



# RF TEST REPORT

**Applicant**      Xiaomi Communications Co., Ltd.  
**FCC ID**          2AFZZ3QL  
**Product**        Mobile Phone  
**Brand**            Redmi  
**Model**            220333QL  
**Report No.**      R2111A1057-R3  
**Issue Date**     January 29, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2020)/ FCC CFR47 Part 27 (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(d)(4) /27.50(h)(2)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	27.53(h) /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(h) /27.53(m)	PASS
7	Radiates Spurious Emission	2.1053 /27.53(h) /27.53(m)	PASS

Date of Testing: December 28, 2021~January 24, 2022

Date of Sample Received: December 27, 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.

**220333QL (Report No.: R2111A1057-R3) is a variant model of 220333QNY (Report No.: R2111A1060-R3). Test values duplicated from Original for variant, there is only retest LTE Band 41 for variant. The detailed product change description please refers to the Difference Declaration Letter.**



# 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.  
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## 2 General Description of Equipment under Test

### 2.1 Applicant and Manufacturer Information

Applicant	Xiaomi Communications Co., Ltd.
Applicant address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer	Xiaomi Communications Co., Ltd.
Manufacturer address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

### 2.2 General information

EUT Description			
Model	220333QL		
IMEI	Original (220333QNY)	IMEI 1: 862390060019009 IMEI 2: 862390060019017	
	Variant (220333QL)	IMEI 1: 860223060033583 IMEI 2: 860223060033591	
Hardware Version	P1.1		
Software Version	MIUI13		
Antenna Type	PIFA Antenna		
Antenna Gain	Band	Low Antenna	Upper Antenna
	WCDMA Band IV	0.180 dBi	0.800 dBi
	LTE Band 4	0.200 dBi	-0.040 dBi
	LTE Band 7	0.900 dBi	0.370 dBi
	LTE Band 38	1.000 dBi	0.780 dBi
	LTE Band 41	0.009 dBi	0.710 dBi
Test Mode(s)	WCDMA Band IV; LTE Band 4/7/38/41;		
Test Modulation	(WCDMA) BPSK, QPSK; (LTE)QPSK, 16QAM, 64QAM;		
HSDPA UE Category	24		
HSUPA UE Category	6		
LTE Category	5		
Maximum E.I.R.P.	WCDMA Band IV:	24.16 dBm	
	LTE Band 4:	23.74 dBm	
	LTE Band 7:	23.93dBm	
	LTE Band 38:	24.68 dBm	
	LTE Band 41:	23.71 dBm	
Rated Power Supply Voltage	3.87V		



Operating Voltage	Minimum: 3.6V    Maximum: 4.2V		
Operating Temperature	Lowest: 0°C    Highest: +40°C		
Testing Temperature	Lowest: -30°C    Highest: +50°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155
	LTE Band 4	1710 ~ 1755	2110 ~ 2155
	LTE Band 7	2500 ~ 2570	2620 ~ 2690
	LTE Band 38	2570 ~ 2620	2570 ~ 2620
LTE Band 41	2496 ~ 2690	2496 ~ 2690	
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 27 (2020)**

**FCC CFR47 Part 2 (2020)**

**Reference standard:**

**ANSI C63.26 (2015)**

**KDB 971168 D01 Power Meas License Digital Systems v03r01**

## 4 Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report

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, horizontal polarization for WCDMA; Z axis, horizontal polarization for LTE) 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 WCDMA/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 items	Modes/Modulation
	WCDMA Band IV
RF Power Output and Effective Isotropic Radiated Power	RMC/AMR HSDPA/HSUPA DC-HSDPA
Occupied Bandwidth	RMC
Band Edge Compliance	RMC
Peak-to-Average Power Ratio	RMC
Frequency Stability	RMC
Spurious Emissions at Antenna Terminals	RMC
Radiates Spurious Emission	RMC





Test modes are chosen to be reported as the worst case configuration below for LTE Band 4/7/38/41:

Test items	Modes	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM/64QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic Radiated Power	LTE 4	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	LTE 7	-	-	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
	LTE 41	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 4	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 38	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 41	-	-	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 4	O	O	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 7	-	-	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 38	-	-	O	O	O	O	O	O	O	-	O	O	-	O
	LTE 41	-	-	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 4	O	O	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 7	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 38	-	-	O	O	O	O	O	O	-	-	O	O	O	O
	LTE 41	-	-	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 4	O	O	O	O	O	O	O	O	O	-	-	-	O	-
	LTE 7	-	-	O	O	O	O	O	O	O	-	-	-	O	-
	LTE 38	-	-	O	O	O	O	O	O	O	-	-	-	O	-
	LTE 41	-	-	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	LTE 4	O	O	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 7	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 38	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	LTE 41	-	-	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 4	O	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 7	-	-	O	-	-	O	O	-	O	-	-	-	O	-
	LTE 38	-	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 41	-	-	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.

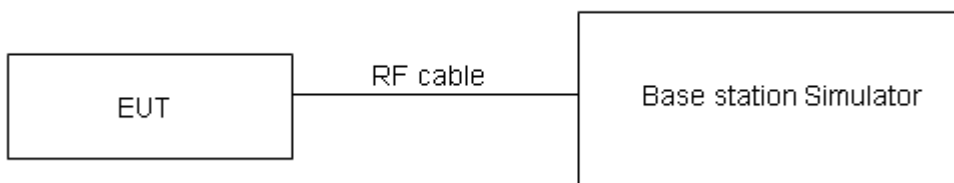
ERP can then be calculated as follows:

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

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(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.”

Part 27.50(d)(4)Limit	≤ 1 W (30 dBm)
Part 27.50(h)(2) Limit	≤ 2 W (33 dBm)

#### 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**

WCDMA Band IV		Maximum Output Power (dBm)			Low Antenna EIRP (dBm)			Upper Antenna EIRP (dBm)		
		Channel 1312	Channel 1413	Channel 1513	Channel 1312	Channel 1413	Channel 1513	Channel 1312	Channel 1413	Channel 1513
		1712.4 (MHz)	1732.6 (MHz)	1752.6 (MHz)	1712.4 (MHz)	1732.6 (MHz)	1752.6 (MHz)	1712.4 (MHz)	1732.6 (MHz)	1752.6 (MHz)
<b>RMC</b>		23.12	23.20	23.19	23.30	23.38	23.37	23.92	24.00	23.99
<b>AMR</b>		23.14	23.36	23.13	23.32	23.54	23.31	23.94	24.16	23.93
<b>HSDPA</b>	Sub - Test 1	22.22	22.30	22.19	22.40	22.48	22.37	23.02	23.10	22.99
	Sub - Test 2	22.16	22.10	22.33	22.34	22.28	22.51	22.96	22.90	23.13
	Sub - Test 3	21.72	21.60	21.57	21.90	21.78	21.75	22.52	22.40	22.37
	Sub - Test 4	21.70	21.54	21.83	21.88	21.72	22.01	22.50	22.34	22.63
<b>HSUPA</b>	Sub - Test 1	22.20	22.06	22.29	22.38	22.24	22.47	23.00	22.86	23.09
	Sub - Test 2	20.10	20.06	20.29	20.28	20.24	20.47	20.90	20.86	21.09
	Sub - Test 3	21.26	21.14	21.07	21.44	21.32	21.25	22.06	21.94	21.87
	Sub - Test 4	20.08	20.10	20.21	20.26	20.28	20.39	20.88	20.90	21.01
	Sub - Test 5	22.02	22.16	22.31	22.20	22.34	22.49	22.82	22.96	23.11
<b>DC-HSDPA</b>	Sub - Test 1	22.22	22.12	22.25	22.40	22.30	22.43	23.02	22.92	23.05
	Sub - Test 2	22.10	22.30	22.13	22.28	22.48	22.31	22.90	23.10	22.93
	Sub - Test 3	21.78	21.56	21.79	21.96	21.74	21.97	22.58	22.36	22.59
	Sub - Test 4	21.72	21.84	21.71	21.90	22.02	21.89	22.52	22.64	22.51



LTE Band 4				Maximum Output Power(dBm)			Low Antenna EIRP (dBm)			Upper Antenna EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				19957/1710.7	20175/1732.5	20393/1754.3	19957/1710.7	20175/1732.5	20393/1754.3	19957/1710.7	20175/1732.5	20393/1754.3
1.4MHz	QPSK	1	0	23.03	23.10	23.04	23.23	23.30	23.24	22.99	23.06	23.00
		1	2	23.54	23.19	23.37	23.74	23.39	23.57	23.50	23.15	23.33
		1	5	22.99	22.65	22.76	23.19	22.85	22.96	22.95	22.61	22.72
		3	0	23.03	22.69	22.94	23.23	22.89	23.14	22.99	22.65	22.90
		3	2	22.89	22.69	22.73	23.09	22.89	22.93	22.85	22.65	22.69
		3	3	22.79	22.63	22.56	22.99	22.83	22.76	22.75	22.59	22.52
		6	0	21.94	21.77	21.74	22.14	21.97	21.94	21.90	21.73	21.70
	16QAM	1	0	21.93	21.99	21.96	22.13	22.19	22.16	21.89	21.95	21.92
		1	2	21.91	22.02	21.84	22.11	22.22	22.04	21.87	21.98	21.80
		1	5	21.59	21.71	21.61	21.79	21.91	21.81	21.55	21.67	21.57
		3	0	21.87	21.64	21.85	22.07	21.84	22.05	21.83	21.60	21.81
		3	2	21.94	21.71	21.78	22.14	21.91	21.98	21.90	21.67	21.74
		3	3	21.79	21.68	21.53	21.99	21.88	21.73	21.75	21.64	21.49
		6	0	20.89	20.72	20.73	21.09	20.92	20.93	20.85	20.68	20.69
	64QAM	1	0	20.91	20.98	21.11	21.11	21.18	21.31	20.87	20.94	21.07
		1	2	21.52	21.23	21.40	21.72	21.43	21.60	21.48	21.19	21.36
		1	5	20.70	20.67	20.71	20.90	20.87	20.91	20.66	20.63	20.67
		3	0	20.89	20.73	20.83	21.09	20.93	21.03	20.85	20.69	20.79
		3	2	20.80	20.81	20.71	21.00	21.01	20.91	20.76	20.77	20.67
		3	3	20.65	20.67	20.59	20.85	20.87	20.79	20.61	20.63	20.55
		6	0	19.85	19.71	19.73	20.05	19.91	19.93	19.81	19.67	19.69
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				19965/1711.5	20175/1732.5	20385/1753.5	19965/1711.5	20175/1732.5	20385/1753.5	19965/1711.5	20175/1732.5	20385/1753.5
3MHz	QPSK	1	0	23.05	23.14	23.07	23.25	23.34	23.27	23.01	23.10	23.03
		1	7	23.42	23.22	23.41	23.62	23.42	23.61	23.38	23.18	23.37
		1	14	23.02	22.70	22.80	23.22	22.90	23.00	22.98	22.66	22.76
		8	0	22.13	21.81	22.07	22.33	22.01	22.27	22.09	21.77	22.03
		8	4	22.01	21.79	21.85	22.21	21.99	22.05	21.97	21.75	21.81
		8	7	21.89	21.74	21.66	22.09	21.94	21.86	21.85	21.70	21.62
		15	0	21.94	21.81	21.77	22.14	22.01	21.97	21.90	21.77	21.73



	16QAM	1	0	21.96	22.01	21.99	22.16	22.21	22.19	21.92	21.97	21.95
		1	7	21.94	22.02	21.88	22.14	22.22	22.08	21.90	21.98	21.84
		1	14	21.61	21.75	21.64	21.81	21.95	21.84	21.57	21.71	21.60
		8	0	20.98	20.77	20.97	21.18	20.97	21.17	20.94	20.73	20.93
		8	4	21.05	20.84	20.90	21.25	21.04	21.10	21.01	20.80	20.86
		8	7	20.89	20.80	20.66	21.09	21.00	20.86	20.85	20.76	20.62
		15	0	20.92	20.76	20.76	21.12	20.96	20.96	20.88	20.72	20.72
	64QAM	1	0	20.94	21.00	21.14	21.14	21.20	21.34	20.90	20.96	21.10
		1	7	21.55	21.23	21.42	21.75	21.43	21.62	21.51	21.19	21.38
		1	14	20.72	20.66	20.74	20.92	20.86	20.94	20.68	20.62	20.70
		8	0	20.00	19.86	19.95	20.20	20.06	20.15	19.96	19.82	19.91
		8	4	19.91	19.94	19.83	20.11	20.14	20.03	19.87	19.90	19.79
		8	7	19.75	19.79	19.72	19.95	19.99	19.92	19.71	19.75	19.68
		15	0	19.88	19.75	19.76	20.08	19.95	19.96	19.84	19.71	19.72
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				19975/ 1712.5	20175/ 1732.5	20375/ 1752.5	19975/ 1712.5	20175/ 1732.5	20375/ 1752.5	19975/ 1712.5	20175/ 1732.5	20375/ 1752.5
5MHz	QPSK	1	0	23.02	23.12	23.03	23.22	23.32	23.23	22.98	23.08	22.99
		1	13	23.50	23.18	23.38	23.70	23.38	23.58	23.46	23.14	23.34
		1	24	22.99	22.65	22.76	23.19	22.85	22.96	22.95	22.61	22.72
		12	0	22.10	21.76	22.03	22.30	21.96	22.23	22.06	21.72	21.99
		12	6	21.99	21.75	21.80	22.19	21.95	22.00	21.95	21.71	21.76
		12	13	21.87	21.72	21.62	22.07	21.92	21.82	21.83	21.68	21.58
		25	0	21.94	21.80	21.75	22.14	22.00	21.95	21.90	21.76	21.71
	16QAM	1	0	21.93	21.97	21.96	22.13	22.17	22.16	21.89	21.93	21.92
		1	13	21.91	22.00	21.85	22.11	22.20	22.05	21.87	21.96	21.81
		1	24	21.58	21.73	21.60	21.78	21.93	21.80	21.54	21.69	21.56
		12	0	20.96	20.73	20.94	21.16	20.93	21.14	20.92	20.69	20.90
		12	6	21.02	20.79	20.86	21.22	20.99	21.06	20.98	20.75	20.82
		12	13	20.86	20.75	20.62	21.06	20.95	20.82	20.82	20.71	20.58
		25	0	20.90	20.72	20.71	21.10	20.92	20.91	20.86	20.68	20.67
	64QAM	1	0	20.91	21.00	21.11	21.11	21.20	21.31	20.87	20.96	21.07
		1	13	21.52	21.25	21.39	21.72	21.45	21.59	21.48	21.21	21.35
		1	24	20.73	20.64	20.70	20.93	20.84	20.90	20.69	20.60	20.66
		12	0	19.98	19.82	19.96	20.18	20.02	20.16	19.94	19.78	19.92
		12	6	19.88	19.89	19.79	20.08	20.09	19.99	19.84	19.85	19.75
		12	13	19.72	19.74	19.68	19.92	19.94	19.88	19.68	19.70	19.64



BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)									
				20000/1715	20175/1732.5	20350/1750	20000/1715	20175/1732.5	20350/1750	20000/1715	20175/1732.5	20350/1750	
				25	0	19.86	19.71	19.71	20.06	19.91	19.91	19.82	19.67
10MHz	QPSK	1	0	23.04	23.13	23.06	23.24	23.33	23.26	23.00	23.09	23.02	
		1	25	23.33	23.23	23.42	23.53	23.43	23.62	23.29	23.19	23.38	
		1	49	23.01	22.69	22.79	23.21	22.89	22.99	22.97	22.65	22.75	
		25	0	22.13	21.81	22.07	22.33	22.01	22.27	22.09	21.77	22.03	
		25	13	22.02	21.80	21.84	22.22	22.00	22.04	21.98	21.76	21.80	
		25	25	21.89	21.76	21.67	22.09	21.96	21.87	21.85	21.72	21.63	
		50	0	21.98	21.82	21.79	22.18	22.02	21.99	21.94	21.78	21.75	
	16QAM	1	0	21.95	22.00	21.98	22.15	22.20	22.18	21.91	21.96	21.94	
		1	25	21.94	22.04	21.88	22.14	22.24	22.08	21.90	22.00	21.84	
		1	49	21.61	21.75	21.63	21.81	21.95	21.83	21.57	21.71	21.59	
		25	0	20.99	20.78	20.98	21.19	20.98	21.18	20.95	20.74	20.94	
		25	13	21.04	20.83	20.89	21.24	21.03	21.09	21.00	20.79	20.85	
		25	25	20.89	20.80	20.66	21.09	21.00	20.86	20.85	20.76	20.62	
		50	0	20.93	20.77	20.75	21.13	20.97	20.95	20.89	20.73	20.71	
	64QAM	1	0	20.93	20.99	21.13	21.13	21.19	21.33	20.89	20.95	21.09	
		1	25	21.55	21.25	21.42	21.75	21.45	21.62	21.51	21.21	21.38	
		1	49	20.72	20.66	20.73	20.92	20.86	20.93	20.68	20.62	20.69	
		25	0	20.01	19.87	19.96	20.21	20.07	20.16	19.97	19.83	19.92	
		25	13	19.90	19.93	19.82	20.10	20.13	20.02	19.86	19.89	19.78	
		25	25	19.75	19.79	19.72	19.95	19.99	19.92	19.71	19.75	19.68	
		50	0	19.89	19.76	19.75	20.09	19.96	19.95	19.85	19.72	19.71	
	BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
					20025/1717.5	20175/1732.5	20325/1747.5	20025/1717.5	20175/1732.5	20325/1747.5	20025/1717.5	20175/1732.5	20325/1747.5
					15MHz	QPSK	1	0	23.03	23.09	23.04	23.23	23.29
1	38	23.41	23.22	23.39	23.61		23.42	23.59	23.37	23.18	23.35		
1	74	22.98	22.64	22.75	23.18		22.84	22.95	22.94	22.60	22.71		
36	0	22.11	21.77	22.04	22.31		21.97	22.24	22.07	21.73	22.00		
36	18	21.99	21.75	21.80	22.19		21.95	22.00	21.95	21.71	21.76		
36	39	21.86	21.73	21.63	22.06		21.93	21.83	21.82	21.69	21.59		
75	0	21.96	21.78	21.74	22.16		21.98	21.94	21.92	21.74	21.70		
16QAM	1	0	21.90	21.98	21.96		22.10	22.18	22.16	21.86	21.94	21.92	
	1	38	21.92	22.01	21.86	22.12	22.21	22.06	21.88	21.97	21.82		



		1	74	21.58	21.71	21.60	21.78	21.91	21.80	21.54	21.67	21.56
		36	0	20.96	20.76	20.95	21.16	20.96	21.15	20.92	20.72	20.91
		36	18	21.01	20.78	20.85	21.21	20.98	21.05	20.97	20.74	20.81
		36	39	20.87	20.76	20.63	21.07	20.96	20.83	20.83	20.72	20.59
		75	0	20.90	20.72	20.71	21.10	20.92	20.91	20.86	20.68	20.67
	64QAM	1	0	20.88	20.97	21.11	21.08	21.17	21.31	20.84	20.93	21.07
		1	38	21.53	21.22	21.40	21.73	21.42	21.60	21.49	21.18	21.36
		1	74	20.73	20.65	20.74	20.93	20.85	20.94	20.69	20.61	20.70
		36	0	20.00	19.89	19.97	20.20	20.09	20.17	19.96	19.85	19.93
		36	18	19.88	19.90	19.81	20.08	20.10	20.01	19.84	19.86	19.77
		36	39	19.73	19.75	19.69	19.93	19.95	19.89	19.69	19.71	19.65
		75	0	19.86	19.71	19.71	20.06	19.91	19.91	19.82	19.67	19.67
	BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)							
20050/1720					20175/1732.5	20300/1745	20050/1720	20175/1732.5	20300/1745	20050/1720	20175/1732.5	20300/1745
20MHz	QPSK	1	0	23.00	23.05	23.01	23.20	23.25	23.21	22.96	23.01	22.97
		1	50	23.35	23.18	23.32	23.55	23.38	23.52	23.31	23.14	23.28
		1	99	22.96	22.63	22.72	23.16	22.83	22.92	22.92	22.59	22.68
		50	0	22.08	21.72	22.00	22.28	21.92	22.20	22.04	21.68	21.96
		50	25	21.97	21.71	21.77	22.17	21.91	21.97	21.93	21.67	21.73
		50	50	21.83	21.68	21.59	22.03	21.88	21.79	21.79	21.64	21.55
		100	0	21.93	21.73	21.70	22.13	21.93	21.90	21.89	21.69	21.66
	16QAM	1	0	21.71	21.94	21.91	21.91	22.14	22.11	21.67	21.90	21.87
		1	50	21.88	21.99	21.82	22.08	22.19	22.02	21.84	21.95	21.78
		1	99	21.56	21.68	21.58	21.76	21.88	21.78	21.52	21.64	21.54
		50	0	20.93	20.72	20.92	21.13	20.92	21.12	20.89	20.68	20.88
		50	25	20.98	20.76	20.82	21.18	20.96	21.02	20.94	20.72	20.78
		50	50	20.84	20.71	20.59	21.04	20.91	20.79	20.80	20.67	20.55
		100	0	20.88	20.68	20.68	21.08	20.88	20.88	20.84	20.64	20.64
	64QAM	1	0	20.86	20.93	21.06	21.06	21.13	21.26	20.82	20.89	21.02
		1	50	21.49	21.20	21.36	21.69	21.40	21.56	21.45	21.16	21.32
		1	99	20.67	20.59	20.68	20.87	20.79	20.88	20.63	20.55	20.64
		50	0	19.95	19.81	19.90	20.15	20.01	20.10	19.91	19.77	19.86
		50	25	19.84	19.86	19.75	20.04	20.06	19.95	19.80	19.82	19.71
		50	50	19.70	19.70	19.65	19.90	19.90	19.85	19.66	19.66	19.61
		100	0	19.84	19.67	19.68	20.04	19.87	19.88	19.80	19.63	19.64



LTE Band 7				Maximum Output Power(dBm)			Low Antenna EIRP (dBm)			Upper Antenna 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	20775/2502.5	21100/2535	21425/2567.5
5MHz	QPSK	1	0	22.78	22.95	22.89	23.68	23.85	23.79	23.15	23.32	23.26
		1	13	22.98	22.60	22.99	23.88	23.50	23.89	23.35	22.97	23.36
		1	24	22.85	22.45	22.80	23.75	23.35	23.70	23.22	22.82	23.17
		12	0	21.59	21.49	21.57	22.49	22.39	22.47	21.96	21.86	21.94
		12	6	21.38	21.70	21.47	22.28	22.60	22.37	21.75	22.07	21.84
		12	13	21.31	21.47	21.21	22.21	22.37	22.11	21.68	21.84	21.58
		25	0	21.31	21.41	21.37	22.21	22.31	22.27	21.68	21.78	21.74
	16QAM	1	0	21.49	21.49	22.03	22.39	22.39	22.93	21.86	21.86	22.40
		1	13	21.47	21.68	21.38	22.37	22.58	22.28	21.84	22.05	21.75
		1	24	21.29	21.27	21.52	22.19	22.17	22.42	21.66	21.64	21.89
		12	0	20.40	20.31	20.18	21.30	21.21	21.08	20.77	20.68	20.55
		12	6	20.36	20.57	20.07	21.26	21.47	20.97	20.73	20.94	20.44
		12	13	20.23	20.46	20.25	21.13	21.36	21.15	20.60	20.83	20.62
		25	0	20.22	20.36	20.37	21.12	21.26	21.27	20.59	20.73	20.74
	64QAM	1	0	20.70	20.74	20.83	21.60	21.64	21.73	21.07	21.11	21.20
		1	13	20.67	20.91	20.89	21.57	21.81	21.79	21.04	21.28	21.26
		1	24	20.60	20.81	20.39	21.50	21.71	21.29	20.97	21.18	20.76
		12	0	19.33	19.28	19.36	20.23	20.18	20.26	19.70	19.65	19.73
		12	6	19.16	19.28	19.18	20.06	20.18	20.08	19.53	19.65	19.55
		12	13	19.18	19.20	19.04	20.08	20.10	19.94	19.55	19.57	19.41
		25	0	19.24	19.18	19.25	20.14	20.08	20.15	19.61	19.55	19.62
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				20800/2505	21100/2535	21400/2565	20800/2505	21100/2535	21400/2565	20800/2505	21100/2535	21400/2565
10MHz	QPSK	1	0	22.80	22.96	22.92	23.70	23.86	23.82	23.17	23.33	23.29
		1	25	23.01	22.65	23.03	23.91	23.55	23.93	23.38	23.02	23.40
		1	49	22.87	22.49	22.83	23.77	23.39	23.73	23.24	22.86	23.20
		25	0	21.62	21.54	21.61	22.52	22.44	22.51	21.99	21.91	21.98
		25	13	21.41	21.75	21.51	22.31	22.65	22.41	21.78	22.12	21.88
		25	25	21.33	21.51	21.26	22.23	22.41	22.16	21.70	21.88	21.63
		50	0	21.35	21.43	21.41	22.25	22.33	22.31	21.72	21.80	21.78
	16QAM	1	0	21.51	21.52	22.05	22.41	22.42	22.95	21.88	21.89	22.42
		1	25	21.50	21.72	21.41	22.40	22.62	22.31	21.87	22.09	21.78





		1	49	21.32	21.29	21.55	22.22	22.19	22.45	21.69	21.66	21.92
		25	0	20.43	20.36	20.22	21.33	21.26	21.12	20.80	20.73	20.59
		25	13	20.38	20.61	20.10	21.28	21.51	21.00	20.75	20.98	20.47
		25	25	20.26	20.51	20.29	21.16	21.41	21.19	20.63	20.88	20.66
		50	0	20.25	20.41	20.41	21.15	21.31	21.31	20.62	20.78	20.78
	64QAM	1	0	20.72	20.73	20.85	21.62	21.63	21.75	21.09	21.10	21.22
		1	25	20.70	20.91	20.92	21.60	21.81	21.82	21.07	21.28	21.29
		1	49	20.59	20.83	20.42	21.49	21.73	21.32	20.96	21.20	20.79
		25	0	19.36	19.33	19.36	20.26	20.23	20.26	19.73	19.70	19.73
		25	13	19.18	19.32	19.21	20.08	20.22	20.11	19.55	19.69	19.58
		25	25	19.21	19.25	19.08	20.11	20.15	19.98	19.58	19.62	19.45
		50	0	19.27	19.23	19.29	20.17	20.13	20.19	19.64	19.60	19.66
	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	20825/ 2507.5	21100/ 2535	21375/ 2562.5
15MHz	QPSK	1	0	22.79	22.92	22.90	23.69	23.82	23.80	23.16	23.29	23.27
		1	38	22.99	22.64	23.00	23.89	23.54	23.90	23.36	23.01	23.37
		1	74	22.84	22.44	22.79	23.74	23.34	23.69	23.21	22.81	23.16
		36	0	21.60	21.50	21.58	22.50	22.40	22.48	21.97	21.87	21.95
		36	18	21.38	21.70	21.47	22.28	22.60	22.37	21.75	22.07	21.84
		36	39	21.30	21.48	21.22	22.20	22.38	22.12	21.67	21.85	21.59
		75	0	21.33	21.39	21.36	22.23	22.29	22.26	21.70	21.76	21.73
	16QAM	1	0	21.46	21.50	22.03	22.36	22.40	22.93	21.83	21.87	22.40
		1	38	21.48	21.69	21.39	22.38	22.59	22.29	21.85	22.06	21.76
		1	74	21.29	21.25	21.52	22.19	22.15	22.42	21.66	21.62	21.89
		36	0	20.40	20.34	20.19	21.30	21.24	21.09	20.77	20.71	20.56
		36	18	20.35	20.56	20.06	21.25	21.46	20.96	20.72	20.93	20.43
		36	39	20.24	20.47	20.26	21.14	21.37	21.16	20.61	20.84	20.63
		75	0	20.22	20.36	20.37	21.12	21.26	21.27	20.59	20.73	20.74
	64QAM	1	0	20.67	20.71	20.83	21.57	21.61	21.73	21.04	21.08	21.20
		1	38	20.68	20.88	20.90	21.58	21.78	21.80	21.05	21.25	21.27
		1	74	20.60	20.82	20.43	21.50	21.72	21.33	20.97	21.19	20.80
		36	0	19.35	19.35	19.37	20.25	20.25	20.27	19.72	19.72	19.74
		36	18	19.16	19.29	19.20	20.06	20.19	20.10	19.53	19.66	19.57
		36	39	19.19	19.21	19.05	20.09	20.11	19.95	19.56	19.58	19.42
		75	0	19.24	19.18	19.25	20.14	20.08	20.15	19.61	19.55	19.62



BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				20850/2510	21100/2535	21350/2560	20850/2510	21100/2535	21350/2560	20850/2510	21100/2535	21350/2560
20MHz	QPSK	1	0	22.76	22.88	22.87	23.66	23.78	23.77	23.13	23.25	23.24
		1	50	22.98	22.60	22.98	23.88	23.50	23.88	23.35	22.97	23.35
		1	99	22.82	22.43	22.76	23.72	23.33	23.66	23.19	22.80	23.13
		50	0	21.57	21.45	21.54	22.47	22.35	22.44	21.94	21.82	21.91
		50	25	21.36	21.66	21.44	22.26	22.56	22.34	21.73	22.03	21.81
		50	50	21.27	21.43	21.18	22.17	22.33	22.08	21.64	21.80	21.55
		100	0	21.30	21.34	21.32	22.20	22.24	22.22	21.67	21.71	21.69
	16QAM	1	0	21.75	21.46	21.98	22.65	22.36	22.88	22.12	21.83	22.35
		1	50	21.44	21.67	21.35	22.34	22.57	22.25	21.81	22.04	21.72
		1	99	21.27	21.22	21.50	22.17	22.12	22.40	21.64	21.59	21.87
		50	0	20.37	20.30	20.16	21.27	21.20	21.06	20.74	20.67	20.53
		50	25	20.32	20.54	20.03	21.22	21.44	20.93	20.69	20.91	20.40
		50	50	20.21	20.42	20.22	21.11	21.32	21.12	20.58	20.79	20.59
		100	0	20.20	20.32	20.34	21.10	21.22	21.24	20.57	20.69	20.71
	64QAM	1	0	20.65	20.67	20.78	21.55	21.57	21.68	21.02	21.04	21.15
		1	50	20.64	20.86	20.86	21.54	21.76	21.76	21.01	21.23	21.23
		1	99	20.54	20.76	20.37	21.44	21.66	21.27	20.91	21.13	20.74
		50	0	19.30	19.27	19.30	20.20	20.17	20.20	19.67	19.64	19.67
		50	25	19.12	19.25	19.14	20.02	20.15	20.04	19.49	19.62	19.51
		50	50	19.16	19.16	19.01	20.06	20.06	19.91	19.53	19.53	19.38
		100	0	19.22	19.14	19.22	20.12	20.04	20.12	19.59	19.51	19.59

LTE Band 38				Maximum Output Power(dBm)			Low Antenna EIRP (dBm)			Upper Antenna 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	37775/2572.5	38000/2595	38225/2617.5
5MHz	QPSK	1	0	23.17	23.08	23.12	24.17	24.08	24.12	23.95	23.86	23.90
		1	13	23.65	23.32	23.63	24.65	24.32	24.63	24.43	24.10	24.41
		1	24	23.13	23.03	23.25	24.13	24.03	24.25	23.91	23.81	24.03
		12	0	22.30	22.05	22.33	23.30	23.05	23.33	23.08	22.83	23.11
		12	6	22.02	22.15	22.08	23.02	23.15	23.08	22.80	22.93	22.86
		12	13	21.97	22.14	21.83	22.97	23.14	22.83	22.75	22.92	22.61
		25	0	21.93	22.19	21.93	22.93	23.19	22.93	22.71	22.97	22.71
	16QAM	1	0	22.24	22.29	22.20	23.24	23.29	23.20	23.02	23.07	22.98



		1	13	22.22	21.87	22.32	23.22	22.87	23.32	23.00	22.65	23.10
		1	24	22.01	22.39	21.83	23.01	23.39	22.83	22.79	23.17	22.61
		12	0	21.15	20.91	21.09	22.15	21.91	22.09	21.93	21.69	21.87
		12	6	21.09	21.13	21.05	22.09	22.13	22.05	21.87	21.91	21.83
		12	13	20.94	21.16	20.83	21.94	22.16	21.83	21.72	21.94	21.61
		25	0	20.97	21.08	20.99	21.97	22.08	21.99	21.75	21.86	21.77
	64QAM	1	0	20.98	20.99	21.10	21.98	21.99	22.10	21.76	21.77	21.88
		1	13	21.21	21.28	21.23	22.21	22.28	22.23	21.99	22.06	22.01
		1	24	21.08	21.04	20.91	22.08	22.04	21.91	21.86	21.82	21.69
		12	0	20.20	20.20	20.17	21.20	21.20	21.17	20.98	20.98	20.95
		12	6	20.09	20.14	20.14	21.09	21.14	21.14	20.87	20.92	20.92
		12	13	20.00	19.98	19.85	21.00	20.98	20.85	20.78	20.76	20.63
		25	0	20.07	19.99	20.13	21.07	20.99	21.13	20.85	20.77	20.91
	BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)							
37800/2575					38000/2595	38200/2615	37800/2575	38000/2595	38200/2615	37800/2575	38000/2595	38200/2615
10MHz	QPSK	1	0	23.19	23.09	23.15	24.19	24.09	24.15	23.97	23.87	23.93
		1	25	23.68	23.37	23.67	24.68	24.37	24.67	24.46	24.15	24.45
		1	49	23.15	23.07	23.28	24.15	24.07	24.28	23.93	23.85	24.06
		25	0	22.33	22.10	22.37	23.33	23.10	23.37	23.11	22.88	23.15
		25	13	22.05	22.20	22.12	23.05	23.20	23.12	22.83	22.98	22.90
		25	25	21.99	22.18	21.88	22.99	23.18	22.88	22.77	22.96	22.66
		50	0	21.97	22.21	21.97	22.97	23.21	22.97	22.75	22.99	22.75
	16QAM	1	0	22.26	22.32	22.22	23.26	23.32	23.22	23.04	23.10	23.00
		1	25	22.25	21.91	22.35	23.25	22.91	23.35	23.03	22.69	23.13
		1	49	22.04	22.41	21.86	23.04	23.41	22.86	22.82	23.19	22.64
		25	0	21.18	20.96	21.13	22.18	21.96	22.13	21.96	21.74	21.91
		25	13	21.11	21.17	21.08	22.11	22.17	22.08	21.89	21.95	21.86
		25	25	20.97	21.21	20.87	21.97	22.21	21.87	21.75	21.99	21.65
		50	0	21.00	21.13	21.03	22.00	22.13	22.03	21.78	21.91	21.81
	64QAM	1	0	21.00	20.98	21.12	22.00	21.98	22.12	21.78	21.76	21.90
		1	25	21.24	21.28	21.26	22.24	22.28	22.26	22.02	22.06	22.04
		1	49	21.07	21.06	20.94	22.07	22.06	21.94	21.85	21.84	21.72
		25	0	20.23	20.25	20.17	21.23	21.25	21.17	21.01	21.03	20.95
		25	13	20.11	20.18	20.17	21.11	21.18	21.17	20.89	20.96	20.95
		25	25	20.03	20.03	19.89	21.03	21.03	20.89	20.81	20.81	20.67
		50	0	20.10	20.04	20.17	21.10	21.04	21.17	20.88	20.82	20.95



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	37825/ 2577.5	38000/ 2595	38175/ 2612.5
15MHz	QPSK	1	0	23.18	23.05	23.13	24.18	24.05	24.13	23.96	23.83	23.91
		1	38	23.66	23.36	23.64	24.66	24.36	24.64	24.44	24.14	24.42
		1	74	23.12	23.02	23.24	24.12	24.02	24.24	23.90	23.80	24.02
		36	0	22.31	22.06	22.34	23.31	23.06	23.34	23.09	22.84	23.12
		36	18	22.02	22.15	22.08	23.02	23.15	23.08	22.80	22.93	22.86
		36	39	21.96	22.15	21.84	22.96	23.15	22.84	22.74	22.93	22.62
		75	0	21.95	22.17	21.92	22.95	23.17	22.92	22.73	22.95	22.70
	16QAM	1	0	22.21	22.30	22.20	23.21	23.30	23.20	22.99	23.08	22.98
		1	38	22.23	21.88	22.33	23.23	22.88	23.33	23.01	22.66	23.11
		1	74	22.01	22.37	21.83	23.01	23.37	22.83	22.79	23.15	22.61
		36	0	21.15	20.94	21.10	22.15	21.94	22.10	21.93	21.72	21.88
		36	18	21.08	21.12	21.04	22.08	22.12	22.04	21.86	21.90	21.82
		36	39	20.95	21.17	20.84	21.95	22.17	21.84	21.73	21.95	21.62
		75	0	20.97	21.08	20.99	21.97	22.08	21.99	21.75	21.86	21.77
	64QAM	1	0	20.95	20.96	21.10	21.95	21.96	22.10	21.73	21.74	21.88
		1	38	21.22	21.25	21.24	22.22	22.25	22.24	22.00	22.03	22.02
		1	74	21.08	21.05	20.95	22.08	22.05	21.95	21.86	21.83	21.73
		36	0	20.22	20.27	20.18	21.22	21.27	21.18	21.00	21.05	20.96
		36	18	20.09	20.15	20.16	21.09	21.15	21.16	20.87	20.93	20.94
		36	39	20.01	19.99	19.86	21.01	20.99	20.86	20.79	20.77	20.64
		75	0	20.07	19.99	20.13	21.07	20.99	21.13	20.85	20.77	20.91
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				37850/ 2580	38000/ 2595	38150/ 2610	37850/ 2580	38000/ 2595	38150/ 2610	37850/ 2580	38000/ 2595	38150/ 2610
20MHz	QPSK	1	0	23.15	23.01	23.10	24.15	24.01	24.10	23.93	23.79	23.88
		1	50	23.65	23.32	23.62	24.65	24.32	24.62	24.43	24.10	24.40
		1	99	23.10	23.01	23.21	24.10	24.01	24.21	23.88	23.79	23.99
		50	0	22.28	22.01	22.30	23.28	23.01	23.30	23.06	22.79	23.08
		50	25	22.00	22.11	22.05	23.00	23.11	23.05	22.78	22.89	22.83
		50	50	21.93	22.10	21.80	22.93	23.10	22.80	22.71	22.88	22.58
		100	0	21.92	22.12	21.88	22.92	23.12	22.88	22.70	22.90	22.66
	16QAM	1	0	22.11	22.26	22.15	23.11	23.26	23.15	22.89	23.04	22.93
		1	50	22.19	21.86	22.29	23.19	22.86	23.29	22.97	22.64	23.07
		1	99	21.99	22.34	21.81	22.99	23.34	22.81	22.77	23.12	22.59



		50	0	21.12	20.90	21.07	22.12	21.90	22.07	21.90	21.68	21.85
		50	25	21.05	21.10	21.01	22.05	22.10	22.01	21.83	21.88	21.79
		50	50	20.92	21.12	20.80	21.92	22.12	21.80	21.70	21.90	21.58
		100	0	20.95	21.04	20.96	21.95	22.04	21.96	21.73	21.82	21.74
	64QAM	1	0	20.93	20.92	21.05	21.93	21.92	22.05	21.71	21.70	21.83
		1	50	21.18	21.23	21.20	22.18	22.23	22.20	21.96	22.01	21.98
		1	99	21.02	20.99	20.89	22.02	21.99	21.89	21.80	21.77	21.67
		50	0	20.17	20.19	20.11	21.17	21.19	21.11	20.95	20.97	20.89
		50	25	20.05	20.11	20.10	21.05	21.11	21.10	20.83	20.89	20.88
		50	50	19.98	19.94	19.82	20.98	20.94	20.82	20.76	20.72	20.60
		100	0	20.05	19.95	20.10	21.05	20.95	21.10	20.83	20.73	20.88

LTE Band 41				Maximum Output Power(dBm)			Low Antenna EIRP (dBm)			Upper Antenna EIRP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				39675/2 498.5	40620/2 593	41565/2 687.5	39675/2 498.5	40620/2 593	41565/2 687.5	39675/2 498.5	40620/2 593	41565/2 687.5
5MHz	QPSK	1	0	22.80	22.38	22.78	22.81	22.39	22.79	23.51	23.09	23.49
		1	13	22.91	22.56	22.95	22.92	22.57	22.96	23.62	23.27	23.66
		1	24	22.59	22.50	22.56	22.60	22.51	22.57	23.30	23.21	23.27
		12	0	21.70	22.13	21.97	21.71	22.14	21.98	22.41	22.84	22.68
		12	6	21.79	22.12	22.08	21.80	22.13	22.09	22.50	22.83	22.79
		12	13	21.69	22.03	21.81	21.70	22.04	21.82	22.40	22.74	22.52
		25	0	21.73	22.14	21.87	21.74	22.15	21.88	22.44	22.85	22.58
	16QAM	1	0	22.22	21.86	22.28	22.23	21.87	22.29	22.93	22.57	22.99
		1	13	22.20	22.02	22.41	22.21	22.03	22.42	22.91	22.73	23.12
		1	24	21.75	21.84	21.65	21.76	21.85	21.66	22.46	22.55	22.36
		12	0	20.55	21.09	20.84	20.56	21.10	20.85	21.26	21.80	21.55
		12	6	20.84	21.29	21.38	20.85	21.30	21.39	21.55	22.00	22.09
		12	13	20.76	21.27	21.03	20.77	21.28	21.04	21.47	21.98	21.74
		25	0	20.83	21.36	21.01	20.84	21.37	21.02	21.54	22.07	21.72
	64QAM	1	0	20.68	20.99	21.05	20.69	21.00	21.06	21.39	21.70	21.76
		1	13	20.97	21.43	21.24	20.98	21.44	21.25	21.68	22.14	21.95
		1	24	20.78	21.03	20.69	20.79	21.04	20.70	21.49	21.74	21.40
		12	0	19.86	20.12	20.00	19.87	20.13	20.01	20.57	20.83	20.71
		12	6	20.09	20.26	20.27	20.10	20.27	20.28	20.80	20.97	20.98
		12	13	19.89	20.09	20.10	19.90	20.10	20.11	20.60	20.80	20.81



BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				39700/2	40620/2	41540/2	39700/2	40620/2	41540/2	39700/2	40620/2	41540/2
				501	593	685	501	593	685	501	593	685
		25	0	19.92	20.29	20.03	19.93	20.30	20.04	20.63	21.00	20.74
10MHz	QPSK	1	0	22.82	22.41	22.79	22.83	22.42	22.80	23.53	23.12	23.50
		1	25	22.94	22.60	23.00	22.95	22.61	23.01	23.65	23.31	23.71
		1	49	22.61	22.53	22.60	22.62	22.54	22.61	23.32	23.24	23.31
		25	0	21.73	22.17	22.02	21.74	22.18	22.03	22.44	22.88	22.73
		25	13	21.82	22.16	22.13	21.83	22.17	22.14	22.53	22.87	22.84
		25	25	21.71	22.08	21.85	21.72	22.09	21.86	22.42	22.79	22.56
		50	0	21.77	22.18	21.89	21.78	22.19	21.90	22.48	22.89	22.60
	16QAM	1	0	22.24	21.88	22.31	22.25	21.89	22.32	22.95	22.59	23.02
		1	25	22.23	22.05	22.45	22.24	22.06	22.46	22.94	22.76	23.16
		1	49	21.78	21.87	21.67	21.79	21.88	21.68	22.49	22.58	22.38
		25	0	20.58	21.13	20.89	20.59	21.14	20.90	21.29	21.84	21.60
		25	13	20.86	21.32	21.42	20.87	21.33	21.43	21.57	22.03	22.13
		25	25	20.79	21.31	21.08	20.80	21.32	21.09	21.50	22.02	21.79
		50	0	20.86	21.40	21.06	20.87	21.41	21.07	21.57	22.11	21.77
	64QAM	1	0	20.70	21.01	21.04	20.71	21.02	21.05	21.41	21.72	21.75
		1	25	21.00	21.46	21.24	21.01	21.47	21.25	21.71	22.17	21.95
		1	49	20.77	21.06	20.71	20.78	21.07	20.72	21.48	21.77	21.42
		25	0	19.89	20.12	20.05	19.90	20.13	20.06	20.60	20.83	20.76
		25	13	20.11	20.29	20.31	20.12	20.30	20.32	20.82	21.00	21.02
		25	25	19.92	20.13	20.15	19.93	20.14	20.16	20.63	20.84	20.86
		50	0	19.95	20.33	20.08	19.96	20.34	20.09	20.66	21.04	20.79
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				39725/2	40620/2	41515/2	39725/2	40620/2	41515/2	39725/2	40620/2	41515/2
				503.5	593	682.5	503.5	593	682.5	503.5	593	682.5
15MHz	QPSK	1	0	22.81	22.39	22.75	22.82	22.40	22.76	23.52	23.10	23.46
		1	38	22.92	22.57	22.99	22.93	22.58	23.00	23.63	23.28	23.70
		1	74	22.58	22.49	22.55	22.59	22.50	22.56	23.29	23.20	23.26
		36	0	21.71	22.14	21.98	21.72	22.15	21.99	22.42	22.85	22.69
		36	18	21.79	22.12	22.08	21.80	22.13	22.09	22.50	22.83	22.79
		36	39	21.68	22.04	21.82	21.69	22.05	21.83	22.39	22.75	22.53
		75	0	21.75	22.13	21.85	21.76	22.14	21.86	22.46	22.84	22.56
	16QAM	1	0	22.19	21.86	22.29	22.20	21.87	22.30	22.90	22.57	23.00
		1	38	22.21	22.03	22.42	22.22	22.04	22.43	22.92	22.74	23.13



		1	74	21.75	21.84	21.63	21.76	21.85	21.64	22.46	22.55	22.34
		36	0	20.55	21.10	20.87	20.56	21.11	20.88	21.26	21.81	21.58
		36	18	20.83	21.28	21.37	20.84	21.29	21.38	21.54	21.99	22.08
		36	39	20.77	21.28	21.04	20.78	21.29	21.05	21.48	21.99	21.75
		75	0	20.83	21.36	21.01	20.84	21.37	21.02	21.54	22.07	21.72
	64QAM	1	0	20.65	20.99	21.02	20.66	21.00	21.03	21.36	21.70	21.73
		1	38	20.98	21.44	21.21	20.99	21.45	21.22	21.69	22.15	21.92
		1	74	20.78	21.07	20.70	20.79	21.08	20.71	21.49	21.78	21.41
		36	0	19.88	20.13	20.07	19.89	20.14	20.08	20.59	20.84	20.78
		36	18	20.09	20.28	20.28	20.10	20.29	20.29	20.80	20.99	20.99
		36	39	19.90	20.10	20.11	19.91	20.11	20.12	20.61	20.81	20.82
		75	0	19.92	20.29	20.03	19.93	20.30	20.04	20.63	21.00	20.74
	BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)							
39750/2 506					40620/2 593	41490/2 680	39750/2 506	40620/2 593	41490/2 680	39750/2 506	40620/2 593	41490/2 680
20MHz	QPSK	1	0	22.78	22.36	22.71	22.79	22.37	22.72	23.49	23.07	23.42
		1	50	22.91	22.55	22.95	22.92	22.56	22.96	23.62	23.26	23.66
		1	99	22.56	22.46	22.54	22.57	22.47	22.55	23.27	23.17	23.25
		50	0	21.68	22.10	21.93	21.69	22.11	21.94	22.39	22.81	22.64
		50	25	21.77	22.09	22.04	21.78	22.10	22.05	22.48	22.80	22.75
		50	50	21.65	22.00	21.77	21.66	22.01	21.78	22.36	22.71	22.48
		100	0	21.72	22.09	21.80	21.73	22.10	21.81	22.43	22.80	22.51
	16QAM	1	0	22.00	21.81	22.25	22.01	21.82	22.26	22.71	22.52	22.96
		1	50	22.17	21.99	22.40	22.18	22.00	22.41	22.88	22.70	23.11
		1	99	21.73	21.82	21.60	21.74	21.83	21.61	22.44	22.53	22.31
		50	0	20.52	21.07	20.83	20.53	21.08	20.84	21.23	21.78	21.54
		50	25	20.80	21.25	21.35	20.81	21.26	21.36	21.51	21.96	22.06
		50	50	20.74	21.24	20.99	20.75	21.25	21.00	21.45	21.95	21.70
		100	0	20.81	21.33	20.97	20.82	21.34	20.98	21.52	22.04	21.68
	64QAM	1	0	20.63	20.94	20.98	20.64	20.95	20.99	21.34	21.65	21.69
		1	50	20.94	21.40	21.19	20.95	21.41	21.20	21.65	22.11	21.90
		1	99	20.72	21.01	20.64	20.73	21.02	20.65	21.43	21.72	21.35
		50	0	19.83	20.06	19.99	19.84	20.07	20.00	20.54	20.77	20.70
		50	25	20.05	20.22	20.24	20.06	20.23	20.25	20.76	20.93	20.95
		50	50	19.87	20.06	20.06	19.88	20.07	20.07	20.58	20.77	20.77
		100	0	19.90	20.26	19.99	19.91	20.27	20.00	20.61	20.97	20.70

## 5.2 Occupied Bandwidth

### Ambient condition

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

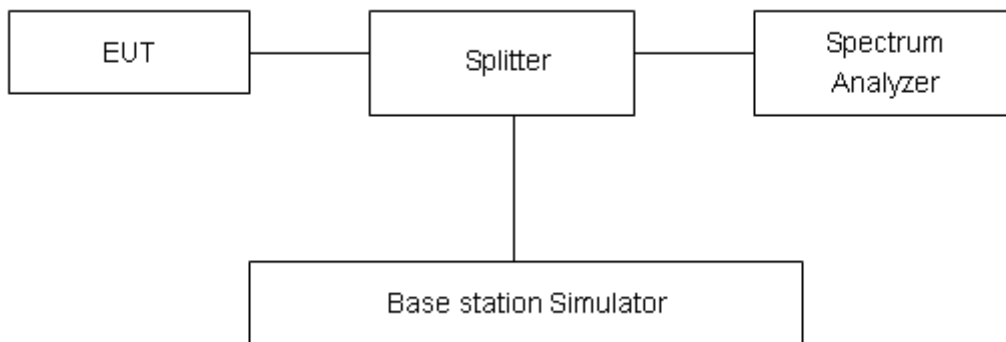
### Method of Measurement

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

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**

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
WCDMA Band IV (RMC)	1312	1712.4	4.105	4.680
	1413	1732.6	4.122	4.712
	1513	1752.6	4.121	4.677

LTE Band 4						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	19957	1710.7	1.106	1.271
			20175	1732.5	1.094	1.298
			20393	1754.3	1.097	1.282
		3	19965	1711.5	2.696	2.984
			20175	1732.5	2.697	3.006
			20385	1753.5	2.703	2.965
		5	19975	1712.5	4.528	4.974
			20175	1732.5	4.505	4.980
			20375	1752.5	4.503	4.946
		10	20000	1715	8.981	9.808
			20175	1732.5	8.935	9.826
			20350	1750	8.959	9.803
	15	20025	1717.5	13.453	14.586	
		20175	1732.5	13.409	14.536	
		20325	1747.5	13.373	14.641	
	20	20050	1720	17.905	19.353	
		20175	1732.5	17.935	19.444	
		20300	1745	17.948	19.172	
	16QAM	1.4	19957	1710.7	1.097	1.272
			20175	1732.5	1.103	1.294
			20393	1754.3	1.093	1.274
		3	19965	1711.5	2.693	2.978
			20175	1732.5	2.704	2.986
			20385	1753.5	2.694	3.000
5		19975	1712.5	4.520	4.934	
		20175	1732.5	4.506	4.953	
		20375	1752.5	4.513	5.016	
10		20000	1715	8.973	9.757	
		20175	1732.5	8.961	9.698	
		20350	1750	8.964	9.679	



		15	20025	1717.5	13.425	14.492
			20175	1732.5	13.415	14.539
			20325	1747.5	13.424	14.419
		20	20050	1720	17.971	19.462
			20175	1732.5	17.897	19.344
			20300	1745	17.948	19.151
	64QAM	1.4	19957	1710.7	1.096	1.280
			20175	1732.5	1.093	1.292
			20393	1754.3	1.092	1.257
		3	19965	1711.5	2.694	2.944
			20175	1732.5	2.699	2.978
			20385	1753.5	2.699	2.992
		5	19975	1712.5	4.497	4.952
			20175	1732.5	4.509	4.976
			20375	1752.5	4.513	5.028
		10	20000	1715	8.977	9.783
			20175	1732.5	8.949	9.694
			20350	1750	8.960	9.921
		15	20025	1717.5	13.461	14.580
			20175	1732.5	13.370	14.572
			20325	1747.5	13.416	14.553
		20	20050	1720	17.865	19.248
			20175	1732.5	17.905	19.354
			20300	1745	17.922	19.167

LTE Band 7						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	20775	2502.5	4.514	4.991
			21100	2535	4.505	4.924
			21425	2567.5	4.498	4.939
		10	20800	2505	8.995	9.890
			21100	2535	8.951	9.772
			21400	2565	8.958	9.824
		15	20825	2507.5	13.446	14.442
			21100	2535	13.399	14.520
			21375	2562.5	13.393	14.544
		20	20850	2510	17.969	19.413
			21100	2535	17.851	19.304
			21350	2560	17.915	19.305



	16QAM	5	20775	2502.5	4.522	5.075
			21100	2535	4.504	4.920
			21425	2567.5	4.526	5.007
		10	20800	2505	8.982	9.775
			21100	2535	8.941	9.761
			21400	2565	8.956	9.772
		15	20825	2507.5	13.423	14.666
			21100	2535	13.398	14.497
			21375	2562.5	13.381	14.722
		20	20850	2510	17.890	19.662
			21100	2535	17.926	19.285
			21350	2560	17.890	19.200
	64QAM	5	20775	2502.5	4.552	5.051
			21100	2535	4.497	4.907
			21425	2567.5	4.505	4.970
		10	20800	2505	8.963	9.741
			21100	2535	8.962	9.697
			21400	2565	8.969	9.824
		15	20825	2507.5	13.481	14.599
			21100	2535	13.425	14.557
			21375	2562.5	13.414	14.526
		20	20850	2510	17.941	19.302
			21100	2535	17.890	19.274
			21350	2560	17.915	19.334

LTE Band 38						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	37775	2572.5	4.503	5.050
			38000	2595	4.502	4.885
			38225	2617.5	4.496	4.940
		10	37800	2575	8.972	9.510
			38000	2595	8.985	9.633
			38200	2615	8.962	9.825
		15	37825	2577.5	13.410	14.444
			38000	2595	13.406	14.449
			38175	2612.5	13.416	14.457
		20	37850	2580	17.872	19.950
			38000	2595	17.863	19.318
			38150	2610	17.902	19.413



	16QAM	5	37775	2572.5	4.519	4.944
			38000	2595	4.488	4.930
			38225	2617.5	4.501	4.918
		10	37800	2575	8.970	9.862
			38000	2595	8.963	9.739
			38200	2615	8.960	9.710
		15	37825	2577.5	13.399	14.571
			38000	2595	13.352	14.419
			38175	2612.5	13.440	14.590
		20	37850	2580	17.856	19.380
			38000	2595	17.904	19.397
			38150	2610	17.944	20.031
	64QAM	5	37775	2572.5	4.500	4.990
			38000	2595	4.492	4.966
			38225	2617.5	4.487	4.937
		10	37800	2575	8.984	9.776
			38000	2595	8.959	9.705
			38200	2615	8.958	9.713
		15	37825	2577.5	13.409	14.705
			38000	2595	13.441	14.532
			38175	2612.5	13.471	14.506
		20	37850	2580	17.890	19.427
			38000	2595	17.898	19.435
			38150	2610	17.913	19.398

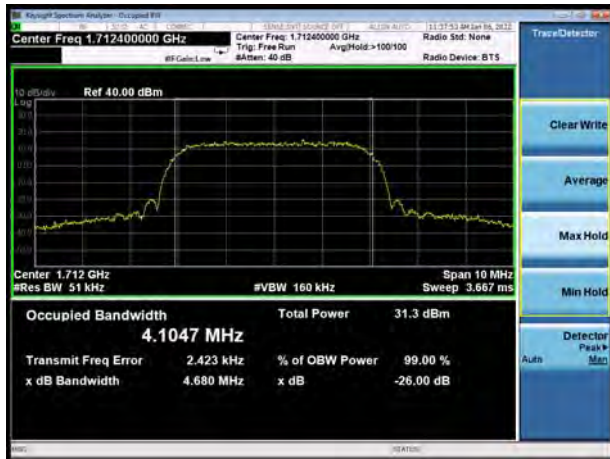
LTE Band 41						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	39675	2498.5	4.490	4.866
			40620	2593	4.512	4.910
			41565	2687.5	4.509	4.863
		10	39700	2501	8.968	9.764
			40620	2593	8.959	9.796
			41540	2685	8.973	9.599
		15	39725	2503.5	13.400	14.593
			40620	2593	13.398	14.653
			41515	2682.5	13.388	14.410
		20	39750	2506	17.868	19.260
			40620	2593	17.861	19.051
			41490	2680	17.892	19.454



	16QAM	5	39675	2498.5	4.508	4.979
			40620	2593	4.499	4.940
			41565	2687.5	4.491	4.922
		10	39700	2501	8.953	9.711
			40620	2593	8.956	9.760
			41540	2685	8.968	9.674
		15	39725	2503.5	13.444	14.543
			40620	2593	13.384	14.503
			41515	2682.5	13.428	14.402
		20	39750	2506	17.866	19.064
			40620	2593	17.852	19.203
			41490	2680	17.878	19.354
	64QAM	5	39675	2498.5	4.479	4.869
			40620	2593	4.507	4.947
			41565	2687.5	4.490	4.946
		10	39700	2501	8.996	9.797
			40620	2593	8.958	9.763
			41540	2685	8.967	9.590
		15	39725	2503.5	13.394	14.474
			40620	2593	13.471	14.605
			41515	2682.5	13.445	14.374
		20	39750	2506	17.861	19.461
			40620	2593	17.870	19.194
			41490	2680	17.872	19.098



### WCDMA Band IV CH-Low



### WCDMA Band IV CH Middle



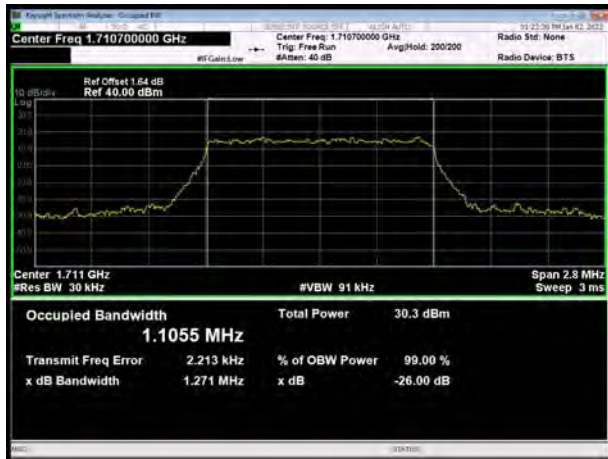
### WCDMA Band IV CH High



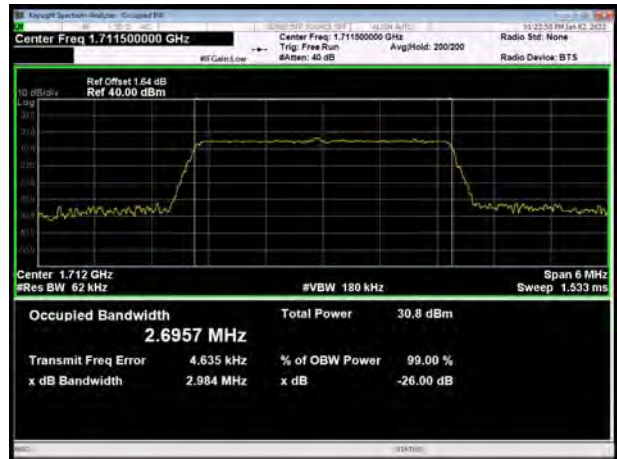




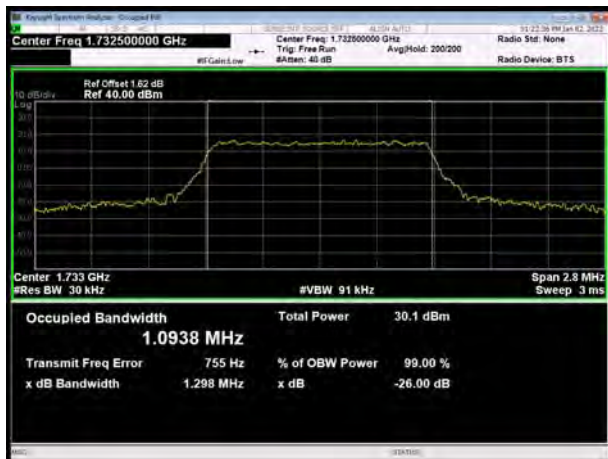
LTE Band 4 QPSK 1.4MHz CH-Low



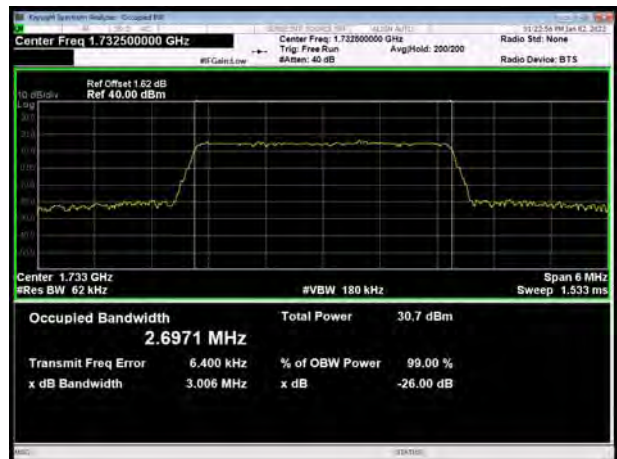
LTE Band 4 QPSK 3MHz CH-Low



LTE Band 4 QPSK 1.4MHz CH-Middle



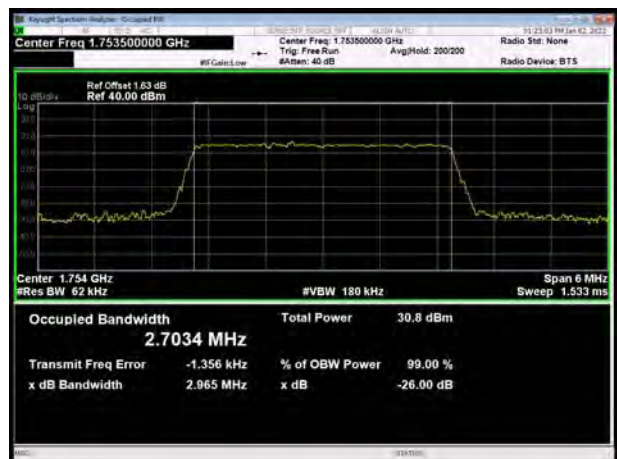
LTE Band 4 QPSK 3MHz CH-Middle



LTE Band 4 QPSK 1.4MHz CH-High

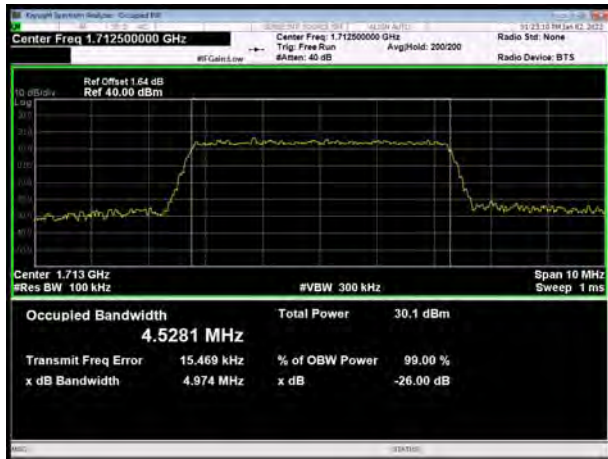


LTE Band 4 QPSK 3MHz CH-High

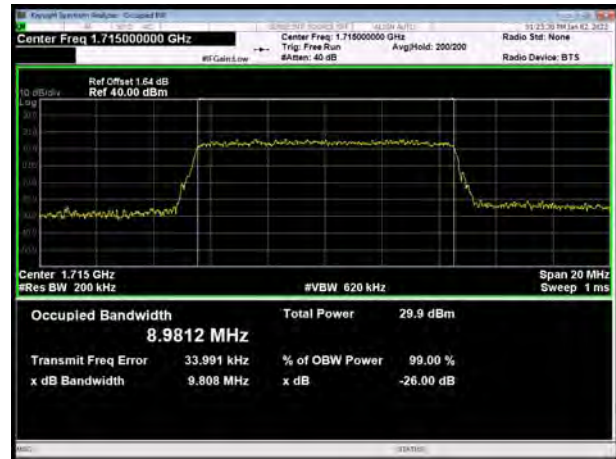




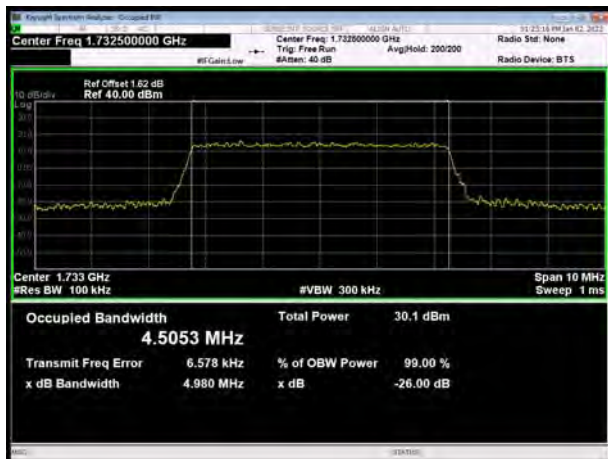
### LTE Band 4 QPSK 5MHz CH-Low



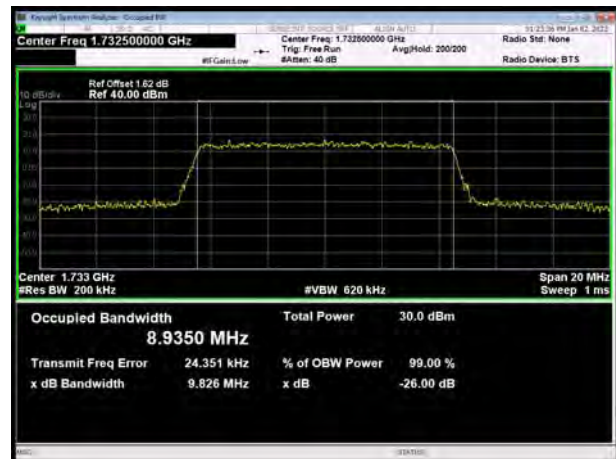
### LTE Band 4 QPSK 10MHz CH-Low



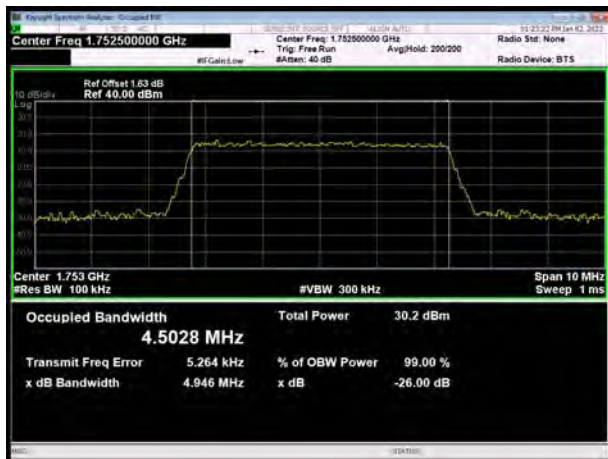
### LTE Band 4 QPSK 5MHz CH-Middle



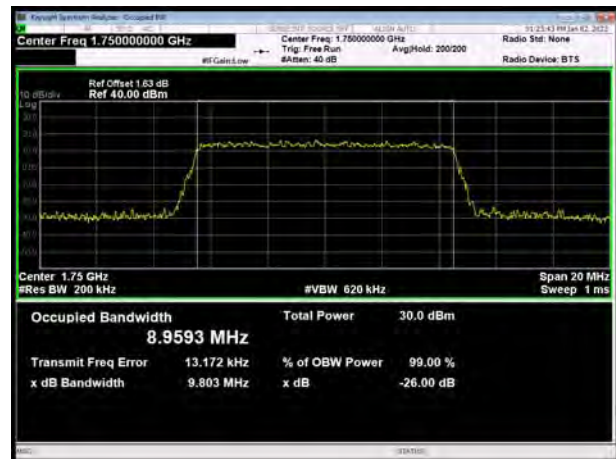
### LTE Band 4 QPSK 10MHz CH-Middle



### LTE Band 4 QPSK 5MHz CH-High



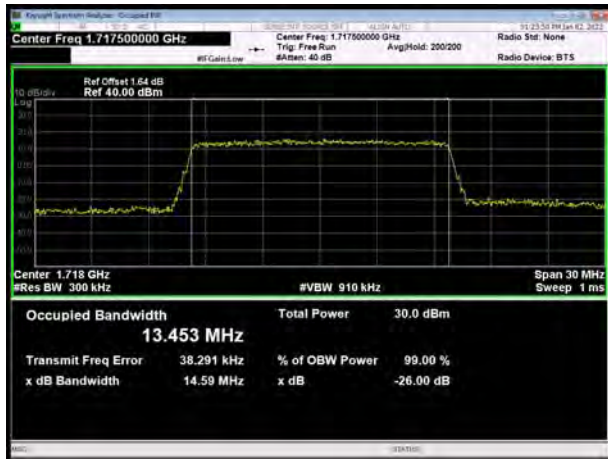
### LTE Band 4 QPSK 10MHz CH-High



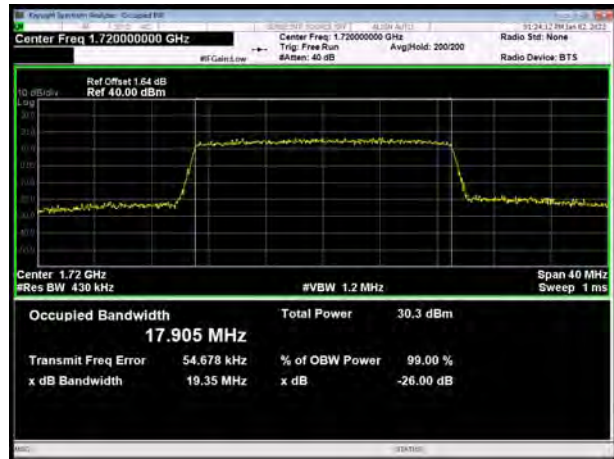




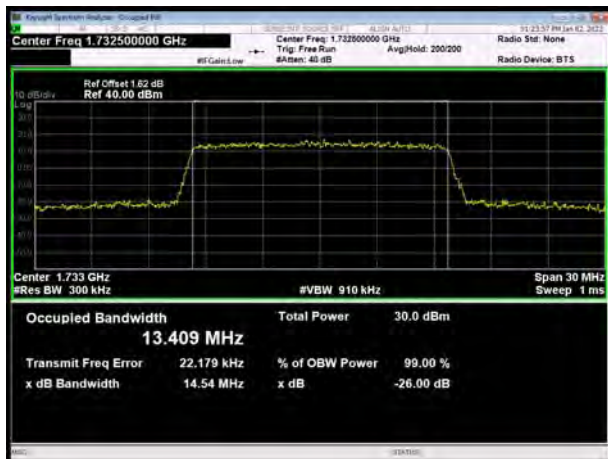
### LTE Band 4 QPSK 15MHz CH-Low



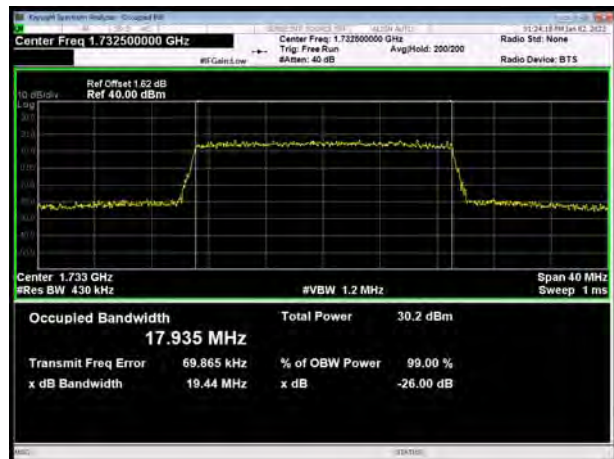
### LTE Band 4 QPSK 20MHz CH-Low



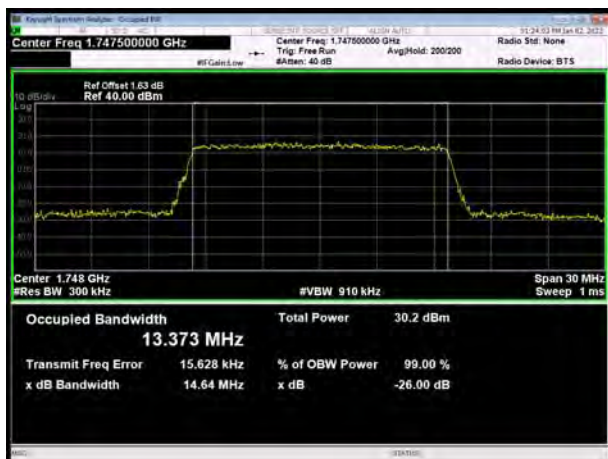
### LTE Band 4 QPSK 15MHz CH-Middle



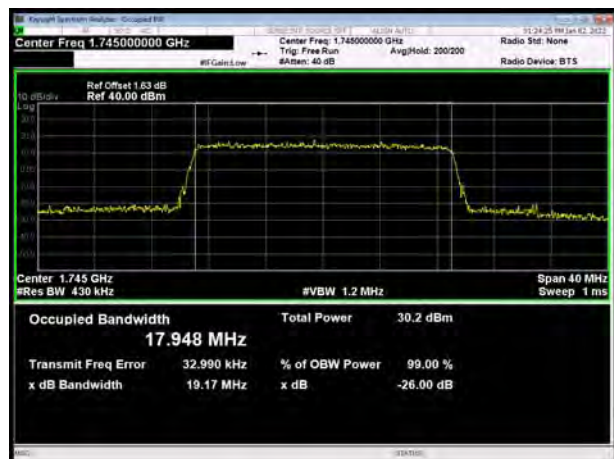
### LTE Band 4 QPSK 20MHz CH-Middle



### LTE Band 4 QPSK 15MHz CH-High

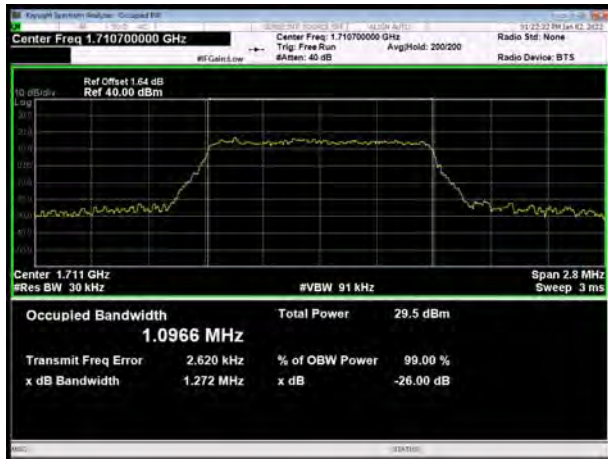


### LTE Band 4 QPSK 20MHz CH-High

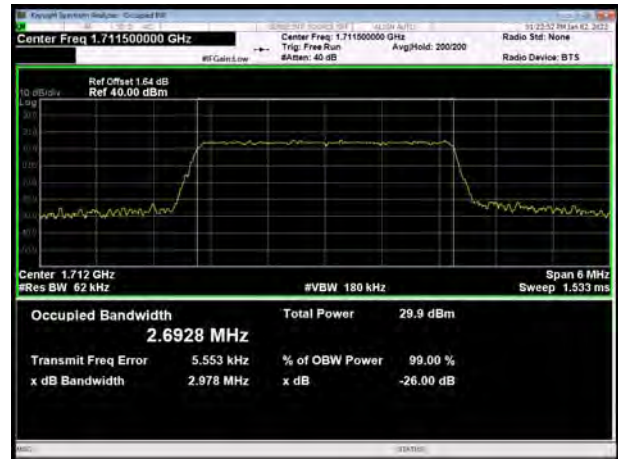




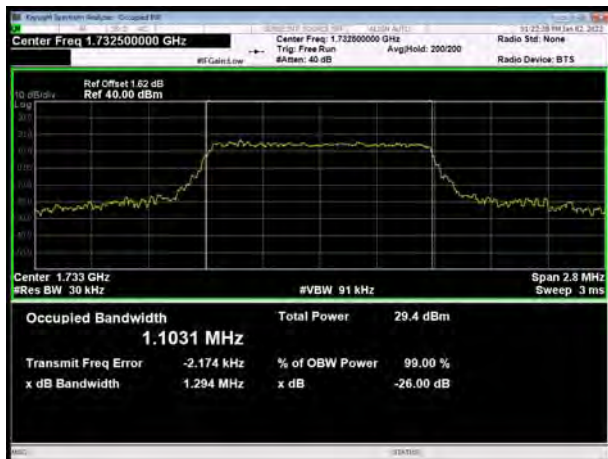
LTE Band 4 16QAM 1.4MHz CH-Low



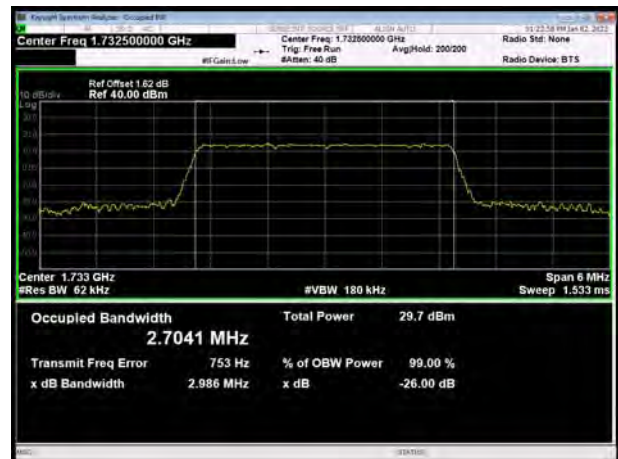
LTE Band 4 16QAM 3MHz CH-Low



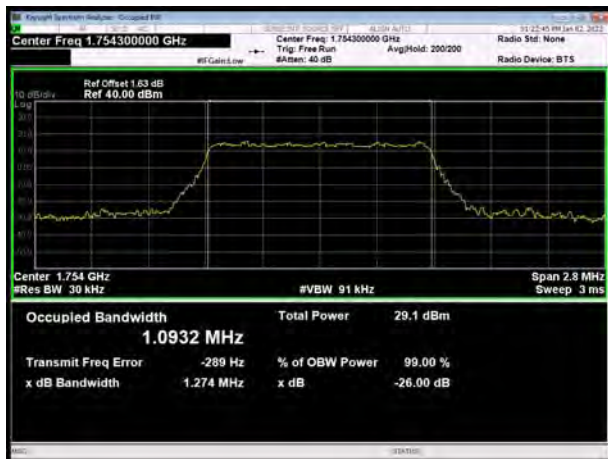
LTE Band 4 16QAM 1.4MHz CH-Middle



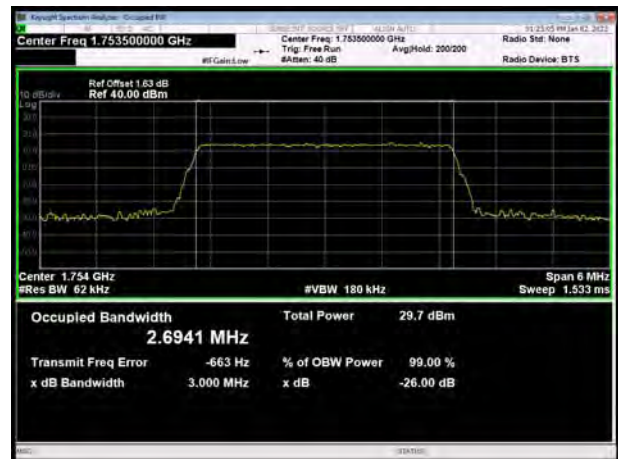
LTE Band 4 16QAM 3MHz CH-Middle



LTE Band 4 16QAM 1.4MHz CH-High

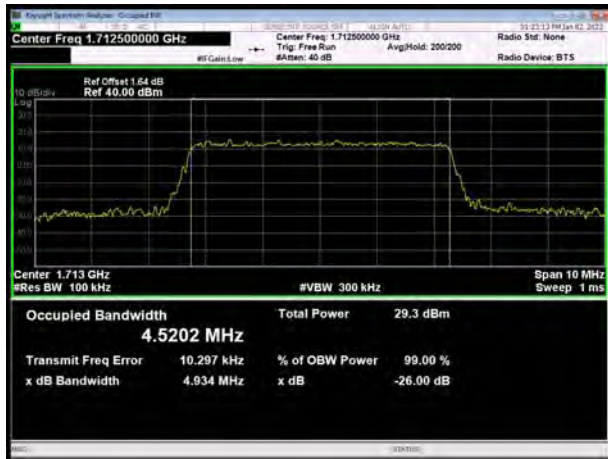


LTE Band 4 16QAM 3MHz CH-High

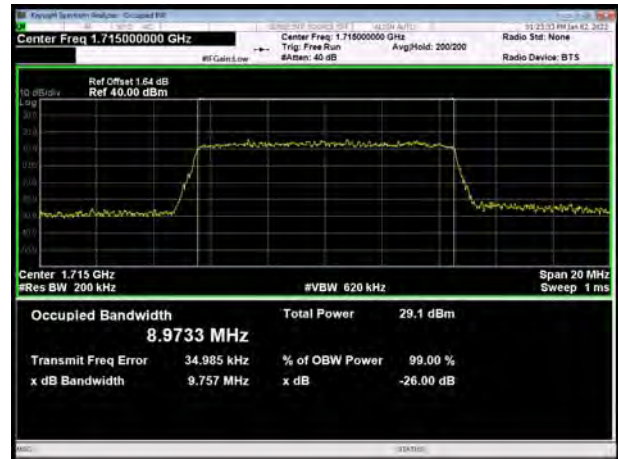




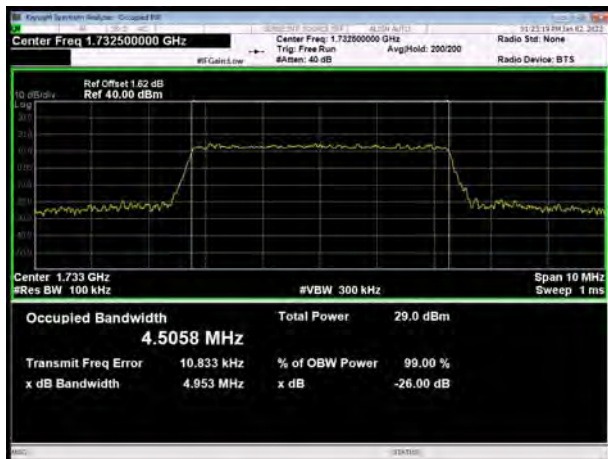
LTE Band 4 16QAM 5MHz CH-Low



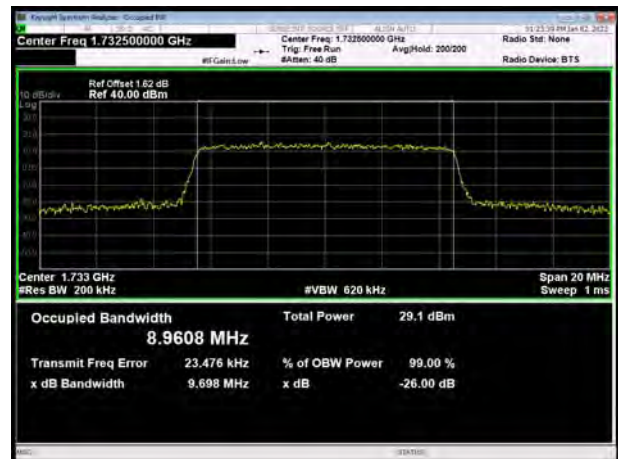
LTE Band 4 16QAM 10MHz CH-Low



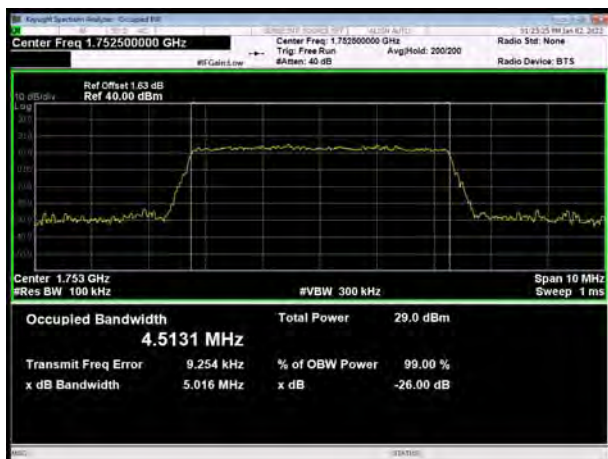
LTE Band 4 16QAM 5MHz CH-Middle



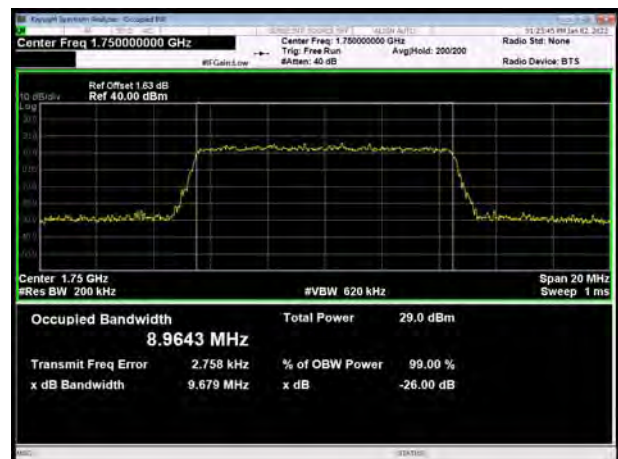
LTE Band 4 16QAM 10MHz CH-Middle



LTE Band 4 16QAM 5MHz CH-High

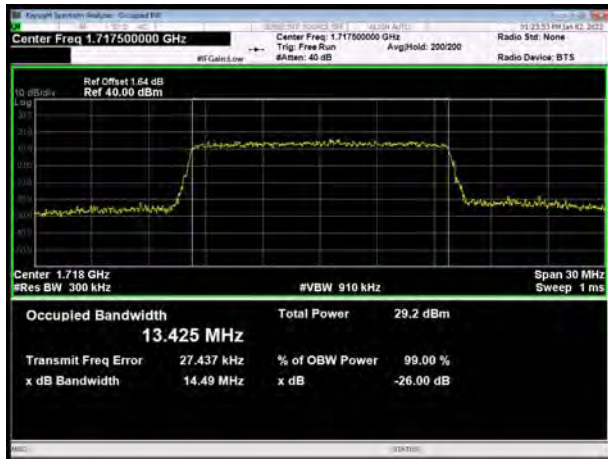


LTE Band 4 16QAM 10MHz CH-High

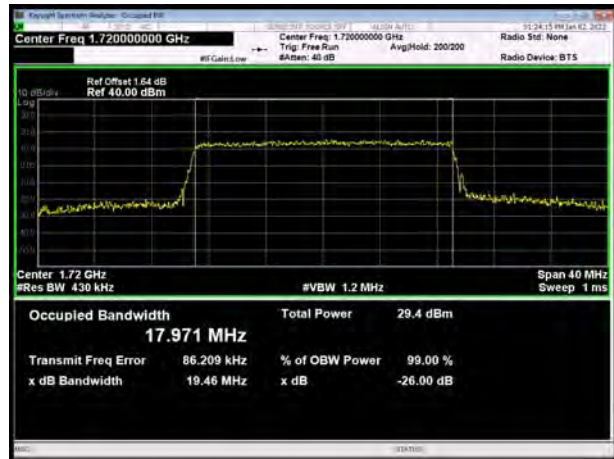




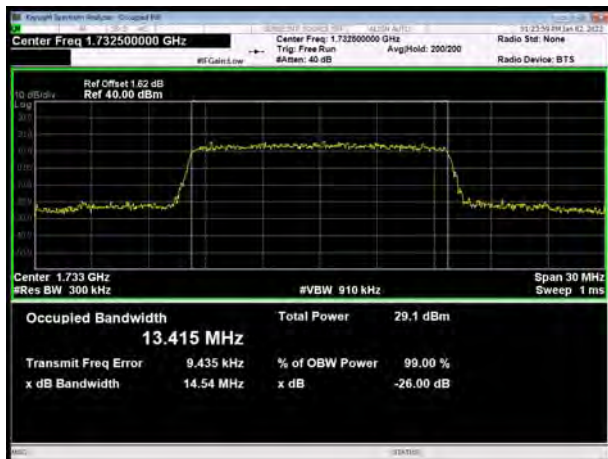
LTE Band 4 16QAM 15MHz CH-Low



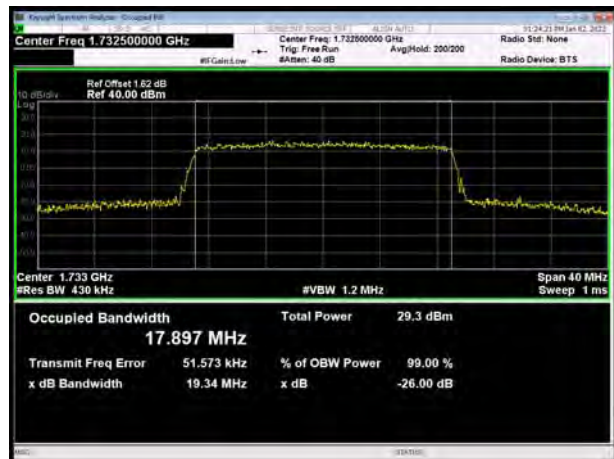
LTE Band 4 16QAM 20MHz CH-Low



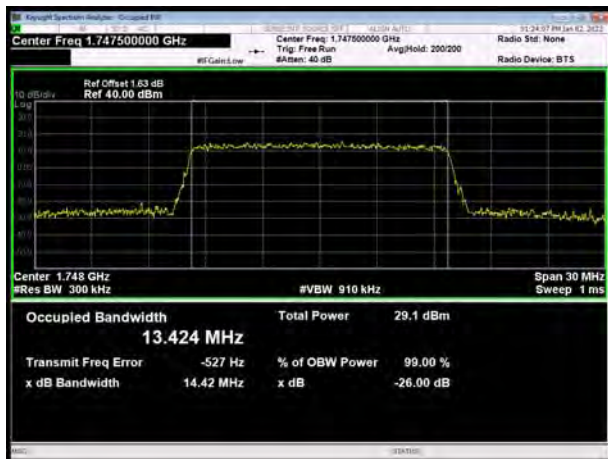
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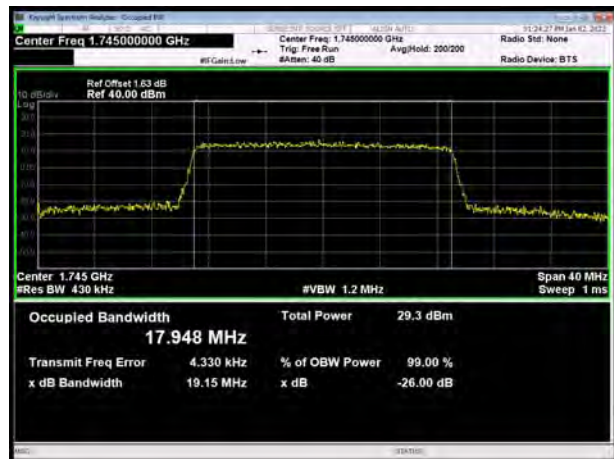
LTE Band 4 16QAM 20MHz CH-Middle



LTE Band 4 16QAM 15MHz CH-High



LTE Band 4 16QAM 20MHz CH-High



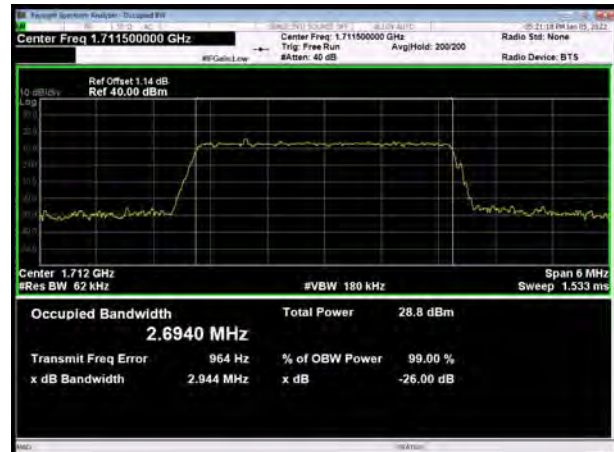




### LTE Band 4 1.4MHz 64QAM CH-Low



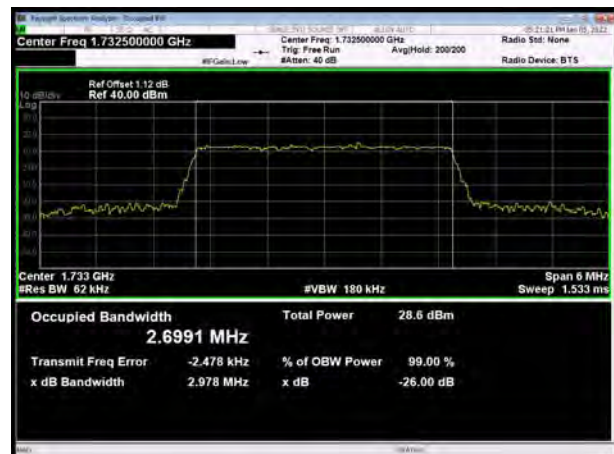
### LTE Band 4 3MHz 64QAM CH-Low



### LTE Band 4 1.4MHz 64QAM CH-Middle



### LTE Band 4 3MHz 64QAM CH-Middle



### LTE Band 4 1.4MHz 64QAM CH-High

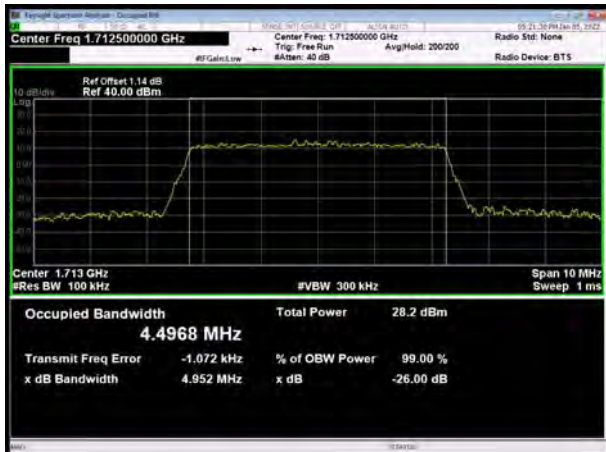


### LTE Band 4 3MHz 64QAM CH-High

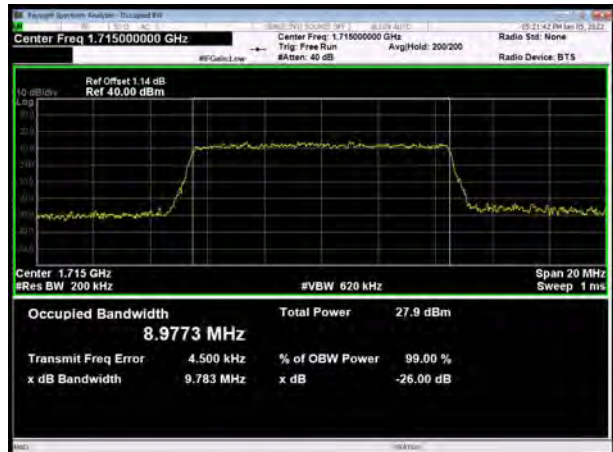




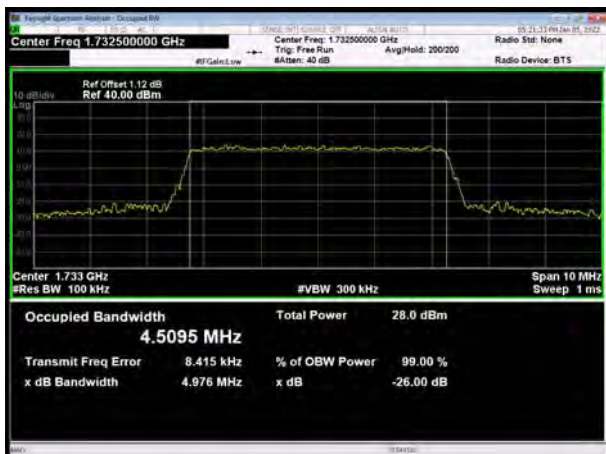
### LTE Band 4 5MHz 64QAM CH-Low



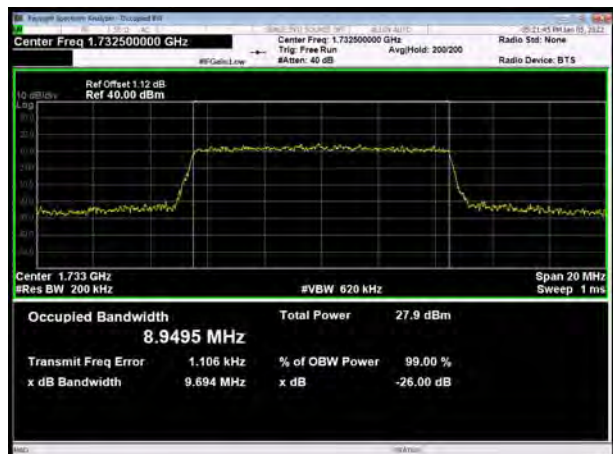
### LTE Band 4 10MHz 64QAM CH-Low



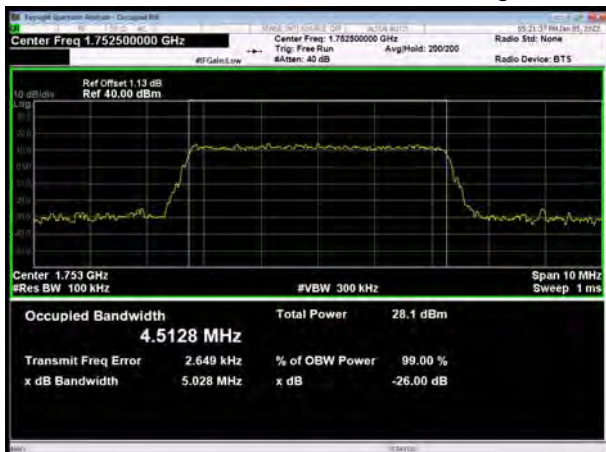
### LTE Band 4 5MHz 64QAM CH-Middle



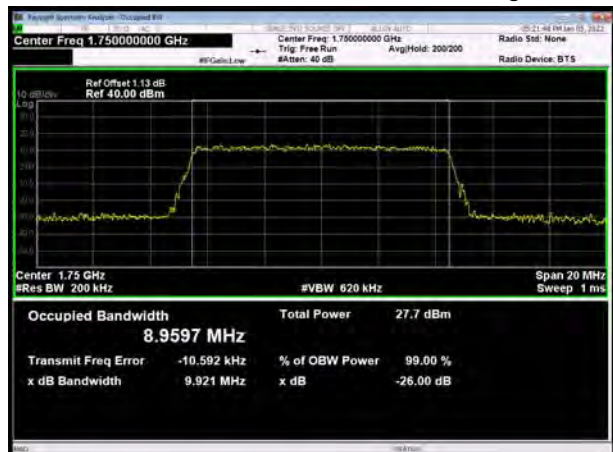
### LTE Band 4 10MHz 64QAM CH-Middle



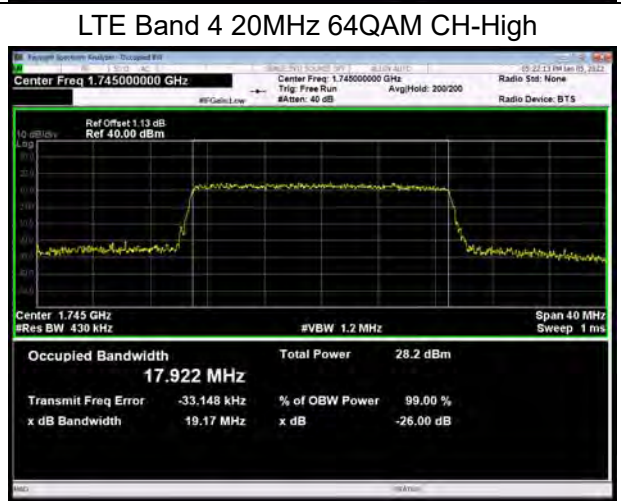
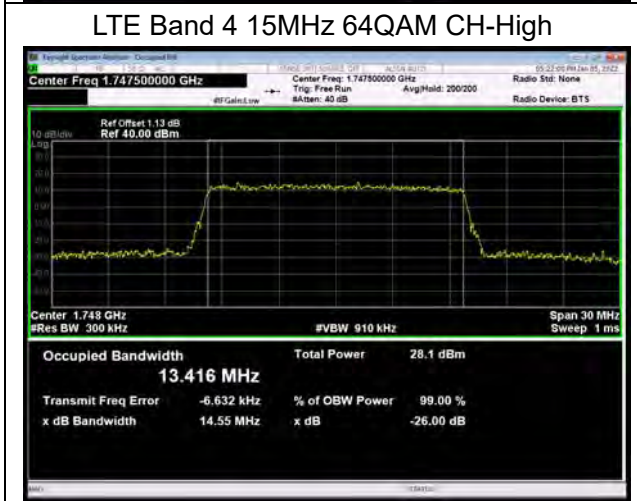
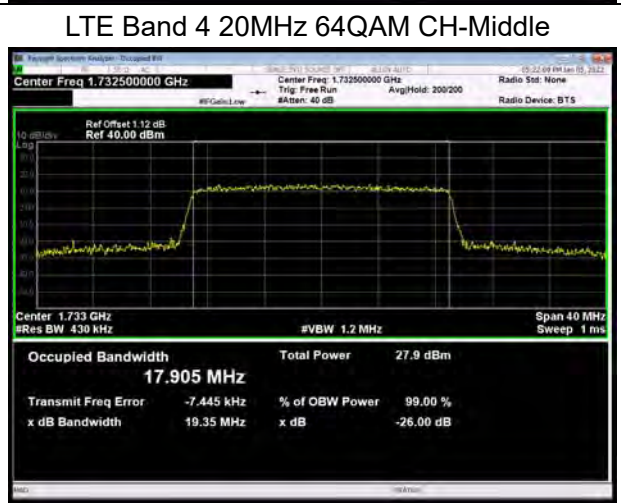
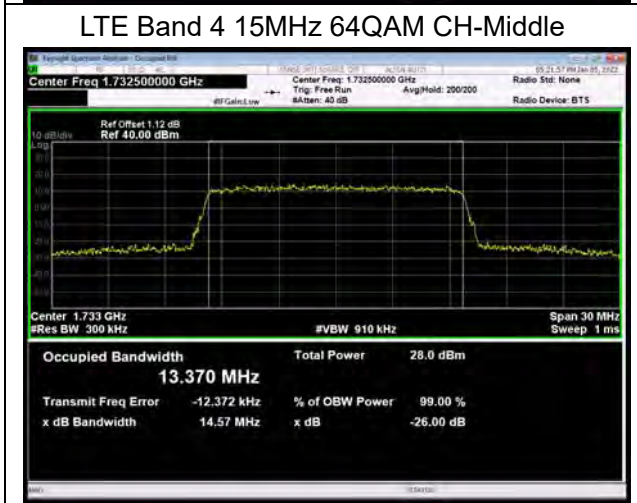
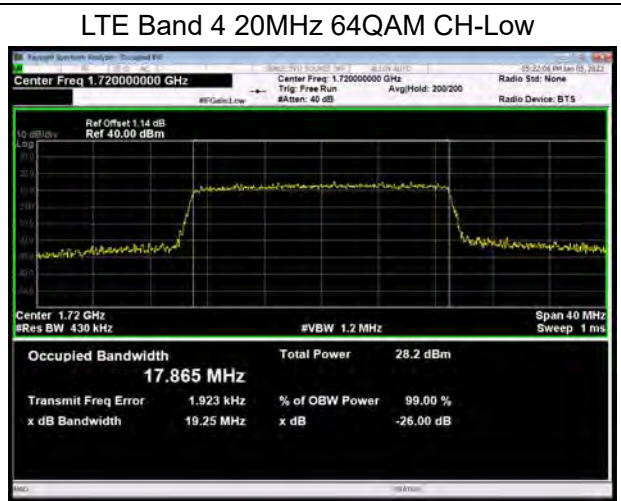
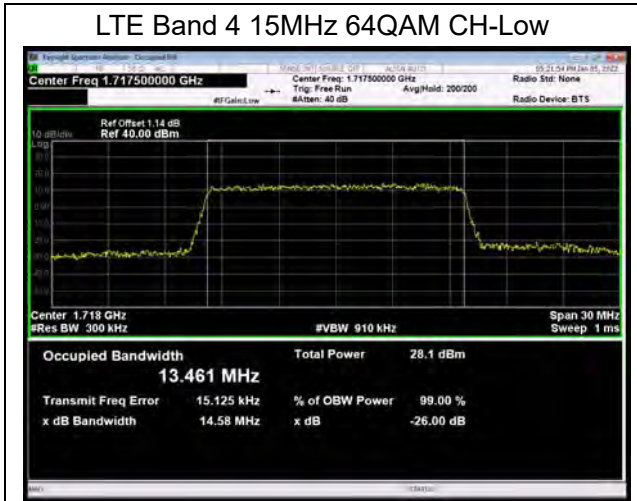
### LTE Band 4 5MHz 64QAM CH-High



### LTE Band 4 10MHz 64QAM CH-High



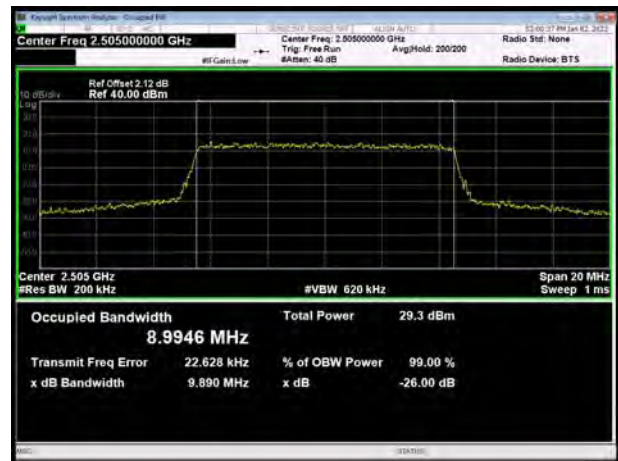




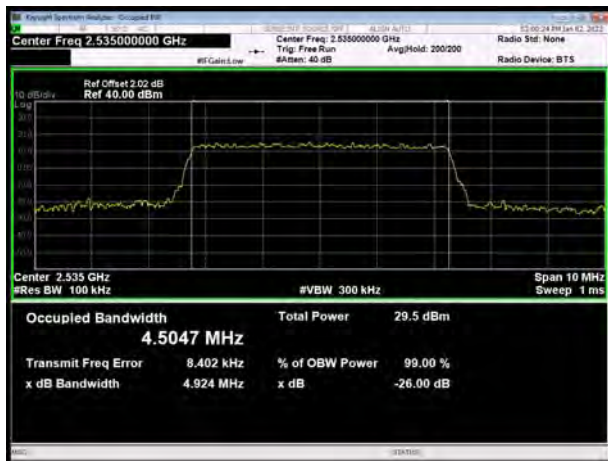
LTE Band 7 QPSK 5MHz CH-Low



LTE Band 7 QPSK 10MHz CH-Low



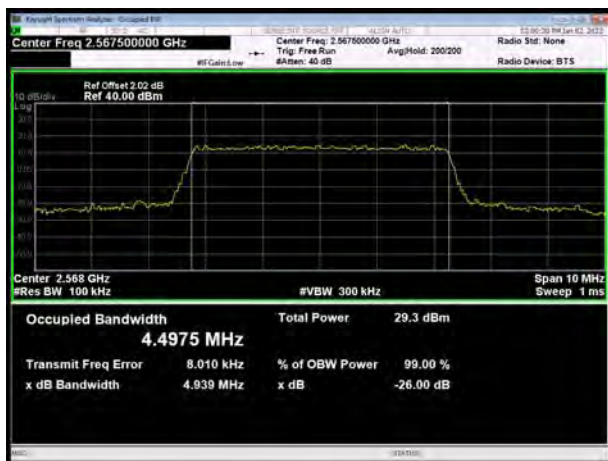
LTE Band 7 QPSK 5MHz CH-Middle



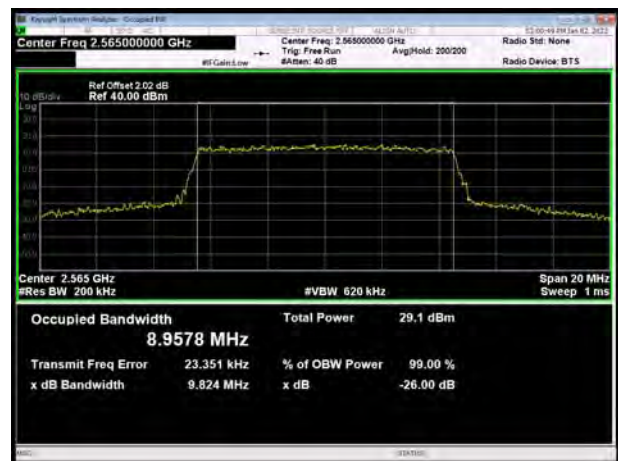
LTE Band 7 QPSK 10MHz CH-Middle



LTE Band 7 QPSK 5MHz CH-High



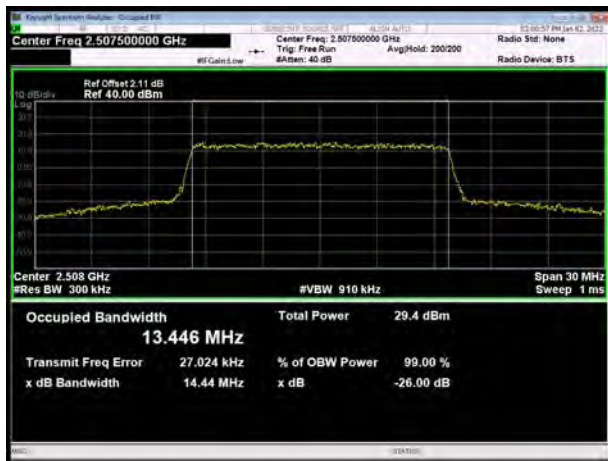
LTE Band 7 QPSK 10MHz CH-High







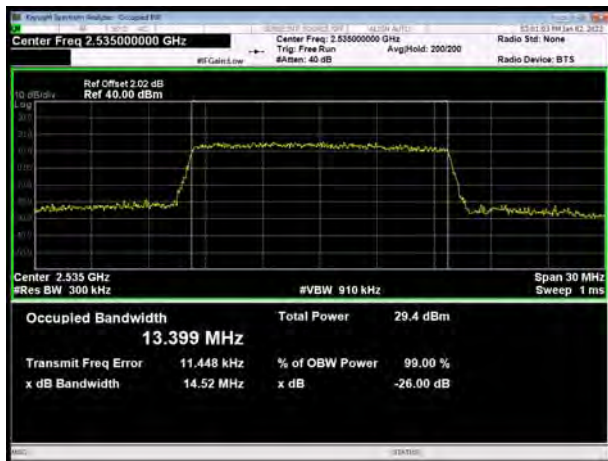
### LTE Band 7 QPSK 15MHz CH-Low



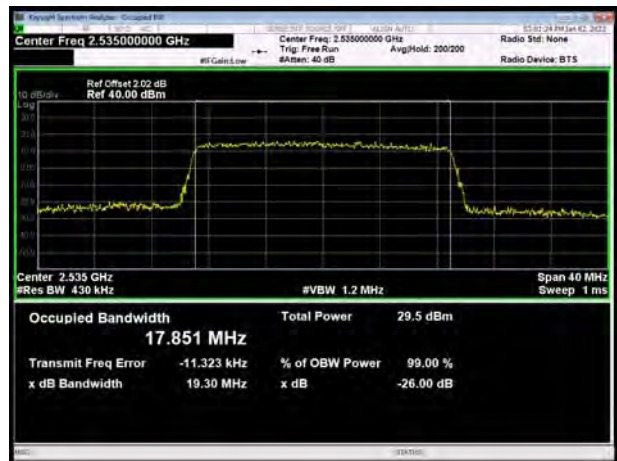
### LTE Band 7 QPSK 20MHz CH-Low



### LTE Band 7 QPSK 15MHz CH-Middle



### LTE Band 7 QPSK 20MHz CH-Middle



### LTE Band 7 QPSK 15MHz CH-High

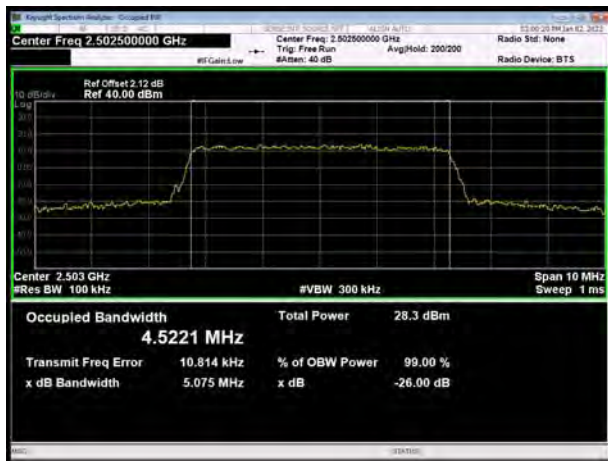


### LTE Band 7 QPSK 20MHz CH-High

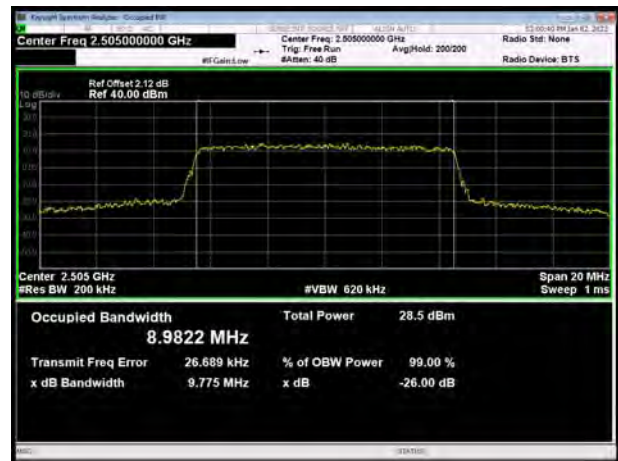




### LTE Band 7 16QAM 5MHz CH-Low



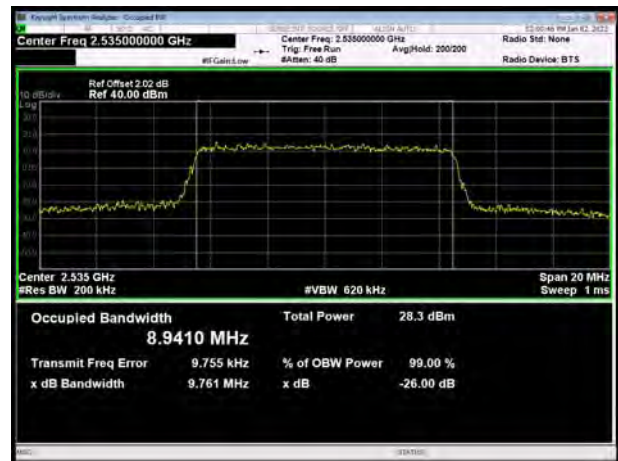
### LTE Band 7 16QAM 10MHz CH-Low



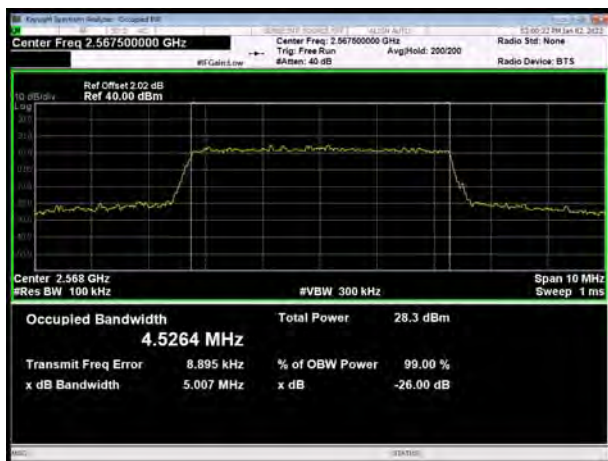
### LTE Band 7 16QAM 5MHz CH-Middle



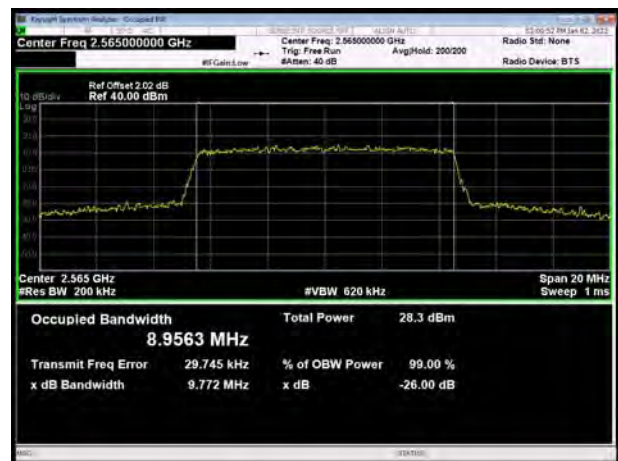
### LTE Band 7 16QAM 10MHz CH-Middle



### LTE Band 7 16QAM 5MHz CH-High



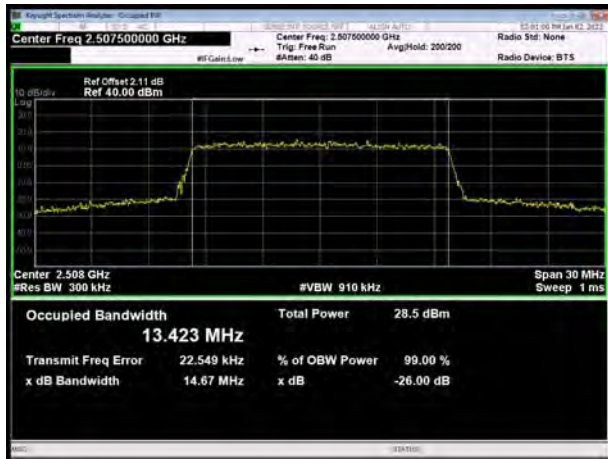
### LTE Band 7 16QAM 10MHz CH-High



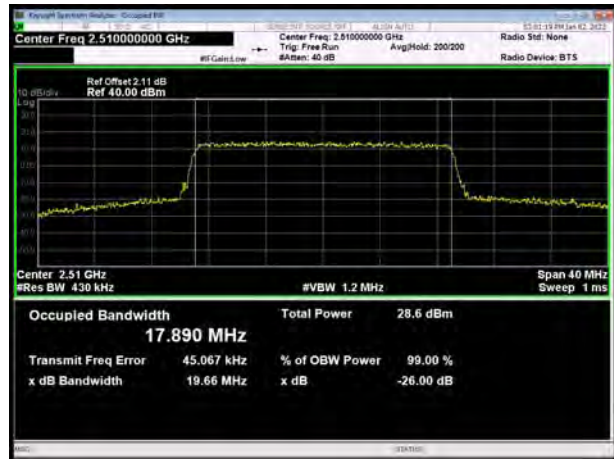




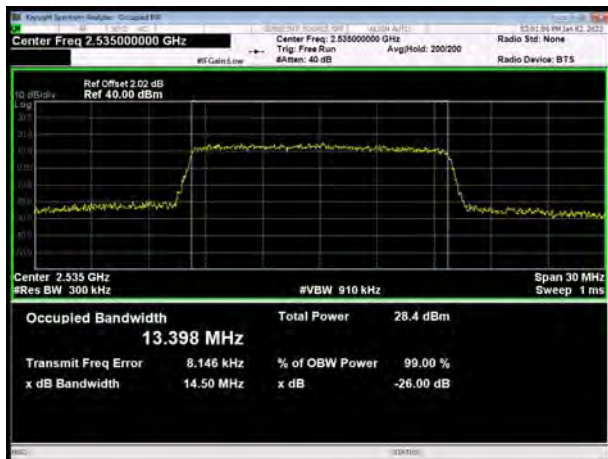
LTE Band 7 16QAM 15MHz CH-Low



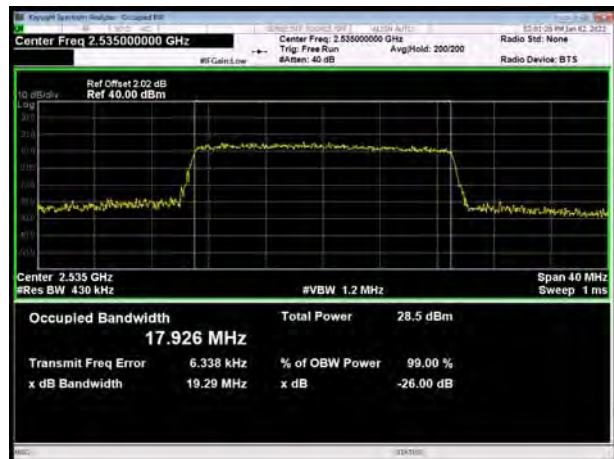
LTE Band 7 16QAM 20MHz CH-Low



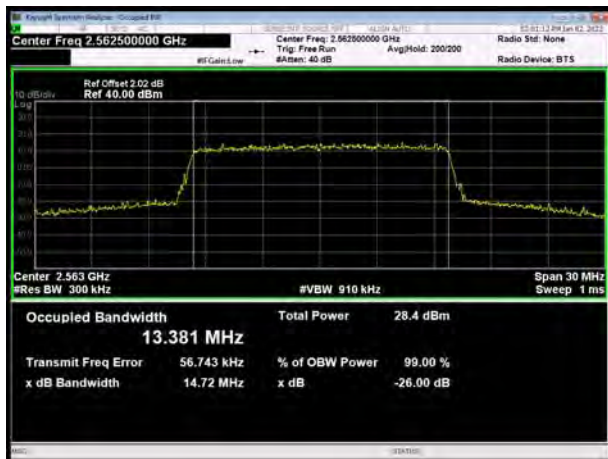
LTE Band 7 16QAM 15MHz CH-Middle



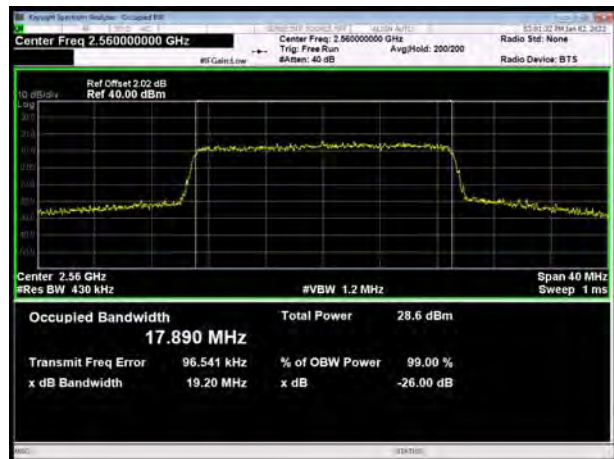
LTE Band 7 16QAM 20MHz CH-Middle



LTE Band 7 16QAM 15MHz CH-High

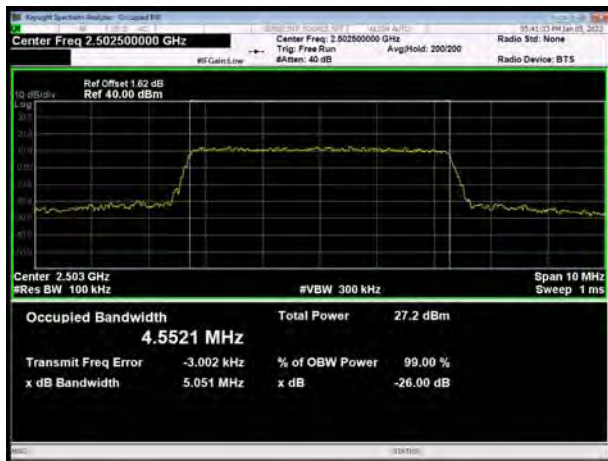


LTE Band 7 16QAM 20MHz CH-High

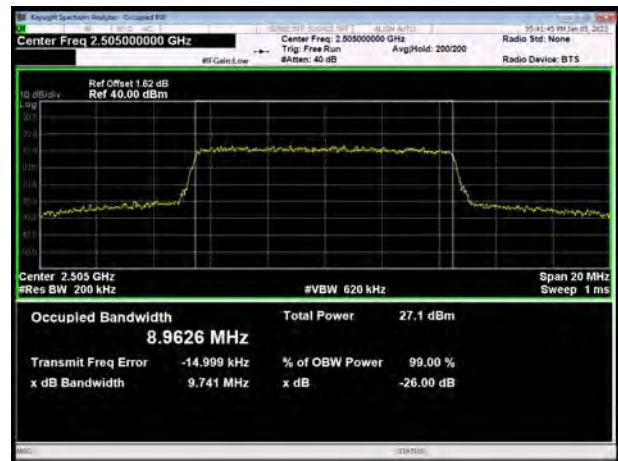




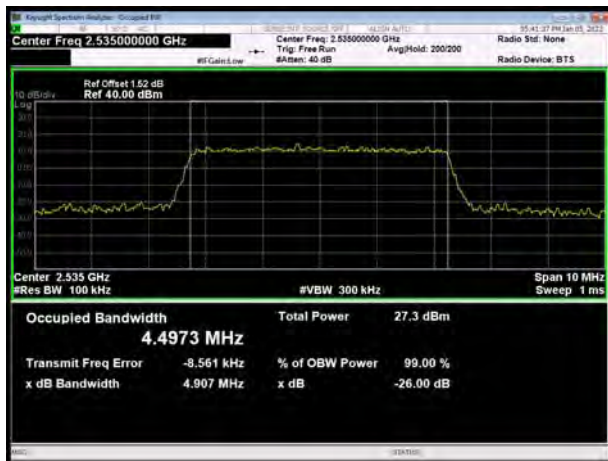
### LTE Band 7 64QAM 5MHz CH-Low



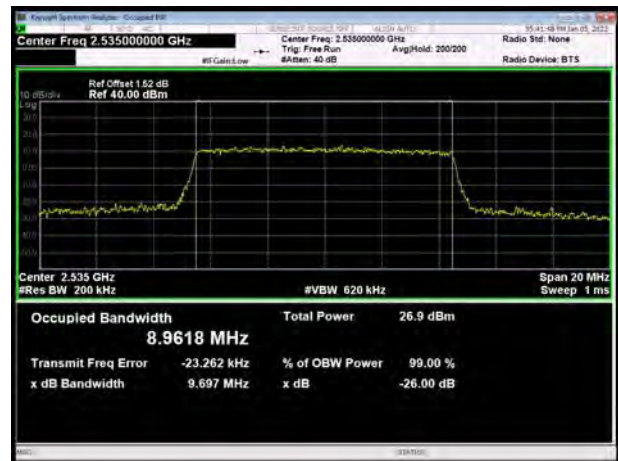
### LTE Band 7 64QAM 10MHz CH-Low



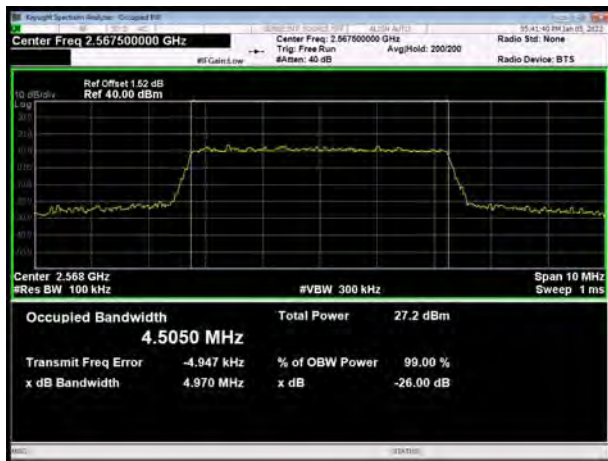
### LTE Band 7 64QAM 5MHz CH-Middle



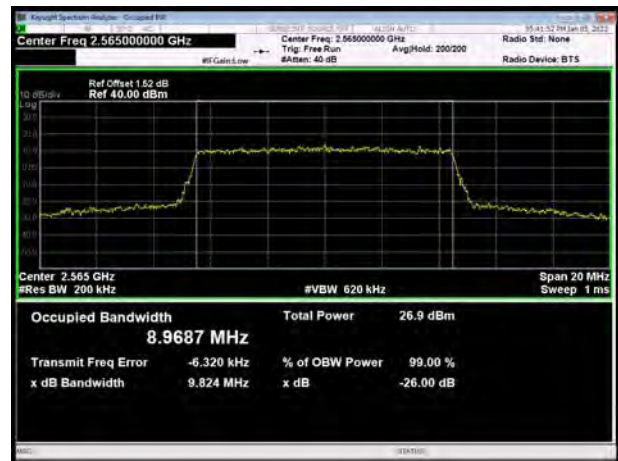
### LTE Band 7 64QAM 10MHz CH-Middle



### LTE Band 7 64QAM 5MHz CH-High



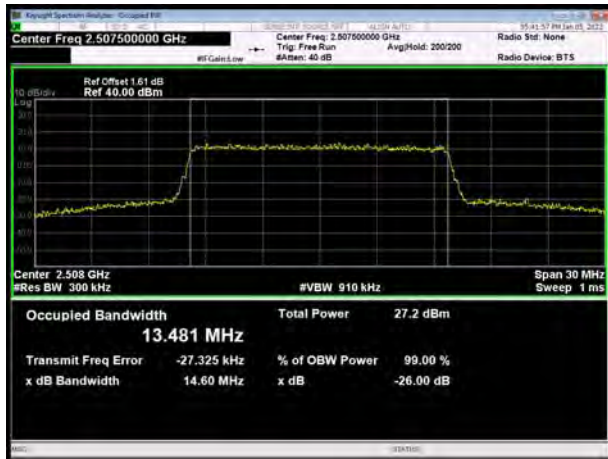
### LTE Band 7 64QAM 10MHz CH-High



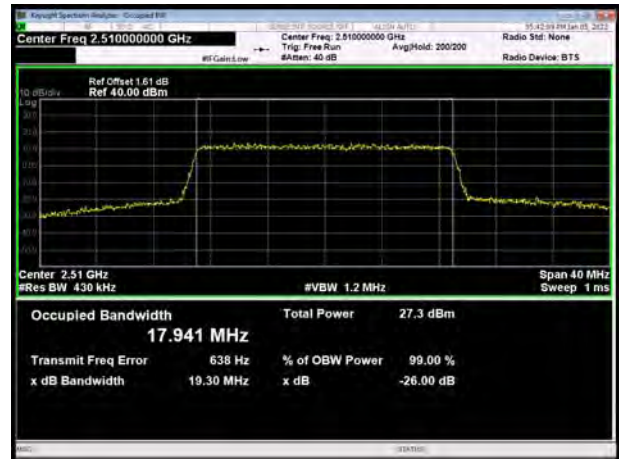




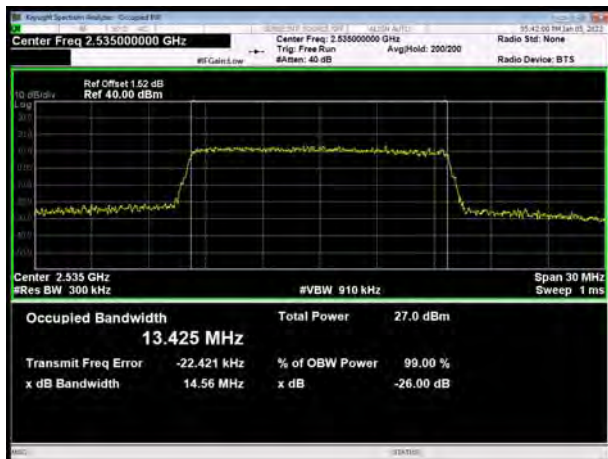
LTE Band 7 64QAM 15MHz CH-Low



LTE Band 7 64QAM 20MHz CH-Low



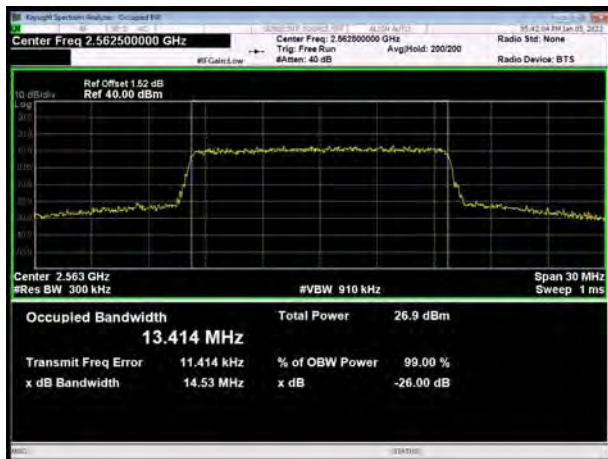
LTE Band 7 64QAM 15MHz CH-Middle



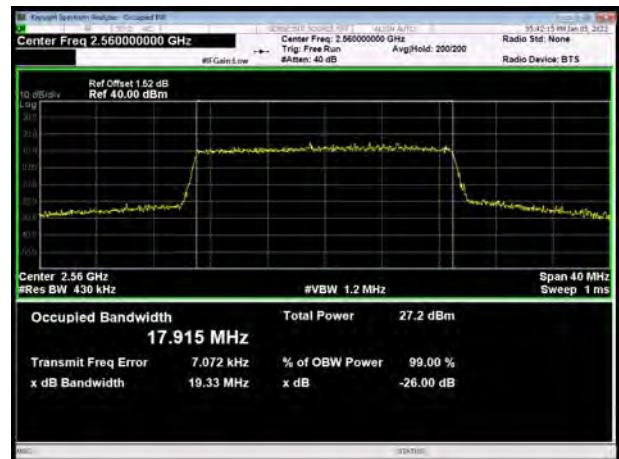
LTE Band 7 64QAM 20MHz CH-Middle



LTE Band 7 64QAM 15MHz CH-High

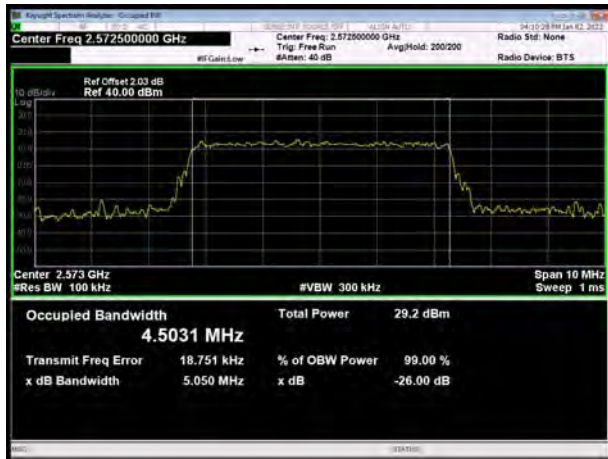


LTE Band 7 64QAM 20MHz CH-High

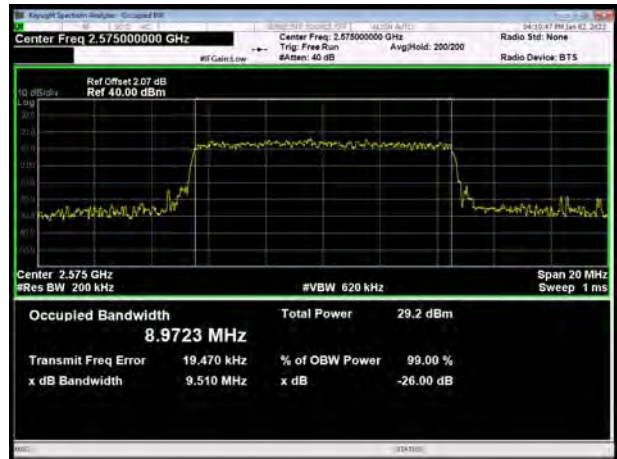




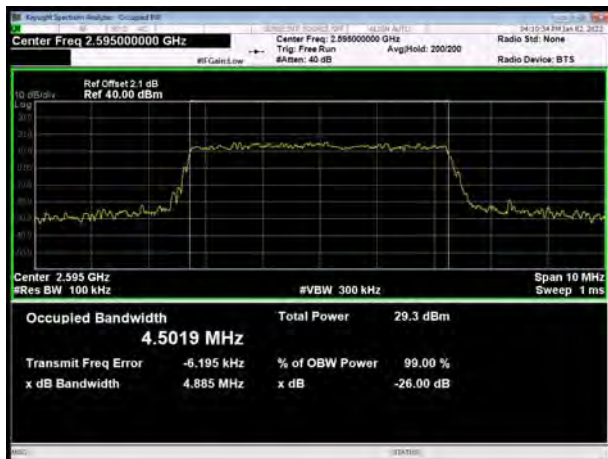
LTE Band 38 QPSK 5MHz CH-Low



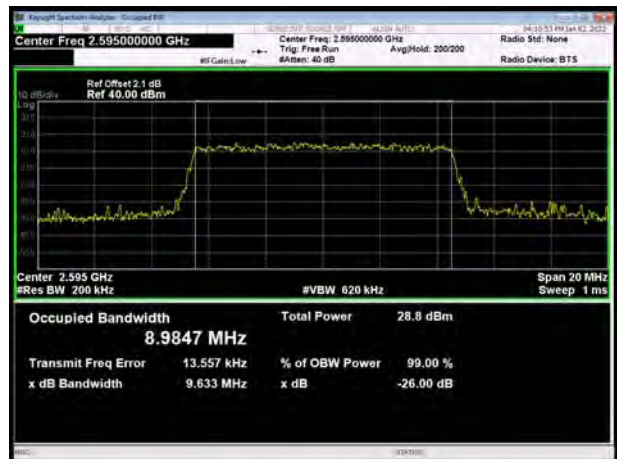
LTE Band 38 QPSK 10MHz CH-Low



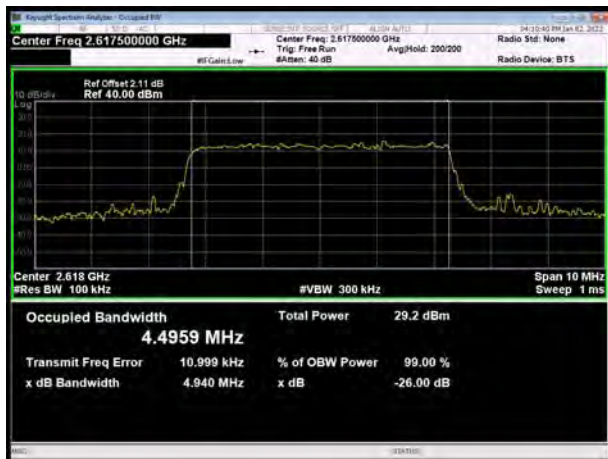
LTE Band 38 QPSK 5MHz CH-Middle



LTE Band 38 QPSK 10MHz CH-Middle



LTE Band 38 QPSK 5MHz CH-High



LTE Band 38 QPSK 10MHz CH-High



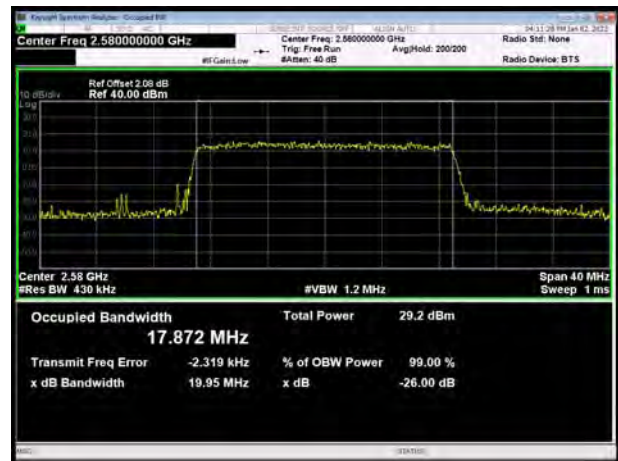




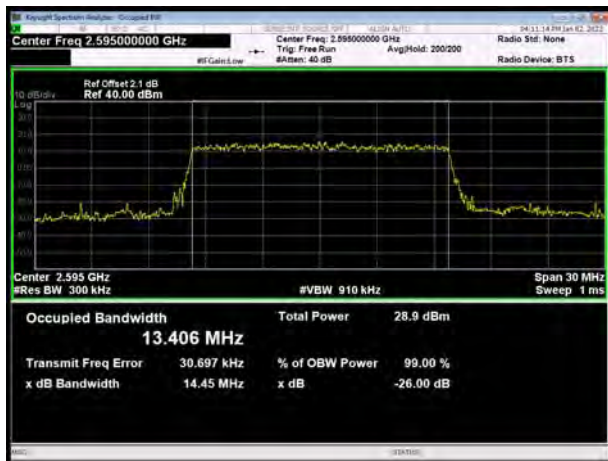
### LTE Band 38 QPSK 15MHz CH-Low



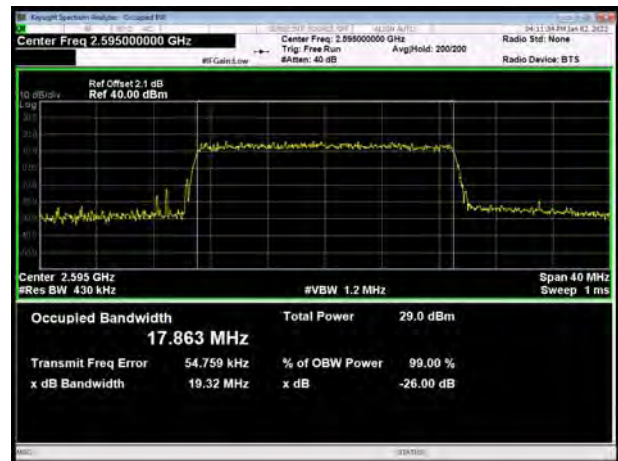
### LTE Band 38 QPSK 20MHz CH-Low



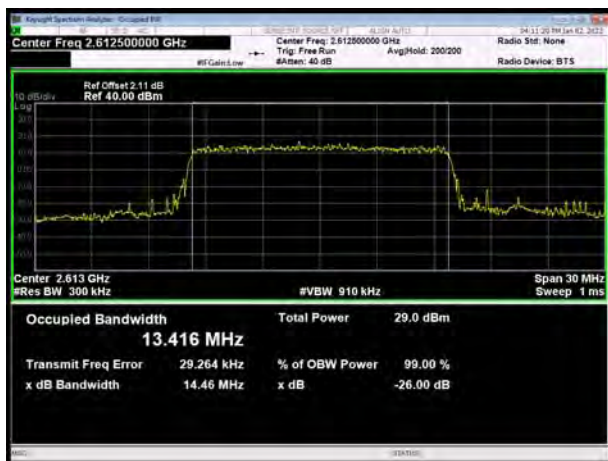
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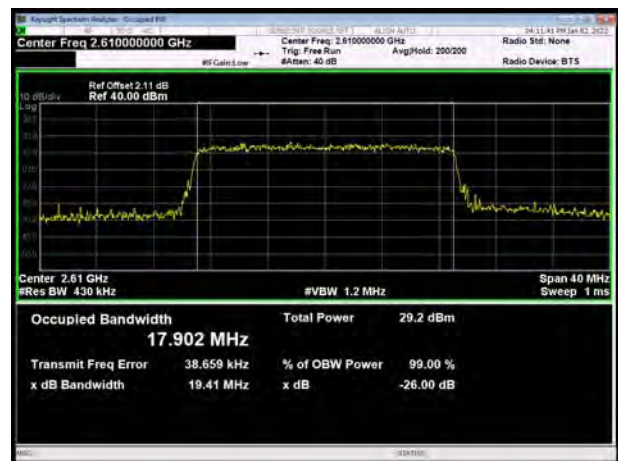
### LTE Band 38 QPSK 20MHz CH-Middle



### LTE Band 38 QPSK 15MHz CH-High

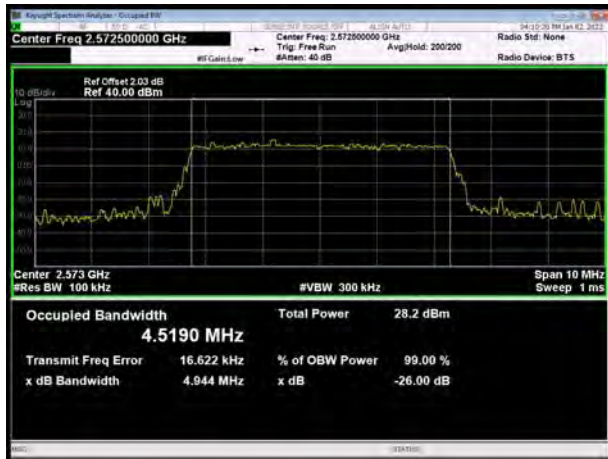


### LTE Band 38 QPSK 20MHz CH-High

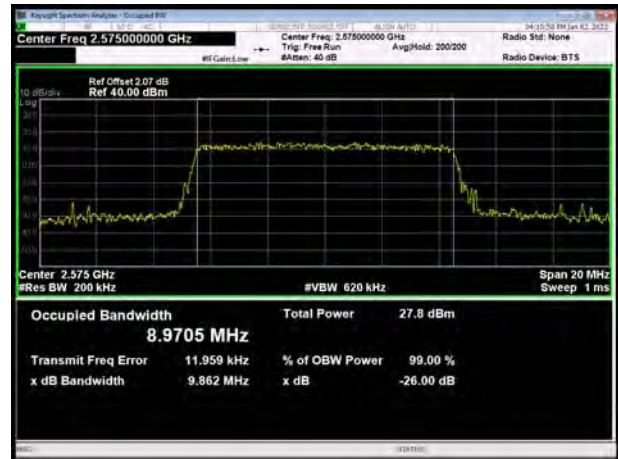




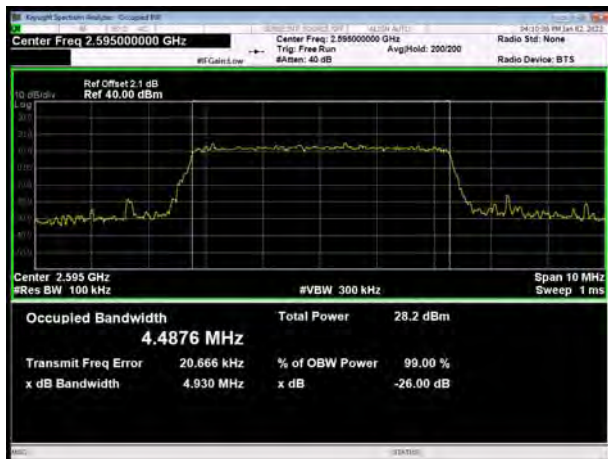
LTE Band 38 16QAM 5MHz CH-Low



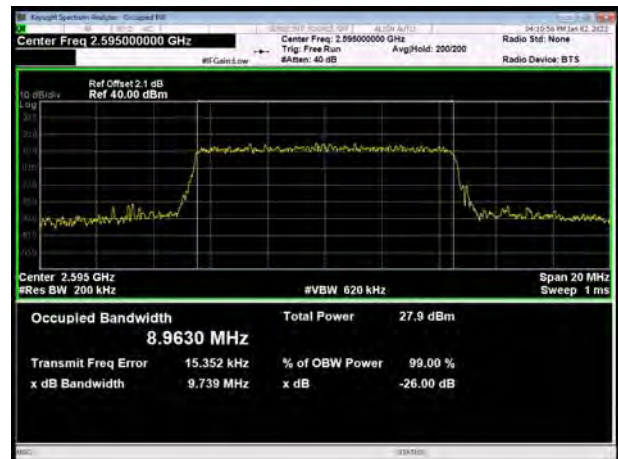
LTE Band 38 16QAM 10MHz CH-Low



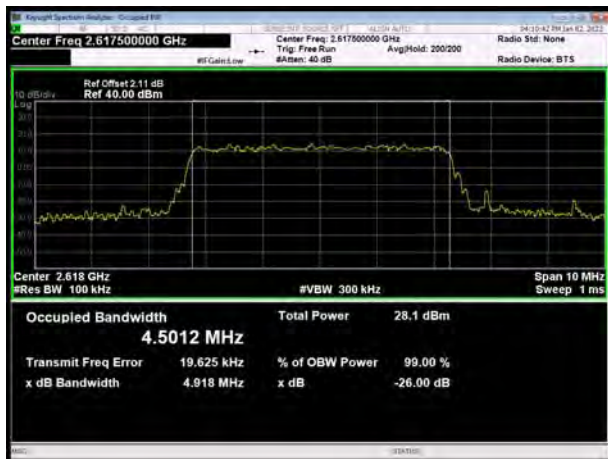
LTE Band 38 16QAM 5MHz CH-Middle



LTE Band 38 16QAM 10MHz CH-Middle



LTE Band 38 16QAM 5MHz CH-High



LTE Band 38 16QAM 10MHz CH-High



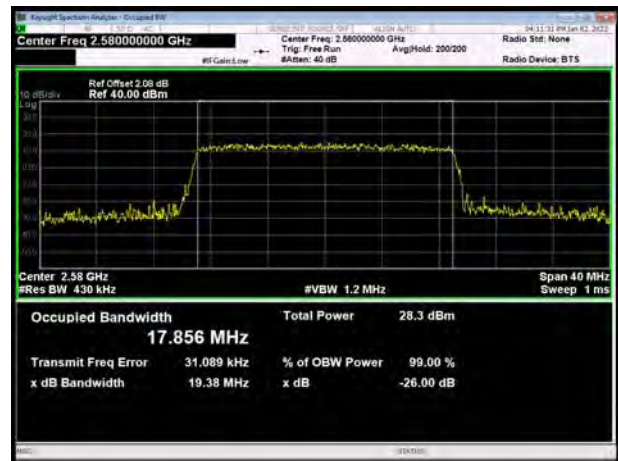




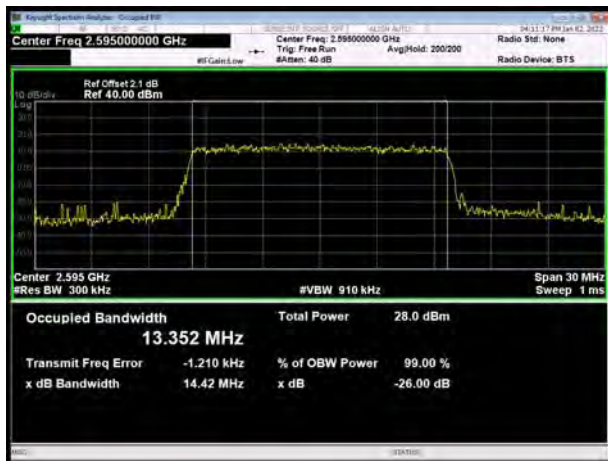
### LTE Band 38 16QAM 15MHz CH-Low



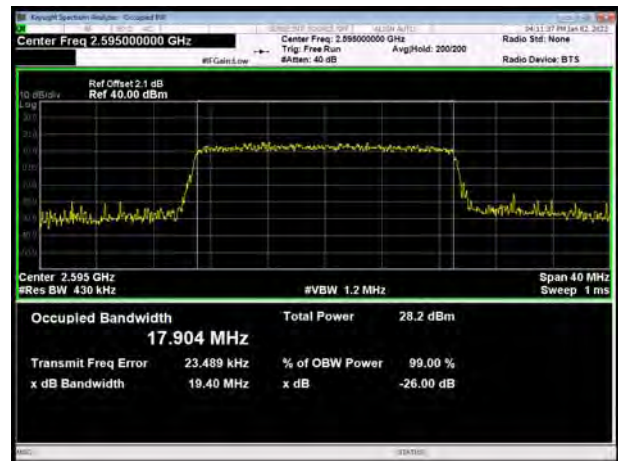
### LTE Band 38 16QAM 20MHz CH-Low



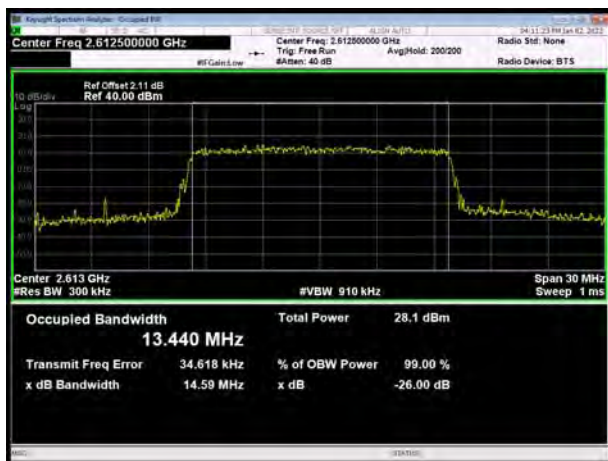
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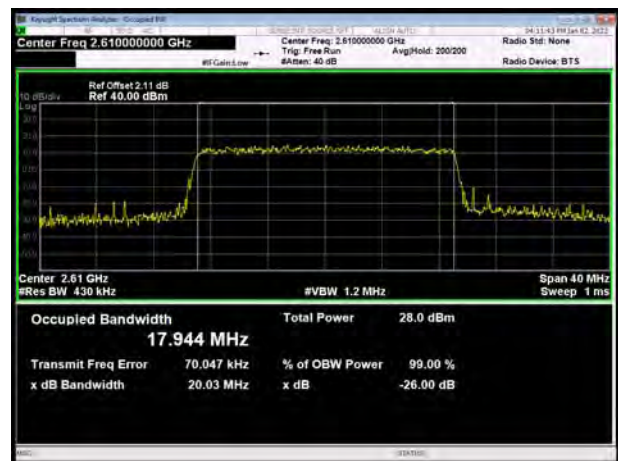
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### LTE Band 38 16QAM 15MHz CH-High



### LTE Band 38 16QAM 20MHz CH-High





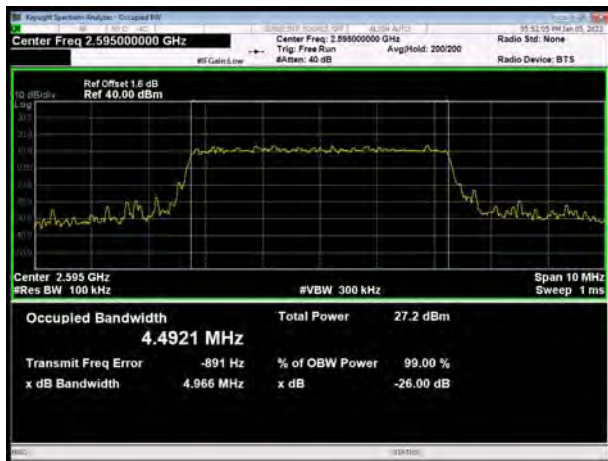
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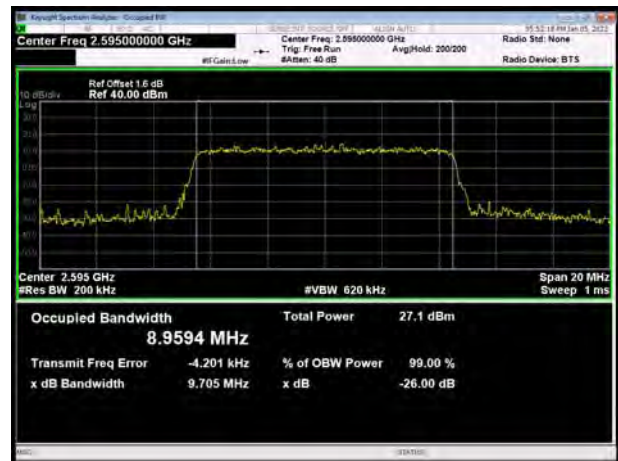
### LTE Band 38 64QAM 10MHz CH-Low



### LTE Band 38 64QAM 5MHz CH-Middle



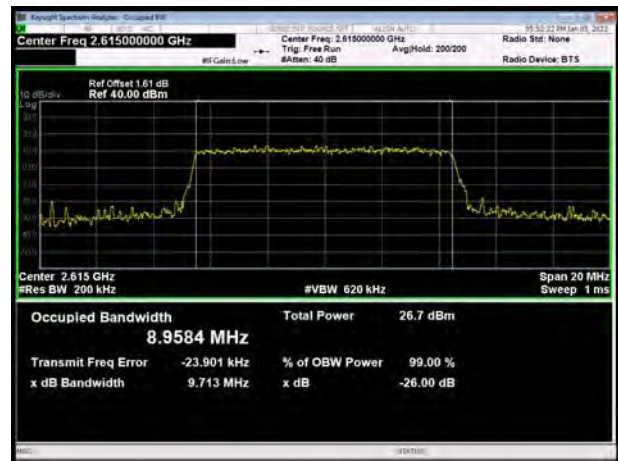
### LTE Band 38 64QAM 10MHz CH-Middle



### LTE Band 38 64QAM 5MHz CH-High



### LTE Band 38 64QAM 10MHz CH-High

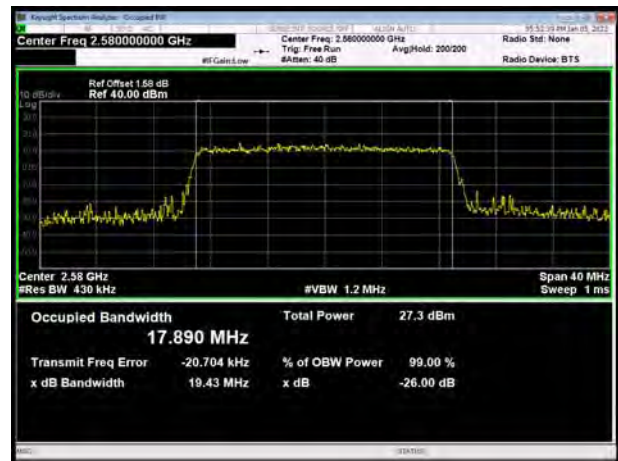




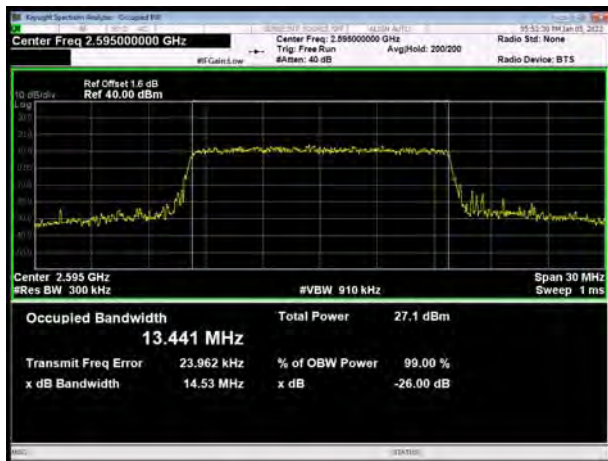
LTE Band 38 64QAM 15MHz CH-Low



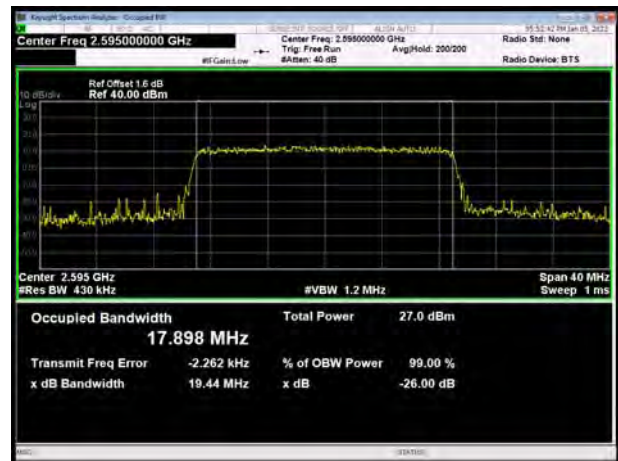
LTE Band 38 64QAM 20MHz CH-Low



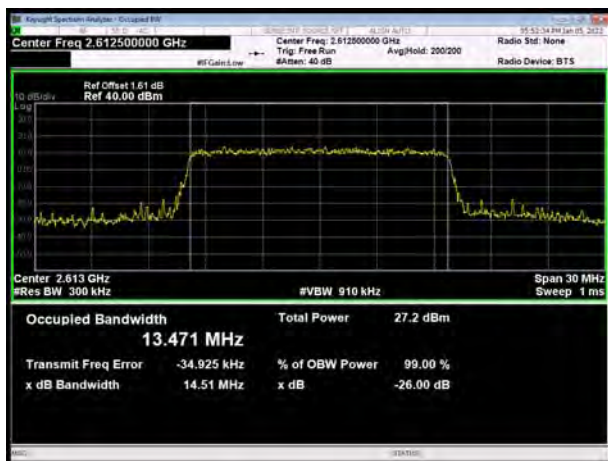
LTE Band 38 64QAM 15MHz CH-Middle



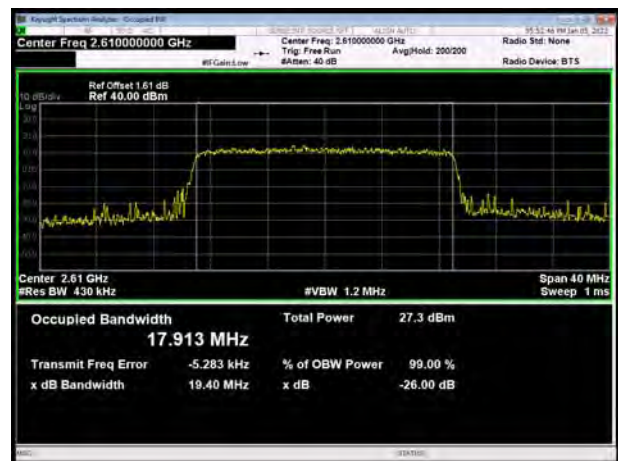
LTE Band 38 64QAM 20MHz CH-Middle



LTE Band 38 64QAM 15MHz CH-High

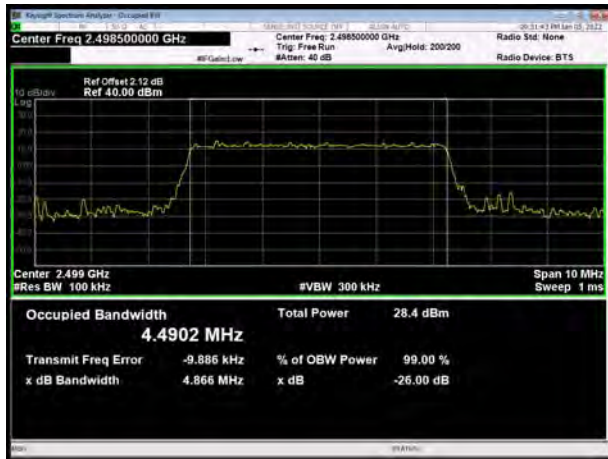


LTE Band 38 64QAM 20MHz CH-High

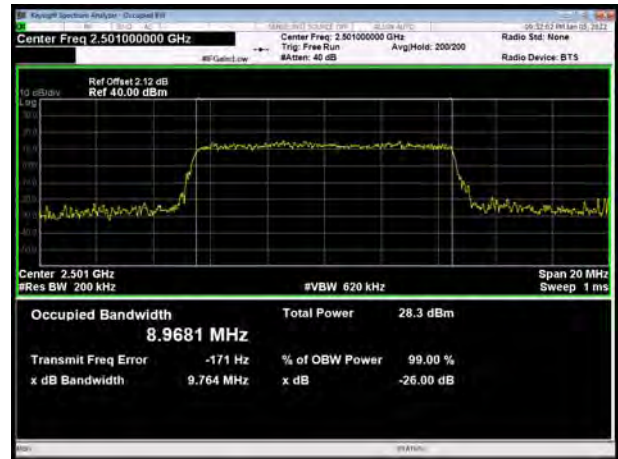




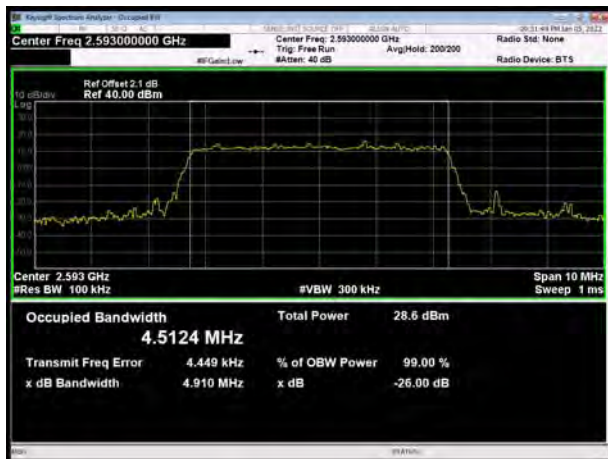
### LTE Band 41 QPSK 5MHz CH-Low



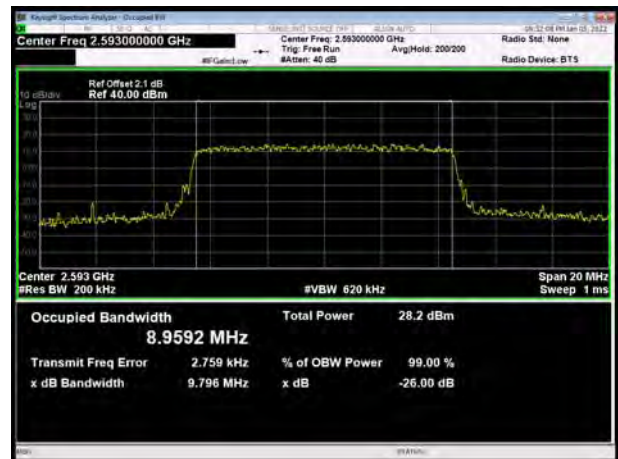
### LTE Band 41 QPSK 10MHz CH-Low



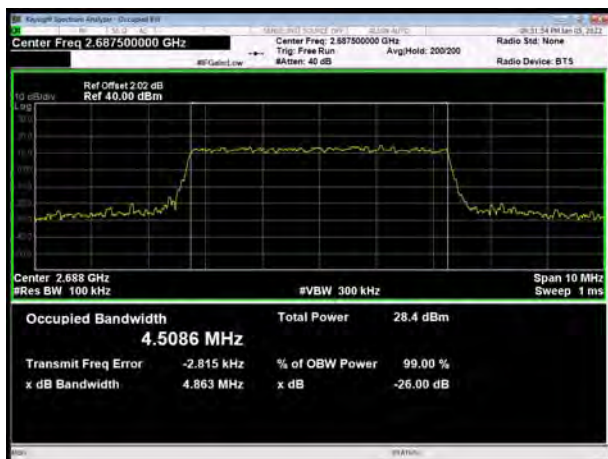
### LTE Band 41 QPSK 5MHz CH-Middle



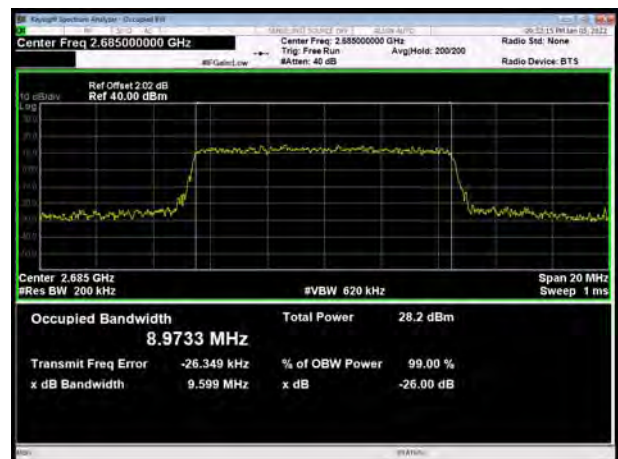
### LTE Band 41 QPSK 10MHz CH-Middle



### LTE Band 41 QPSK 5MHz CH-High



### LTE Band 41 QPSK 10MHz CH-High







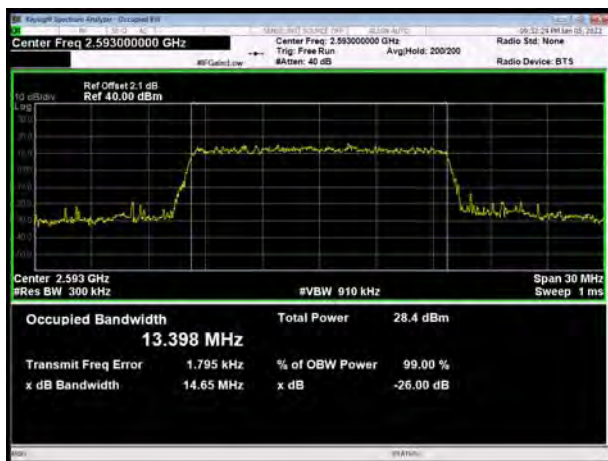
### LTE Band 41 QPSK 15MHz CH-Low



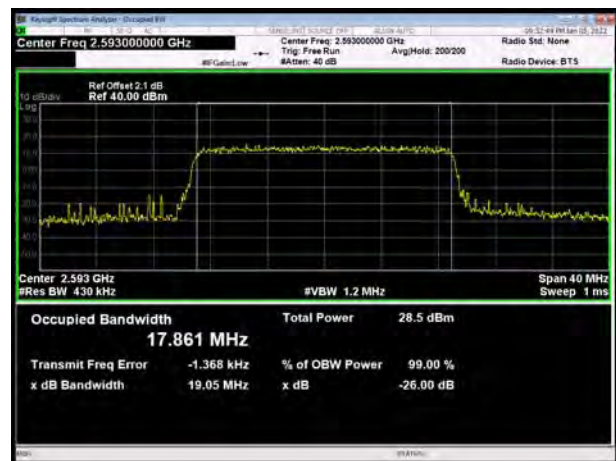
### LTE Band 41 QPSK 20MHz CH-Low



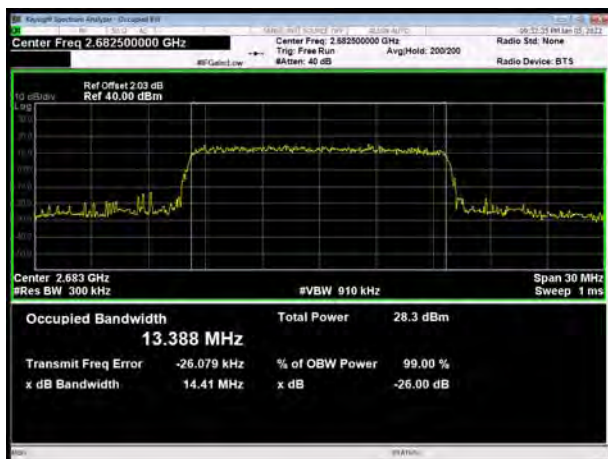
### LTE Band 41 QPSK 15MHz CH-Middle



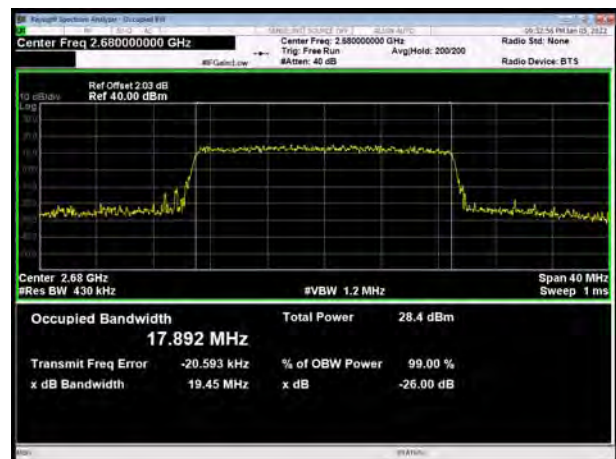
### LTE Band 41 QPSK 20MHz CH-Middle



### LTE Band 41 QPSK 15MHz CH-High

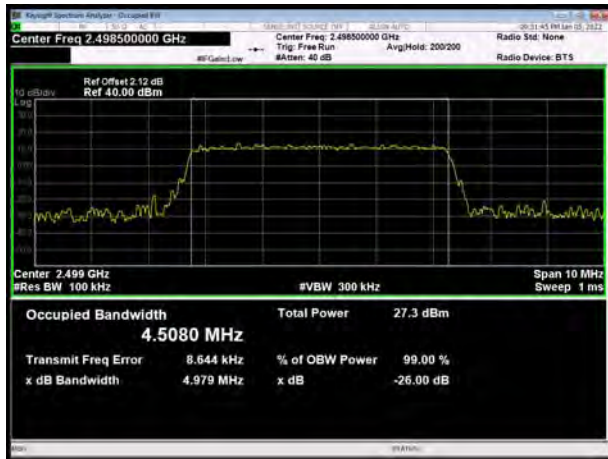


### LTE Band 41 QPSK 20MHz CH-High

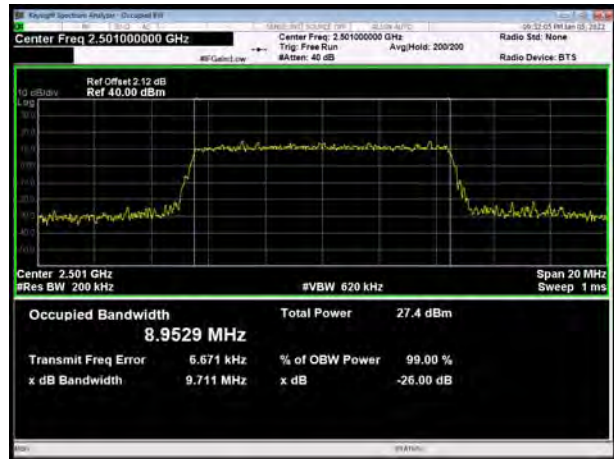




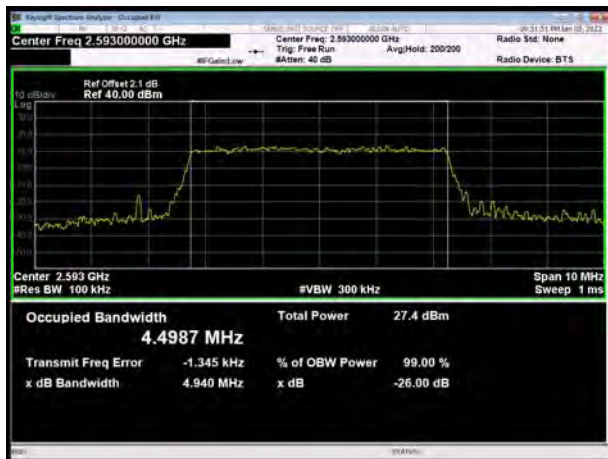
LTE Band 41 16QAM 5MHz CH-Low



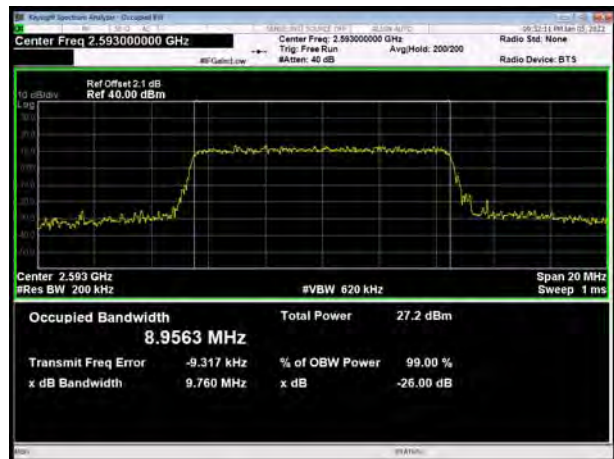
LTE Band 41 16QAM 10MHz CH-Low



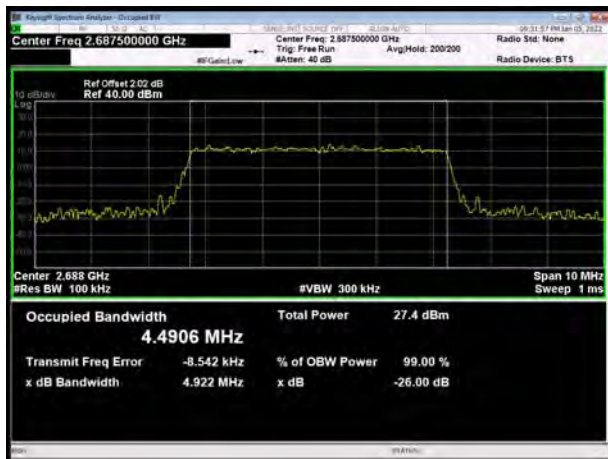
LTE Band 41 16QAM 5MHz CH-Middle



LTE Band 41 16QAM 10MHz CH-Middle



LTE Band 41 16QAM 5MHz CH-High



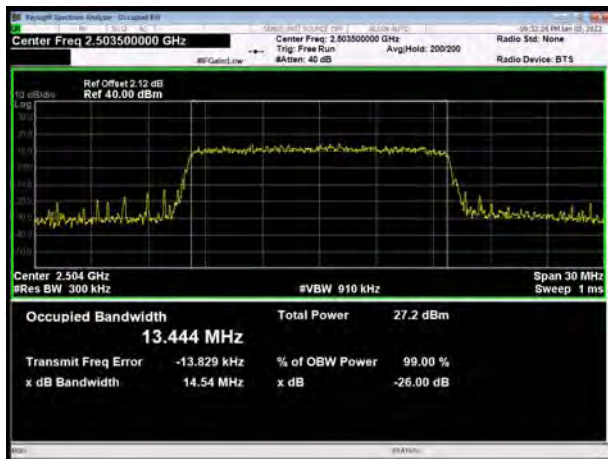
LTE Band 41 16QAM 10MHz CH-High







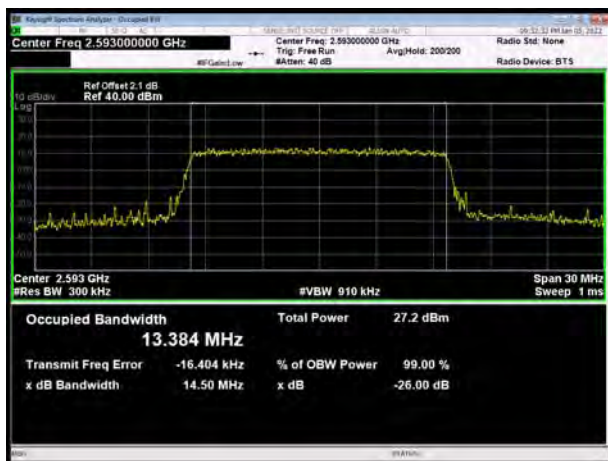
### LTE Band 41 16QAM 15MHz CH-Low



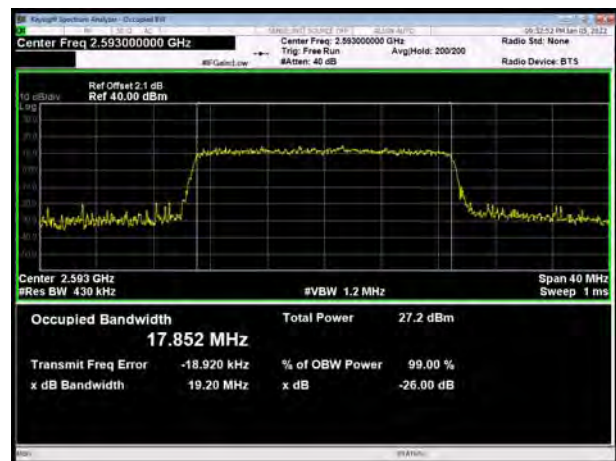
### LTE Band 41 16QAM 20MHz CH-Low



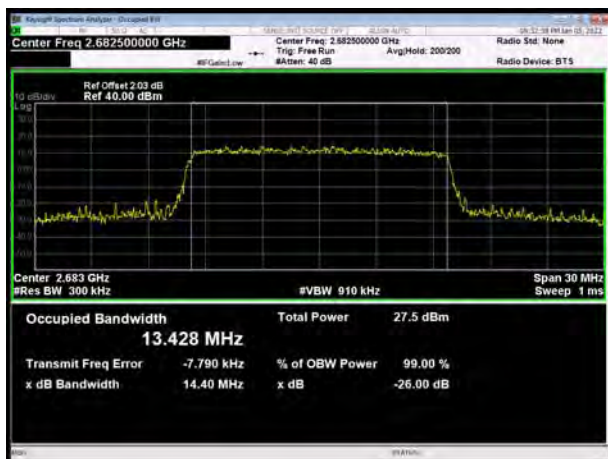
### LTE Band 41 16QAM 15MHz CH-Middle



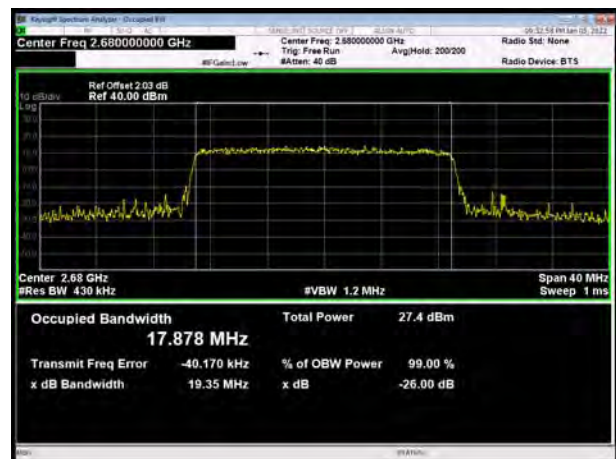
### LTE Band 41 16QAM 20MHz CH-Middle



### LTE Band 41 16QAM 15MHz CH-High



### LTE Band 41 16QAM 20MHz CH-High

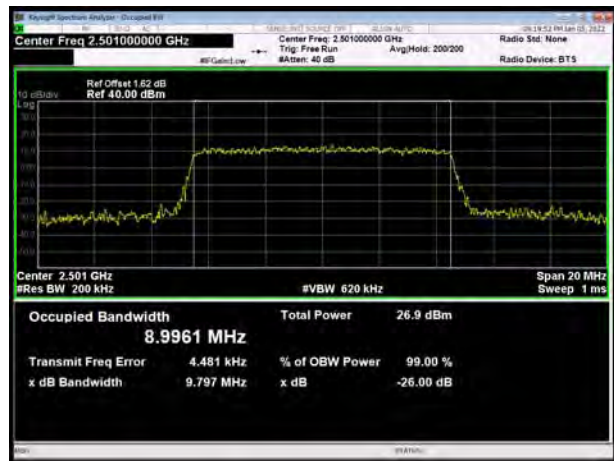




LTE Band 41 64QAM 5MHz CH-Low



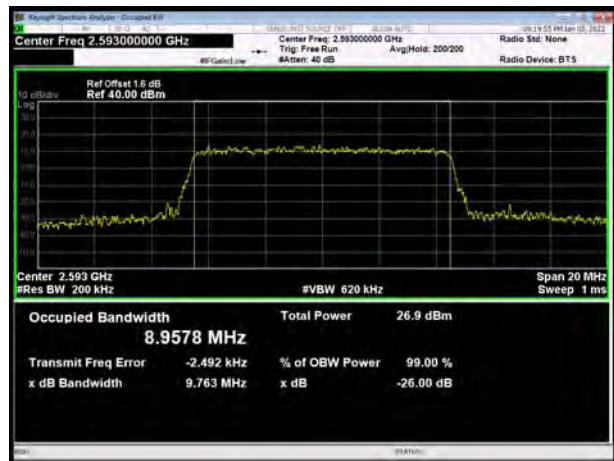
LTE Band 41 64QAM 10MHz CH-Low



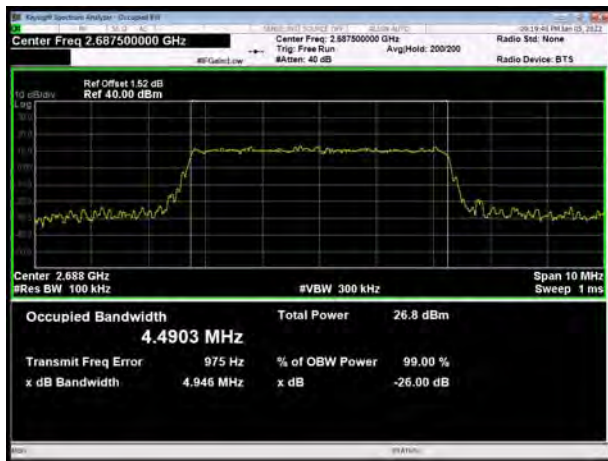
LTE Band 41 64QAM 5MHz CH-Middle



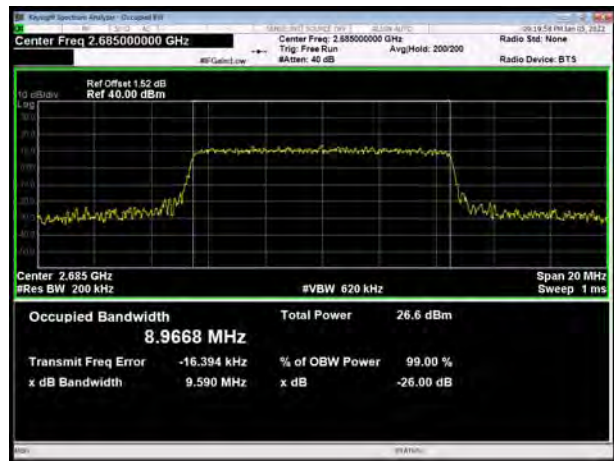
LTE Band 41 64QAM 10MHz CH-Middle



LTE Band 41 64QAM 5MHz CH-High

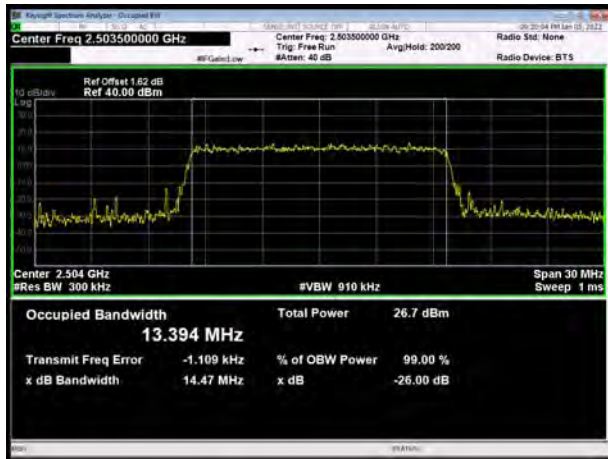


LTE Band 41 64QAM 10MHz CH-High

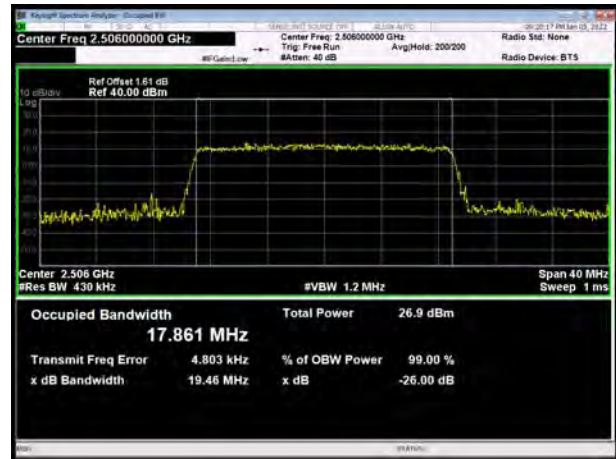




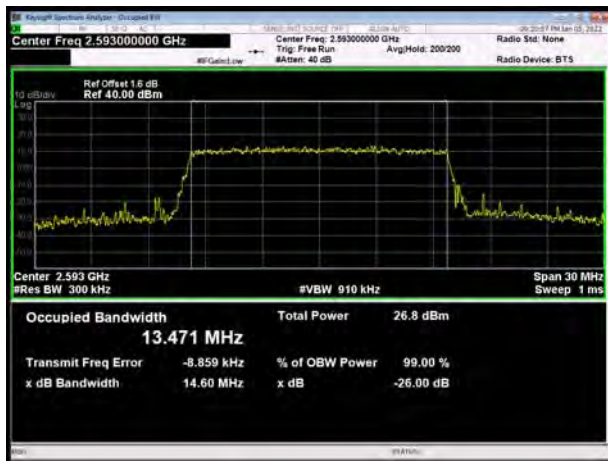
LTE Band 41 64QAM 15MHz CH-Low



LTE Band 41 64QAM 20MHz CH-Low



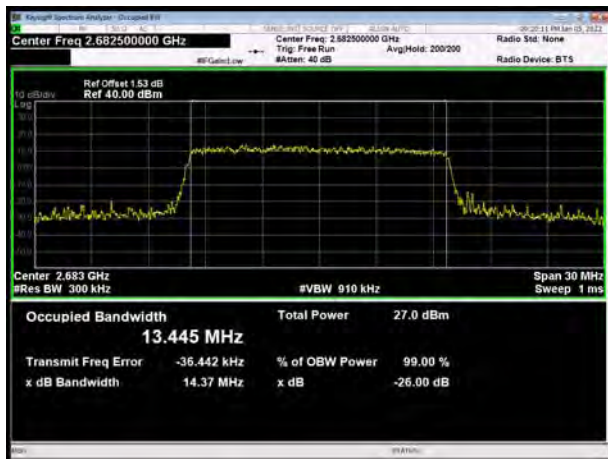
LTE Band 41 64QAM 15MHz CH-Middle



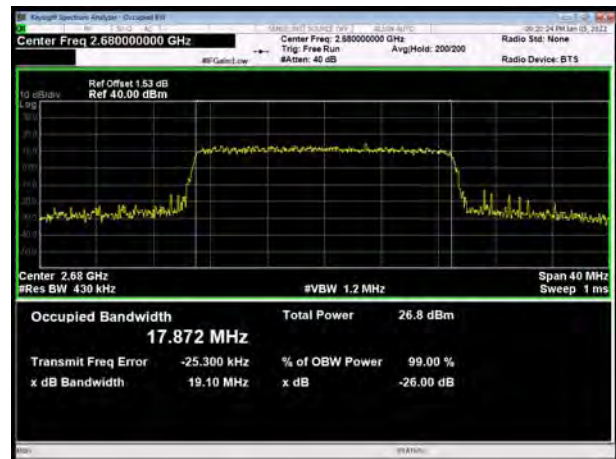
LTE Band 41 64QAM 20MHz CH-Middle



LTE Band 41 64QAM 15MHz CH-High



LTE Band 41 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 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.

For LTE Band 41 the middle channel, high channel 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; Low channel set RBW  $\geq$  2% 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.

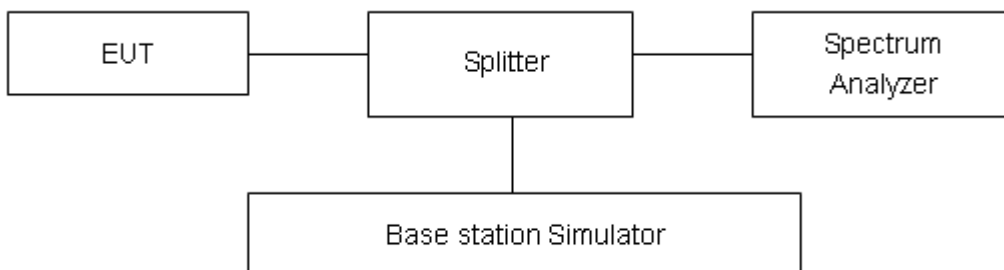
on spectrum analyzer.

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(h) specifies that “ for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10} (P)$  dB”

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 than  $43 + 10 \log (P)$  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  $43 + 10 \log (P)$  dB below the transmitter power P(Watts)

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

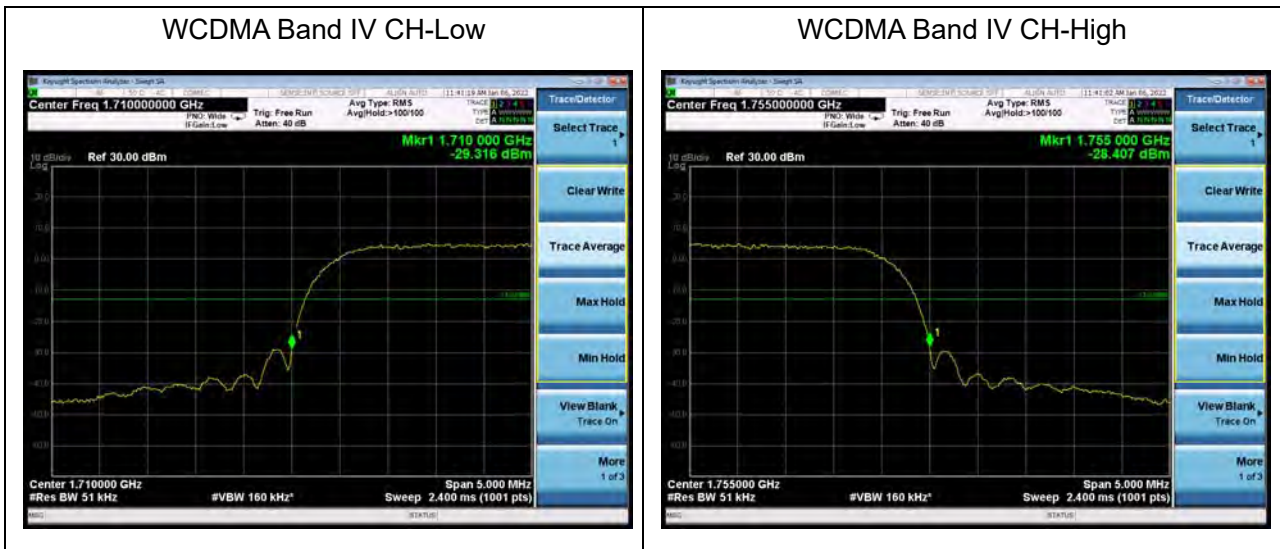
$$= [30 + 10 \log (P)] \text{ (dBm)} - [43 + 10 \log (P)] \text{ (dB)} = -13 \text{ dBm.}$$

### 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

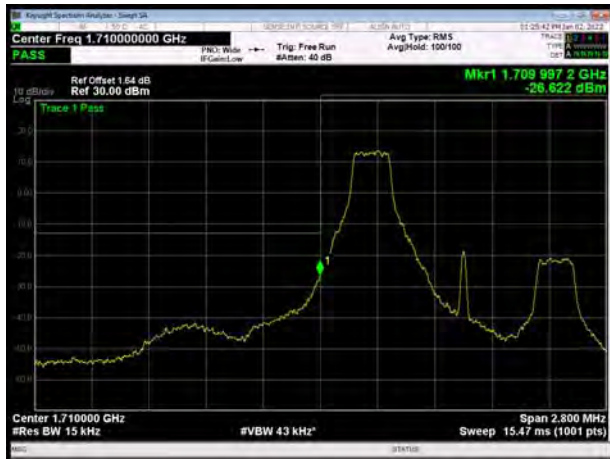
All the test traces in the plots shows the test results clearly.



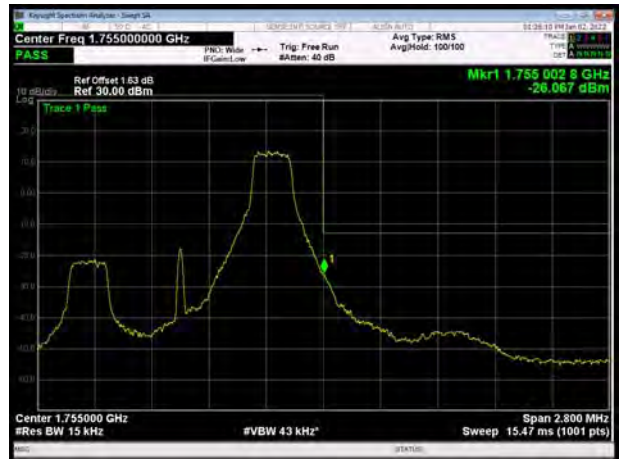




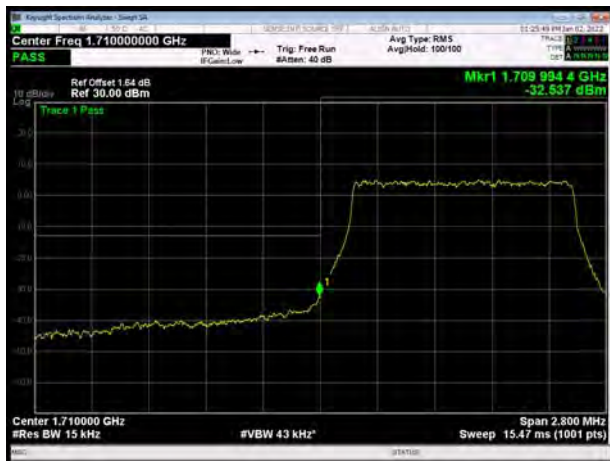
LTE Band 4 QPSK 1.4MHz CH-Low, 1 RB



LTE Band 4 QPSK 1.4MHz CH-High, 1 RB



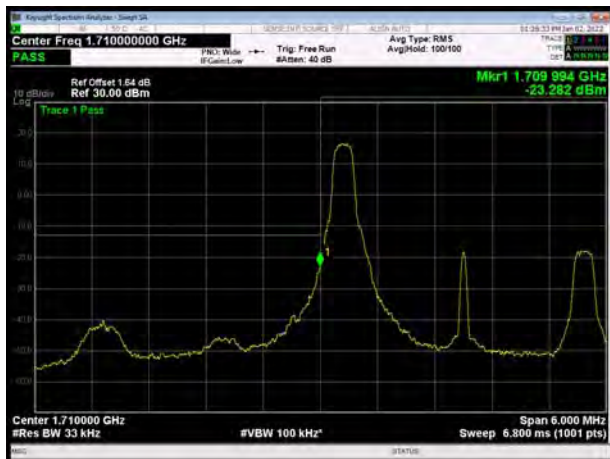
LTE Band 4 QPSK 1.4MHz CH-Low, 100%RB



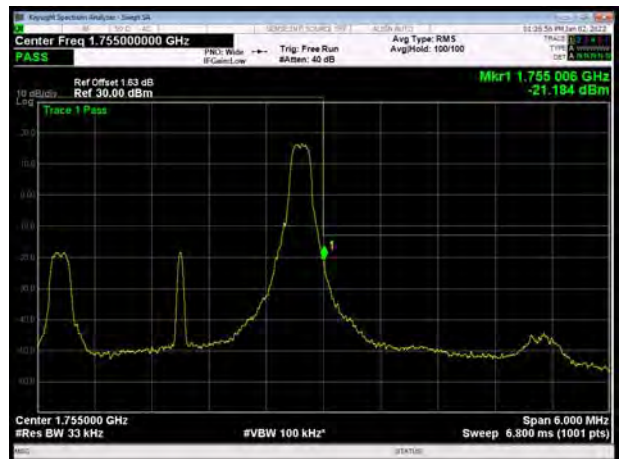
LTE Band 4 QPSK 1.4MHz CH-High, 100%RB



LTE Band 4 QPSK 3MHz CH-Low, 1 RB

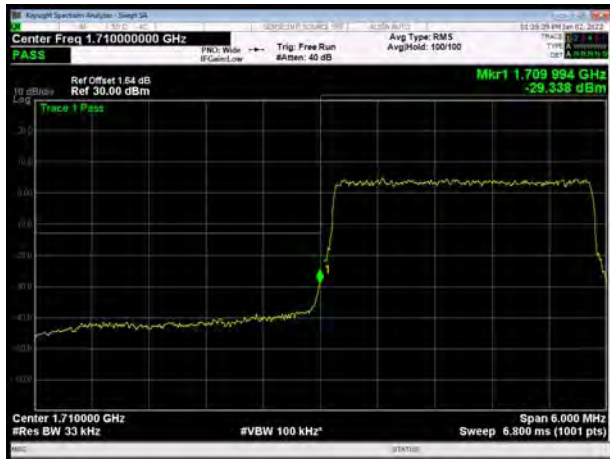


LTE Band 4 QPSK 3MHz CH-High, 1 RB





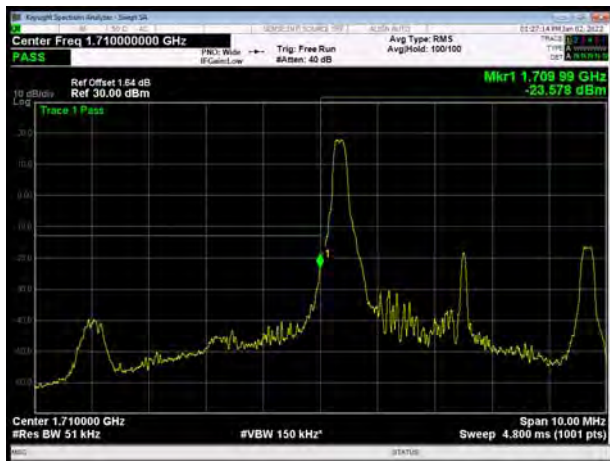
LTE Band 4 QPSK 3MHz CH-Low, 100%RB



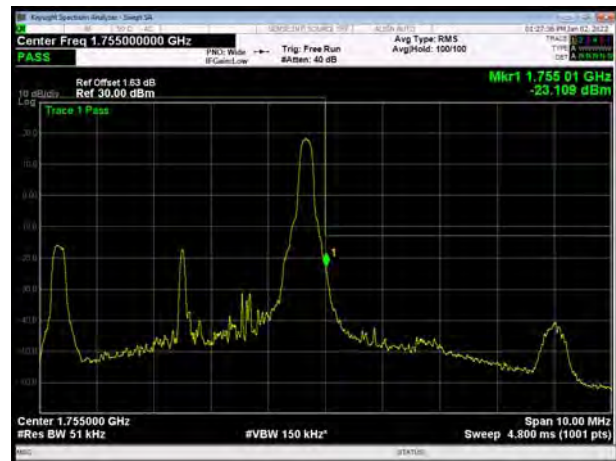
LTE Band 4 QPSK 3MHz CH-High, 100%RB



LTE Band 4 QPSK 5MHz CH-Low, 1 RB



LTE Band 4 QPSK 5MHz CH-High, 1 RB



LTE Band 4 QPSK 5MHz CH-Low, 100%RB



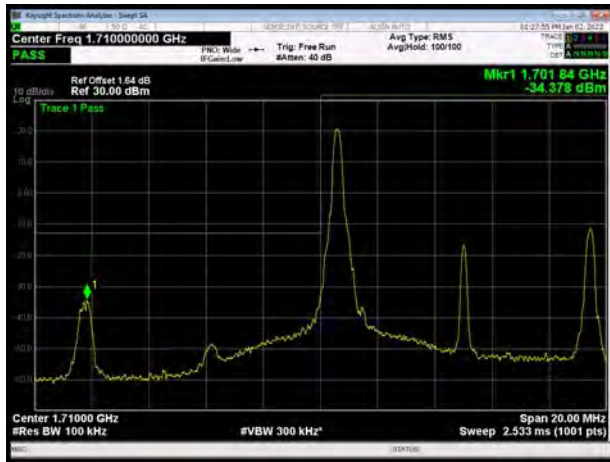
LTE Band 4 QPSK 5MHz CH-High, 100%RB



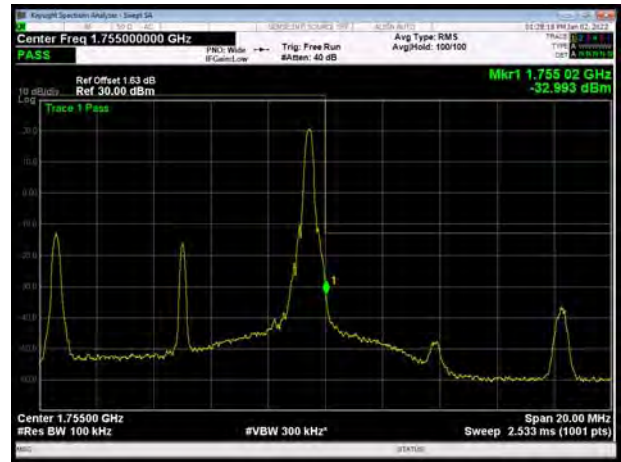




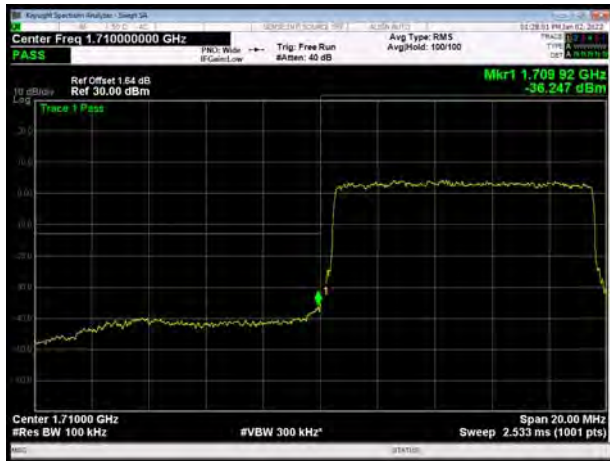
LTE Band 4 QPSK 10MHz CH-Low, 1 RB



LTE Band 4 QPSK 10MHz CH-High, 1 RB



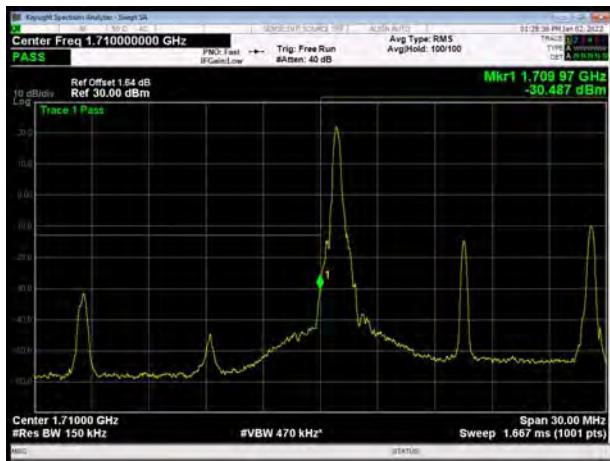
LTE Band 4 QPSK 10MHz CH-Low, 100%RB



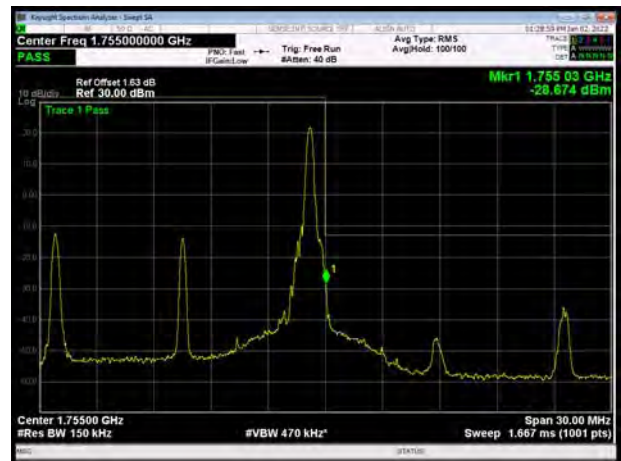
LTE Band 4 QPSK 10MHz CH-High, 100%RB



LTE Band 4 QPSK 15MHz CH-Low, 1 RB

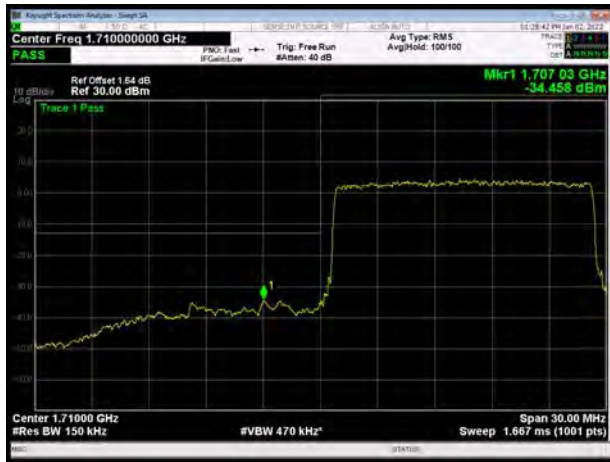


LTE Band 4 QPSK 15MHz CH-High, 1 RB





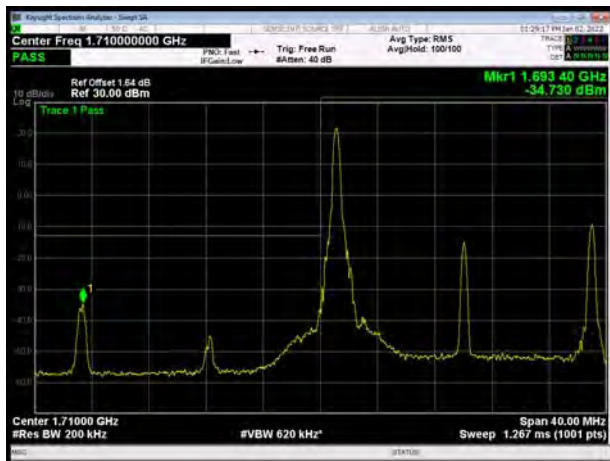
LTE Band 4 QPSK 15MHz CH-Low, 100%RB



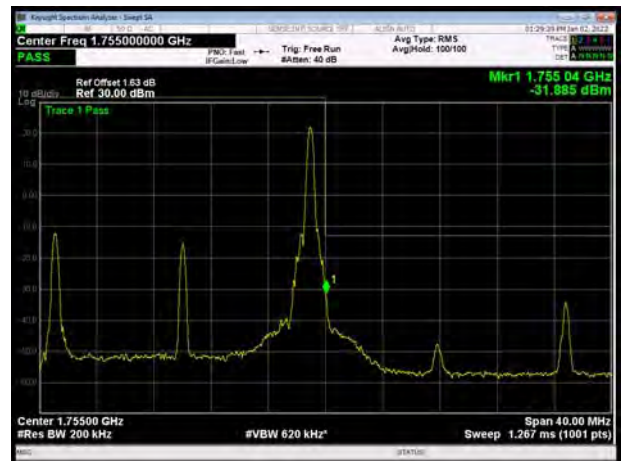
LTE Band 4 QPSK 15MHz CH-High, 100%RB



LTE Band 4 QPSK 20MHz CH-Low, 1 RB



LTE Band 4 QPSK 20MHz CH-High, 1 RB



LTE Band 4 QPSK 20MHz CH-Low, 100%RB



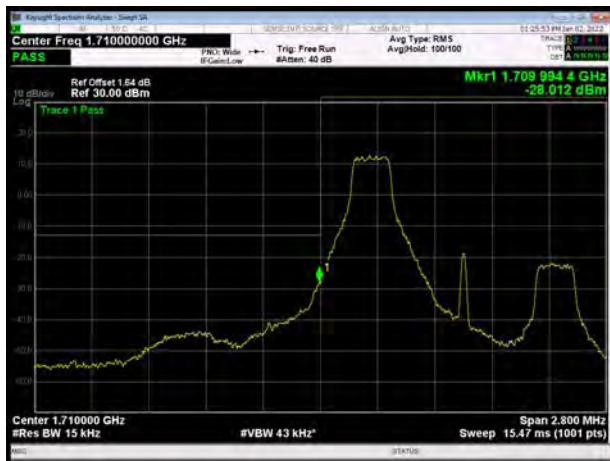
LTE Band 4 QPSK 20MHz CH-High, 100%RB



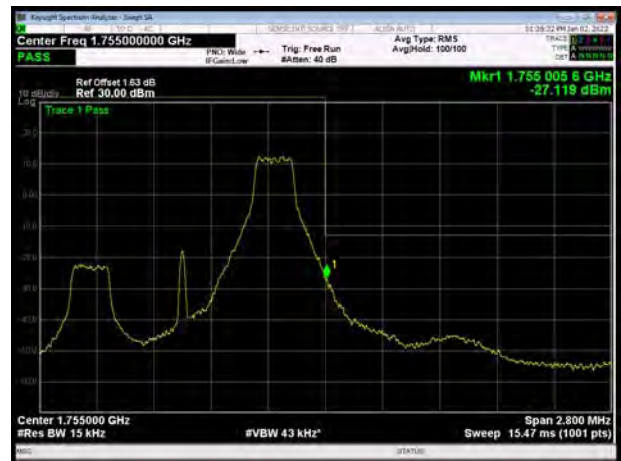




LTE Band 4 16QAM 1.4MHz CH-Low, 1 RB



LTE Band 4 16QAM 1.4MHz CH-High, 1 RB



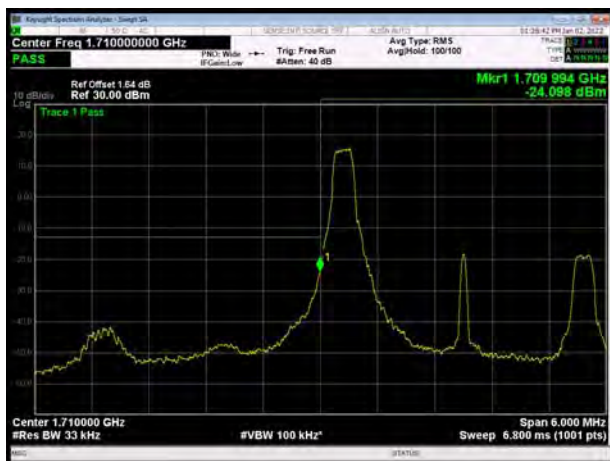
LTE Band 4 16QAM 1.4MHz CH-Low, 100%RB



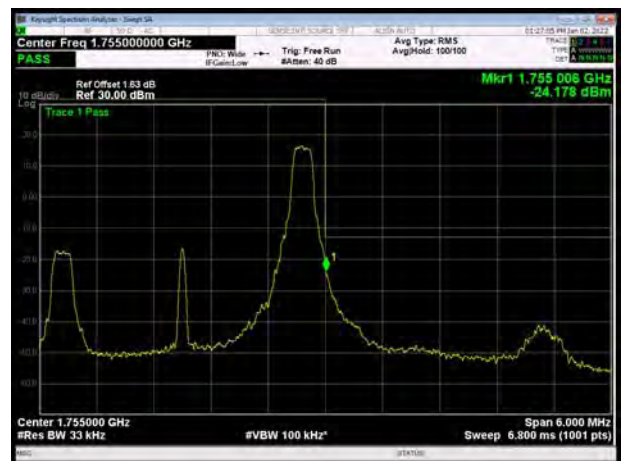
LTE Band 4 16QAM 1.4MHz CH-High, 100%RB



LTE Band 4 16QAM 3MHz CH-Low, 1 RB

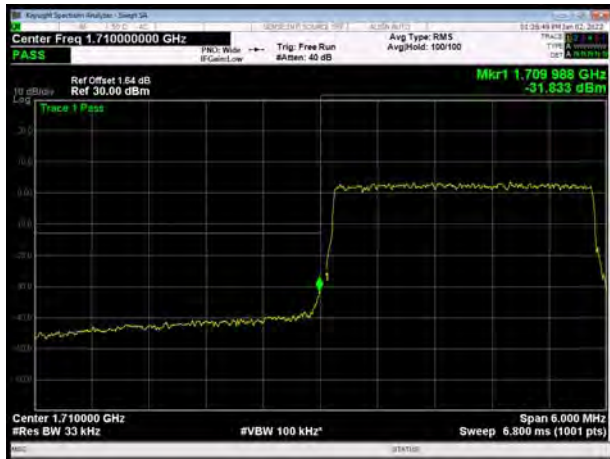


LTE Band 4 16QAM 3MHz CH-High, 1 RB





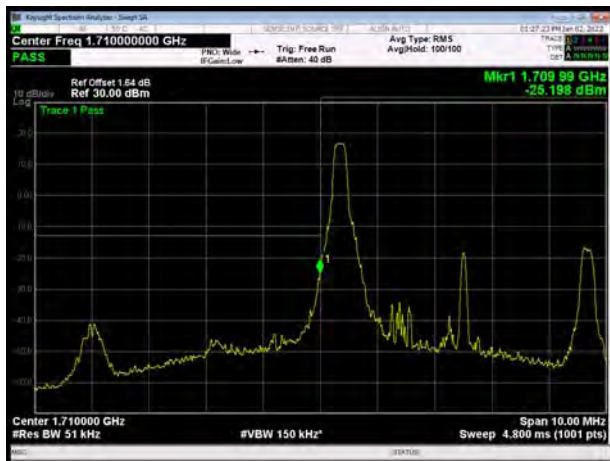
LTE Band 4 16QAM 3MHz CH-Low, 100%RB



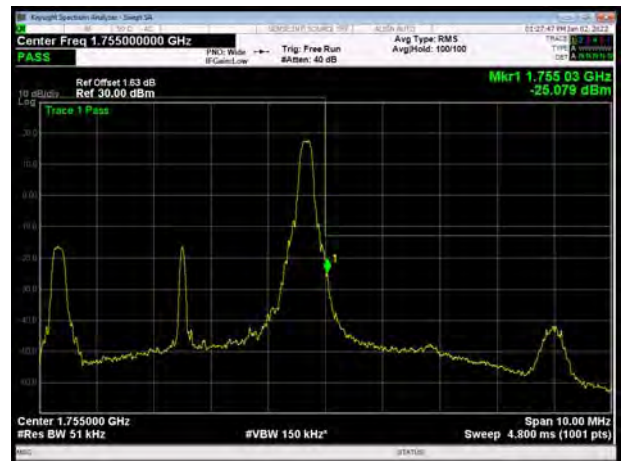
LTE Band 4 16QAM 3MHz CH-High, 100%RB



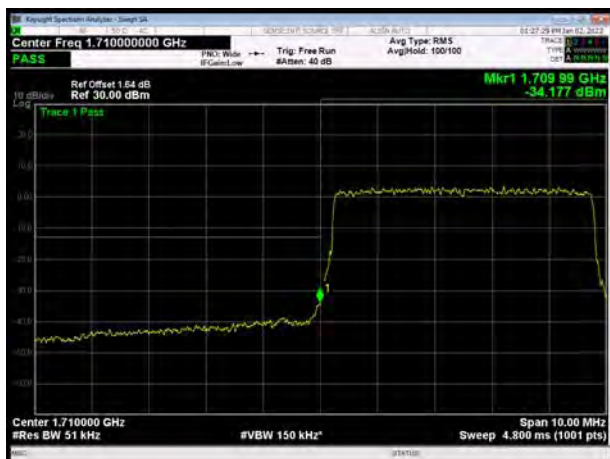
LTE Band 4 16QAM 5MHz CH-Low, 1 RB



LTE Band 4 16QAM 5MHz CH-High, 1 RB



LTE Band 4 16QAM 5MHz CH-Low, 100%RB



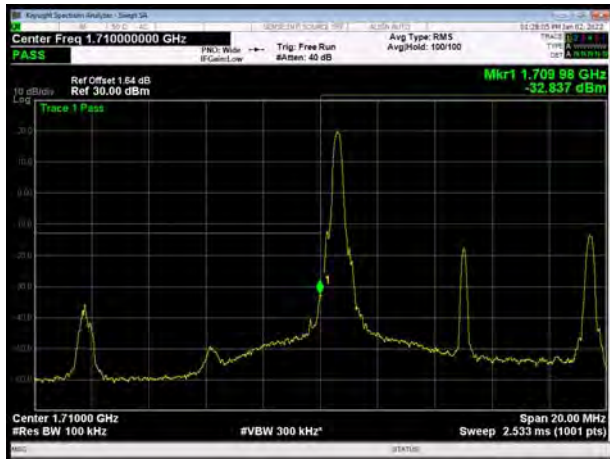
LTE Band 4 16QAM 5MHz CH-High, 100%RB



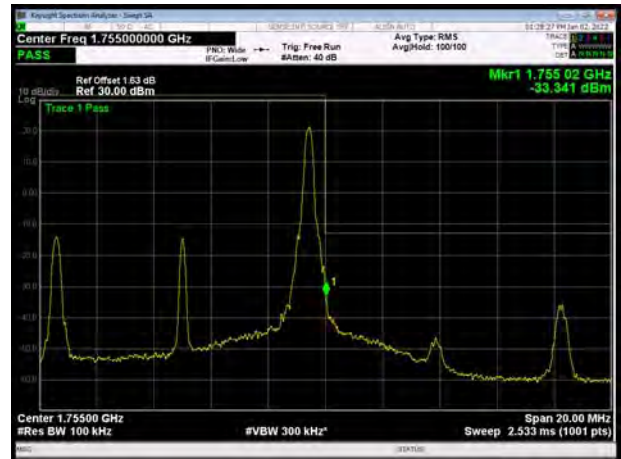




LTE Band 4 16QAM 10MHz CH-Low, 1 RB



LTE Band 4 16QAM 10MHz CH-High, 1 RB



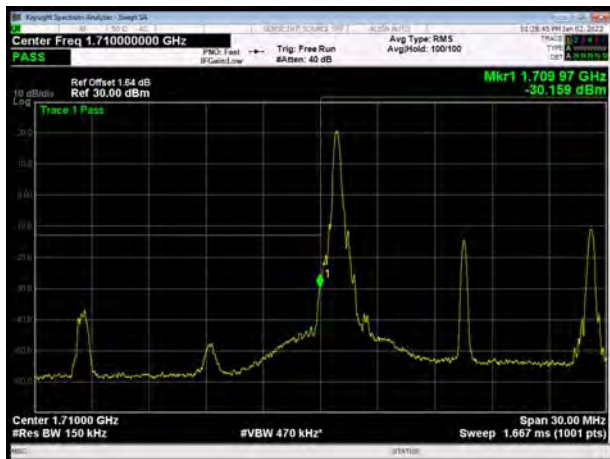
LTE Band 4 16QAM 10MHz CH-Low, 100%RB



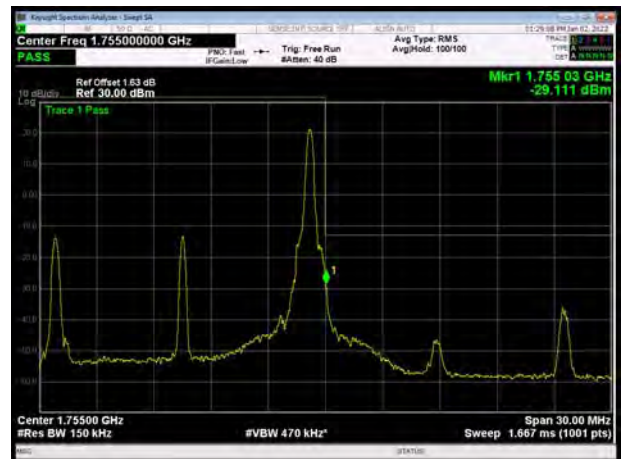
LTE Band 4 16QAM 10MHz CH-High, 100%RB



LTE Band 4 16QAM 15MHz CH-Low, 1 RB

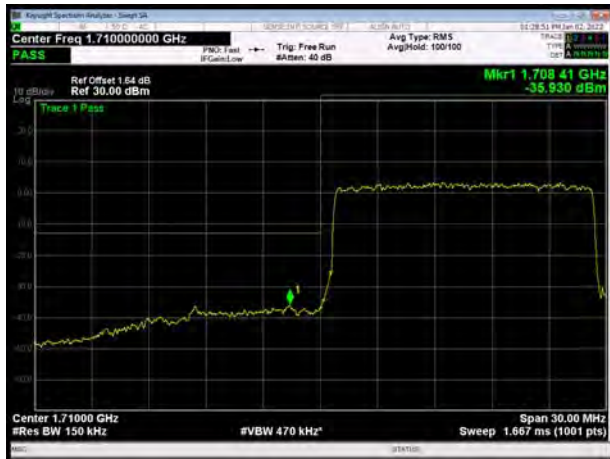


LTE Band 4 16QAM 15MHz CH-High, 1 RB





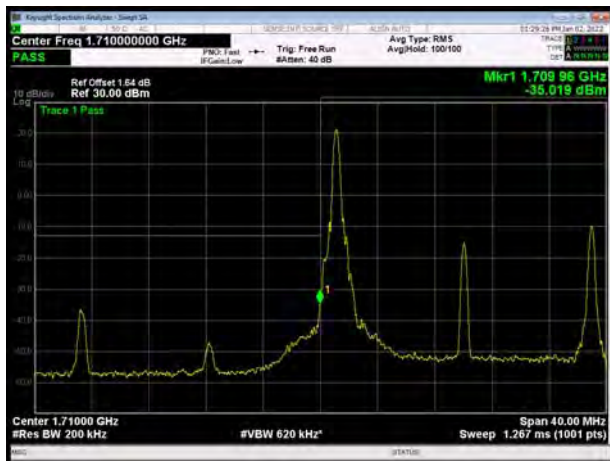
LTE Band 4 16QAM 15MHz CH-Low, 100%RB



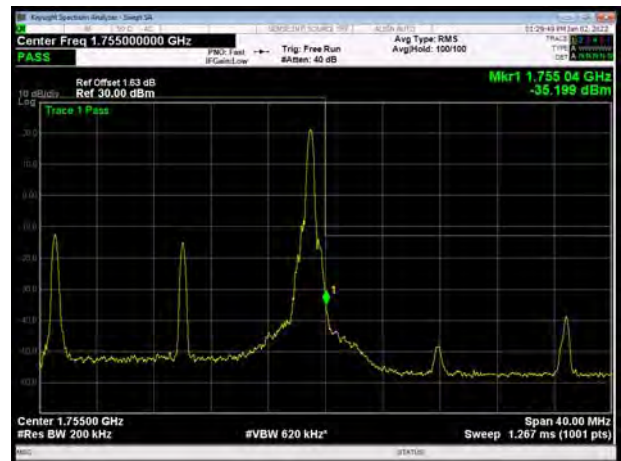
LTE Band 4 16QAM 15MHz CH-High, 100%RB



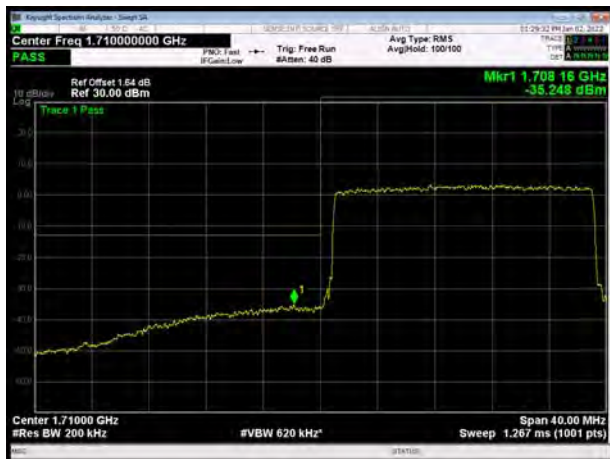
LTE Band 4 16QAM 20MHz CH-Low, 1 RB



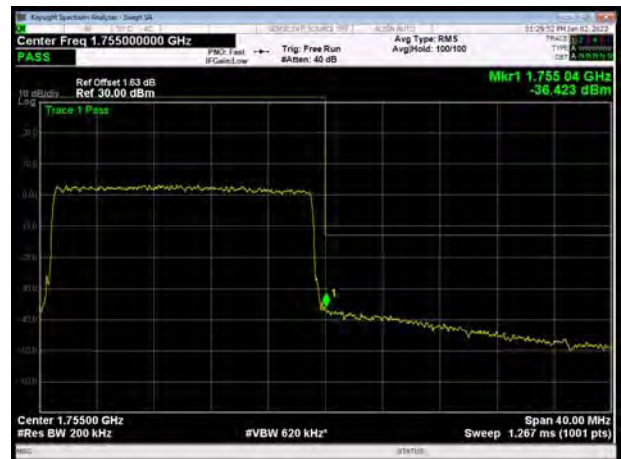
LTE Band 4 16QAM 20MHz CH-High, 1 RB



LTE Band 4 16QAM 20MHz CH-Low, 100%RB



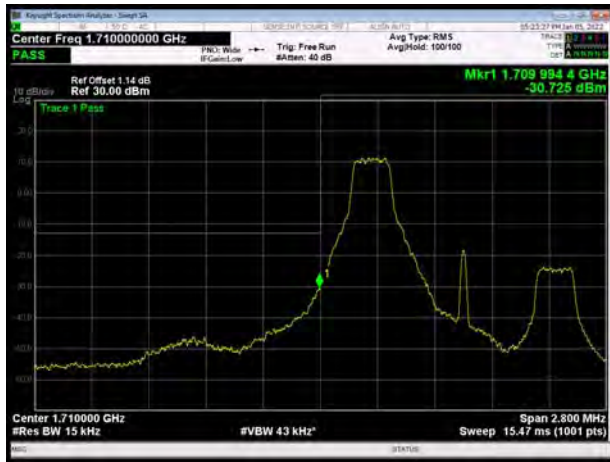
LTE Band 4 16QAM 20MHz CH-High, 100%RB







LTE Band 4 64QAM 1.4MHz CH-Low, 1 RB



LTE Band 4 64QAM 1.4MHz CH-High, 1 RB



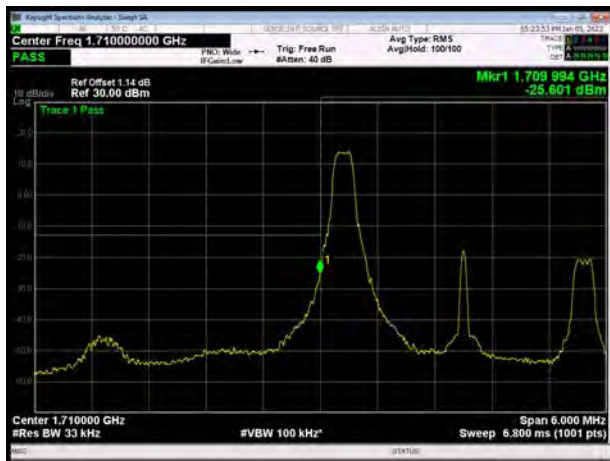
LTE Band 4 64QAM 1.4MHz CH-Low, 100%RB



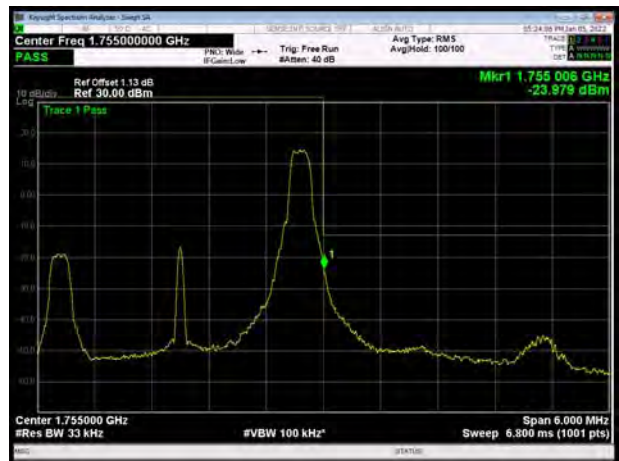
LTE Band 4 64QAM 1.4MHz CH-High, 100%RB



LTE Band 4 64QAM 3MHz CH-Low, 1 RB

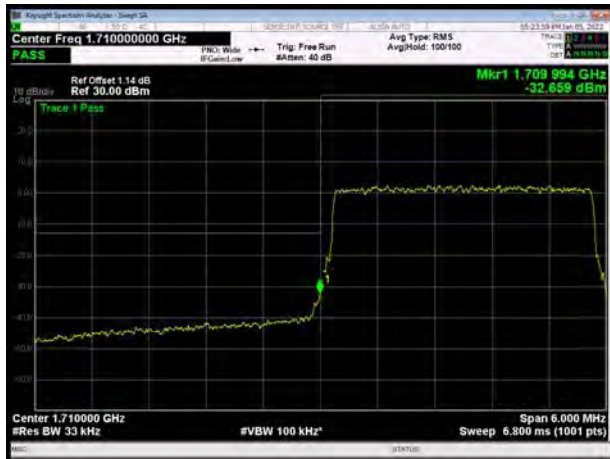


LTE Band 4 64QAM 3MHz CH-High, 1 RB

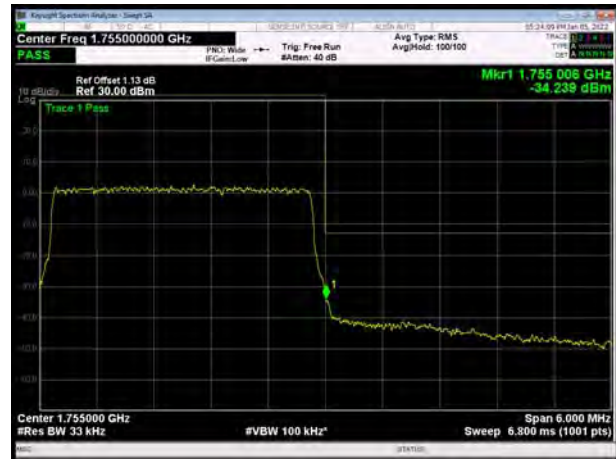




LTE Band 4 64QAM 3MHz CH-Low, 100%RB



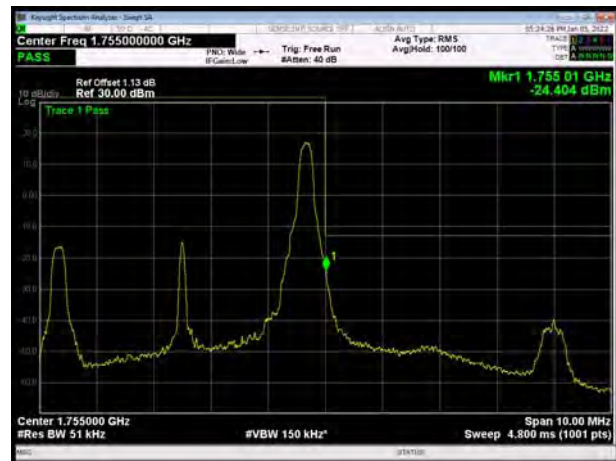
LTE Band 4 64QAM 3MHz CH-High, 100%RB



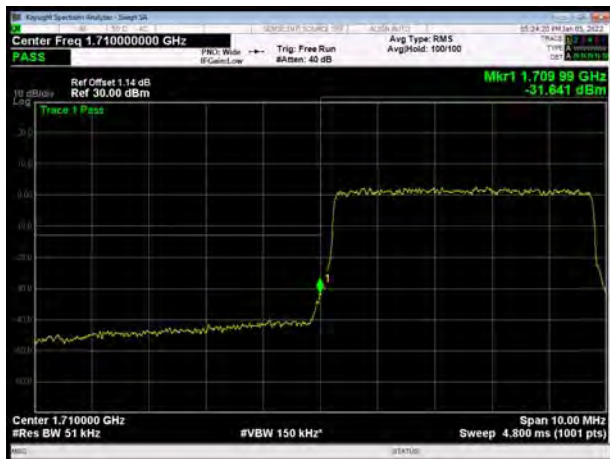
LTE Band 4 64QAM 5MHz CH-Low, 1 RB



LTE Band 4 64QAM 5MHz CH-High, 1 RB



LTE Band 4 64QAM 5MHz CH-Low, 100%RB



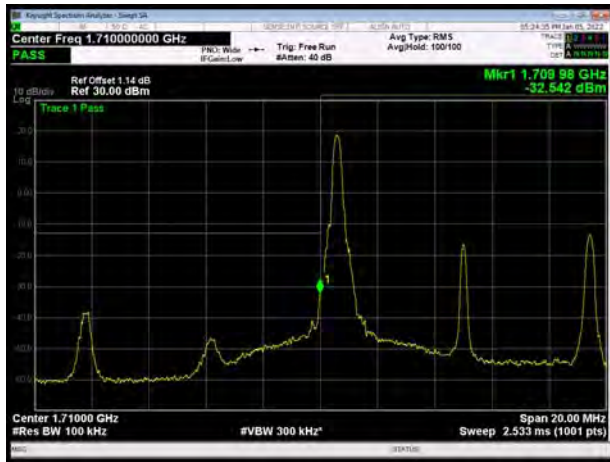
LTE Band 4 64QAM 5MHz CH-High, 100%RB



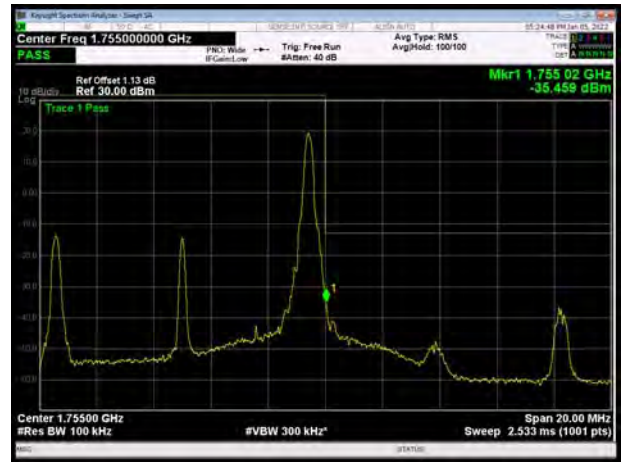




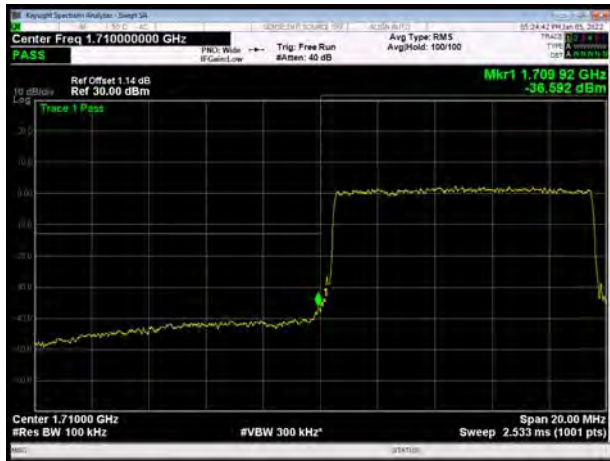
LTE Band 4 64QAM 10MHz CH-Low, 1 RB



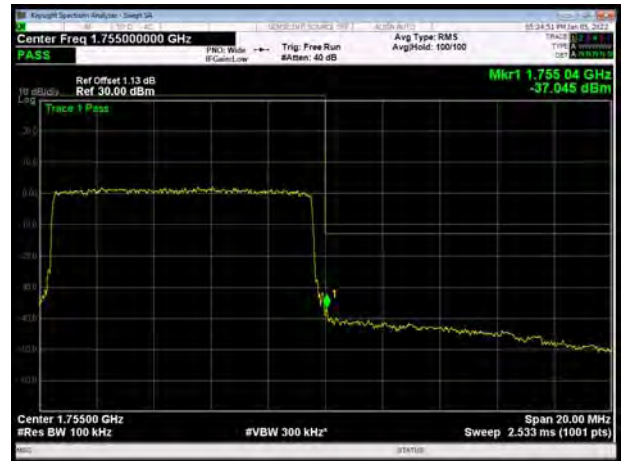
LTE Band 4 64QAM 10MHz CH-High, 1 RB



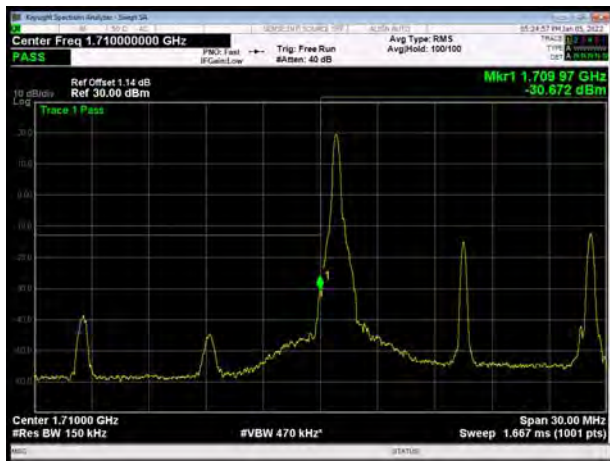
LTE Band 4 64QAM 10MHz CH-Low, 100%RB



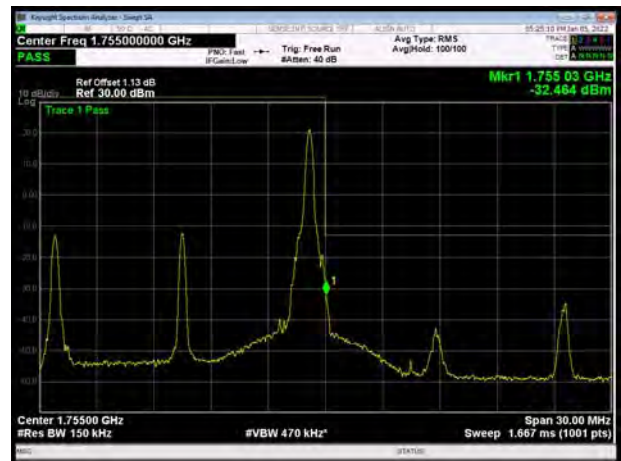
LTE Band 4 64QAM 10MHz CH-High, 100%RB



LTE Band 4 64QAM 15MHz CH-Low, 1 RB



LTE Band 4 64QAM 15MHz CH-High, 1 RB





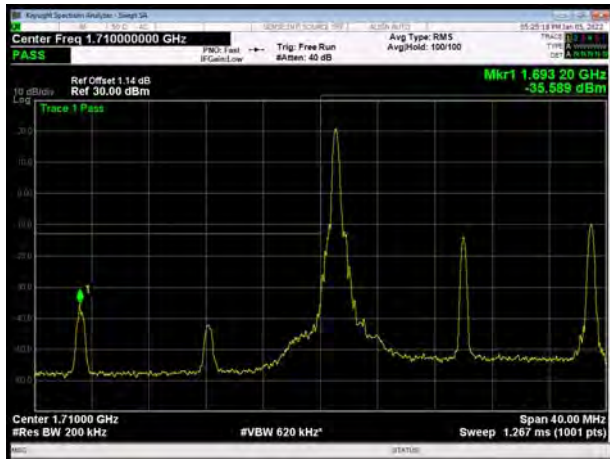
LTE Band 4 64QAM 15MHz CH-Low, 100%RB



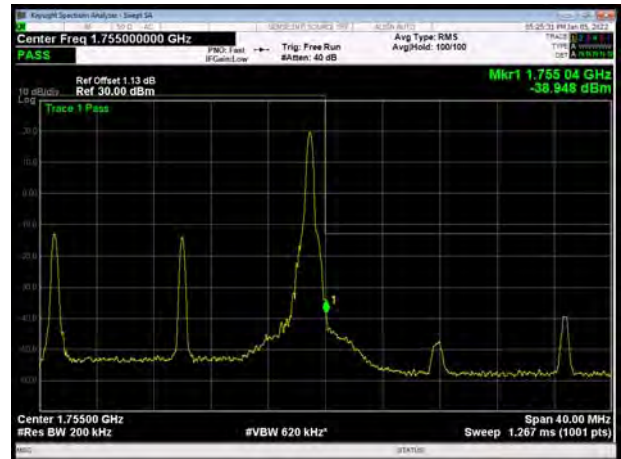
LTE Band 4 64QAM 15MHz CH-High, 100%RB



LTE Band 4 64QAM 20MHz CH-Low, 1 RB



LTE Band 4 64QAM 20MHz CH-High, 1 RB



LTE Band 4 64QAM 20MHz CH-Low, 100%RB



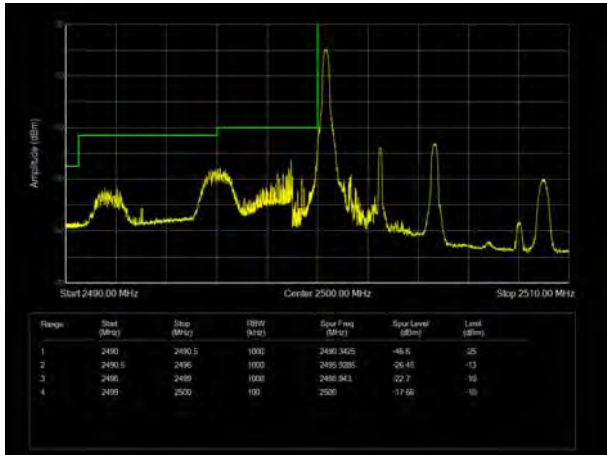
LTE Band 4 64QAM 20MHz CH-High, 100%RB



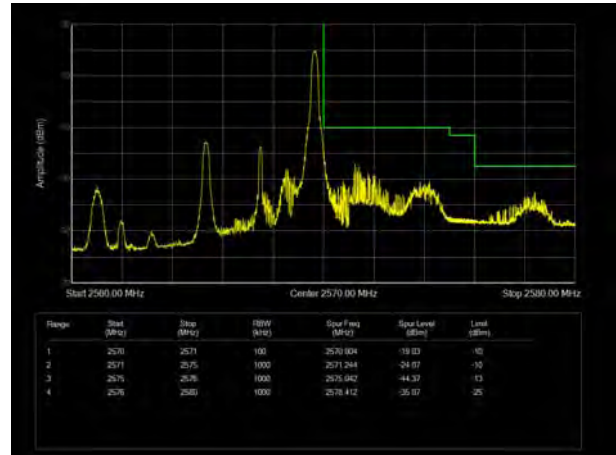




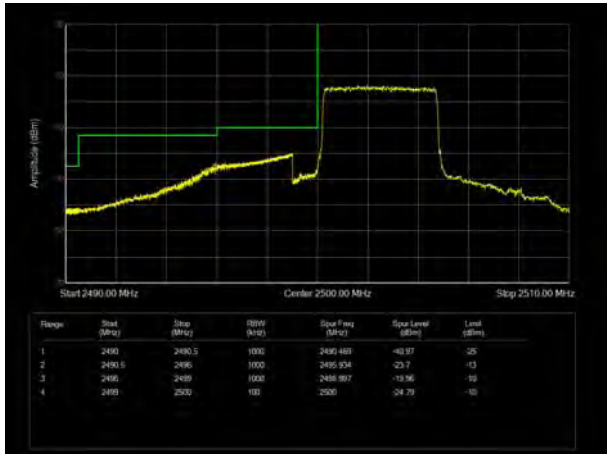
LTE Band 7 QPSK 5MHz CH-Low, 1 RB



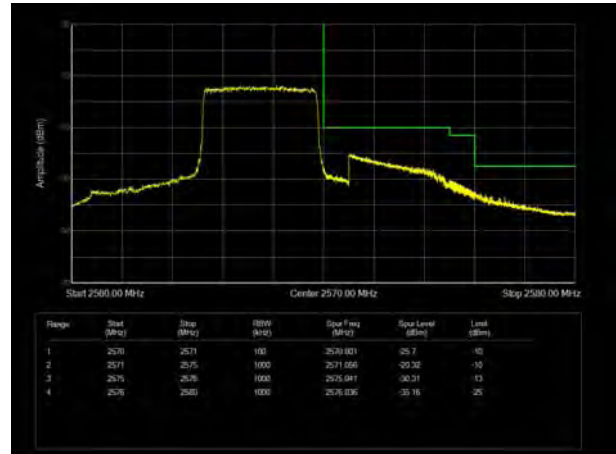
LTE Band 7 QPSK 5MHz CH-High, 1 RB



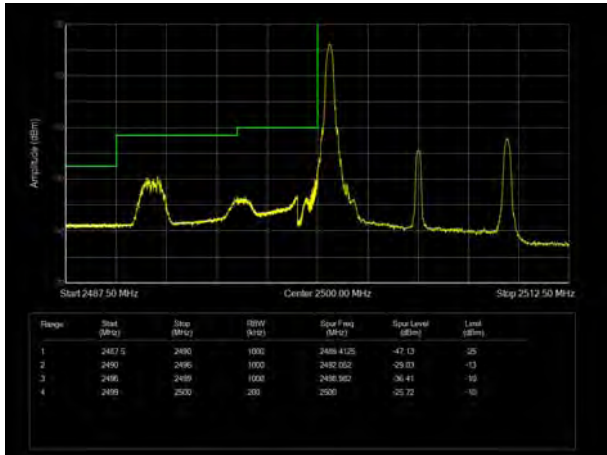
LTE Band 7 QPSK 5MHz CH-Low, 100%RB



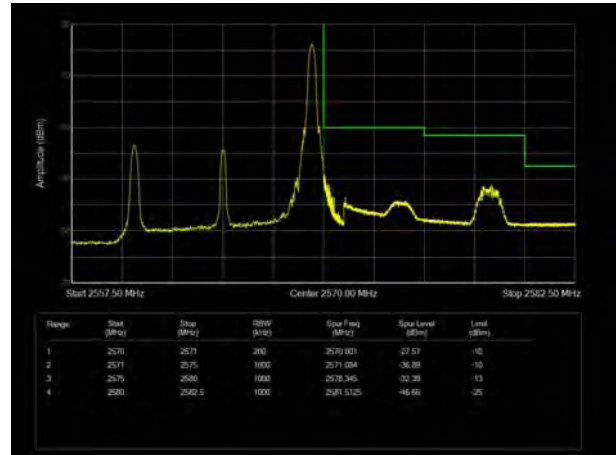
LTE Band 7 QPSK 5MHz CH-High, 100%RB



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

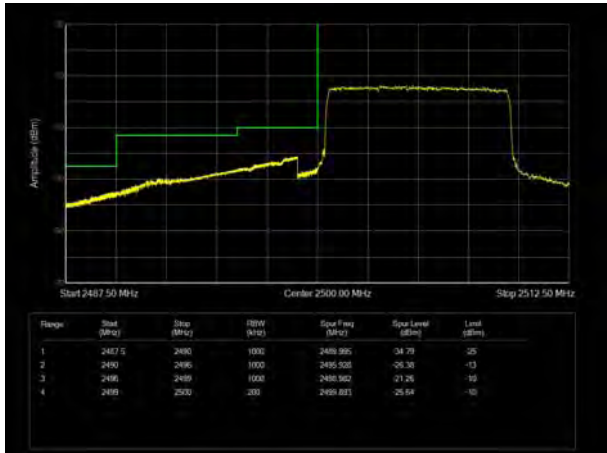


LTE Band 7 QPSK 10MHz CH-High, 1 RB

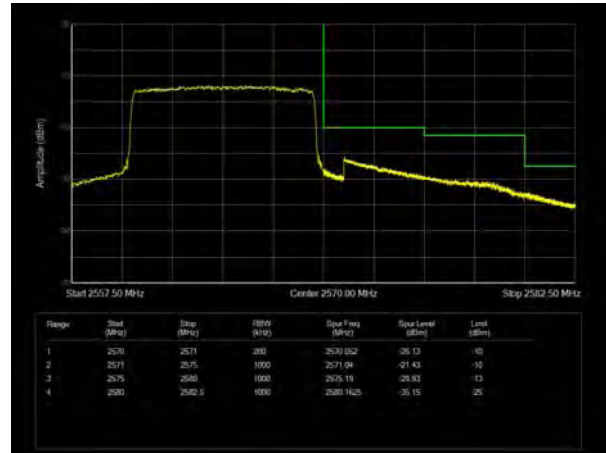




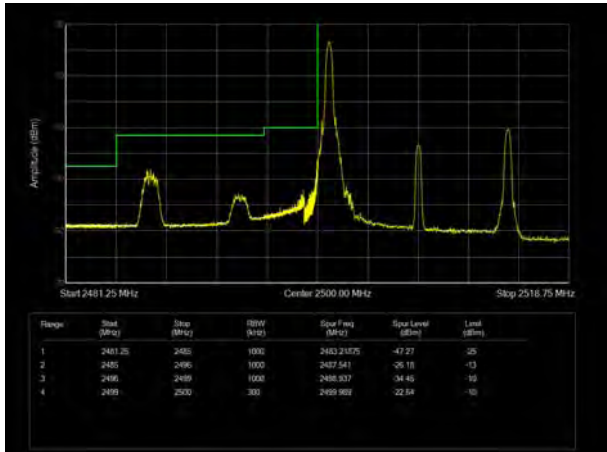
LTE Band 7 QPSK 10MHz CH-Low, 100%RB



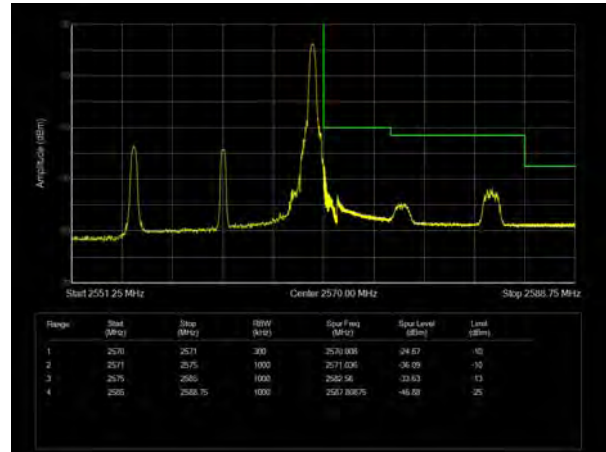
LTE Band 7 QPSK 10MHz CH-High, 100%RB



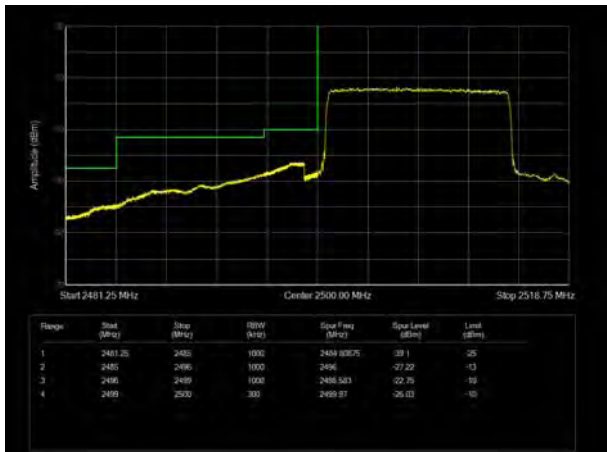
LTE Band 7 QPSK 15MHz CH-Low, 1 RB



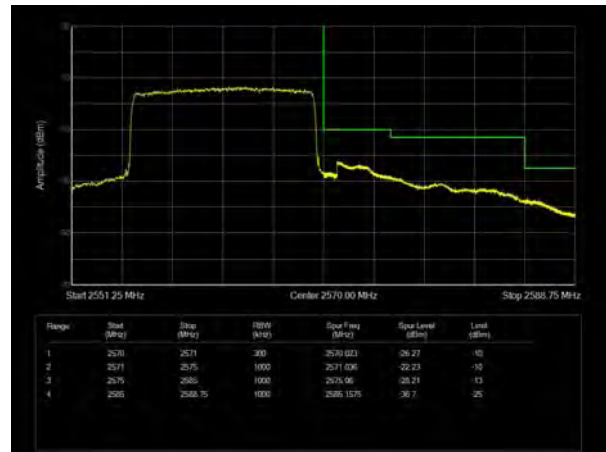
LTE Band 7 QPSK 15MHz CH-High, 1 RB



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

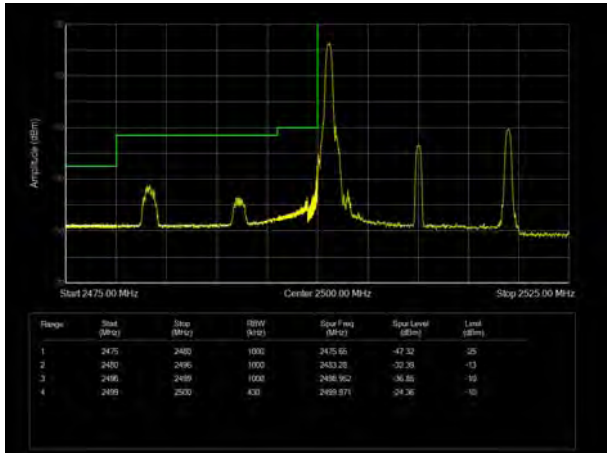


LTE Band 7 QPSK 15MHz CH-High, 100%RB

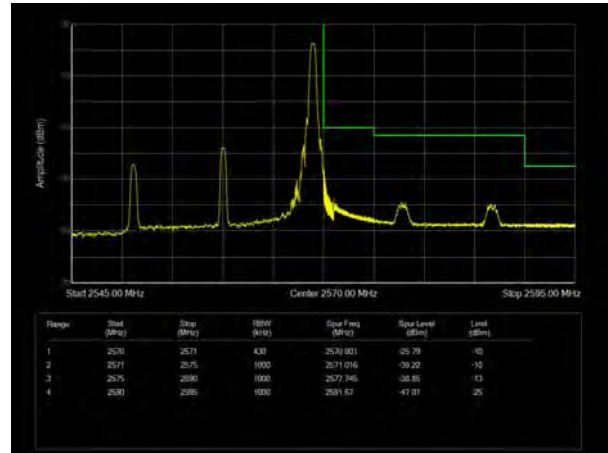




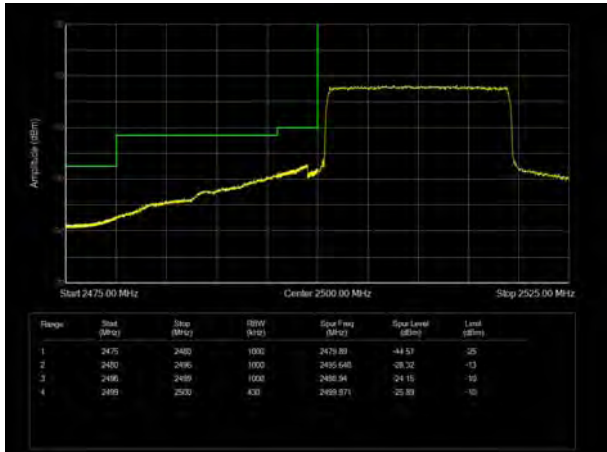
LTE Band 7 QPSK 20MHz CH-Low, 1 RB



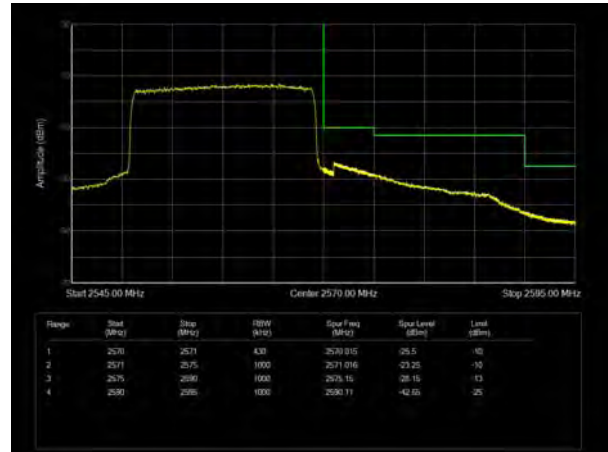
LTE Band 7 QPSK 20MHz CH-High, 1 RB



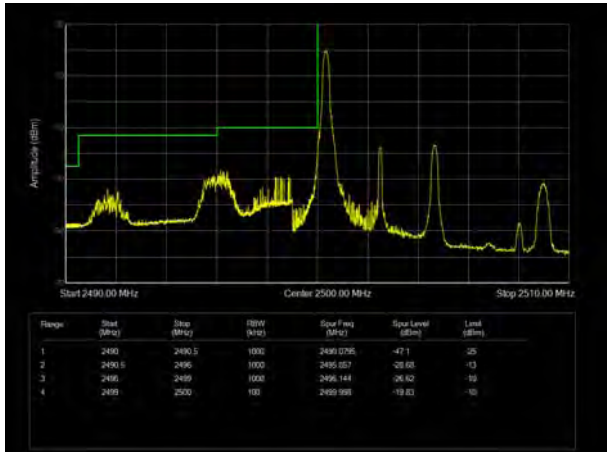
LTE Band 7 QPSK 20MHz CH-Low, 100%RB



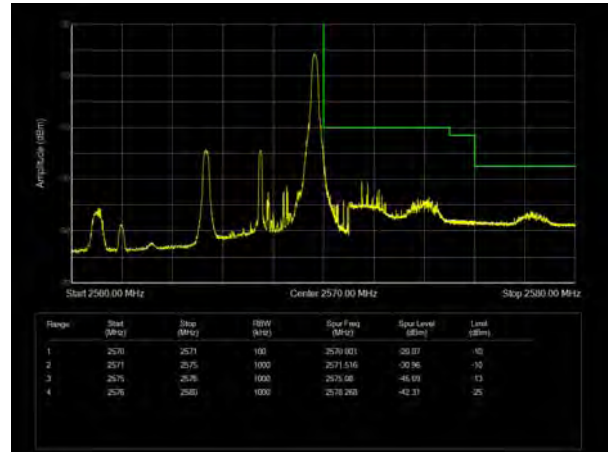
LTE Band 7 QPSK 20MHz CH-High, 100%RB



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

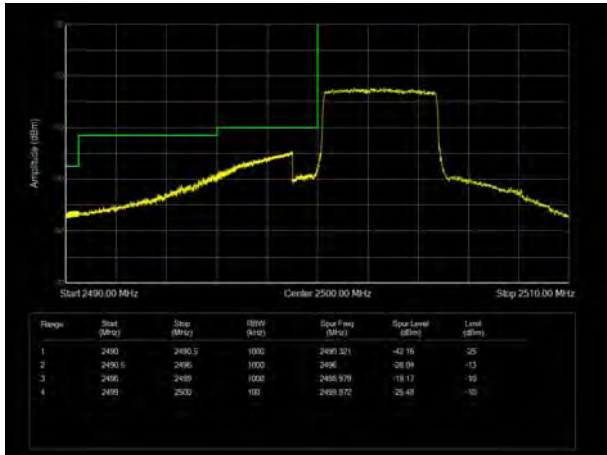


LTE Band 7 16QAM 5MHz CH-High, 1 RB

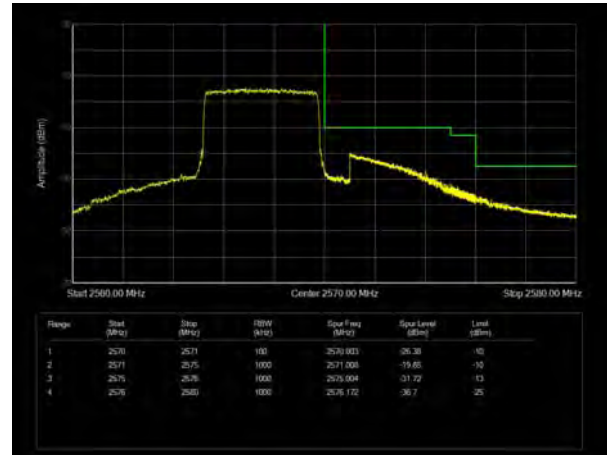




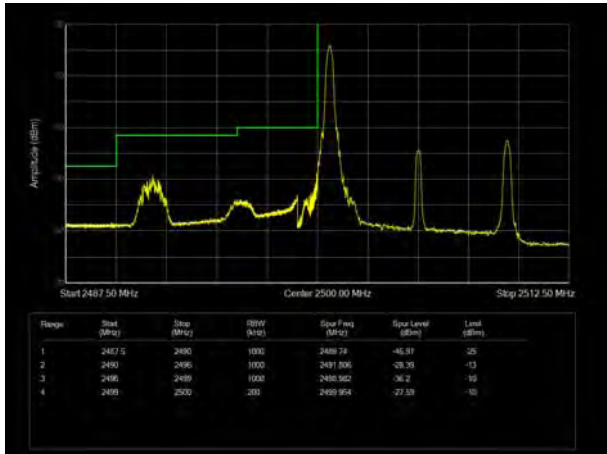
LTE Band 7 16QAM 5MHz CH-Low, 100%RB



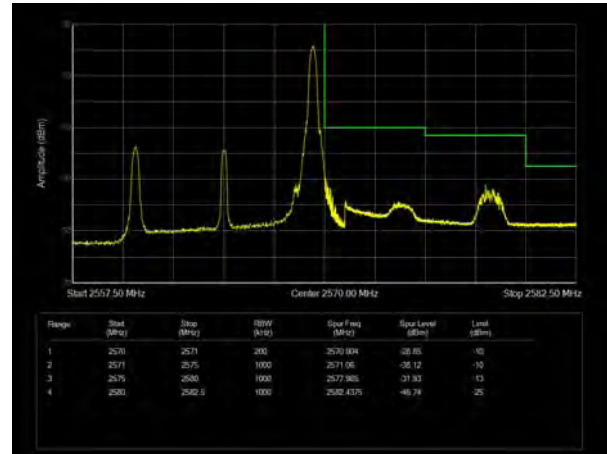
LTE Band 7 16QAM 5MHz CH-High, 100%RB



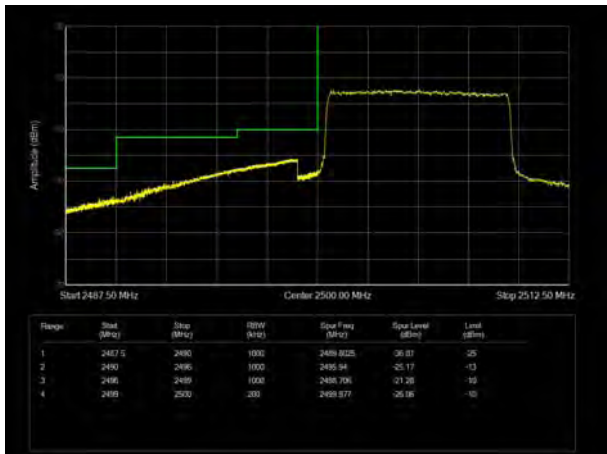
LTE Band 7 16QAM 10MHz CH-Low, 1 RB



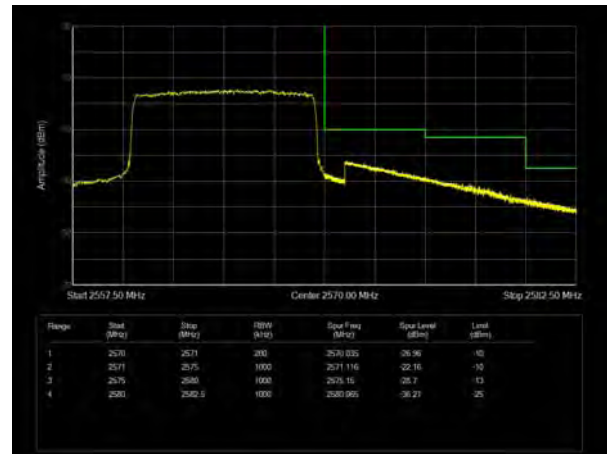
LTE Band 7 16QAM 10MHz CH-High, 1 RB



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



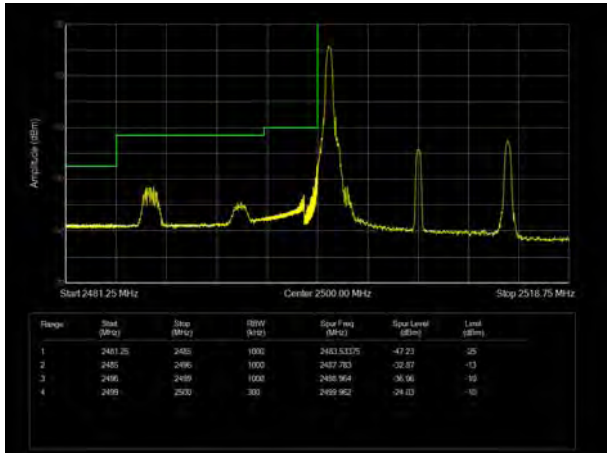
LTE Band 7 16QAM 10MHz CH-High, 100%RB



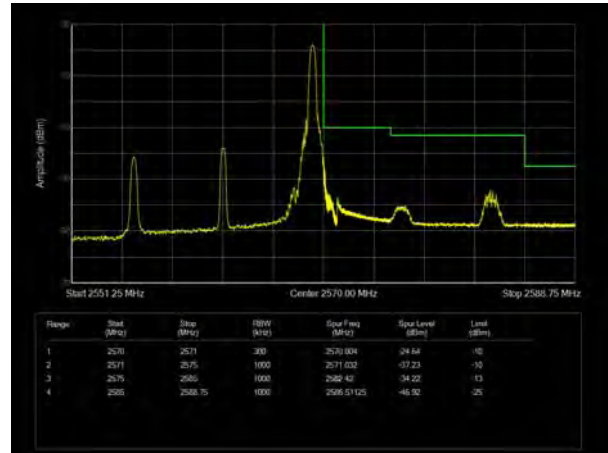




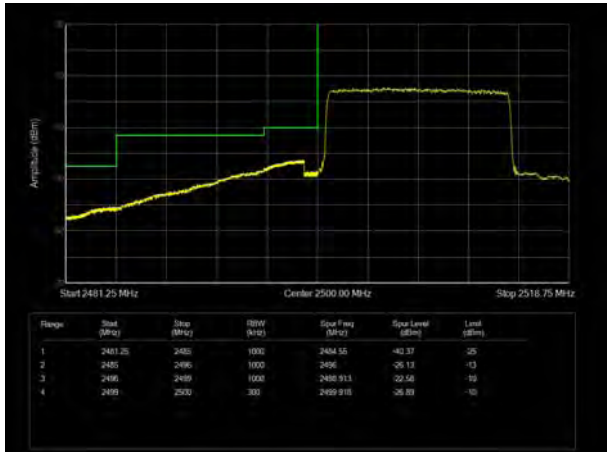
LTE Band 7 16QAM 15MHz CH-Low, 1 RB



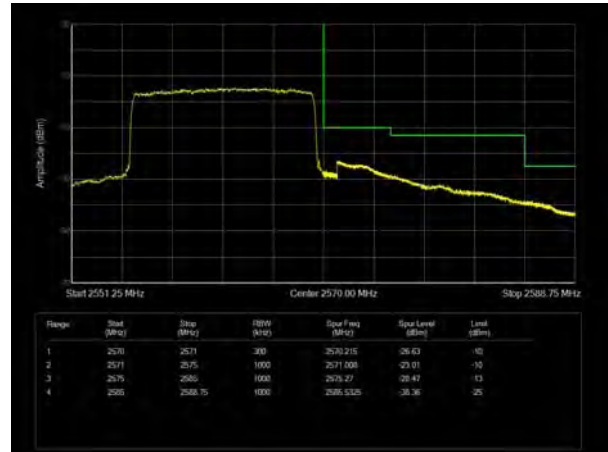
LTE Band 7 16QAM 15MHz CH-High, 1 RB



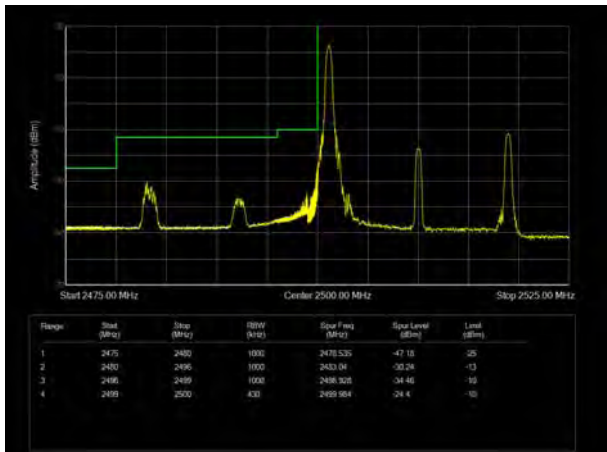
LTE Band 7 16QAM 15MHz CH-Low, 100%RB



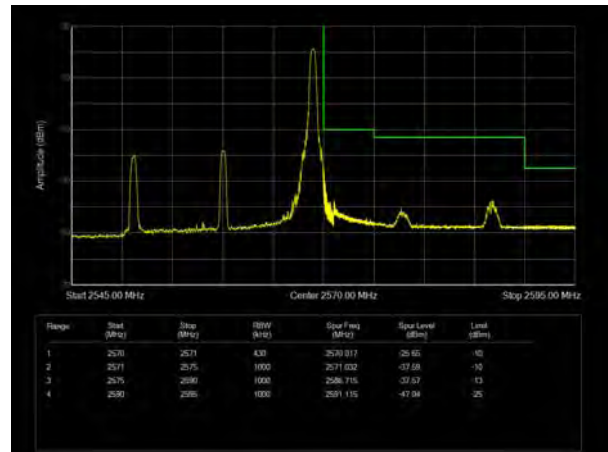
LTE Band 7 16QAM 15MHz CH-High, 100%RB



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

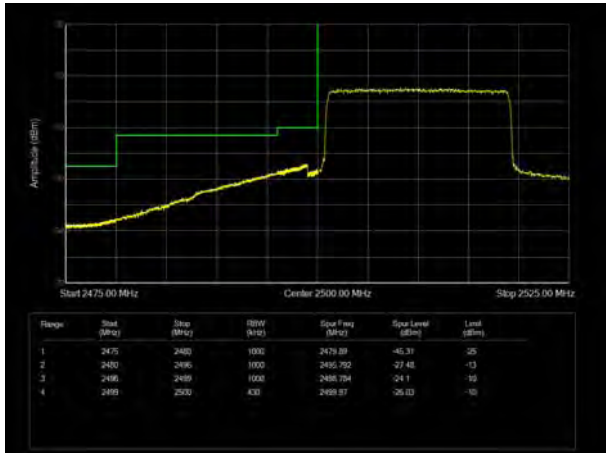


LTE Band 7 16QAM 20MHz CH-High, 1 RB

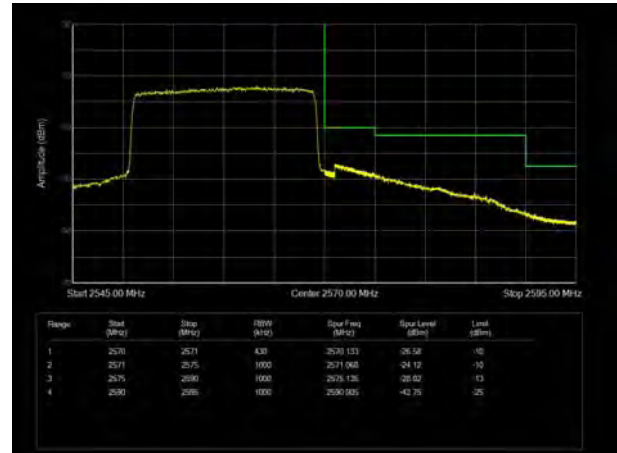




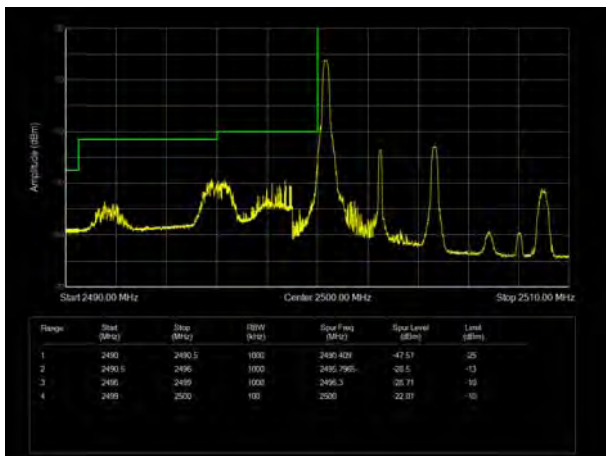
LTE Band 7 16QAM 20MHz CH-Low, 100%RB



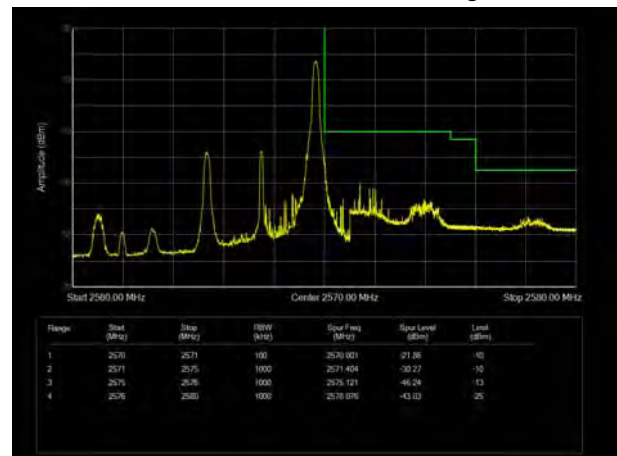
LTE Band 7 16QAM 20MHz CH-High, 100%RB



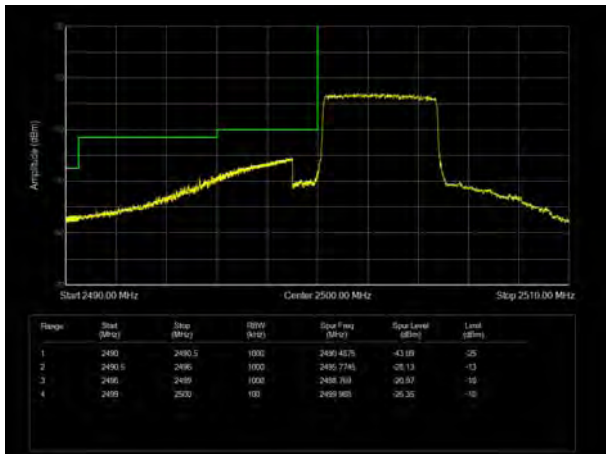
LTE Band 7 64QAM 5MHz CH-Low, 1 RB



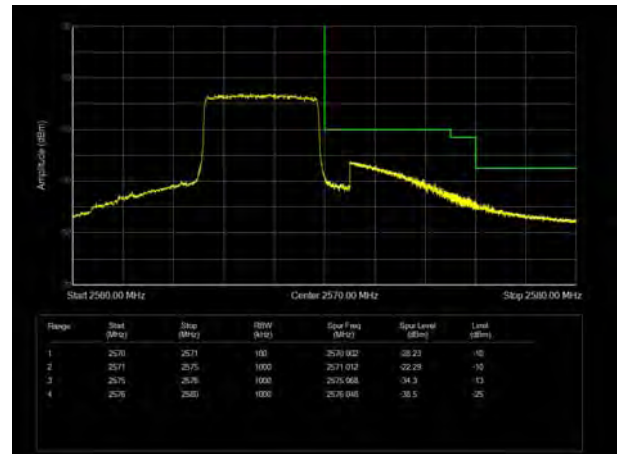
LTE Band 7 64QAM 5MHz CH-High, 1 RB



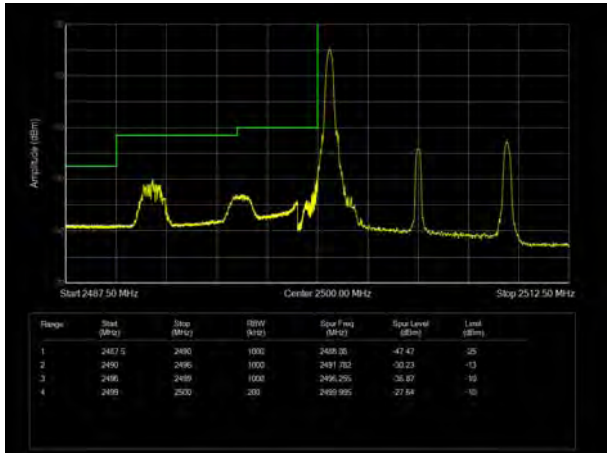
LTE Band 7 64QAM 5MHz CH-Low, 100%RB



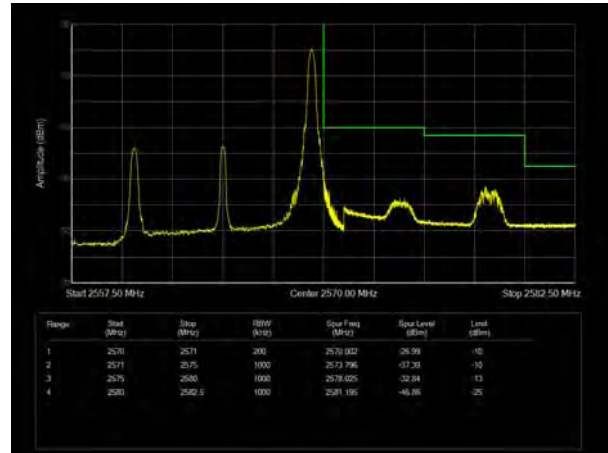
LTE Band 7 64QAM 5MHz CH-High, 100%RB



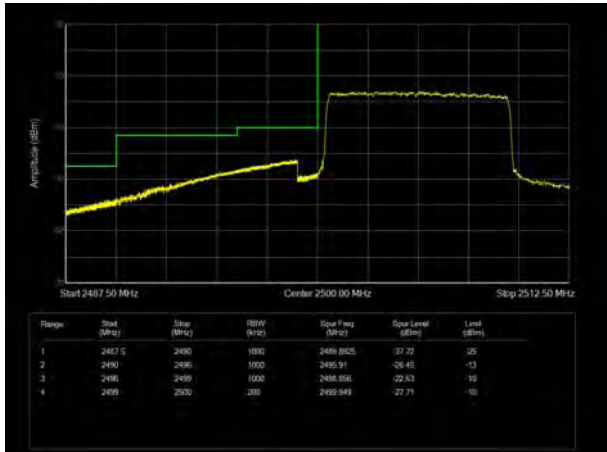
LTE Band 7 64QAM 10MHz CH-Low, 1 RB



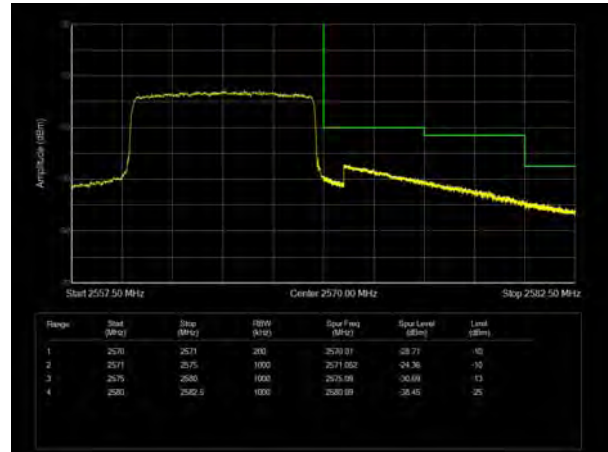
LTE Band 7 64QAM 10MHz CH-High, 1 RB



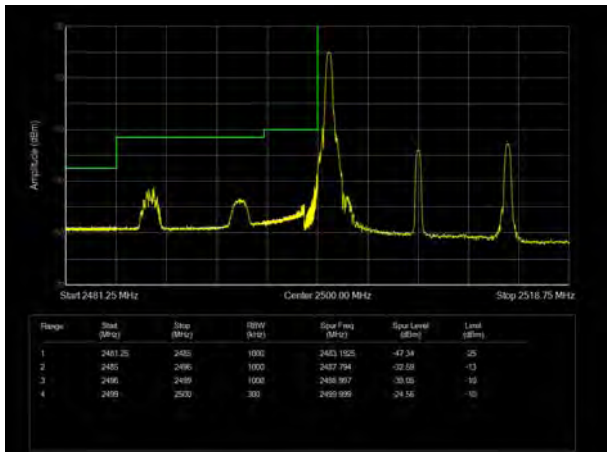
LTE Band 7 64QAM 10MHz CH-Low, 100%RB



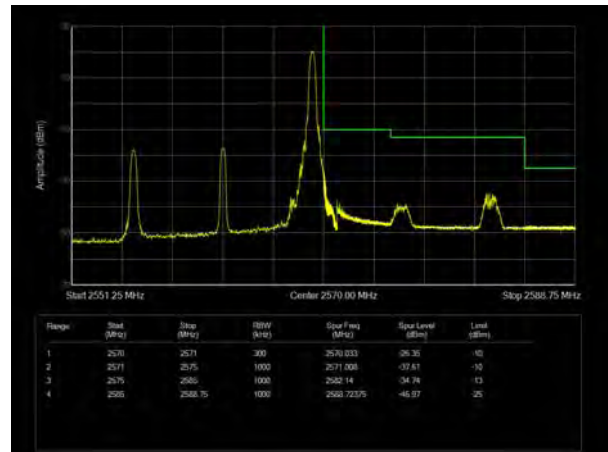
LTE Band 7 64QAM 10MHz CH-High, 100%RB



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

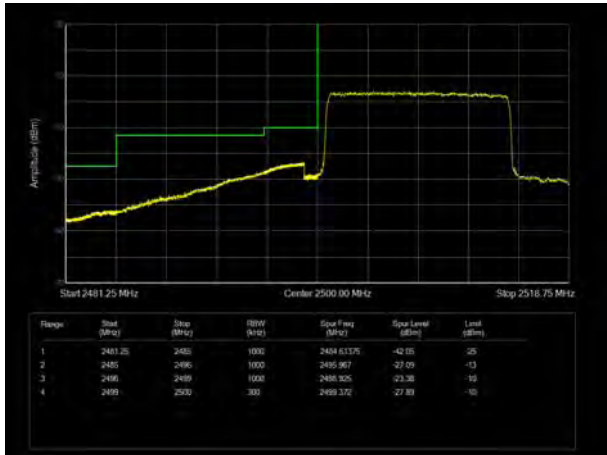


LTE Band 7 64QAM 15MHz CH-High, 1 RB

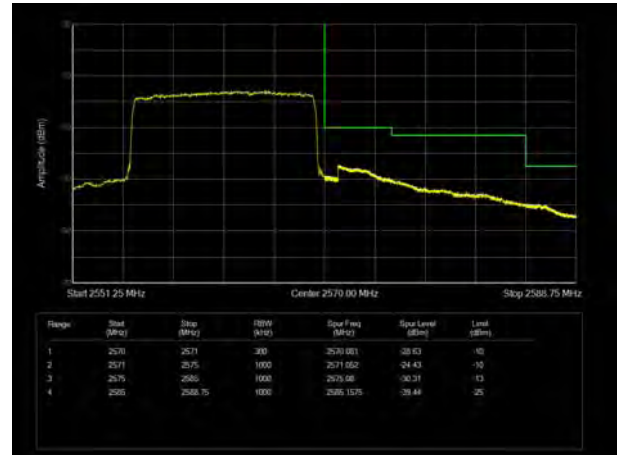




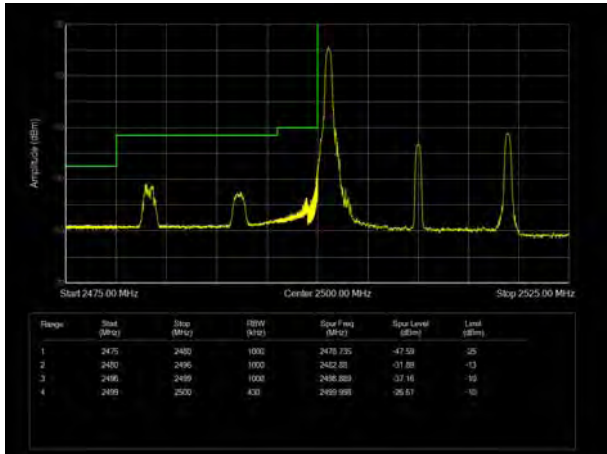
LTE Band 7 64QAM 15MHz CH-Low, 100%RB



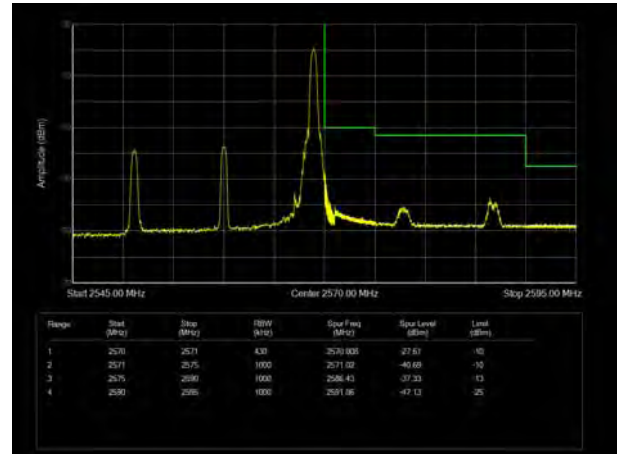
LTE Band 7 64QAM 15MHz CH-High, 100%RB



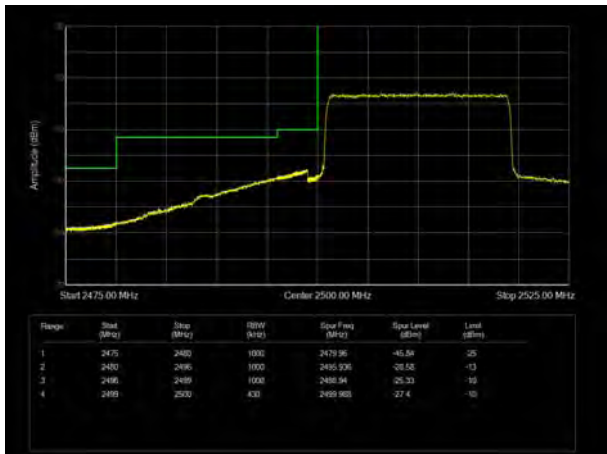
LTE Band 7 64QAM 20MHz CH-Low, 1 RB



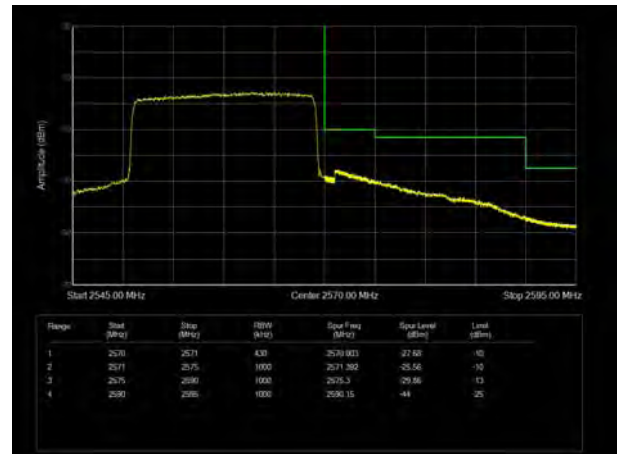
LTE Band 7 64QAM 20MHz CH-High, 1 RB



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

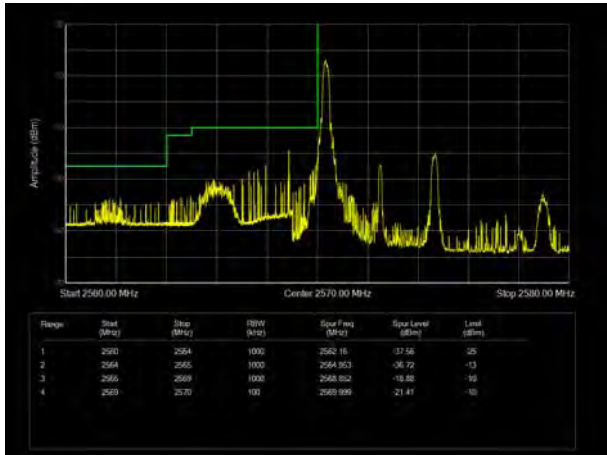


LTE Band 7 64QAM 20MHz CH-High, 100%RB

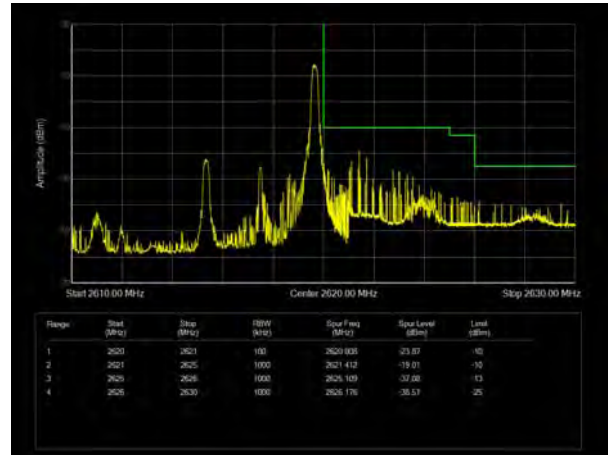




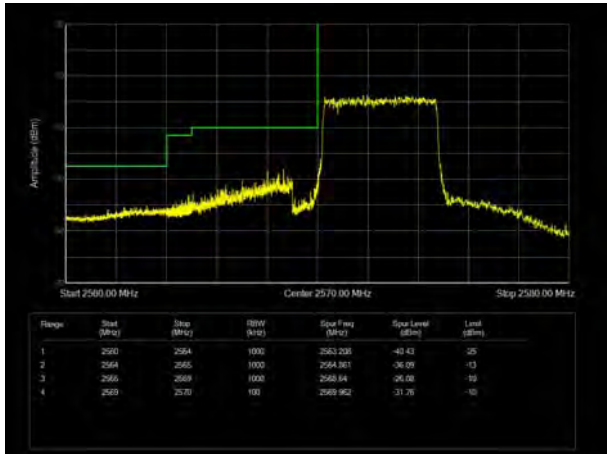
LTE Band 38 QPSK 5MHz CH-Low, 1 RB



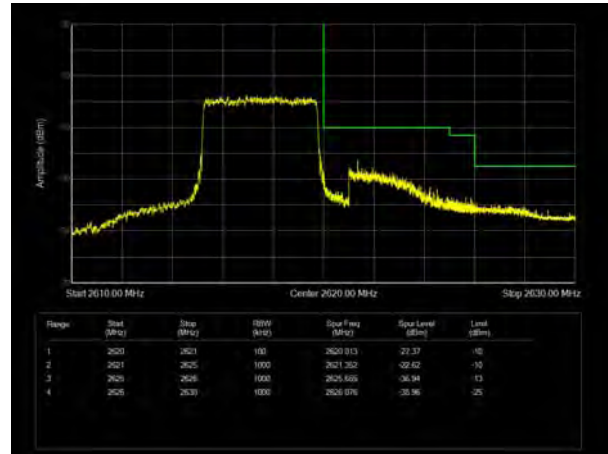
LTE Band 38 QPSK 5MHz CH-High, 1 RB



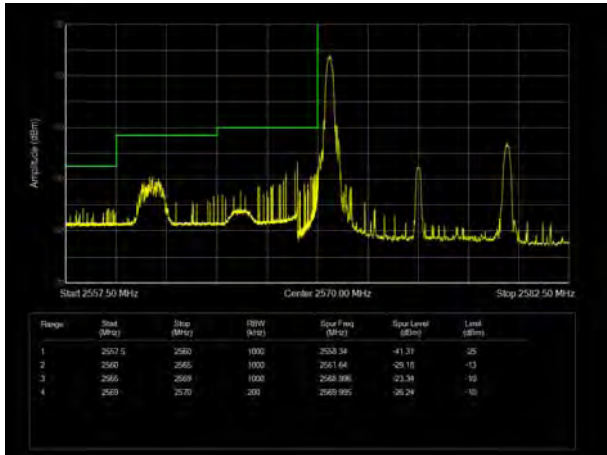
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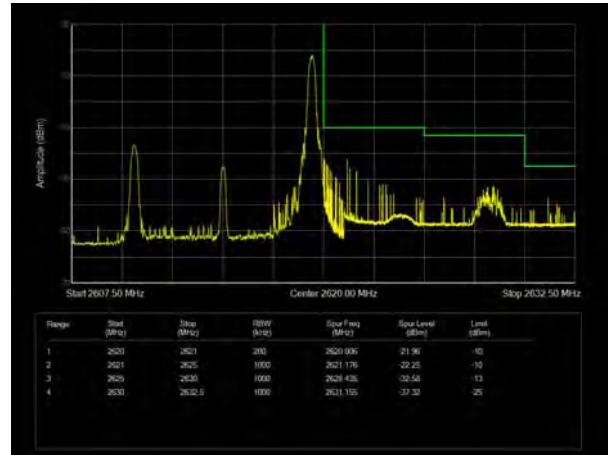
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LTE Band 38 QPSK 10MHz CH-Low, 1 RB

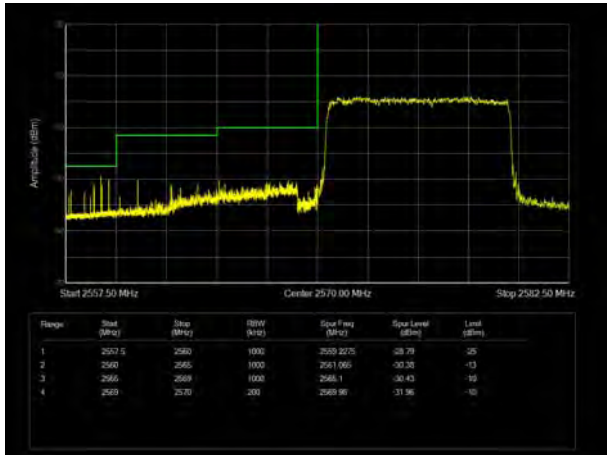


LTE Band 38 QPSK 10MHz CH-High, 1 RB

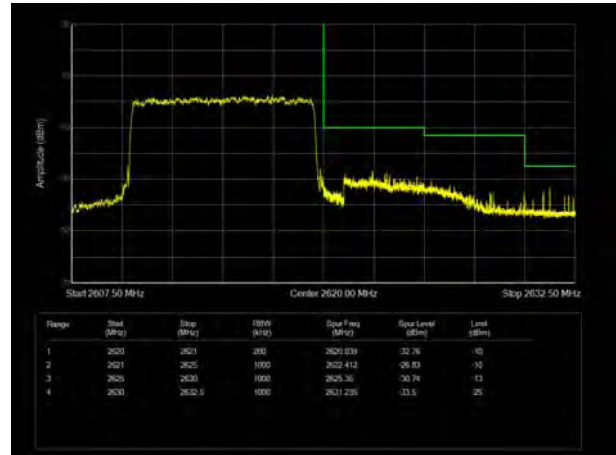




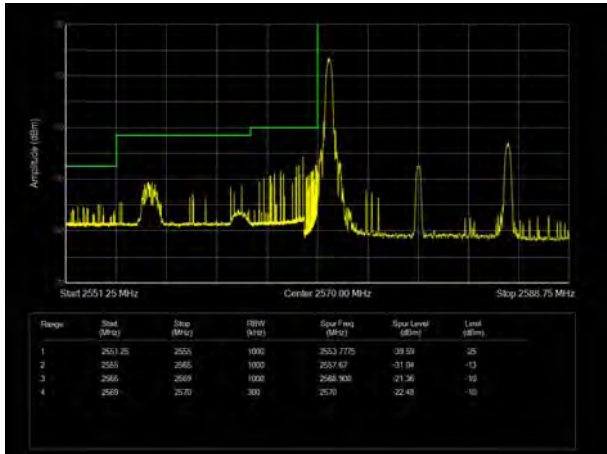
LTE Band 38 QPSK 10MHz CH-Low, 100%RB



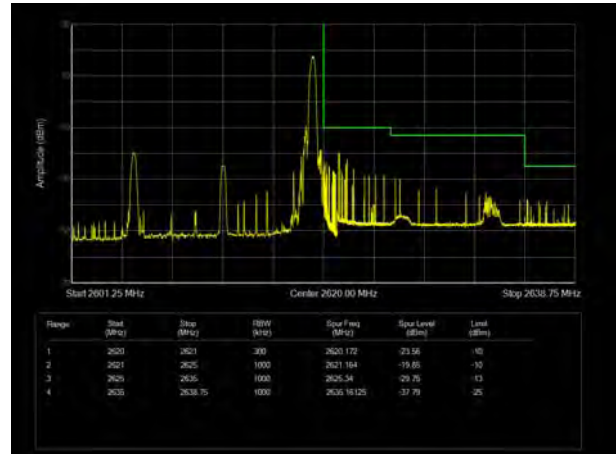
LTE Band 38 QPSK 10MHz CH-High, 100%RB



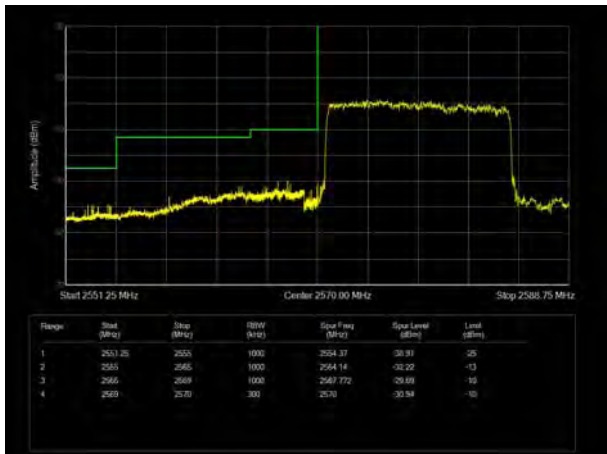
LTE Band 38 QPSK 15MHz CH-Low, 1 RB



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



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

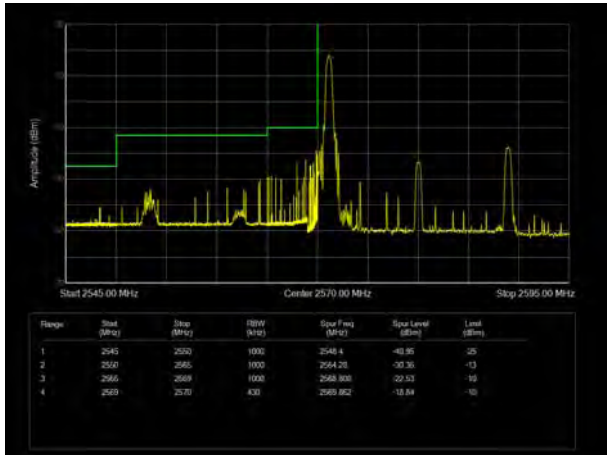


LTE Band 38 QPSK 15MHz CH-High, 100%RB

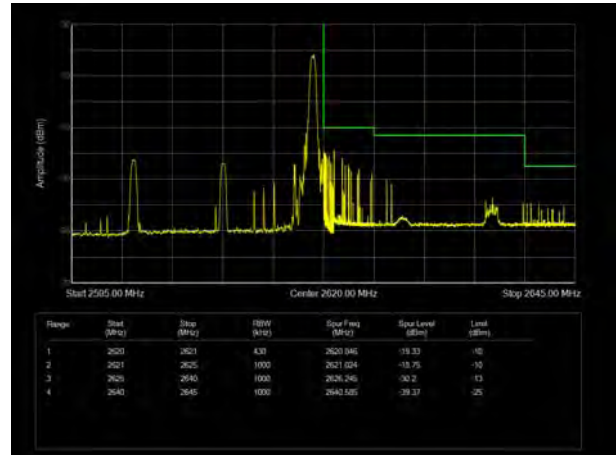




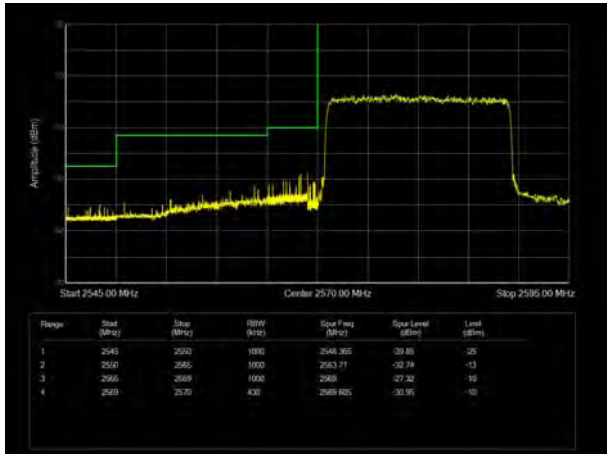
LTE Band 38 QPSK 20MHz CH-Low, 1 RB



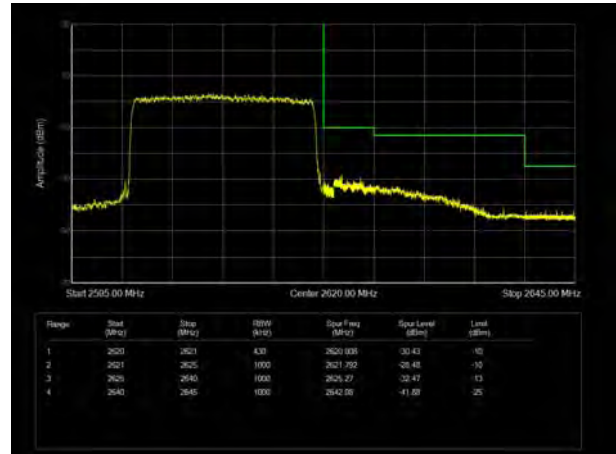
LTE Band 38 QPSK 20MHz CH-High, 1 RB



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



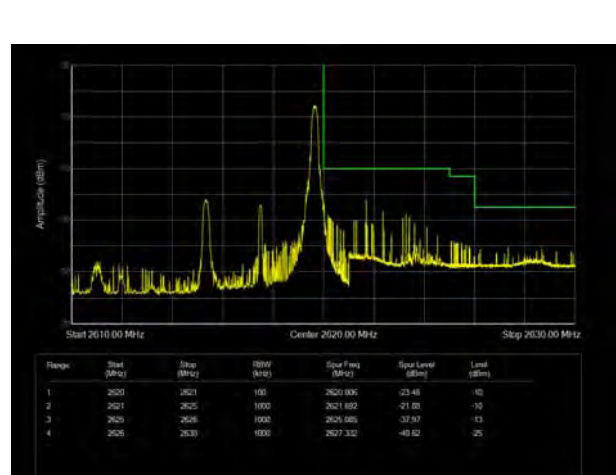
LTE Band 38 QPSK 20MHz CH-High, 100%RB



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



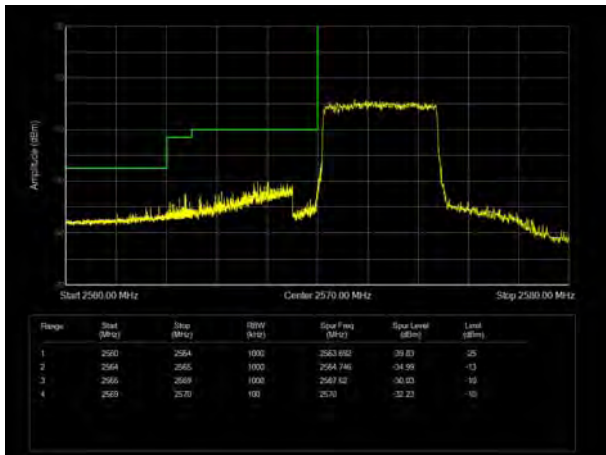
LTE Band 38 16QAM 5MHz CH-High, 1 RB



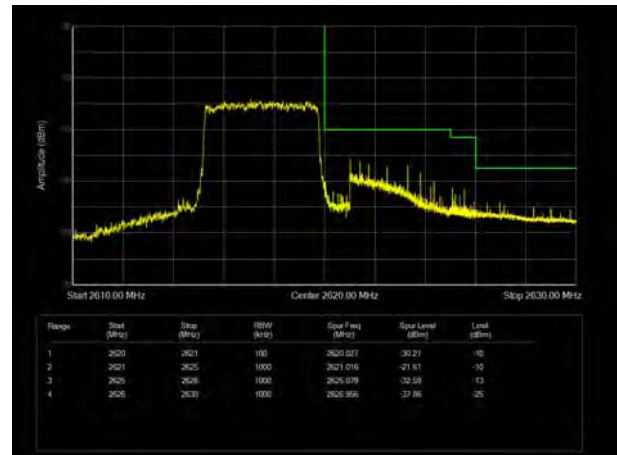




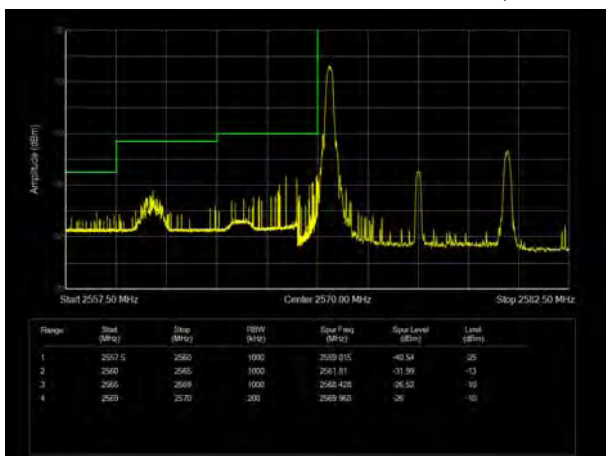
LTE Band 38 16QAM 5MHz CH-Low, 100%RB



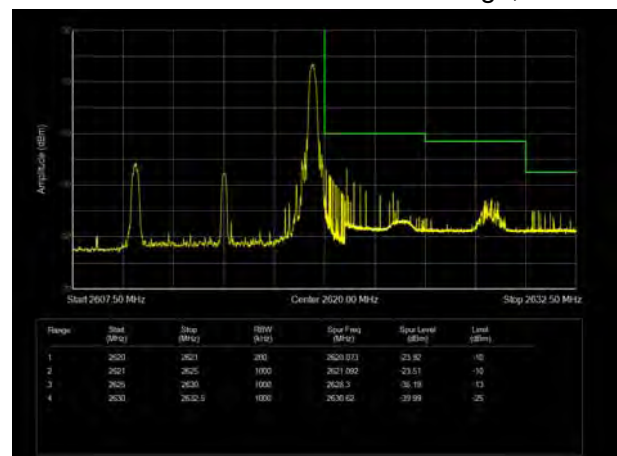
LTE Band 38 16QAM 5MHz CH-High, 100%RB



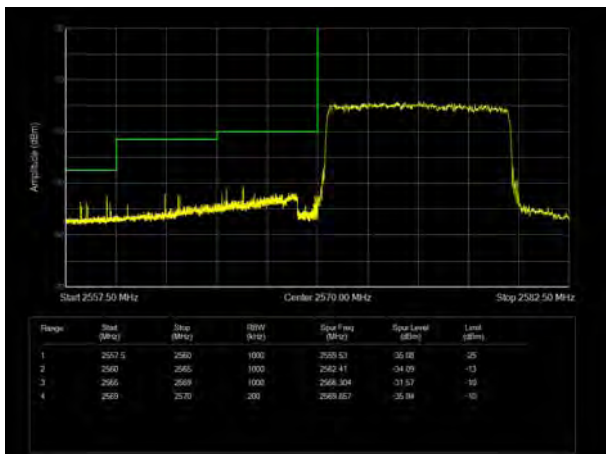
LTE Band 38 16QAM 10MHz CH-Low, 1 RB



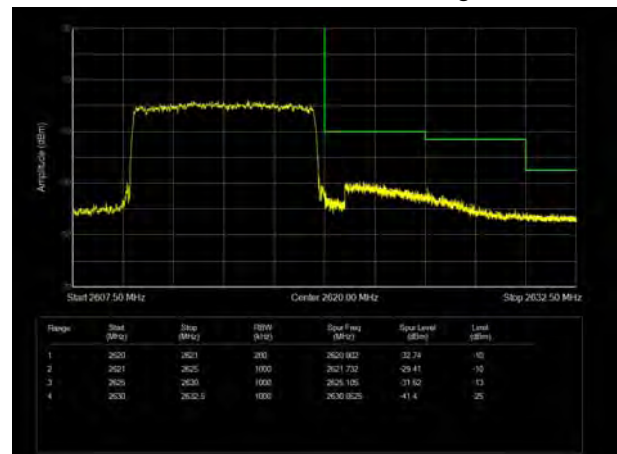
LTE Band 38 16QAM 10MHz CH-High, 1 RB



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



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



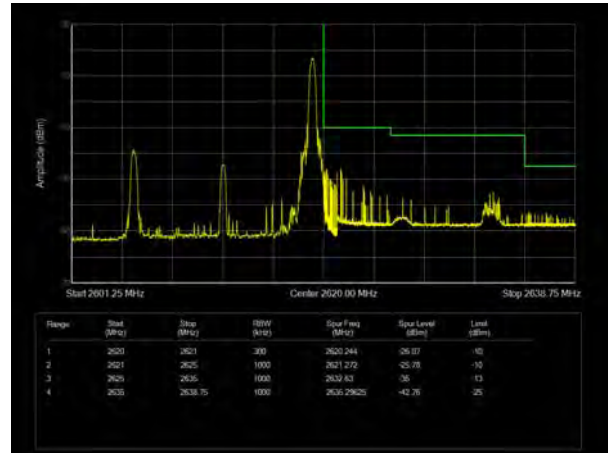




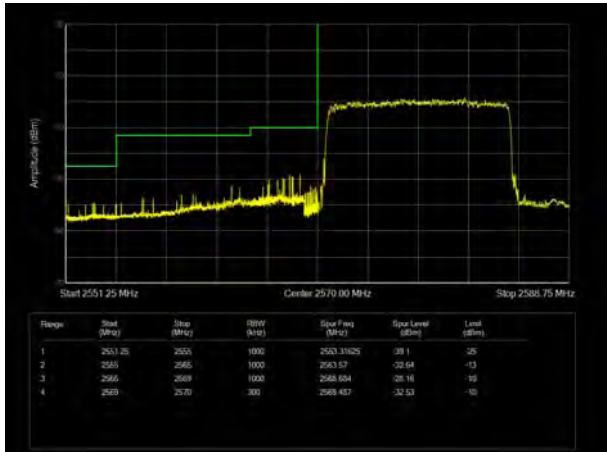
LTE Band 38 16QAM 15MHz CH-Low, 1 RB



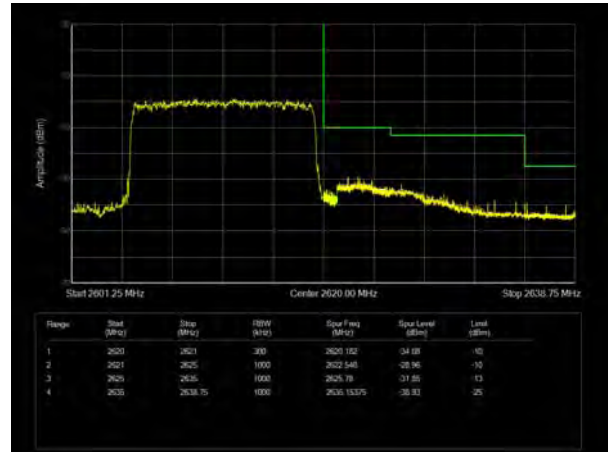
LTE Band 38 16QAM 15MHz CH-High, 1 RB



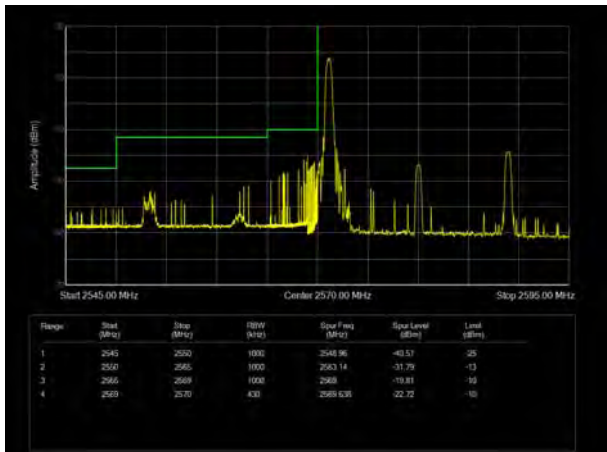
LTE Band 38 16QAM 15MHz CH-Low, 100%RB



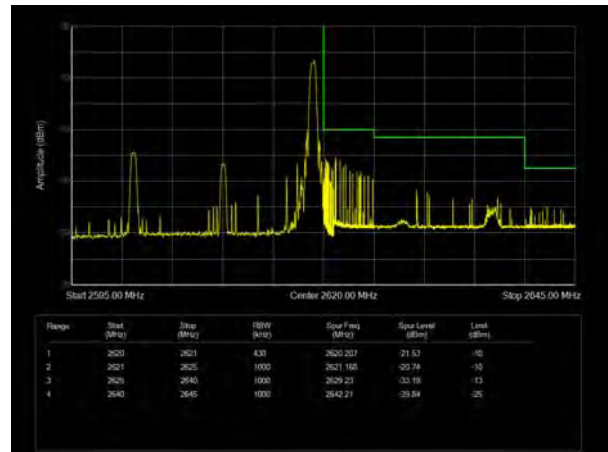
LTE Band 38 16QAM 15MHz CH-High, 100%RB



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

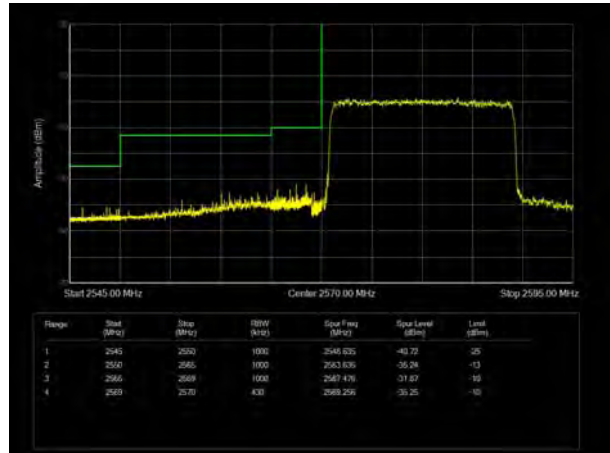


LTE Band 38 16QAM 20MHz CH-High, 1 RB

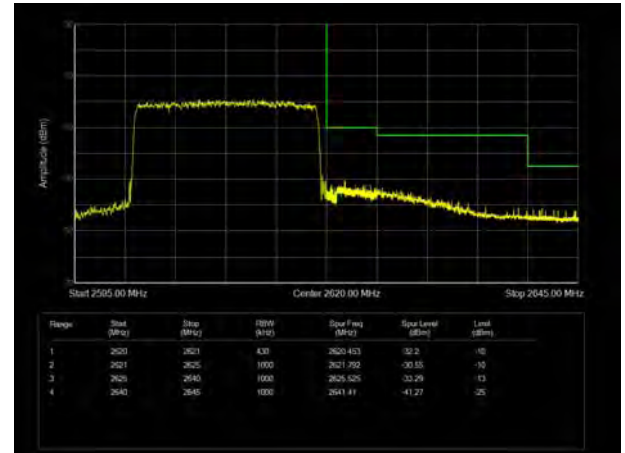




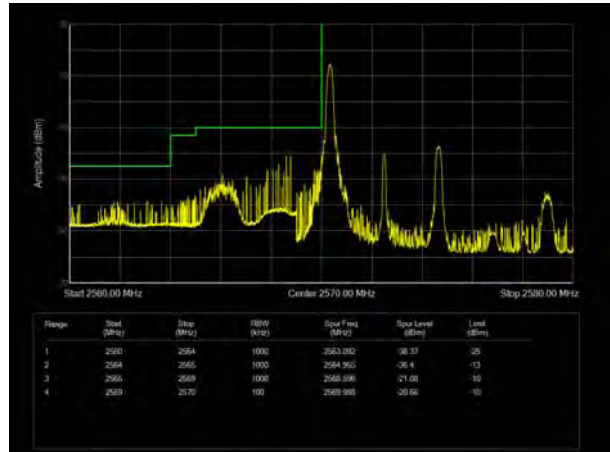
LTE Band 38 16QAM 20MHz CH-Low, 100%RB



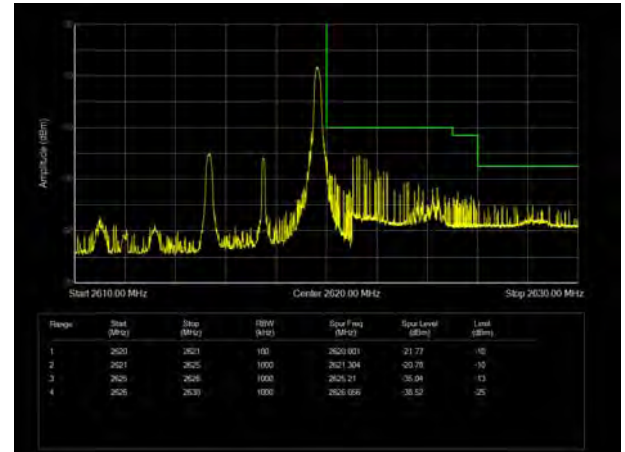
LTE Band 38 16QAM 20MHz CH-High, 100%RB



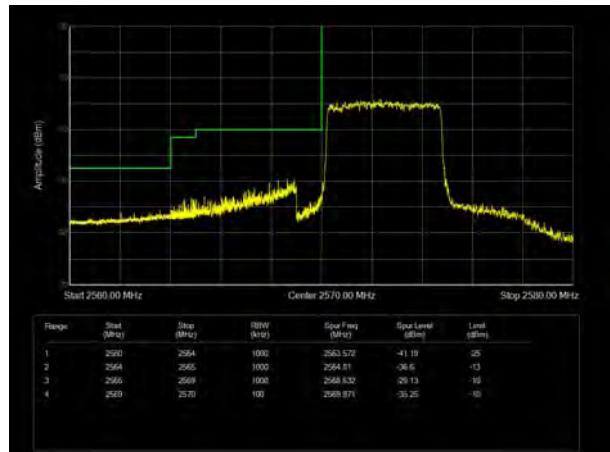
LTE Band 38 64QAM 5MHz CH-Low, 1 RB



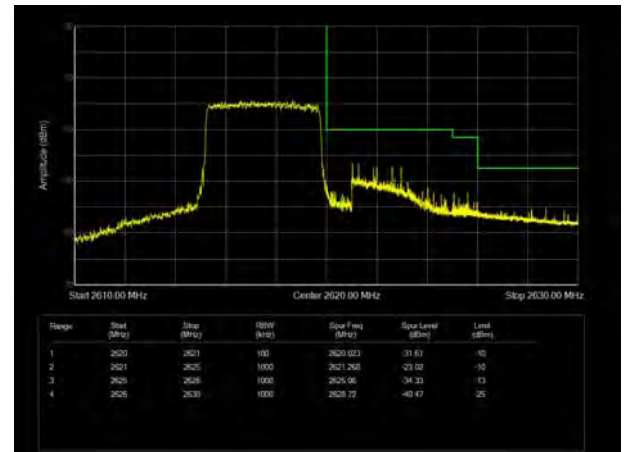
LTE Band 38 64QAM 5MHz CH-High, 1 RB



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

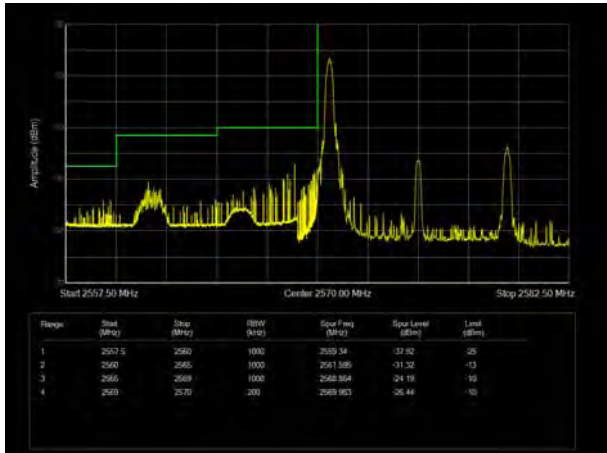


LTE Band 38 64QAM 5MHz CH-High, 100%RB

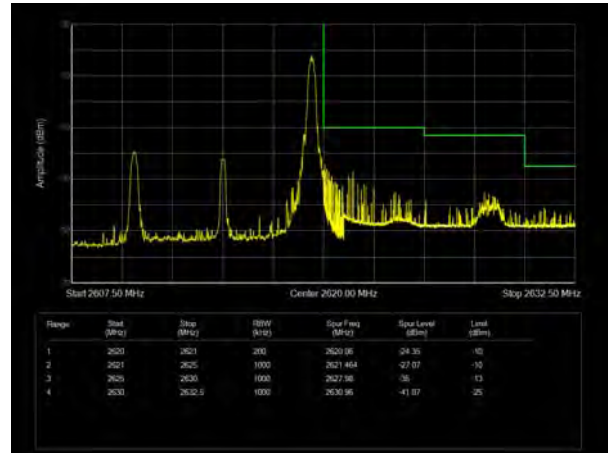




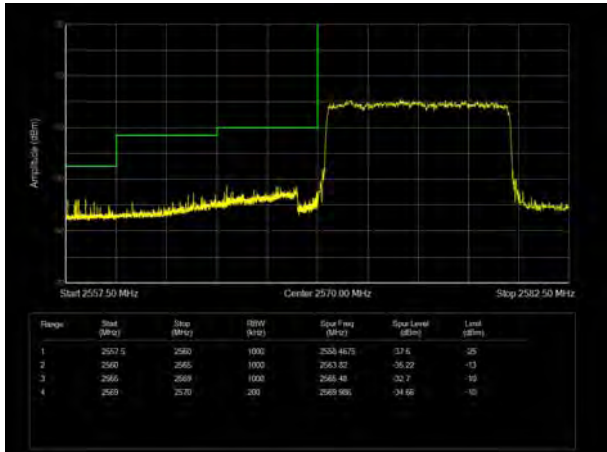
LTE Band 38 64QAM 10MHz CH-Low, 1 RB



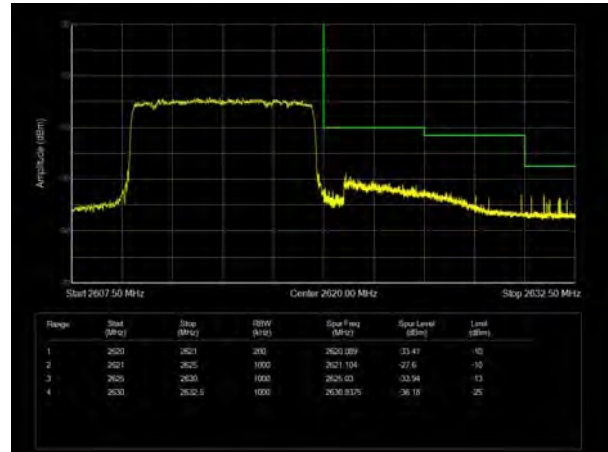
LTE Band 38 64QAM 10MHz CH-High, 1 RB



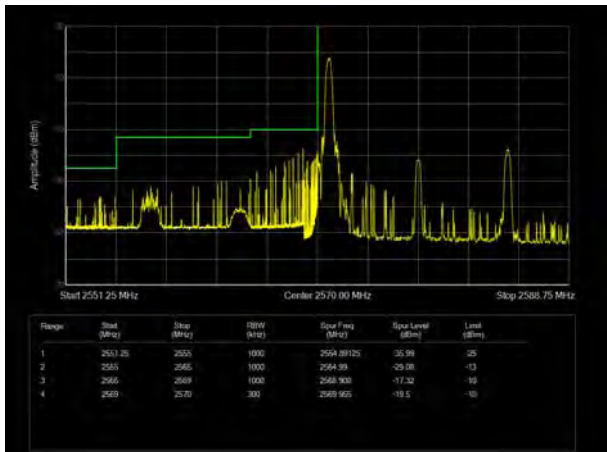
LTE Band 38 64QAM 10MHz CH-Low, 100%RB



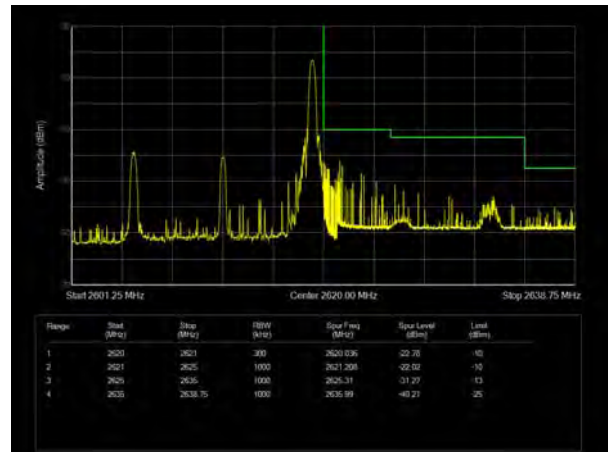
LTE Band 38 64QAM 10MHz CH-High, 100%RB



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



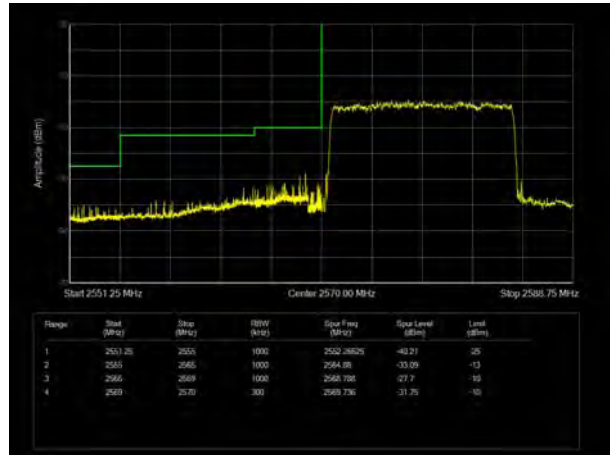
LTE Band 38 64QAM 15MHz CH-High, 1 RB



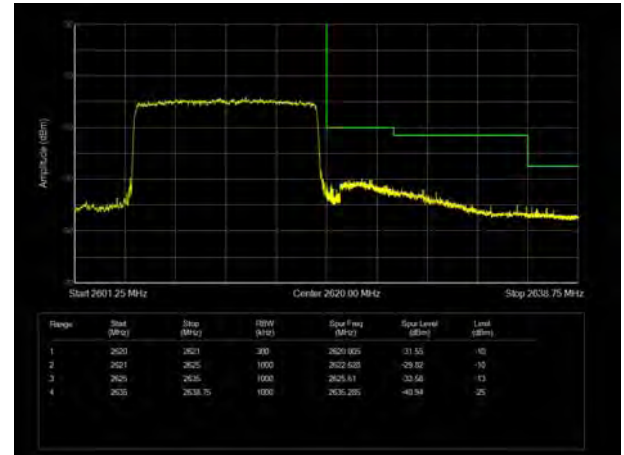




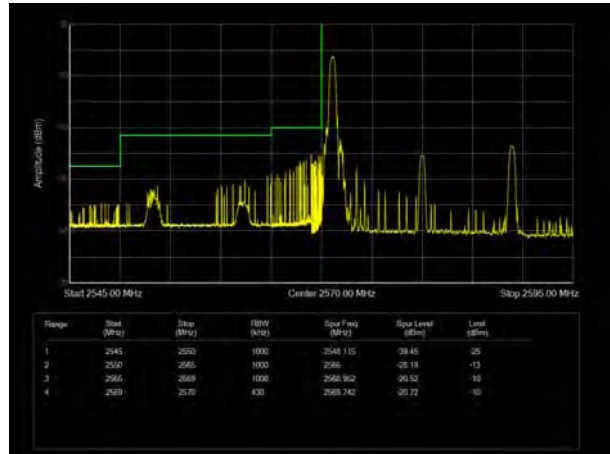
LTE Band 38 64QAM 15MHz CH-Low, 100%RB



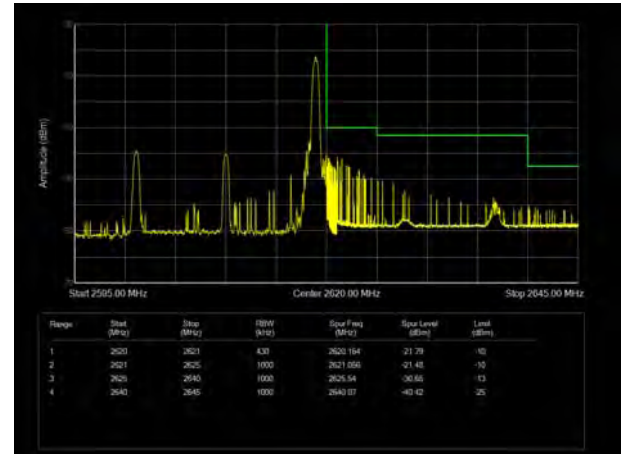
LTE Band 38 64QAM 15MHz CH-High, 100%RB



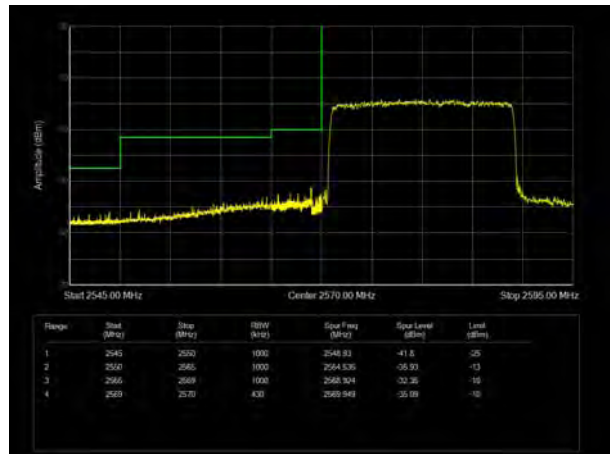
LTE Band 38 64QAM 20MHz CH-Low, 1 RB



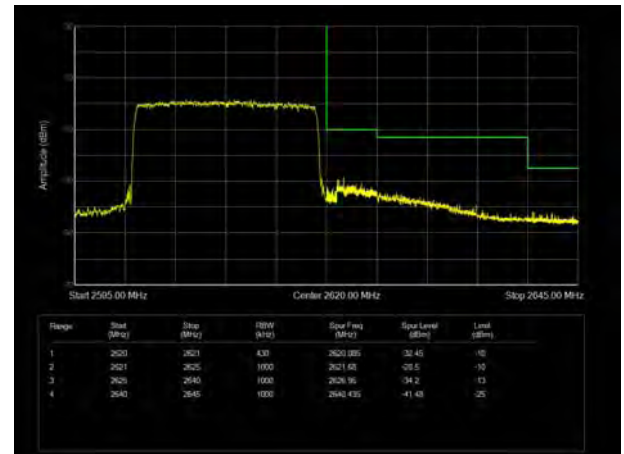
LTE Band 38 64QAM 20MHz CH-High, 1 RB



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

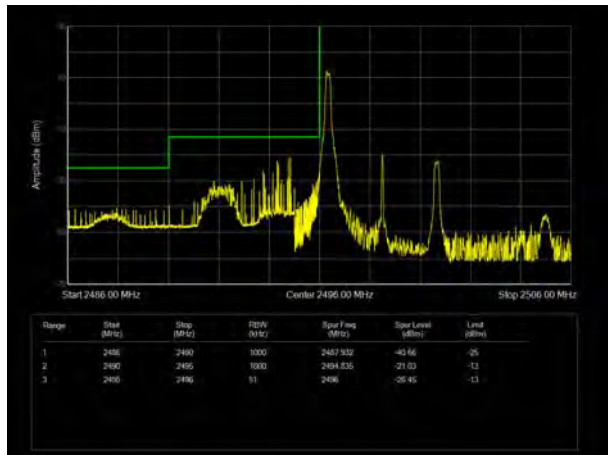


LTE Band 38 64QAM 20MHz CH-High, 100%RB

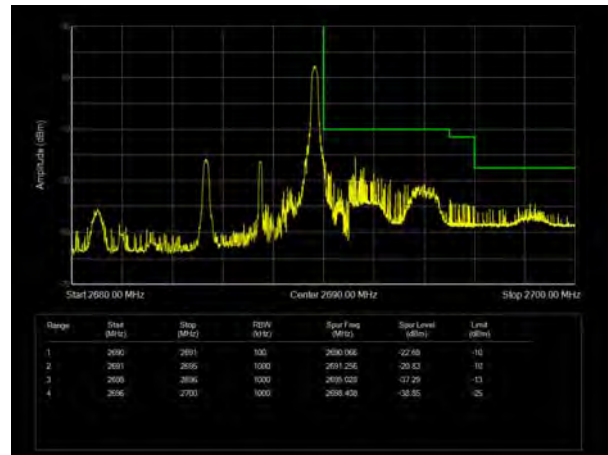




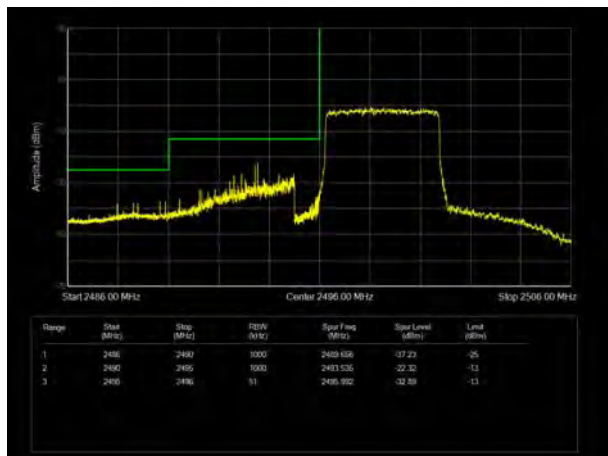
LTE Band 41 QPSK 5MHz CH-Low, 1 RB



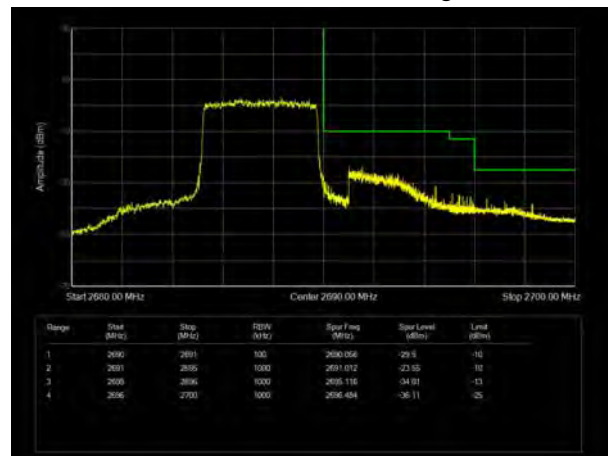
LTE Band 41 QPSK 5MHz CH-High, 1 RB



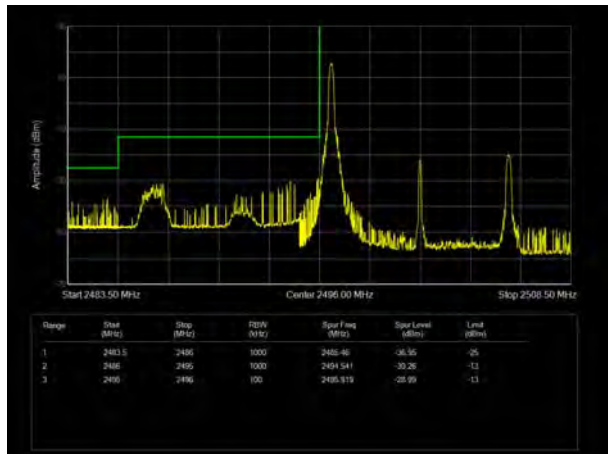
LTE Band 41 QPSK 5MHz CH-Low, 100%RB



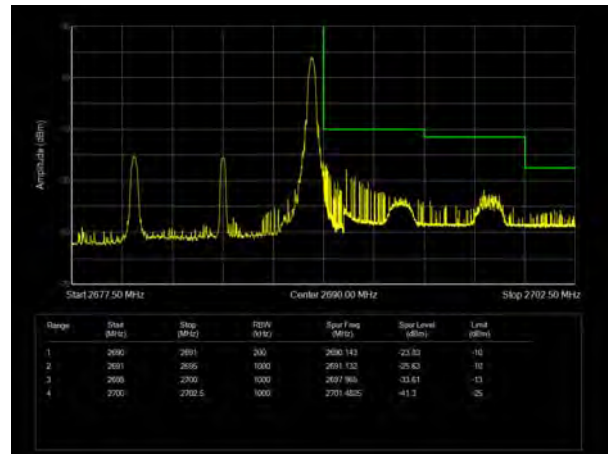
LTE Band 41 QPSK 5MHz CH-High, 100%RB



LTE Band 41 QPSK 10MHz CH-Low, 1 RB

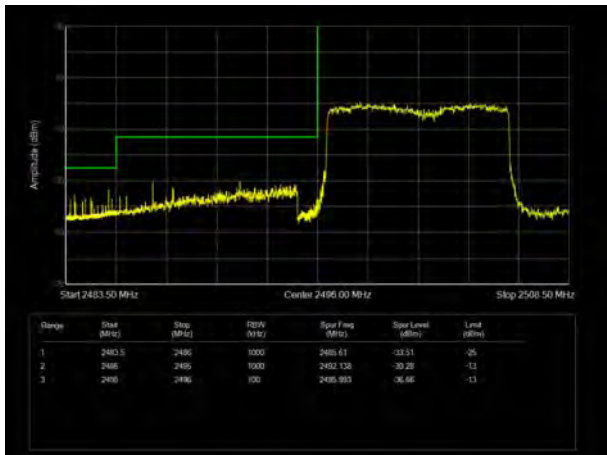


LTE Band 41 QPSK 10MHz CH-High, 1 RB

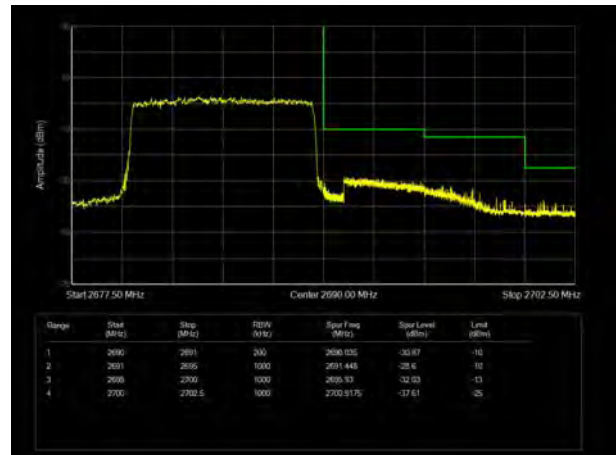




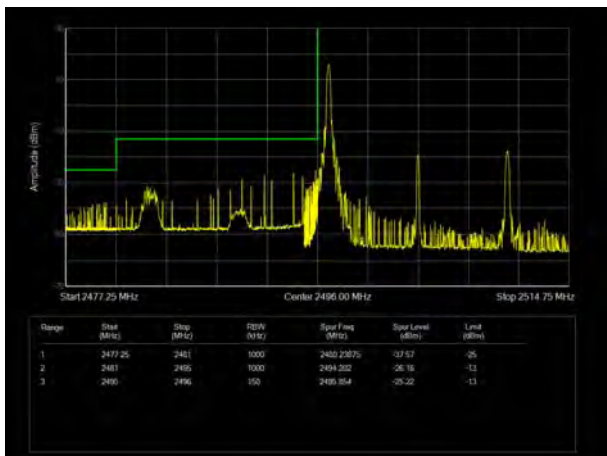
LTE Band 41 QPSK 10MHz CH-Low, 100%RB



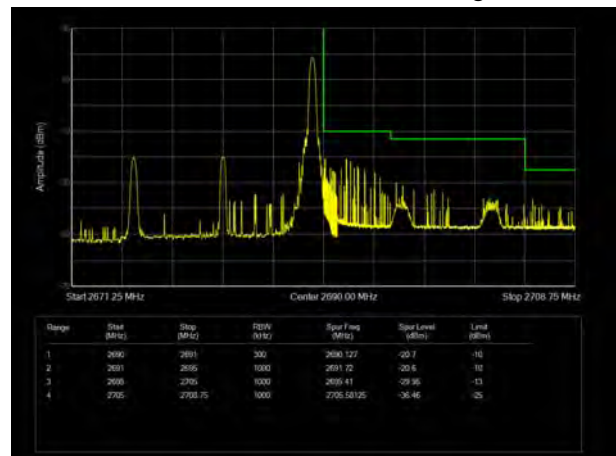
LTE Band 41 QPSK 10MHz CH-High, 100%RB



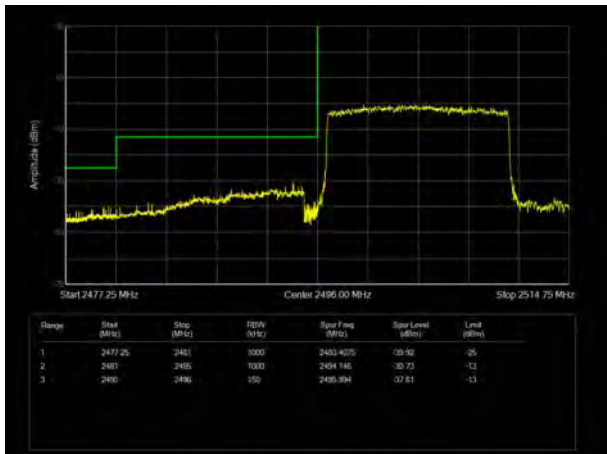
LTE Band 41 QPSK 15MHz CH-Low, 1 RB



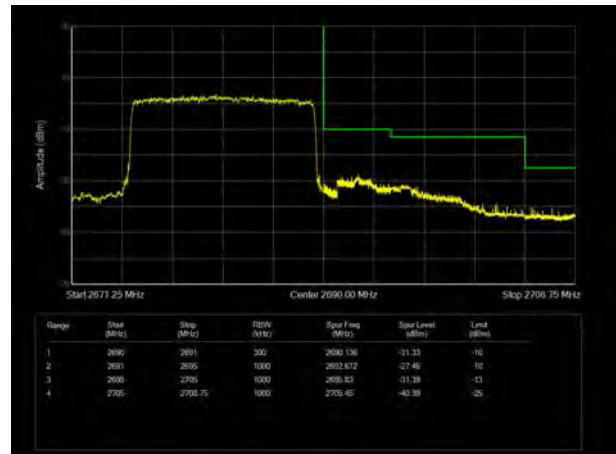
LTE Band 41 QPSK 15MHz CH-High, 1 RB



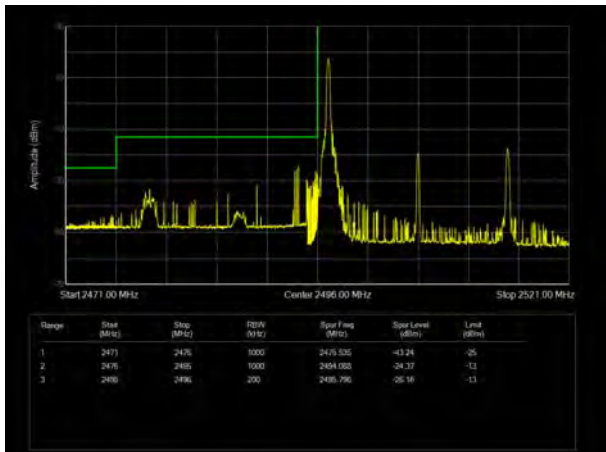
LTE Band 41 QPSK 15MHz CH-Low, 100%RB



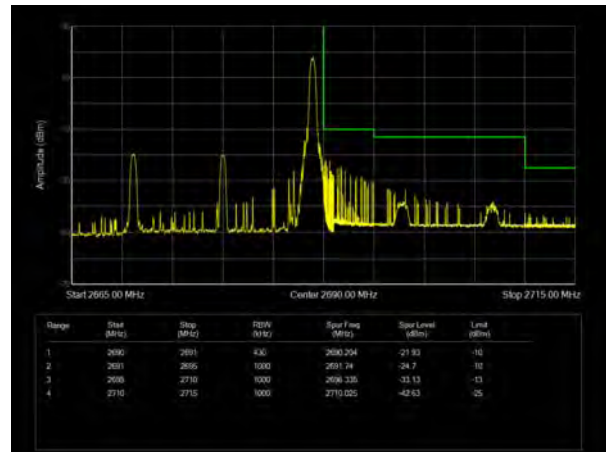
LTE Band 41 QPSK 15MHz CH-High, 100%RB



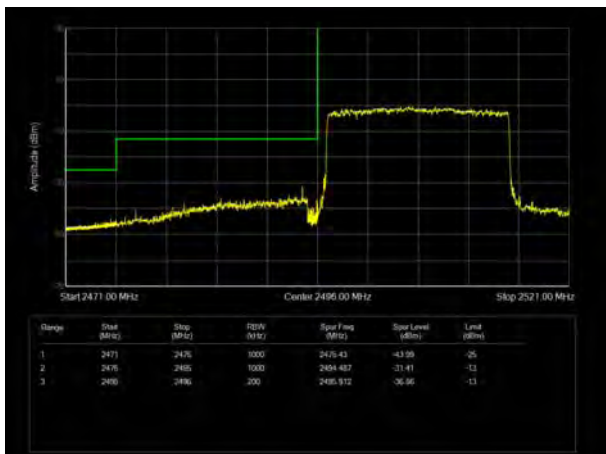
LTE Band 41 QPSK 20MHz CH-Low, 1 RB



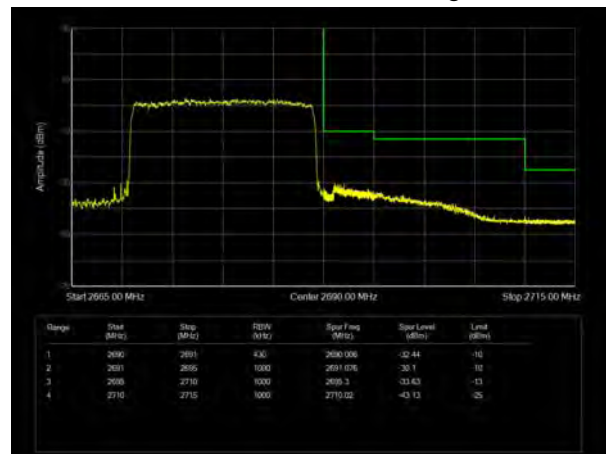
LTE Band 41 QPSK 20MHz CH-High, 1 RB



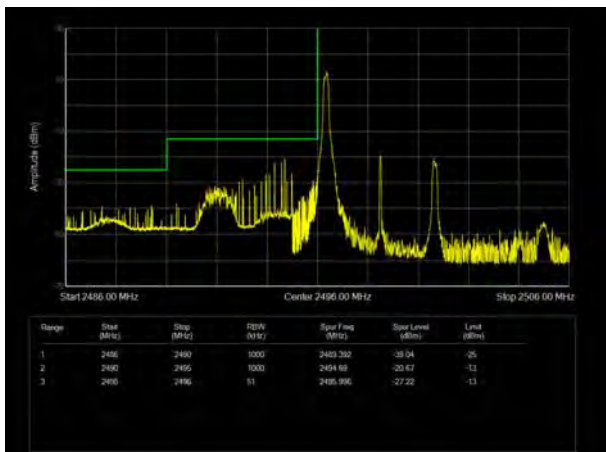
LTE Band 41 QPSK 20MHz CH-Low, 100%RB



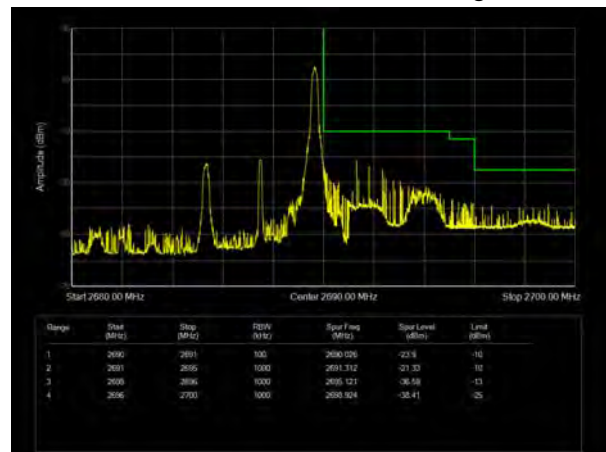
LTE Band 41 QPSK 20MHz CH-High, 100%RB



LTE Band 41 16QAM 5MHz CH-Low, 1 RB



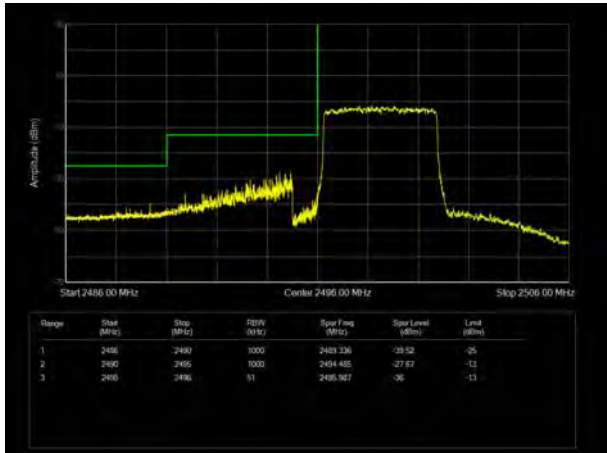
LTE Band 41 16QAM 5MHz CH-High, 1 RB



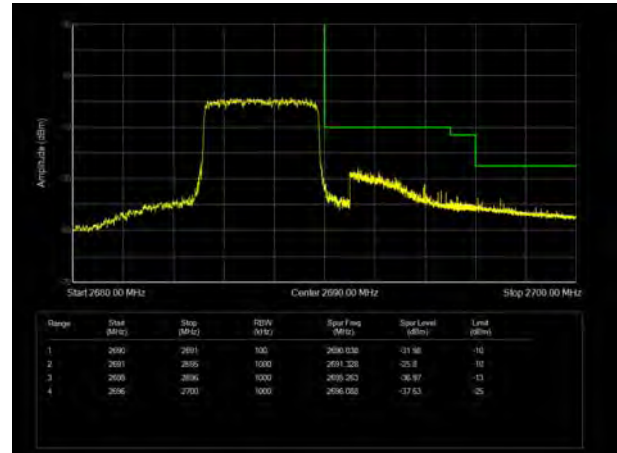




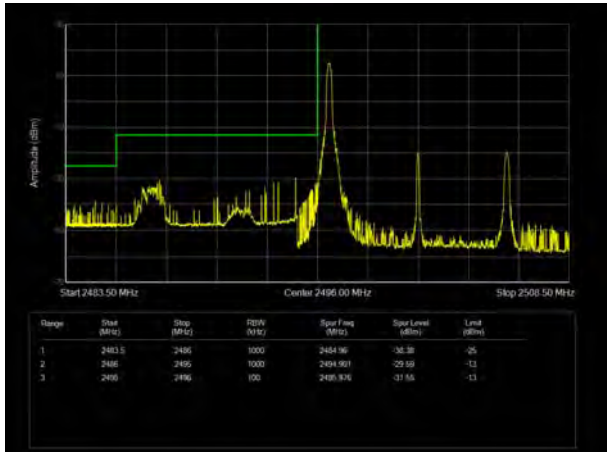
LTE Band 41 16QAM 5MHz CH-Low, 100%RB



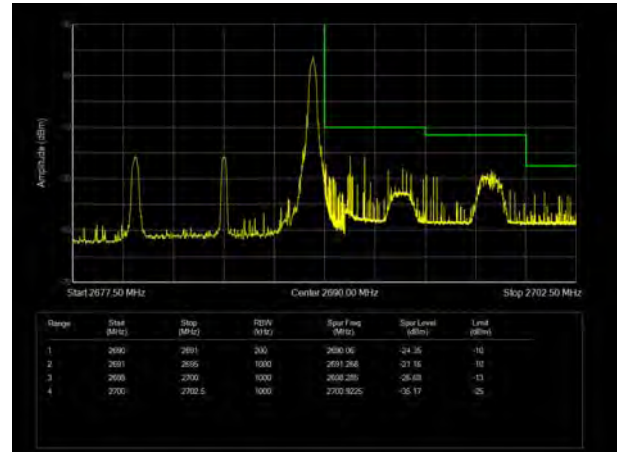
LTE Band 41 16QAM 5MHz CH-High, 100%RB



LTE Band 41 16QAM 10MHz CH-Low, 1 RB



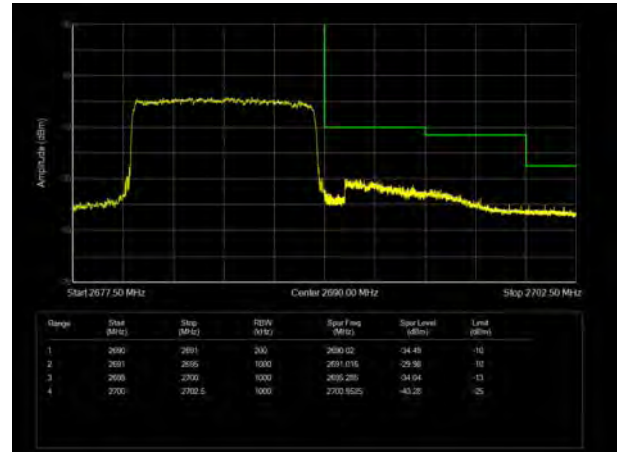
LTE Band 41 16QAM 10MHz CH-High, 1 RB



LTE Band 41 16QAM 10MHz CH-Low, 100%RB



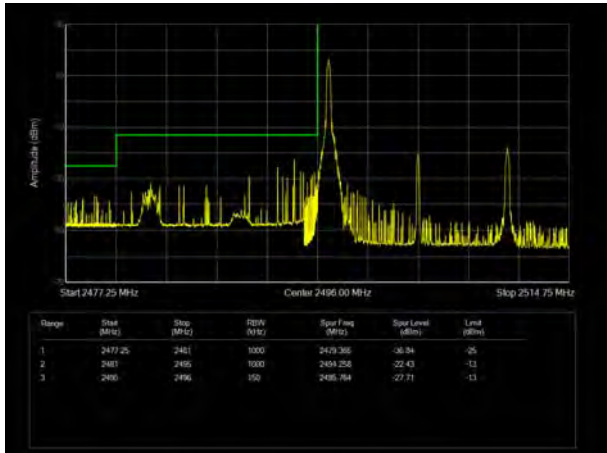
LTE Band 41 16QAM 10MHz CH-High, 100%RB



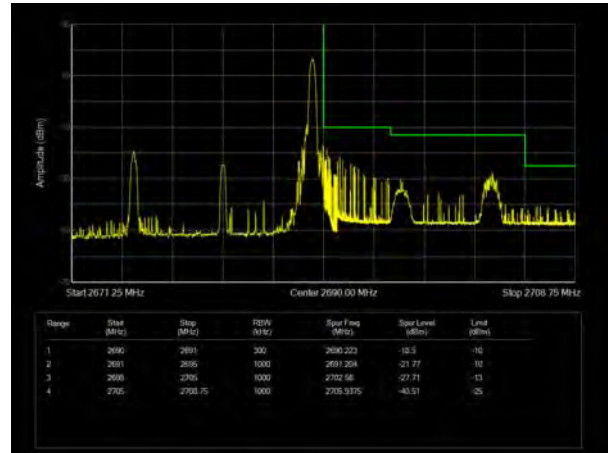




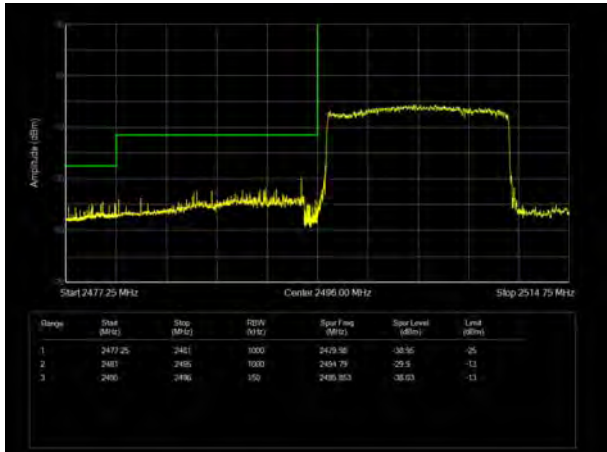
LTE Band 41 16QAM 15MHz CH-Low, 1 RB



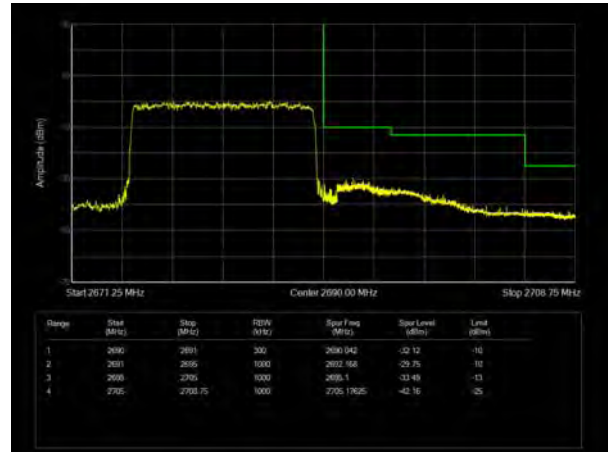
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LTE Band 41 16QAM 15MHz CH-Low, 100%RB



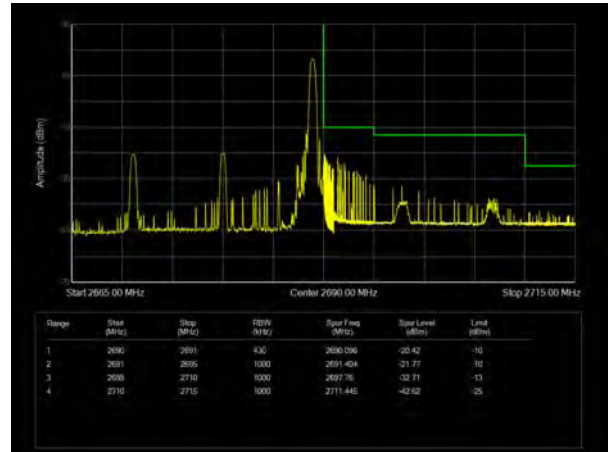
LTE Band 41 16QAM 15MHz CH-High, 100%RB



LTE Band 41 16QAM 20MHz CH-Low, RB 1

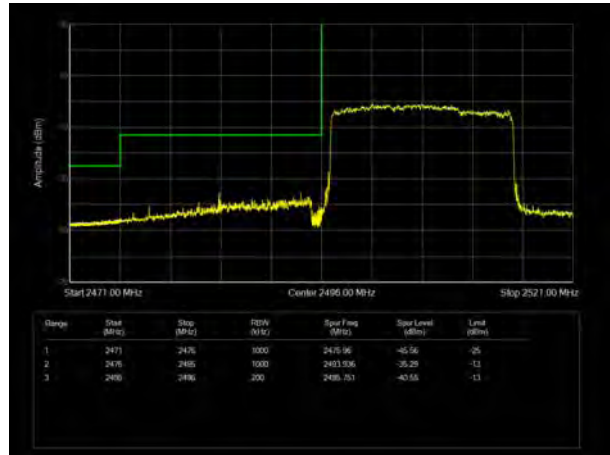


LTE Band 41 16QAM 20MHz CH-High, RB 1

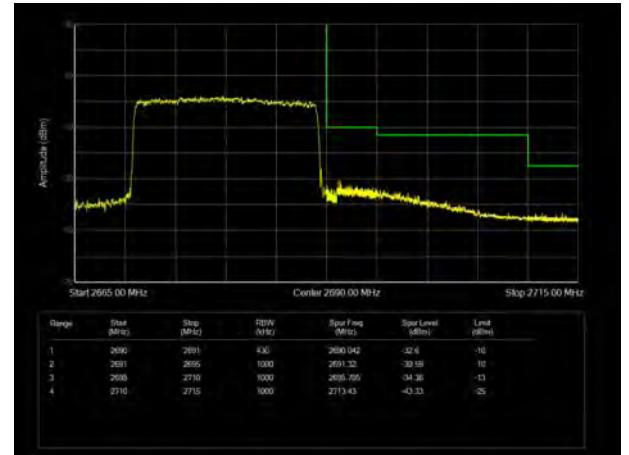




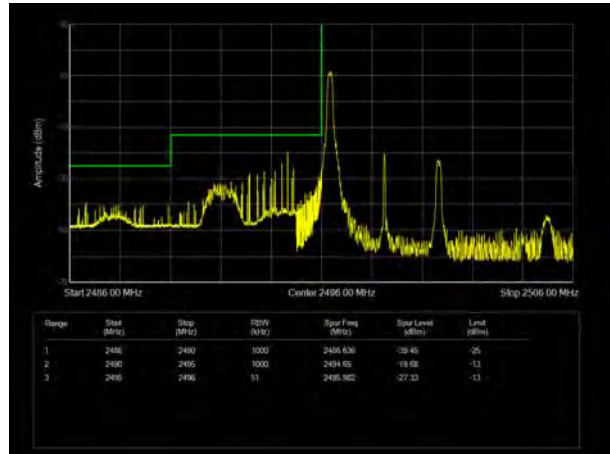
LTE Band 41 16QAM 20MHz CH-Low, 100%RB



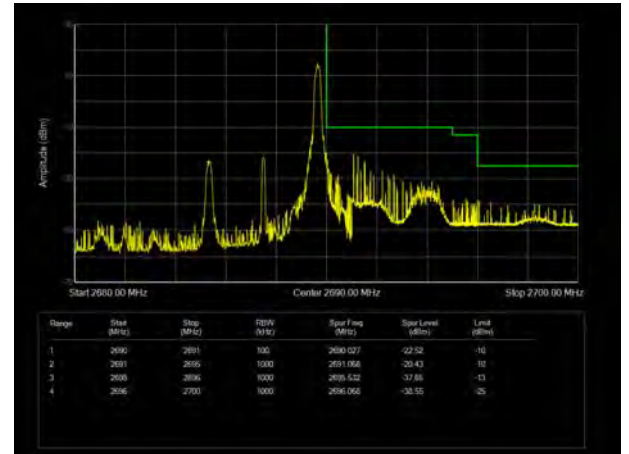
LTE Band 41 16QAM 20MHz CH-High, 100%RB



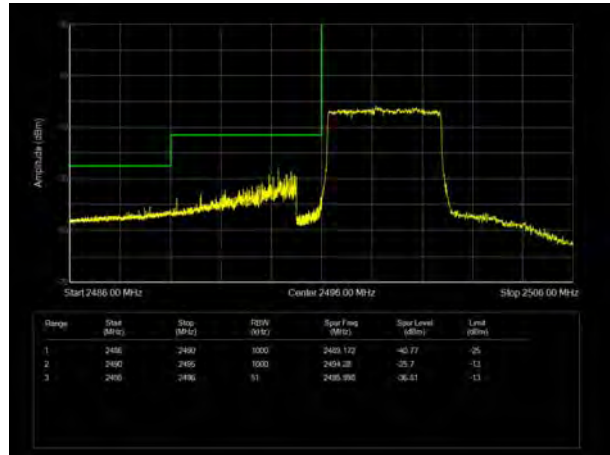
LTE Band 41 64QAM 5MHz CH-Low, 1 RB



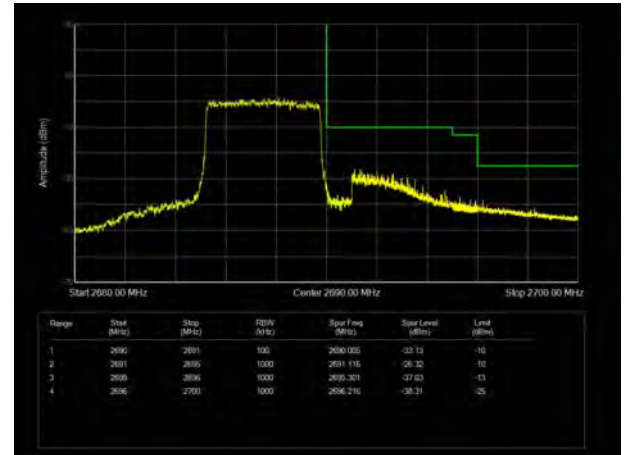
LTE Band 41 64QAM 5MHz CH-High, 1 RB



LTE Band 41 64QAM 5MHz CH-Low, 100%RB

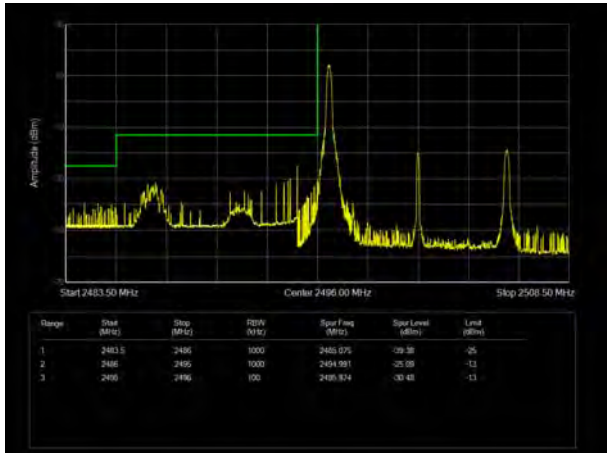


LTE Band 41 64QAM 5MHz CH-High, 100%RB

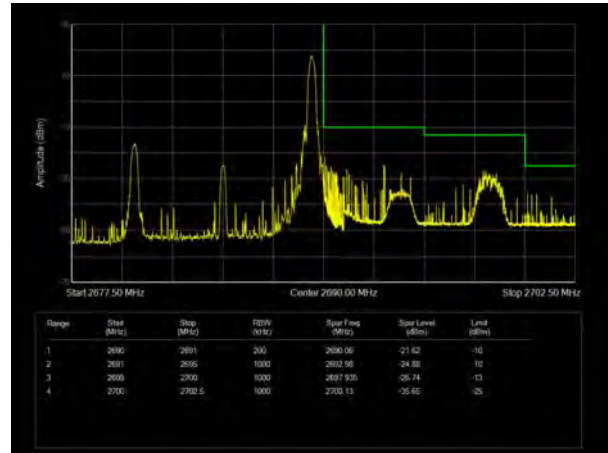




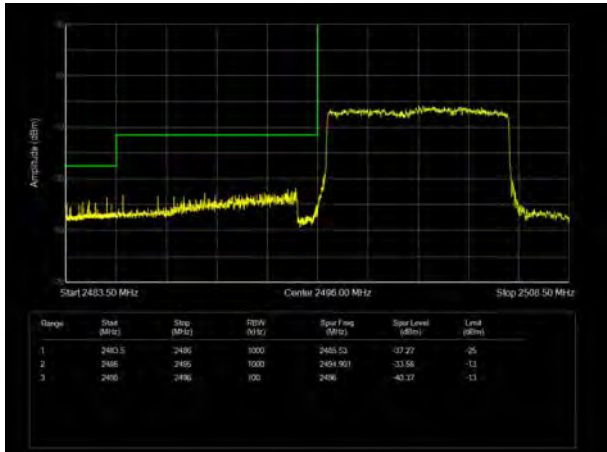
LTE Band 41 64QAM 10MHz CH-Low, 1 RB



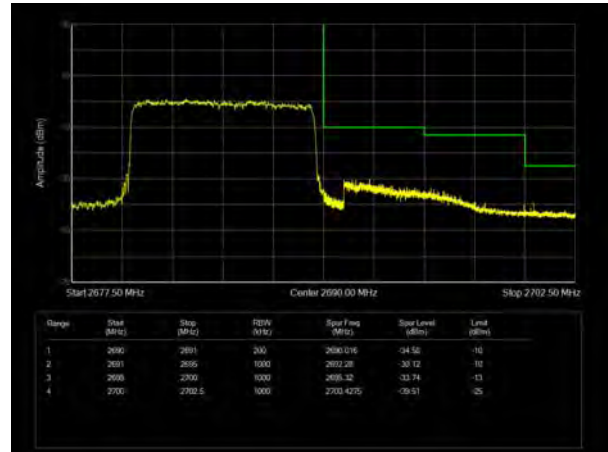
LTE Band 41 64QAM 10MHz CH-High, 1 RB



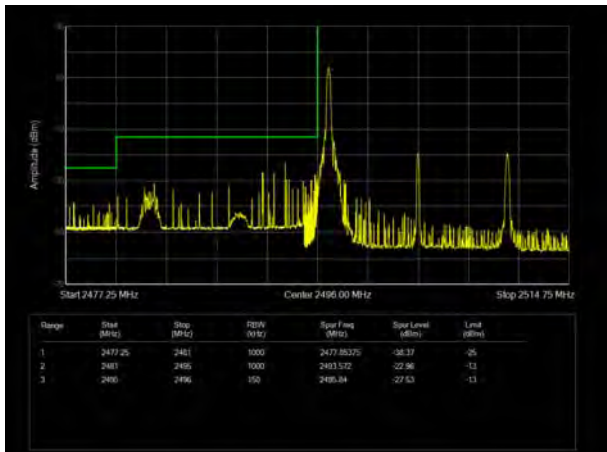
LTE Band 41 64QAM 10MHz CH-Low, 100%RB



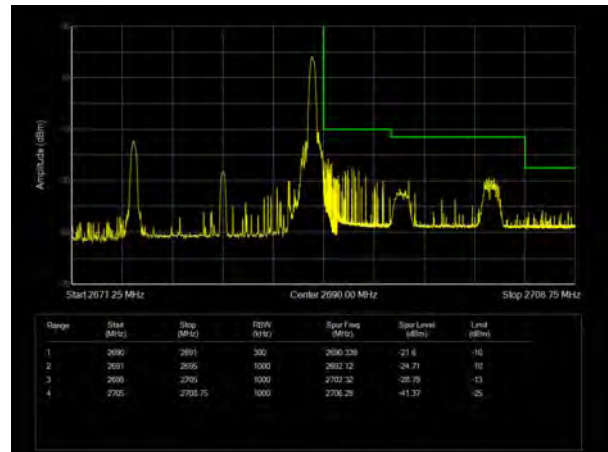
LTE Band 41 64QAM 10MHz CH-High, 100%RB



LTE Band 41 64QAM 15MHz CH-Low, 1 RB



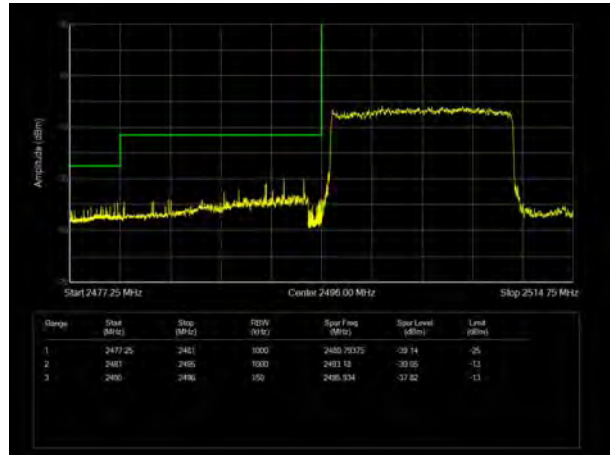
LTE Band 41 64QAM 15MHz CH-High, 1 RB



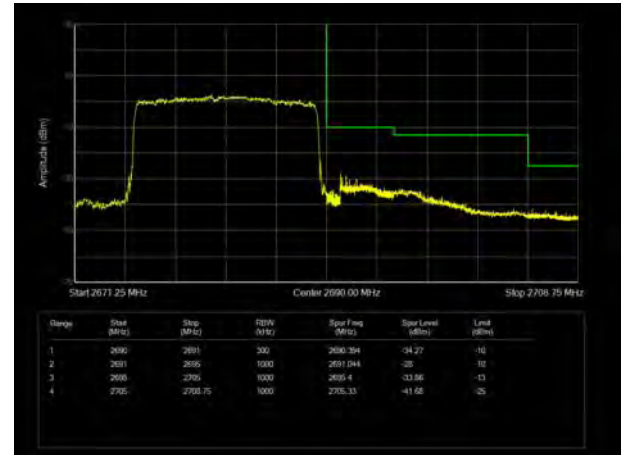




LTE Band 41 64QAM 15MHz CH-Low, 100%RB



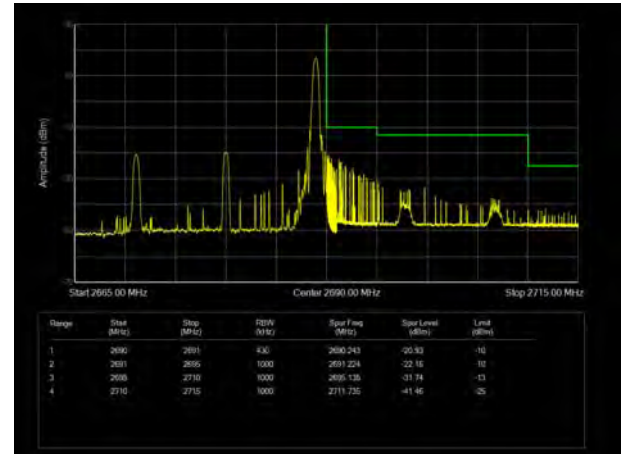
LTE Band 41 64QAM 15MHz CH-High, 100%RB



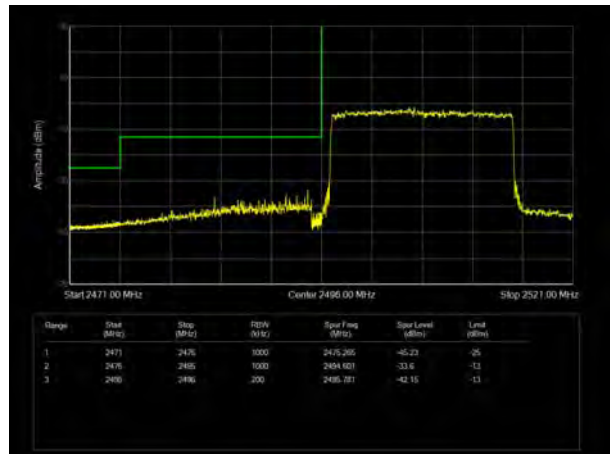
LTE Band 41 64QAM 20MHz CH-Low, 1 RB



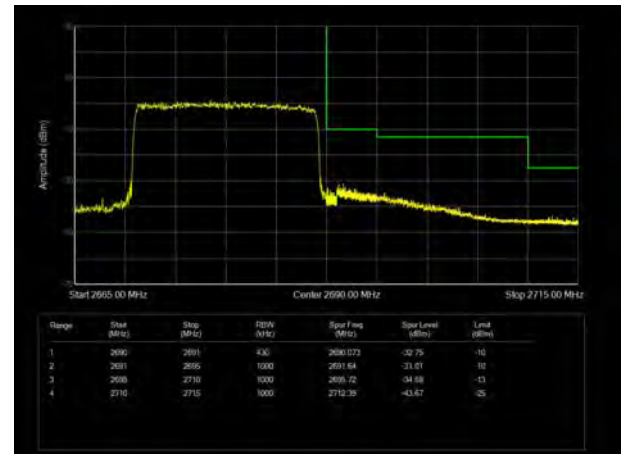
LTE Band 41 64QAM 20MHz CH-High, 1 RB



LTE Band 41 64QAM 20MHz CH-Low, 100%RB



LTE Band 41 64QAM 20MHz CH-High, 100%RB





### 5.4 Peak-to-Average Power Ratio (PAPR)

#### Ambient condition

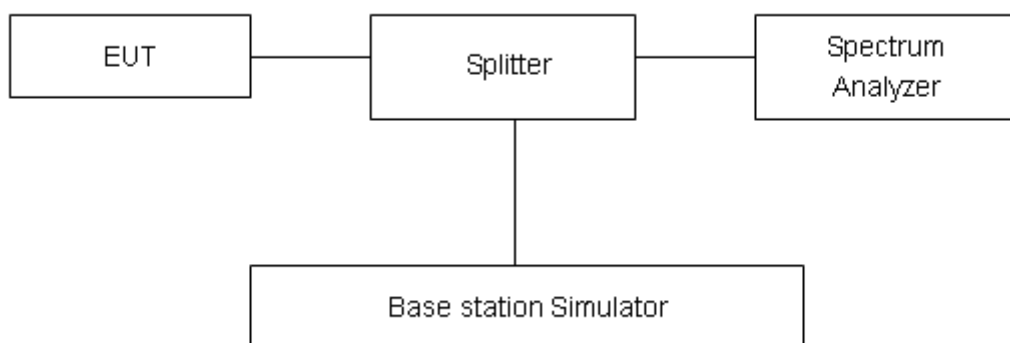
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

#### 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

WCDMA Band IV	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
RMC	1312	1712.4	25.59	22.55	3.04	≤13	PASS
	1413	1732.6	25.24	22.55	2.69	≤13	PASS
	1513	1752.6	25.51	22.44	3.07	≤13	PASS

LTE Band 4								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	19957	1710.7	27.50	22.20	5.30	≤13	PASS
		20175	1732.5	26.73	22.15	4.58	≤13	PASS
		20393	1754.3	27.57	22.21	5.36	≤13	PASS
	3	19965	1711.5	27.56	22.21	5.35	≤13	PASS
		20175	1732.5	26.77	22.17	4.60	≤13	PASS
		20385	1753.5	27.53	22.12	5.41	≤13	PASS
	5	19975	1712.5	27.54	22.16	5.38	≤13	PASS
		20175	1732.5	26.78	22.19	4.59	≤13	PASS
		20375	1752.5	27.56	22.20	5.36	≤13	PASS
	10	20000	1715	27.43	22.21	5.22	≤13	PASS
		20175	1732.5	26.76	22.21	4.55	≤13	PASS
		20350	1750	27.49	22.22	5.27	≤13	PASS
	15	20025	1717.5	27.58	22.15	5.43	≤13	PASS
		20175	1732.5	27.17	22.18	4.99	≤13	PASS
		20325	1747.5	27.68	22.17	5.51	≤13	PASS
20	20050	1720	27.47	22.33	5.14	≤13	PASS	
	20175	1732.5	27.20	22.27	4.93	≤13	PASS	
	20300	1745	27.49	22.25	5.24	≤13	PASS	
16QAM	1.4	19957	1710.7	27.26	21.07	6.19	≤13	PASS
		20175	1732.5	26.62	21.22	5.40	≤13	PASS
		20393	1754.3	27.42	21.14	6.28	≤13	PASS
	3	19965	1711.5	27.33	21.09	6.24	≤13	PASS
		20175	1732.5	26.64	21.15	5.49	≤13	PASS
		20385	1753.5	27.35	21.11	6.24	≤13	PASS
	5	19975	1712.5	27.33	21.23	6.10	≤13	PASS
		20175	1732.5	26.69	21.31	5.38	≤13	PASS
		20375	1752.5	27.32	21.09	6.23	≤13	PASS
	10	20000	1715	27.16	21.08	6.08	≤13	PASS
		20175	1732.5	26.57	21.04	5.53	≤13	PASS
		20350	1750	27.21	21.10	6.11	≤13	PASS



	15	20025	1717.5	27.20	21.20	6.00	≤13	PASS
		20175	1732.5	26.84	21.19	5.65	≤13	PASS
		20325	1747.5	27.32	21.22	6.10	≤13	PASS
	20	20050	1720	27.28	21.38	5.90	≤13	PASS
		20175	1732.5	26.96	21.23	5.73	≤13	PASS
		20300	1745	27.37	21.30	6.07	≤13	PASS
64QAM	1.4	19957	1710.7	26.31	20.06	6.25	≤13	PASS
		20175	1732.5	25.64	20.23	5.41	≤13	PASS
		20393	1754.3	26.43	20.11	6.32	≤13	PASS
	3	19965	1711.5	26.27	19.87	6.40	≤13	PASS
		20175	1732.5	25.65	20.14	5.51	≤13	PASS
		20385	1753.5	26.38	20.06	6.32	≤13	PASS
	5	19975	1712.5	26.27	19.98	6.29	≤13	PASS
		20175	1732.5	25.60	20.08	5.52	≤13	PASS
		20375	1752.5	26.37	20.17	6.20	≤13	PASS
	10	20000	1715	26.30	20.20	6.10	≤13	PASS
		20175	1732.5	25.49	19.87	5.62	≤13	PASS
		20350	1750	26.13	19.95	6.18	≤13	PASS
	15	20025	1717.5	26.23	20.15	6.08	≤13	PASS
		20175	1732.5	25.74	20.01	5.73	≤13	PASS
		20325	1747.5	26.28	20.16	6.12	≤13	PASS
	20	20050	1720	26.22	20.25	5.97	≤13	PASS
		20175	1732.5	25.90	20.15	5.75	≤13	PASS
		20300	1745	26.39	20.34	6.05	≤13	PASS

LTE Band 7								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	20775	2502.5	26.99	21.59	5.40	≤13	PASS
		21100	2535	26.12	21.44	4.68	≤13	PASS
		21425	2567.5	26.56	21.45	5.11	≤13	PASS
	10	20800	2505	27.19	21.58	5.61	≤13	PASS
		21100	2535	26.26	21.55	4.71	≤13	PASS
		21400	2565	26.71	21.51	5.20	≤13	PASS
	15	20825	2507.5	27.56	21.59	5.97	≤13	PASS
		21100	2535	26.61	21.44	5.17	≤13	PASS
		21375	2562.5	27.13	21.51	5.62	≤13	PASS
	20	20850	2510	27.25	21.54	5.71	≤13	PASS



16QAM		21100	2535	26.65	21.55	5.10	≤13	PASS
		21350	2560	26.99	21.44	5.55	≤13	PASS
	5	20775	2502.5	26.81	20.53	6.28	≤13	PASS
		21100	2535	26.05	20.60	5.45	≤13	PASS
		21425	2567.5	26.39	20.24	6.15	≤13	PASS
	10	20800	2505	27.01	20.52	6.49	≤13	PASS
		21100	2535	26.12	20.43	5.69	≤13	PASS
		21400	2565	26.59	20.44	6.15	≤13	PASS
	15	20825	2507.5	27.16	20.54	6.62	≤13	PASS
		21100	2535	26.36	20.46	5.90	≤13	PASS
		21375	2562.5	26.80	20.45	6.35	≤13	PASS
	20	20850	2510	27.14	20.55	6.59	≤13	PASS
21100		2535	26.44	20.45	5.99	≤13	PASS	
21350		2560	26.85	20.49	6.36	≤13	PASS	
64QAM	5	20775	2502.5	25.47	19.29	6.18	≤13	PASS
		21100	2535	24.69	19.11	5.58	≤13	PASS
		21425	2567.5	24.92	19.00	5.92	≤13	PASS
	10	20800	2505	25.68	19.23	6.45	≤13	PASS
		21100	2535	24.84	19.23	5.61	≤13	PASS
		21400	2565	25.08	18.96	6.12	≤13	PASS
	15	20825	2507.5	25.85	19.21	6.64	≤13	PASS
		21100	2535	25.09	19.22	5.87	≤13	PASS
		21375	2562.5	25.35	19.07	6.28	≤13	PASS
	20	20850	2510	25.79	19.19	6.60	≤13	PASS
		21100	2535	25.22	19.35	5.87	≤13	PASS
		21350	2560	25.51	19.17	6.34	≤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	26.75	16.42	10.33	≤13	PASS
		38000	2595	26.83	17.30	9.53	≤13	PASS
		38225	2617.5	26.78	17.30	9.48	≤13	PASS
	10	37800	2575	26.93	17.24	9.69	≤13	PASS
		38000	2595	26.80	17.47	9.33	≤13	PASS





	15	38200	2615	26.83	18.07	8.76	≤13	PASS
		37825	2577.5	27.31	18.77	8.54	≤13	PASS
		38000	2595	27.13	17.34	9.79	≤13	PASS
	20	38175	2612.5	27.10	17.08	10.02	≤13	PASS
		37850	2580	26.99	17.40	9.59	≤13	PASS
		38000	2595	26.95	18.26	8.69	≤13	PASS
16QAM	5	38150	2610	26.90	17.56	9.34	≤13	PASS
		37775	2572.5	26.43	15.44	10.99	≤13	PASS
		38000	2595	26.29	14.59	11.70	≤13	PASS
	10	38225	2617.5	26.45	16.63	9.82	≤13	PASS
		37800	2575	26.42	15.30	11.12	≤13	PASS
		38000	2595	26.35	14.46	11.89	≤13	PASS
	15	38200	2615	26.44	14.80	11.64	≤13	PASS
		37825	2577.5	26.73	16.57	10.16	≤13	PASS
		38000	2595	26.60	15.00	11.60	≤13	PASS
	20	38175	2612.5	26.55	15.28	11.27	≤13	PASS
		37850	2580	26.58	15.50	11.08	≤13	PASS
		38000	2595	26.35	15.57	10.78	≤13	PASS
64QAM	5	38150	2610	26.52	16.70	9.82	≤13	PASS
		37775	2572.5	25.38	15.90	9.48	≤13	PASS
		38000	2595	25.42	15.73	9.69	≤13	PASS
	10	38225	2617.5	25.53	17.46	8.07	≤13	PASS
		37800	2575	25.51	16.26	9.25	≤13	PASS
		38000	2595	25.57	16.26	9.31	≤13	PASS
	15	38200	2615	25.21	14.06	11.15	≤13	PASS
		37825	2577.5	25.77	16.26	9.51	≤13	PASS
		38000	2595	25.71	16.40	9.31	≤13	PASS
	20	38175	2612.5	25.69	16.37	9.32	≤13	PASS
		37850	2580	25.69	16.66	9.03	≤13	PASS
		38000	2595	25.53	16.54	8.99	≤13	PASS
		38150	2610	25.74	16.81	8.93	≤13	PASS



LTE Band 41								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	39675	2498.5	25.79	17.57	8.22	≤13	PASS
		40620	2593	26.11	17.85	8.26	≤13	PASS
		41565	2687.5	25.75	18.18	7.57	≤13	PASS
	10	39700	2501	25.79	16.47	9.32	≤13	PASS
		40620	2593	26.03	17.19	8.84	≤13	PASS
		41540	2685	25.71	16.80	8.91	≤13	PASS
	15	39725	2503.5	26.07	16.82	9.25	≤13	PASS
		40620	2593	26.17	15.60	10.57	≤13	PASS
		41515	2682.5	26.08	17.92	8.16	≤13	PASS
	20	39750	2506	25.63	15.42	10.21	≤13	PASS
		40620	2593	26.12	17.52	8.60	≤13	PASS
		41490	2680	26.03	18.31	7.72	≤13	PASS
16QAM	5	39675	2498.5	25.30	15.64	9.66	≤13	PASS
		40620	2593	25.92	16.28	9.64	≤13	PASS
		41565	2687.5	25.31	15.02	10.29	≤13	PASS
	10	39700	2501	25.67	16.38	9.29	≤13	PASS
		40620	2593	25.53	14.43	11.10	≤13	PASS
		41540	2685	25.42	15.96	9.46	≤13	PASS
	15	39725	2503.5	25.66	16.27	9.39	≤13	PASS
		40620	2593	25.88	16.09	9.79	≤13	PASS
		41515	2682.5	25.66	15.64	10.02	≤13	PASS
	20	39750	2506	25.55	15.81	9.74	≤13	PASS
		40620	2593	25.46	13.41	12.05	≤13	PASS
		41490	2680	25.42	14.67	10.75	≤13	PASS
64QAM	5	39675	2498.5	25.83	15.25	10.58	≤13	PASS
		40620	2593	25.18	15.64	9.54	≤13	PASS
		41565	2687.5	24.92	15.58	9.34	≤13	PASS
	10	39700	2501	25.06	15.23	9.83	≤13	PASS
		40620	2593	25.26	15.61	9.65	≤13	PASS
		41540	2685	25.09	15.66	9.43	≤13	PASS
	15	39725	2503.5	25.26	15.28	9.98	≤13	PASS



		40620	2593	25.39	15.50	9.89	≤13	PASS
		41515	2682.5	25.09	14.95	10.14	≤13	PASS
	20	39750	2506	25.20	16.51	8.69	≤13	PASS
		40620	2593	25.14	15.08	10.06	≤13	PASS
		41490	2680	25.11	15.91	9.20	≤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.

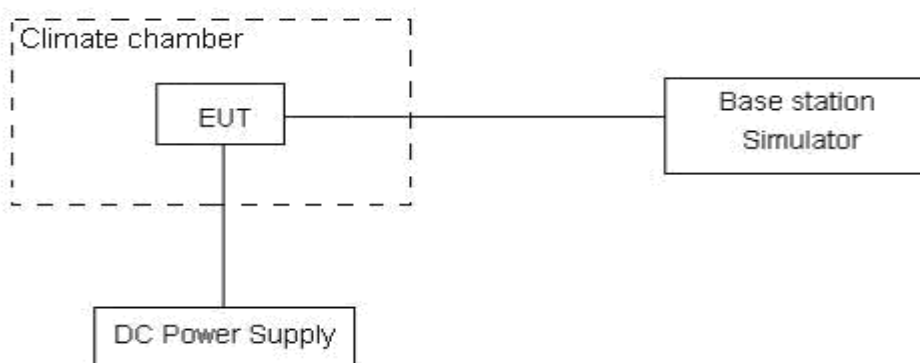
#### Frequency Stability (Voltage Variation)

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 3.6 V and 4.2 V, with a nominal voltage of 3.87V.

### 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**

WCDMA Band IV						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal (25°C)	Normal	8.47	12.39	0.00489	0.00715	PASS
Extreme (50°C)		14.60	3.23	0.00843	0.00186	PASS
Extreme (40°C)		6.93	1.99	0.00400	0.00115	PASS
Extreme (30°C)		5.84	16.85	0.00337	0.00972	PASS
Extreme (20°C)		13.72	10.54	0.00792	0.00608	PASS
Extreme (10°C)		15.99	13.45	0.00923	0.00776	PASS
Extreme (0°C)		15.13	2.99	0.00873	0.00173	PASS
Extreme (-10°C)		13.52	8.00	0.00781	0.00462	PASS
Extreme (-20°C)		8.53	9.51	0.00492	0.00549	PASS
Extreme (-30°C)		6.45	15.80	0.00372	0.00912	PASS
25°C	LV	8.82	14.35	0.00509	0.00828	PASS
	HV	8.94	17.79	0.00516	0.01027	PASS

LTE Band 4								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	PASS
Normal (25°C)	Normal	14.28	9.65	10.59	0.00824	0.00557	0.00611	
Extreme (50°C)		10.41	16.39	13.54	0.00601	0.00946	0.00782	
Extreme (40°C)		4.42	6.21	4.39	0.00255	0.00358	0.00254	
Extreme (30°C)		3.97	2.65	5.77	0.00229	0.00153	0.00333	
Extreme (20°C)		3.62	16.59	4.31	0.00209	0.00958	0.00249	
Extreme (10°C)		12.14	17.53	12.22	0.00701	0.01012	0.00705	
Extreme (0°C)		4.14	2.55	14.15	0.00239	0.00147	0.00817	
Extreme (-10°C)		2.53	3.84	12.32	0.00146	0.00222	0.00711	
Extreme (-20°C)		15.47	12.92	12.00	0.00893	0.00746	0.00693	
Extreme (-30°C)		15.01	1.26	9.62	0.00866	0.00073	0.00555	
25°C	LV	7.90	6.15	16.56	0.00456	0.00355	0.00956	
	HV	11.63	11.73	4.08	0.00671	0.00677	0.00235	
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	PASS
Normal (25°C)	Normal	8.88	3.76	6.73	0.00512	0.00217	0.00388	



Extreme (50°C)		6.93	12.72	3.85	0.00400	0.00734	0.00222	PASS
Extreme (40°C)		4.58	6.94	6.53	0.00264	0.00401	0.00377	PASS
Extreme (30°C)		14.35	2.43	17.76	0.00828	0.00141	0.01025	PASS
Extreme (20°C)		6.40	6.67	10.04	0.00369	0.00385	0.00579	PASS
Extreme (10°C)		1.20	8.40	16.17	0.00069	0.00485	0.00934	PASS
Extreme (0°C)		16.07	11.02	6.38	0.00928	0.00636	0.00368	PASS
Extreme (-10°C)		2.08	15.71	9.01	0.00120	0.00907	0.00520	PASS
Extreme (-20°C)		3.57	9.42	12.17	0.00206	0.00544	0.00702	PASS
Extreme (-30°C)		17.33	7.06	7.24	0.01000	0.00408	0.00418	PASS
25°C	LV	5.08	2.92	6.20	0.00293	0.00168	0.00358	PASS
	HV	1.87	5.78	7.90	0.00108	0.00334	0.00456	PASS
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	13.95	13.68	1.74	0.00805	0.00789	0.00100	PASS
Extreme (50°C)		1.50	17.13	11.78	0.00087	0.00989	0.00680	PASS
Extreme (40°C)		11.37	11.88	10.95	0.00657	0.00686	0.00632	PASS
Extreme (30°C)		4.18	3.76	6.15	0.00241	0.00217	0.00355	PASS
Extreme (20°C)		3.02	7.65	8.67	0.00174	0.00442	0.00500	PASS
Extreme (10°C)		13.62	3.73	3.35	0.00786	0.00216	0.00193	PASS
Extreme (0°C)		1.69	16.41	7.65	0.00097	0.00947	0.00441	PASS
Extreme (-10°C)		15.31	12.30	12.04	0.00884	0.00710	0.00695	PASS
Extreme (-20°C)		13.23	13.15	14.53	0.00763	0.00759	0.00839	PASS
Extreme (-30°C)		10.34	8.13	6.60	0.00597	0.00469	0.00381	PASS
25°C	LV	2.50	13.10	5.40	0.00144	0.00756	0.00312	PASS
	HV	5.06	6.91	6.69	0.00292	0.00399	0.00386	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	7.69	4.30	16.66	0.00444	0.00248	0.00961	PASS
Extreme (50°C)		6.66	14.78	1.25	0.00385	0.00853	0.00072	PASS
Extreme (40°C)		11.62	11.32	10.73	0.00670	0.00653	0.00619	PASS
Extreme (30°C)		13.68	9.66	16.88	0.00790	0.00558	0.00975	PASS
Extreme (20°C)		10.39	14.89	15.27	0.00600	0.00859	0.00881	PASS
Extreme (10°C)		8.17	5.64	6.24	0.00471	0.00326	0.00360	PASS
Extreme (0°C)		7.59	3.65	7.74	0.00438	0.00211	0.00446	PASS
Extreme (-10°C)		7.46	14.49	2.08	0.00431	0.00836	0.00120	PASS
Extreme (-20°C)		12.62	7.77	4.83	0.00728	0.00449	0.00279	PASS
Extreme (-30°C)		14.85	9.32	1.24	0.00857	0.00538	0.00072	PASS



25°C	LV	4.67	4.31	9.14	0.00270	0.00249	0.00527	PASS
	HV	15.51	17.68	3.70	0.00895	0.01020	0.00214	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	1.24	12.38	17.47	0.00072	0.00715	0.01008	PASS
Extreme (50°C)		14.62	13.62	8.90	0.00844	0.00786	0.00514	PASS
Extreme (40°C)		5.81	6.83	8.11	0.00335	0.00394	0.00468	PASS
Extreme (30°C)		11.41	14.09	16.66	0.00658	0.00814	0.00962	PASS
Extreme (20°C)		16.23	2.12	4.68	0.00937	0.00123	0.00270	PASS
Extreme (10°C)		14.39	17.46	5.30	0.00831	0.01008	0.00306	PASS
Extreme (0°C)		3.79	9.22	13.98	0.00219	0.00532	0.00807	PASS
Extreme (-10°C)		15.36	3.08	5.21	0.00887	0.00178	0.00301	PASS
Extreme (-20°C)		13.20	4.57	3.14	0.00762	0.00264	0.00181	PASS
Extreme (-30°C)		2.52	11.02	9.14	0.00145	0.00636	0.00528	PASS
25°C	LV	17.34	7.66	17.18	0.01001	0.00442	0.00991	PASS
	HV	15.82	12.69	3.86	0.00913	0.00732	0.00223	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	13.62	10.94	7.88	0.00786	0.00632	0.00455	PASS
Extreme (50°C)		12.46	1.25	10.48	0.00719	0.00072	0.00605	PASS
Extreme (40°C)		11.50	6.47	12.26	0.00664	0.00374	0.00708	PASS
Extreme (30°C)		9.61	16.14	4.81	0.00555	0.00932	0.00278	PASS
Extreme (20°C)		10.00	9.89	17.74	0.00577	0.00571	0.01024	PASS
Extreme (10°C)		10.22	9.94	17.46	0.00590	0.00574	0.01008	PASS
Extreme (0°C)		10.80	6.95	11.74	0.00624	0.00401	0.00678	PASS
Extreme (-10°C)		11.89	2.87	17.61	0.00686	0.00166	0.01016	PASS
Extreme (-20°C)		2.61	14.24	15.57	0.00151	0.00822	0.00899	PASS
Extreme (-30°C)		1.12	11.11	16.38	0.00065	0.00641	0.00945	PASS
25°C	LV	9.23	15.72	1.32	0.00532	0.00907	0.00076	PASS
	HV	1.69	8.34	13.69	0.00097	0.00482	0.00790	PASS



## 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	10.21	9.51	13.05	0.00403	0.00375	0.00515	PASS
Extreme (50°C)		15.30	2.49	15.65	0.00604	0.00098	0.00617	PASS
Extreme (40°C)		6.04	17.69	15.83	0.00238	0.00698	0.00624	PASS
Extreme (30°C)		7.08	16.27	14.30	0.00279	0.00642	0.00564	PASS
Extreme (20°C)		16.06	1.37	4.24	0.00633	0.00054	0.00167	PASS
Extreme (10°C)		9.39	8.59	12.16	0.00371	0.00339	0.00480	PASS
Extreme (0°C)		11.63	14.80	4.78	0.00459	0.00584	0.00188	PASS
Extreme(-10°C)		6.75	12.81	9.31	0.00266	0.00505	0.00367	PASS
Extreme(-20°C)		3.43	1.68	14.10	0.00135	0.00066	0.00556	PASS
Extreme(-30°C)		16.00	10.34	5.94	0.00631	0.00408	0.00234	PASS
25°C		LV	12.29	6.99	2.25	0.00485	0.00276	0.00089
	HV	3.57	11.46	3.64	0.00141	0.00452	0.00144	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	1.10	12.69	12.76	0.00043	0.00501	0.00503	PASS
Extreme (50°C)		17.73	17.17	10.23	0.00699	0.00677	0.00404	PASS
Extreme (40°C)		4.80	4.36	13.99	0.00189	0.00172	0.00552	PASS
Extreme (30°C)		14.51	15.45	6.91	0.00572	0.00610	0.00273	PASS
Extreme (20°C)		7.08	1.72	12.63	0.00279	0.00068	0.00498	PASS
Extreme (10°C)		16.81	6.92	16.05	0.00663	0.00273	0.00633	PASS
Extreme (0°C)		17.72	16.77	2.38	0.00699	0.00662	0.00094	PASS
Extreme(-10°C)		14.83	10.43	15.50	0.00585	0.00411	0.00612	PASS
Extreme(-20°C)		1.39	10.63	4.10	0.00055	0.00419	0.00162	PASS
Extreme(-30°C)		4.18	7.12	2.17	0.00165	0.00281	0.00086	PASS
25°C		LV	13.77	12.10	2.95	0.00543	0.00477	0.00117
	HV	8.82	17.27	14.39	0.00348	0.00681	0.00568	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	12.77	12.96	11.94	0.00504	0.00511	0.00471	PASS
Extreme (50°C)		6.48	14.65	1.39	0.00256	0.00578	0.00055	PASS
Extreme (40°C)		7.56	16.06	8.73	0.00298	0.00633	0.00345	PASS
Extreme (30°C)		16.84	6.87	9.20	0.00664	0.00271	0.00363	PASS





Extreme (20°C)		2.20	12.04	16.55	0.00087	0.00475	0.00653	PASS
Extreme (10°C)		8.87	2.73	5.35	0.00350	0.00108	0.00211	PASS
Extreme (0°C)		6.99	15.58	13.58	0.00276	0.00614	0.00536	PASS
Extreme(-10°C)		8.34	13.40	4.53	0.00329	0.00529	0.00179	PASS
Extreme(-20°C)		14.30	2.10	11.46	0.00564	0.00083	0.00452	PASS
Extreme(-30°C)		5.11	11.50	14.23	0.00202	0.00454	0.00561	PASS
25°C	LV	3.50	10.17	17.82	0.00138	0.00401	0.00703	PASS
	HV	15.22	7.76	6.77	0.00600	0.00306	0.00267	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	10.75	7.27	5.11	0.00424	0.00287	0.00202	PASS
Extreme (50°C)		12.09	13.36	6.47	0.00477	0.00527	0.00255	PASS
Extreme (40°C)		17.66	3.78	7.86	0.00697	0.00149	0.00310	PASS
Extreme (30°C)		13.13	10.83	10.87	0.00518	0.00427	0.00429	PASS
Extreme (20°C)		13.24	3.33	1.02	0.00522	0.00131	0.00040	PASS
Extreme (10°C)		11.64	13.51	14.53	0.00459	0.00533	0.00573	PASS
Extreme (0°C)		9.42	1.34	16.76	0.00371	0.00053	0.00661	PASS
Extreme(-10°C)		13.05	2.63	12.18	0.00515	0.00104	0.00481	PASS
Extreme(-20°C)		7.78	6.41	7.19	0.00307	0.00253	0.00284	PASS
Extreme(-30°C)		10.18	15.23	13.23	0.00402	0.00601	0.00522	PASS
25°C	LV	6.51	6.63	6.84	0.00257	0.00262	0.00270	PASS
	HV	9.76	2.41	9.30	0.00385	0.00095	0.00367	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	7.96	13.08	8.38	0.00307	0.00504	0.00323	PASS
Extreme (50°C)		2.69	3.18	1.63	0.00104	0.00123	0.00063	PASS
Extreme (40°C)		12.73	11.65	9.59	0.00491	0.00449	0.00370	PASS
Extreme (30°C)		4.41	4.46	2.25	0.00170	0.00172	0.00087	PASS
Extreme (20°C)		4.61	3.83	15.72	0.00178	0.00148	0.00606	PASS
Extreme (10°C)		17.45	5.09	12.97	0.00673	0.00196	0.00500	PASS
Extreme (0°C)		16.94	5.47	15.30	0.00653	0.00211	0.00590	PASS
Extreme (-10°C)		5.96	8.02	7.98	0.00230	0.00309	0.00308	PASS
Extreme (-20°C)		17.13	11.04	3.82	0.00660	0.00426	0.00147	PASS
Extreme (-30°C)		14.23	2.47	17.50	0.00549	0.00095	0.00674	PASS
25°C	LV	16.14	10.62	5.95	0.00622	0.00409	0.00229	PASS



	HV	1.09	16.15	16.46	0.00042	0.00622	0.00634	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	4.54	6.69	1.14	0.00175	0.00258	0.00044	PASS
Extreme (50°C)		15.25	8.14	9.97	0.00588	0.00314	0.00384	PASS
Extreme (40°C)		11.12	11.76	1.79	0.00428	0.00453	0.00069	PASS
Extreme (30°C)		12.06	7.29	6.87	0.00465	0.00281	0.00265	PASS
Extreme (20°C)		17.94	17.69	14.68	0.00691	0.00682	0.00566	PASS
Extreme (10°C)		10.77	17.07	5.14	0.00415	0.00658	0.00198	PASS
Extreme (0°C)		1.11	5.41	13.65	0.00043	0.00208	0.00526	PASS
Extreme (-10°C)		6.70	3.74	1.23	0.00258	0.00144	0.00048	PASS
Extreme (-20°C)		13.36	15.81	15.38	0.00515	0.00609	0.00593	PASS
Extreme (-30°C)		14.70	1.22	1.16	0.00566	0.00047	0.00045	PASS
25°C	LV	16.41	10.01	11.21	0.00632	0.00386	0.00432	PASS
	HV	1.52	9.54	1.94	0.00058	0.00368	0.00075	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	3.00	11.00	1.00	0.00116	0.00424	0.00039	PASS
Extreme (50°C)		5.00	11.00	14.00	0.00193	0.00424	0.00539	PASS
Extreme (40°C)		12.00	6.00	12.00	0.00462	0.00231	0.00462	PASS
Extreme (30°C)		8.00	15.00	9.00	0.00308	0.00578	0.00347	PASS
Extreme (20°C)		9.00	16.00	17.00	0.00347	0.00617	0.00655	PASS
Extreme (10°C)		8.00	12.00	12.00	0.00308	0.00462	0.00462	PASS
Extreme (0°C)		10.00	15.00	6.00	0.00385	0.00578	0.00231	PASS
Extreme (-10°C)		1.00	17.00	3.00	0.00039	0.00655	0.00116	PASS
Extreme (-20°C)		12.00	3.00	2.00	0.00462	0.00116	0.00077	PASS
Extreme (-30°C)		2.00	2.00	2.00	0.00077	0.00077	0.00077	PASS
25°C	LV	13.00	11.00	11.00	0.00501	0.00424	0.00424	PASS
	HV	15.00	13.00	13.00	0.00578	0.00501	0.00501	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	12.00	13.00	6.00	0.00462	0.00501	0.00231	PASS
Extreme (50°C)		5.00	6.00	15.00	0.00193	0.00231	0.00578	PASS
Extreme (40°C)		12.00	3.00	11.00	0.00462	0.00116	0.00424	PASS
Extreme (30°C)		11.00	1.00	10.00	0.00424	0.00039	0.00385	PASS



Extreme (20°C)		4.00	10.00	6.00	0.00154	0.00385	0.00231	PASS
Extreme (10°C)		7.00	8.00	9.00	0.00270	0.00308	0.00347	PASS
Extreme (0°C)		10.00	5.00	8.00	0.00385	0.00193	0.00308	PASS
Extreme (-10°C)		2.00	16.00	1.00	0.00077	0.00617	0.00039	PASS
Extreme (-20°C)		11.00	1.00	3.00	0.00424	0.00039	0.00116	PASS
Extreme (-30°C)		12.00	6.00	2.00	0.00462	0.00231	0.00077	PASS
25°C	LV	14.00	7.00	17.00	0.00539	0.00270	0.00655	PASS
	HV	3.00	1.00	9.00	0.00116	0.00039	0.00347	PASS

LTE Band 41

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	3.00	3.00	3.00	0.00116	0.00116	0.00116	PASS
Extreme (50°C)		9.00	11.00	11.00	0.00347	0.00424	0.00424	PASS
Extreme (40°C)		10.00	17.00	1.00	0.00386	0.00656	0.00039	PASS
Extreme (30°C)		15.00	17.00	11.00	0.00578	0.00656	0.00424	PASS
Extreme (20°C)		15.00	5.00	8.00	0.00578	0.00193	0.00309	PASS
Extreme (10°C)		11.00	15.00	2.00	0.00424	0.00578	0.00077	PASS
Extreme (0°C)		7.00	17.00	2.00	0.00270	0.00656	0.00077	PASS
Extreme (-10°C)		8.00	12.00	17.00	0.00309	0.00463	0.00656	PASS
Extreme (-20°C)		4.00	9.00	9.00	0.00154	0.00347	0.00347	PASS
Extreme (-30°C)		13.00	9.00	12.00	0.00501	0.00347	0.00463	PASS
25°C	LV	3.00	3.00	10.00	0.00116	0.00116	0.00386	PASS
	HV	16.00	17.00	7.00	0.00617	0.00656	0.00270	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	17.00	3.00	10.00	0.00656	0.00116	0.00386	PASS
Extreme (50°C)		12.00	8.00	17.00	0.00463	0.00309	0.00656	PASS
Extreme (40°C)		2.00	8.00	5.00	0.00077	0.00309	0.00193	PASS
Extreme (30°C)		1.00	1.00	10.00	0.00039	0.00039	0.00386	PASS
Extreme (20°C)		4.00	17.00	17.00	0.00154	0.00656	0.00656	PASS
Extreme (10°C)		7.00	8.00	6.00	0.00270	0.00309	0.00231	PASS
Extreme (0°C)		3.00	1.00	14.00	0.00116	0.00039	0.00540	PASS
Extreme		12.00	9.00	15.00	0.00463	0.00347	0.00578	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		
(-10°C)									
Extreme (-20°C)		14.00	3.00	3.00	0.00540	0.00116	0.00116	PASS	
Extreme (-30°C)		11.00	4.00	8.00	0.00424	0.00154	0.00309	PASS	
25°C	LV	16.00	3.00	13.00	0.00617	0.00116	0.00501	PASS	
	HV	11.00	15.00	8.00	0.00424	0.00578	0.00309	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	14.00	3.00	15.00	0.00540	0.00116	0.00578	PASS	
Extreme (50°C)		8.00	8.00	13.00	0.00309	0.00309	0.00501	PASS	
Extreme (40°C)		3.00	9.00	6.00	0.00116	0.00347	0.00231	PASS	
Extreme (30°C)		6.00	3.00	6.00	0.00231	0.00116	0.00231	PASS	
Extreme (20°C)		12.00	2.00	12.00	0.00463	0.00077	0.00463	PASS	
Extreme (10°C)		15.00	15.00	3.00	0.00578	0.00578	0.00116	PASS	
Extreme (0°C)		17.00	3.00	6.00	0.00656	0.00116	0.00231	PASS	
Extreme (-10°C)		7.00	4.00	3.00	0.00270	0.00154	0.00116	PASS	
Extreme (-20°C)		3.00	16.00	9.00	0.00116	0.00617	0.00347	PASS	
Extreme (-30°C)		16.00	1.00	4.00	0.00617	0.00039	0.00154	PASS	
25°C		LV	3.00	3.00	10.00	0.00116	0.00116	0.00386	PASS
		HV	10.00	5.00	4.00	0.00386	0.00193	0.00154	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	12.00	1.00	14.00	0.00463	0.00039	0.00540	PASS	
Extreme (50°C)		3.00	17.00	3.00	0.00116	0.00656	0.00116	PASS	
Extreme (40°C)		11.00	16.00	4.00	0.00424	0.00617	0.00154	PASS	
Extreme (30°C)		16.00	3.00	2.00	0.00617	0.00116	0.00077	PASS	
Extreme (20°C)		13.00	3.00	5.00	0.00501	0.00116	0.00193	PASS	
Extreme (10°C)		4.00	15.00	9.00	0.00154	0.00578	0.00347	PASS	
Extreme (0°C)		11.00	8.00	16.00	0.00424	0.00309	0.00617	PASS	
Extreme (-10°C)		7.00	6.00	9.00	0.00270	0.00231	0.00347	PASS	
Extreme (-20°C)		10.00	11.00	7.00	0.00386	0.00424	0.00270	PASS	
Extreme		3.00	12.00	5.00	0.00116	0.00463	0.00193	PASS	





(-30°C)								
25°C	LV	8.00	9.00	8.00	0.00309	0.00347	0.00309	PASS
	HV	9.00	7.00	13.00	0.00347	0.00270	0.00501	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)

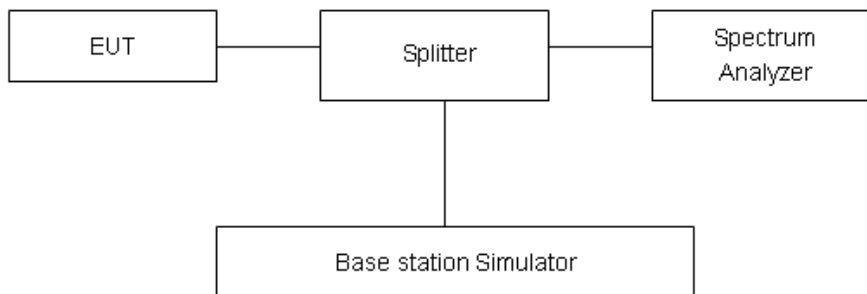
RBW is set to 100 kHz (30MHz~1000 MHz)

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(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB..”

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 (h) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

**Measurement Uncertainty**

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

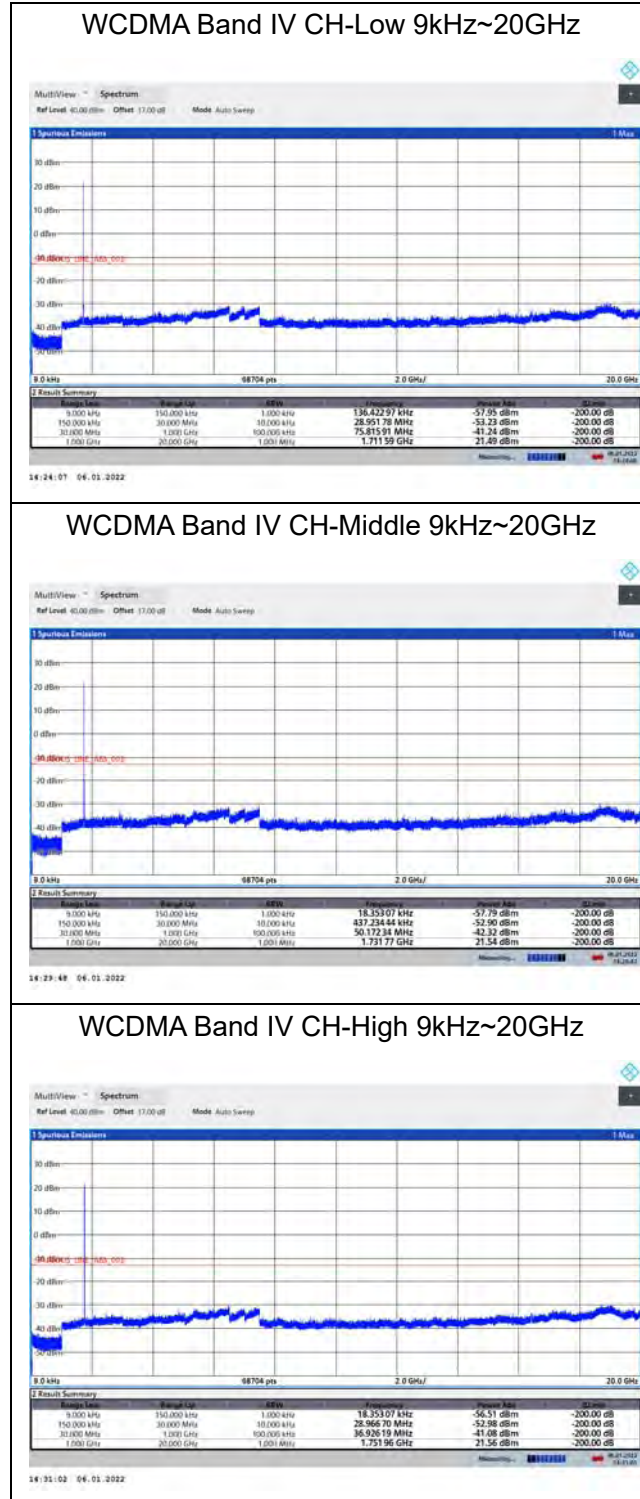
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-30GHz	1.407 dB



### 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.

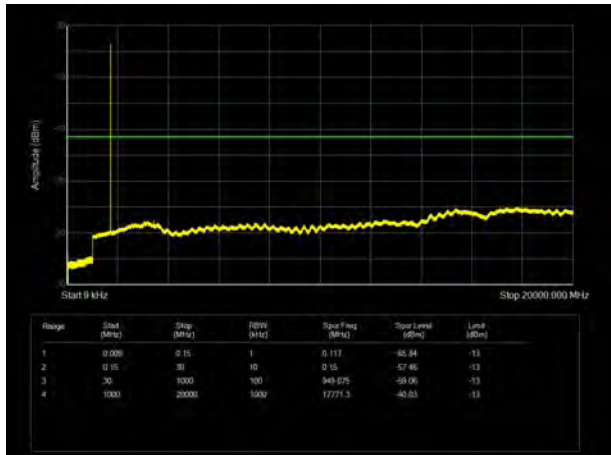
The signal beyond the limit is carrier.



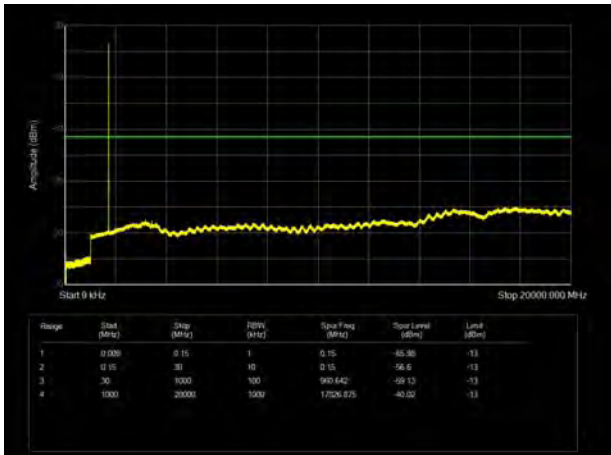




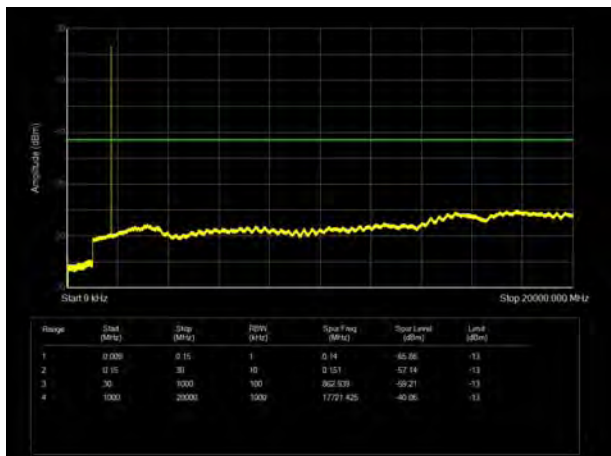
LTE Band 4 1.4MHz CH-Low 9kHz~20GHz



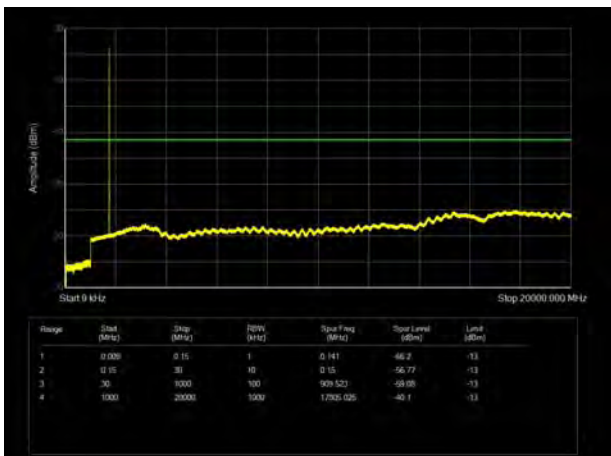
LTE Band 4 3MHz CH- Low 9kHz~20GHz



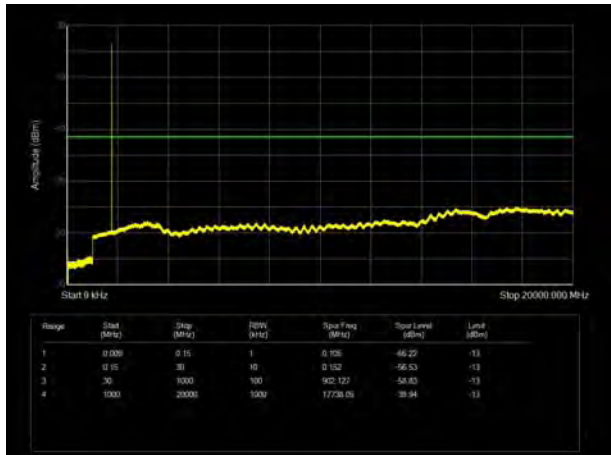
LTE Band 4 1.4MHz CH- Middle 9kHz~20GHz



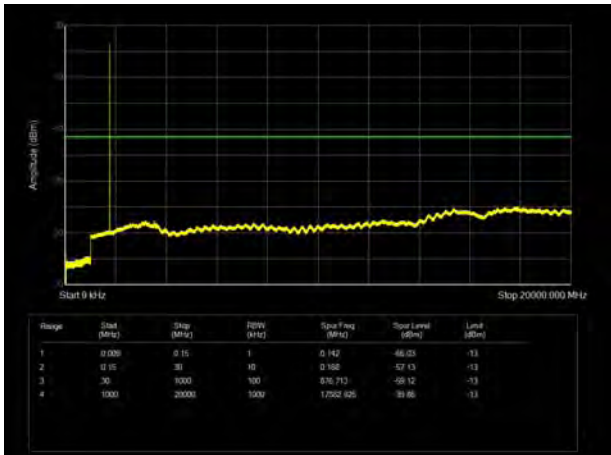
LTE Band 4 3MHz CH- Middle 9kHz~20GHz



LTE Band 4 1.4MHz CH- High 9kHz~20GHz

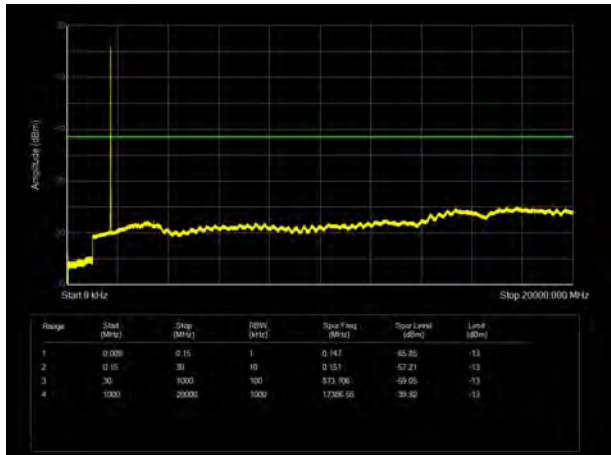


LTE Band 4 3MHz CH-High 9kHz~20GHz

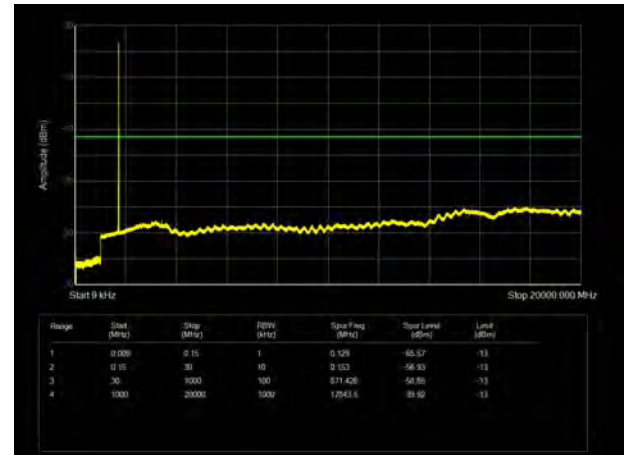




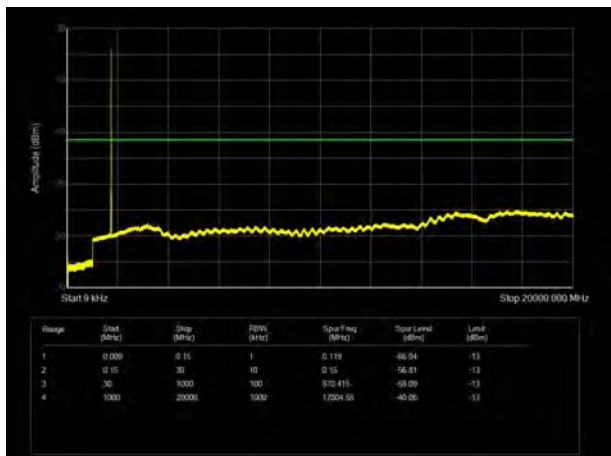
LTE Band 4 5MHz CH- Low 9kHz~20GHz



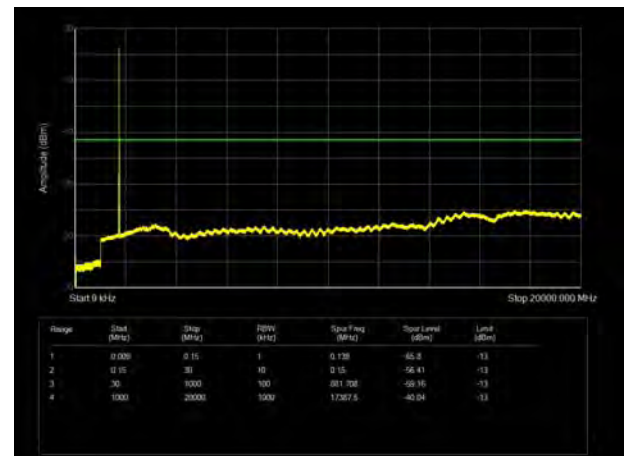
LTE Band 4 10MHz CH-Low 9kHz~20GHz



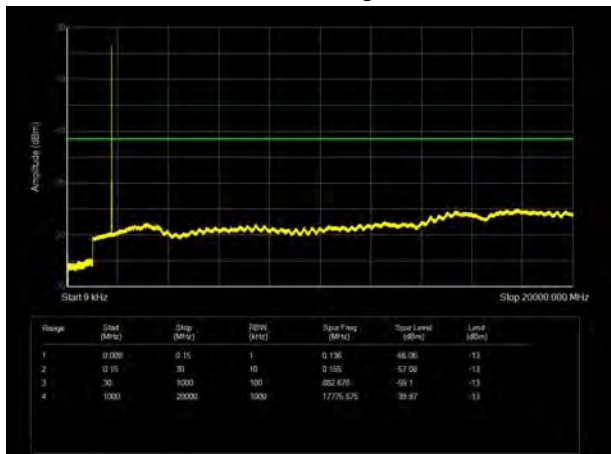
LTE Band 4 5MHz CH- Middle 9kHz~20GHz



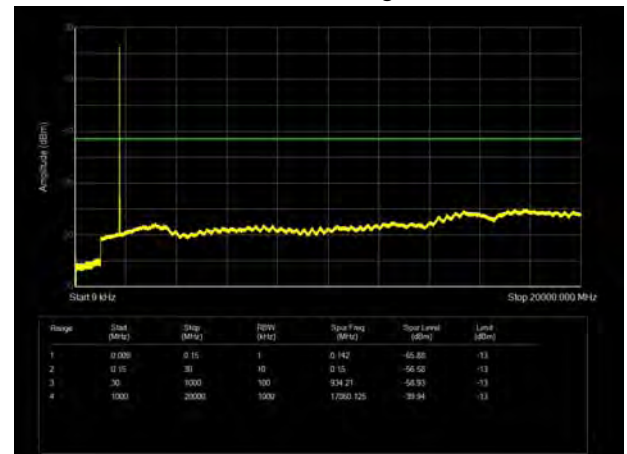
LTE Band 4 10MHz CH- Middle 9kHz~20GHz



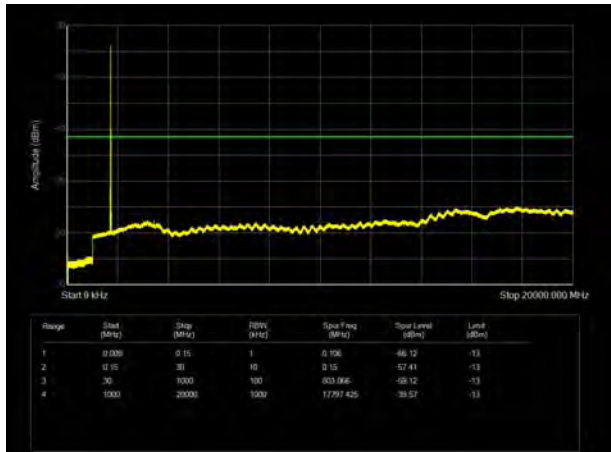
LTE Band 4 5MHz CH-High 9kHz~20GHz



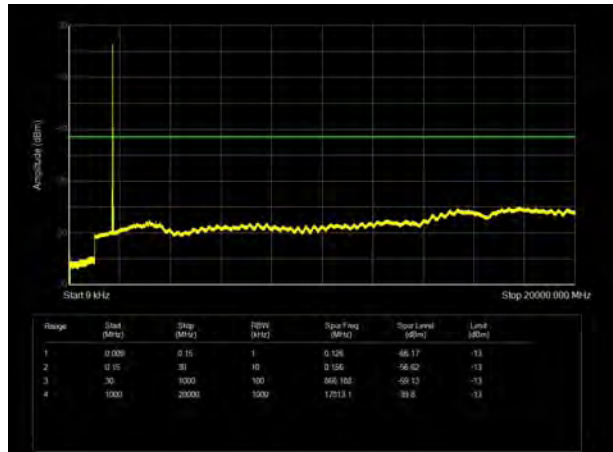
LTE Band 4 10MHz CH- High 9kHz~20GHz



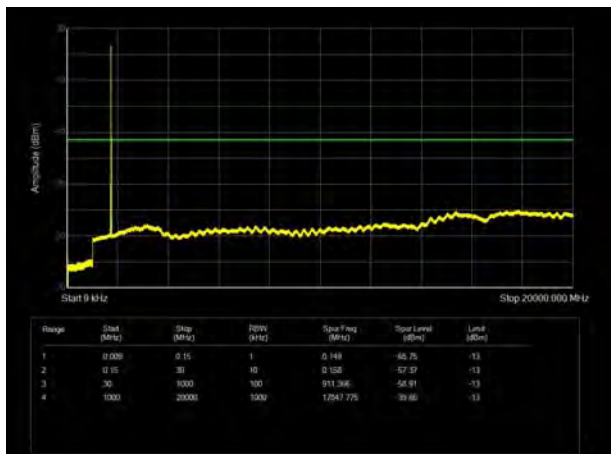
LTE Band 4 15MHz CH- Low 9kHz~20GHz



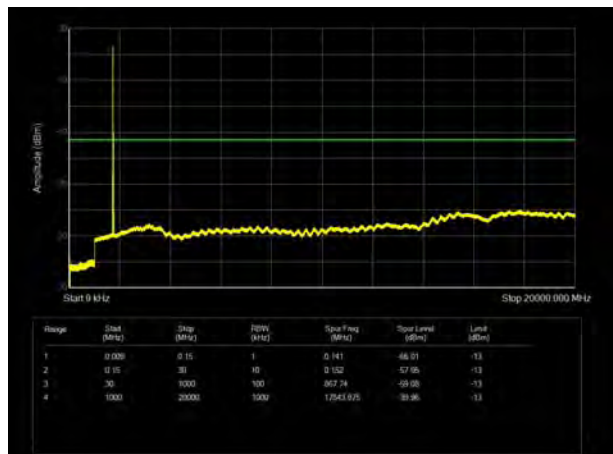
LTE Band 4 20MHz CH-Low 9kHz~20GHz



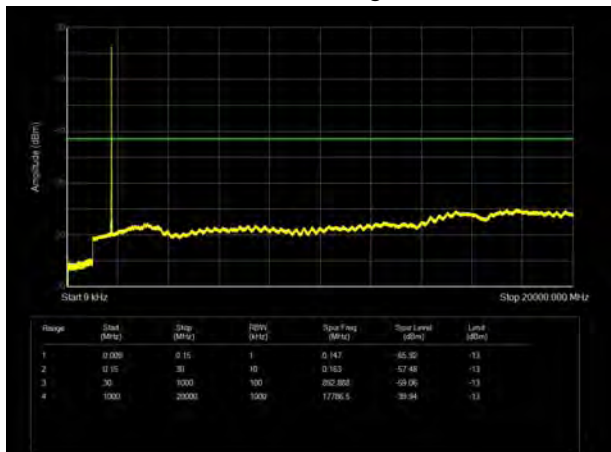
LTE Band 4 15MHz CH- Middle 9kHz~20GHz



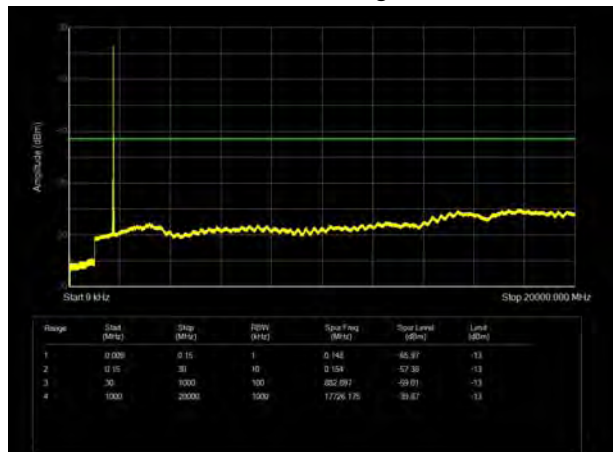
LTE Band 4 20MHz CH- Middle 9kHz~20GHz



LTE Band 4 15MHz CH-High 9kHz~20GHz

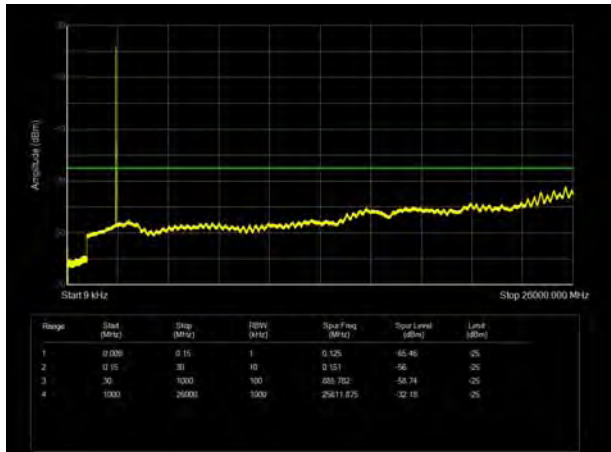


LTE Band 4 20MHz CH- High 9kHz~20GHz

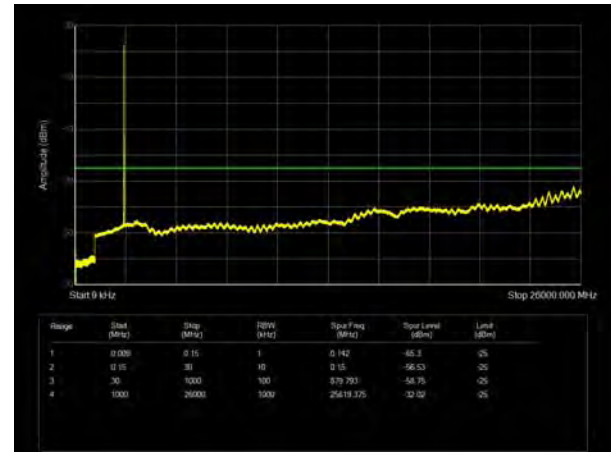




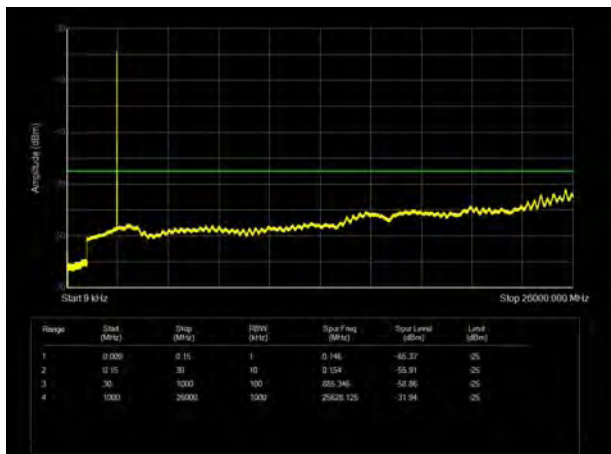
LTE Band 7 5MHz CH- Low 9kHz~26GHz



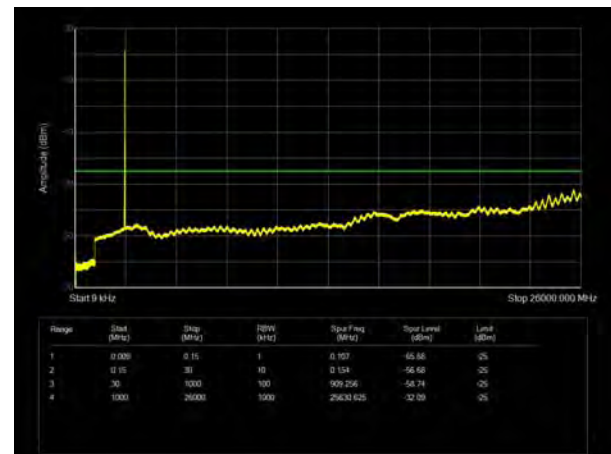
LTE Band 7 10MHz CH-Low 9kHz~26GHz



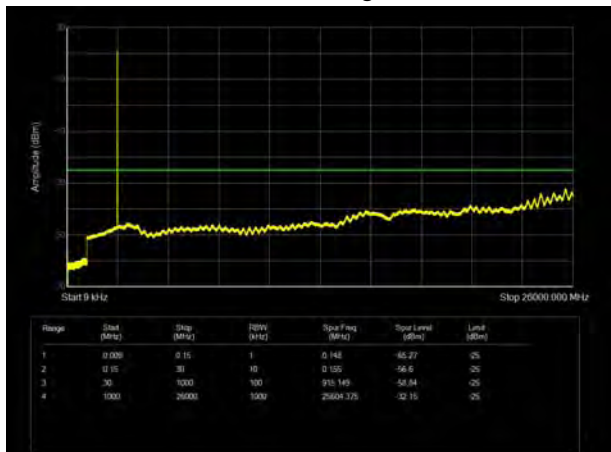
LTE Band 7 5MHz CH- Middle 9kHz~26GHz



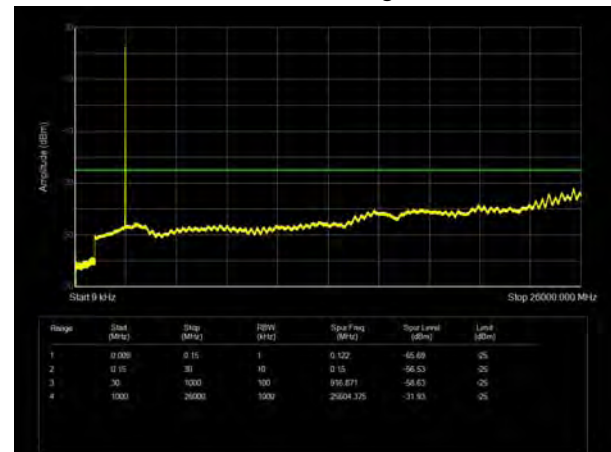
LTE Band 7 10MHz CH- Middle 9kHz~26GHz



LTE Band 7 5MHz CH-High 9kHz~26GHz



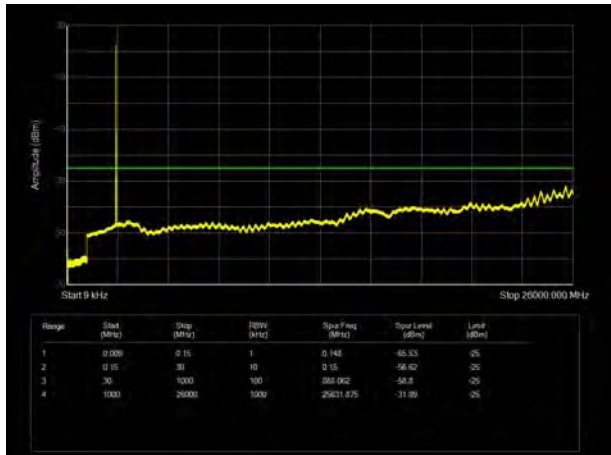
LTE Band 7 10MHz CH- High 9kHz~26GHz



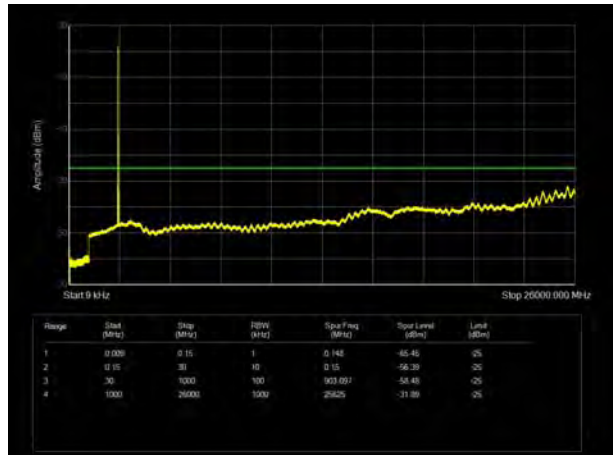




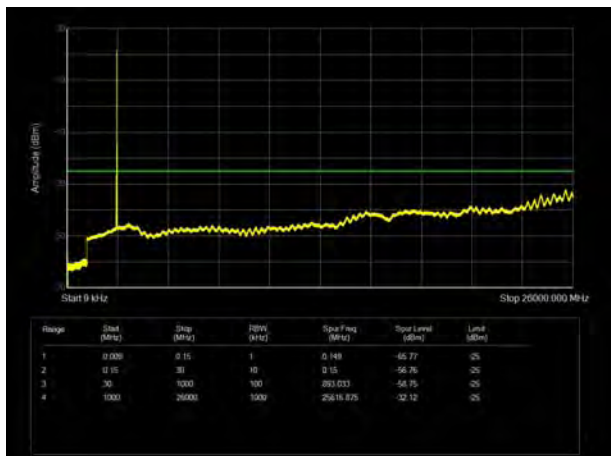
LTE Band 7 15MHz CH- Low 9kHz~26GHz



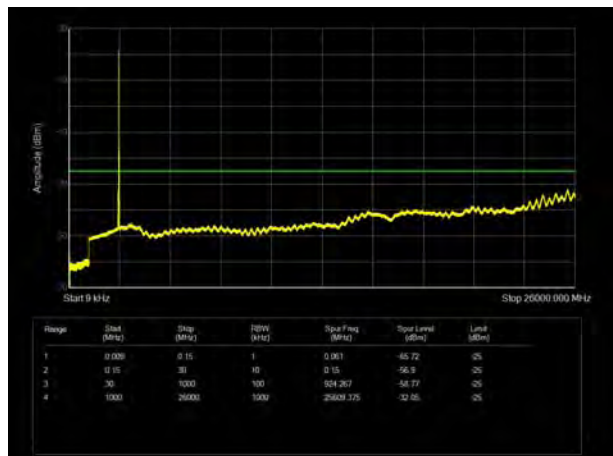
LTE Band 7 20MHz CH-Low 9kHz~26GHz



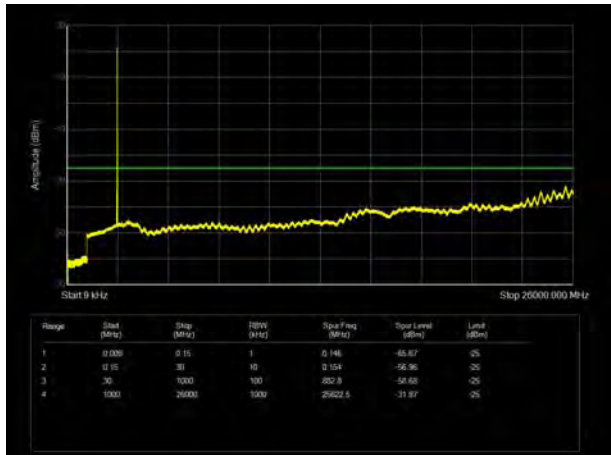
LTE Band 7 15MHz CH- Middle 9kHz~26GHz



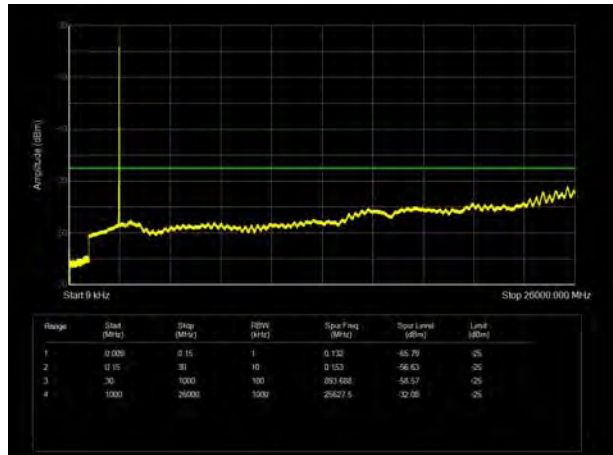
LTE Band 7 20MHz CH- Middle 9kHz~26GHz



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

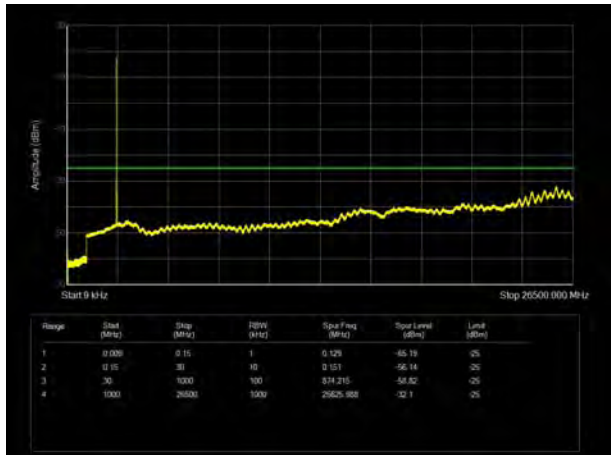


LTE Band 7 20MHz CH- High 9kHz~26GHz

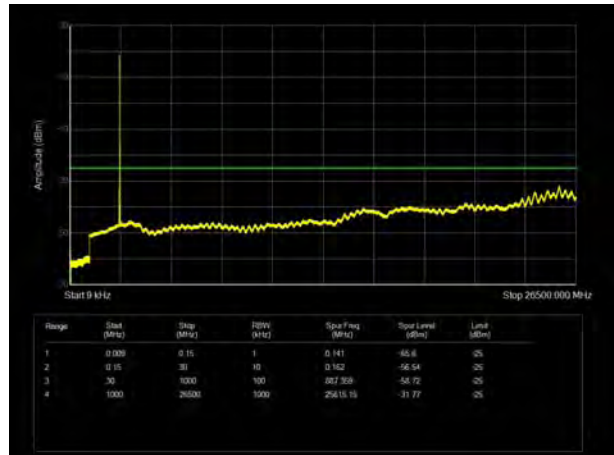




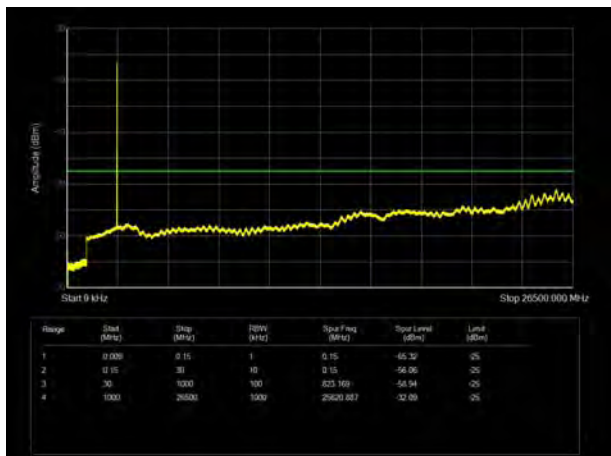
LTE Band 38 5MHz CH-Low 9kHz~26.5GHz



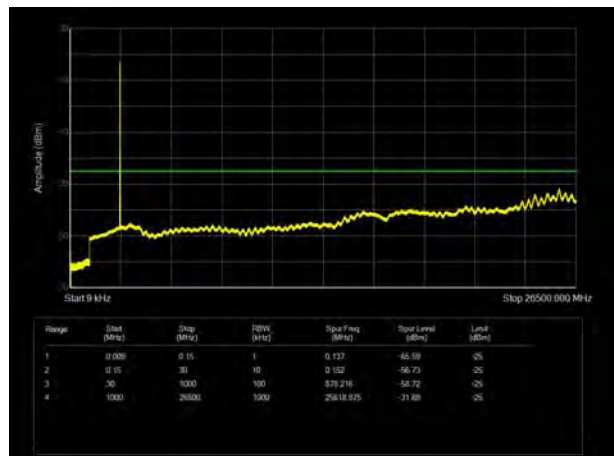
LTE Band 38 10MHz CH- Low 9kHz~26.5GHz



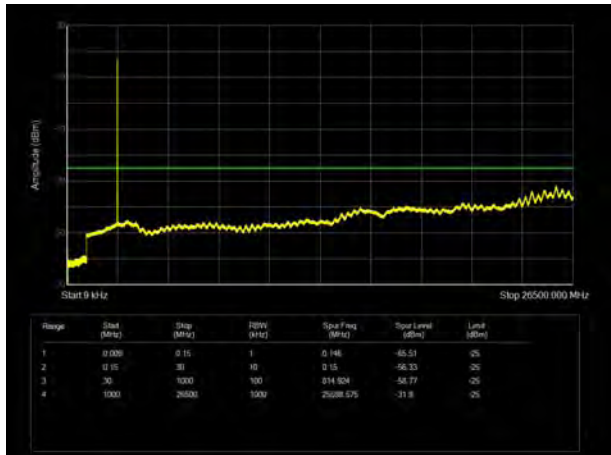
LTE Band 38 5MHz CH- Middle 9kHz~26.5GHz



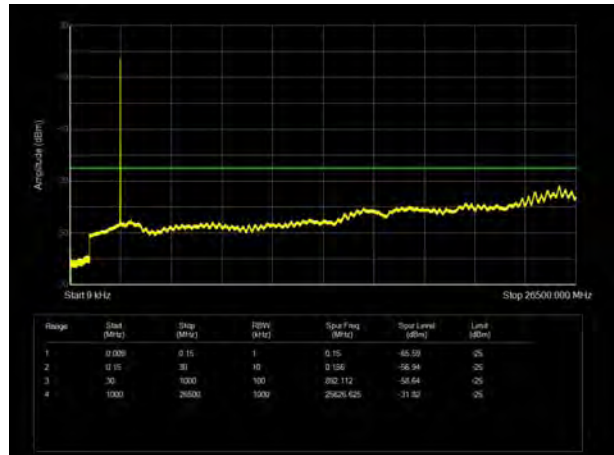
LTE Band 38 10MHz CH- Middle 9kHz~26.5GHz



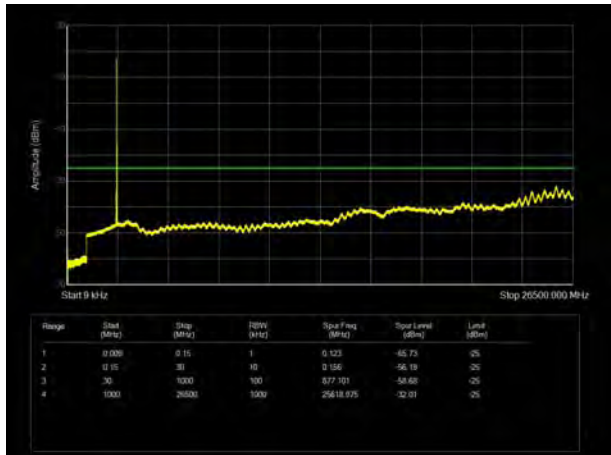
LTE Band 38 5MHz CH- High 9kHz~26.5GHz



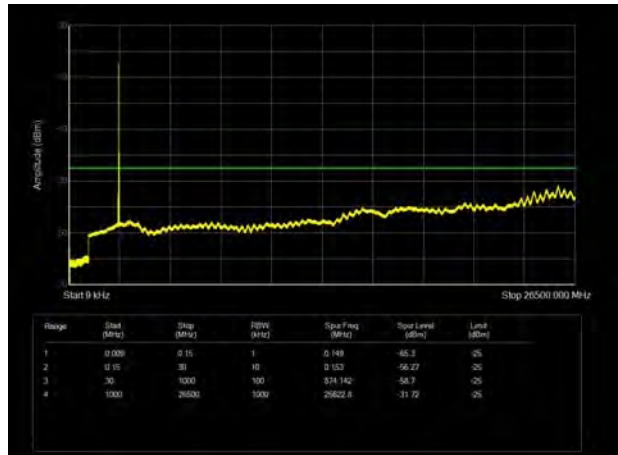
LTE Band 38 10MHz CH-High 9kHz~26.5GHz



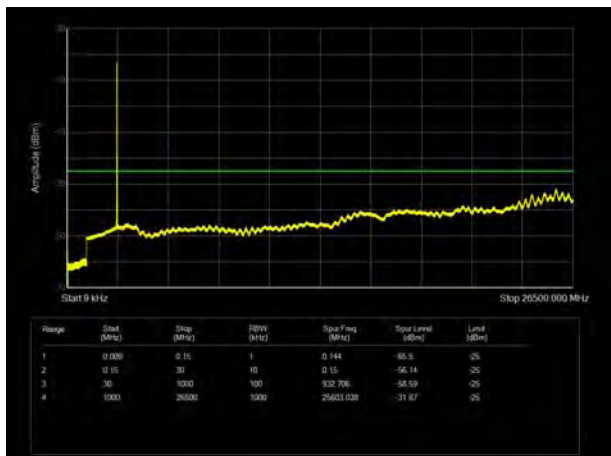
LTE Band 38 15MHz CH- Low 9kHz~26.5GHz



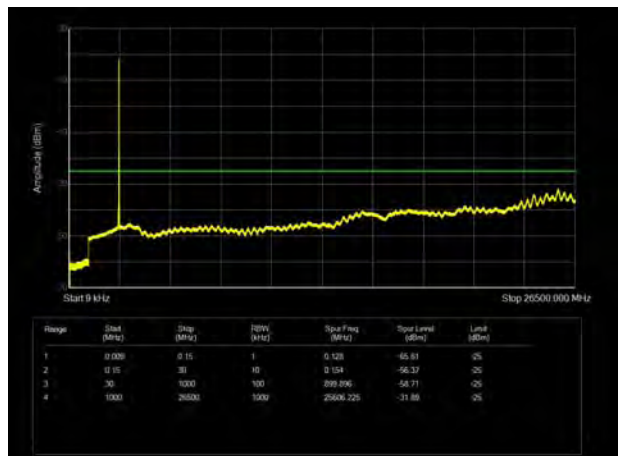
LTE Band 38 20MHz CH-Low 9kHz~26.5GHz



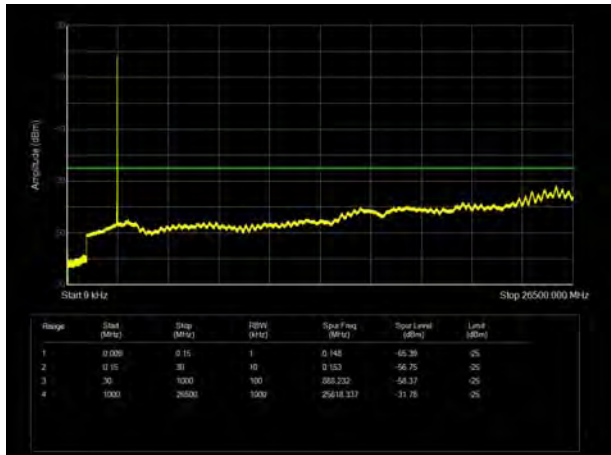
LTE Band 38 15MHz CH- Middle 9kHz~26.5GHz



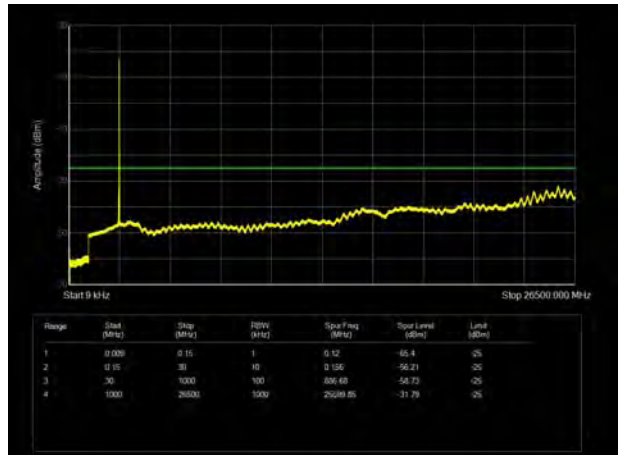
LTE Band 38 20MHz CH- Middle 9kHz~26.5GHz



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

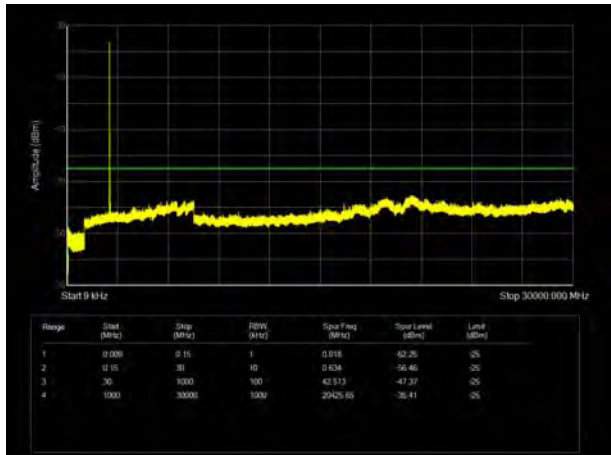


LTE Band 38 20MHz CH- High 9kHz~26.5GHz

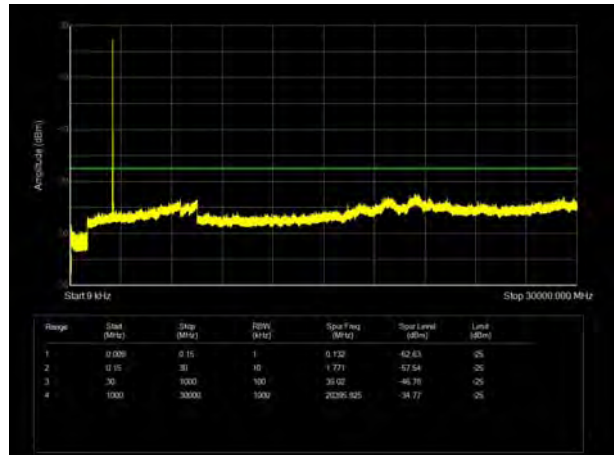




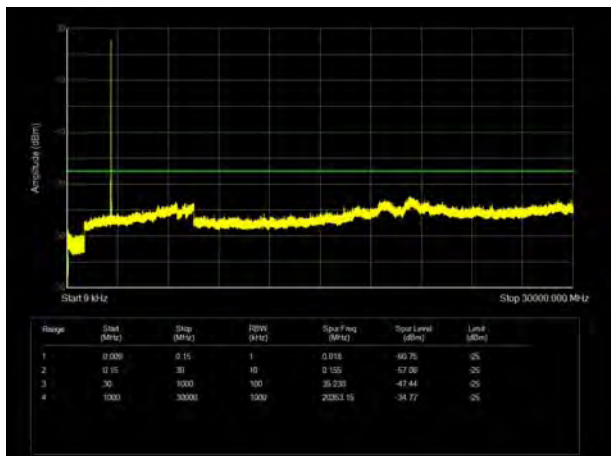
LTE Band 41 5MHz CH-Low 9kHz~30GHz



LTE Band 41 10MHz CH- Low 9kHz~30GHz



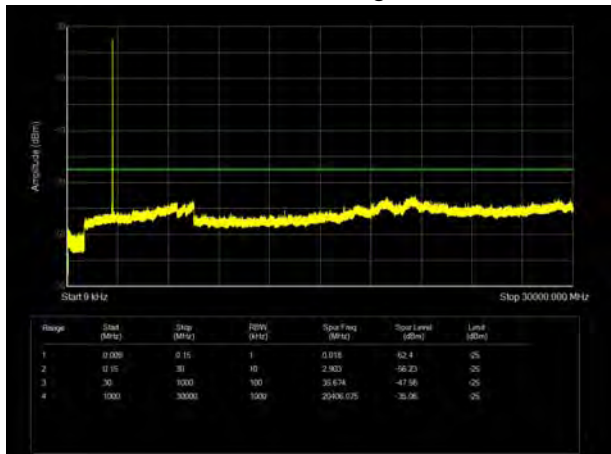
LTE Band 41 5MHz CH- Middle 9kHz~30GHz



LTE Band 41 10MHz CH- Middle 9kHz~30GHz



LTE Band 41 5MHz CH- High 9kHz~30GHz



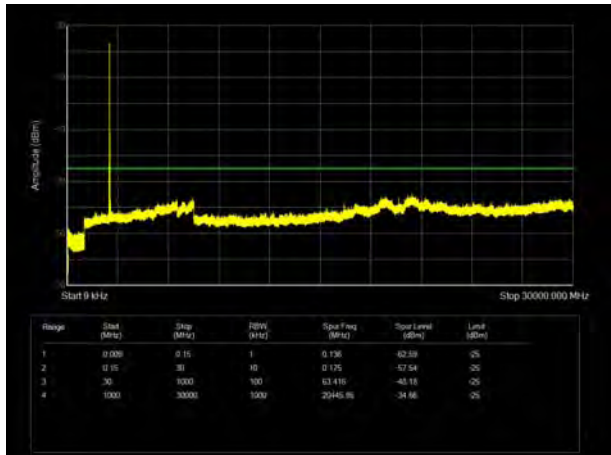
LTE Band 41 10MHz CH-High 9kHz~30GHz



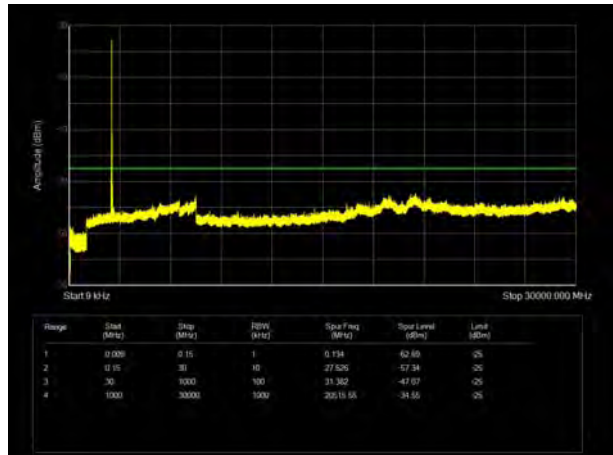




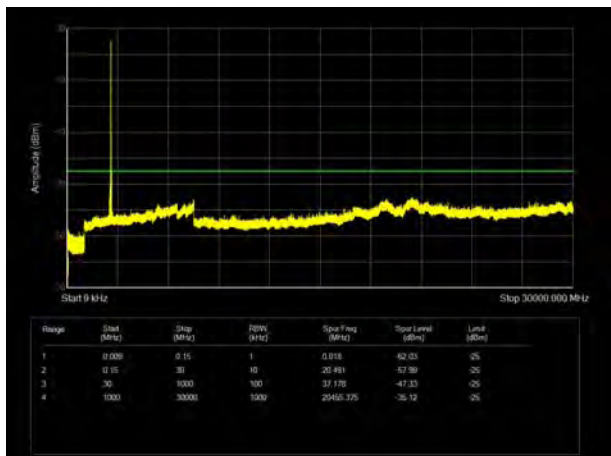
LTE Band 41 15MHz CH- Low 9kHz~30GHz



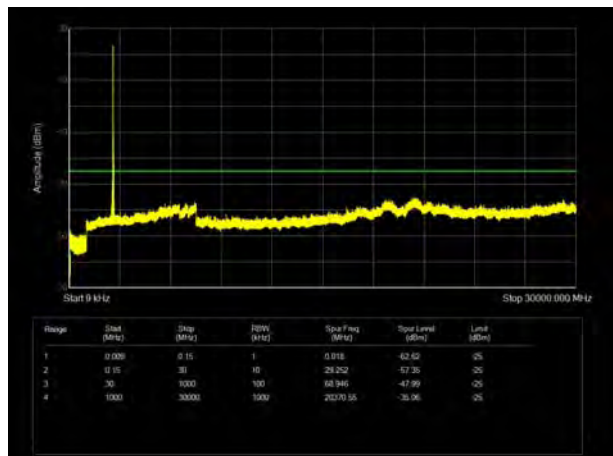
LTE Band 41 20MHz CH-Low 9kHz~30GHz



LTE Band 41 15MHz CH- Middle 9kHz~30GHz



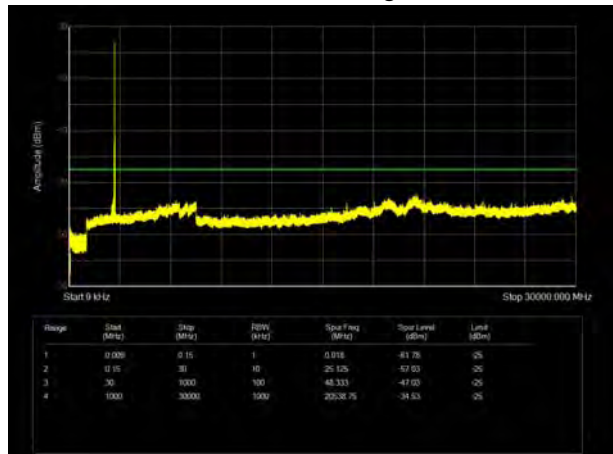
LTE Band 41 20MHz CH- Middle 9kHz~30GHz



LTE Band 41 15MHz CH-High 9kHz~30GHz



LTE Band 41 20MHz CH- High 9kHz~30GHz



## 5.7 Radiates Spurious Emission

### Ambient condition

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

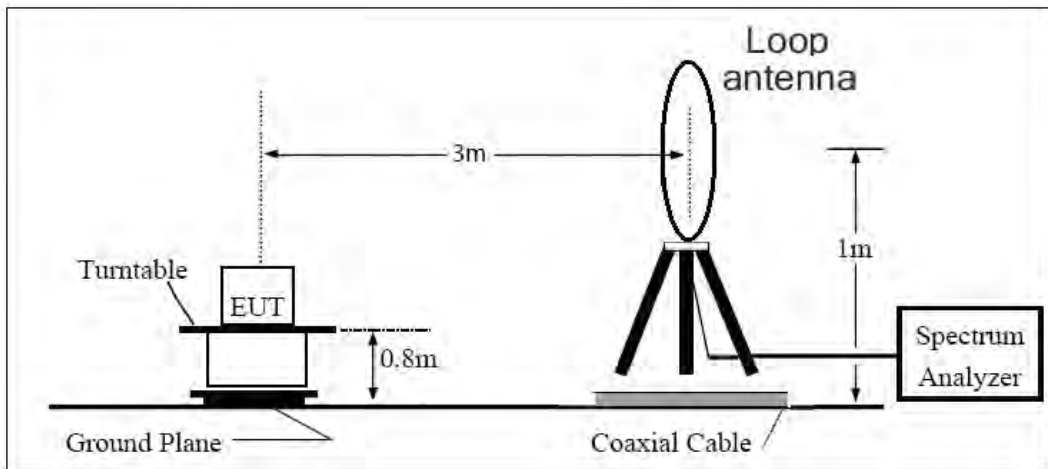
### Method of Measurement

- 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:  
 $Power(EIRP)=PMea- PAg - Pcl + Ga$   
 The measurement results are amend as described below:  
 $Power(EIRP)=PMea- Pcl + Ga$
- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP-2.15dB$ .

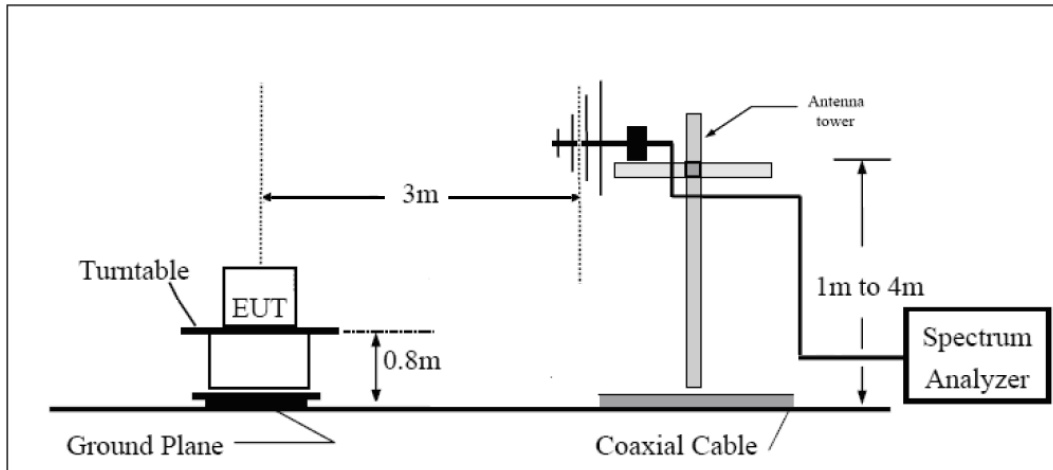
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

**Test setup**

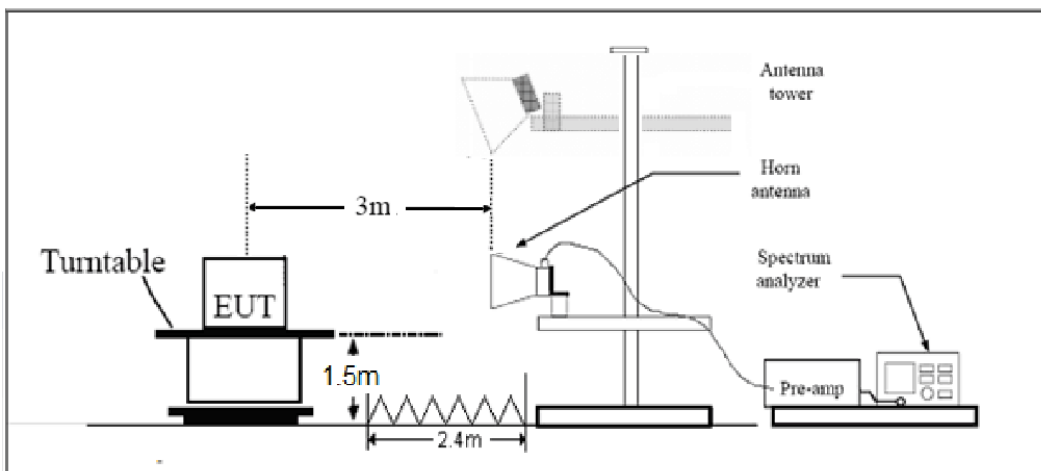
**9KHz ~ 30MHz**



**30MHz ~ 1GHz**



**Above 1GHz**



Note: Area side:2.4mX3.6m

**Limits**



Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.”

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(h) Limit	-13 dBm
Part 27.53(m) Limit	-25 dBm

### 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.

**Low Antenna**

WCDMA Band IV CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3424.80	-65.26	2.70	12.70	Horizontal	-55.26	-13.00	42.26	180
3	5137.20	-61.57	3.20	12.50	Horizontal	-52.27	-13.00	39.27	180
4	6849.60	-60.77	4.20	11.80	Horizontal	-53.17	-13.00	40.17	180
5	8562.00	-57.23	4.40	12.50	Horizontal	-49.13	-13.00	36.13	315
6	10274.40	-51.75	4.70	11.30	Horizontal	-45.15	-13.00	32.15	270
7	11986.80	-53.16	5.20	13.80	Horizontal	-44.56	-13.00	31.56	225
8	13699.20	-49.73	5.70	11.30	Horizontal	-44.13	-13.00	31.13	135
9	15411.60	-53.48	6.10	16.80	Horizontal	-42.78	-13.00	29.78	90
10	17124.00	-49.21	6.10	14.20	Horizontal	-41.11	-13.00	28.11	135

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 4 QPSK 1.4MHz 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	3464.25	-67.04	2.70	12.70	Horizontal	-57.04	-13.00	44.04	135
3	5197.50	-61.59	3.20	12.50	Horizontal	-52.29	-13.00	39.29	45
4	6930.00	-63.32	4.20	11.80	Horizontal	-55.72	-13.00	42.72	180
5	8662.50	-56.21	4.40	12.50	Horizontal	-48.11	-13.00	35.11	315
6	10395.00	-50.84	4.70	11.30	Horizontal	-44.24	-13.00	31.24	0
7	12127.50	-52.79	5.20	13.80	Horizontal	-44.19	-13.00	31.19	45
8	13860.00	-50.63	5.70	11.30	Horizontal	-45.03	-13.00	32.03	225
9	15592.50	-53.06	6.10	16.80	Horizontal	-42.36	-13.00	29.36	180
10	17325.00	-51.44	6.10	14.20	Horizontal	-43.34	-13.00	30.34	315

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 4 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	3460.00	-65.45	2.70	12.70	Horizontal	-55.45	-13.00	42.45	225
3	5190.00	-62.64	3.20	12.50	Horizontal	-53.34	-13.00	40.34	45
4	6920.00	-62.77	4.20	11.80	Horizontal	-55.17	-13.00	42.17	90
5	8650.00	-55.16	4.40	12.50	Horizontal	-47.06	-13.00	34.06	270
6	10380.00	-52.34	4.70	11.30	Horizontal	-45.74	-13.00	32.74	315
7	12110.00	-53.16	5.20	13.80	Horizontal	-44.56	-13.00	31.56	45
8	13840.00	-49.88	5.70	11.30	Horizontal	-44.28	-13.00	31.28	135
9	15570.00	-55.35	6.10	16.80	Horizontal	-44.65	-13.00	31.65	180
10	17300.00	-50.64	6.10	14.20	Horizontal	-42.54	-13.00	29.54	90

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 4 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	3447.75	-66.30	2.70	12.70	Horizontal	-56.30	-13.00	43.30	315
3	5170.88	-61.74	3.20	12.50	Horizontal	-52.44	-13.00	39.44	270
4	6930.00	-60.79	4.20	11.80	Horizontal	-53.19	-13.00	40.19	0
5	8662.50	-56.66	4.40	12.50	Horizontal	-48.56	-13.00	35.56	45
6	10395.00	-51.26	4.70	11.30	Horizontal	-44.66	-13.00	31.66	315
7	12127.50	-53.91	5.20	13.80	Horizontal	-45.31	-13.00	32.31	225
8	13860.00	-51.48	5.70	11.30	Horizontal	-45.88	-13.00	32.88	180
9	15592.50	-54.10	6.10	16.80	Horizontal	-43.40	-13.00	30.40	90
10	17325.00	-52.46	6.10	14.20	Horizontal	-44.36	-13.00	31.36	315

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 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	5065.00	-60.84	3.40	12.50	Horizontal	-51.74	-25.00	26.74	135
3	7597.50	-56.85	4.40	12.20	Horizontal	-49.05	-25.00	24.05	45
4	10130.00	-51.94	4.70	11.30	Horizontal	-45.34	-25.00	20.34	0
5	12662.50	-51.28	5.40	13.20	Horizontal	-43.48	-25.00	18.48	225
6	15195.00	-49.27	6.10	13.10	Horizontal	-42.27	-25.00	17.27	180
7	17727.50	-50.46	6.10	14.20	Horizontal	-42.36	-25.00	17.36	315
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	5050.00	-61.51	3.40	12.50	Horizontal	-52.41	-25.00	27.41	45
3	7575.00	-58.22	4.40	12.20	Horizontal	-50.42	-25.00	25.42	135
4	10100.00	-52.02	4.70	11.30	Horizontal	-45.42	-25.00	20.42	180
5	12625.00	-51.88	5.40	13.20	Horizontal	-44.08	-25.00	19.08	0
6	15150.00	-48.83	6.10	13.10	Horizontal	-41.83	-25.00	16.83	315
7	17675.00	-50.36	6.10	14.20	Horizontal	-42.26	-25.00	17.26	225
8	20208.80	--	--	--	--	--	--	--	--
9	22734.90	--	--	--	--	--	--	--	--
10	25261.00	--	--	--	--	--	--	--	--

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	5185.00	-56.74	3.20	12.50	Horizontal	-47.44	-25.00	22.44	180
3	7778.40	-36.09	4.40	12.30	Horizontal	-28.19	-25.00	3.19	45
4	10370.00	-45.89	4.70	11.80	Horizontal	-38.79	-25.00	13.79	45
5	12962.50	-46.90	5.40	14.00	Horizontal	-38.30	-25.00	13.30	270
6	15555.00	-52.98	6.10	16.80	Horizontal	-42.28	-25.00	17.28	180
7	18147.50	--	--	--	--	--	--	--	--
8	20740.00	--	--	--	--	--	--	--	--
9	23332.50	--	--	--	--	--	--	--	--
10	25925.00	--	--	--	--	--	--	--	--

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	5170.00	-55.13	3.20	12.50	Horizontal	-45.83	-25.00	20.83	315
3	7755.00	-38.71	4.40	12.30	Horizontal	-30.81	-25.00	5.81	45
4	10340.00	-43.05	4.70	11.80	Horizontal	-35.95	-25.00	10.95	225
5	12925.00	-45.12	5.40	14.00	Horizontal	-36.52	-25.00	11.52	0
6	15510.00	-55.09	6.10	16.80	Horizontal	-44.39	-25.00	19.39	180
7	18095.00	--	--	--	--	--	--	--	--
8	20680.00	--	--	--	--	--	--	--	--
9	23265.00	--	--	--	--	--	--	--	--
10	25850.00	--	--	--	--	--	--	--	--

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 41 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	5181.70	-53.87	3.20	12.50	Horizontal	-44.57	-25.00	19.57	0
3	7772.80	-38.59	4.40	12.30	Horizontal	-30.69	-25.00	5.69	315
4	10363.60	-44.68	4.70	11.80	Horizontal	-37.58	-25.00	12.58	0
5	12954.20	-44.78	5.40	14.00	Horizontal	-36.18	-25.00	11.18	45
6	15489.90	-52.92	6.10	16.80	Horizontal	-42.22	-25.00	17.22	315
7	18071.55	--	--	--	--	--	--	--	--
8	20653.20	--	--	--	--	--	--	--	--
9	23234.85	--	--	--	--	--	--	--	--
10	25816.50	--	--	--	--	--	--	--	--

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 41 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	5168.40	-55.47	3.20	12.50	Horizontal	-46.17	-25.00	21.17	225
3	7752.20	-39.08	4.40	12.30	Horizontal	-31.18	-25.00	6.18	45
4	10336.40	-41.72	4.70	11.80	Horizontal	-34.62	-25.00	9.62	90
5	12920.00	-44.05	5.40	14.00	Horizontal	-35.45	-25.00	10.45	0
6	15448.80	-51.74	6.10	16.80	Horizontal	-41.04	-25.00	16.04	315
7	18023.60	--	--	--	--	--	--	--	--
8	20598.40	--	--	--	--	--	--	--	--
9	23173.20	--	--	--	--	--	--	--	--
10	25748.00	--	--	--	--	--	--	--	--

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.

**Upper Antenna**

WCDMA Band IV CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3465.20	-67.12	2.70	12.70	Horizontal	-57.12	-13.00	44.12	180
3	5197.80	-61.24	3.20	12.50	Horizontal	-51.94	-13.00	38.94	180
4	6930.40	-61.10	4.20	11.80	Horizontal	-53.50	-13.00	40.50	180
5	8663.00	-56.02	4.40	12.50	Horizontal	-47.92	-13.00	34.92	315
6	10395.60	-49.09	4.70	11.30	Horizontal	-42.49	-13.00	29.49	270
7	12128.20	-50.80	5.20	13.80	Horizontal	-42.20	-13.00	29.20	225
8	13860.80	-50.37	5.70	11.30	Horizontal	-44.77	-13.00	31.77	135
9	15593.40	-53.12	6.10	16.80	Horizontal	-42.42	-13.00	29.42	90
10	17326.00	-49.60	6.10	14.20	Horizontal	-41.50	-13.00	28.50	135

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 4 QPSK 1.4MHz 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	3464.25	-67.13	2.70	12.70	Horizontal	-57.13	-13.00	44.13	135
3	5197.50	-56.01	3.20	12.50	Horizontal	-46.71	-13.00	33.71	45
4	6930.00	-58.92	4.20	11.80	Horizontal	-51.32	-13.00	38.32	180
5	8662.50	-57.93	4.40	12.50	Horizontal	-49.83	-13.00	36.83	315
6	10395.00	-52.74	4.70	11.30	Horizontal	-46.14	-13.00	33.14	0
7	12127.50	-55.25	5.20	13.80	Horizontal	-46.65	-13.00	33.65	45
8	13860.00	-49.92	5.70	11.30	Horizontal	-44.32	-13.00	31.32	225
9	15592.50	-59.61	6.10	16.80	Horizontal	-48.91	-13.00	35.91	180
10	17325.00	-53.28	6.10	14.20	Horizontal	-45.18	-13.00	32.18	315

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 4 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	3460.00	-68.55	2.70	12.70	Horizontal	-58.55	-13.00	45.55	225
3	5190.00	-51.85	3.20	12.50	Horizontal	-42.55	-13.00	29.55	45
4	6920.00	-60.24	4.20	11.80	Horizontal	-52.64	-13.00	39.64	90
5	8650.00	-57.59	4.40	12.50	Horizontal	-49.49	-13.00	36.49	270
6	10380.00	-53.68	4.70	11.30	Horizontal	-47.08	-13.00	34.08	315
7	12110.00	-55.45	5.20	13.80	Horizontal	-46.85	-13.00	33.85	45
8	13840.00	-48.87	5.70	11.30	Horizontal	-43.27	-13.00	30.27	135
9	15570.00	-58.98	6.10	16.80	Horizontal	-48.28	-13.00	35.28	180
10	17300.00	-53.29	6.10	14.20	Horizontal	-45.19	-13.00	32.19	90

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 4 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	3447.75	-66.32	2.70	12.70	Horizontal	-56.32	-13.00	43.32	315
3	5170.88	-55.60	3.20	12.50	Horizontal	-46.30	-13.00	33.30	270
4	6930.00	-59.15	4.20	11.80	Horizontal	-51.55	-13.00	38.55	0
5	8662.50	-57.97	4.40	12.50	Horizontal	-49.87	-13.00	36.87	45
6	10395.00	-62.76	4.70	11.30	Horizontal	-56.16	-13.00	43.16	315
7	12127.50	-55.25	5.20	13.80	Horizontal	-46.65	-13.00	33.65	225
8	13860.00	-48.59	5.70	11.30	Horizontal	-42.99	-13.00	29.99	180
9	15592.50	-59.14	6.10	16.80	Horizontal	-48.44	-13.00	35.44	90
10	17325.00	-53.30	6.10	14.20	Horizontal	-45.20	-13.00	32.20	315

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 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	5065.00	-60.66	3.40	12.50	Horizontal	-51.56	-25.00	26.56	135
3	7597.50	-54.03	4.40	12.20	Horizontal	-46.23	-25.00	21.23	45
4	10130.00	-49.89	4.70	11.30	Horizontal	-43.29	-25.00	18.29	0
5	12662.50	-54.74	5.40	13.20	Horizontal	-46.94	-25.00	21.94	225
6	15195.00	-54.01	6.10	13.10	Horizontal	-47.01	-25.00	22.01	180
7	17727.50	-54.95	6.10	14.20	Horizontal	-46.85	-25.00	21.85	315
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	5050.00	-61.30	3.40	12.50	Horizontal	-52.20	-25.00	27.20	45
3	7575.00	-54.78	4.40	12.20	Horizontal	-46.98	-25.00	21.98	135
4	10100.00	-50.65	4.70	11.30	Horizontal	-44.05	-25.00	19.05	180
5	12625.00	-54.18	5.40	13.20	Horizontal	-46.38	-25.00	21.38	0
6	15150.00	-53.88	6.10	13.10	Horizontal	-46.88	-25.00	21.88	315
7	17675.00	-54.15	6.10	14.20	Horizontal	-46.05	-25.00	21.05	225
8	20208.80	--	--	--	--	--	--	--	--
9	22734.90	--	--	--	--	--	--	--	--
10	25261.00	--	--	--	--	--	--	--	--

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	5185.00	-58.62	3.20	12.50	Horizontal	-49.32	-25.00	24.32	90
3	7777.50	-37.20	4.40	12.30	Horizontal	-29.30	-25.00	4.30	0
4	10370.00	-44.17	4.70	11.80	Horizontal	-37.07	-25.00	12.07	180
5	12962.50	-46.32	5.40	14.00	Horizontal	-37.72	-25.00	12.72	270
6	15555.00	-51.79	6.10	16.80	Horizontal	-41.09	-25.00	16.09	0
7	18147.50	--	--	--	--	--	--	--	--
8	20740.00	--	--	--	--	--	--	--	--
9	23332.50	--	--	--	--	--	--	--	--
10	25925.00	--	--	--	--	--	--	--	--

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	5170.00	-56.77	3.20	12.50	Horizontal	-47.47	-25.00	22.47	45
3	7755.00	-36.90	4.40	12.30	Horizontal	-29.00	-25.00	4.00	45
4	10340.00	-48.42	4.70	11.80	Horizontal	-41.32	-25.00	16.32	90
5	12925.00	-46.97	5.40	14.00	Horizontal	-38.37	-25.00	13.37	225
6	15510.00	-54.02	6.10	16.80	Horizontal	-43.32	-25.00	18.32	180
7	18095.00	--	--	--	--	--	--	--	--
8	20680.00	--	--	--	--	--	--	--	--
9	23265.00	--	--	--	--	--	--	--	--
10	25850.00	--	--	--	--	--	--	--	--

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 41 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	5181.70	-57.89	3.20	12.50	Horizontal	-48.59	-25.00	23.59	225
3	7772.80	-42.06	4.40	12.30	Horizontal	-34.16	-25.00	9.16	315
4	10363.60	-49.56	4.70	11.80	Horizontal	-42.46	-25.00	17.46	225
5	12954.20	-47.20	5.40	14.00	Horizontal	-38.60	-25.00	13.60	270
6	15489.90	-52.59	6.10	16.80	Horizontal	-41.89	-25.00	16.89	270
7	18071.55	--	--	--	--	--	--	--	--
8	20653.20	--	--	--	--	--	--	--	--
9	23234.85	--	--	--	--	--	--	--	--
10	25816.50	--	--	--	--	--	--	--	--

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 41 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	5168.10	-56.82	3.20	12.50	Horizontal	-47.52	-25.00	22.52	135
3	7752.60	-38.27	4.40	12.30	Horizontal	-30.37	-25.00	5.37	135
4	10336.40	-46.14	4.70	11.80	Horizontal	-39.04	-25.00	14.04	180
5	12920.00	-45.47	5.40	14.00	Horizontal	-36.87	-25.00	11.87	180
6	15448.80	-52.78	6.10	16.80	Horizontal	-42.08	-25.00	17.08	90
7	18023.60	--	--	--	--	--	--	--	--
8	20598.40	--	--	--	--	--	--	--	--
9	23173.20	--	--	--	--	--	--	--	--
10	25748.00	--	--	--	--	--	--	--	--

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	113645	2021-05-15	2022-05-14
Climate Chamber	Weiss	VT4002	58226119450 010	2021-05-15	2022-05-14
Spectrum Analyzer	Keysight	N9020A	MY52330084	2021-05-15	2022-05-14
Universal Radio Communication Tester	Key sight	E5515C	GB44400275	2021-05-15	2022-05-14
Signal Analyzer	R&S	FSV3030	101411	2021-12-12	2022-12-12
Signal Analyzer	R&S	FSV30	100815	2021-12-12	2022-12-11
Loop antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01439	2021-06-30	2024-06-29
Horn Antenna	Schwarzbeck	BBHA 9120D	01799	2019-09-21	2022-09-20
Horn Antenna	ETS-Lindgren	3160-09	00102643	2020-08-11	2023-08-10
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.



## ANNEX C: Product Change Description

The Product Change Description are submitted separately.