



RF TEST REPORT

Applicant Xiaomi Communications Co., Ltd.
FCC ID 2AFZZ119VL
Product Mobile Phone
Brand Redmi
Model 21121119VL
Report No. R2109A0821-R8V1
Issue Date November 15, 2021

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

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Version	Revision description	Issue Date
Rev.0	Initial issue of report.	November 8, 2021
Rev.1	Update Extreme Temperature	November 15, 2021
Note: This revised report (Report No. R2109A0821-R8V1) supersedes and replaces the previously issued report (Report No. R2109A0821-R8). Please discard or destroy the previously issued report and dispose of it accordingly.		



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(b)(10) /27.50(c)(10)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	27.53(h) /27.53(g) /27.53(f) /27.53(c)	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(g) /27.53(f) /27.53(c)	PASS
7	Radiates Spurious Emission	2.1053 /27.53(h) /27.53(g) /27.53(f) /27.53(c)	PASS
Date of Testing: October 15, 2021~ October 21, 2021			
Date of Sample Received: September 30, 2021			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			



1 Test Laboratory

1.1 Notes of the Test Report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3 Testing Location

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

2.1 Applicant and Manufacturer Information

Applicant	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	21121119VL		
IMEI	IMEI 1: 862440050025027 IMEI 2: 862440050025035		
Hardware Version	P2		
Software Version	MIUI12.5		
Antenna Type	PIFA Antenna		
Antenna Gain	Band	Low Antenna	Upper Antenna
	LTE Band 12/13/17	-3.7dBi	-4.8dBi
	LTE Band 66	-0.8dBi	-1.4dBi
Test Mode(s)	LTE Band 12/13/17/66;		
Test Modulation	(LTE)QPSK, 16QAM, 64QAM;		
LTE Category	7		
Maximum E.I.R.P./ E.R.P	LTE Band 12:	18.63dBm	
	LTE Band 13:	18.61dBm	
	LTE Band 17:	18.57dBm	
	LTE Band 66:	23.68dBm	
Rated Power Supply Voltage	3.87V		
Operating Voltage	Minimum:3.60V Maximum: 4.45V		
Operating Temperature	Lowest: -10°C Highest: +60°C		
Extreme Temperature	Lowest: -30°C Highest: +60°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	LTE Band 12	699 ~ 716	729 ~ 746
	LTE Band 13	777 ~ 787	746 ~ 756
	LTE Band 17	704 ~ 716	734 ~ 746
	LTE Band 66	1710 ~ 1780	2110 ~ 2180
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			



3 Applied Standards

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

Test standards:

FCC CFR47 Part 27C (2020)

FCC CFR47 Part 2 (2020)

Reference standard:

ANSI C63.26 (2015)

KDB 971168 D01 Power Meas License Digital Systems v03r01



4 Test Configuration

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

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

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

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

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

Test modes are chosen to be reported as the worst case configuration below for LTE Band 12/13/17/66:

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 12	O	O	O	O	-	-	O	O	O	O	O	O	O	O
	LTE 13	-	-	O	O	-	-	O	O	O	O	O	O	O	O
	LTE 17	-	-	O	O	-	-	O	O	O	O	O	O	O	O
	LTE 66	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 12	O	O	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 13	-	-	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 17	-	-	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 66	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE 12	O	O	O	O	-	-	O	O	O	-	O	O	-	O
	LTE 13	-	-	O	O	-	-	O	O	O	-	O	O	-	O
	LTE 17	-	-	O	O	-	-	O	O	O	-	O	O	-	O
	LTE 66	O	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 12	O	O	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 13	-	-	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 17	-	-	O	O	-	-	O	O	-	-	O	O	O	O
	LTE 66	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 12	O	O	O	O	-	-	O	O	O	-	-	-	O	-
	LTE 13	-	-	O	O	-	-	O	O	O	-	-	-	O	-
	LTE 17	-	-	O	O	-	-	O	O	O	-	-	-	O	-
	LTE 66	O	O	O	O	O	O	O	O	O	-	-	-	O	-
Spurious	LTE 12	O	O	O	O	-	-	O	-	O	-	-	O	O	O



Emissions at Antenna Terminals	LTE 13	-	-	O	O	-	-	O	-	O	-	-	O	O	O
	LTE 17	-	-	O	O	-	-	O	-	O	-	-	O	O	O
	LTE 66	O	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 12	O	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 13	-	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 17	-	-	O	O	-	-	O	-	O	-	-	-	O	-
	LTE 66	O	-	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.

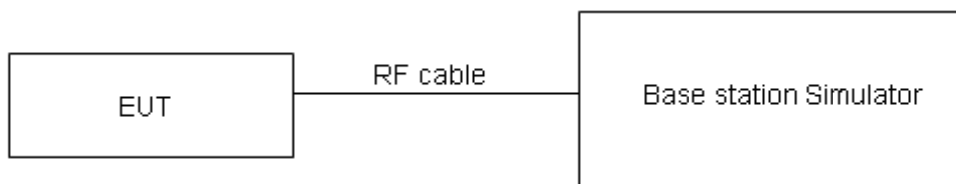
ERP can then be calculated as follows:

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

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

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

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

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

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

Part 27.50(b)(10)Limit	$\leq 3 \text{ W}$ (34.77 dBm)
Part 27.50(d)(4)Limit	$\leq 1 \text{ W}$ (30 dBm)
Part 27.50(c)(10)Limit	$\leq 3 \text{ W}$ (34.77 dBm)

Measurement Uncertainty

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



Test Results

LTE Band 12				Maximum Output Power (dBm)			ERP (dBm) (Low Antenna)			ERP (dBm) (Upper Antenna)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				23017/699.7	23095/707.5	23173/715.3	23017/699.7	23095/707.5	23173/715.3	23017/699.7	23095/707.5	23173/715.3
1.4MHz	QPSK	1	0	24.26	24.32	24.22	18.41	18.47	18.37	17.31	17.37	17.27
		1	2	24.47	24.37	24.37	18.62	18.52	18.52	17.52	17.42	17.42
		1	5	24.30	24.32	24.32	18.45	18.47	18.47	17.35	17.37	17.37
		3	0	24.39	24.36	24.34	18.54	18.51	18.49	17.44	17.41	17.39
		3	2	24.32	24.41	24.38	18.47	18.56	18.53	17.37	17.46	17.43
		3	3	24.48	24.36	24.31	18.63	18.51	18.46	17.53	17.41	17.36
		6	0	23.51	23.48	23.41	17.66	17.63	17.56	16.56	16.53	16.46
	16QAM	1	0	23.76	23.57	23.62	17.91	17.72	17.77	16.81	16.62	16.67
		1	2	23.74	23.62	23.66	17.89	17.77	17.81	16.79	16.67	16.71
		1	5	23.68	23.56	23.70	17.83	17.71	17.85	16.73	16.61	16.75
		3	0	23.52	23.31	23.37	17.67	17.46	17.52	16.57	16.36	16.42
		3	2	23.57	23.39	23.52	17.72	17.54	17.67	16.62	16.44	16.57
		3	3	23.60	23.37	23.46	17.75	17.52	17.61	16.65	16.42	16.51
		6	0	22.59	22.47	22.52	16.74	16.62	16.67	15.64	15.52	15.57
	64QAM	1	0	22.49	22.32	22.43	16.64	16.47	16.58	15.54	15.37	15.48
		1	2	22.60	22.44	22.46	16.75	16.59	16.61	15.65	15.49	15.51
		1	5	22.50	22.43	22.43	16.65	16.58	16.58	15.55	15.48	15.48
		3	0	22.62	22.54	22.61	16.77	16.69	16.76	15.67	15.59	15.66
		3	2	22.49	22.43	22.53	16.64	16.58	16.68	15.54	15.48	15.58
		3	3	22.69	22.54	22.54	16.84	16.69	16.69	15.74	15.59	15.59
		6	0	21.83	21.71	21.76	15.98	15.86	15.91	14.88	14.76	14.81
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				23025/700.5	23095/707.5	23165/714.5	23025/700.5	23095/707.5	23165/714.5	23025/700.5	23095/707.5	23165/714.5
3MHz	QPSK	1	0	24.28	24.36	24.25	18.43	18.51	18.40	17.33	17.41	17.30
		1	7	24.45	24.40	24.41	18.60	18.55	18.56	17.50	17.45	17.46
		1	14	24.33	24.37	24.36	18.48	18.52	18.51	17.38	17.42	17.41
		8	0	23.49	23.48	23.47	17.64	17.63	17.62	16.54	16.53	16.52
		8	4	23.44	23.51	23.50	17.59	17.66	17.65	16.49	16.56	16.55
		8	7	23.58	23.47	23.41	17.73	17.62	17.56	16.63	16.52	16.46
		15	0	23.51	23.52	23.44	17.66	17.67	17.59	16.56	16.57	16.49



	16QAM	1	0	23.79	23.59	23.65	17.94	17.74	17.80	16.84	16.64	16.70
		1	7	23.77	23.62	23.70	17.92	17.77	17.85	16.82	16.67	16.75
		1	14	23.70	23.60	23.73	17.85	17.75	17.88	16.75	16.65	16.78
		8	0	22.63	22.44	22.49	16.78	16.59	16.64	15.68	15.49	15.54
		8	4	22.68	22.52	22.64	16.83	16.67	16.79	15.73	15.57	15.69
		8	7	22.70	22.49	22.59	16.85	16.64	16.74	15.75	15.54	15.64
		15	0	22.62	22.51	22.55	16.77	16.66	16.70	15.67	15.56	15.60
	64QAM	1	0	22.52	22.34	22.46	16.67	16.49	16.61	15.57	15.39	15.51
		1	7	22.63	22.44	22.48	16.78	16.59	16.63	15.68	15.49	15.53
		1	14	22.52	22.42	22.46	16.67	16.57	16.61	15.57	15.47	15.51
		8	0	21.73	21.67	21.73	15.88	15.82	15.88	14.78	14.72	14.78
		8	4	21.60	21.56	21.65	15.75	15.71	15.80	14.65	14.61	14.70
		8	7	21.79	21.66	21.67	15.94	15.81	15.82	14.84	14.71	14.72
		15	0	21.86	21.75	21.79	16.01	15.90	15.94	14.91	14.80	14.84
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				23035/ 701.5	23095/ 707.5	23155/ 713.5	23035/ 701.5	23095/ 707.5	23155/ 713.5	23035/ 701.5	23095/ 707.5	23155/ 713.5
5MHz	QPSK	1	0	24.25	24.34	24.21	18.40	18.49	18.36	17.30	17.39	17.26
		1	13	24.43	24.22	24.38	18.58	18.37	18.53	17.48	17.27	17.43
		1	24	24.30	24.32	24.32	18.45	18.47	18.47	17.35	17.37	17.37
		12	0	23.46	23.43	23.43	17.61	17.58	17.58	16.51	16.48	16.48
		12	6	23.42	23.47	23.45	17.57	17.62	17.60	16.47	16.52	16.50
		12	13	23.56	23.45	23.37	17.71	17.60	17.52	16.61	16.50	16.42
		25	0	23.51	23.51	23.42	17.66	17.66	17.57	16.56	16.56	16.47
	16QAM	1	0	23.76	23.55	23.62	17.91	17.70	17.77	16.81	16.60	16.67
		1	13	23.74	23.60	23.67	17.89	17.75	17.82	16.79	16.65	16.72
		1	24	23.67	23.58	23.69	17.82	17.73	17.84	16.72	16.63	16.74
		12	0	22.61	22.40	22.46	16.76	16.55	16.61	15.66	15.45	15.51
		12	6	22.65	22.47	22.60	16.80	16.62	16.75	15.70	15.52	15.65
		12	13	22.67	22.44	22.55	16.82	16.59	16.70	15.72	15.49	15.60
		25	0	22.60	22.47	22.50	16.75	16.62	16.65	15.65	15.52	15.55
	64QAM	1	0	22.49	22.34	22.43	16.64	16.49	16.58	15.54	15.39	15.48
		1	13	22.60	22.46	22.45	16.75	16.61	16.60	15.65	15.51	15.50
		1	24	22.53	22.40	22.42	16.68	16.55	16.57	15.58	15.45	15.47
		12	0	21.71	21.63	21.74	15.86	15.78	15.89	14.76	14.68	14.79
		12	6	21.57	21.51	21.61	15.72	15.66	15.76	14.62	14.56	14.66
		12	13	21.76	21.61	21.63	15.91	15.76	15.78	14.81	14.66	14.68



		25	0	21.84	21.71	21.74	15.99	15.86	15.89	14.89	14.76	14.79
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				23060/ 704	23095/ 707.5	23130/ 711	23060/ 704	23095/ 707.5	23130/ 711	23060/ 704	23095/ 707.5	23130/ 711
10MHz	QPSK	1	0	24.23	24.27	24.19	18.38	18.42	18.34	17.28	17.32	17.24
		1	25	24.43	24.36	24.37	18.58	18.51	18.52	17.48	17.41	17.42
		1	49	24.27	24.30	24.28	18.42	18.45	18.43	17.32	17.35	17.33
		25	0	23.44	23.39	23.40	17.59	17.54	17.55	16.49	16.44	16.45
		25	13	23.40	23.43	23.42	17.55	17.58	17.57	16.45	16.48	16.47
		25	25	23.52	23.41	23.34	17.67	17.56	17.49	16.57	16.46	16.39
		50	0	23.50	23.44	23.37	17.65	17.59	17.52	16.55	16.49	16.42
	16QAM	1	0	23.67	23.52	23.57	17.82	17.67	17.72	16.72	16.57	16.62
		1	25	23.71	23.59	23.64	17.86	17.74	17.79	16.76	16.64	16.69
		1	49	23.65	23.53	23.67	17.80	17.68	17.82	16.70	16.58	16.72
		25	0	22.58	22.39	22.44	16.73	16.54	16.59	15.63	15.44	15.49
		25	13	22.61	22.44	22.56	16.76	16.59	16.71	15.66	15.49	15.61
		25	25	22.65	22.40	22.52	16.80	16.55	16.67	15.70	15.45	15.57
		50	0	22.58	22.43	22.47	16.73	16.58	16.62	15.63	15.48	15.52
	64QAM	1	0	22.44	22.27	22.38	16.59	16.42	16.53	15.49	15.32	15.43
		1	25	22.57	22.41	22.42	16.72	16.56	16.57	15.62	15.46	15.47
		1	49	22.47	22.35	22.40	16.62	16.50	16.55	15.52	15.40	15.45
		25	0	21.68	21.62	21.68	15.83	15.77	15.83	14.73	14.67	14.73
		25	13	21.53	21.48	21.57	15.68	15.63	15.72	14.58	14.53	14.62
		25	25	21.74	21.57	21.60	15.89	15.72	15.75	14.79	14.62	14.65
		50	0	21.82	21.67	21.71	15.97	15.82	15.86	14.87	14.72	14.76

LTE Band 13				Maximum Output Power (dBm)			ERP (dBm) (Low Antenna)			ERP (dBm) (Upper Antenna)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				23205/779.5	23230/782	23255/784.5	23205/779.5	23230/782	23255/784.5	23205/779.5	23230/782	23255/784.5
5MHz	QPSK	1	0	24.30	24.26	24.29	18.45	18.41	18.44	17.35	17.31	17.34
		1	13	24.39	24.38	24.34	18.54	18.53	18.49	17.44	17.43	17.39
		1	24	24.24	24.19	24.20	18.39	18.34	18.35	17.29	17.24	17.25
		12	0	24.46	24.42	24.41	18.61	18.57	18.56	17.51	17.47	17.46
		12	6	23.52	23.47	23.47	17.67	17.62	17.62	16.57	16.52	16.52
		12	13	23.56	23.53	23.52	17.71	17.68	17.67	16.61	16.58	16.57



	16QAM	25	0	23.50	23.46	23.47	17.65	17.61	17.62	16.55	16.51	16.52
		1	0	23.58	23.56	23.57	17.73	17.71	17.72	16.63	16.61	16.62
		1	13	23.69	23.66	23.65	17.84	17.81	17.80	16.74	16.71	16.70
		1	24	23.65	23.61	23.63	17.80	17.76	17.78	16.70	16.66	16.68
		12	0	22.43	22.41	22.38	16.58	16.56	16.53	15.48	15.46	15.43
		12	6	22.49	22.44	22.45	16.64	16.59	16.60	15.54	15.49	15.50
		12	13	22.57	22.53	22.53	16.72	16.68	16.68	15.62	15.58	15.58
		25	0	22.46	22.41	22.41	16.61	16.56	16.56	15.51	15.46	15.46
	64QAM	1	0	22.70	22.68	22.71	16.85	16.83	16.86	15.75	15.73	15.76
		1	13	22.77	22.74	22.77	16.92	16.89	16.92	15.82	15.79	15.82
		1	24	22.76	22.75	22.74	16.91	16.90	16.89	15.81	15.80	15.79
		12	0	21.92	21.94	21.87	16.07	16.09	16.02	14.97	14.99	14.92
		12	6	21.88	21.85	21.84	16.03	16.00	15.99	14.93	14.90	14.89
		12	13	21.92	21.88	21.87	16.07	16.03	16.02	14.97	14.93	14.92
		25	0	21.88	21.83	21.85	16.03	15.98	16.00	14.93	14.88	14.90
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				/	23230/782	/	/	23230/782	/	/	23230/782	/
10MHz	QPSK	1	0	/	24.22	/	/	18.37	/	/	17.27	/
		1	25	/	24.34	/	/	18.49	/	/	17.39	/
		1	49	/	24.18	/	/	18.33	/	/	17.23	/
		25	0	/	23.37	/	/	17.52	/	/	16.42	/
		25	13	/	23.43	/	/	17.58	/	/	16.48	/
		25	25	/	23.48	/	/	17.63	/	/	16.53	/
		50	0	/	23.41	/	/	17.56	/	/	16.46	/
	16QAM	1	0	/	23.52	/	/	17.67	/	/	16.57	/
		1	25	/	23.64	/	/	17.79	/	/	16.69	/
		1	49	/	23.58	/	/	17.73	/	/	16.63	/
		25	0	/	22.37	/	/	16.52	/	/	15.42	/
		25	13	/	22.42	/	/	16.57	/	/	15.47	/
		25	25	/	22.48	/	/	16.63	/	/	15.53	/
		50	0	/	22.37	/	/	16.52	/	/	15.42	/
	64QAM	1	0	/	22.64	/	/	16.79	/	/	15.69	/
		1	25	/	22.72	/	/	16.87	/	/	15.77	/
		1	49	/	22.69	/	/	16.84	/	/	15.74	/
		25	0	/	21.86	/	/	16.01	/	/	14.91	/
		25	13	/	21.81	/	/	15.96	/	/	14.86	/



		25	25	/	21.83	/	/	15.98	/	/	14.88	/
		50	0	/	21.79	/	/	15.94	/	/	14.84	/

LTE Band 17				Maximum Output Power (dBm)			ERP (dBm) (Low Antenna)			ERP (dBm) (Upper Antenna)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				23755/706.5	23790/710	23825/713.5	23755/706.5	23790/710	23825/713.5	23755/706.5	23790/710	23825/713.5
5MHz	QPSK	1	0	24.30	24.32	24.30	18.45	18.47	18.45	17.35	17.37	17.35
		1	13	24.38	24.40	24.42	18.53	18.55	18.57	17.43	17.45	17.47
		1	24	24.27	24.26	24.28	18.42	18.41	18.43	17.32	17.31	17.33
		12	0	23.38	23.45	23.45	17.53	17.60	17.60	16.43	16.50	16.50
		12	6	23.50	23.49	23.43	17.65	17.64	17.58	16.55	16.54	16.48
		12	13	23.54	23.46	23.41	17.69	17.61	17.56	16.59	16.51	16.46
		25	0	23.45	23.45	23.49	17.60	17.60	17.64	16.50	16.50	16.54
	16QAM	1	0	23.87	23.68	23.71	18.02	17.83	17.86	16.92	16.73	16.76
		1	13	23.85	23.74	23.74	18.00	17.89	17.89	16.90	16.79	16.79
		1	24	23.77	23.66	23.66	17.92	17.81	17.81	16.82	16.71	16.71
		12	0	22.58	22.42	22.66	16.73	16.57	16.81	15.63	15.47	15.71
		12	6	22.68	22.45	22.60	16.83	16.60	16.75	15.73	15.50	15.65
		12	13	22.52	22.40	22.42	16.67	16.55	16.57	15.57	15.45	15.47
		25	0	22.60	22.39	22.48	16.75	16.54	16.63	15.65	15.44	15.53
	64QAM	1	0	22.81	22.67	22.70	16.96	16.82	16.85	15.86	15.72	15.75
		1	13	22.65	22.53	22.57	16.80	16.68	16.72	15.70	15.58	15.62
		1	24	22.71	22.49	22.62	16.86	16.64	16.77	15.76	15.54	15.67
		12	0	21.82	21.66	21.74	15.97	15.81	15.89	14.87	14.71	14.79
		12	6	21.70	21.59	21.68	15.85	15.74	15.83	14.75	14.64	14.73
		12	13	21.61	21.49	21.52	15.76	15.64	15.67	14.66	14.54	14.57
		25	0	21.66	21.60	21.61	15.81	15.75	15.76	14.71	14.65	14.66
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				23780/709	23790/710	23800/711	23780/709	23790/710	23800/711	23780/709	23790/710	23800/711
10MHz	QPSK	1	0	24.28	24.25	24.28	18.43	18.40	18.43	17.33	17.30	17.33
		1	25	24.38	24.40	24.41	18.53	18.55	18.56	17.43	17.45	17.46
		1	49	24.24	24.24	24.24	18.39	18.39	18.39	17.29	17.29	17.29
		25	0	23.36	23.41	23.42	17.51	17.56	17.57	16.41	16.46	16.47
		25	13	23.48	23.45	23.40	17.63	17.60	17.55	16.53	16.50	16.45



		25	25	23.50	23.42	23.38	17.65	17.57	17.53	16.55	16.47	16.43
		50	0	23.44	23.38	23.44	17.59	17.53	17.59	16.49	16.43	16.49
	16QAM	1	0	23.79	23.65	23.66	17.94	17.80	17.81	16.84	16.70	16.71
		1	25	23.82	23.73	23.71	17.97	17.88	17.86	16.87	16.78	16.76
		1	49	23.75	23.61	23.64	17.90	17.76	17.79	16.80	16.66	16.69
		25	0	22.55	22.41	22.64	16.70	16.56	16.79	15.60	15.46	15.69
		25	13	22.64	22.42	22.56	16.79	16.57	16.71	15.69	15.47	15.61
		25	25	22.50	22.36	22.39	16.65	16.51	16.54	15.55	15.41	15.44
		50	0	22.58	22.35	22.45	16.73	16.50	16.60	15.63	15.40	15.50
	64QAM	1	0	22.76	22.60	22.65	16.91	16.75	16.80	15.81	15.65	15.70
		1	25	22.62	22.48	22.54	16.77	16.63	16.69	15.67	15.53	15.59
		1	49	22.65	22.44	22.60	16.80	16.59	16.75	15.70	15.49	15.65
		25	0	21.79	21.65	21.68	15.94	15.80	15.83	14.84	14.70	14.73
		25	13	21.66	21.56	21.64	15.81	15.71	15.79	14.71	14.61	14.69
		25	25	21.59	21.45	21.49	15.74	15.60	15.64	14.64	14.50	14.54
		50	0	21.64	21.56	21.58	15.79	15.71	15.73	14.69	14.61	14.63

LTE Band 66				Maximum Output Power (dBm)			EIRP (dBm) (Low Antenna)			EIRP (dBm) (Upper Antenna)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				131979/1710.7	132322/1745	132665/1779.3	131979/1710.7	132322/1745	132665/1779.3	131979/1710.7	132322/1745	132665/1779.3
1.4MHz	QPSK	1	0	24.13	24.12	24.05	23.33	23.32	23.25	22.73	22.72	22.65
		1	2	24.26	24.39	24.43	23.46	23.59	23.63	22.86	22.99	23.03
		1	5	24.18	24.15	24.11	23.38	23.35	23.31	22.78	22.75	22.71
		3	0	24.20	24.29	24.27	23.40	23.49	23.47	22.80	22.89	22.87
		3	2	24.29	24.37	24.16	23.49	23.57	23.36	22.89	22.97	22.76
		3	3	24.17	24.19	24.16	23.37	23.39	23.36	22.77	22.79	22.76
		6	0	23.42	23.32	23.19	22.62	22.52	22.39	22.02	21.92	21.79
	16QAM	1	0	23.36	23.23	23.30	22.56	22.43	22.50	21.96	21.83	21.90
		1	2	23.34	23.42	23.46	22.54	22.62	22.66	21.94	22.02	22.06
		1	5	23.21	23.27	23.35	22.41	22.47	22.55	21.81	21.87	21.95
		3	0	23.10	23.14	23.20	22.30	22.34	22.40	21.70	21.74	21.80
		3	2	23.28	23.32	23.40	22.48	22.52	22.60	21.88	21.92	22.00
		3	3	23.15	23.23	23.25	22.35	22.43	22.45	21.75	21.83	21.85
		6	0	22.21	22.25	22.31	21.41	21.45	21.51	20.81	20.85	20.91
	64QAM	1	0	22.28	22.27	22.35	21.48	21.47	21.55	20.88	20.87	20.95



		1	2	22.28	22.34	22.40	21.48	21.54	21.60	20.88	20.94	21.00
		1	5	22.25	22.43	22.45	21.45	21.63	21.65	20.85	21.03	21.05
		3	0	22.13	22.17	22.23	21.33	21.37	21.43	20.73	20.77	20.83
		3	2	22.32	22.30	22.41	21.52	21.50	21.61	20.92	20.90	21.01
		3	3	22.12	22.20	22.22	21.32	21.40	21.42	20.72	20.80	20.82
		6	0	21.25	21.25	21.35	20.45	20.45	20.55	19.85	19.85	19.95
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				131987/ 1711.5	132322/ 1745	132657/ 1778.5	131987/ 1711.5	132322/ 1745	132657/ 1778.5	131987/ 1711.5	132322/ 1745	132657/ 1778.5
3MHz	QPSK	1	0	24.15	24.16	24.08	23.35	23.36	23.28	22.75	22.76	22.68
		1	7	24.24	24.42	24.47	23.44	23.62	23.67	22.84	23.02	23.07
		1	14	24.21	24.20	24.15	23.41	23.40	23.35	22.81	22.80	22.75
		8	0	23.30	23.41	23.40	22.50	22.61	22.60	21.90	22.01	22.00
		8	4	23.41	23.47	23.28	22.61	22.67	22.48	22.01	22.07	21.88
		8	7	23.27	23.30	23.26	22.47	22.50	22.46	21.87	21.90	21.86
		15	0	23.42	23.36	23.22	22.62	22.56	22.42	22.02	21.96	21.82
	16QAM	1	0	23.39	23.25	23.33	22.59	22.45	22.53	21.99	21.85	21.93
		1	7	23.37	23.42	23.50	22.57	22.62	22.70	21.97	22.02	22.10
		1	14	23.23	23.31	23.38	22.43	22.51	22.58	21.83	21.91	21.98
		8	0	22.21	22.27	22.32	21.41	21.47	21.52	20.81	20.87	20.92
		8	4	22.39	22.45	22.52	21.59	21.65	21.72	20.99	21.05	21.12
		8	7	22.25	22.35	22.38	21.45	21.55	21.58	20.85	20.95	20.98
		15	0	22.24	22.29	22.34	21.44	21.49	21.54	20.84	20.89	20.94
	64QAM	1	0	22.31	22.29	22.38	21.51	21.49	21.58	20.91	20.89	20.98
		1	7	22.31	22.34	22.42	21.51	21.54	21.62	20.91	20.94	21.02
		1	14	22.27	22.42	22.48	21.47	21.62	21.68	20.87	21.02	21.08
		8	0	21.24	21.30	21.35	20.44	20.50	20.55	19.84	19.90	19.95
		8	4	21.43	21.43	21.53	20.63	20.63	20.73	20.03	20.03	20.13
		8	7	21.22	21.32	21.35	20.42	20.52	20.55	19.82	19.92	19.95
		15	0	21.28	21.29	21.38	20.48	20.49	20.58	19.88	19.89	19.98
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				131997/ 1712.5	132322/ 1745	132647/ 1777.5	131997/ 1712.5	132322/ 1745	132647/ 1777.5	131997/ 1712.5	132322/ 1745	132647/ 1777.5
5MHz	QPSK	1	0	24.12	24.14	24.04	23.32	23.34	23.24	22.72	22.74	22.64
		1	13	24.22	24.38	24.44	23.42	23.58	23.64	22.82	22.98	23.04
		1	24	24.18	24.15	24.11	23.38	23.35	23.31	22.78	22.75	22.71
		12	0	23.27	23.36	23.36	22.47	22.56	22.56	21.87	21.96	21.96



		12	6	23.39	23.43	23.23	22.59	22.63	22.43	21.99	22.03	21.83
		12	13	23.25	23.28	23.22	22.45	22.48	22.42	21.85	21.88	21.82
		25	0	23.42	23.35	23.20	22.62	22.55	22.40	22.02	21.95	21.80
	16QAM	1	0	23.36	23.21	23.30	22.56	22.41	22.50	21.96	21.81	21.90
		1	13	23.34	23.40	23.47	22.54	22.60	22.67	21.94	22.00	22.07
		1	24	23.20	23.29	23.34	22.40	22.49	22.54	21.80	21.89	21.94
		12	0	22.19	22.23	22.29	21.39	21.43	21.49	20.79	20.83	20.89
		12	6	22.36	22.40	22.48	21.56	21.60	21.68	20.96	21.00	21.08
		12	13	22.22	22.30	22.34	21.42	21.50	21.54	20.82	20.90	20.94
		25	0	22.22	22.25	22.29	21.42	21.45	21.49	20.82	20.85	20.89
	64QAM	1	0	22.28	22.29	22.35	21.48	21.49	21.55	20.88	20.89	20.95
		1	13	22.28	22.36	22.39	21.48	21.56	21.59	20.88	20.96	20.99
		1	24	22.28	22.40	22.44	21.48	21.60	21.64	20.88	21.00	21.04
		12	0	21.22	21.26	21.36	20.42	20.46	20.56	19.82	19.86	19.96
		12	6	21.40	21.38	21.49	20.60	20.58	20.69	20.00	19.98	20.09
		12	13	21.19	21.27	21.31	20.39	20.47	20.51	19.79	19.87	19.91
		25	0	21.26	21.25	21.33	20.46	20.45	20.53	19.86	19.85	19.93
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				132022/ 1715	132322/ 1745	132622/ 1775	132022/ 1715	132322/ 1745	132622/ 1775	132022/ 1715	132322/ 1745	132622/ 1775
10MHz	QPSK	1	0	24.14	24.15	24.07	23.34	23.35	23.27	22.74	22.75	22.67
		1	25	24.25	24.43	24.48	23.45	23.63	23.68	22.85	23.03	23.08
		1	49	24.20	24.19	24.14	23.40	23.39	23.34	22.80	22.79	22.74
		25	0	23.30	23.41	23.40	22.50	22.61	22.60	21.90	22.01	22.00
		25	13	23.42	23.48	23.27	22.62	22.68	22.47	22.02	22.08	21.87
		25	25	23.27	23.32	23.27	22.47	22.52	22.47	21.87	21.92	21.87
		50	0	23.46	23.37	23.24	22.66	22.57	22.44	22.06	21.97	21.84
	16QAM	1	0	23.38	23.24	23.32	22.58	22.44	22.52	21.98	21.84	21.92
		1	25	23.37	23.44	23.50	22.57	22.64	22.70	21.97	22.04	22.10
		1	49	23.23	23.31	23.37	22.43	22.51	22.57	21.83	21.91	21.97
		25	0	22.22	22.28	22.33	21.42	21.48	21.53	20.82	20.88	20.93
		25	13	22.38	22.44	22.51	21.58	21.64	21.71	20.98	21.04	21.11
		25	25	22.25	22.35	22.38	21.45	21.55	21.58	20.85	20.95	20.98
		50	0	22.25	22.30	22.33	21.45	21.50	21.53	20.85	20.90	20.93
	64QAM	1	0	22.30	22.28	22.37	21.50	21.48	21.57	20.90	20.88	20.97
		1	25	22.31	22.36	22.42	21.51	21.56	21.62	20.91	20.96	21.02
		1	49	22.27	22.42	22.47	21.47	21.62	21.67	20.87	21.02	21.07



		25	0	21.25	21.31	21.36	20.45	20.51	20.56	19.85	19.91	19.96
		25	13	21.42	21.42	21.52	20.62	20.62	20.72	20.02	20.02	20.12
		25	25	21.22	21.32	21.35	20.42	20.52	20.55	19.82	19.92	19.95
		50	0	21.29	21.30	21.37	20.49	20.50	20.57	19.89	19.90	19.97
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				132047/ 1717.5	132322/ 1745	132597/ 1772.5	132047/ 1717.5	132322/ 1745	132597/ 1772.5	132047/ 1717.5	132322/ 1745	132597/ 1772.5
15MHz	QPSK	1	0	24.13	24.11	24.05	23.33	23.31	23.25	22.73	22.71	22.65
		1	38	24.23	24.42	24.45	23.43	23.62	23.65	22.83	23.02	23.05
		1	74	24.17	24.14	24.10	23.37	23.34	23.30	22.77	22.74	22.70
		36	0	23.28	23.37	23.37	22.48	22.57	22.57	21.88	21.97	21.97
		36	18	23.39	23.43	23.23	22.59	22.63	22.43	21.99	22.03	21.83
		36	39	23.24	23.29	23.23	22.44	22.49	22.43	21.84	21.89	21.83
		75	0	23.44	23.33	23.19	22.64	22.53	22.39	22.04	21.93	21.79
	16QAM	1	0	23.33	23.22	23.30	22.53	22.42	22.50	21.93	21.82	21.90
		1	38	23.35	23.41	23.48	22.55	22.61	22.68	21.95	22.01	22.08
		1	74	23.20	23.27	23.34	22.40	22.47	22.54	21.80	21.87	21.94
		36	0	22.19	22.26	22.30	21.39	21.46	21.50	20.79	20.86	20.90
		36	18	22.35	22.39	22.47	21.55	21.59	21.67	20.95	20.99	21.07
		36	39	22.23	22.31	22.35	21.43	21.51	21.55	20.83	20.91	20.95
		75	0	22.22	22.25	22.29	21.42	21.45	21.49	20.82	20.85	20.89
	64QAM	1	0	22.25	22.26	22.35	21.45	21.46	21.55	20.85	20.86	20.95
		1	38	22.29	22.33	22.40	21.49	21.53	21.60	20.89	20.93	21.00
		1	74	22.28	22.41	22.48	21.48	21.61	21.68	20.88	21.01	21.08
		36	0	21.24	21.33	21.37	20.44	20.53	20.57	19.84	19.93	19.97
		36	18	21.40	21.39	21.51	20.60	20.59	20.71	20.00	19.99	20.11
		36	39	21.20	21.28	21.32	20.40	20.48	20.52	19.80	19.88	19.92
		75	0	21.26	21.25	21.33	20.46	20.45	20.53	19.86	19.85	19.93
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)								
				132072/ 1720	132322/ 1745	132572/ 1770	132072/ 1720	132322/ 1745	132572/ 1770	132072/ 1720	132322/ 1745	132572/ 1770
20MHz	QPSK	1	0	24.10	24.07	24.02	23.30	23.27	23.22	22.70	22.67	22.62
		1	50	24.22	24.38	24.43	23.42	23.58	23.63	22.82	22.98	23.03
		1	99	24.15	24.13	24.07	23.35	23.33	23.27	22.75	22.73	22.67
		50	0	23.25	23.32	23.33	22.45	22.52	22.53	21.85	21.92	21.93
		50	25	23.37	23.39	23.20	22.57	22.59	22.40	21.97	21.99	21.80
		50	50	23.21	23.24	23.19	22.41	22.44	22.39	21.81	21.84	21.79



		100	0	23.41	23.28	23.15	22.61	22.48	22.35	22.01	21.88	21.75
	16QAM	1	0	23.13	23.18	23.25	22.33	22.38	22.45	21.73	21.78	21.85
		1	50	23.31	23.39	23.44	22.51	22.59	22.64	21.91	21.99	22.04
		1	99	23.18	23.24	23.32	22.38	22.44	22.52	21.78	21.84	21.92
		50	0	22.16	22.22	22.27	21.36	21.42	21.47	20.76	20.82	20.87
		50	25	22.32	22.37	22.44	21.52	21.57	21.64	20.92	20.97	21.04
		50	50	22.20	22.26	22.31	21.40	21.46	21.51	20.80	20.86	20.91
		100	0	22.20	22.21	22.26	21.40	21.41	21.46	20.80	20.81	20.86
	64QAM	1	0	22.23	22.22	22.30	21.43	21.42	21.50	20.83	20.82	20.90
		1	50	22.25	22.31	22.36	21.45	21.51	21.56	20.85	20.91	20.96
		1	99	22.22	22.35	22.42	21.42	21.55	21.62	20.82	20.95	21.02
		50	0	21.19	21.25	21.30	20.39	20.45	20.50	19.79	19.85	19.90
		50	25	21.36	21.35	21.45	20.56	20.55	20.65	19.96	19.95	20.05
		50	50	21.17	21.23	21.28	20.37	20.43	20.48	19.77	19.83	19.88
		100	0	21.24	21.21	21.30	20.44	20.41	20.50	19.84	19.81	19.90

5.2 Occupied Bandwidth

Ambient condition

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

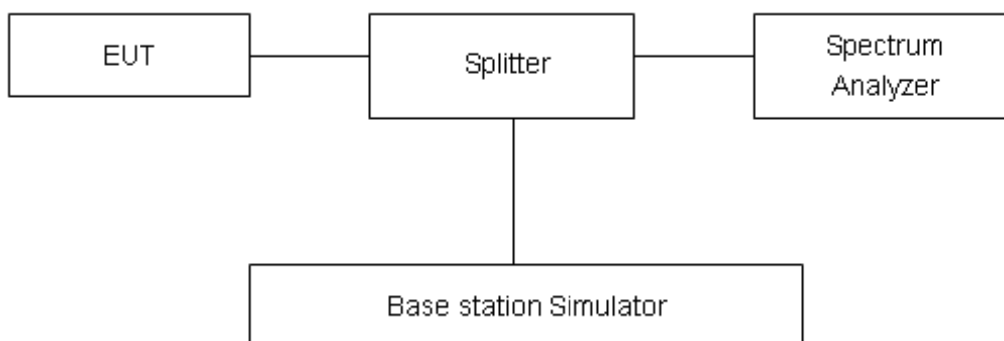
Method of Measurement

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

LTE Band 12						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	23017	699.7	1.090	1.265
			23095	707.5	1.094	1.292
			23173	715.3	1.095	1.282
		3	23025	700.5	2.700	2.921
			23095	707.5	2.693	2.929
			23165	714.5	2.702	2.936
		5	23035	701.5	4.521	5.195
			23095	707.5	4.518	5.104
			23155	713.5	4.538	5.119
		10	23060	704	8.998	9.930
			23095	707.5	9.007	10.212
			23130	711	8.990	10.044
	16QAM	1.4	23017	699.7	1.098	1.293
			23095	707.5	1.097	1.274
			23173	715.3	1.089	1.265
		3	23025	700.5	2.687	2.929
			23095	707.5	2.690	2.912
			23165	714.5	2.687	2.935
		5	23035	701.5	4.535	5.146
			23095	707.5	4.533	5.182
			23155	713.5	4.525	5.108
		10	23060	704	8.996	9.961
			23095	707.5	9.022	10.086
			23130	711	9.005	9.962
	64QAM	1.4	23017	699.7	1.093	1.281
			23095	707.5	1.102	1.306
			23173	715.3	1.090	1.268
		3	23025	700.5	2.682	2.891
			23095	707.5	2.689	2.929
			23165	714.5	2.690	2.936
		5	23035	701.5	4.516	5.087
			23095	707.5	4.516	5.108
			23155	713.5	4.526	5.158
		10	23060	704	9.014	10.039
			23095	707.5	9.001	9.969
			23130	711	8.999	9.822



LTE Band 13						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	23205	779.5	4.518	5.006
			23230	782	4.518	5.097
			23255	784.5	4.512	5.108
		10	23230	782	9.007	9.890
	16QAM	5	23205	779.5	4.548	5.177
			23230	782	4.510	5.168
			23255	784.5	4.525	5.017
		10	23230	782	9.024	9.973
	64QAM	5	23205	779.5	4.522	5.076
			23230	782	4.531	5.214
			23255	784.5	4.520	5.176
		10	23230	782	8.998	9.866

LTE Band 17						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	23755	706.5	4.516	5.125
			23790	710	4.529	5.158
			23825	713.5	4.508	5.096
		10	23780	709	8.990	10.044
			23790	710	9.025	10.064
			23800	711	9.023	9.987
	16QAM	5	23755	706.5	4.541	5.174
			23790	710	4.509	5.075
			23825	713.5	4.540	5.168
		10	23780	709	9.006	9.978
			23790	710	8.994	9.968
			23800	711	9.008	9.858
	64QAM	5	23755	706.5	4.541	5.174
			23790	710	4.509	5.075
			23825	713.5	4.540	5.168
		10	23780	709	9.006	9.978
			23790	710	8.994	9.968
			23800	711	9.008	9.858



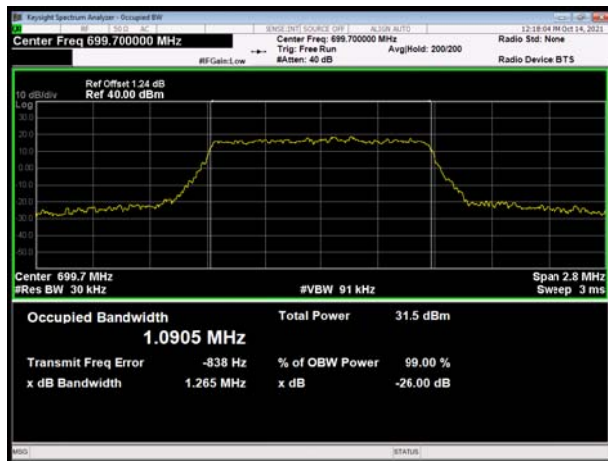
LTE Band 66						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	131979	1710.7	1.094	1.295
			132322	1745	1.088	1.284
			132665	1779.3	1.095	1.297
		3	131987	1711.5	2.685	2.918
			132322	1745	2.691	2.916
			132657	1778.5	2.685	2.911
		5	131997	1712.5	4.526	5.117
			132322	1745	4.526	5.152
			132647	1777.5	4.534	5.106
		10	132022	1715	9.007	10.188
			132322	1745	9.023	9.972
			132622	1775	9.012	10.078
		15	132047	1717.5	13.455	14.795
			132322	1745	13.513	14.986
			132597	1772.5	13.512	14.947
		20	132072	1720	17.968	19.648
			132322	1745	18.006	19.593
			132572	1770	18.018	19.600
	16QAM	1.4	131979	1710.7	1.093	1.282
			132322	1745	1.100	1.292
			132665	1779.3	1.090	1.276
		3	131987	1711.5	2.684	2.909
			132322	1745	2.694	2.935
			132657	1778.5	2.685	2.903
		5	131997	1712.5	4.510	5.098
			132322	1745	4.525	5.021
			132647	1777.5	4.533	5.217
		10	132022	1715	9.008	10.097
			132322	1745	9.014	9.952
			132622	1775	8.997	10.010
		15	132047	1717.5	13.495	14.847
			132322	1745	13.506	14.963
			132597	1772.5	13.527	14.933
		20	132072	1720	18.000	19.632
			132322	1745	17.994	19.517
			132572	1770	17.979	19.535



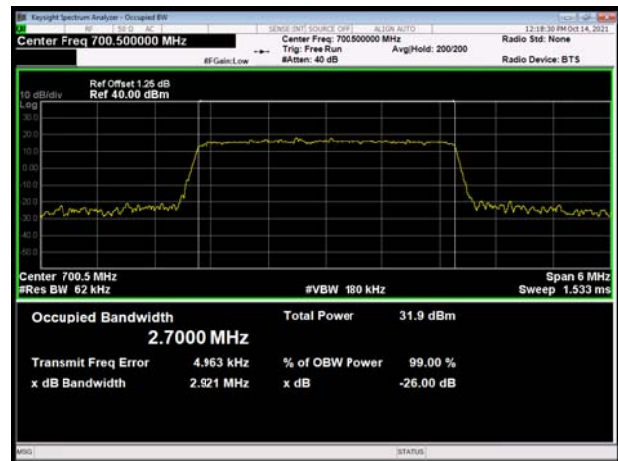
	64QAM	1.4	131979	1710.7	1.097	1.297
			132322	1745	1.096	1.302
			132665	1779.3	1.097	1.262
		3	131987	1711.5	2.686	2.915
			132322	1745	2.689	2.909
			132657	1778.5	2.686	2.909
		5	131997	1712.5	4.528	5.099
			132322	1745	4.552	5.046
			132647	1777.5	4.539	5.095
		10	132022	1715	8.995	9.880
			132322	1745	9.007	9.997
			132622	1775	9.011	10.037
		15	132047	1717.5	13.493	15.012
			132322	1745	13.461	14.971
			132597	1772.5	13.465	14.852
		20	132072	1720	17.965	19.692
			132322	1745	17.962	19.456
			132572	1770	17.982	19.727



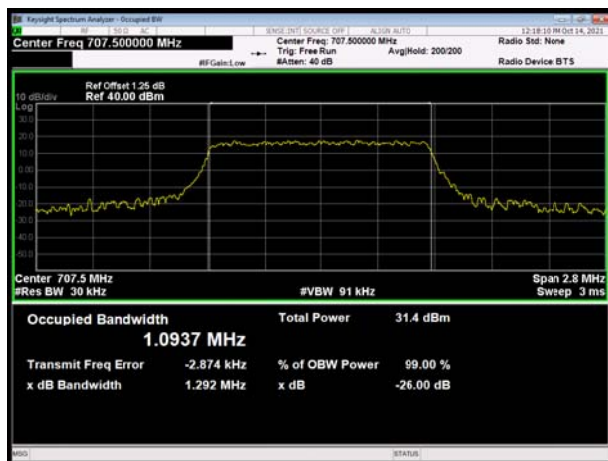
LTE Band 12 QPSK 1.4MHz CH-Low



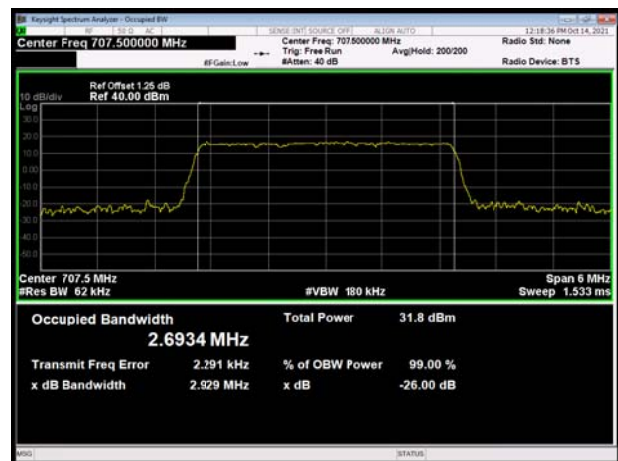
LTE Band 12 QPSK 3MHz CH-Low



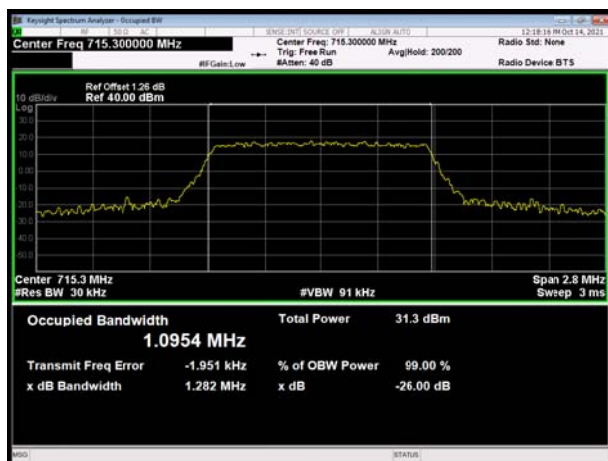
LTE Band 12 QPSK 1.4MHz CH-Middle



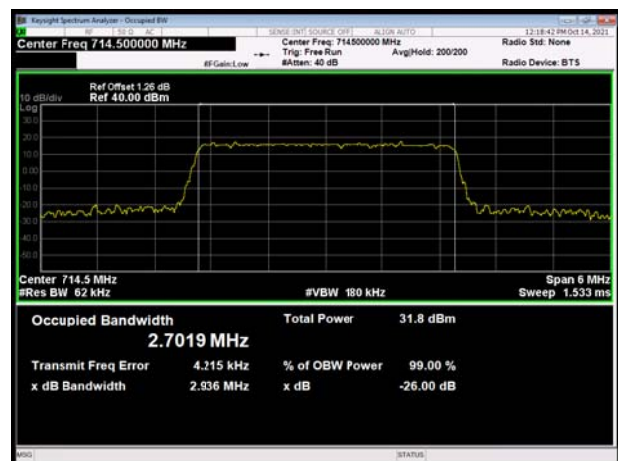
LTE Band 12 QPSK 3MHz CH-Middle



LTE Band 12 QPSK 1.4MHz CH-High

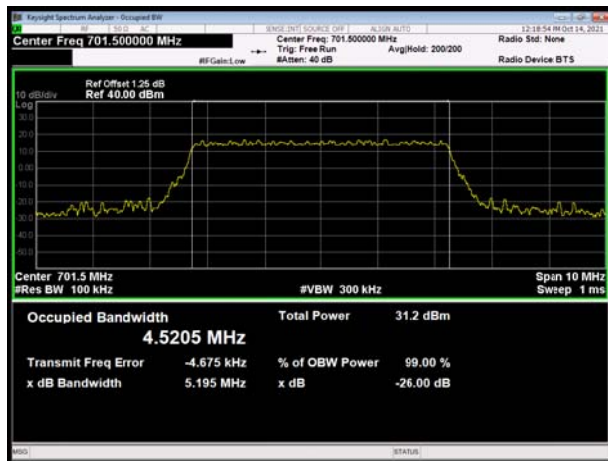


LTE Band 12 QPSK 3MHz CH-High





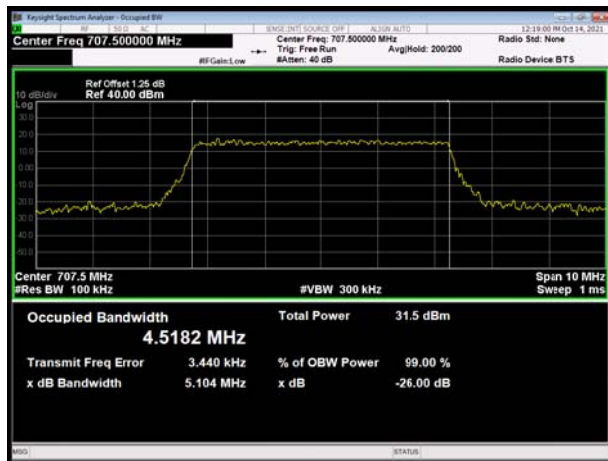
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LTE Band 12 QPSK 10MHz CH-Low



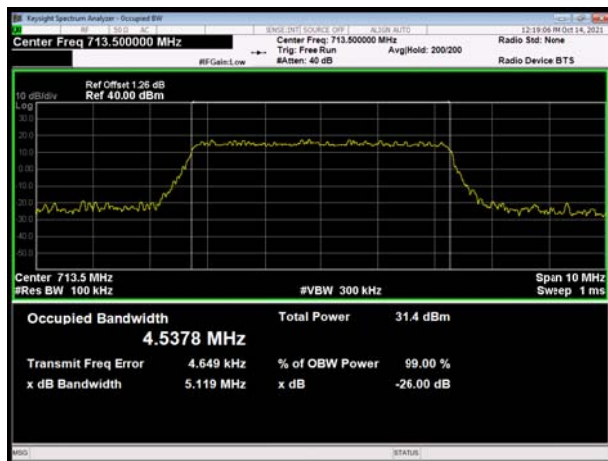
LTE Band 12 QPSK 5MHz CH-Middle



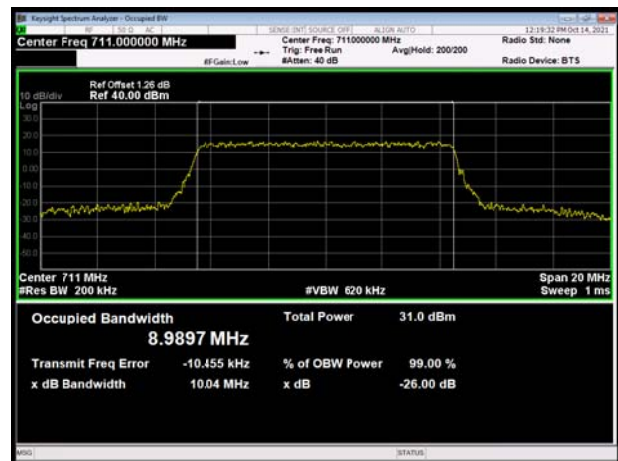
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LTE Band 12 QPSK 5MHz CH-High

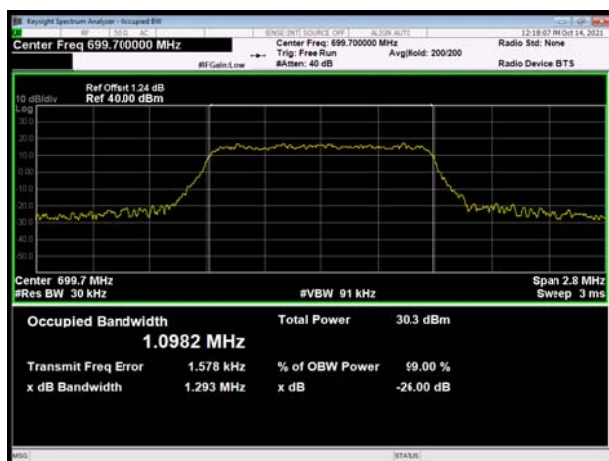


LTE Band 12 QPSK 10MHz CH-High

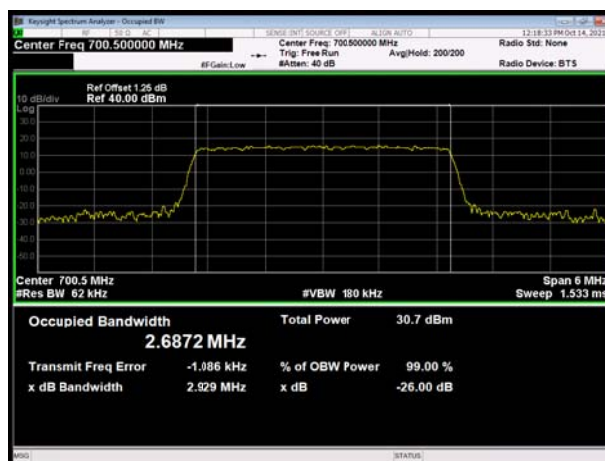




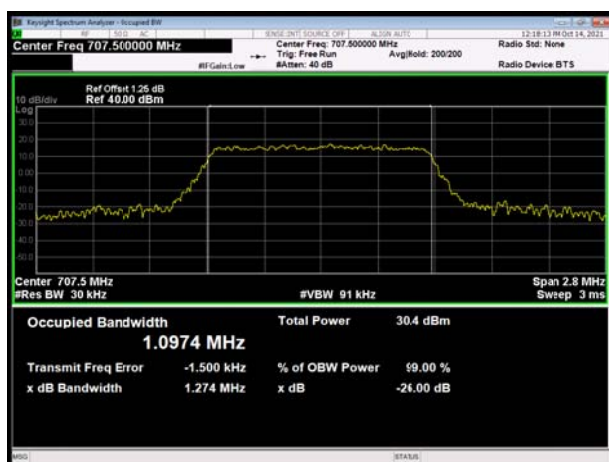
LTE Band 12 16QAM 1.4MHz CH-Low



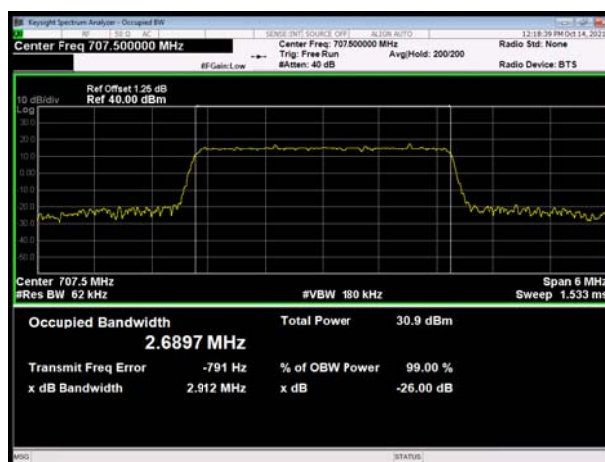
LTE Band 12 16QAM 3MHz CH-Low



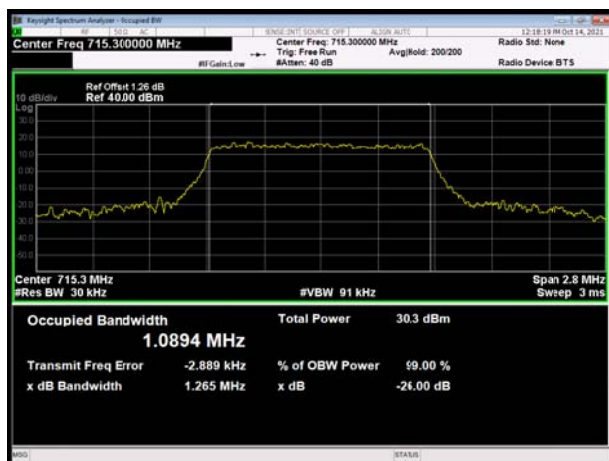
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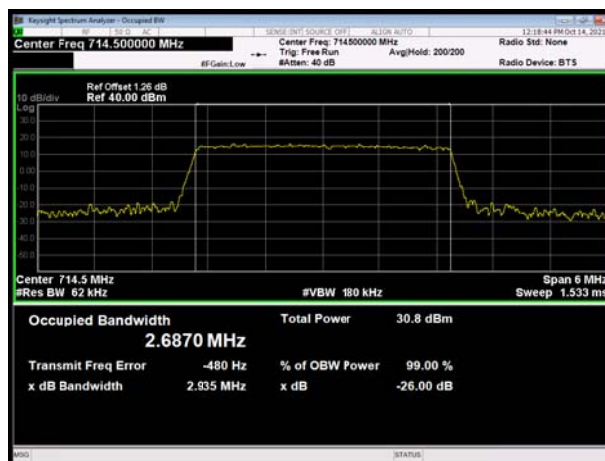
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LTE Band 12 16QAM 1.4MHz CH-High

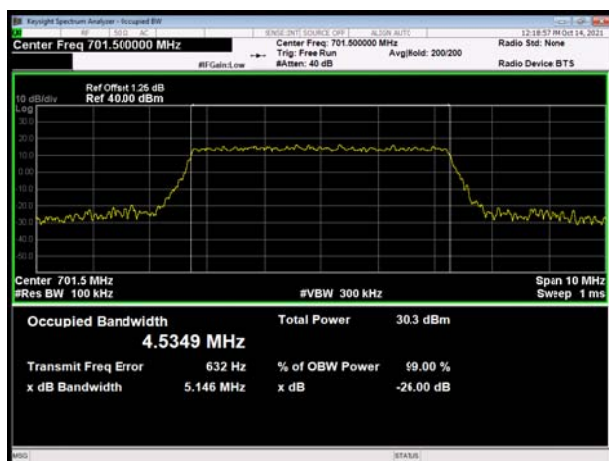


LTE Band 12 16QAM 3MHz CH-High

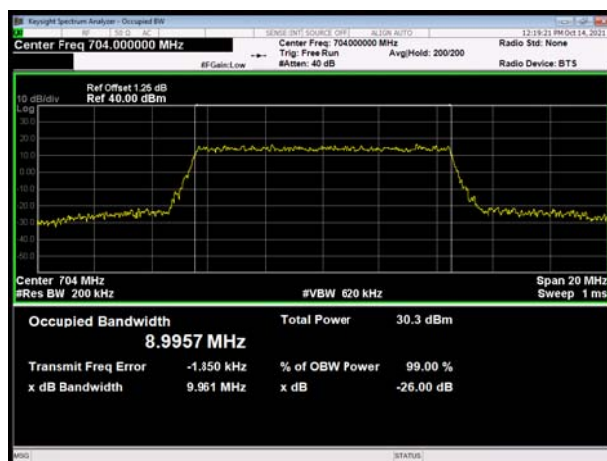




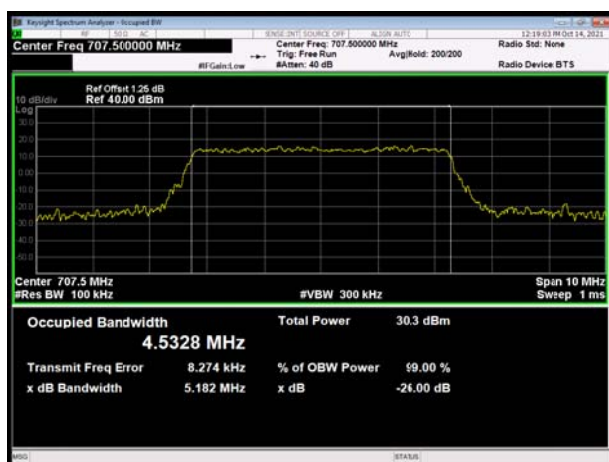
LTE Band 12 16QAM 5MHz CH-Low



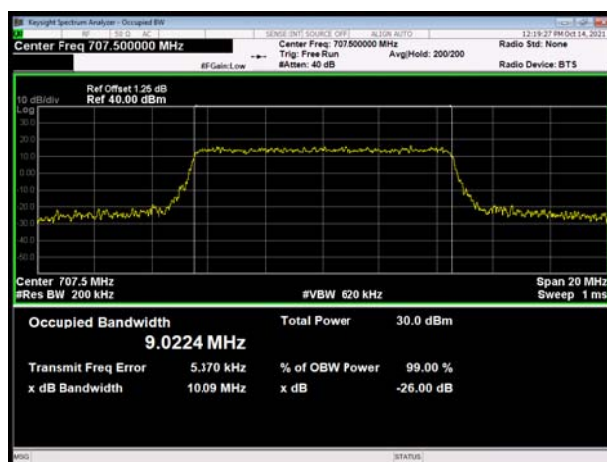
LTE Band 12 16QAM 10MHz CH-Low



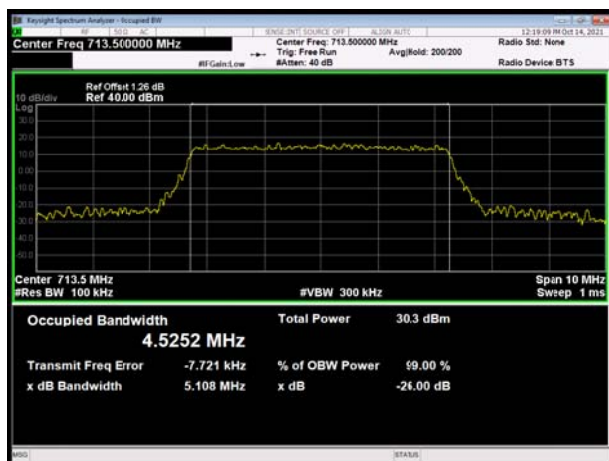
LTE Band 12 16QAM 5MHz CH-Middle



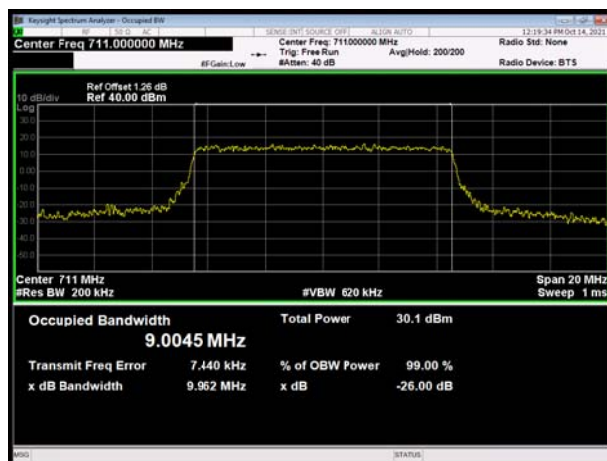
LTE Band 12 16QAM 10MHz CH-Middle



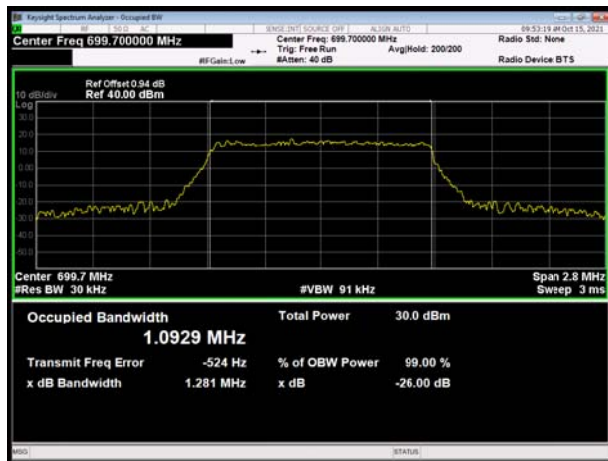
LTE Band 12 16QAM 5MHz CH-High



LTE Band 12 16QAM 10MHz CH-High



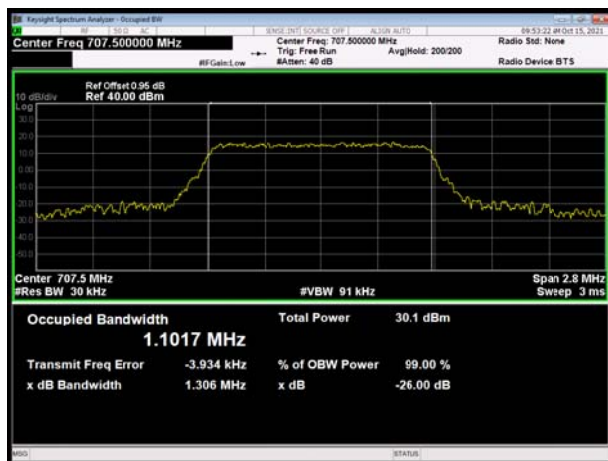
LTE Band 12 64QAM 1.4MHz CH-Low



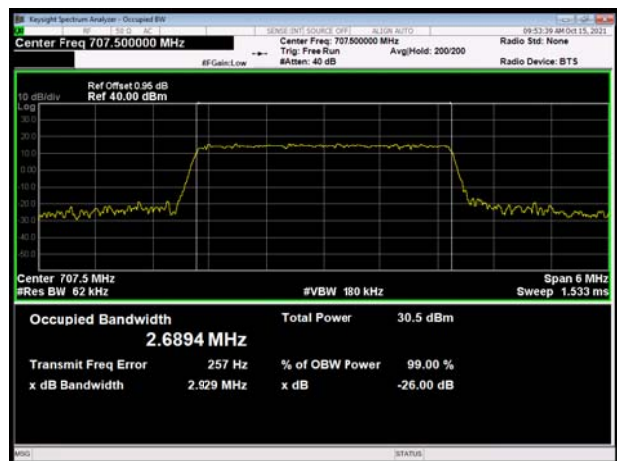
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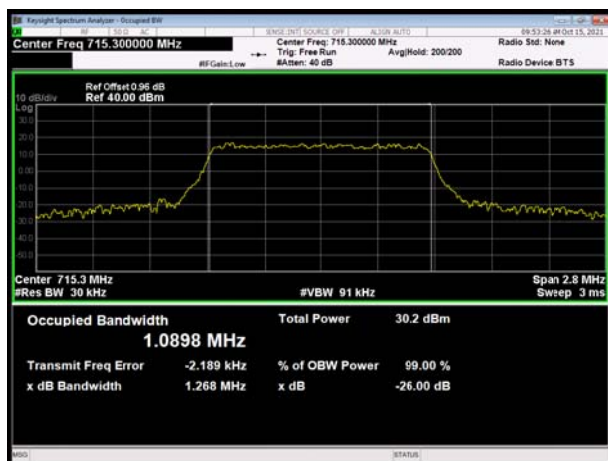
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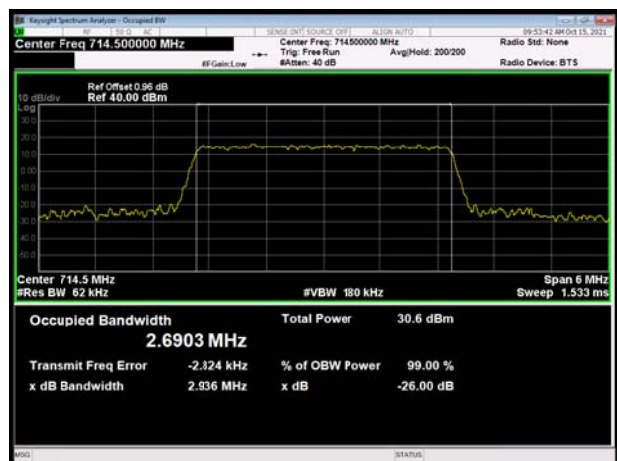
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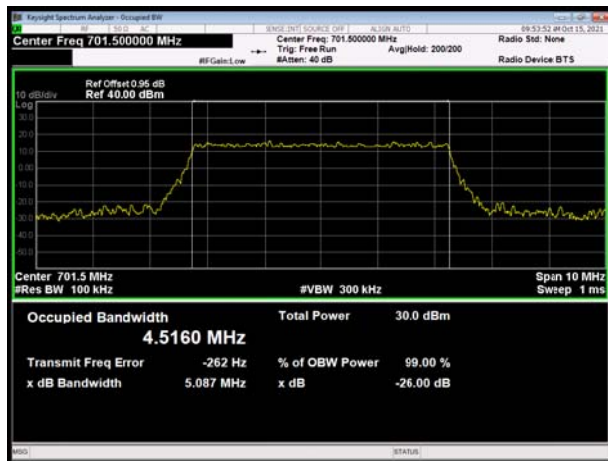
LTE Band 12 64QAM 1.4MHz CH-High



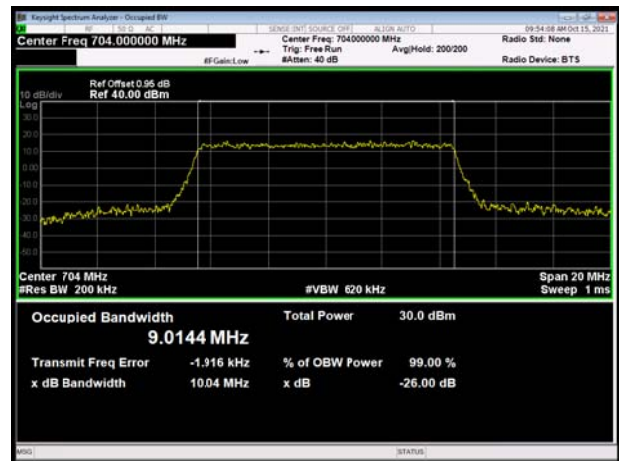
LTE Band 12 64QAM 3MHz CH-High



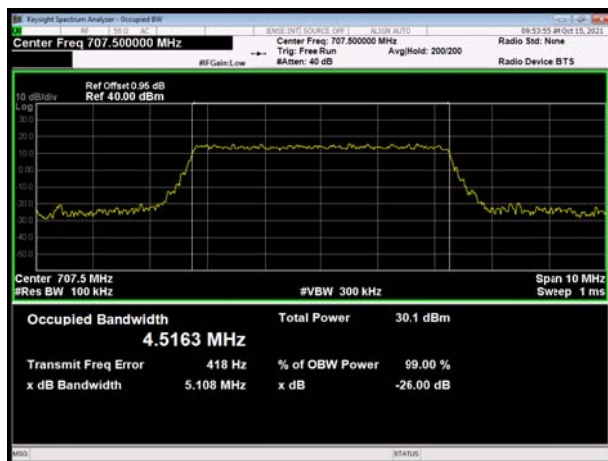
LTE Band 12 64QAM 5MHz CH-Low



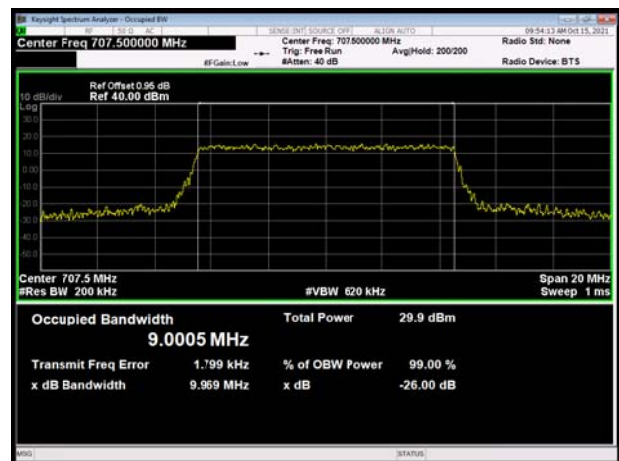
LTE Band 12 64QAM 10MHz CH-Low



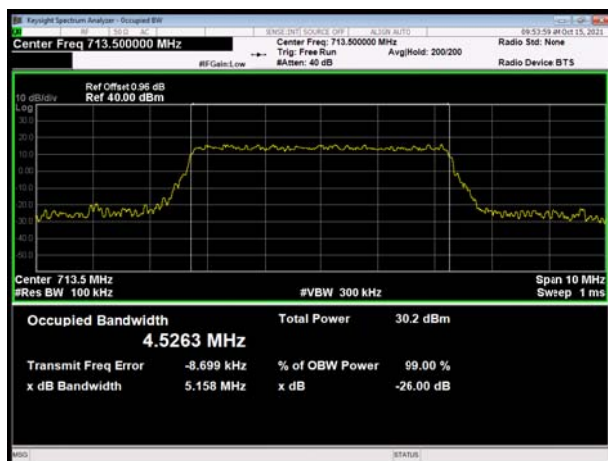
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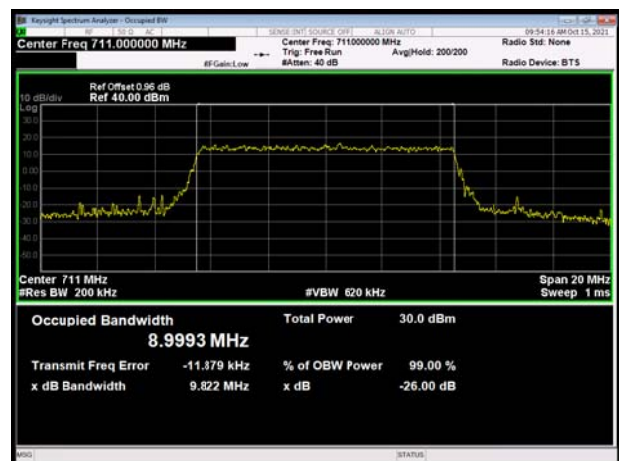
LTE Band 12 64QAM 10MHz CH-Middle



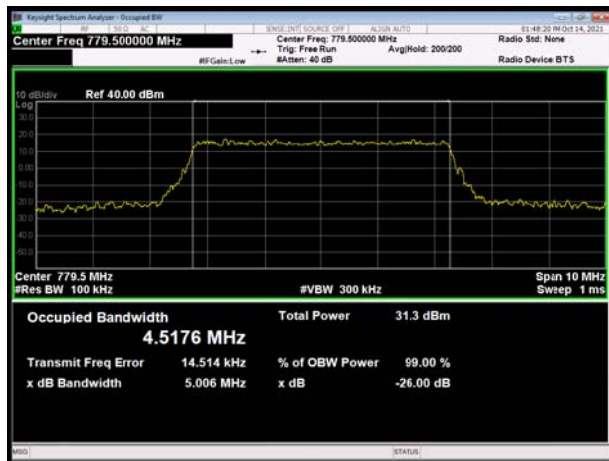
LTE Band 12 64QAM 5MHz CH-High



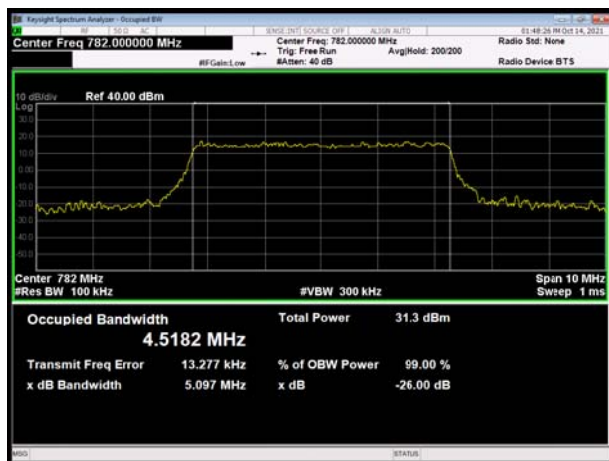
LTE Band 12 64QAM 10MHz CH-High



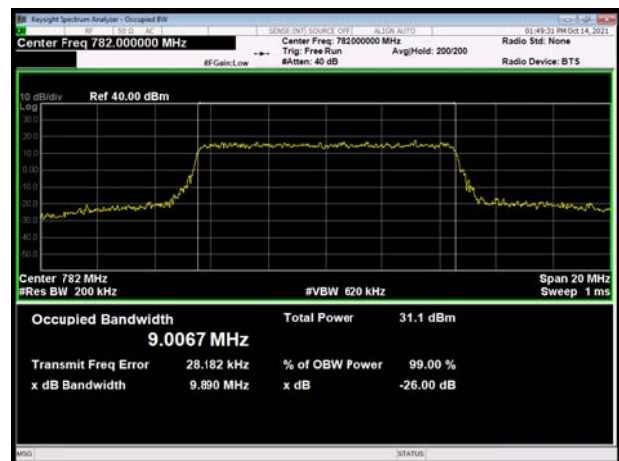
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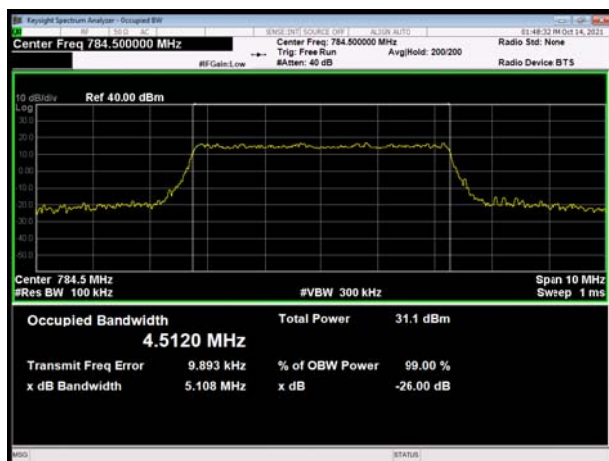
LTE Band 13 QPSK 5MHz CH-Middle



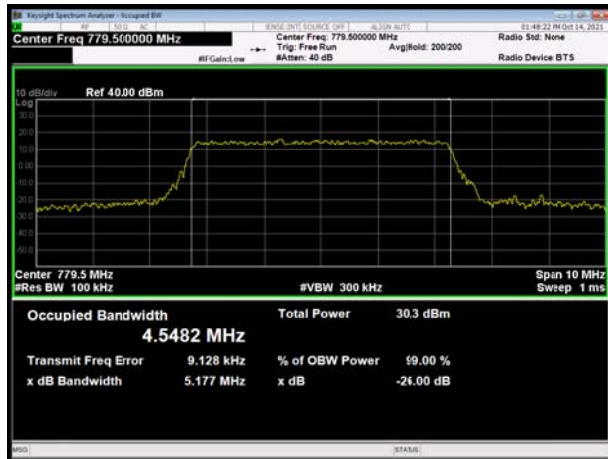
LTE Band 13 QPSK 10MHz CH-Middle



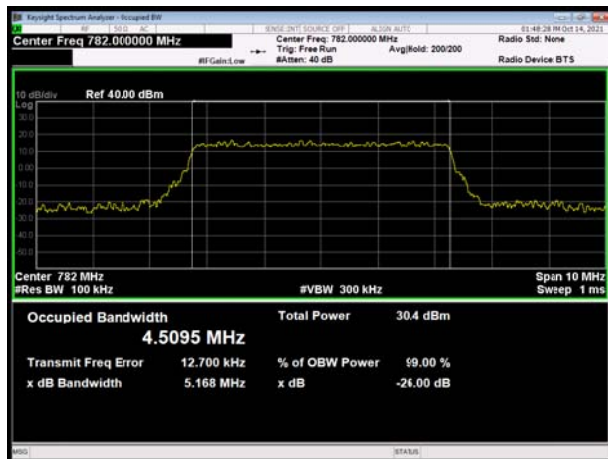
LTE Band 13 QPSK 5MHz CH-High



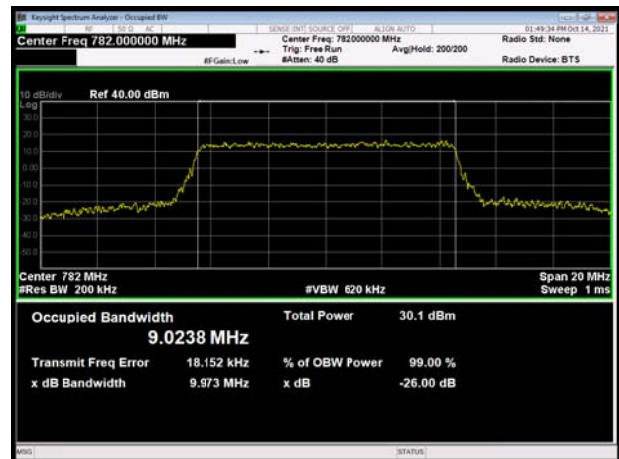
LTE Band 13 16QAM 5MHz CH-Low



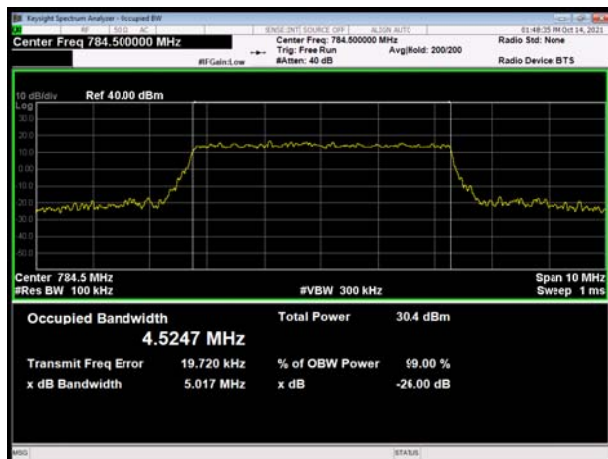
LTE Band 13 16QAM 5MHz CH-Middle



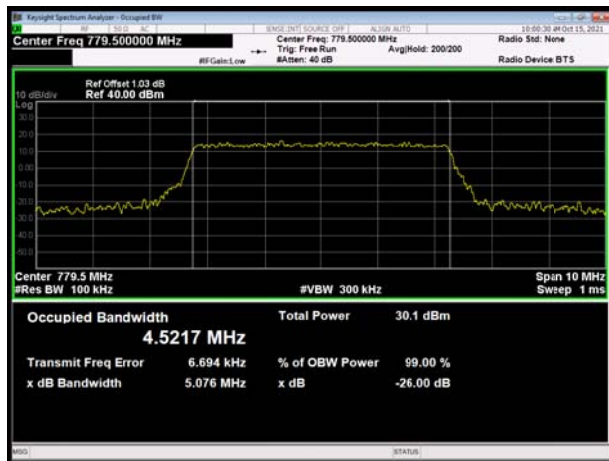
LTE Band 13 16QAM 10MHz CH-Middle



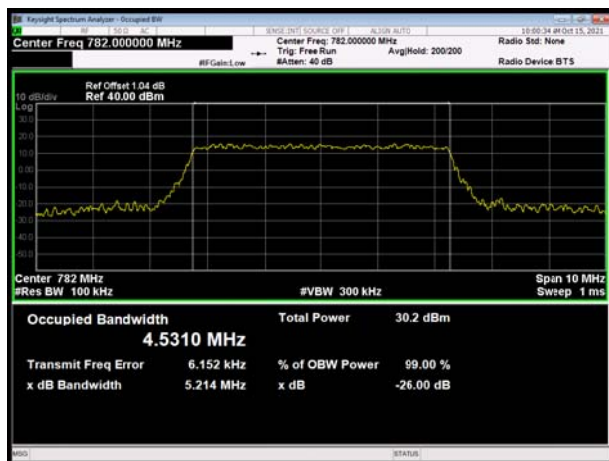
LTE Band 13 16QAM 5MHz CH-High



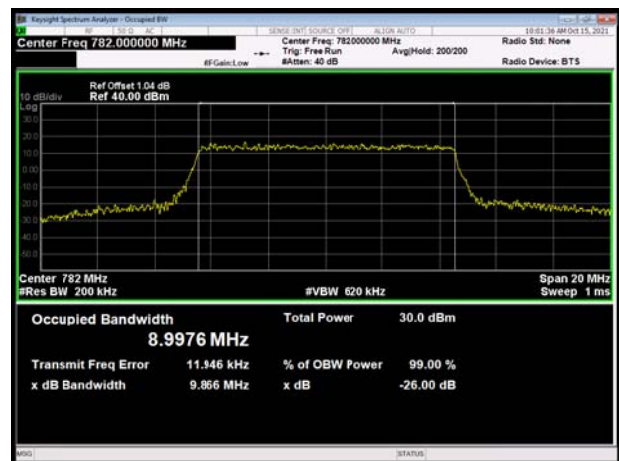
LTE Band 13 64QAM 5MHz CH-Low



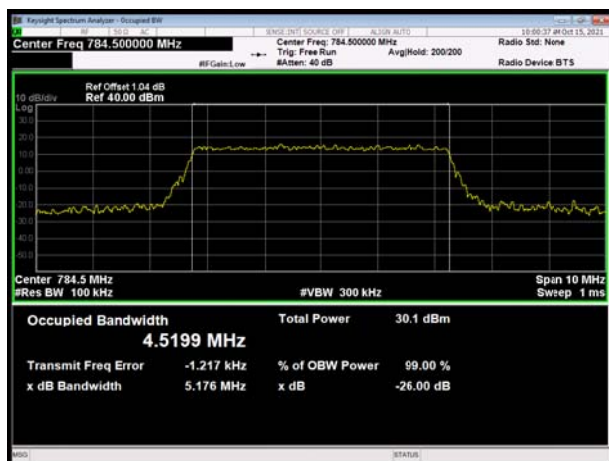
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LTE Band 13 64QAM 10MHz CH-Middle

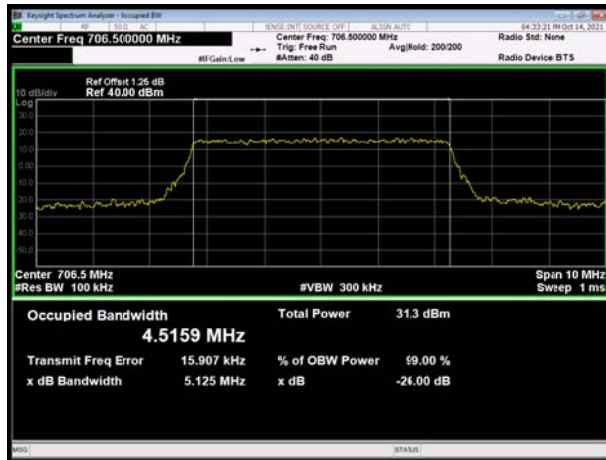


LTE Band 13 64QAM 5MHz CH-High

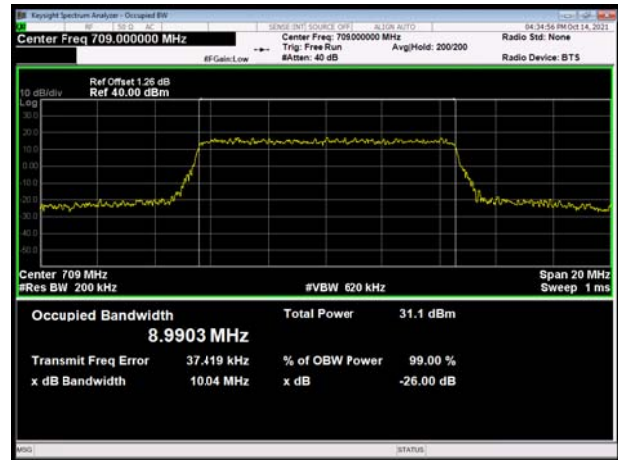




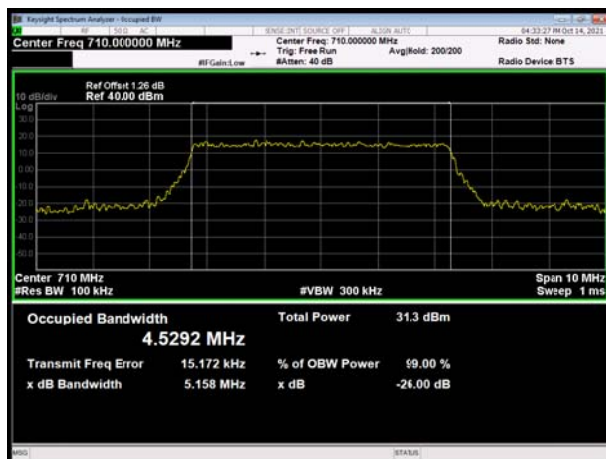
LTE Band 17 QPSK 5MHz CH-Low



LTE Band 17 QPSK 10MHz CH-Low



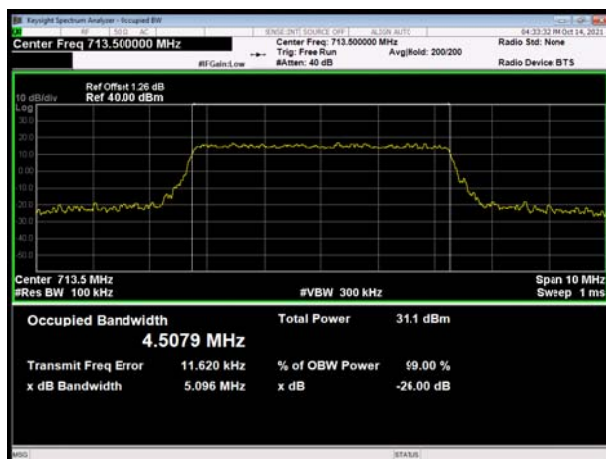
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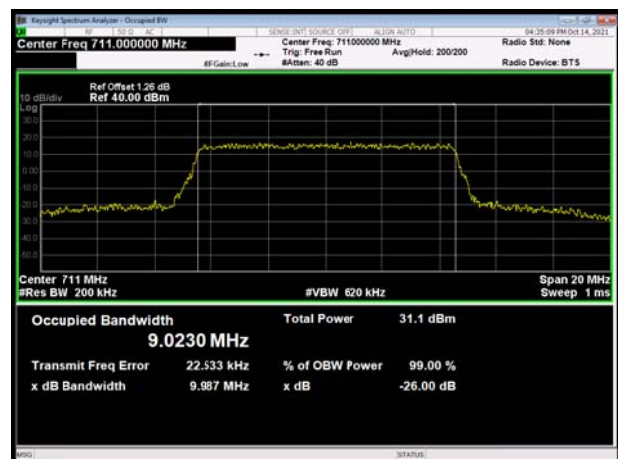
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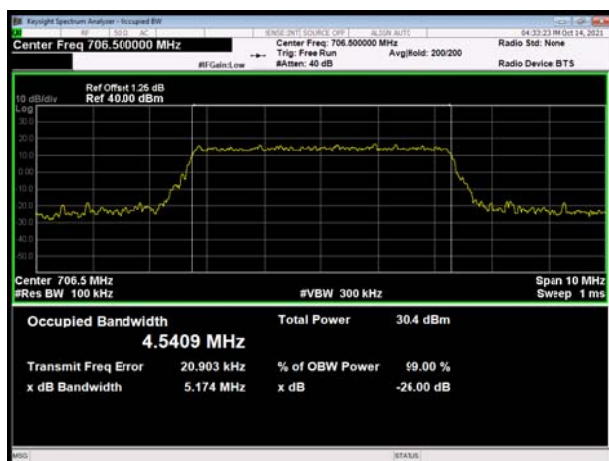


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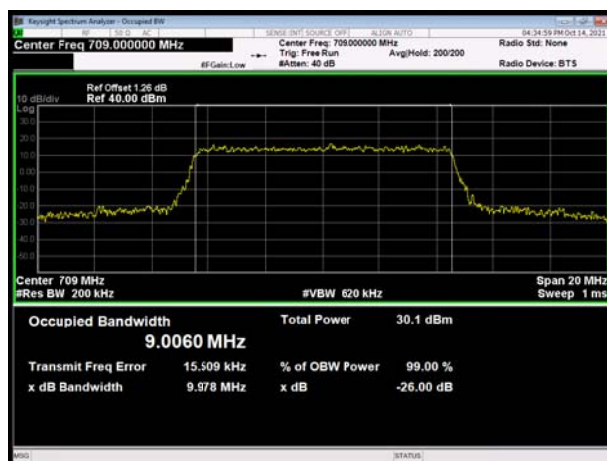




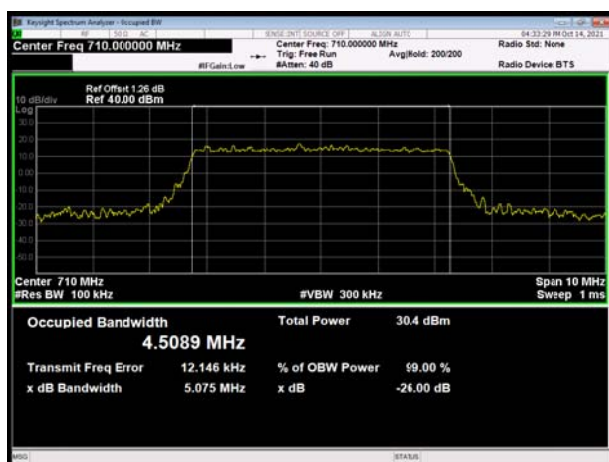
LTE Band 17 16QAM 5MHz CH-Low



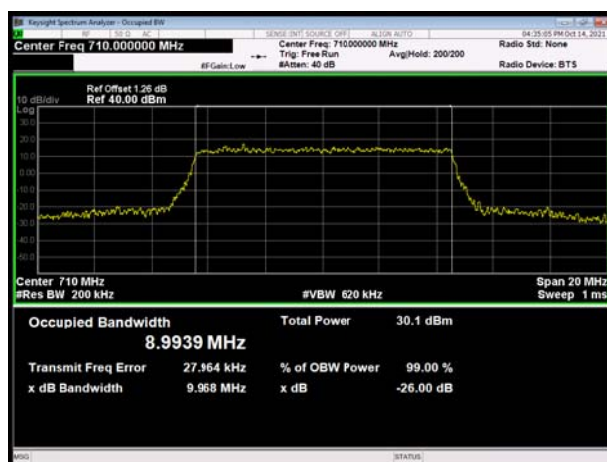
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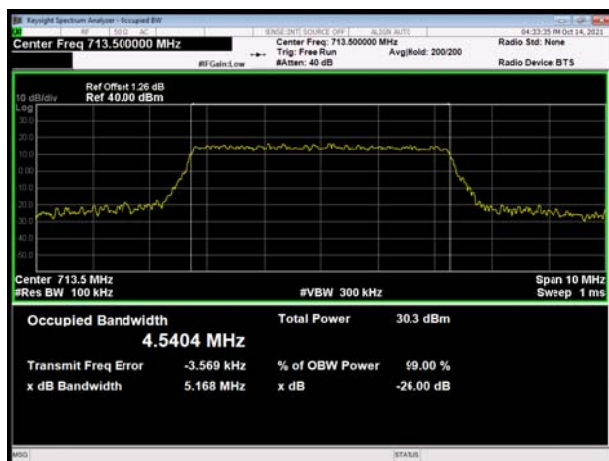
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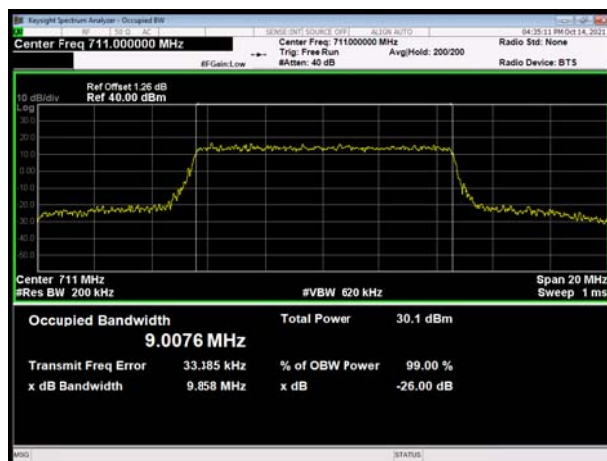
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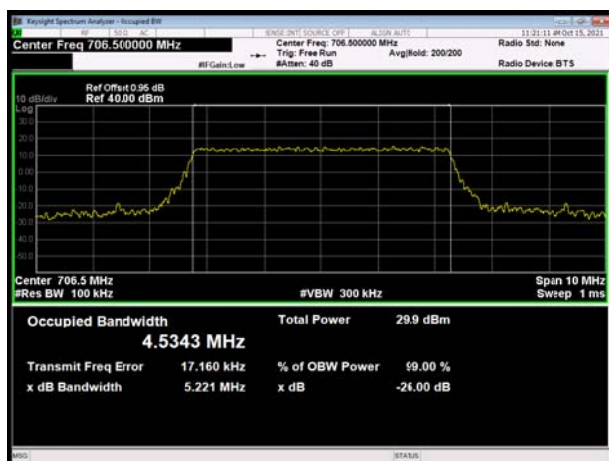
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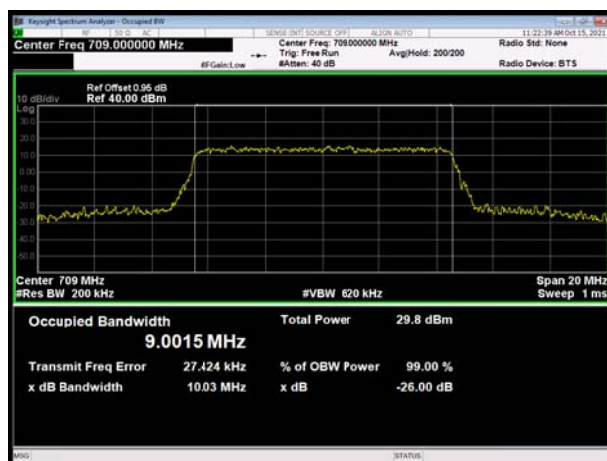
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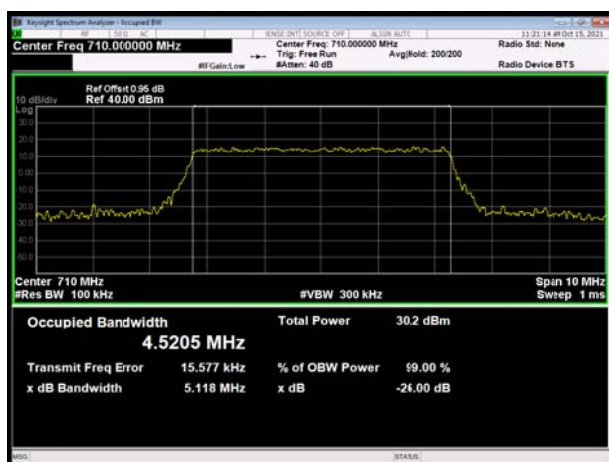
LTE Band 17 64QAM 5MHz CH-Low



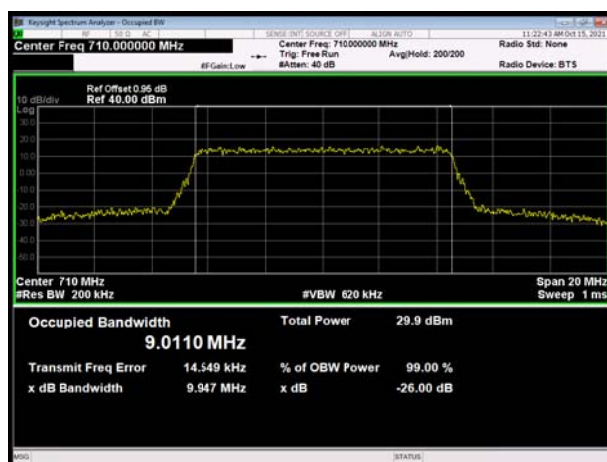
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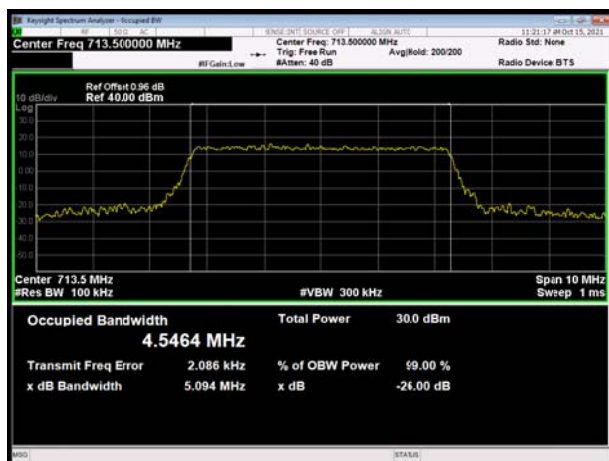
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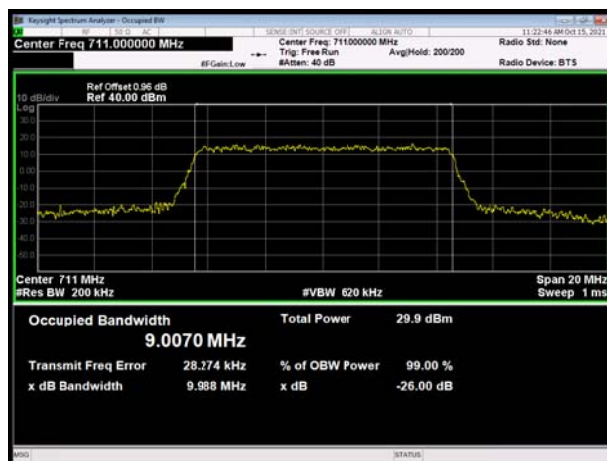
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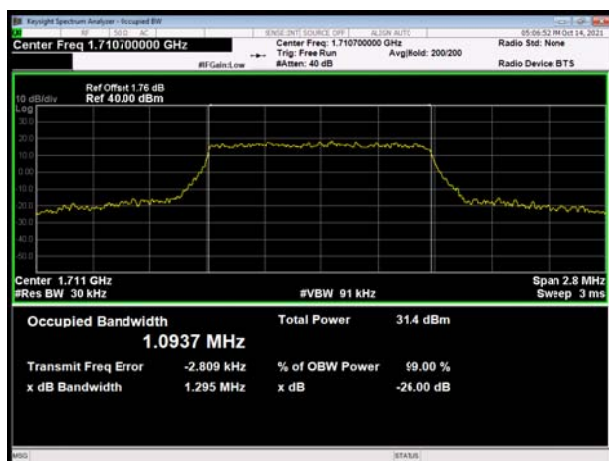
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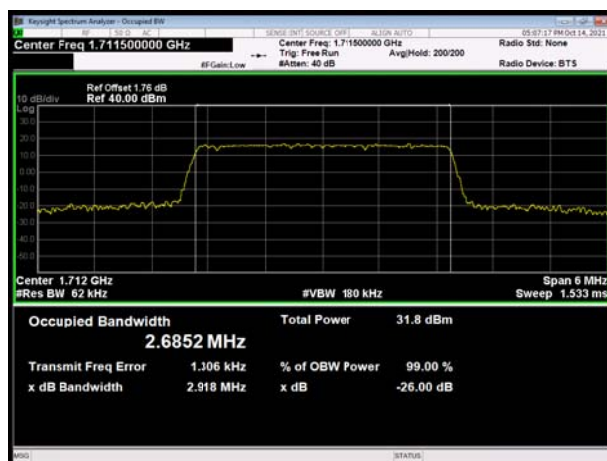
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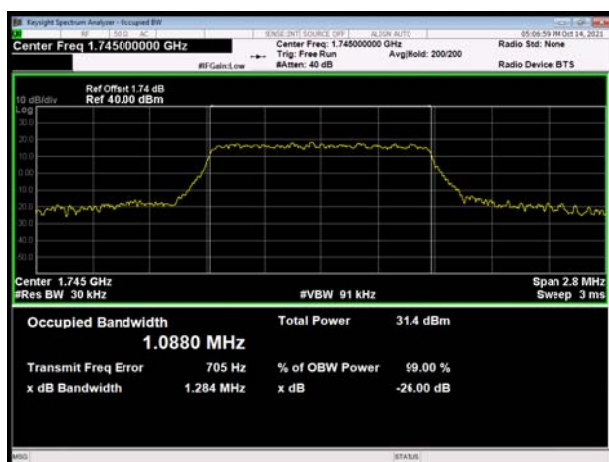
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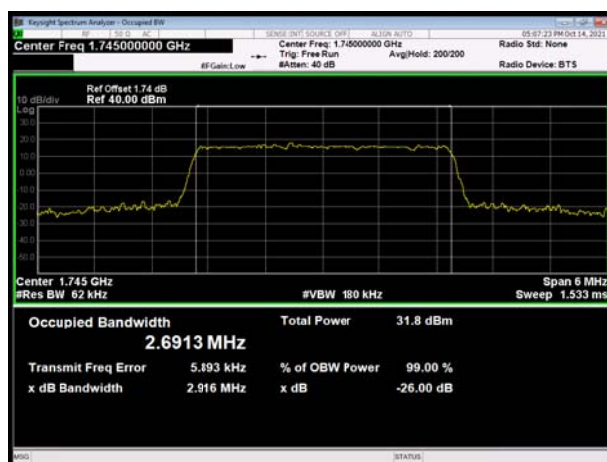
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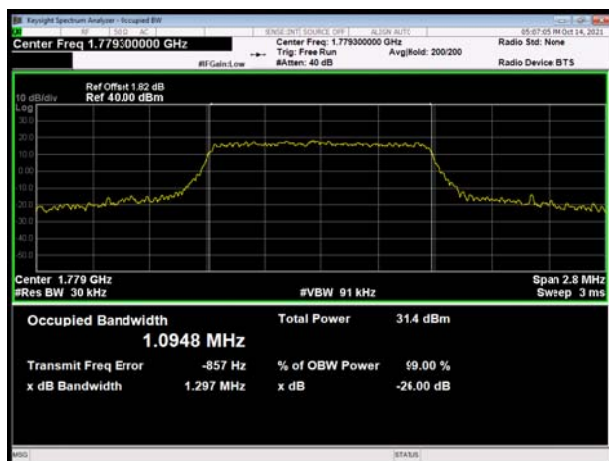
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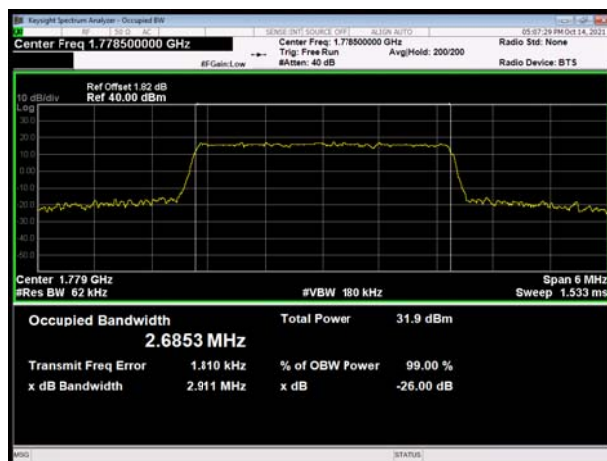
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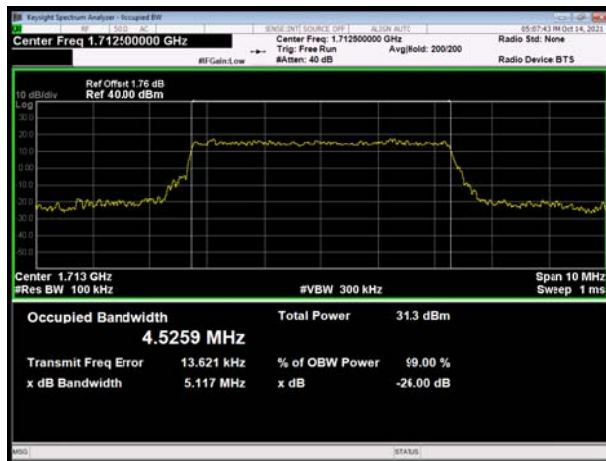
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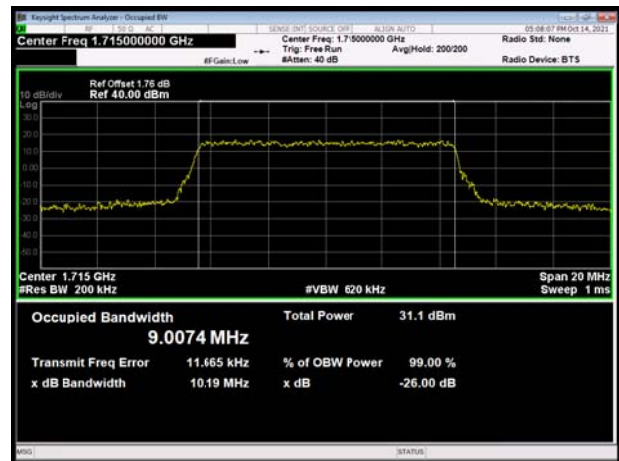
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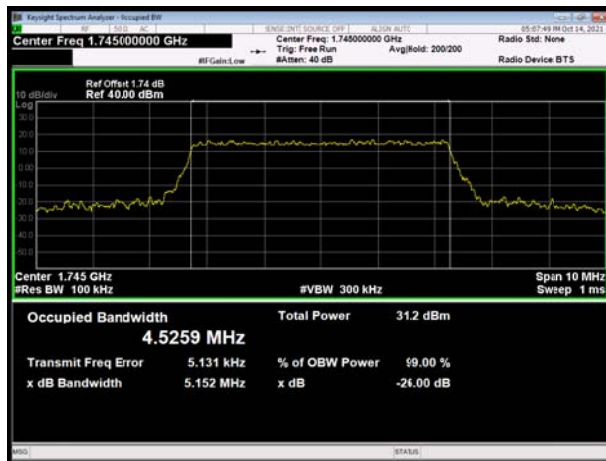
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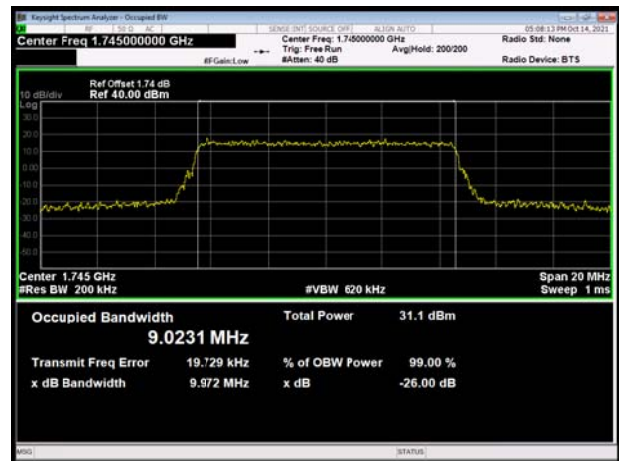
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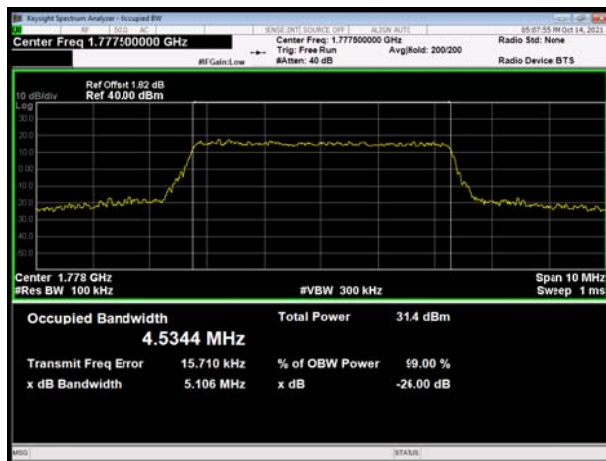
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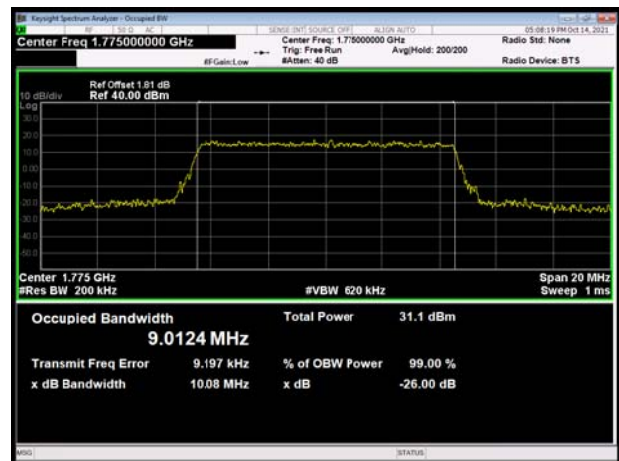
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LTE Band 66 QPSK 5MHz CH-High

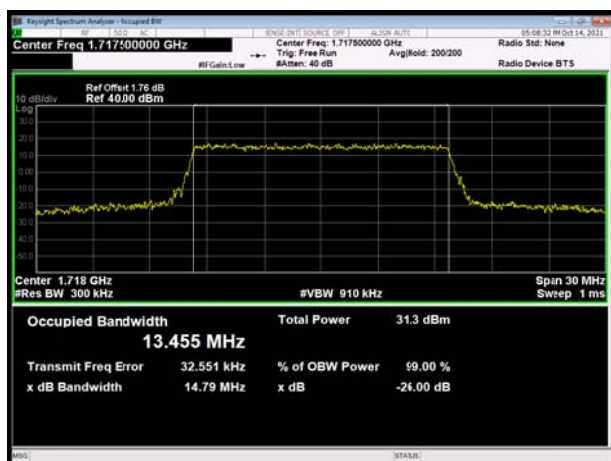


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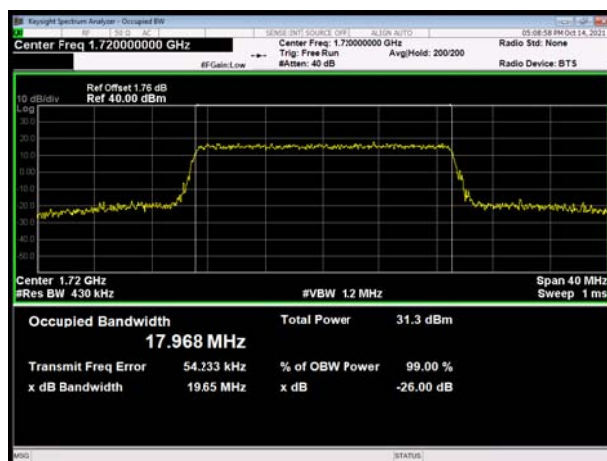




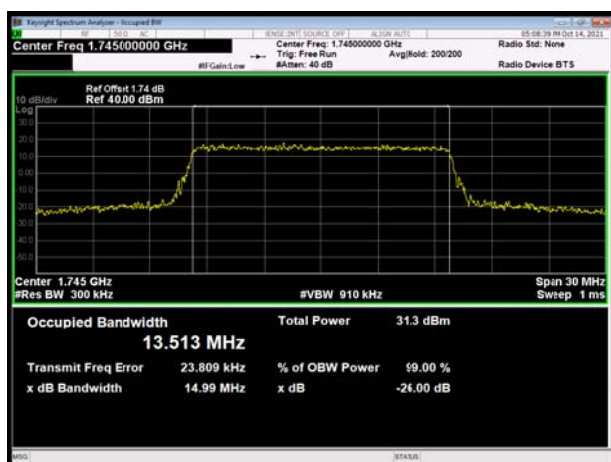
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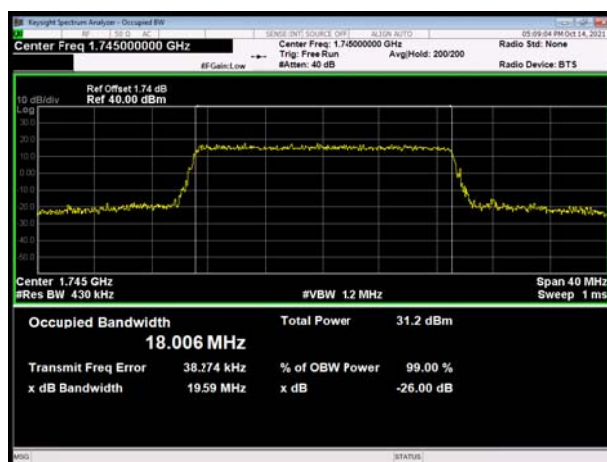
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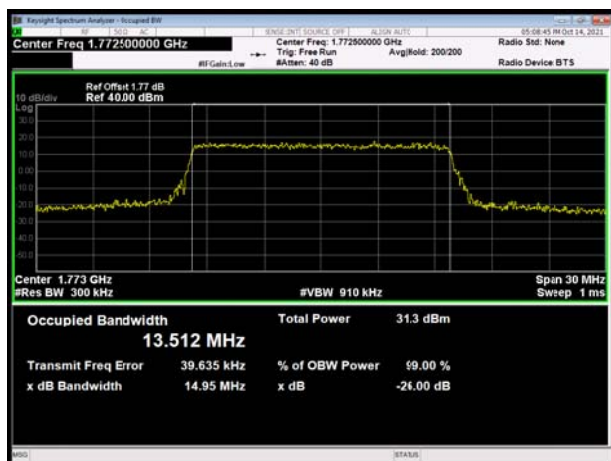
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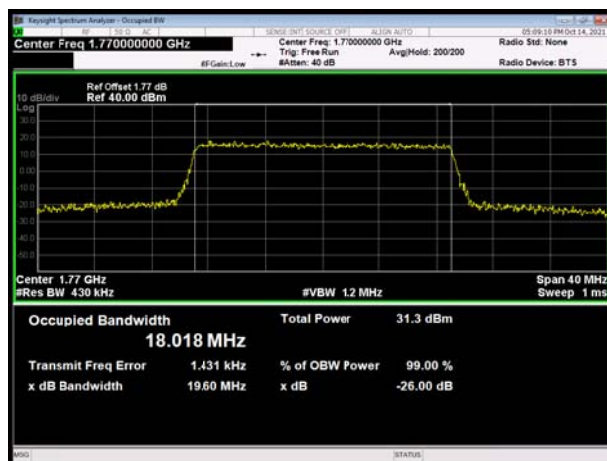
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LTE Band 66 QPSK 15MHz CH-High

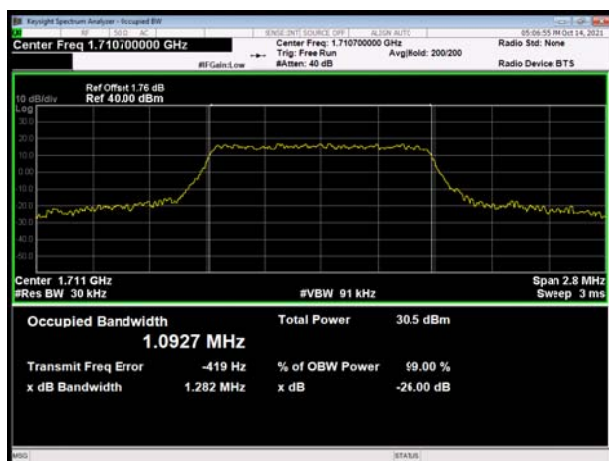


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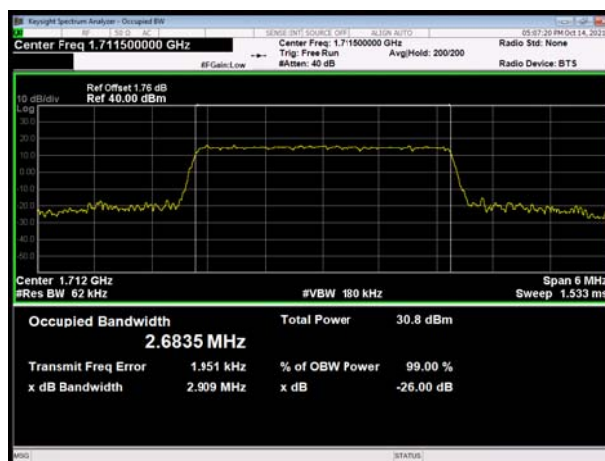




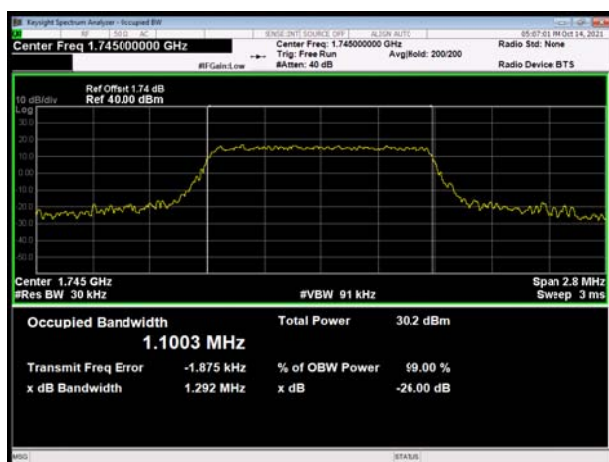
LTE Band 66 16QAM 1.4MHz CH-Low



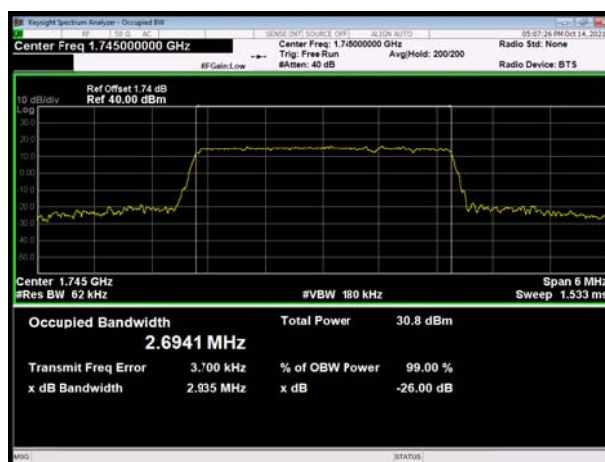
LTE Band 66 16QAM 3MHz CH-Low



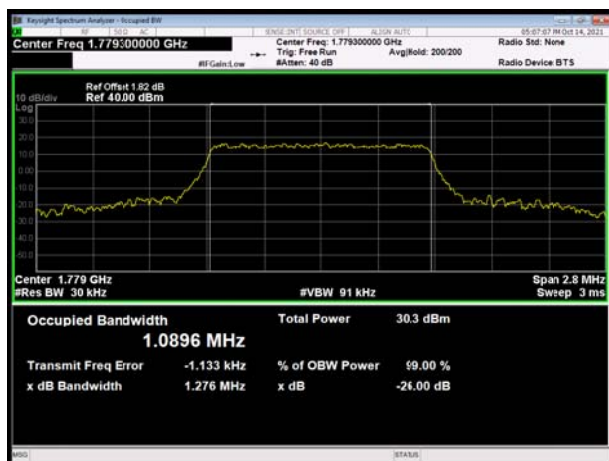
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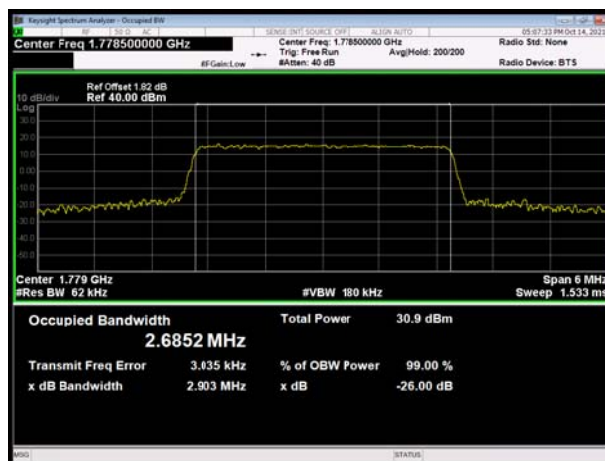
LTE Band 66 16QAM 3MHz CH-Middle



LTE Band 66 16QAM 1.4MHz CH-High

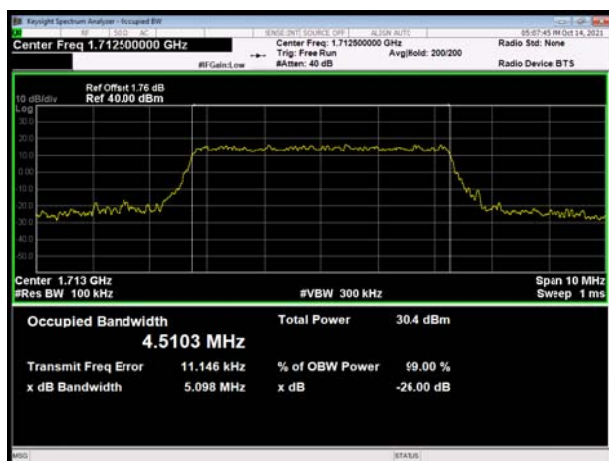


LTE Band 66 16QAM 3MHz CH-High

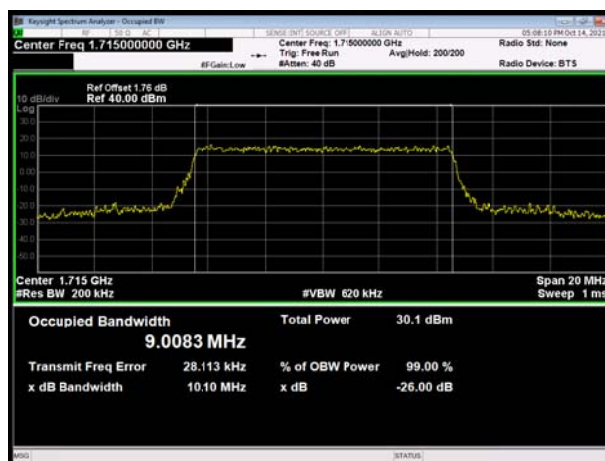




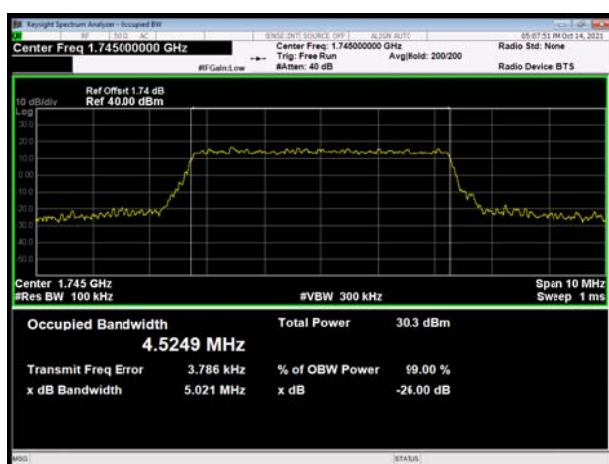
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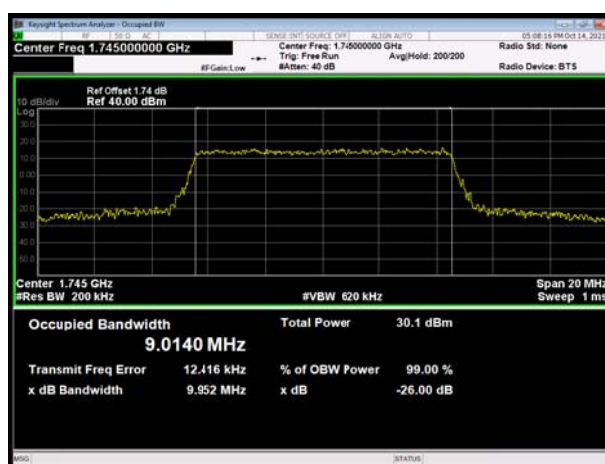
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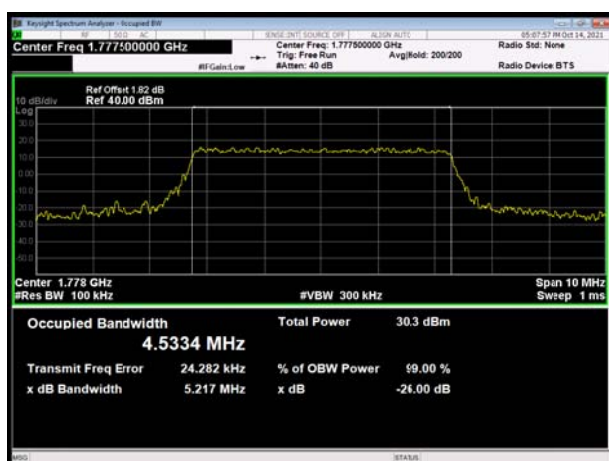
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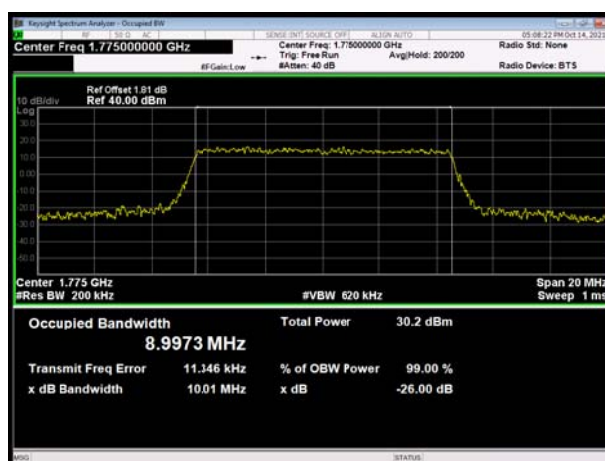
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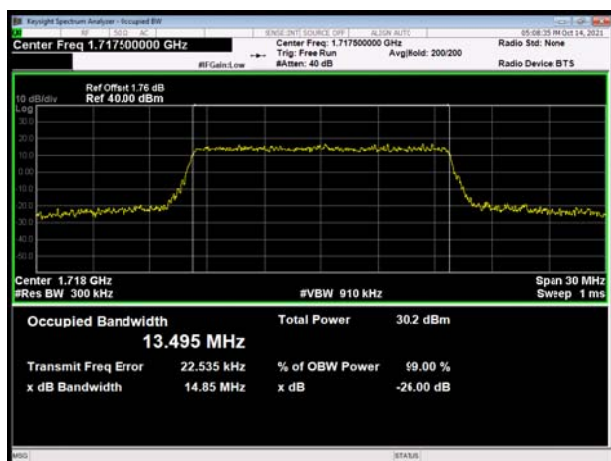
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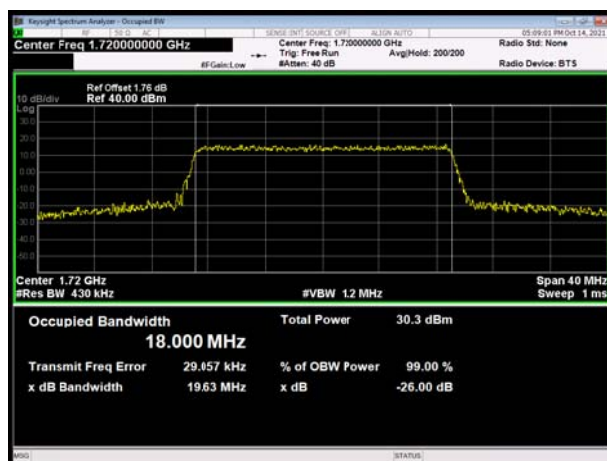
LTE Band 66 16QAM 10MHz CH-High



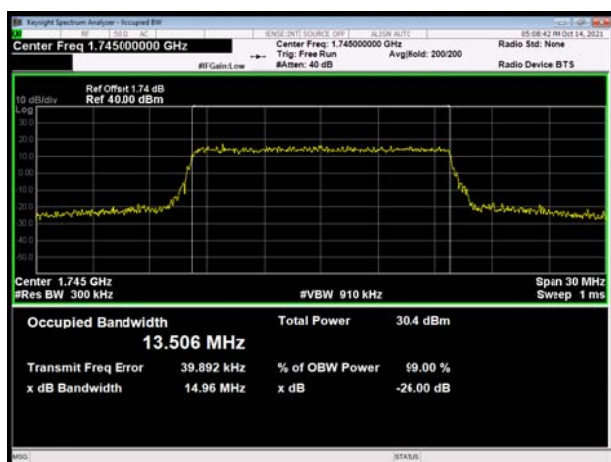
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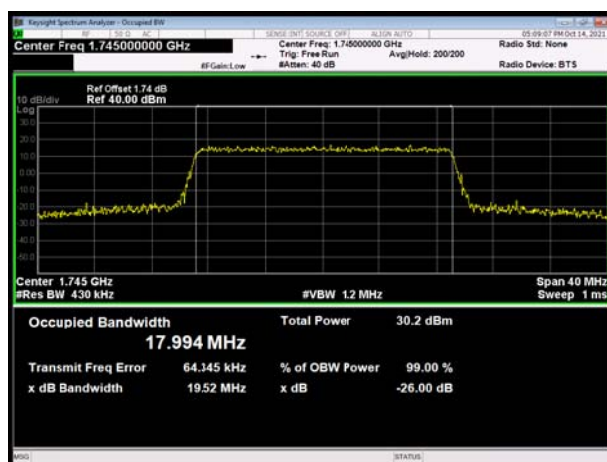
LTE Band 66 16QAM 20MHz CH-Low



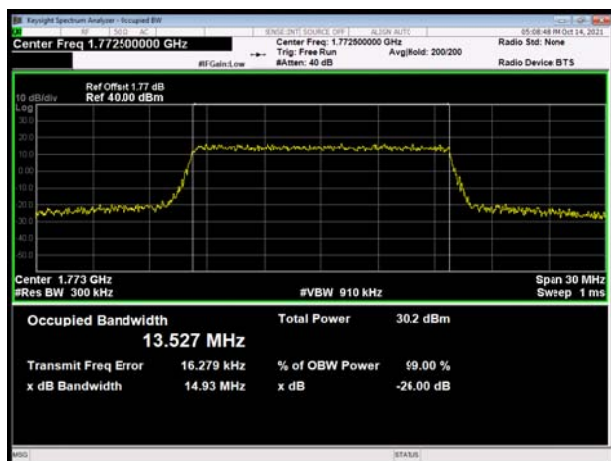
LTE Band 66 16QAM 15MHz CH-Middle



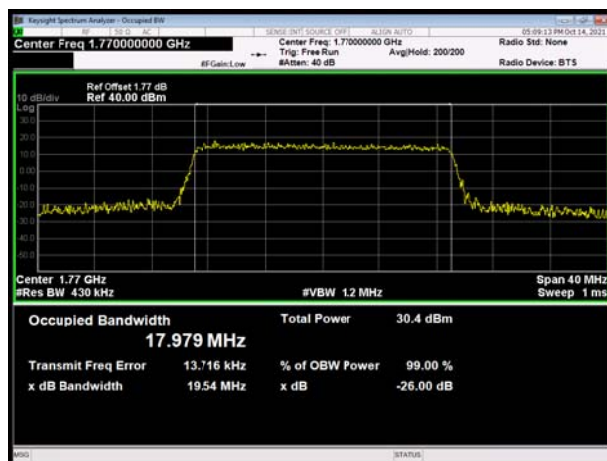
LTE Band 66 16QAM 20MHz CH-Middle



LTE Band 66 16QAM 15MHz CH-High

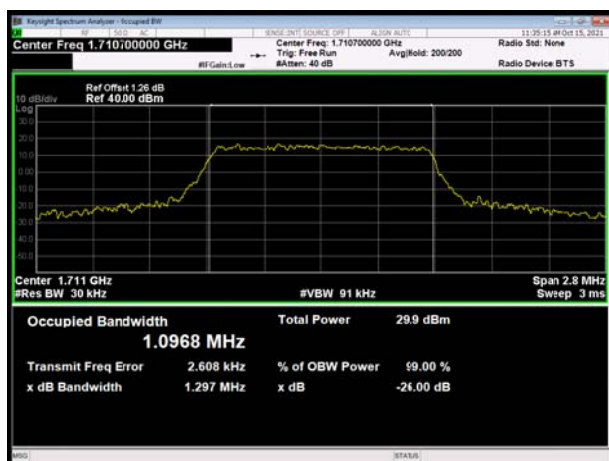


LTE Band 66 16QAM 20MHz CH-High

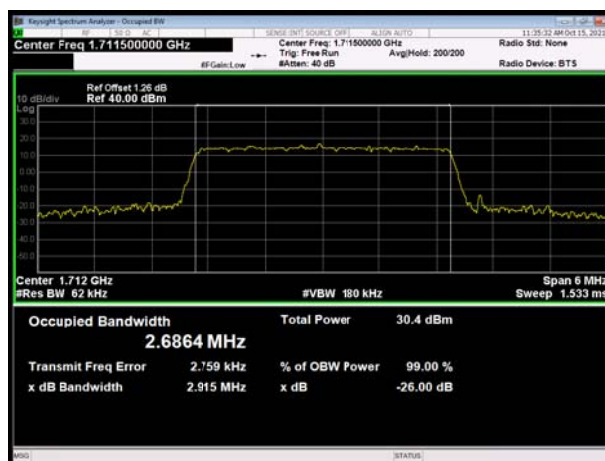




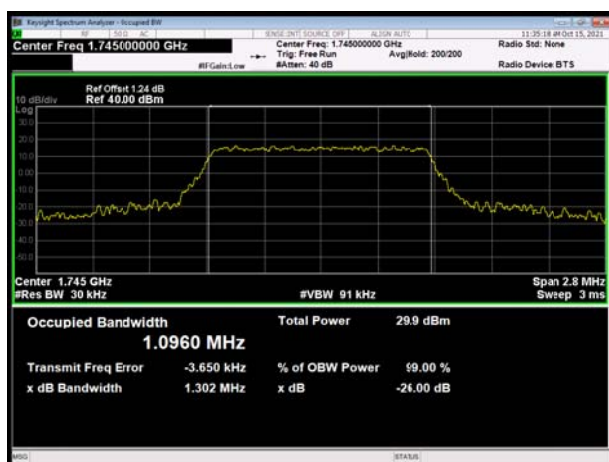
LTE Band 66 64QAM 1.4MHz CH-Low



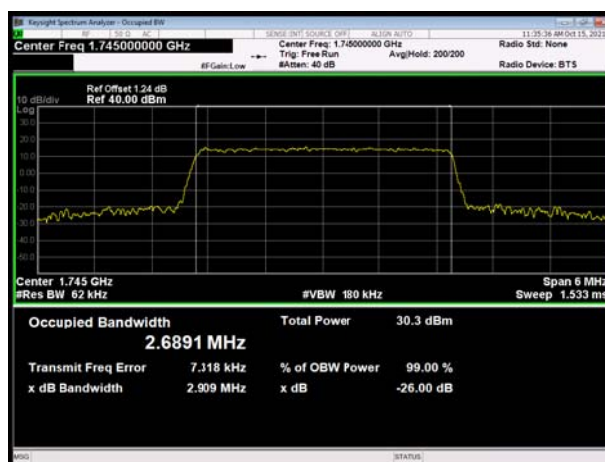
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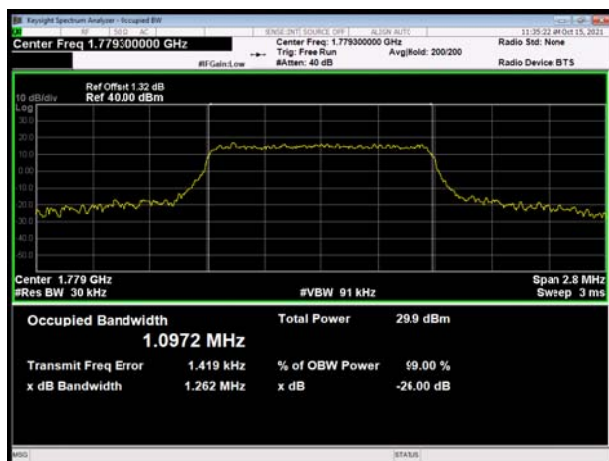
LTE Band 66 64QAM 1.4MHz CH-Middle



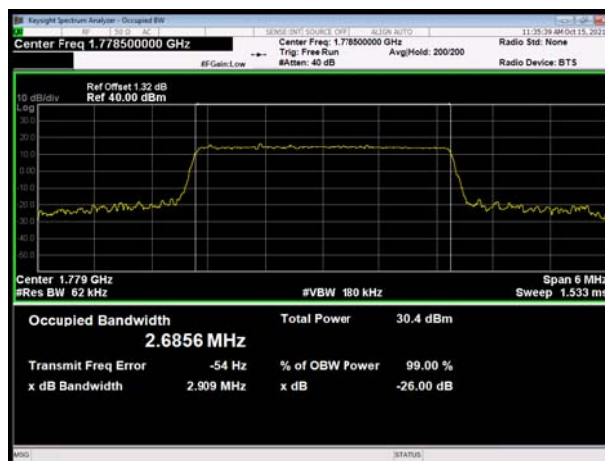
LTE Band 66 64QAM 3MHz CH-Middle



LTE Band 66 64QAM 1.4MHz CH-High

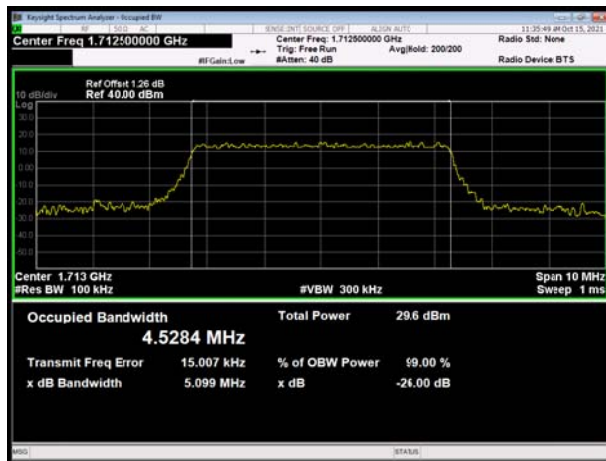


LTE Band 66 64QAM 3MHz CH-High





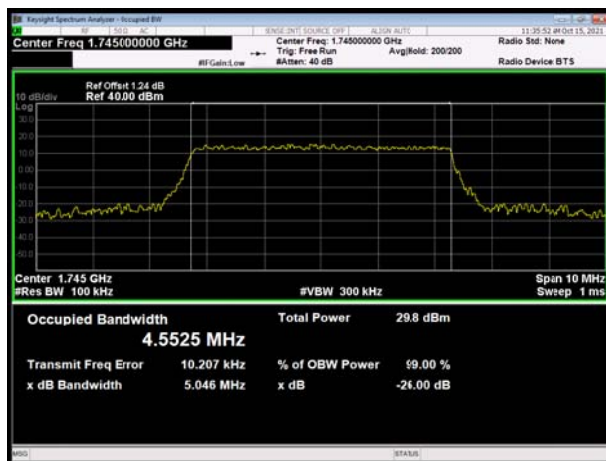
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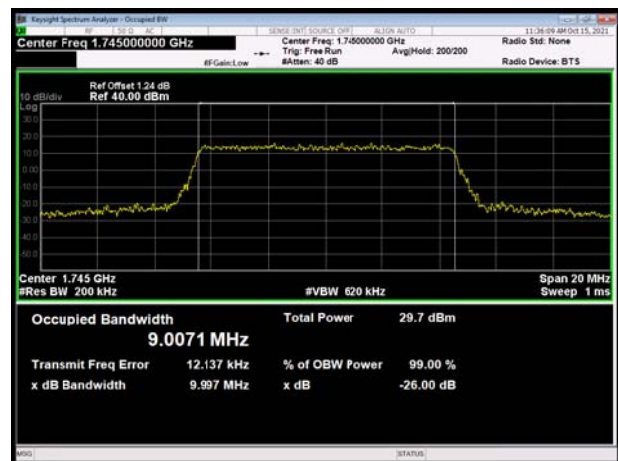
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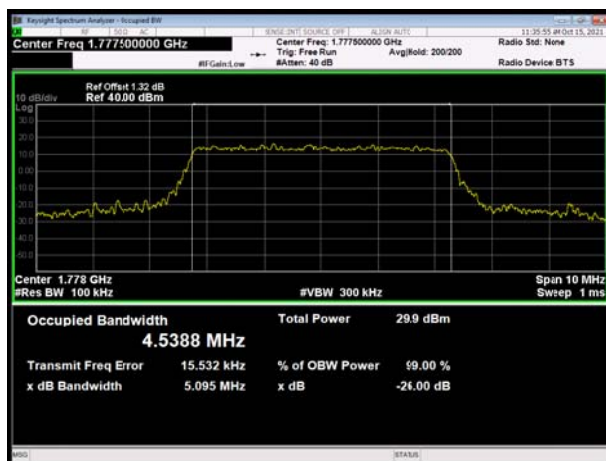
LTE Band 66 64QAM 5MHz CH-Middle



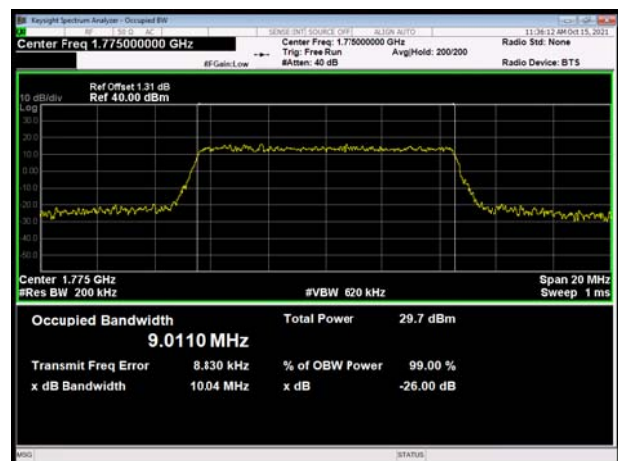
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LTE Band 66 64QAM 5MHz CH-High

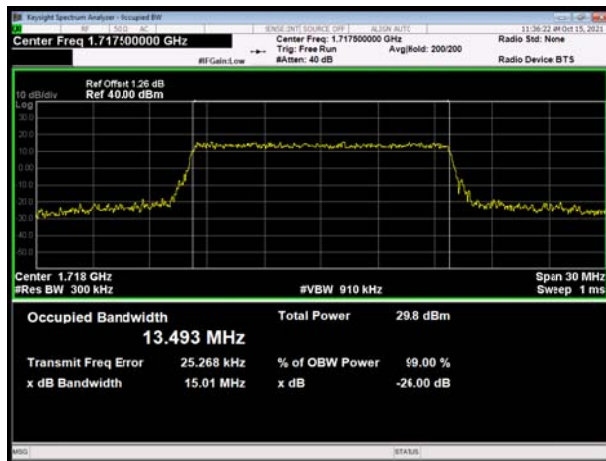


LTE Band 66 64QAM 10MHz CH-High

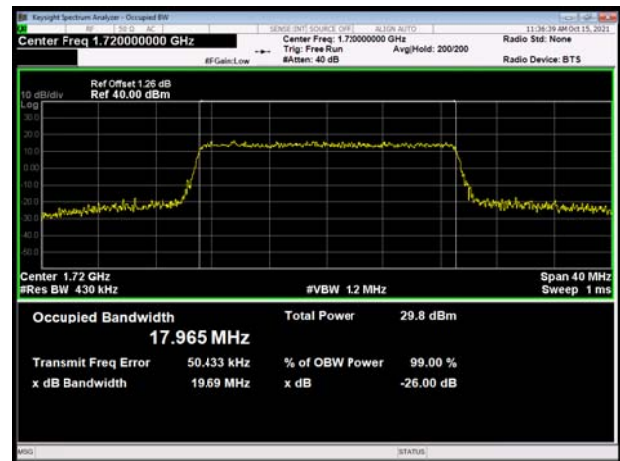




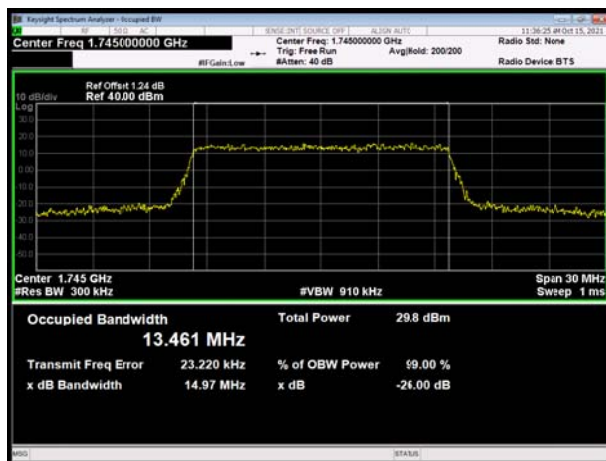
LTE Band 66 64QAM 15MHz CH-Low



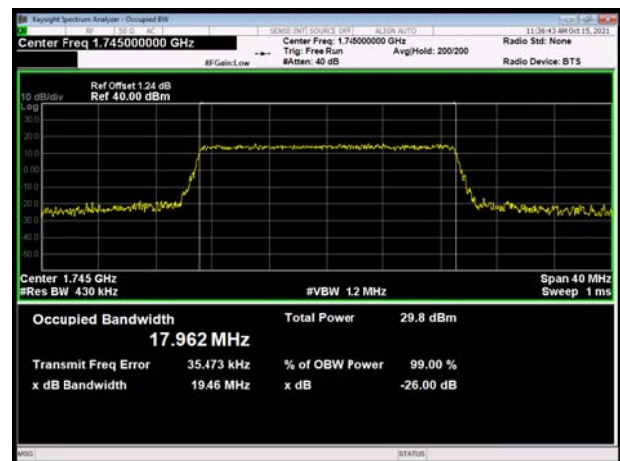
LTE Band 66 64QAM 20MHz CH-Low



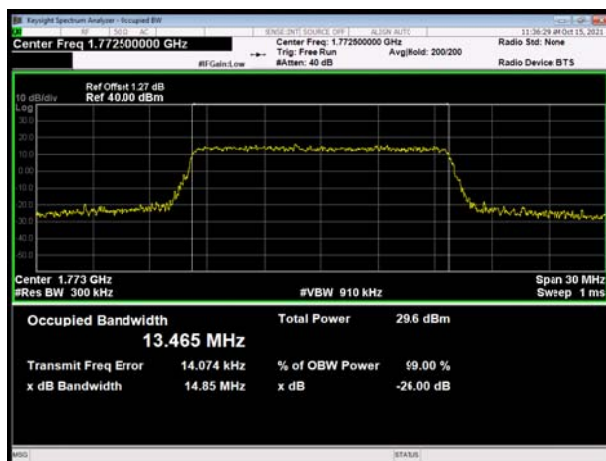
LTE Band 66 64QAM 15MHz CH-Middle



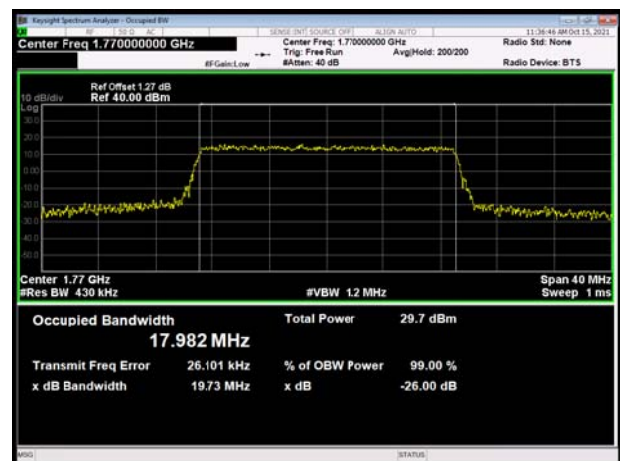
LTE Band 66 64QAM 20MHz CH-Middle



LTE Band 66 64QAM 15MHz CH-High



LTE Band 66 64QAM 20MHz CH-High



5.3 Band Edge Compliance

Ambient condition

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

Method of Measurement

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

The testing follows KDB 971168 D01 v03r01 Section 6.0

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

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

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

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

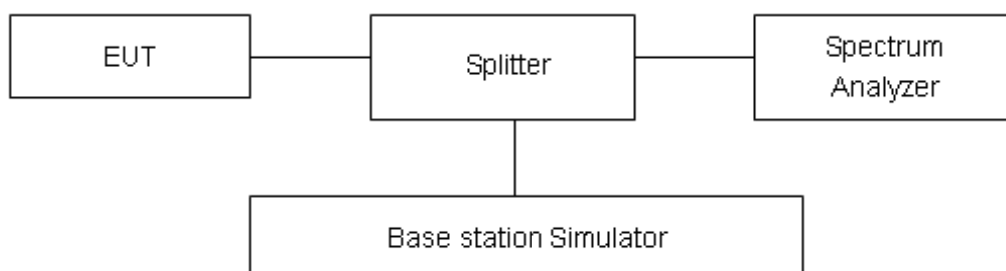
on spectrum analyzer.

Set spectrum analyzer with RMS detector.

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

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

Test Setup



Limits

Rule Part 27.53(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(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation



employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Rule Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

Measurement Uncertainty

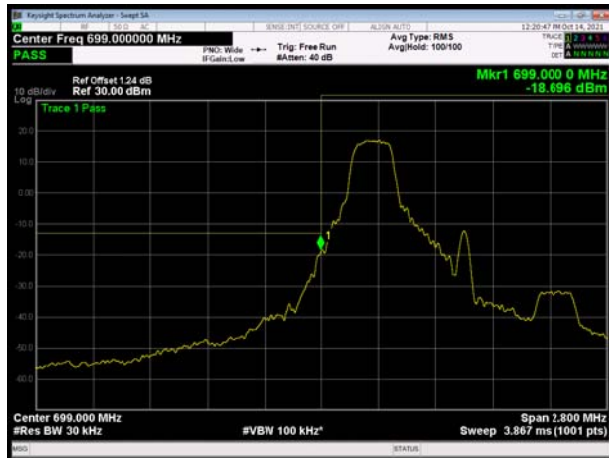
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.



Test Result

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

LTE Band 12 QPSK 1.4MHz CH-Low, 1 RB



LTE Band 12 QPSK 1.4MHz CH-High, 1 RB



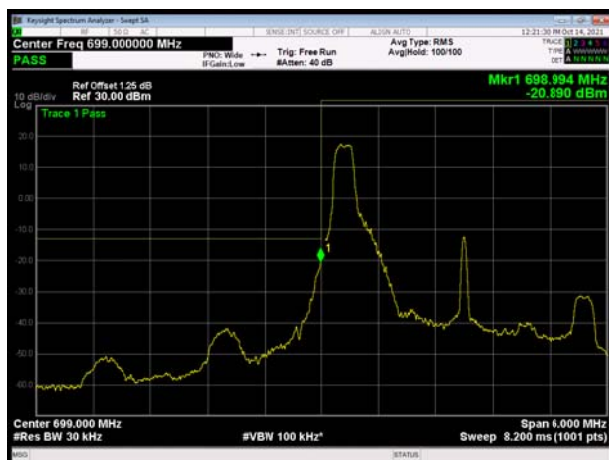
LTE Band 12 QPSK 1.4MHz CH-Low, 100%RB



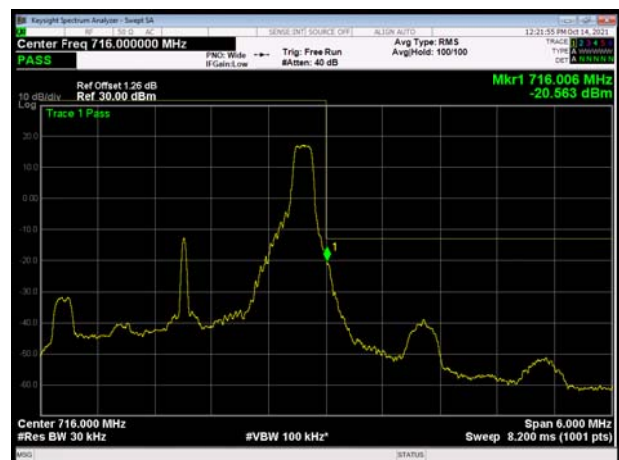
LTE Band 12 QPSK 1.4MHz CH-High, 100%RB



LTE Band 12 QPSK 3MHz CH-Low, 1 RB

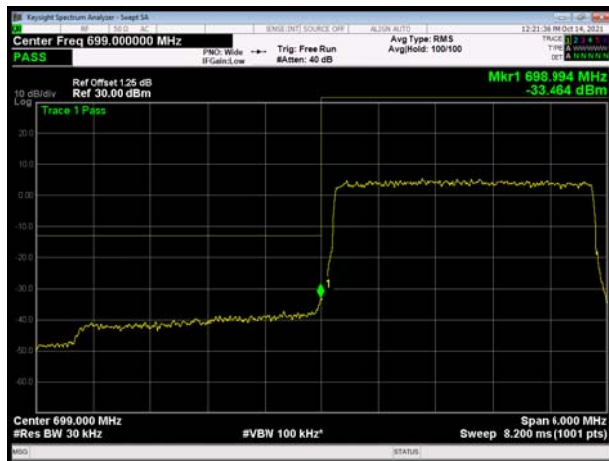


LTE Band 12 QPSK 3MHz CH-High, 1 RB





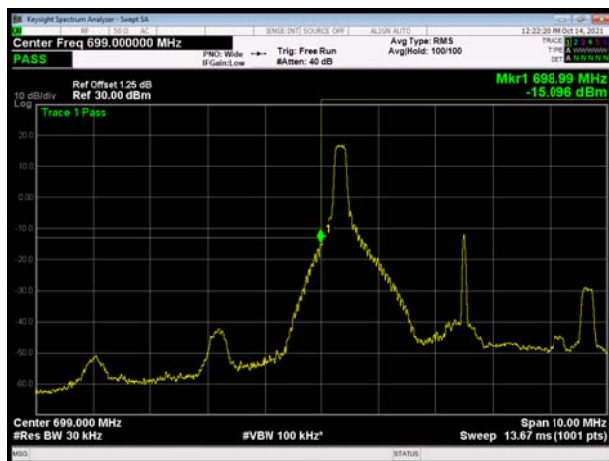
LTE Band 12 QPSK 3MHz CH-Low, 100%RB



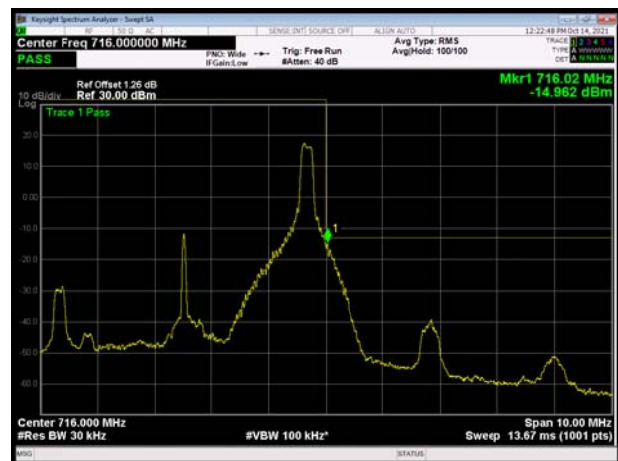
LTE Band 12 QPSK 3MHz CH-High, 100%RB



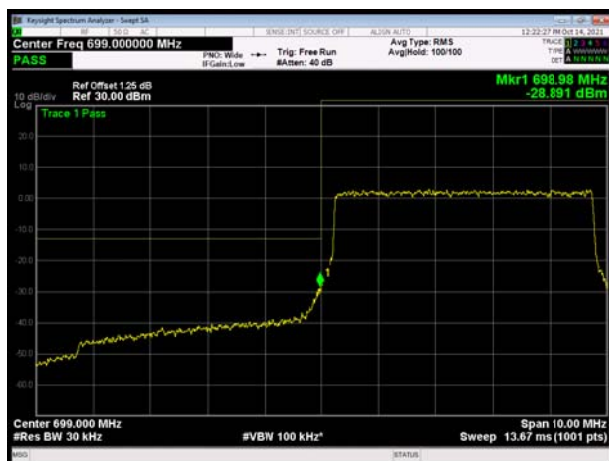
LTE Band 12 QPSK 5MHz CH-Low, 1 RB



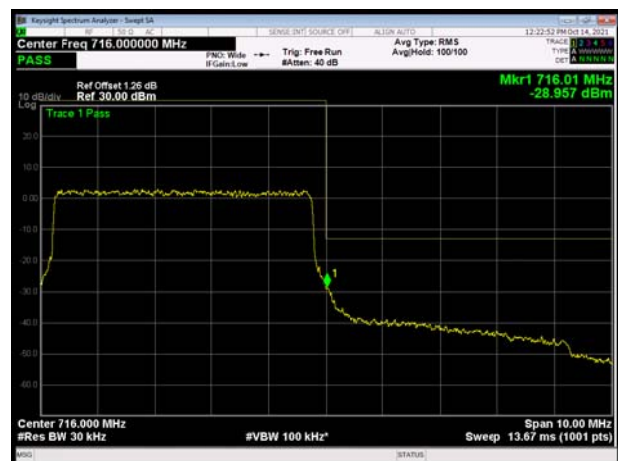
LTE Band 12 QPSK 5MHz CH-High, 1 RB



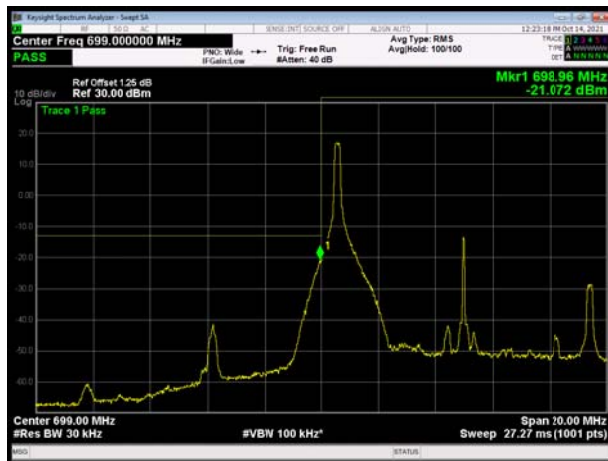
LTE Band 12 QPSK 5MHz CH-Low, 100%RB



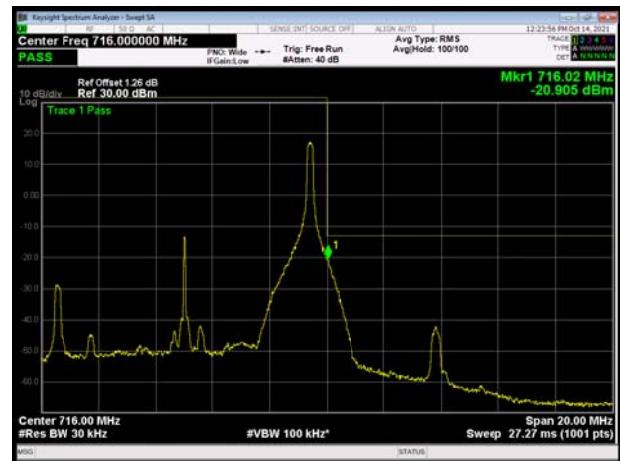
LTE Band 12 QPSK 5MHz CH-High, 100%RB



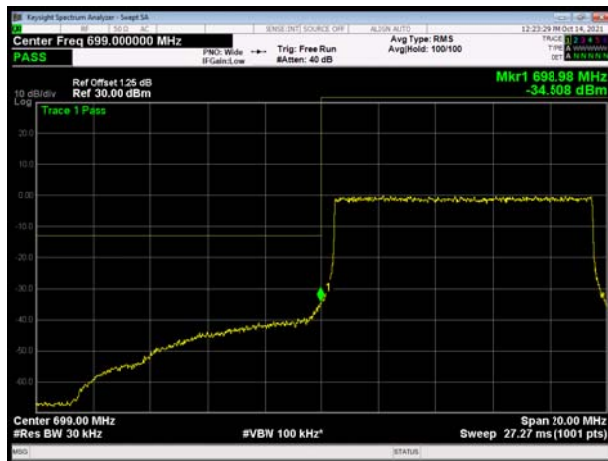
LTE Band 12 QPSK 10MHz CH-Low, 1 RB



LTE Band 12 QPSK 10MHz CH-High, 1 RB



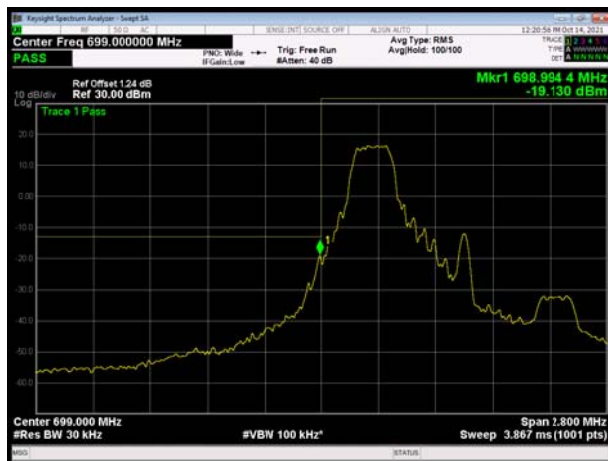
LTE Band 12 QPSK 10MHz CH-Low, 100%RB



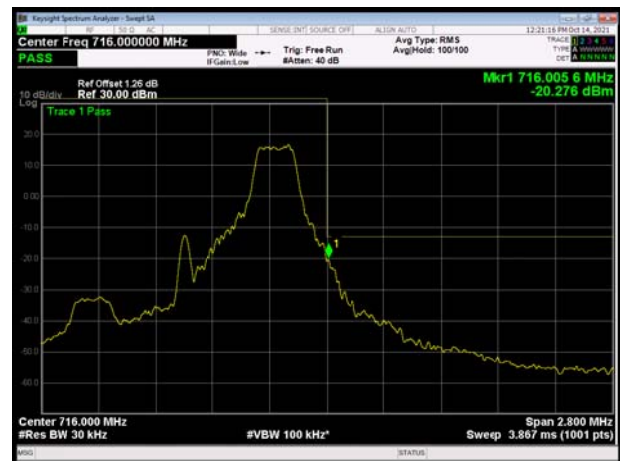
LTE Band 12 QPSK 10MHz CH-High, 100%RB



LTE Band 12 16QAM 1.4MHz CH-Low, 1 RB



LTE Band 12 16QAM 1.4MHz CH-High, 1 RB





LTE Band 12 16QAM 1.4MHz CH-Low, 100%RB



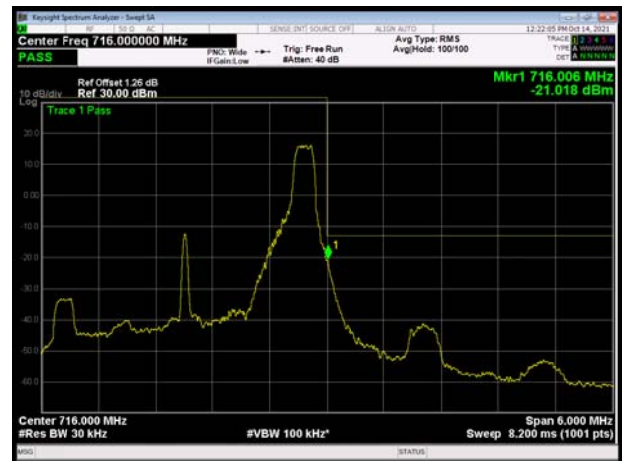
LTE Band 12 16QAM 1.4MHz CH-High, 100%RB



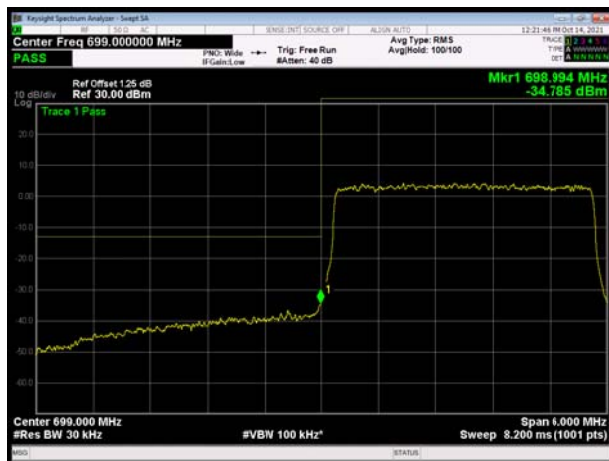
LTE Band 12 16QAM 3MHz CH-Low, 1 RB



LTE Band 12 16QAM 3MHz CH-High, 1 RB



LTE Band 12 16QAM 3MHz CH-Low, 100%RB

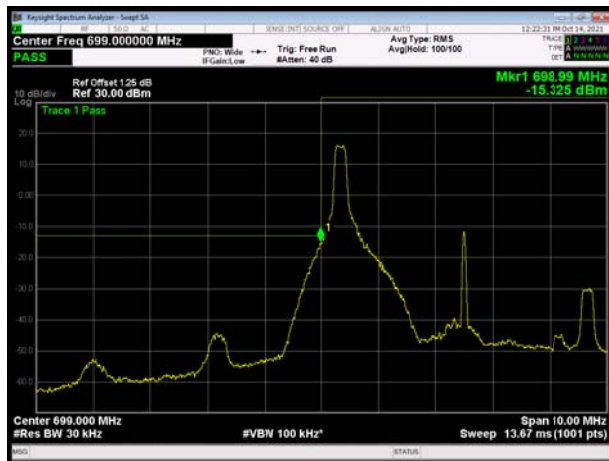


LTE Band 12 16QAM 3MHz CH-High, 100%RB

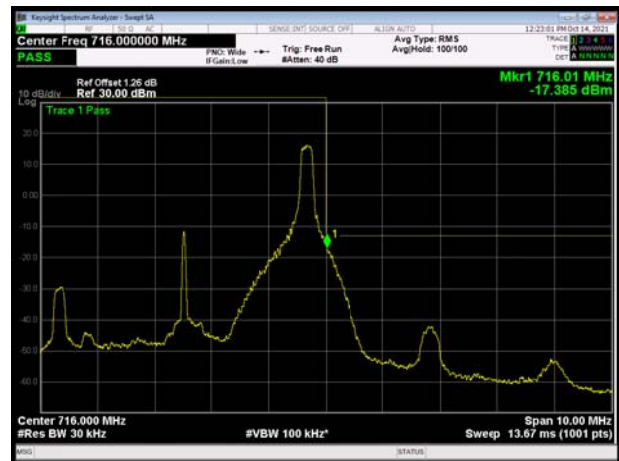




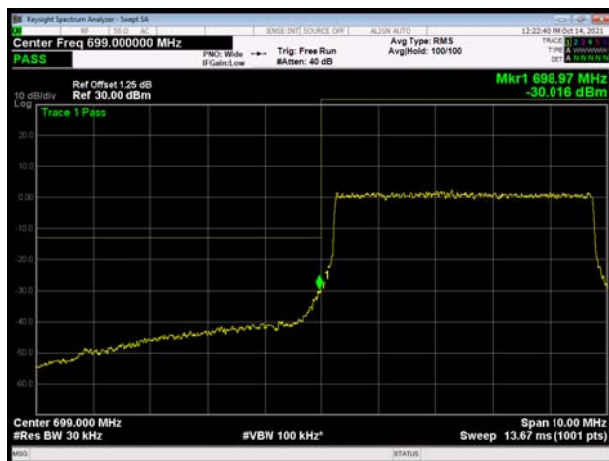
LTE Band 12 16QAM 5MHz CH-Low, 1 RB



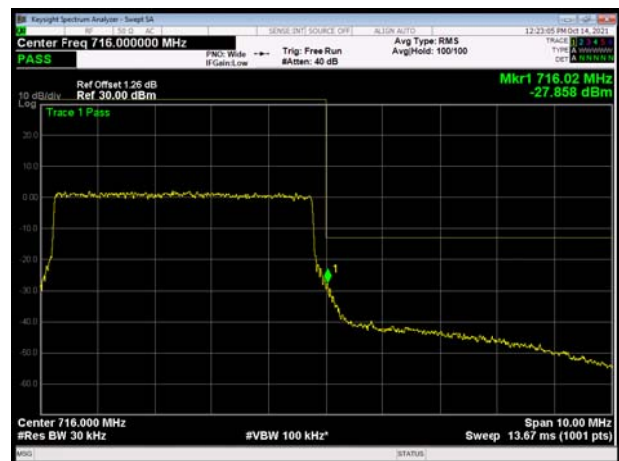
LTE Band 12 16QAM 5MHz CH-High, 1 RB



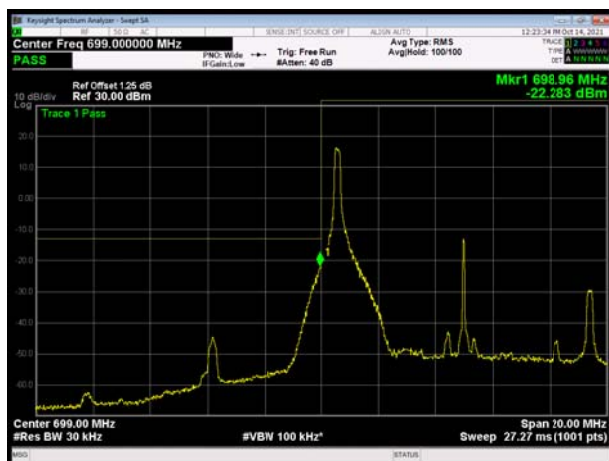
LTE Band 12 16QAM 5MHz CH-Low, 100%RB



LTE Band 12 16QAM 5MHz CH-High, 100%RB



LTE Band 12 16QAM 10MHz CH-Low, 1 RB



LTE Band 12 16QAM 10MHz CH-High, 1 RB

