH-High, 100%RB



LTE Band 7 16QAM 10MHz CH-Low, 1 RB



LTE Band 7 16QAM 10MHz CH-High, 1 RB



LTE Band 7 16QAM 10MHz CH-Low, 100%RB

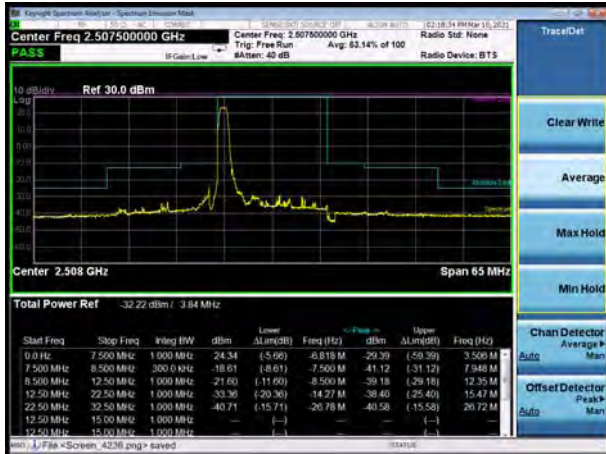


LTE Band 7 16QAM 10MHz CH-High, 100%RB

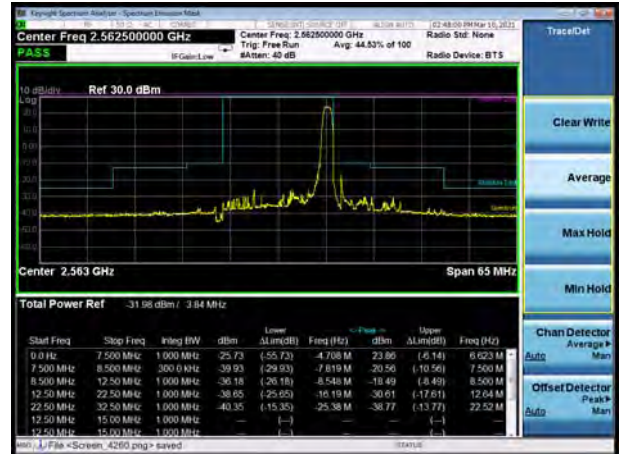




LTE Band 7 16QAM 15MHz CH-Low, 1 RB



LTE Band 7 16QAM 15MHz CH-High, 1 RB



LTE Band 7 16QAM 15MHz CH-Low, 100%RB



LTE Band 7 16QAM 15MHz CH-High, 100%RB



LTE Band 7 16QAM 20MHz CH-Low, 1 RB



LTE Band 7 16QAM 20MHz CH-High, 1 RB





LTE Band 7 16QAM 20MHz CH-Low, 100%RB



LTE Band 7 16QAM 20MHz CH-High, 100%RB



LTE Band 7 64QAM 5MHz CH-Low, 1 RB



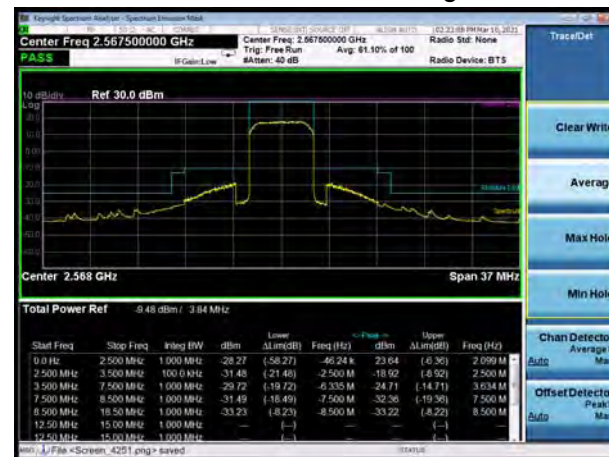
LTE Band 7 64QAM 5MHz CH-High, 1 RB



LTE Band 7 64QAM 5MHz CH-Low, 100%RB



LTE Band 7 64QAM 5MHz CH-High, 100%RB

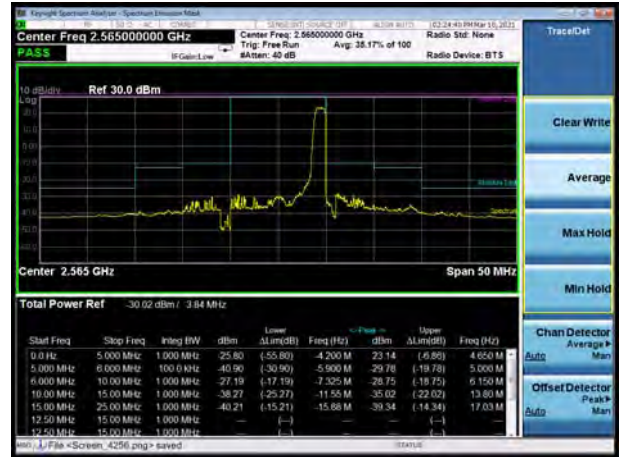




LTE Band 7 64QAM 10MHz CH-Low, 1 RB



LTE Band 7 64QAM 10MHz CH-High, 1 RB



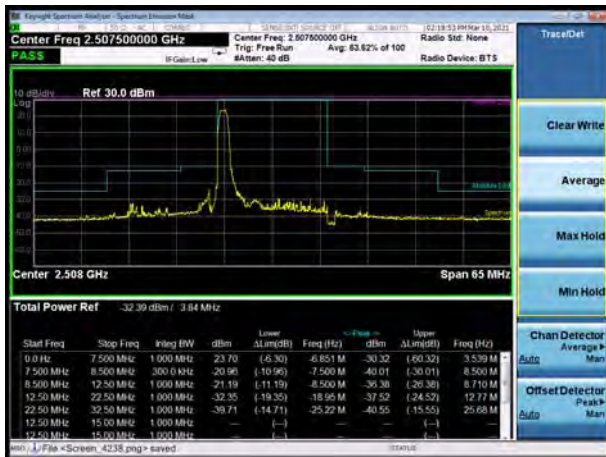
LTE Band 7 64QAM 10MHz CH-Low, 100%RB



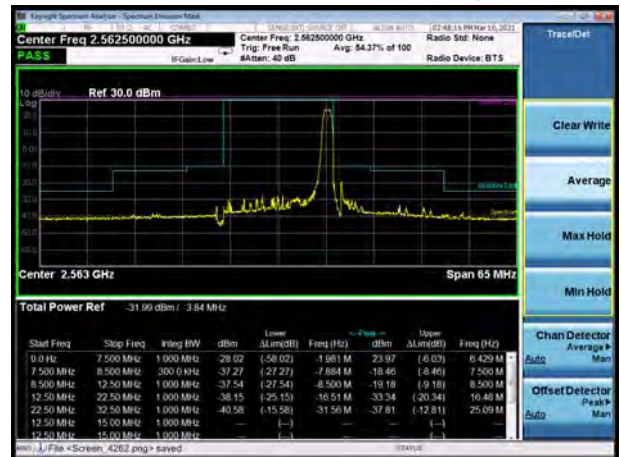
LTE Band 7 64QAM 10MHz CH-High, 100%RB



LTE Band 7 64QAM 15MHz CH-Low, 1 RB



LTE Band 7 64QAM 15MHz CH-High, 1 RB





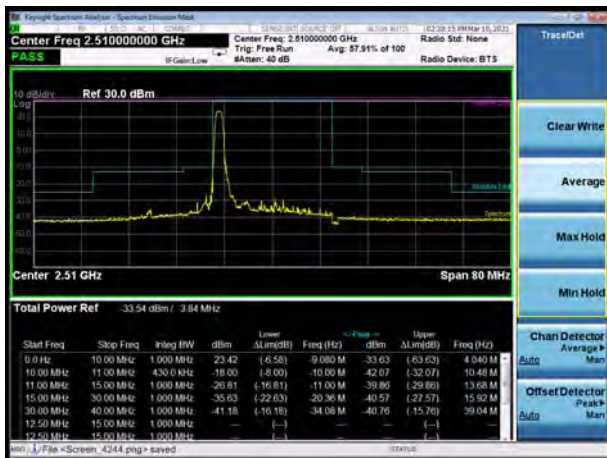
LTE Band 7 64QAM 15MHz CH-Low, 100%RB



LTE Band 7 64QAM 15MHz CH-High, 100%RB



LTE Band 7 64QAM 20MHz CH-Low, 1 RB



LTE Band 7 64QAM 20MHz CH-High, 1 RB

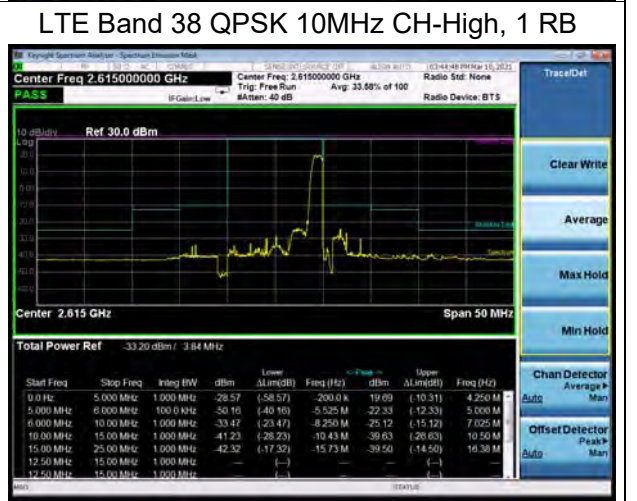
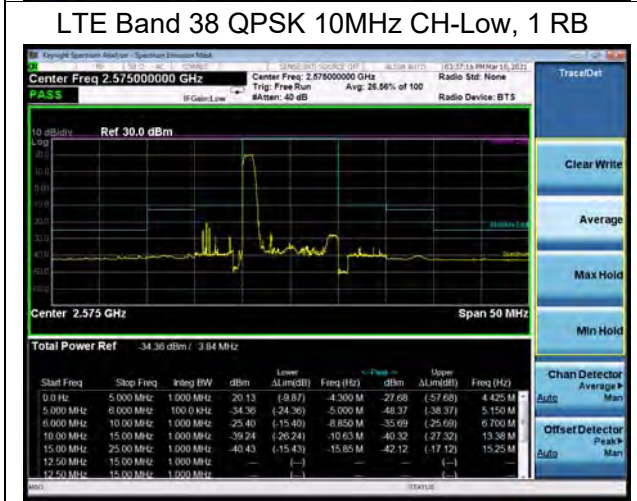
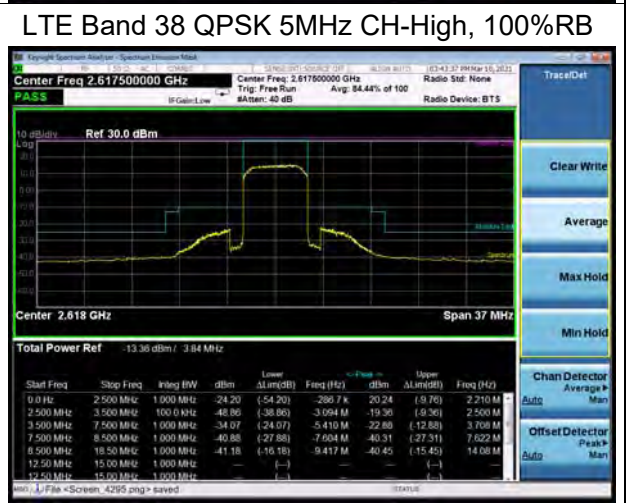
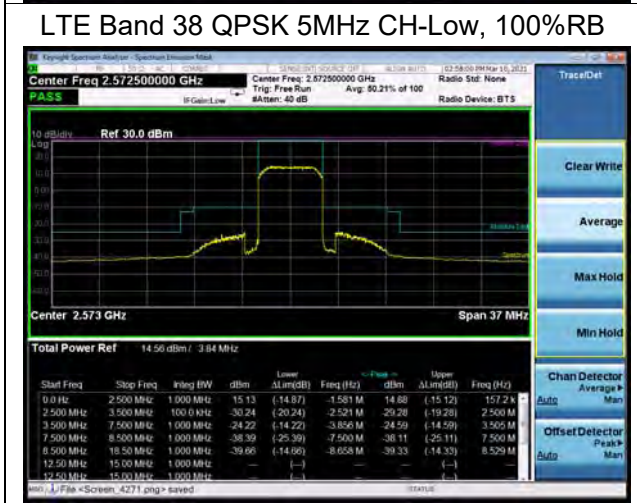
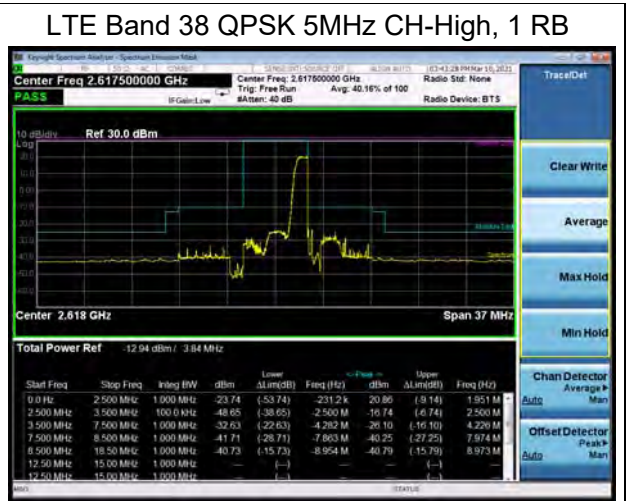
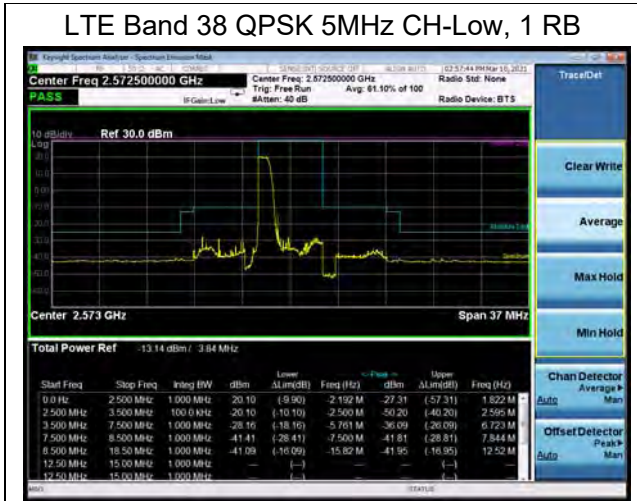


LTE Band 7 64QAM 20MHz CH-Low, 100%RB



LTE Band 7 64QAM 20MHz CH-High, 100%RB







LTE Band 38 QPSK 10MHz CH-Low, 100%RB



LTE Band 38 QPSK 10MHz CH-High, 100%RB



LTE Band 38 QPSK 15MHz CH-Low, 1 RB



LTE Band 38 QPSK 15MHz CH-High, 1 RB



LTE Band 38 QPSK 15MHz CH-Low, 100%RB

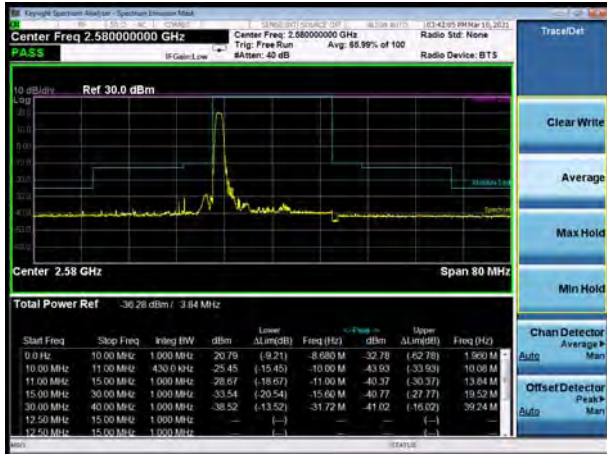


LTE Band 38 QPSK 15MHz CH-High, 100%RB

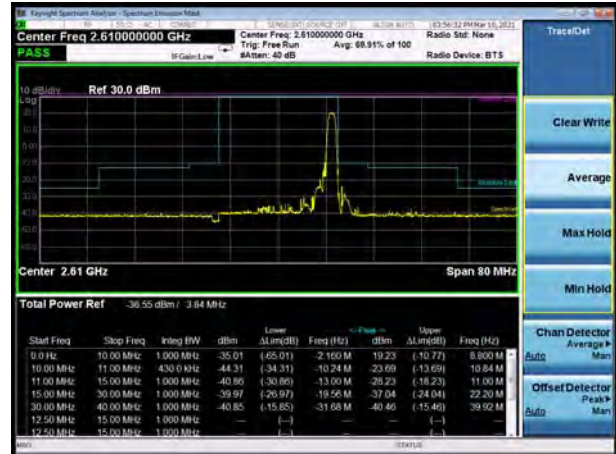




LTE Band 38 QPSK 20MHz CH-Low, 1 RB



LTE Band 38 QPSK 20MHz CH-High, 1 RB



LTE Band 38 QPSK 20MHz CH-Low, 100%RB



LTE Band 38 QPSK 20MHz CH-High, 100%RB



LTE Band 38 16QAM 5MHz CH-Low, 1 RB



LTE Band 38 16QAM 5MHz CH-High, 1 RB





LTE Band 38 16QAM 5MHz CH-Low, 100%RB



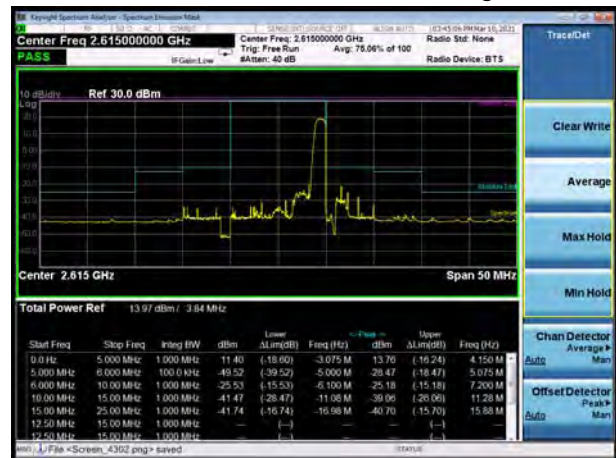
LTE Band 38 16QAM 5MHz CH-High, 100%RB



LTE Band 38 16QAM 10MHz CH-Low, 1 RB



LTE Band 38 16QAM 10MHz CH-High, 1 RB



LTE Band 38 16QAM 10MHz CH-Low, 100%RB

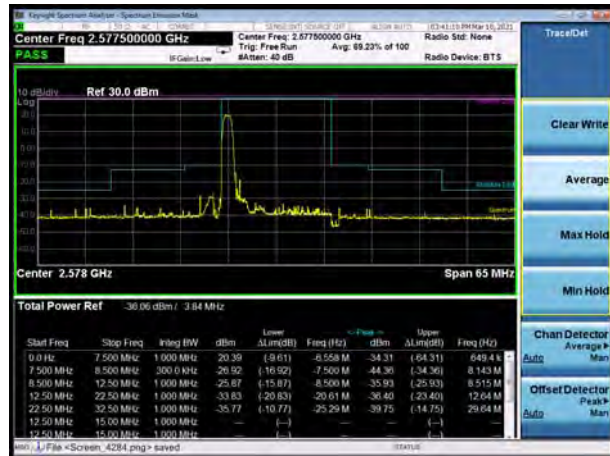


LTE Band 38 16QAM 10MHz CH-High, 100%RB

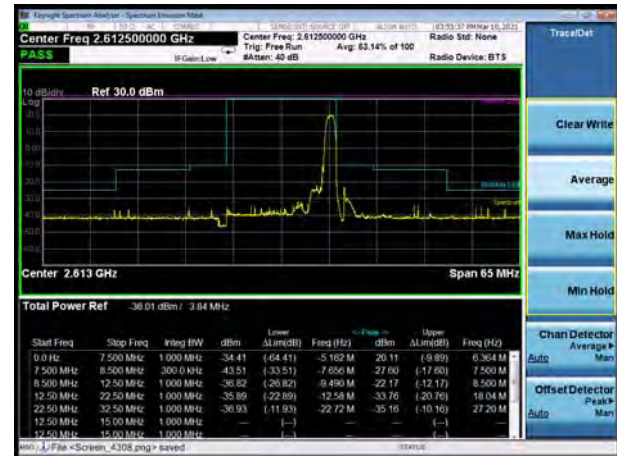




LTE Band 38 16QAM 15MHz CH-Low, 1 RB



LTE Band 38 16QAM 15MHz CH-High, 1 RB



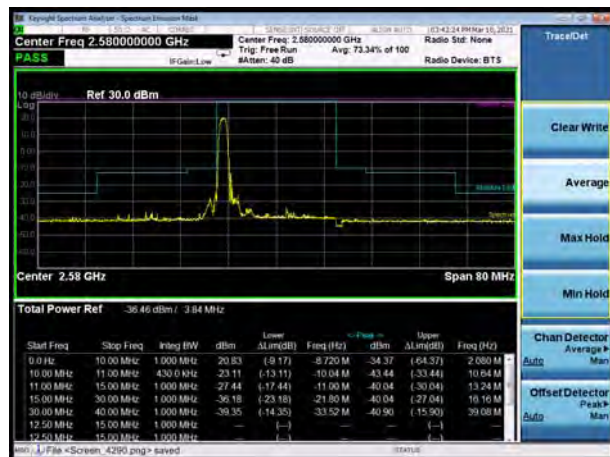
LTE Band 38 16QAM 15MHz CH-Low, 100%RB



LTE Band 38 16QAM 15MHz CH-High, 100%RB



LTE Band 38 16QAM 20MHz CH-Low, 1 RB



LTE Band 38 16QAM 20MHz CH-High, 1 RB





LTE Band 38 16QAM 20MHz CH-Low, 100%RB



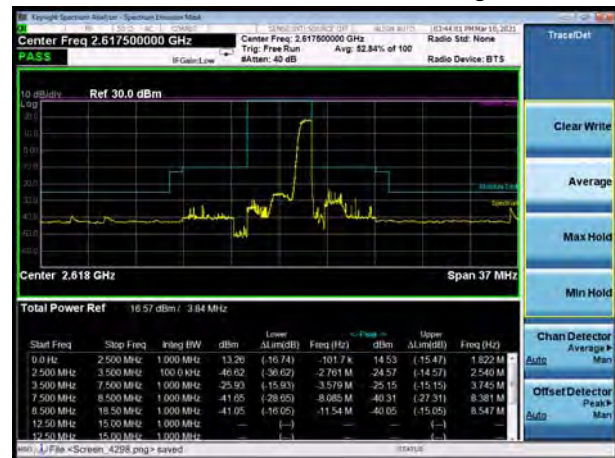
LTE Band 38 16QAM 20MHz CH-High, 100%RB



LTE Band 38 64QAM 5MHz CH-Low, 1 RB



LTE Band 38 64QAM 5MHz CH-High, 1 RB



LTE Band 38 64QAM 5MHz CH-Low, 100%RB

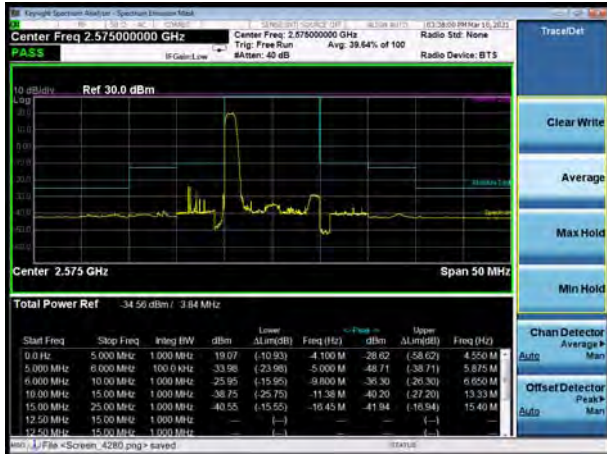


LTE Band 38 64QAM 5MHz CH-High, 100%RB

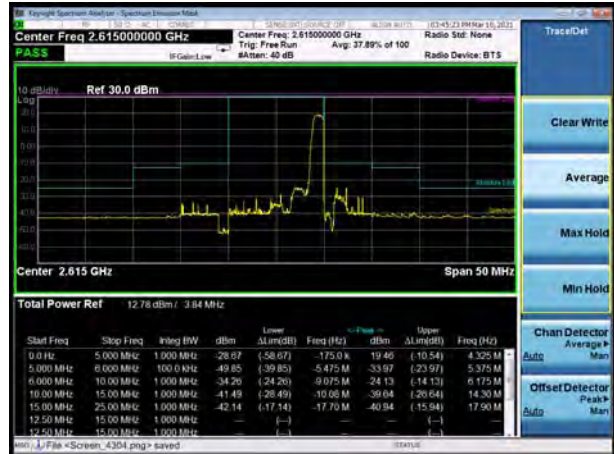




LTE Band 38 64QAM 10MHz CH-Low, 1 RB



LTE Band 38 64QAM 10MHz CH-High, 1 RB



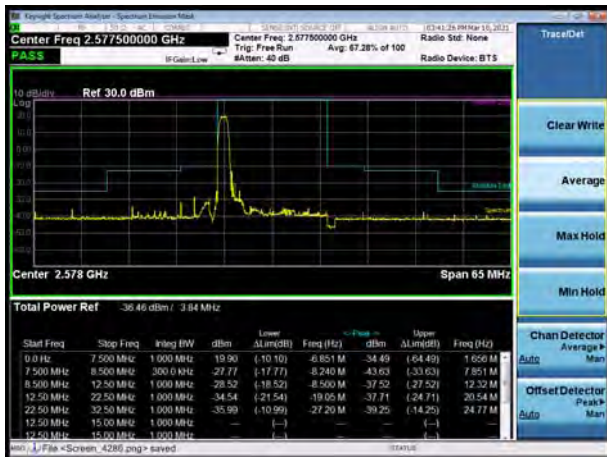
LTE Band 38 64QAM 10MHz CH-Low, 100%RB



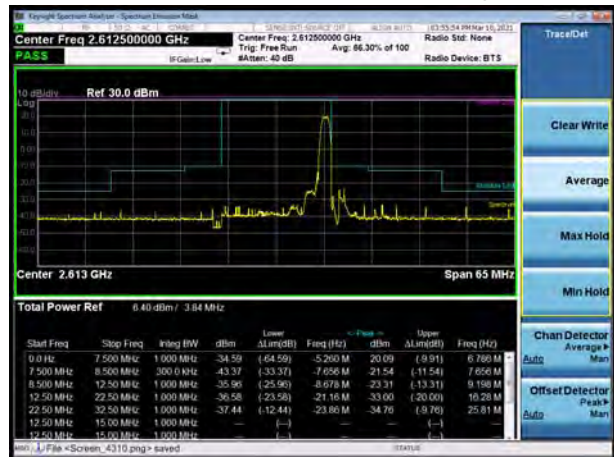
LTE Band 38 64QAM 10MHz CH-High, 100%RB



LTE Band 38 64QAM 15MHz CH-Low, 1 RB



LTE Band 38 64QAM 15MHz CH-High, 1 RB





LTE Band 38 64QAM 15MHz CH-Low, 100%RB



LTE Band 38 64QAM 15MHz CH-High, 100%RB



LTE Band 38 64QAM 20MHz CH-Low, 1 RB



LTE Band 38 64QAM 20MHz CH-High, 1 RB



LTE Band 38 64QAM 20MHz CH-Low, 100%RB



LTE Band 38 64QAM 20MHz CH-High, 100%RB



5.4 Peak-to-Average Power Ratio (PAPR)

Ambient condition

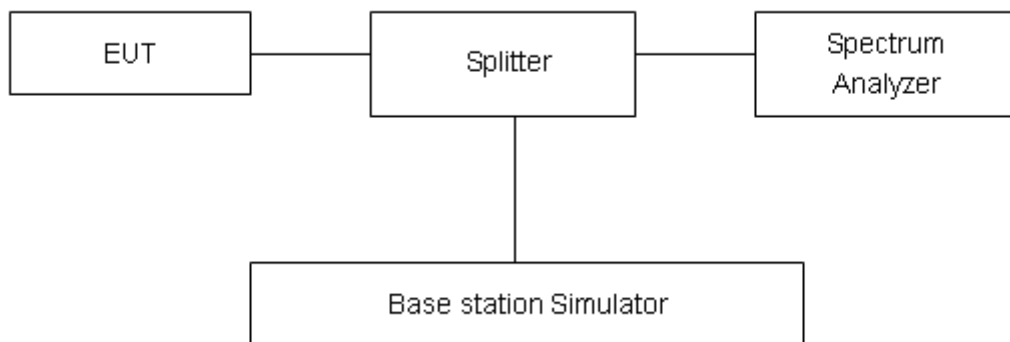
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as Ppk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$PAPR (dB) = Ppk (dBm) - PAvg (dBm).$$

Test Setup



Limits

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.



Test Results

LTE Band 7								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	20775	2502.5	26.78	22.50	4.28	≤13	PASS
		21100	2535	27.05	22.49	4.56	≤13	PASS
		21425	2567.5	26.90	22.48	4.42	≤13	PASS
	10	20800	2505	26.89	22.44	4.45	≤13	PASS
		21100	2535	27.01	22.44	4.57	≤13	PASS
		21400	2565	26.85	22.48	4.37	≤13	PASS
	15	20825	2507.5	27.30	22.66	4.64	≤13	PASS
		21100	2535	27.46	22.65	4.81	≤13	PASS
		21375	2562.5	27.28	22.72	4.56	≤13	PASS
	20	20850	2510	27.19	22.58	4.61	≤13	PASS
		21100	2535	27.33	22.58	4.75	≤13	PASS
		21350	2560	27.24	22.62	4.62	≤13	PASS
16QAM	5	20775	2502.5	26.69	21.50	5.19	≤13	PASS
		21100	2535	26.85	21.44	5.41	≤13	PASS
		21425	2567.5	26.74	21.45	5.29	≤13	PASS
	10	20800	2505	26.72	21.40	5.32	≤13	PASS
		21100	2535	26.86	21.44	5.42	≤13	PASS
		21400	2565	26.70	21.43	5.27	≤13	PASS
	15	20825	2507.5	27.07	21.63	5.44	≤13	PASS
		21100	2535	27.15	21.59	5.56	≤13	PASS
		21375	2562.5	27.00	21.67	5.33	≤13	PASS
	20	20850	2510	27.00	21.34	5.66	≤13	PASS
		21100	2535	27.11	21.57	5.54	≤13	PASS
		21350	2560	26.95	21.57	5.38	≤13	PASS
64QAM	5	20775	2502.5	26.31	21.08	5.23	≤13	PASS
		21100	2535	26.40	20.96	5.44	≤13	PASS
		21425	2567.5	26.27	20.96	5.31	≤13	PASS
	10	20800	2505	26.40	21.04	5.36	≤13	PASS
		21100	2535	26.42	20.96	5.46	≤13	PASS
		21400	2565	26.24	20.93	5.31	≤13	PASS
	15	20825	2507.5	26.71	21.21	5.50	≤13	PASS



		21100	2535	26.71	21.15	5.56	≤13	PASS
		21375	2562.5	26.53	21.16	5.37	≤13	PASS
	20	20850	2510	26.69	21.20	5.49	≤13	PASS
		21100	2535	26.67	21.09	5.58	≤13	PASS
		21350	2560	26.47	21.06	5.41	≤13	PASS

LTE Band 38								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	37775	2572.5	26.84	18.52	8.32	≤13	PASS
		38000	2595	26.85	17.53	9.32	≤13	PASS
		38225	2617.5	26.83	18.88	7.95	≤13	PASS
	10	37800	2575	26.81	17.85	8.96	≤13	PASS
		38000	2595	26.87	18.07	8.80	≤13	PASS
		38200	2615	26.75	17.68	9.07	≤13	PASS
	15	37825	2577.5	27.21	17.87	9.34	≤13	PASS
		38000	2595	27.36	19.12	8.24	≤13	PASS
		38175	2612.5	27.27	18.09	9.18	≤13	PASS
	20	37850	2580	27.10	18.34	8.76	≤13	PASS
		38000	2595	27.21	19.43	7.78	≤13	PASS
		38150	2610	27.11	18.04	9.07	≤13	PASS
16QAM	5	37775	2572.5	26.52	17.35	9.17	≤13	PASS
		38000	2595	26.73	17.29	9.44	≤13	PASS
		38225	2617.5	26.59	17.05	9.54	≤13	PASS
	10	37800	2575	26.64	17.16	9.48	≤13	PASS
		38000	2595	26.53	15.56	10.97	≤13	PASS
		38200	2615	26.63	17.38	9.25	≤13	PASS
	15	37825	2577.5	26.97	17.65	9.32	≤13	PASS
		38000	2595	26.87	15.80	11.07	≤13	PASS
		38175	2612.5	26.95	17.31	9.64	≤13	PASS
	20	37850	2580	26.87	17.49	9.38	≤13	PASS
		38000	2595	26.92	17.41	9.51	≤13	PASS
		38150	2610	26.96	17.79	9.17	≤13	PASS



64QAM	5	37775	2572.5	25.98	16.21	9.77	≤13	PASS
		38000	2595	26.28	16.70	9.58	≤13	PASS
		38225	2617.5	26.13	16.75	9.38	≤13	PASS
	10	37800	2575	26.21	16.95	9.26	≤13	PASS
		38000	2595	26.32	18.27	8.05	≤13	PASS
		38200	2615	26.16	16.92	9.24	≤13	PASS
	15	37825	2577.5	26.49	17.62	8.87	≤13	PASS
		38000	2595	26.55	17.34	9.21	≤13	PASS
		38175	2612.5	26.50	17.09	9.41	≤13	PASS
	20	37850	2580	26.38	16.82	9.56	≤13	PASS
		38000	2595	26.46	17.32	9.14	≤13	PASS
		38150	2610	26.45	17.13	9.32	≤13	PASS

5.5 Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size.

(1)With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.

(2)Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

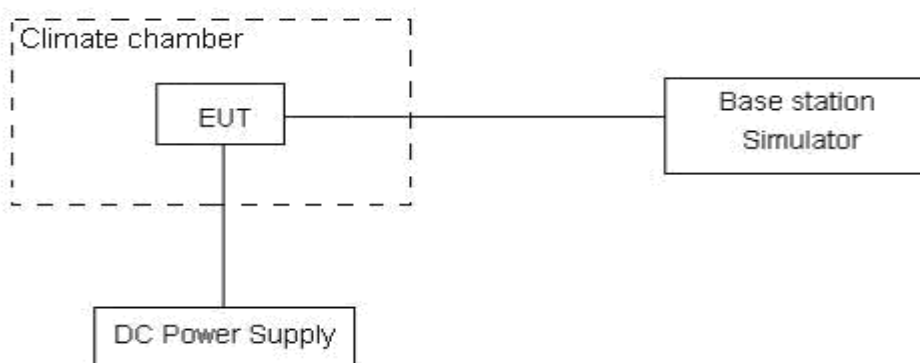
Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 10.8 V and 13.2 V, with a nominal voltage of 12V.

Test setup



Limits

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3, U=0.01\text{ppm}$.



Test Result

LTE Band 7								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	5.75	2.12	12.52	0.00306	0.00113	0.00666	PASS
Extreme (50°C)		10.36	6.30	14.09	0.00551	0.00335	0.00749	PASS
Extreme (40°C)		16.87	5.21	17.27	0.00898	0.00277	0.00918	PASS
Extreme (30°C)		2.95	15.69	17.91	0.00157	0.00835	0.00953	PASS
Extreme (20°C)		10.94	13.23	14.11	0.00582	0.00704	0.00751	PASS
Extreme (10°C)		11.41	16.83	6.78	0.00607	0.00895	0.00361	PASS
Extreme (0°C)		11.17	2.11	17.71	0.00594	0.00112	0.00942	PASS
Extreme (-10°C)		5.23	7.23	7.52	0.00278	0.00384	0.00400	PASS
Extreme (-20°C)		16.14	14.33	4.90	0.00858	0.00762	0.00261	PASS
Extreme (-30°C)		10.24	11.09	9.35	0.00544	0.00590	0.00497	PASS
25°C	LV	7.90	7.94	3.03	0.00420	0.00422	0.00161	PASS
	HV	12.20	16.94	17.69	0.00649	0.00901	0.00941	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.15	5.64	6.48	0.00593	0.00300	0.00345	PASS
Extreme (50°C)		2.15	6.92	14.04	0.00114	0.00368	0.00747	PASS
Extreme (40°C)		2.66	3.31	7.84	0.00141	0.00176	0.00417	PASS
Extreme (30°C)		13.56	5.85	14.26	0.00721	0.00311	0.00759	PASS
Extreme (20°C)		4.12	10.63	14.32	0.00219	0.00565	0.00762	PASS
Extreme (10°C)		13.27	6.22	5.48	0.00706	0.00331	0.00292	PASS
Extreme (0°C)		7.09	8.82	8.84	0.00377	0.00469	0.00470	PASS
Extreme (-10°C)		16.31	3.43	7.75	0.00867	0.00182	0.00412	PASS
Extreme (-20°C)		12.80	14.79	7.07	0.00681	0.00787	0.00376	PASS
Extreme (-30°C)		3.06	11.24	1.73	0.00163	0.00598	0.00092	PASS
25°C	LV	2.02	4.49	2.99	0.00107	0.00239	0.00159	PASS
	HV	12.05	6.14	7.46	0.00641	0.00327	0.00397	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	16.21	3.86	13.34	0.00862	0.00205	0.00709	PASS
Extreme (50°C)		12.46	8.42	10.21	0.00663	0.00448	0.00543	PASS



Extreme (40°C)		2.65	17.74	14.78	0.00141	0.00944	0.00786	PASS
Extreme (30°C)		10.28	8.36	17.94	0.00547	0.00445	0.00954	PASS
Extreme (20°C)		15.30	1.84	15.84	0.00814	0.00098	0.00843	PASS
Extreme (10°C)		14.10	3.43	3.14	0.00750	0.00182	0.00167	PASS
Extreme (0°C)		2.33	8.78	6.43	0.00124	0.00467	0.00342	PASS
Extreme (-10°C)		3.97	8.30	12.75	0.00211	0.00442	0.00678	PASS
Extreme (-20°C)		3.20	5.91	6.87	0.00170	0.00315	0.00366	PASS
Extreme (-30°C)		2.84	5.87	10.22	0.00151	0.00312	0.00544	PASS
25°C	LV	14.76	7.17	1.23	0.00785	0.00381	0.00065	PASS
	HV	8.19	11.78	11.37	0.00435	0.00626	0.00605	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	11.64	7.89	11.40	0.00619	0.00419	0.00606	PASS
Extreme (50°C)		16.27	7.94	14.64	0.00865	0.00422	0.00779	PASS
Extreme (40°C)		12.70	17.83	14.43	0.00676	0.00949	0.00767	PASS
Extreme (30°C)		13.83	10.77	11.80	0.00735	0.00573	0.00628	PASS
Extreme (20°C)		1.83	6.27	8.32	0.00098	0.00333	0.00443	PASS
Extreme (10°C)		8.42	11.36	2.67	0.00448	0.00604	0.00142	PASS
Extreme (0°C)		17.97	13.70	17.69	0.00956	0.00729	0.00941	PASS
Extreme (-10°C)		1.19	11.85	13.13	0.00063	0.00630	0.00699	PASS
Extreme (-20°C)		5.50	14.14	9.83	0.00292	0.00752	0.00523	PASS
Extreme (-30°C)		9.97	6.30	3.24	0.00530	0.00335	0.00172	PASS
25°C		LV	2.53	13.42	17.86	0.00134	0.00714	0.00950
	HV	3.33	9.44	6.26	0.00177	0.00502	0.00333	PASS
LTE Band 38								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	4.34	2.17	14.88	0.00231	0.00116	0.00791	PASS
Extreme (50°C)		4.32	7.82	11.14	0.00230	0.00416	0.00592	PASS
Extreme (40°C)		7.22	8.51	15.02	0.00384	0.00453	0.00799	PASS
Extreme (30°C)		5.81	7.69	2.01	0.00309	0.00409	0.00107	PASS
Extreme (20°C)		1.29	9.12	11.60	0.00068	0.00485	0.00617	PASS
Extreme (10°C)		15.05	9.41	12.40	0.00800	0.00500	0.00660	PASS
Extreme (0°C)		3.03	14.98	17.06	0.00161	0.00797	0.00908	PASS
Extreme (-10°C)		17.89	5.77	13.92	0.00951	0.00307	0.00740	PASS
Extreme (-20°C)		4.25	10.97	7.06	0.00226	0.00584	0.00376	PASS
Extreme (-30°C)		8.57	12.88	15.90	0.00456	0.00685	0.00846	PASS



25°C	LV	3.90	14.11	17.83	0.00208	0.00751	0.00948	PASS
	HV	2.42	17.92	8.76	0.00129	0.00953	0.00466	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.53	10.32	15.62	0.00188	0.00549	0.00831	PASS
Extreme (50°C)		7.26	11.37	16.34	0.00386	0.00605	0.00869	PASS
Extreme (40°C)		4.61	6.96	9.41	0.00245	0.00370	0.00501	PASS
Extreme (30°C)		5.23	17.29	17.84	0.00278	0.00920	0.00949	PASS
Extreme (20°C)		15.40	12.69	5.58	0.00819	0.00675	0.00297	PASS
Extreme (10°C)		8.46	3.89	3.95	0.00450	0.00207	0.00210	PASS
Extreme (0°C)		15.46	11.10	12.44	0.00822	0.00591	0.00662	PASS
Extreme (-10°C)		15.45	9.15	5.50	0.00822	0.00487	0.00293	PASS
Extreme (-20°C)		9.68	14.27	8.47	0.00515	0.00759	0.00451	PASS
Extreme (-30°C)		5.02	15.89	13.15	0.00267	0.00845	0.00700	PASS
25°C		LV	6.29	14.71	7.39	0.00335	0.00782	0.00393
	HV	13.45	10.04	17.44	0.00716	0.00534	0.00928	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	15MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.07	8.91	7.52	0.00163	0.00474	0.00400	PASS
Extreme (50°C)		13.02	1.32	14.71	0.00693	0.00070	0.00782	PASS
Extreme (40°C)		4.93	4.82	8.81	0.00262	0.00256	0.00469	PASS
Extreme (30°C)		15.41	3.46	2.53	0.00820	0.00184	0.00135	PASS
Extreme (20°C)		8.09	11.86	13.56	0.00431	0.00631	0.00721	PASS
Extreme (10°C)		9.69	15.11	8.25	0.00516	0.00804	0.00439	PASS
Extreme (0°C)		17.95	6.31	16.46	0.00955	0.00335	0.00876	PASS
Extreme (-10°C)		17.26	16.96	9.64	0.00918	0.00902	0.00513	PASS
Extreme (-20°C)		16.51	1.72	5.78	0.00878	0.00091	0.00308	PASS
Extreme (-30°C)		1.87	1.95	16.38	0.00099	0.00104	0.00871	PASS
25°C		LV	6.41	15.55	3.08	0.00341	0.00827	0.00164
	HV	10.13	4.91	8.00	0.00539	0.00261	0.00425	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	14.78	11.45	4.25	0.00786	0.00609	0.00226	PASS
Extreme (50°C)		7.41	8.24	10.65	0.00394	0.00439	0.00566	PASS
Extreme (40°C)		15.64	7.21	12.16	0.00832	0.00384	0.00647	PASS



Extreme (30°C)		5.72	9.29	12.82	0.00304	0.00494	0.00682	PASS
Extreme (20°C)		4.09	13.76	17.50	0.00218	0.00732	0.00931	PASS
Extreme (10°C)		3.26	14.01	10.13	0.00173	0.00745	0.00539	PASS
Extreme (0°C)		6.45	16.27	9.78	0.00343	0.00866	0.00520	PASS
Extreme (-10°C)		14.60	15.60	6.66	0.00776	0.00830	0.00354	PASS
Extreme (-20°C)		15.57	13.47	8.74	0.00828	0.00717	0.00465	PASS
Extreme (-30°C)		14.09	17.29	16.60	0.00750	0.00920	0.00883	PASS
25°C	LV	1.31	16.48	2.18	0.00069	0.00877	0.00116	PASS
	HV	9.40	16.68	17.62	0.00500	0.00887	0.00937	PASS

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz

RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

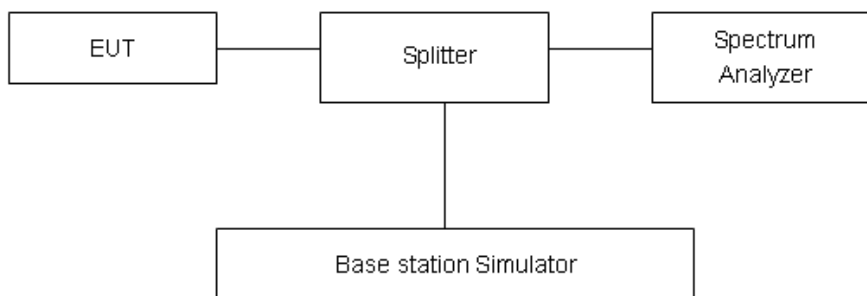
RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 27.53(m) $55 + 10 \log (P)$ 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)(4) of this section.

Part 27.53(m) Limit	-25 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

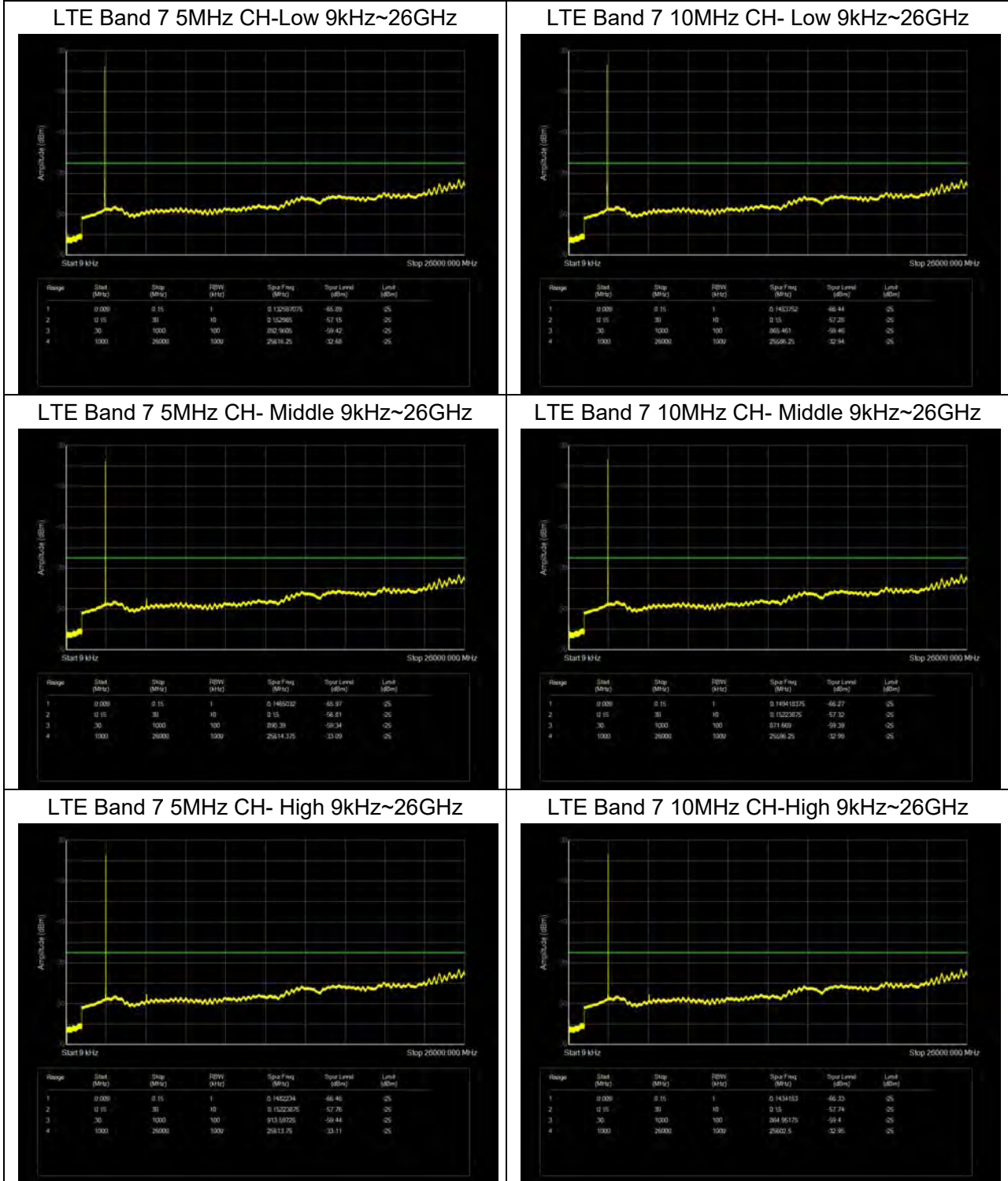
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB



Test Result

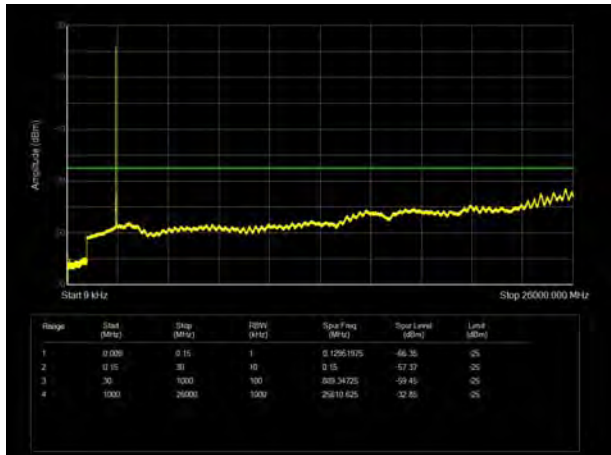
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

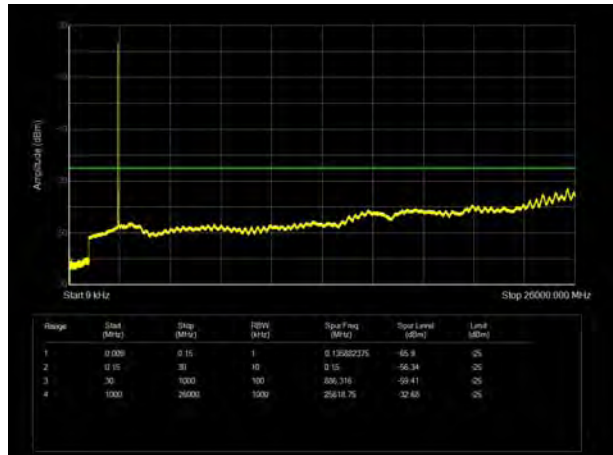




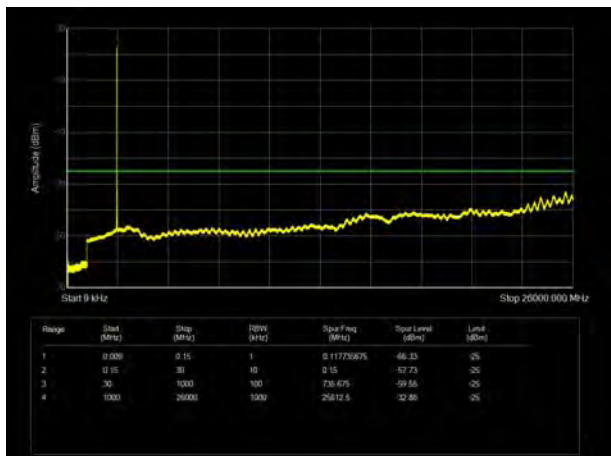
LTE Band 7 15MHz CH- Low 9kHz~26GHz



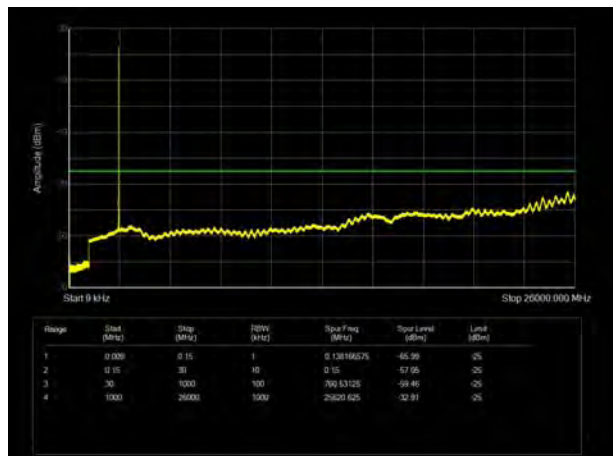
LTE Band 7 20MHz CH-Low 9kHz~26GHz



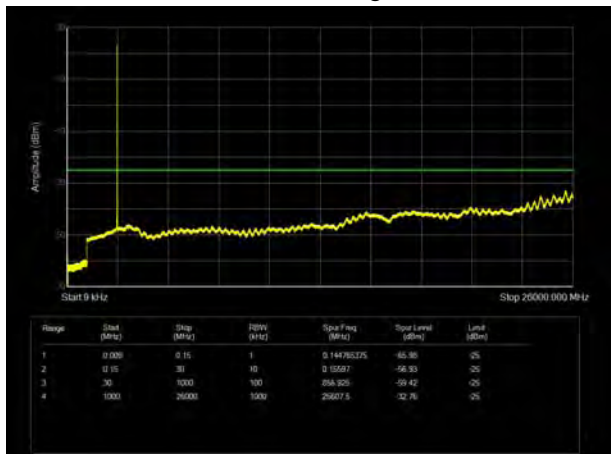
LTE Band 7 15MHz CH- Middle 9kHz~26GHz



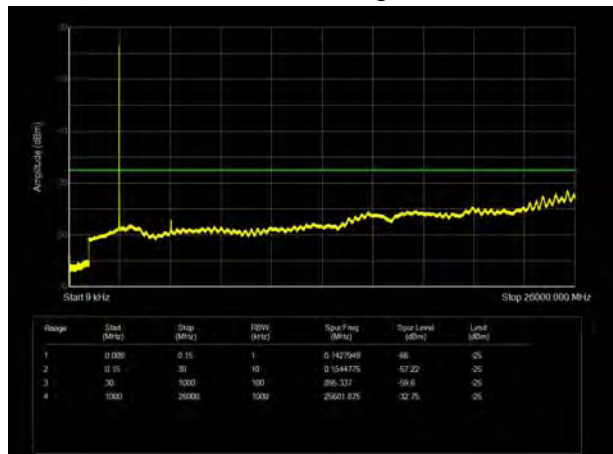
LTE Band 7 20MHz CH- Middle 9kHz~26GHz



LTE Band 7 15MHz CH-High 9kHz~26GHz

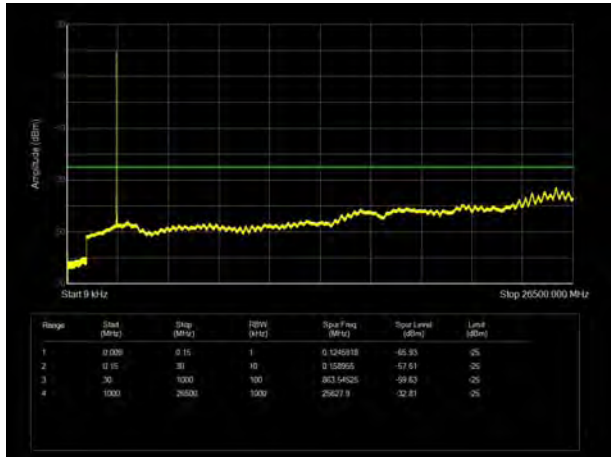


LTE Band 7 20MHz CH- High 9kHz~26GHz

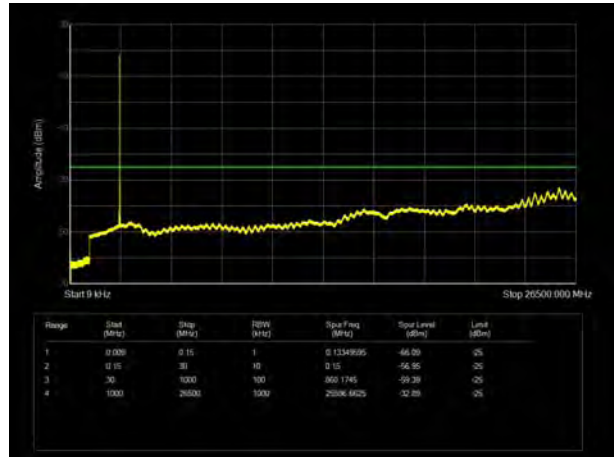




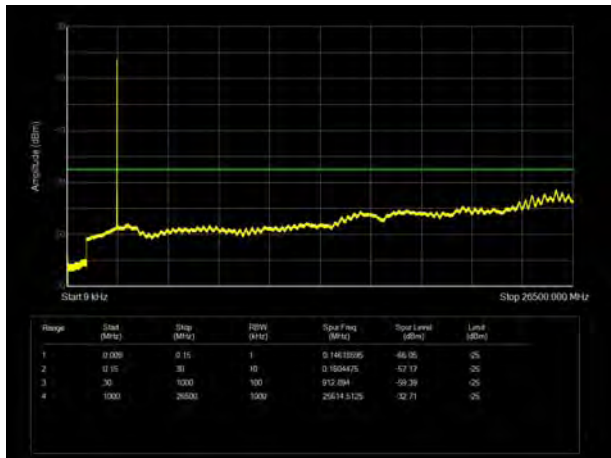
LTE Band 38 5MHz CH-Low 9kHz~26.5GHz



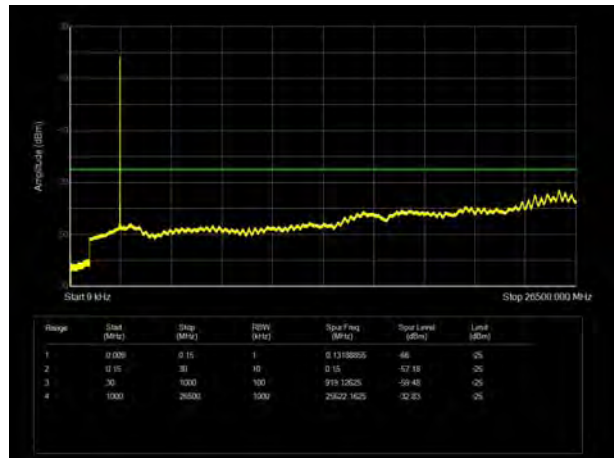
LTE Band 38 10MHz CH- Low 9kHz~26.5GHz



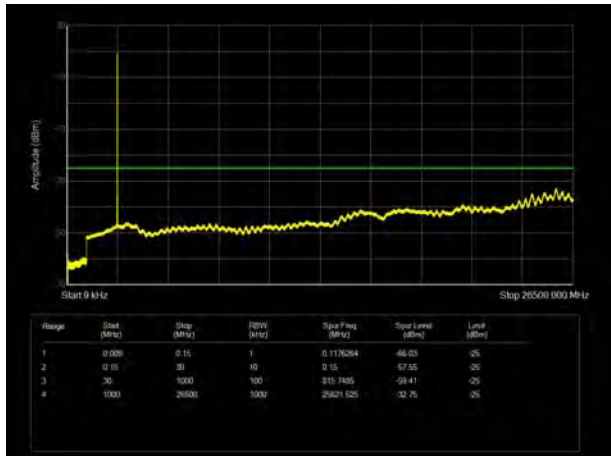
LTE Band 38 5MHz CH- Middle 9kHz~26.5GHz



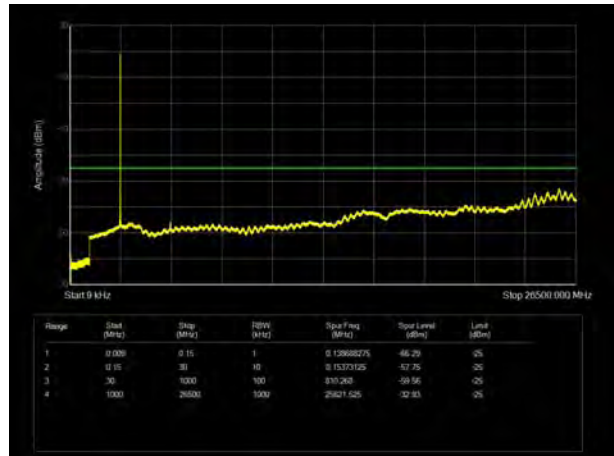
LTE Band 38 10MHz CH- Middle 9kHz~26.5GHz



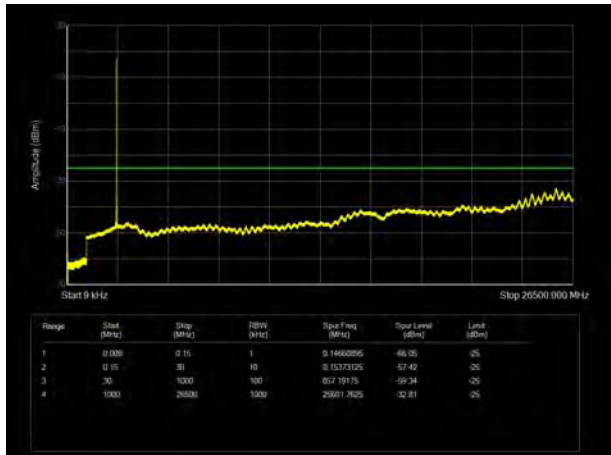
LTE Band 38 5MHz CH- High 9kHz~26.5GHz



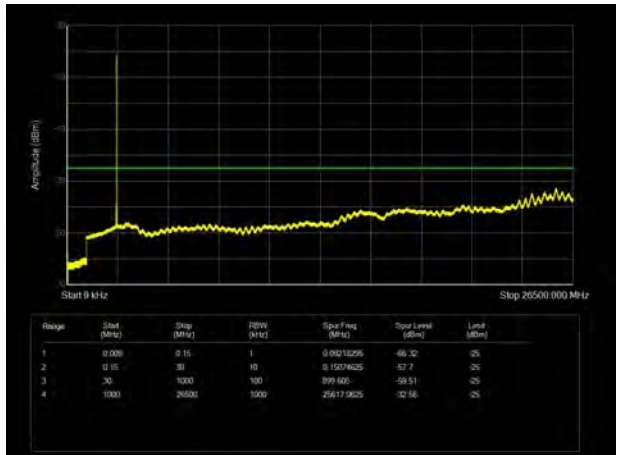
LTE Band 38 10MHz CH-High 9kHz~26.5GHz



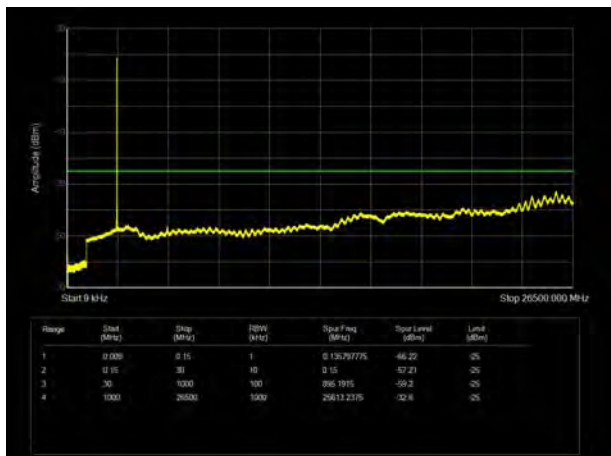
LTE Band 38 15MHz CH- Low 9kHz~26.5GHz



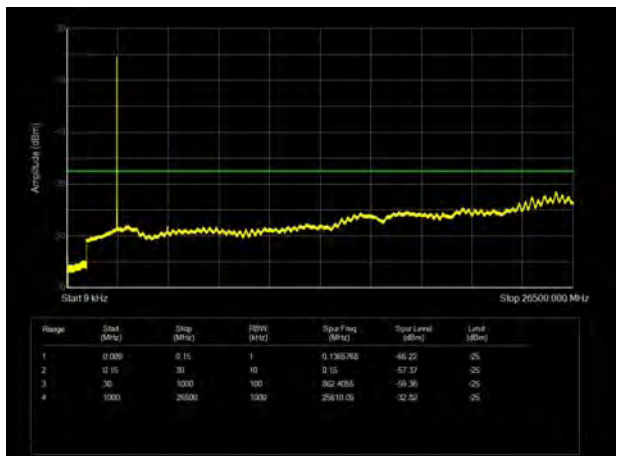
LTE Band 38 20MHz CH-Low 9kHz~26.5GHz



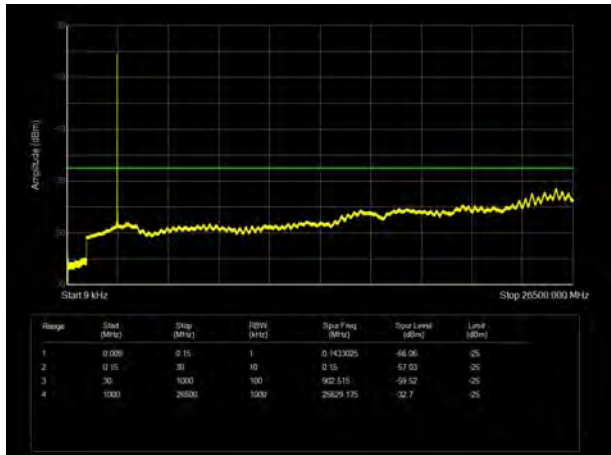
LTE Band 38 15MHz CH- Middle 9kHz~26.5GHz



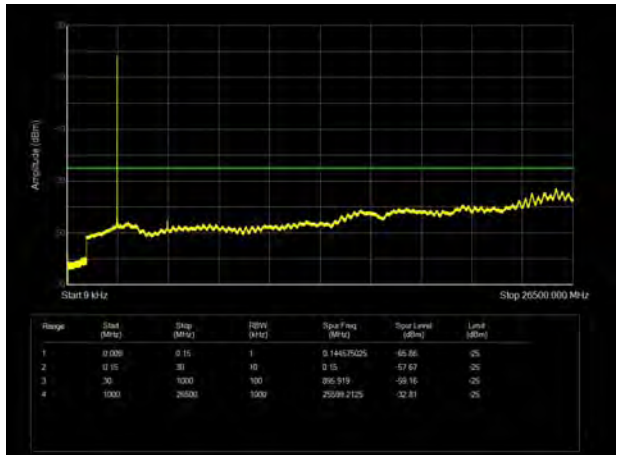
LTE Band 38 20MHz CH- Middle 9kHz~26.5GHz



LTE Band 38 15MHz CH-High 9kHz~26.5GHz



LTE Band 38 20MHz CH- High 9kHz~26.5GHz



5.7 Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

- The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
- Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
- A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, and the maximum value of the receiver should be recorded as (Pr).
- The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
- A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
- The measurement results are obtained as described below:

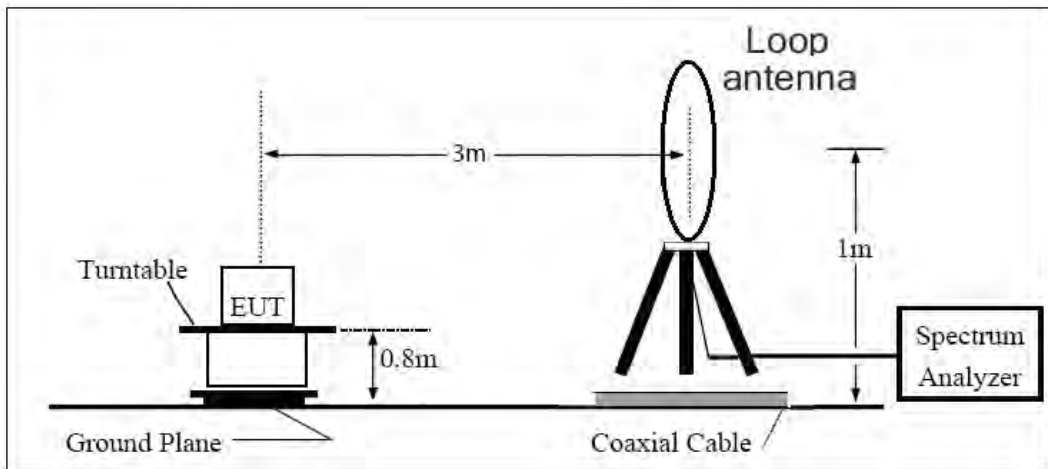
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$
 The measurement results are amend as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dBi}$.

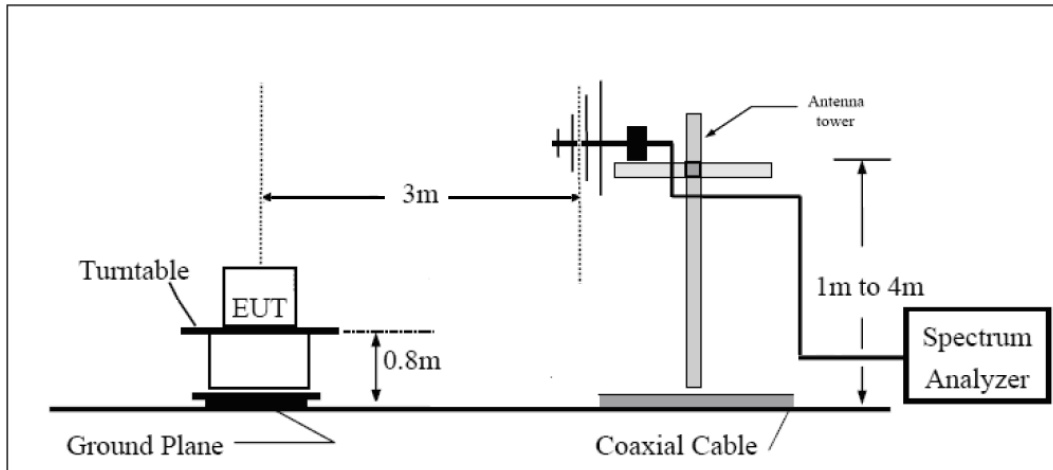
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

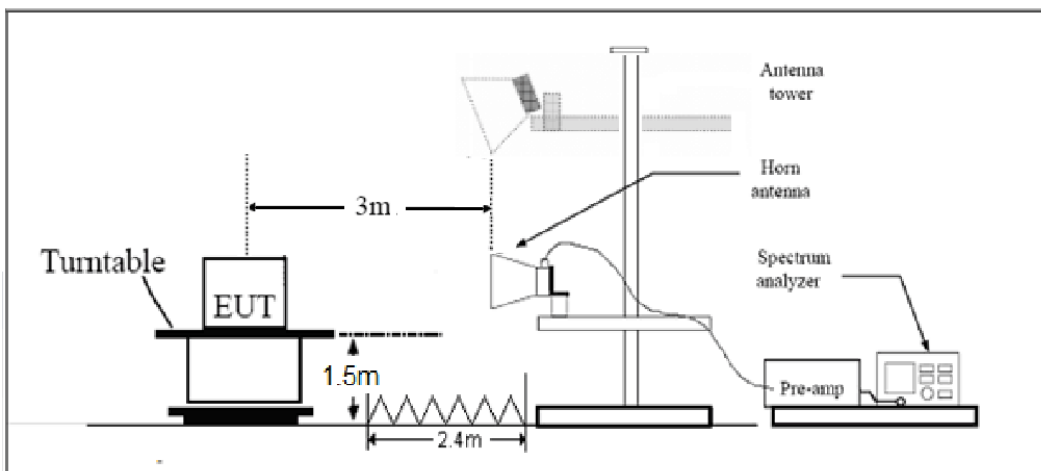
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits



Rule Part 27.53(m) $55 + 10 \log (P)$ 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)(4) of this section.

Part 27.53(m) Limit	-25 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = \pm 1.96$, $U = \pm 3.55$ dB.

**Test Result**

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 7 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5065.80	-57.50	3.40	12.50	Horizontal	-48.40	-25.00	23.40	90
3	7598.60	-49.72	4.40	12.20	Horizontal	-41.92	-25.00	16.92	180
4	10130.63	-51.08	4.70	11.30	Horizontal	-44.48	-25.00	19.48	90
5	12675.00	-48.95	5.40	13.20	Horizontal	-41.15	-25.00	16.15	180
6	15210.00	-47.03	6.10	13.10	Horizontal	-40.03	-25.00	15.03	90
7	17745.00	-49.69	6.10	14.20	Horizontal	-41.59	-25.00	16.59	180
8	20280.00	--	--	--	--	--	--	--	--
9	22815.00	--	--	--	--	--	--	--	--
10	25350.00	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Horizontal position.

LTE Band 7 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5052.38	-57.99	3.40	12.50	Horizontal	-48.89	-25.00	23.89	90
3	7605.00	-48.93	4.40	12.20	Horizontal	-41.13	-25.00	16.13	180
4	10140.00	-49.65	4.70	11.30	Horizontal	-43.05	-25.00	18.05	90
5	12675.00	-49.54	5.40	13.20	Horizontal	-41.74	-25.00	16.74	135
6	15210.00	-45.84	6.10	13.10	Horizontal	-38.84	-25.00	13.84	180
7	17745.00	-49.10	6.10	14.20	Horizontal	-41.00	-25.00	16.00	90
8	20280.00	--	--	--	--	--	--	--	--
9	22815.00	--	--	--	--	--	--	--	--
10	25350.00	--	--	--	--	--	--	--	--

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Horizontal position.



LTE Band 38 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5190.00	-54.42	3.20	12.50	Horizontal	-45.12	-25.00	20.12	270
3	7785.00	-53.58	4.40	12.30	Horizontal	-45.68	-25.00	20.68	90
4	10380.00	-47.54	4.70	11.80	Horizontal	-40.44	-25.00	15.44	45
5	12975.00	-53.06	5.40	14.00	Horizontal	-44.46	-25.00	19.46	315
6	15570.00	-52.36	6.10	16.80	Horizontal	-41.66	-25.00	16.66	90
7	18165.00	--	--	--	--	--	--	--	--
8	20760.00	--	--	--	--	--	--	--	--
9	23355.00	--	--	--	--	--	--	--	--
10	25950.00	--	--	--	--	--	--	--	--

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.

LTE Band 38 QPSK 20MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	5190.00	-54.73	3.20	12.50	Horizontal	-45.43	-25.00	20.43	90
3	7785.00	-54.14	4.40	12.30	Horizontal	-46.24	-25.00	21.24	135
4	10380.00	-47.58	4.70	11.80	Horizontal	-40.48	-25.00	15.48	180
5	12975.00	-50.90	5.40	14.00	Horizontal	-42.30	-25.00	17.30	90
6	15570.00	-53.84	6.10	16.80	Horizontal	-43.14	-25.00	18.14	90
7	18165.00	--	--	--	--	--	--	--	--
8	20760.00	--	--	--	--	--	--	--	--
9	23355.00	--	--	--	--	--	--	--	--
10	25950.00	--	--	--	--	--	--	--	--

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Horizontal position.



6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Signal Analyzer	R&S	FSV3030	101411	2020-12-13	2021-12-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2020-12-13	2021-12-12
Preamplifier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-12-12	2021-06-11
Software	R&S	EMC32	9.26.0	/	/

*****END OF REPORT *****



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.



ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.