RF TEST REPORT

Applicant	Xiaomi Communications Co., Ltd.
FCC ID	2AFZZK7BL
Product	Mobile Phone
Brand	Redmi
Model	M2101K7BL
Report No.	R2101A0098-R3
Issue Date	March 17, 2021

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2019)/ FCC CFR47 Part 27C (2019)**. 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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Approved by: Kai Xu

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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(c)(10)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	27.53(h) 27.53(g)	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)	PASS
7	Radiates Spurious Emission	2.1053 /27.53(h) /27.53(g)	PASS
Date of Testing: February 22, 2021~March 4, 2021 Date of Sample Received: February 7, 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	M2101K7BL			
IMEI	IMEI 1: 867127050142820 IMEI 2: 867127050142838			
Hardware Version	P2			
Software Version	MIUI 12			
Power Supply	Battery / AC adapter			
Antenna Type	Fixed Internal Antenna			
Antenna Gain	Band	Frequency (MHz)	Main Antenna (dBi)	Second Antenna (dBi)
	LTE Band 12/ LTE Band 17	700	-3.25	-5.10
		710	-3.89	-5.23
		720	-4.12	-5.42
	LTE Band 66	1710	-3.5	-3.2
		1730	-2.8	-2.8
		1750	-3.1	-2.4
		1770	-3.1	-1.9
		1790	-2.6	-1.3
Memory	6G+128G; 6G+64G			
Test Mode(s)	LTE Band 12/17/66;			
Test Modulation	(LTE)QPSK 16QAM, 64 QAM, 256QAM(DL only);			
LTE Release	R12			
Maximum E.I.R.P./ E.R.P.	LTE Band 12:	19.15dBm		
	LTE Band 17:	18.4 dBm		
	LTE Band 66:	22.54 dBm		
Rated Power Supply Voltage:	3.87V			
Supply Voltage	Minimum: 3.6V Maximum: 4.45V			

Operating Temperature	Lowest: 0°C Highest: +40°C		
Extreme Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	LTE Band 12	699 ~ 716	729 ~ 746
	LTE Band 17	704 ~ 716	734 ~ 746
	LTE Band 66	1710 ~ 1780	2110 ~ 2200
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 (2019)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2019)

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 (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.

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

Test items	Modes	Bandwidth (MHz)						Modulation			RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	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	O
	LTE 17	-	-	O	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	O
Occupied Bandwidth	LTE 12	O	O	O	O	-	-	O	O	O	-	-	O	O	O	O
	LTE 17	-	-	O	O	-	-	O	O	O	-	-	O	O	O	O
	LTE 66	O	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	-	O
	LTE 17	-	-	O	O	-	-	O	O	O	O	-	O	O	-	O
	LTE 66	O	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	O
	LTE 17	-	-	O	O	-	-	O	O	O	-	-	O	O	O	O
	LTE 66	O	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE 12	O	O	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	-
Spurious Emissions at Antenna Terminals	LTE 12	O	O	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 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

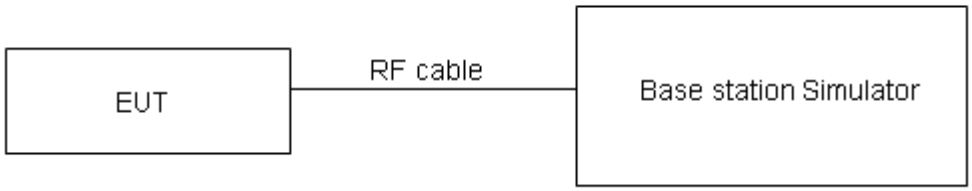
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBi)
where:dBd refers to gain relative to an ideal dipole.
EIRP (dBm) = ERP (dBm) + 2.15 (dB.)

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 27.50(c) (10) specifies that “Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP”
Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

Part 27.50(c)(10)Limit	⩽ 3 W (34.77 dBm)
Part 27.50(d)(4)Limit	⩽ 1 W (30 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

LTE Band 12				Maximum Output Power(dBm)			ERP (dBm) Main Antenna			ERP (dBm) Second 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	24.43	24.51	24.29	19.03	18.47	18.02	17.18	17.13	16.72
		1	2	24.55	24.44	24.38	19.15	18.40	18.11	17.30	17.06	16.81
		1	5	24.52	24.53	24.40	19.12	18.49	18.13	17.27	17.15	16.83
		3	0	24.43	24.23	24.25	19.03	18.19	17.98	17.18	16.85	16.68
		3	2	24.36	24.26	24.24	18.96	18.22	17.97	17.11	16.88	16.67
		3	3	24.39	24.28	24.36	18.99	18.24	18.09	17.14	16.90	16.79
		6	0	23.32	23.34	23.45	17.92	17.30	17.18	16.07	15.96	15.88
	16QAM	1	0	23.68	23.49	23.62	18.28	17.45	17.35	16.43	16.11	16.05
		1	2	23.66	23.64	23.55	18.26	17.60	17.28	16.41	16.26	15.98
		1	5	23.71	23.68	23.48	18.31	17.64	17.21	16.46	16.30	15.91
		3	0	23.37	23.31	23.16	17.97	17.27	16.89	16.12	15.93	15.59
		3	2	23.39	23.36	23.41	17.99	17.32	17.14	16.14	15.98	15.84
		3	3	23.50	23.47	23.23	18.10	17.43	16.96	16.25	16.09	15.66
		6	0	22.31	22.30	22.41	16.91	16.26	16.14	15.06	14.92	14.84
	64QAM	1	0	22.62	22.55	22.59	17.22	16.51	16.32	15.37	15.17	15.02
		1	2	22.56	22.51	22.54	17.16	16.47	16.27	15.31	15.13	14.97
		1	5	22.45	22.45	22.46	17.05	16.41	16.19	15.20	15.07	14.89
		3	0	22.20	22.17	22.26	16.80	16.13	15.99	14.95	14.79	14.69
		3	2	22.37	22.33	22.38	16.97	16.29	16.11	15.12	14.95	14.81
		3	3	22.30	22.28	22.30	16.90	16.24	16.03	15.05	14.90	14.73
		6	0	21.31	21.30	21.35	15.91	15.26	15.08	14.06	13.92	13.78
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	24.44	24.54	24.31	19.04	18.50	18.27	17.19	17.16	16.93
		1	7	24.54	24.48	24.43	19.14	18.44	18.39	17.29	17.10	17.05
		1	14	24.54	24.57	24.43	19.14	18.53	18.39	17.29	17.19	17.05
		8	0	23.53	23.35	23.38	18.13	17.31	17.34	16.28	15.97	16.00
		8	4	23.49	23.37	23.35	18.09	17.33	17.31	16.24	15.99	15.97
		8	7	23.49	23.41	23.47	18.09	17.37	17.43	16.24	16.03	16.09
		15	0	23.36	23.39	23.50	17.96	17.35	17.46	16.11	16.01	16.12

	16QAM	1	0	23.70	23.50	23.64	18.30	17.46	17.60	16.45	16.12	16.26
		1	7	23.69	23.66	23.59	18.29	17.62	17.55	16.44	16.28	16.21
		1	14	23.73	23.72	23.50	18.33	17.68	17.46	16.48	16.34	16.12
		8	0	22.49	22.45	22.29	17.09	16.41	16.25	15.24	15.07	14.91
		8	4	22.49	22.48	22.52	17.09	16.44	16.48	15.24	15.10	15.14
		8	7	22.60	22.59	22.36	17.20	16.55	16.32	15.35	15.21	14.98
		15	0	22.35	22.35	22.43	16.95	16.31	16.39	15.10	14.97	15.05
	64QAM	1	0	22.64	22.56	22.61	17.24	16.52	16.57	15.39	15.18	15.23
		1	7	22.59	22.53	22.56	17.19	16.49	16.52	15.34	15.15	15.18
		1	14	22.47	22.44	22.48	17.07	16.40	16.44	15.22	15.06	15.10
		8	0	21.32	21.31	21.39	15.92	15.27	15.35	14.07	13.93	14.01
		8	4	21.47	21.45	21.49	16.07	15.41	15.45	14.22	14.07	14.11
		8	7	21.40	21.40	21.43	16.00	15.36	15.39	14.15	14.02	14.05
		15	0	21.35	21.35	21.37	15.95	15.31	15.33	14.10	13.97	13.99

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	24.43	24.50	24.29	19.03	18.46	18.25	17.18	17.12	16.91
		1	13	24.52	24.47	24.40	19.12	18.43	18.36	17.27	17.09	17.02
		1	24	24.51	24.52	24.39	19.11	18.48	18.35	17.26	17.14	17.01
		12	0	23.51	23.31	23.35	18.11	17.27	17.31	16.26	15.93	15.97
		12	6	23.46	23.32	23.31	18.06	17.28	17.27	16.21	15.94	15.93
		12	13	23.46	23.38	23.43	18.06	17.34	17.39	16.21	16.00	16.05
		25	0	23.34	23.35	23.45	17.94	17.31	17.41	16.09	15.97	16.07
	16QAM	1	0	23.65	23.48	23.62	18.25	17.44	17.58	16.40	16.10	16.24
		1	13	23.67	23.63	23.57	18.27	17.59	17.53	16.42	16.25	16.19
		1	24	23.70	23.68	23.47	18.30	17.64	17.43	16.45	16.30	16.09
		12	0	22.46	22.43	22.26	17.06	16.39	16.22	15.21	15.05	14.88
		12	6	22.46	22.43	22.48	17.06	16.39	16.44	15.21	15.05	15.10
		12	13	22.58	22.55	22.33	17.18	16.51	16.29	15.33	15.17	14.95
		25	0	22.32	22.30	22.39	16.92	16.26	16.35	15.07	14.92	15.01
	64QAM	1	0	22.59	22.54	22.59	17.19	16.50	16.55	15.34	15.16	15.21
		1	13	22.57	22.50	22.54	17.17	16.46	16.50	15.32	15.12	15.16
		1	24	22.48	22.43	22.49	17.08	16.39	16.45	15.23	15.05	15.11
		12	0	21.31	21.33	21.40	15.91	15.29	15.36	14.06	13.95	14.02
		12	6	21.45	21.42	21.48	16.05	15.38	15.44	14.20	14.04	14.10
		12	13	21.38	21.36	21.40	15.98	15.32	15.36	14.13	13.98	14.02

		25	0	21.32	21.30	21.33	15.92	15.26	15.29	14.07	13.92	13.95
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	24.40	24.46	24.26	19.00	18.42	18.22	17.15	17.08	16.88
		1	25	24.51	24.43	24.38	19.11	18.39	18.34	17.26	17.05	17.00
		1	49	24.49	24.51	24.36	19.09	18.47	18.32	17.24	17.13	16.98
		25	0	23.48	23.26	23.31	18.08	17.22	17.27	16.23	15.88	15.93
		25	13	23.44	23.28	23.28	18.04	17.24	17.24	16.19	15.90	15.90
		25	25	23.43	23.33	23.39	18.03	17.29	17.35	16.18	15.95	16.01
		50	0	23.31	23.30	23.41	17.91	17.26	17.37	16.06	15.92	16.03
	16QAM	1	0	23.48	23.44	23.57	18.08	17.40	17.53	16.23	16.06	16.19
		1	25	23.63	23.61	23.53	18.23	17.57	17.49	16.38	16.23	16.15
		1	49	23.68	23.65	23.45	18.28	17.61	17.41	16.43	16.27	16.07
		25	0	22.43	22.39	22.23	17.03	16.35	16.19	15.18	15.01	14.85
		25	13	22.43	22.41	22.45	17.03	16.37	16.41	15.18	15.03	15.07
		25	25	22.55	22.50	22.29	17.15	16.46	16.25	15.30	15.12	14.91
		50	0	22.30	22.26	22.36	16.90	16.22	16.32	15.05	14.88	14.98
	64QAM	1	0	22.57	22.50	22.54	17.17	16.46	16.50	15.32	15.12	15.16
		1	25	22.53	22.48	22.50	17.13	16.44	16.46	15.28	15.10	15.12
		1	49	22.42	22.37	22.43	17.02	16.33	16.39	15.17	14.99	15.05
		25	0	21.26	21.25	21.33	15.86	15.21	15.29	14.01	13.87	13.95
		25	13	21.41	21.38	21.42	16.01	15.34	15.38	14.16	14.00	14.04
		25	25	21.35	21.31	21.36	15.95	15.27	15.32	14.10	13.93	13.98
		50	0	21.30	21.26	21.30	15.90	15.22	15.26	14.05	13.88	13.92

LTE Band 17				**Maximum Output Power(dBm)**			**ERP (dBm) Main Antenna**			**ERP (dBm) Second 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	24.35	24.41	24.41	18.31	18.37	18.37	16.97	17.03	17.03
		1	13	24.40	24.42	24.43	18.36	18.38	18.39	17.02	17.04	17.05
		1	24	24.44	24.34	24.38	18.40	18.30	18.34	17.06	16.96	17.00
		12	0	23.37	23.37	23.39	17.33	17.33	17.35	15.99	15.99	16.01
		12	6	23.45	23.45	23.50	17.41	17.41	17.46	16.07	16.07	16.12
		12	13	23.39	23.42	23.44	17.35	17.38	17.40	16.01	16.04	16.06

		25	0	23.35	23.41	23.48	17.31	17.37	17.44	15.97	16.03	16.10
	16QAM	1	0	23.86	23.65	23.61	17.82	17.61	17.57	16.48	16.27	16.23
		1	13	23.88	23.84	23.82	17.84	17.80	17.78	16.50	16.46	16.44
		1	24	23.66	23.64	23.61	17.62	17.60	17.57	16.28	16.26	16.23
		12	0	22.41	22.39	22.35	16.37	16.35	16.31	15.03	15.01	14.97
		12	6	22.51	22.46	22.44	16.47	16.42	16.40	15.13	15.08	15.06
		12	13	22.41	22.40	22.35	16.37	16.36	16.31	15.03	15.02	14.97
		25	0	22.47	22.45	22.41	16.43	16.41	16.37	15.09	15.07	15.03
	64QAM	1	0	22.61	22.60	22.65	16.57	16.56	16.61	15.23	15.22	15.27
		1	13	22.56	22.49	22.53	16.52	16.45	16.49	15.18	15.11	15.15
		1	24	22.48	22.41	22.47	16.44	16.37	16.43	15.10	15.03	15.09
		12	0	21.47	21.44	21.51	15.43	15.40	15.47	14.09	14.06	14.13
		12	6	21.48	21.41	21.47	15.44	15.37	15.43	14.10	14.03	14.09
		12	13	21.41	21.34	21.38	15.37	15.30	15.34	14.03	13.96	14.00
		25	0	21.41	21.34	21.37	15.37	15.30	15.33	14.03	13.96	13.99
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	24.32	24.37	24.38	18.28	18.33	18.34	16.94	16.99	17.00
		1	25	24.39	24.38	24.41	18.35	18.34	18.37	17.01	17.00	17.03
		1	49	24.42	24.33	24.35	18.38	18.29	18.31	17.04	16.95	16.97
		25	0	23.34	23.32	23.35	17.30	17.28	17.31	15.96	15.94	15.97
		25	13	23.43	23.41	23.47	17.39	17.37	17.43	16.05	16.03	16.09
		25	25	23.36	23.37	23.40	17.32	17.33	17.36	15.98	15.99	16.02
		50	0	23.32	23.36	23.44	17.28	17.32	17.40	15.94	15.98	16.06
	16QAM	1	0	23.63	23.61	23.56	17.59	17.57	17.52	16.25	16.23	16.18
		1	25	23.84	23.82	23.78	17.80	17.78	17.74	16.46	16.44	16.40
		1	49	23.64	23.61	23.59	17.60	17.57	17.55	16.26	16.23	16.21
		25	0	22.38	22.35	22.32	16.34	16.31	16.28	15.00	14.97	14.94
		25	13	22.48	22.44	22.41	16.44	16.40	16.37	15.10	15.06	15.03
		25	25	22.38	22.35	22.31	16.34	16.31	16.27	15.00	14.97	14.93
		50	0	22.45	22.41	22.38	16.41	16.37	16.34	15.07	15.03	15.00
	64QAM	1	0	22.59	22.56	22.60	16.55	16.52	16.56	15.21	15.18	15.22
		1	25	22.52	22.47	22.49	16.48	16.43	16.45	15.14	15.09	15.11
		1	49	22.42	22.35	22.41	16.38	16.31	16.37	15.04	14.97	15.03
		25	0	21.42	21.36	21.44	15.38	15.32	15.40	14.04	13.98	14.06
		25	13	21.44	21.37	21.41	15.40	15.33	15.37	14.06	13.99	14.03

		25	25	21.38	21.29	21.34	15.34	15.25	15.30	14.00	13.91	13.96
		50	0	21.39	21.30	21.34	15.35	15.26	15.30	14.01	13.92	13.96

LTE Band 66				Maximum Output Power(dBm)			EIRP (dBm) Main Antenna			EIRP (dBm) Second 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	24.30	24.15	24.14	20.80	21.05	21.04	21.10	21.75	22.24
		1	2	24.46	24.33	24.38	20.96	21.23	21.28	21.26	21.93	22.48
		1	5	24.21	24.36	24.40	20.71	21.26	21.30	21.01	21.96	22.50
		3	0	24.14	24.24	24.25	20.64	21.14	21.15	20.94	21.84	22.35
		3	2	24.25	24.38	24.37	20.75	21.28	21.27	21.05	21.98	22.47
		3	3	24.25	24.31	24.31	20.75	21.21	21.21	21.05	21.91	22.41
		6	0	23.21	23.36	23.37	19.71	20.26	20.27	20.01	20.96	21.47
	16QAM	1	0	23.52	23.40	23.47	20.02	20.30	20.37	20.32	21.00	21.57
		1	2	23.50	23.48	23.50	20.00	20.38	20.40	20.30	21.08	21.60
		1	5	23.48	23.45	23.52	19.98	20.35	20.42	20.28	21.05	21.62
		3	0	23.30	23.24	23.30	19.80	20.14	20.20	20.10	20.84	21.40
		3	2	23.33	23.30	23.39	19.83	20.20	20.29	20.13	20.90	21.49
		3	3	23.33	23.30	23.36	19.83	20.20	20.26	20.13	20.90	21.46
		6	0	22.32	22.31	22.40	18.82	19.21	19.30	19.12	19.91	20.50
	64QAM	1	0	22.23	22.19	22.26	18.73	19.09	19.16	19.03	19.79	20.36
		1	2	22.23	22.21	22.25	18.73	19.11	19.15	19.03	19.81	20.35
		1	5	22.16	22.15	22.17	18.66	19.05	19.07	18.96	19.75	20.27
		3	0	22.07	21.97	22.03	18.57	18.87	18.93	18.87	19.57	20.13
		3	2	22.12	22.07	22.16	18.62	18.97	19.06	18.92	19.67	20.26
		3	3	22.18	22.15	22.21	18.68	19.05	19.11	18.98	19.75	20.31
		6	0	21.18	21.17	21.26	17.68	18.07	18.16	17.98	18.77	19.36
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	24.32	24.19	24.17	20.82	21.09	21.07	21.12	21.79	22.27
		1	7	24.44	24.36	24.42	20.94	21.26	21.32	21.24	21.96	22.52
		1	14	24.24	24.41	24.44	20.74	21.31	21.34	21.04	22.01	22.54
		8	0	23.24	23.36	23.38	19.74	20.26	20.28	20.04	20.96	21.48
		8	4	23.37	23.48	23.49	19.87	20.38	20.39	20.17	21.08	21.59
		8	7	23.35	23.42	23.41	19.85	20.32	20.31	20.15	21.02	21.51

		15	0	23.21	23.40	23.40	19.71	20.30	20.30	20.01	21.00	21.50
	16QAM	1	0	23.55	23.42	23.50	20.05	20.32	20.40	20.35	21.02	21.60
		1	7	23.53	23.48	23.54	20.03	20.38	20.44	20.33	21.08	21.64
		1	14	23.50	23.49	23.55	20.00	20.39	20.45	20.30	21.09	21.65
		8	0	22.41	22.37	22.42	18.91	19.27	19.32	19.21	19.97	20.52
		8	4	22.44	22.43	22.51	18.94	19.33	19.41	19.24	20.03	20.61
		8	7	22.43	22.42	22.49	18.93	19.32	19.39	19.23	20.02	20.59
		15	0	22.35	22.35	22.43	18.85	19.25	19.33	19.15	19.95	20.53
	64QAM	1	0	22.26	22.21	22.29	18.76	19.11	19.19	19.06	19.81	20.39
		1	7	22.26	22.21	22.27	18.76	19.11	19.17	19.06	19.81	20.37
		1	14	22.18	22.14	22.20	18.68	19.04	19.10	18.98	19.74	20.30
		8	0	21.18	21.10	21.15	17.68	18.00	18.05	17.98	18.70	19.25
		8	4	21.23	21.20	21.28	17.73	18.10	18.18	18.03	18.80	19.38
		8	7	21.28	21.27	21.34	17.78	18.17	18.24	18.08	18.87	19.44
		15	0	21.21	21.21	21.29	17.71	18.11	18.19	18.01	18.81	19.39
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	24.29	24.17	24.13	20.79	21.07	21.03	21.09	21.77	22.23
		1	13	24.42	24.32	24.39	20.92	21.22	21.29	21.22	21.92	22.49
		1	24	24.21	24.36	24.40	20.71	21.26	21.30	21.01	21.96	22.50
		12	0	23.21	23.31	23.34	19.71	20.21	20.24	20.01	20.91	21.44
		12	6	23.35	23.44	23.44	19.85	20.34	20.34	20.15	21.04	21.54
		12	13	23.33	23.40	23.37	19.83	20.30	20.27	20.13	21.00	21.47
		25	0	23.21	23.39	23.38	19.71	20.29	20.28	20.01	20.99	21.48
	16QAM	1	0	23.52	23.38	23.47	20.02	20.28	20.37	20.32	20.98	21.57
		1	13	23.50	23.46	23.51	20.00	20.36	20.41	20.30	21.06	21.61
		1	24	23.47	23.47	23.51	19.97	20.37	20.41	20.27	21.07	21.61
		12	0	22.39	22.33	22.39	18.89	19.23	19.29	19.19	19.93	20.49
		12	6	22.41	22.38	22.47	18.91	19.28	19.37	19.21	19.98	20.57
		12	13	22.40	22.37	22.45	18.90	19.27	19.35	19.20	19.97	20.55
		25	0	22.33	22.31	22.38	18.83	19.21	19.28	19.13	19.91	20.48
	64QAM	1	0	22.23	22.21	22.26	18.73	19.11	19.16	19.03	19.81	20.36
		1	13	22.23	22.23	22.24	18.73	19.13	19.14	19.03	19.83	20.34
		1	24	22.19	22.12	22.16	18.69	19.02	19.06	18.99	19.72	20.26
		12	0	21.16	21.06	21.16	17.66	17.96	18.06	17.96	18.66	19.26
		12	6	21.20	21.15	21.24	17.70	18.05	18.14	18.00	18.75	19.34

		12	13	21.25	21.22	21.30	17.75	18.12	18.20	18.05	18.82	19.40
		25	0	21.19	21.17	21.24	17.69	18.07	18.14	17.99	18.77	19.34
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	24.31	24.18	24.16	20.81	21.08	21.06	21.11	21.78	22.26
		1	25	24.45	24.37	24.43	20.95	21.27	21.33	21.25	21.97	22.53
		1	49	24.23	24.40	24.43	20.73	21.30	21.33	21.03	22.00	22.53
		25	0	23.24	23.36	23.38	19.74	20.26	20.28	20.04	20.96	21.48
		25	13	23.38	23.49	23.48	19.88	20.39	20.38	20.18	21.09	21.58
		25	25	23.35	23.44	23.42	19.85	20.34	20.32	20.15	21.04	21.52
		50	0	23.25	23.41	23.42	19.75	20.31	20.32	20.05	21.01	21.52
	16QAM	1	0	23.54	23.41	23.49	20.04	20.31	20.39	20.34	21.01	21.59
		1	25	23.53	23.50	23.54	20.03	20.40	20.44	20.33	21.10	21.64
		1	49	23.50	23.49	23.54	20.00	20.39	20.44	20.30	21.09	21.64
		25	0	22.42	22.38	22.43	18.92	19.28	19.33	19.22	19.98	20.53
		25	13	22.43	22.42	22.50	18.93	19.32	19.40	19.23	20.02	20.60
		25	25	22.43	22.42	22.49	18.93	19.32	19.39	19.23	20.02	20.59
		50	0	22.36	22.36	22.42	18.86	19.26	19.32	19.16	19.96	20.52
	64QAM	1	0	22.25	22.20	22.28	18.75	19.10	19.18	19.05	19.80	20.38
		1	25	22.26	22.23	22.27	18.76	19.13	19.17	19.06	19.83	20.37
		1	49	22.18	22.14	22.19	18.68	19.04	19.09	18.98	19.74	20.29
		25	0	21.19	21.11	21.16	17.69	18.01	18.06	17.99	18.71	19.26
		25	13	21.22	21.19	21.27	17.72	18.09	18.17	18.02	18.79	19.37
		25	25	21.28	21.27	21.34	17.78	18.17	18.24	18.08	18.87	19.44
		50	0	21.22	21.22	21.28	17.72	18.12	18.18	18.02	18.82	19.38
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	24.30	24.14	24.14	20.80	21.04	21.04	21.10	21.74	22.24
		1	38	24.43	24.36	24.40	20.93	21.26	21.30	21.23	21.96	22.50
		1	74	24.20	24.35	24.39	20.70	21.25	21.29	21.00	21.95	22.49
		36	0	23.22	23.32	23.35	19.72	20.22	20.25	20.02	20.92	21.45
		36	18	23.35	23.44	23.44	19.85	20.34	20.34	20.15	21.04	21.54
		36	39	23.32	23.41	23.38	19.82	20.31	20.28	20.12	21.01	21.48
		75	0	23.23	23.37	23.37	19.73	20.27	20.27	20.03	20.97	21.47
	16QAM	1	0	23.49	23.39	23.47	19.99	20.29	20.37	20.29	20.99	21.57

		1	38	23.51	23.47	23.52	20.01	20.37	20.42	20.31	21.07	21.62
		1	74	23.47	23.45	23.51	19.97	20.35	20.41	20.27	21.05	21.61
		36	0	22.39	22.36	22.40	18.89	19.26	19.30	19.19	19.96	20.50
		36	18	22.40	22.37	22.46	18.90	19.27	19.36	19.20	19.97	20.56
		36	39	22.41	22.38	22.46	18.91	19.28	19.36	19.21	19.98	20.56
		75	0	22.33	22.31	22.38	18.83	19.21	19.28	19.13	19.91	20.48
	64QAM	1	0	22.20	22.18	22.26	18.70	19.08	19.16	19.00	19.78	20.36
		1	38	22.24	22.20	22.25	18.74	19.10	19.15	19.04	19.80	20.35
		1	74	22.19	22.13	22.20	18.69	19.03	19.10	18.99	19.73	20.30
		36	0	21.18	21.13	21.17	17.68	18.03	18.07	17.98	18.73	19.27
		36	18	21.20	21.16	21.26	17.70	18.06	18.16	18.00	18.76	19.36
		36	39	21.26	21.23	21.31	17.76	18.13	18.21	18.06	18.83	19.41
		75	0	21.19	21.17	21.24	17.69	18.07	18.14	17.99	18.77	19.34
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	24.27	24.10	24.11	20.77	21.00	21.01	21.07	21.70	22.21
		1	50	24.42	24.32	24.38	20.92	21.22	21.28	21.22	21.92	22.48
		1	99	24.18	24.34	24.36	20.68	21.24	21.26	20.98	21.94	22.46
		50	0	23.19	23.27	23.31	19.69	20.17	20.21	19.99	20.87	21.41
		50	25	23.33	23.40	23.41	19.83	20.30	20.31	20.13	21.00	21.51
		50	50	23.29	23.36	23.34	19.79	20.26	20.24	20.09	20.96	21.44
		100	0	23.20	23.32	23.33	19.70	20.22	20.23	20.00	20.92	21.43
	16QAM	1	0	23.39	23.35	23.42	19.89	20.25	20.32	20.19	20.95	21.52
		1	50	23.47	23.45	23.48	19.97	20.35	20.38	20.27	21.05	21.58
		1	99	23.45	23.42	23.49	19.95	20.32	20.39	20.25	21.02	21.59
		50	0	22.36	22.32	22.37	18.86	19.22	19.27	19.16	19.92	20.47
		50	25	22.37	22.35	22.43	18.87	19.25	19.33	19.17	19.95	20.53
		50	50	22.38	22.33	22.42	18.88	19.23	19.32	19.18	19.93	20.52
		100	0	22.31	22.27	22.35	18.81	19.17	19.25	19.11	19.87	20.45
	64QAM	1	0	22.18	22.14	22.21	18.68	19.04	19.11	18.98	19.74	20.31
		1	50	22.20	22.18	22.21	18.70	19.08	19.11	19.00	19.78	20.31
		1	99	22.13	22.07	22.14	18.63	18.97	19.04	18.93	19.67	20.24
		50	0	21.13	21.05	21.10	17.63	17.95	18.00	17.93	18.65	19.20
		50	25	21.16	21.12	21.20	17.66	18.02	18.10	17.96	18.72	19.30
		50	50	21.23	21.18	21.27	17.73	18.08	18.17	18.03	18.78	19.37
		100	0	21.17	21.13	21.21	17.67	18.03	18.11	17.97	18.73	19.31

5.2 Occupied Bandwidth

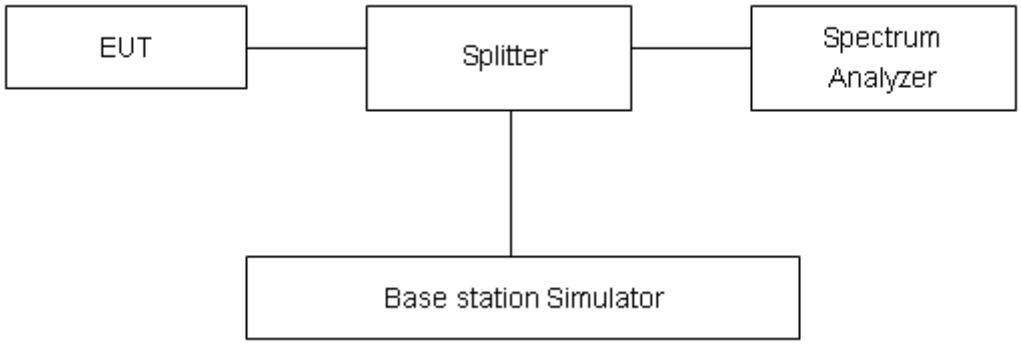
Ambient condition

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 30kHz, VBW is set to 91 kHz for LTE Band 12/66 (1.4MHz).
RBW is set to 62 kHz, VBW is set to 180 kHz for LTE Band 12/66 (3MHz).
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 12/17/66 (5MHz).
RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 12/17/66 (10MHz).
RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 66 (15MHz/20MHz).
99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

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

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	1.1044	1.283
			23095	707.5	1.0948	1.277
			23173	715.3	1.0978	1.269
		3	23025	700.5	2.6869	2.975
			23095	707.5	2.6989	2.946
			23165	714.5	2.6899	2.969
		5	23035	701.5	4.5132	4.877
			23095	707.5	4.4962	4.895
			23155	713.5	4.5125	4.932
		10	23060	704	8.9937	9.682
			23095	707.5	8.9619	9.631
			23130	711	8.9716	9.709
	16QAM	1.4	23017	699.7	1.1004	1.268
			23095	707.5	1.0996	1.285
			23173	715.3	1.0915	1.258
		3	23025	700.5	2.6966	2.959
			23095	707.5	2.6853	2.977
			23165	714.5	2.6847	2.994
		5	23035	701.5	4.5072	4.918
			23095	707.5	4.4980	4.881
			23155	713.5	4.5218	4.896
		10	23060	704	9.0081	9.702
			23095	707.5	8.9519	9.693
			23130	711	8.9774	9.638
	64QAM	1.4	23017	699.7	1.0924	1.273
			23095	707.5	1.1031	1.284
			23173	715.3	1.0903	1.265
		3	23025	700.5	2.6773	2.969
			23095	707.5	2.6887	2.951
			23165	714.5	2.6891	2.954
		5	23035	701.5	4.4996	4.843
			23095	707.5	4.5270	4.899
			23155	713.5	4.5326	4.912
		10	23060	704	8.9911	9.657
			23095	707.5	8.9606	9.570
			23130	711	8.9913	9.731

LTE Band 17						
RB	**Modulation**	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**99% Power Bandwidth(MHz)**	**-26dBc Bandwidth(MHz)**
100%	QPSK	5	23755	706.5	4.5044	4.880
			23790	710	4.5205	4.885
			23825	713.5	4.5169	4.923
		10	23780	709	8.9715	9.681
			23790	710	8.9934	9.719
			23800	711	8.9678	9.670
	16QAM	5	23755	706.5	4.5124	4.873
			23790	710	4.4989	4.922
			23825	713.5	4.5079	4.883
		10	23780	709	8.9683	9.643
			23790	710	8.9626	9.662
			23800	711	8.9687	9.676
	64QAM	5	23755	706.5	4.5123	4.911
			23790	710	4.4999	4.855
			23825	713.5	4.5258	4.840
		10	23780	709	8.9494	9.598
			23790	710	8.9556	9.619
			23800	711	8.9580	9.698

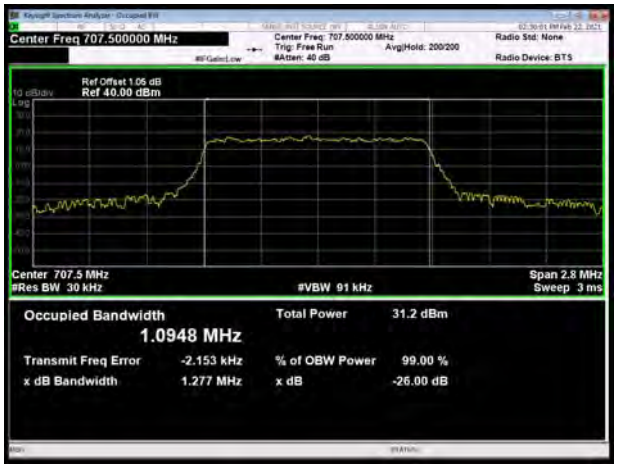
LTE Band 66						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	131979	1710.7	1.0989	1.268
			132322	1745	1.0969	1.275
			132665	1779.3	1.0964	1.277
		3	131987	1711.5	2.7004	2.964
			132322	1745	2.6990	2.962
			132657	1778.5	2.6859	2.977
		5	131997	1712.5	4.5212	4.881
			132322	1745	4.5134	4.904
			132647	1777.5	4.5087	4.906
		10	132022	1715	9.0067	9.733
			132322	1745	8.9780	9.681
			132622	1775	8.9497	9.713
		15	132047	1717.5	13.4450	14.450
			132322	1745	13.4920	14.490
			132597	1772.5	13.5090	14.480
		20	132072	1720	17.9260	19.260
			132322	1745	17.9840	19.250
			132572	1770	17.9760	19.260
	16QAM	1.4	131979	1710.7	1.1017	1.268
			132322	1745	1.0962	1.286
			132665	1779.3	1.0938	1.254
		3	131987	1711.5	2.6828	2.993
			132322	1745	2.6856	2.956
			132657	1778.5	2.6918	2.971
		5	131997	1712.5	4.5087	4.938
			132322	1745	4.5279	4.908
			132647	1777.5	4.5198	4.910
		10	132022	1715	8.9980	9.630
			132322	1745	8.9637	9.637
			132622	1775	8.9693	9.689
		15	132047	1717.5	13.4620	14.570
			132322	1745	13.5020	14.520
			132597	1772.5	13.4570	14.540
		20	132072	1720	17.9190	19.090
			132322	1745	17.9480	19.200
			132572	1770	18.0070	19.340

	64QAM	1.4	131979	1710.7	1.0989	1.267
			132322	1745	1.0952	1.287
			132665	1779.3	1.0932	1.271
		3	131987	1711.5	2.6807	2.977
			132322	1745	2.6908	2.972
			132657	1778.5	2.6850	2.956
		5	131997	1712.5	4.5087	4.917
			132322	1745	4.5098	4.899
			132647	1777.5	4.5260	4.894
		10	132022	1715	8.9791	9.722
			132322	1745	8.9810	9.718
			132622	1775	8.9581	9.718
		15	132047	1717.5	13.4640	14.440
			132322	1745	13.4830	14.490
			132597	1772.5	13.4640	14.410
		20	132072	1720	17.9080	19.280
			132322	1745	17.9500	19.260
			132572	1770	17.9630	19.420

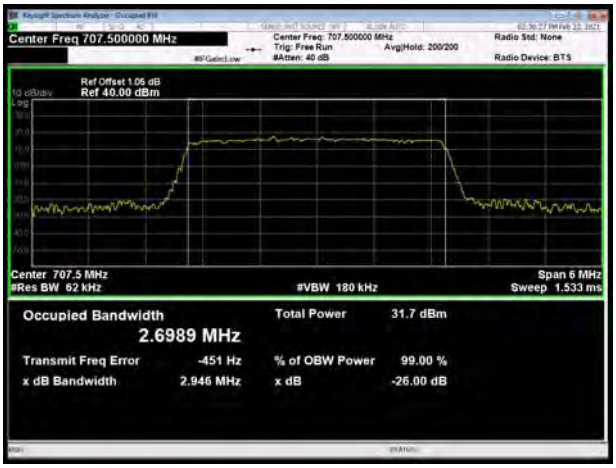
LTE Band 12 QPSK 1.4MHz CH-Low

LTE Band 12 QPSK 3MHz CH-Low

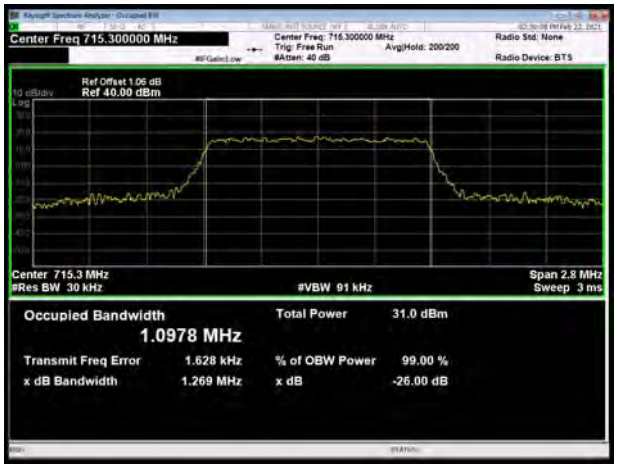
LTE Band 12 QPSK 1.4MHz CH-Middle



LTE Band 12 QPSK 3MHz CH-Middle

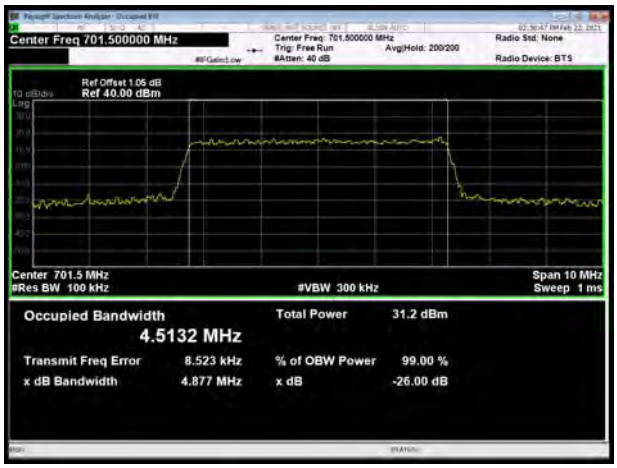


LTE Band 12 QPSK 1.4MHz CH-High

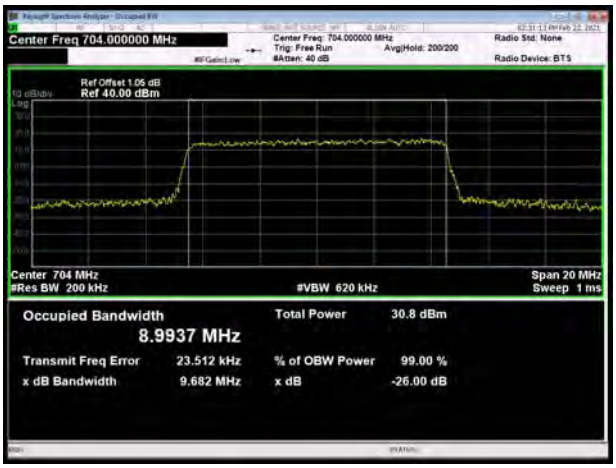


LTE Band 12 QPSK 3MHz CH-High

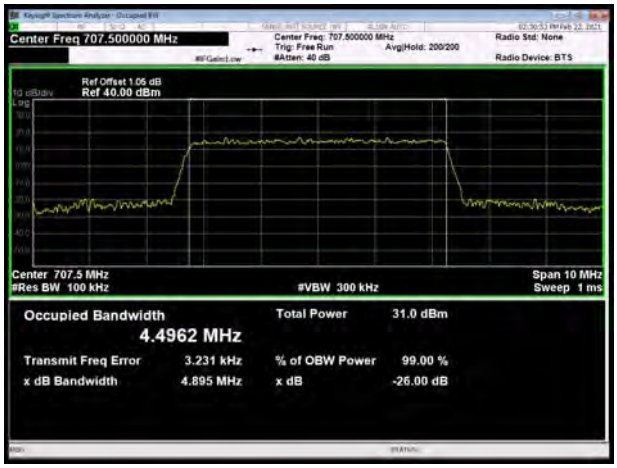
LTE Band 12 QPSK 5MHz CH-Low



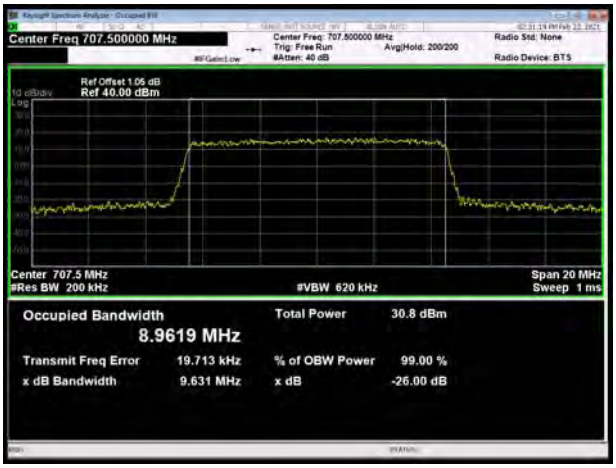
LTE Band 12 QPSK 10MHz CH-Low



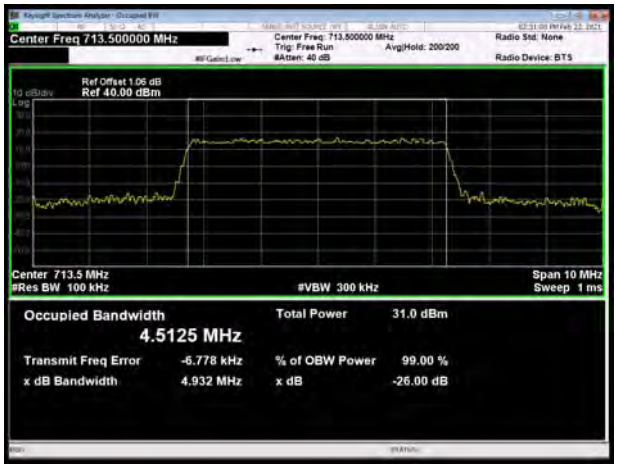
LTE Band 12 QPSK 5MHz CH-Middle



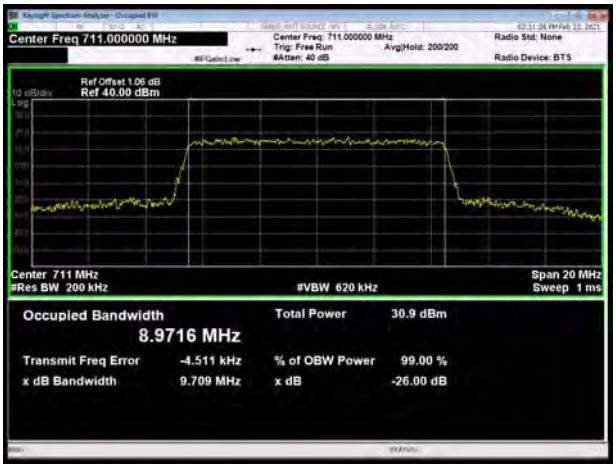
LTE Band 12 QPSK 10MHz CH-Middle



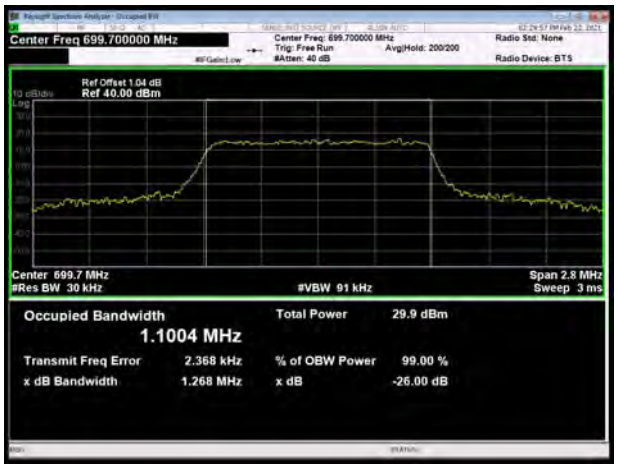
LTE Band 12 QPSK 5MHz CH-High



LTE Band 12 QPSK 10MHz CH-High

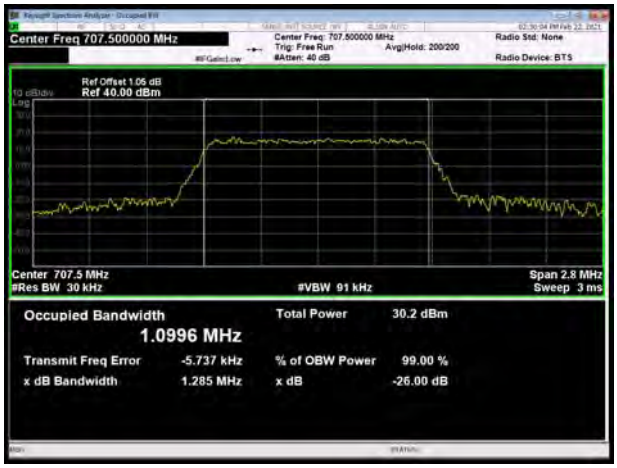


LTE Band 12 16QAM 1.4MHz CH-Low

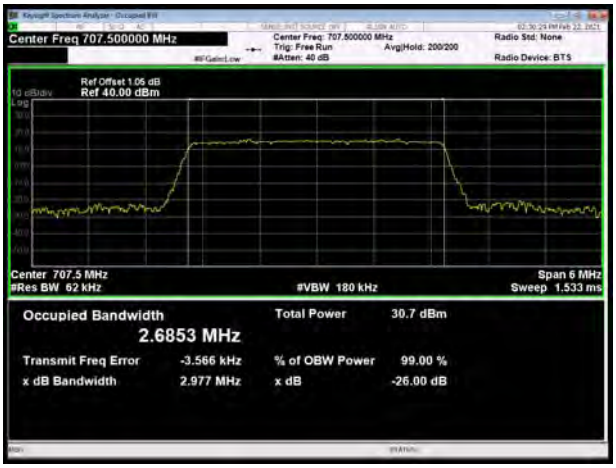


LTE Band 12 16QAM 3MHz CH-Low

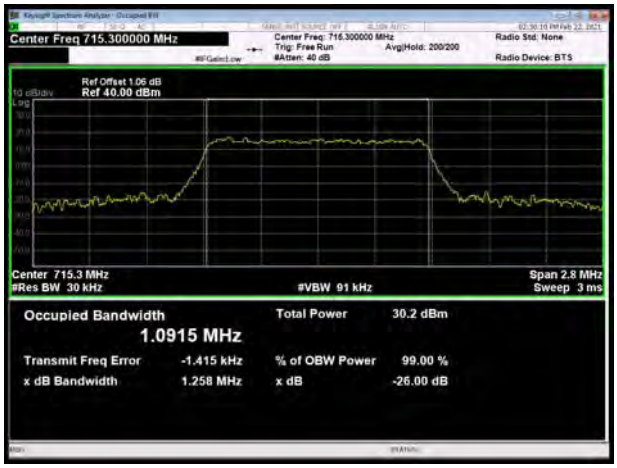
LTE Band 12 16QAM 1.4MHz CH-Middle



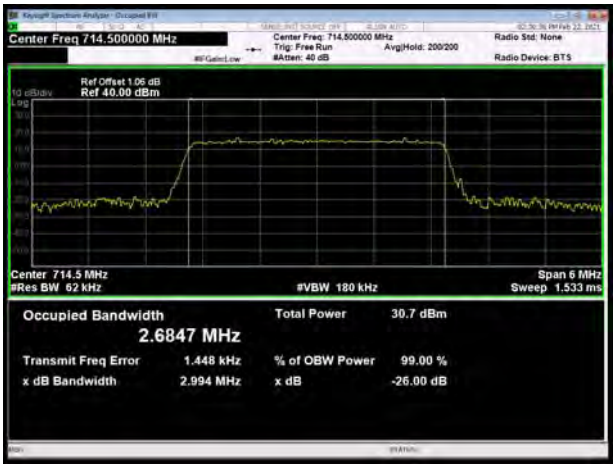
LTE Band 12 16QAM 3MHz CH-Middle



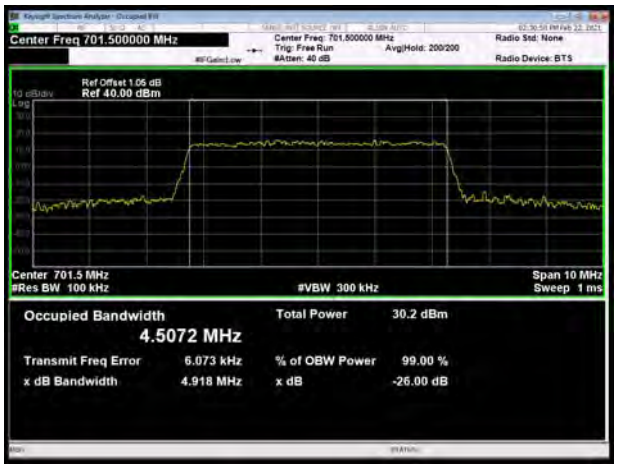
LTE Band 12 16QAM 1.4MHz CH-High



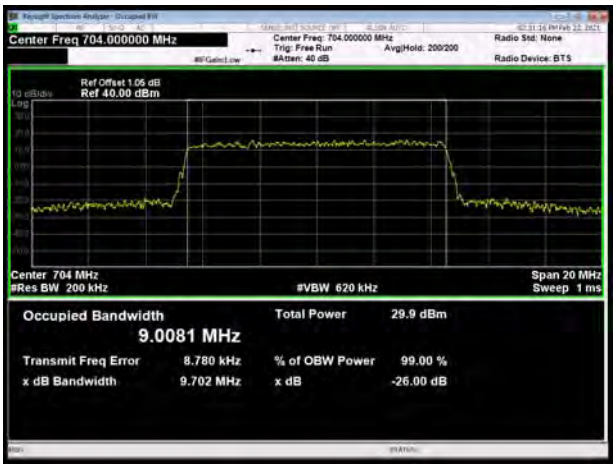
LTE Band 12 16QAM 3MHz CH-High



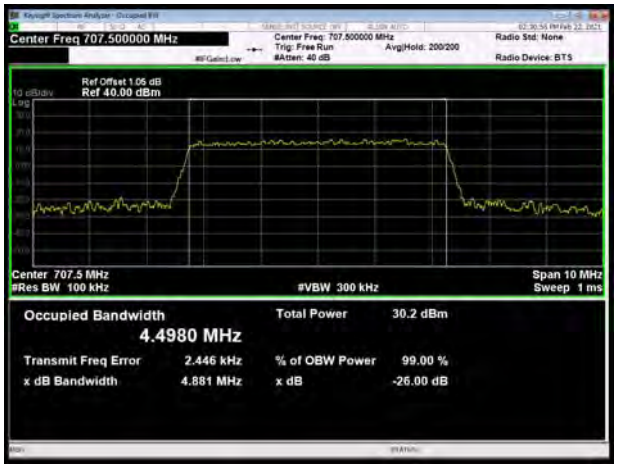
LTE Band 12 16QAM 5MHz CH-Low



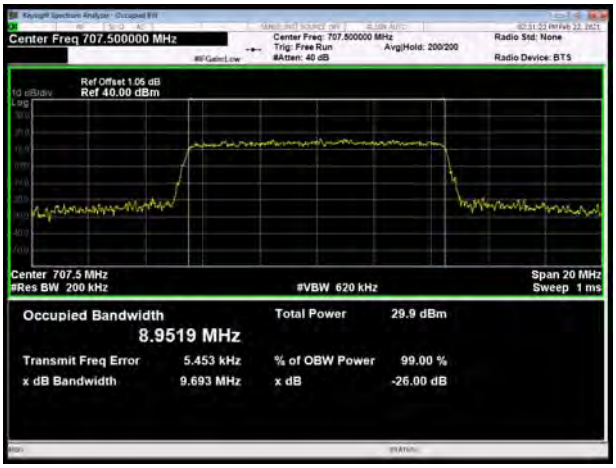
LTE Band 12 16QAM 10MHz CH-Low



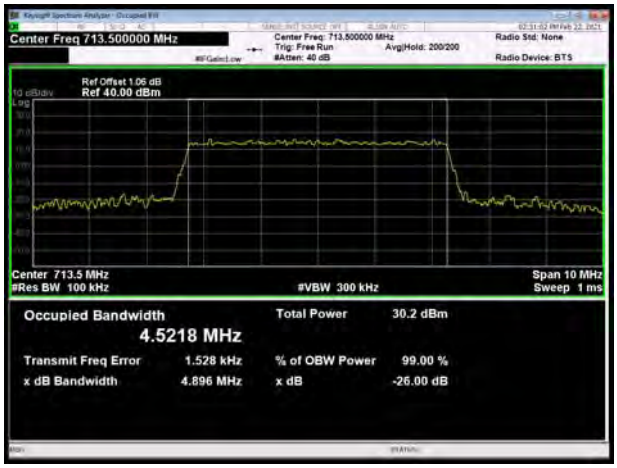
LTE Band 12 16QAM 5MHz CH-Middle



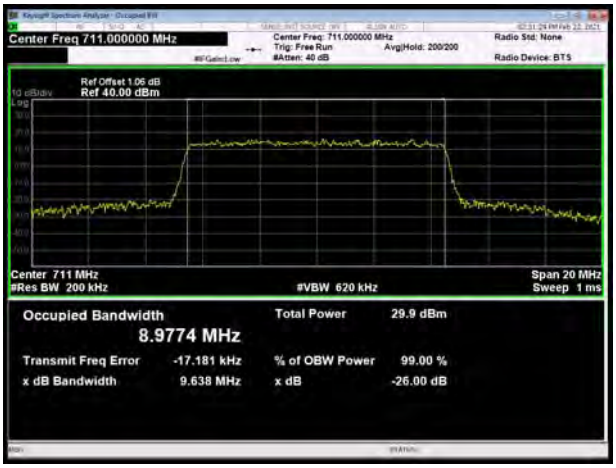
LTE Band 12 16QAM 10MHz CH-Middle



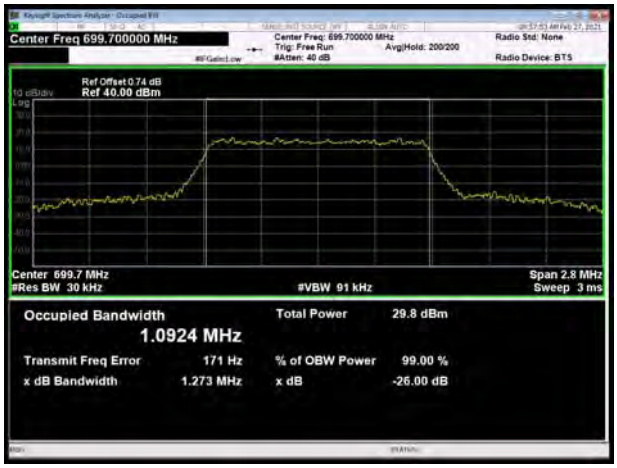
LTE Band 12 16QAM 5MHz CH-High



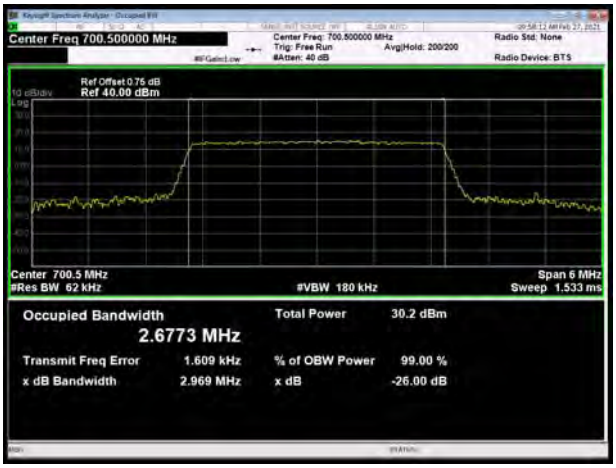
LTE Band 12 16QAM 10MHz CH-High



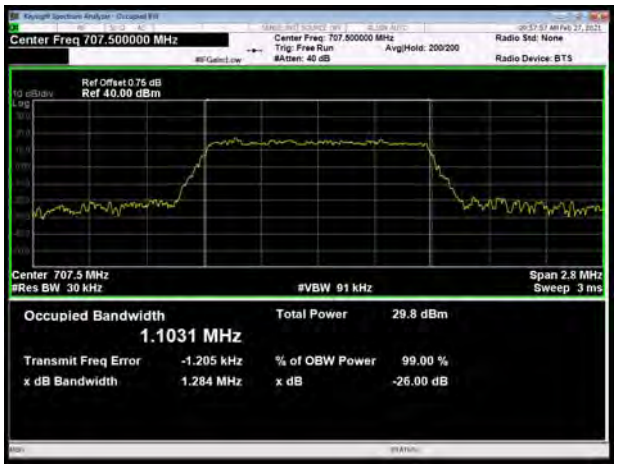
LTE Band 12 64QAM 1.4MHz CH-Low



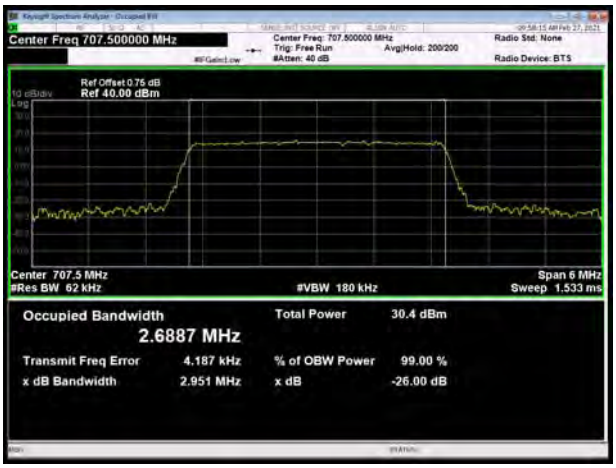
LTE Band 12 64QAM 3MHz CH-Low



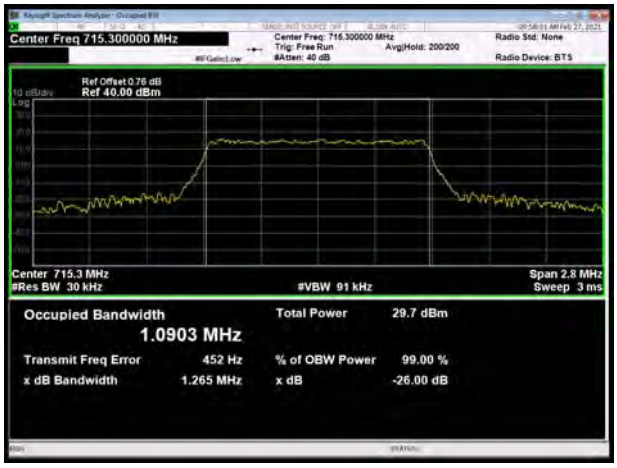
LTE Band 12 64QAM 1.4MHz CH-Middle



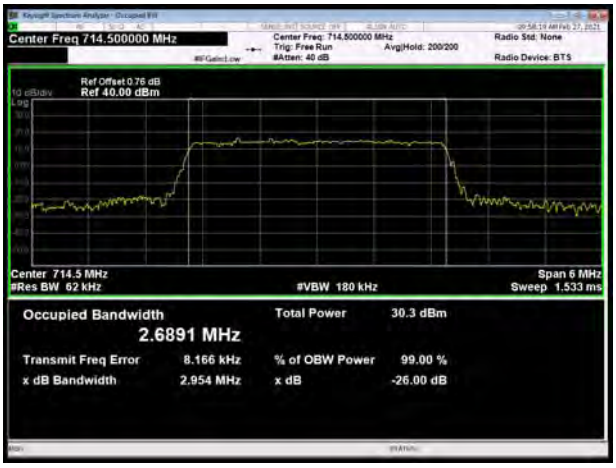
LTE Band 12 64QAM 3MHz CH-Middle



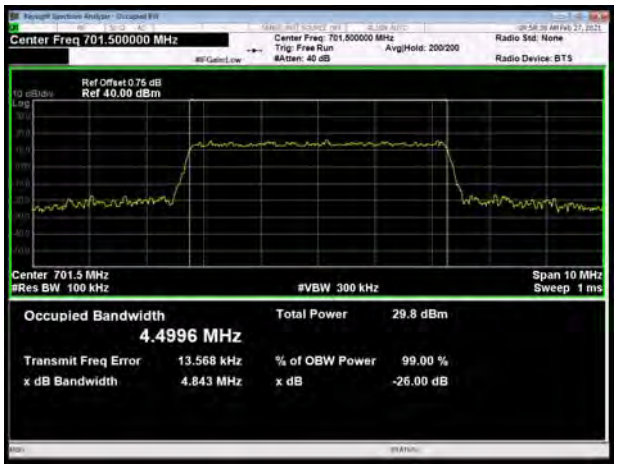
LTE Band 12 64QAM 1.4MHz CH-High



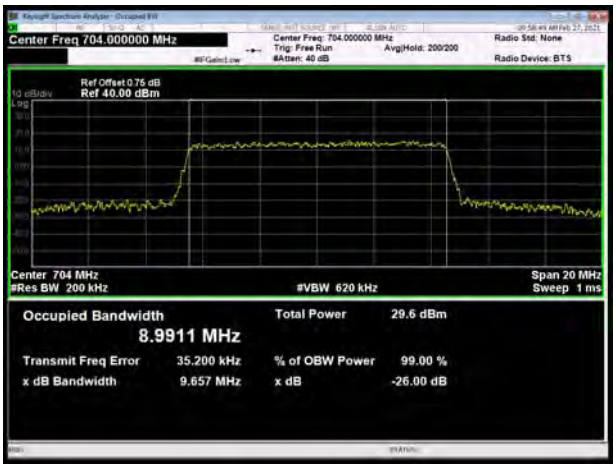
LTE Band 12 64QAM 3MHz CH-High



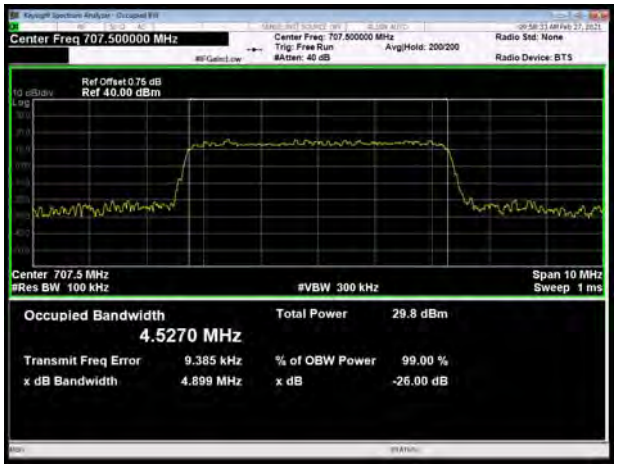
LTE Band 12 64QAM 5MHz CH-Low



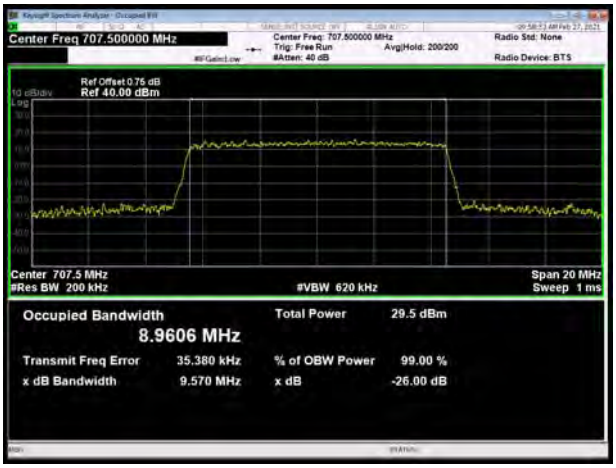
LTE Band 12 64QAM 10MHz CH-Low



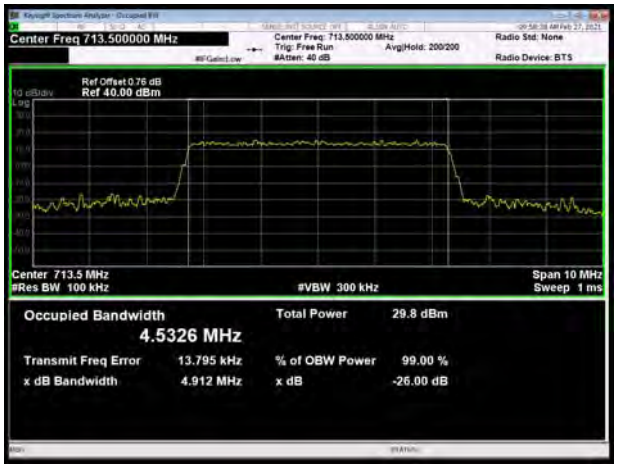
LTE Band 12 64QAM 5MHz CH-Middle



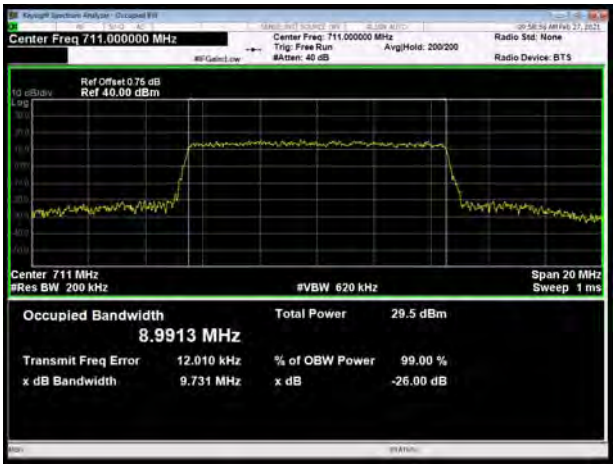
LTE Band 12 64QAM 10MHz CH-Middle



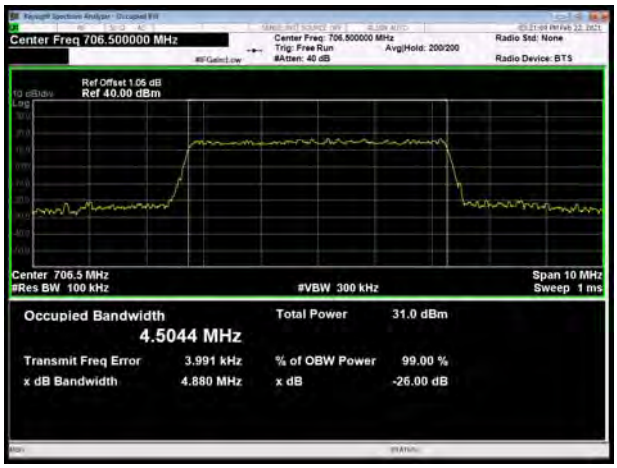
LTE Band 12 164QAM QAM 5MHz CH-High



LTE Band 12 64QAM 10MHz CH-High

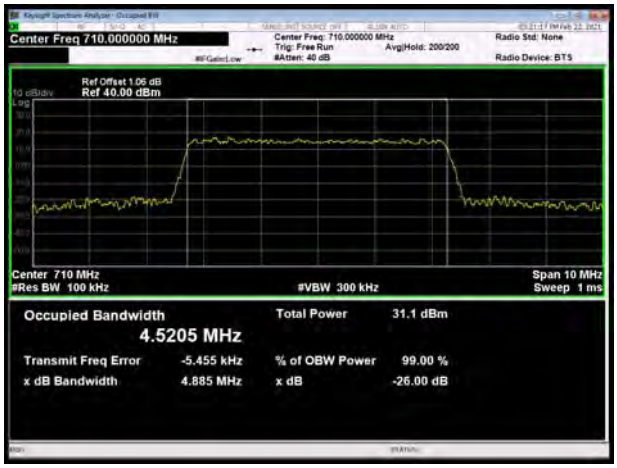


LTE Band 17 QPSK 5MHz CH-Low

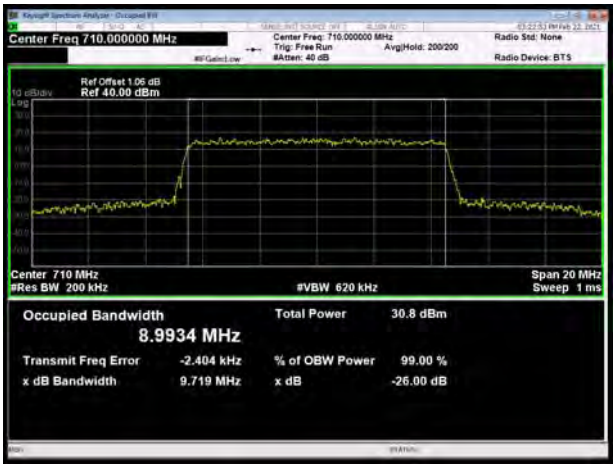


LTE Band 17 QPSK 10MHz CH-Low

LTE Band 17 QPSK 5MHz CH-Middle

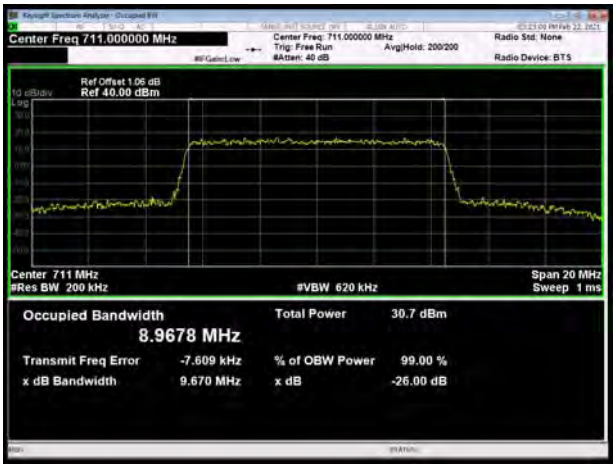


LTE Band 17 QPSK 10MHz CH-Middle

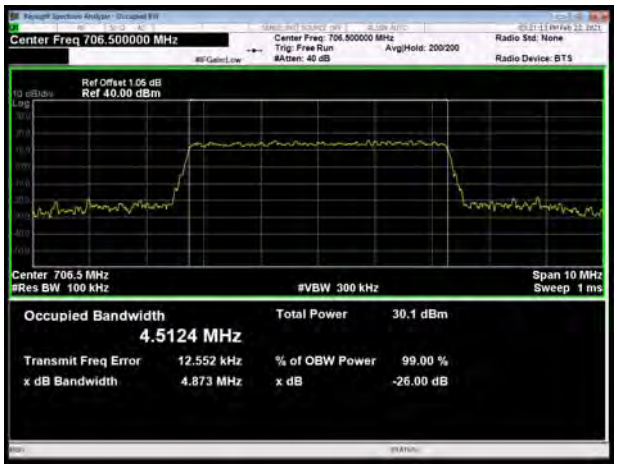


LTE Band 17 QPSK 5MHz CH-High

LTE Band 17 QPSK 10MHz CH-High

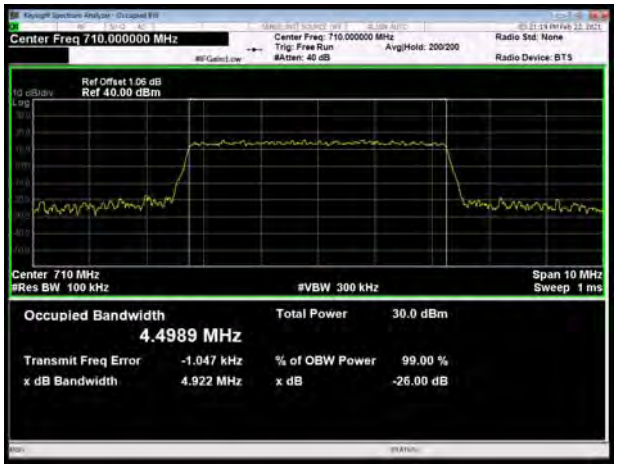


LTE Band 17 16QAM 5MHz CH-Low

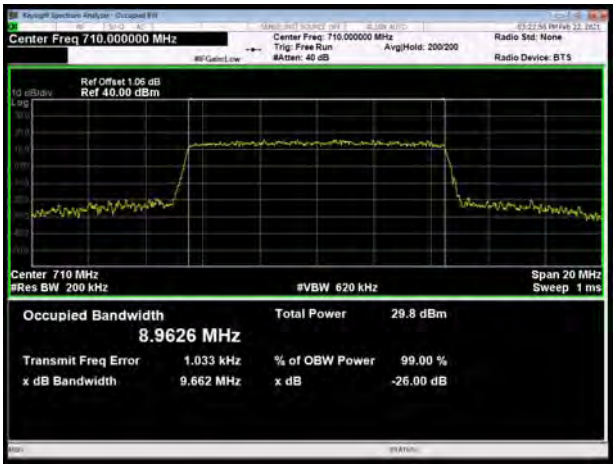


LTE Band 17 16QAM 10MHz CH-Low

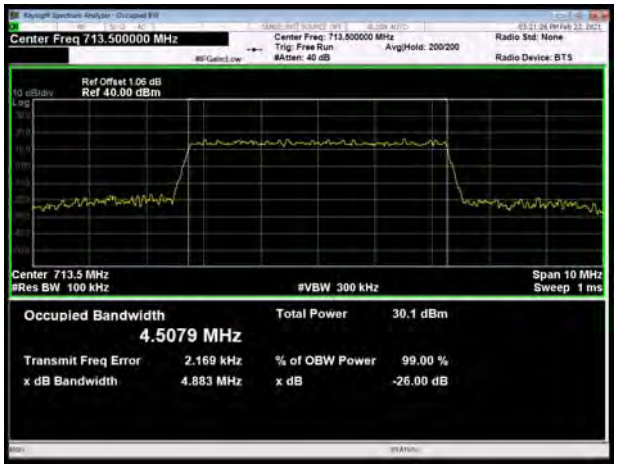
LTE Band 17 16QAM 5MHz CH-Middle



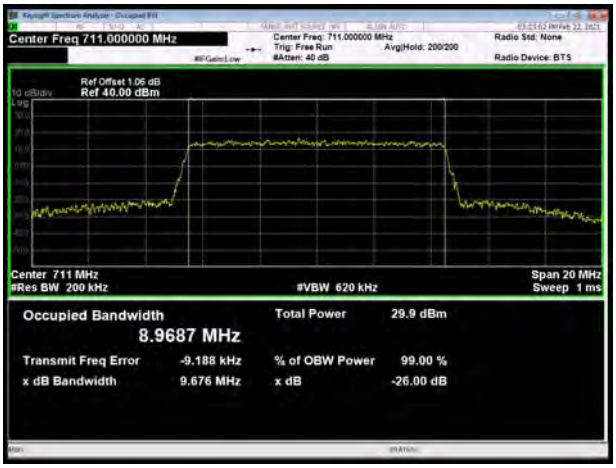
LTE Band 17 16QAM 10MHz CH-Middle



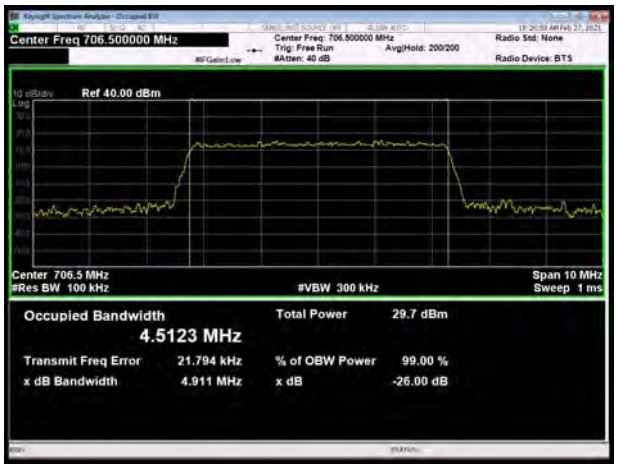
LTE Band 17 16QAM 5MHz CH-High



LTE Band 17 16QAM 10MHz CH-High

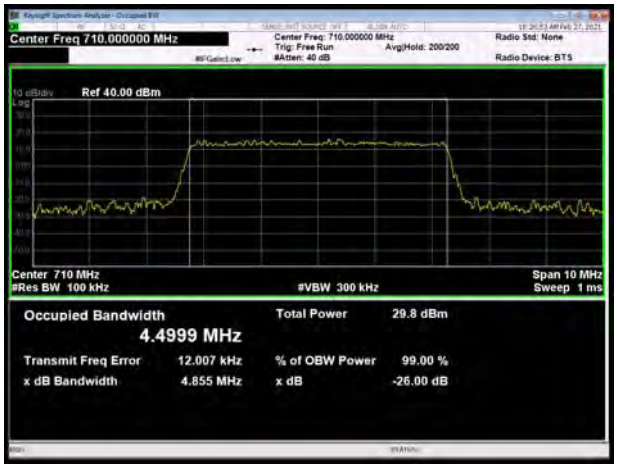


LTE Band 17 64QAM 5MHz CH-Low

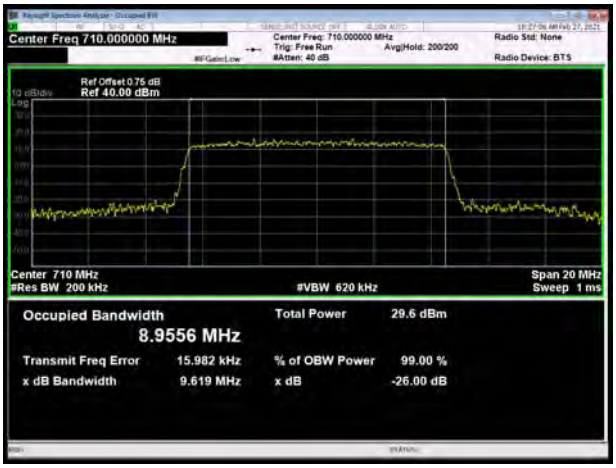


LTE Band 17 64QAM 10MHz CH-Low

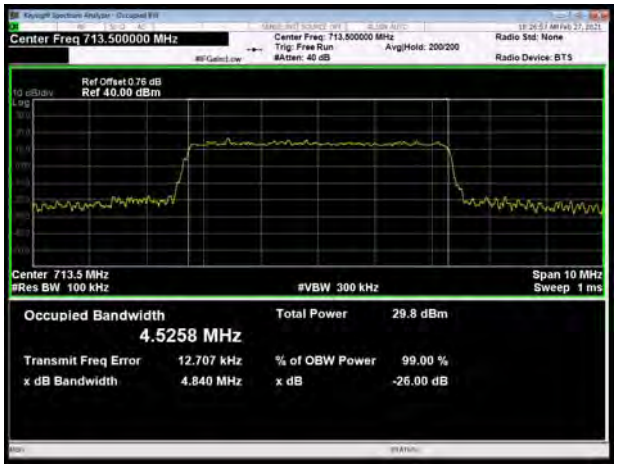
LTE Band 17 64QAM 5MHz CH-Middle



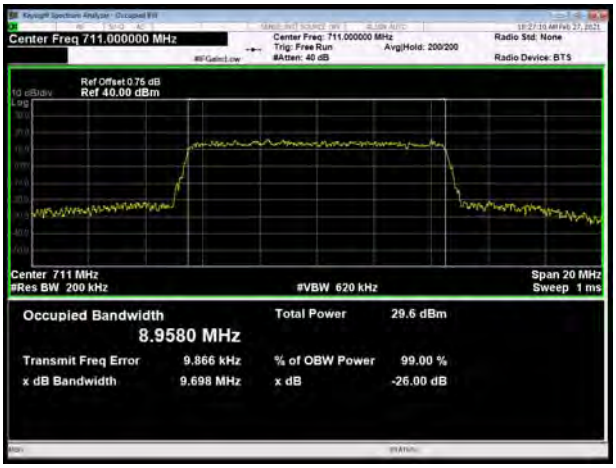
LTE Band 17 64QAM 10MHz CH-Middle



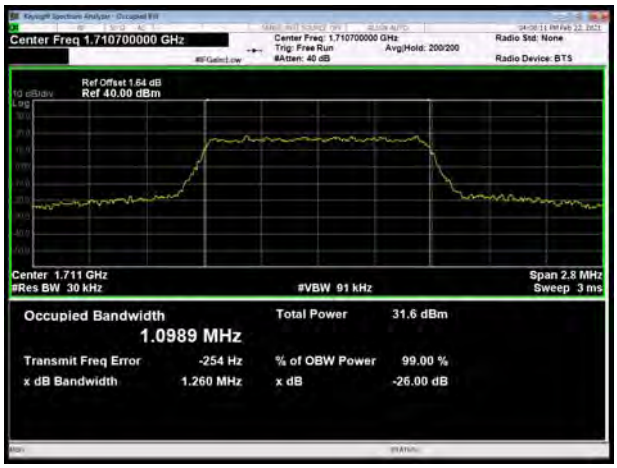
LTE Band 17 64QAM 5MHz CH-High



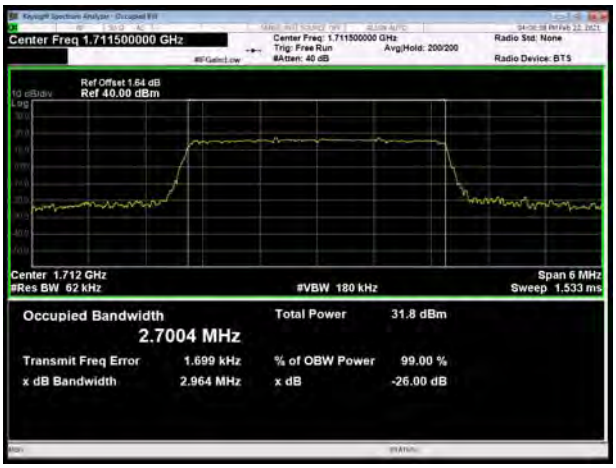
LTE Band 17 64QAM 10MHz CH-High



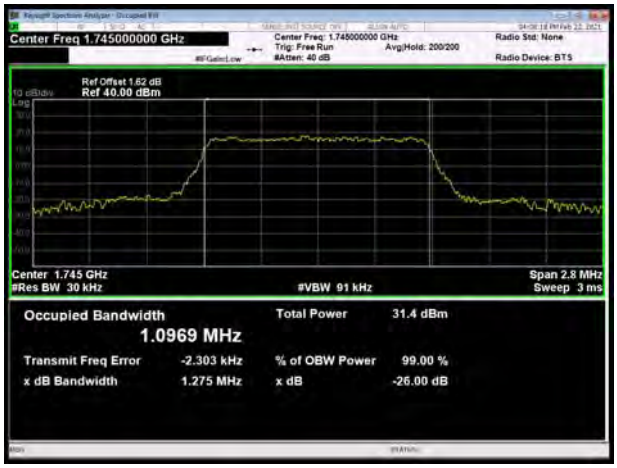
LTE Band 66 QPSK 1.4MHz CH-Low



LTE Band 66 QPSK 3MHz CH-Low

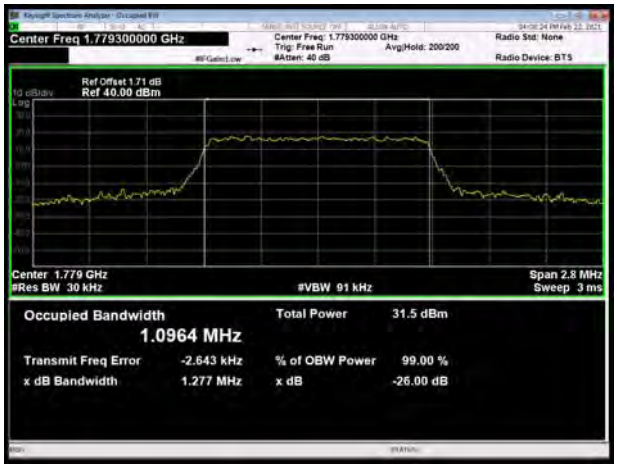


LTE Band 66 QPSK 1.4MHz CH-Middle

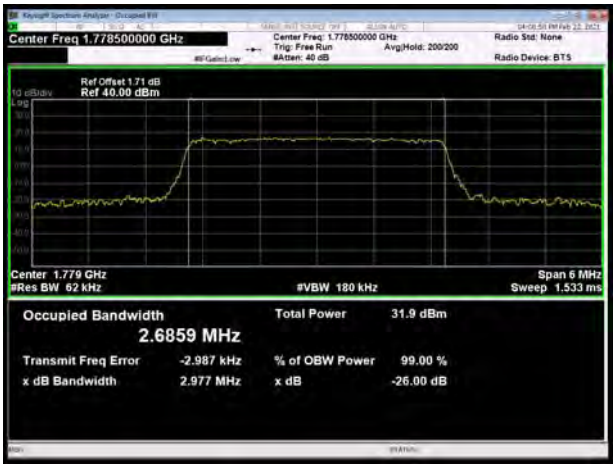


LTE Band 66 QPSK 3MHz CH-Middle

LTE Band 66 QPSK 1.4MHz CH-High

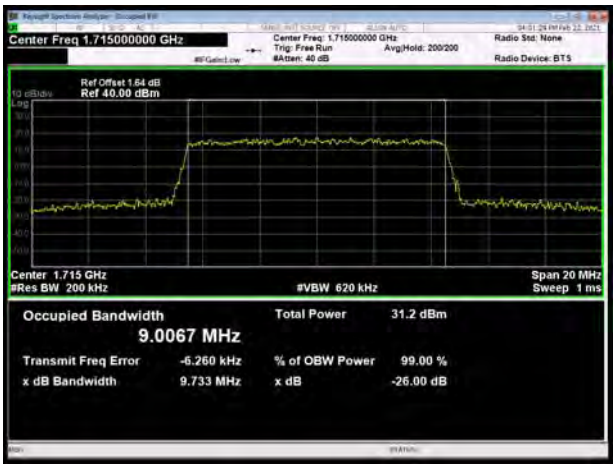


LTE Band 66 QPSK 3MHz CH-High

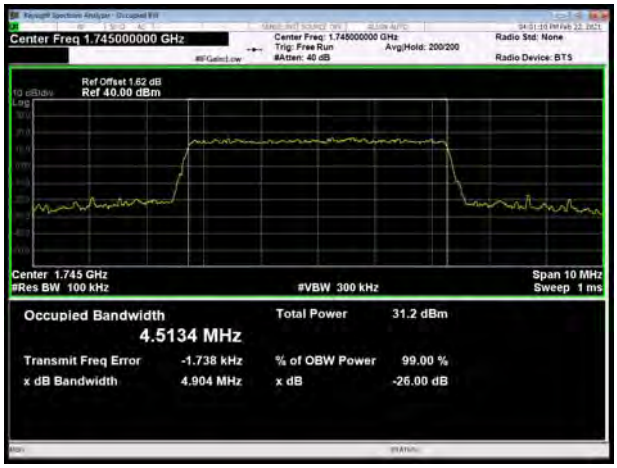


LTE Band 66 QPSK 5MHz CH-Low

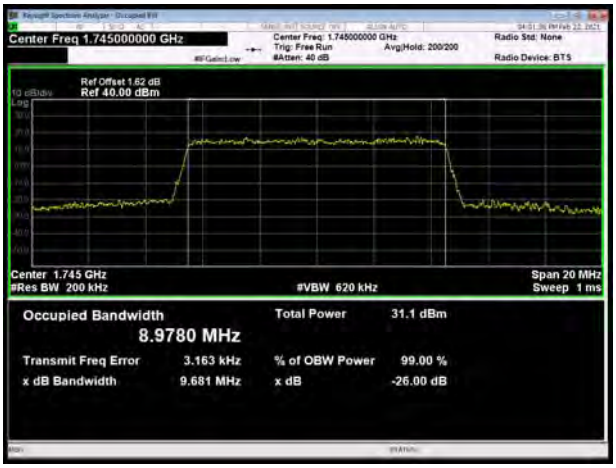
LTE Band 66 QPSK 10MHz CH-Low



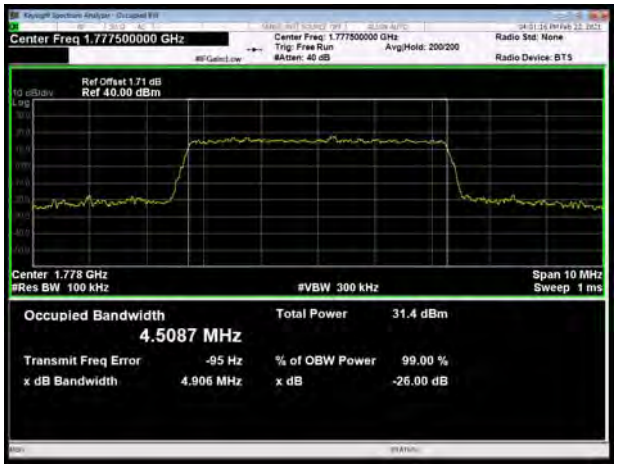
LTE Band 66 QPSK 5MHz CH-Middle



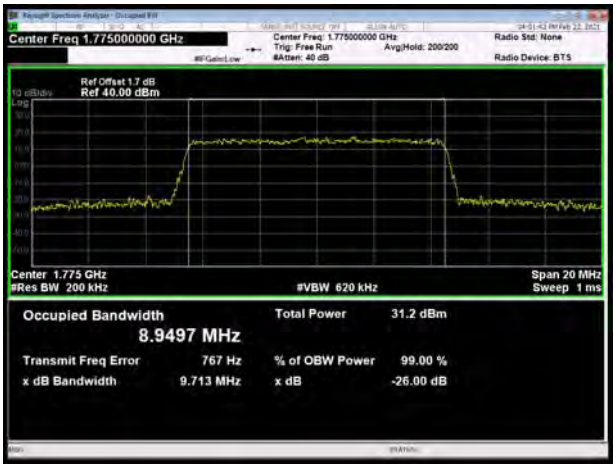
LTE Band 66 QPSK 10MHz CH-Middle



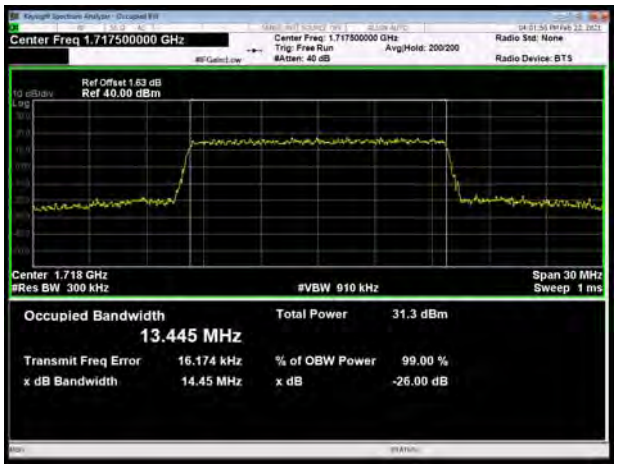
LTE Band 66 QPSK 5MHz CH-High



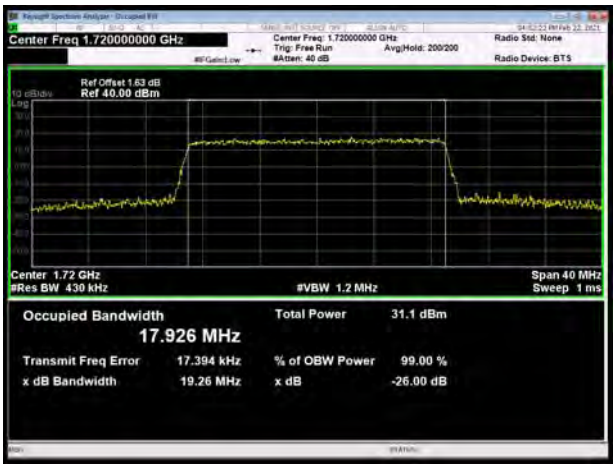
LTE Band 66 QPSK 10MHz CH-High



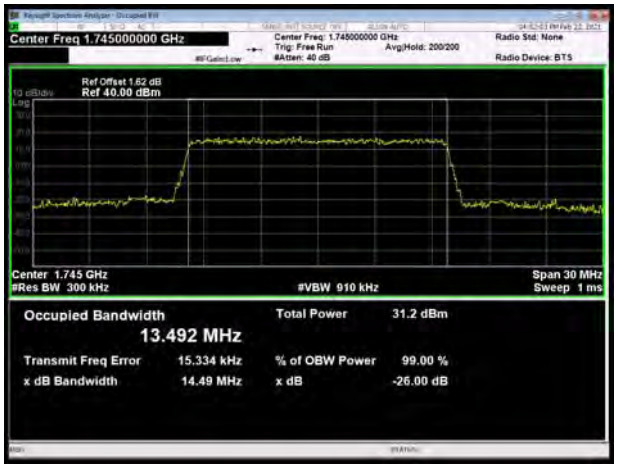
LTE Band 66 QPSK 15MHz CH-Low



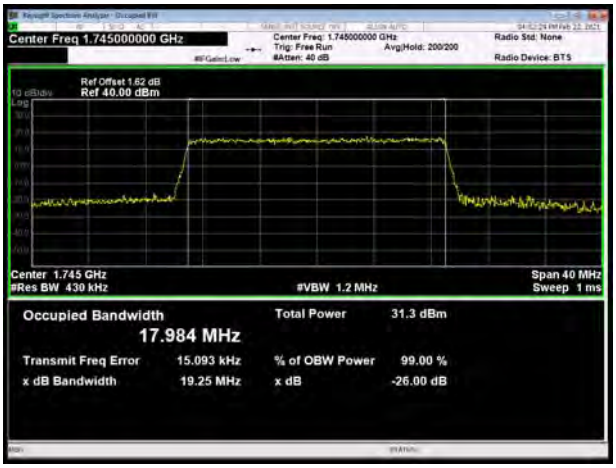
LTE Band 66 QPSK 20MHz CH-Low



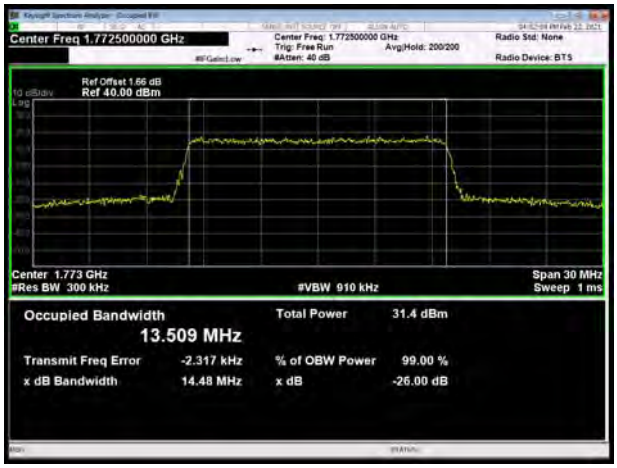
LTE Band 66 QPSK 15MHz CH-Middle



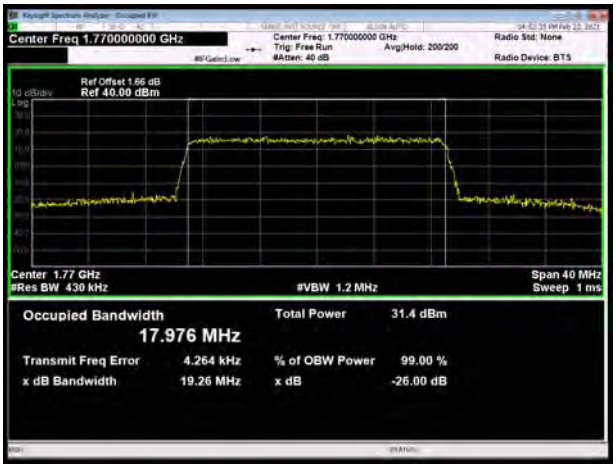
LTE Band 66 QPSK 20MHz CH-Middle



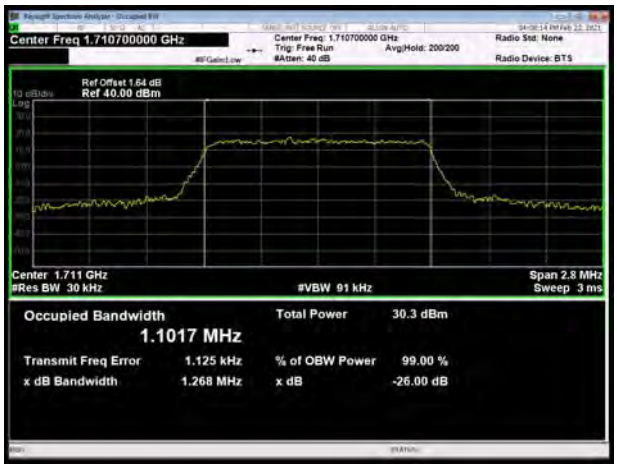
LTE Band 66 QPSK 15MHz CH-High



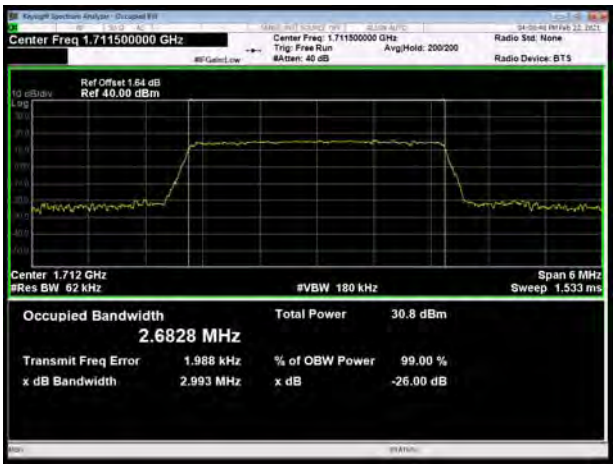
LTE Band 66 QPSK 20MHz CH-High



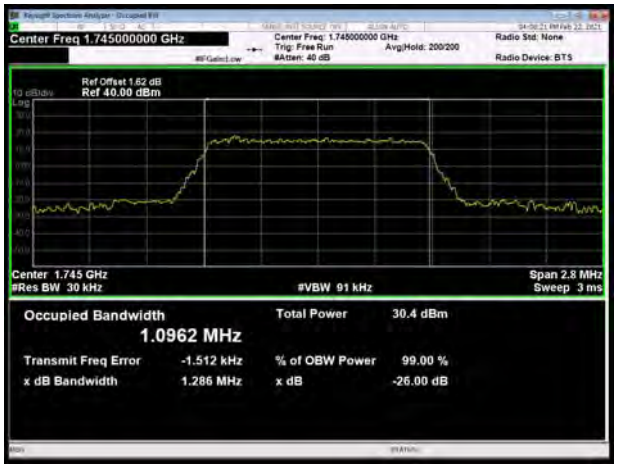
LTE Band 66 16QAM 1.4MHz CH-Low



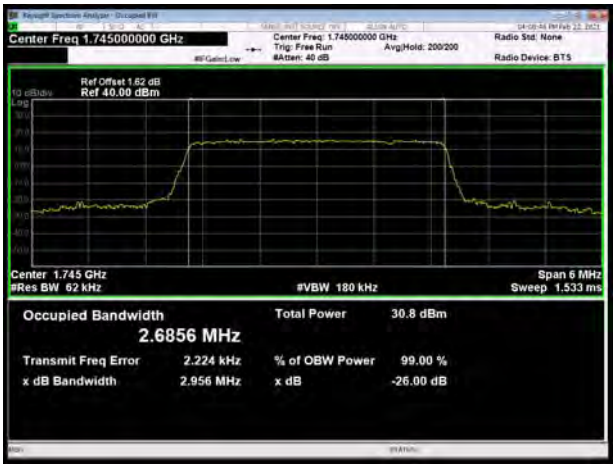
LTE Band 66 16QAM 3MHz CH-Low



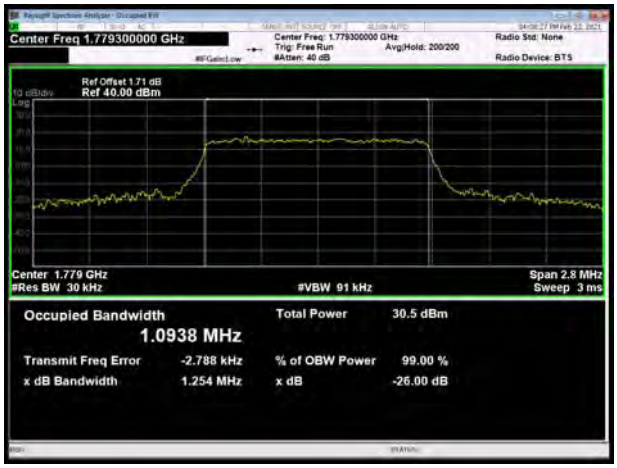
LTE Band 66 16QAM 1.4MHz CH-Middle



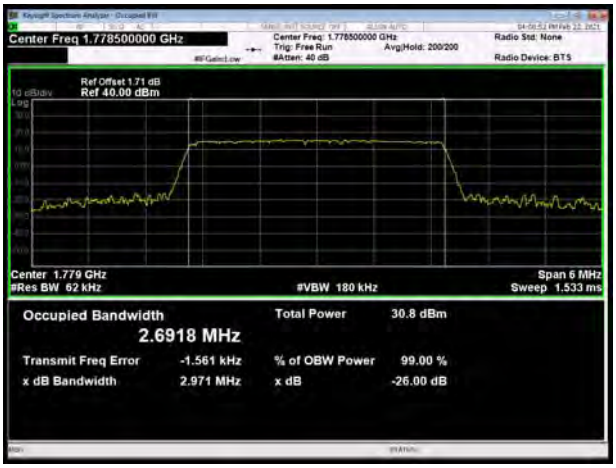
LTE Band 66 16QAM 3MHz CH-Middle



LTE Band 66 16QAM 1.4MHz CH-High

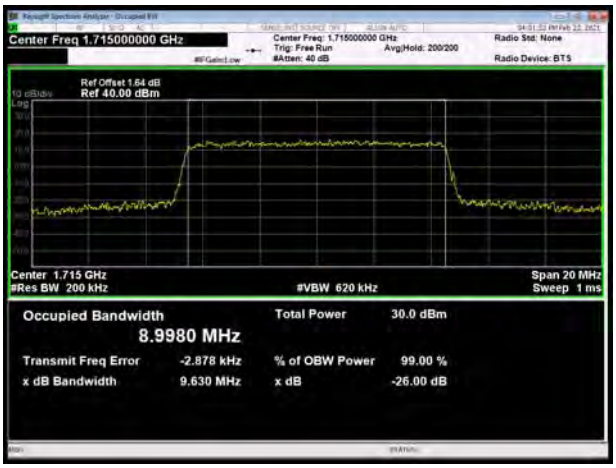


LTE Band 66 16QAM 3MHz CH-High

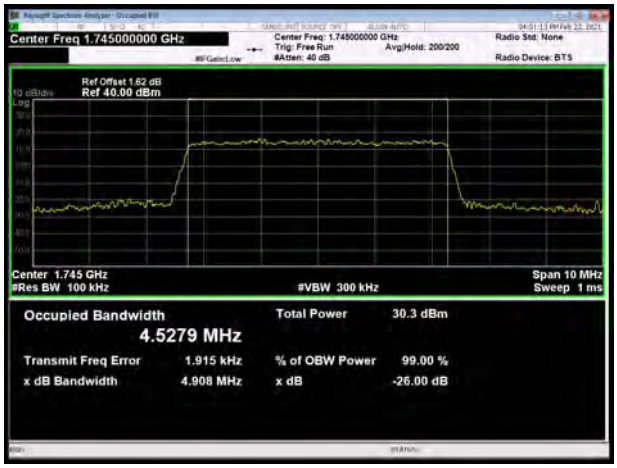


LTE Band 66 16QAM 5MHz CH-Low

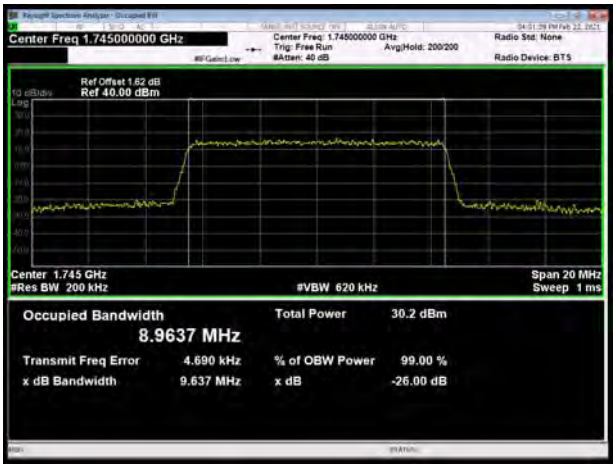
LTE Band 66 16QAM 10MHz CH-Low



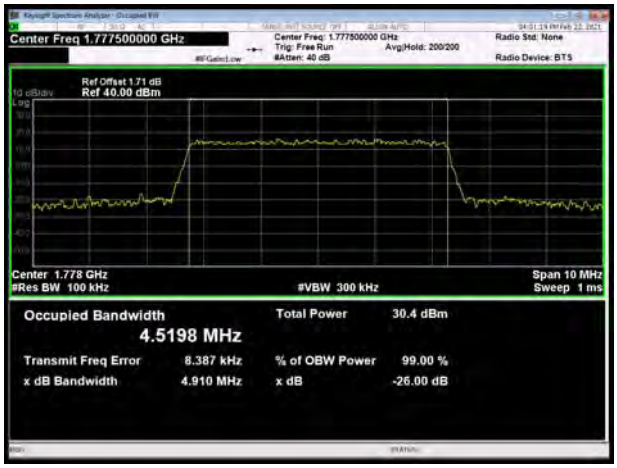
LTE Band 66 16QAM 5MHz CH-Middle



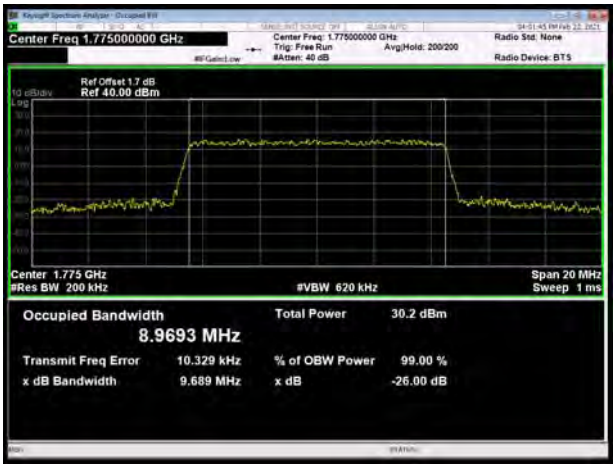
LTE Band 66 16QAM 10MHz CH-Middle



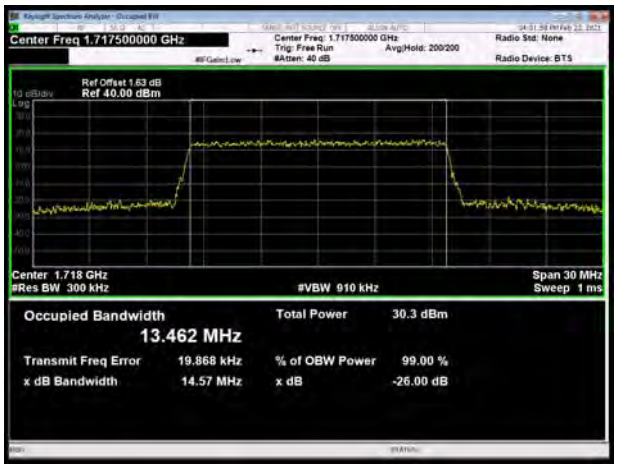
LTE Band 66 16QAM 5MHz CH-High



LTE Band 66 16QAM 10MHz CH-High

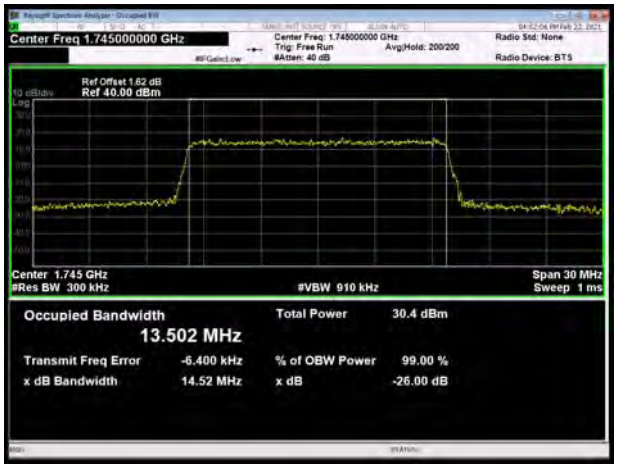


LTE Band 66 16QAM 15MHz CH-Low



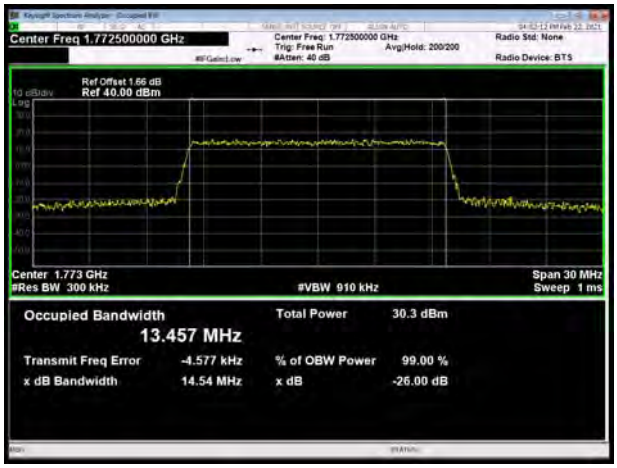
LTE Band 66 16QAM 20MHz CH-Low

LTE Band 66 16QAM 15MHz CH-Middle

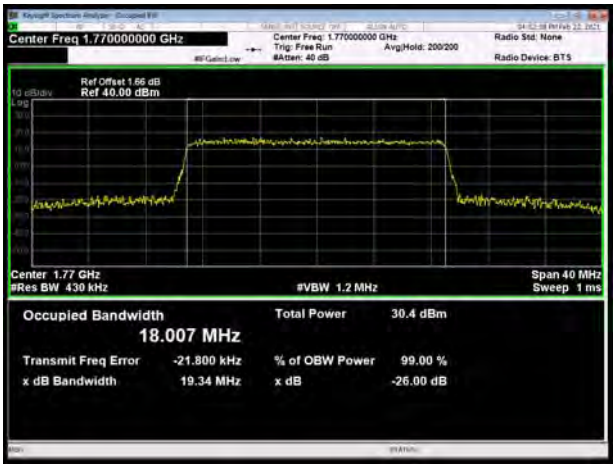


LTE Band 66 16QAM 20MHz CH-Middle

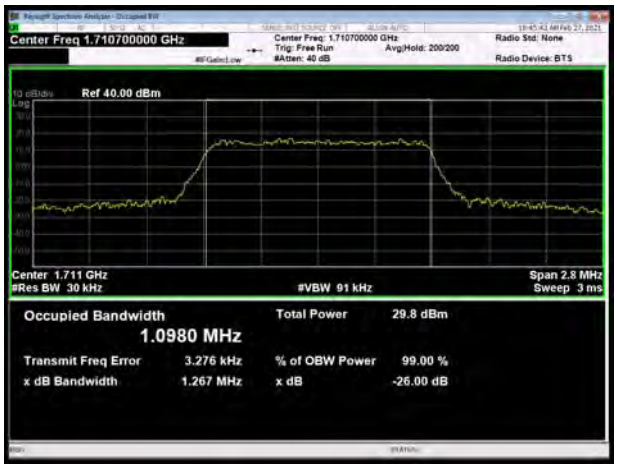
LTE Band 66 16QAM 15MHz CH-High



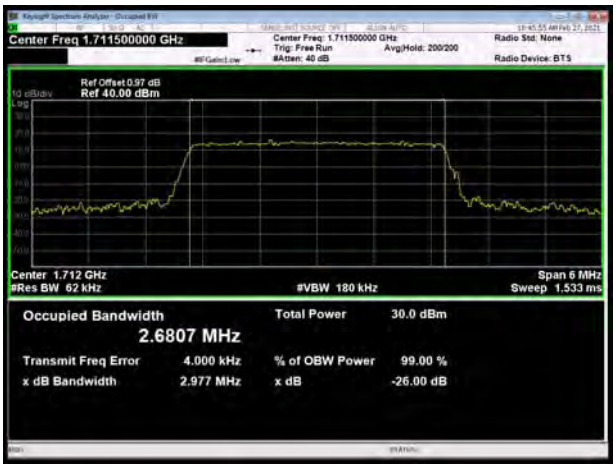
LTE Band 66 16QAM 20MHz CH-High



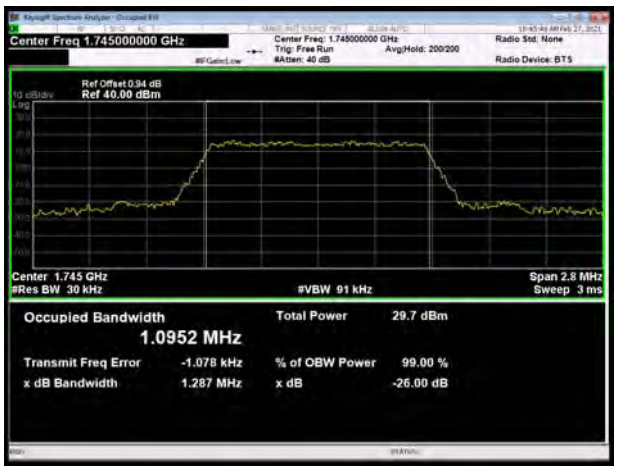
LTE Band 66 64QAM 1.4MHz CH-Low



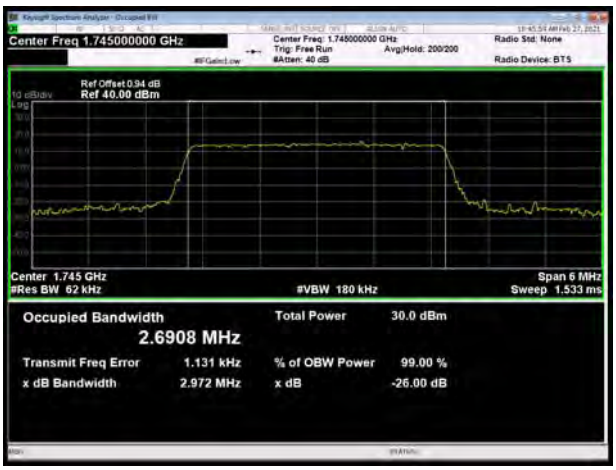
LTE Band 66 64QAM 3MHz CH-Low



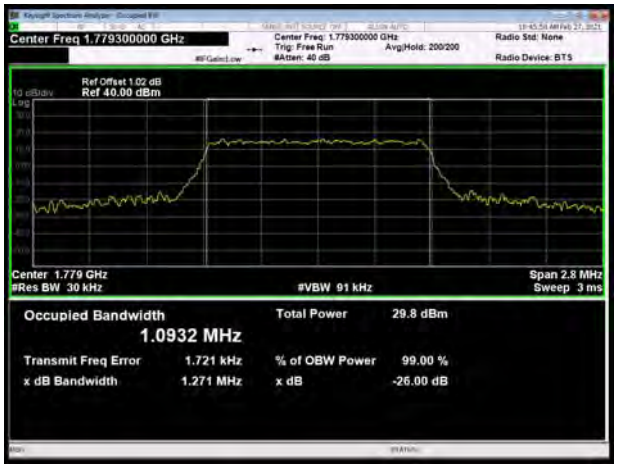
LTE Band 66 64QAM 1.4MHz CH-Middle



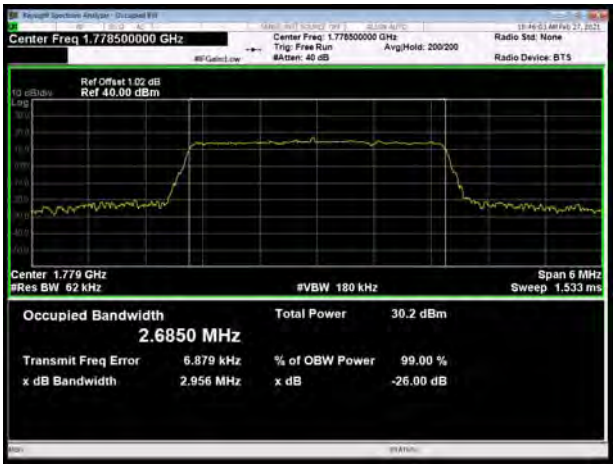
LTE Band 66 64QAM 3MHz CH-Middle



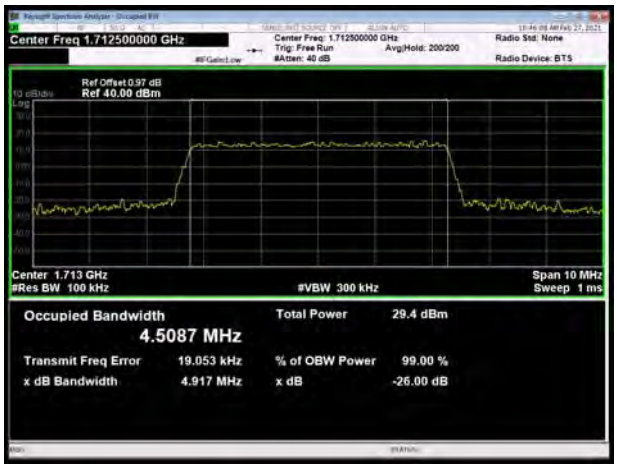
LTE Band 66 64QAM 1.4MHz CH-High



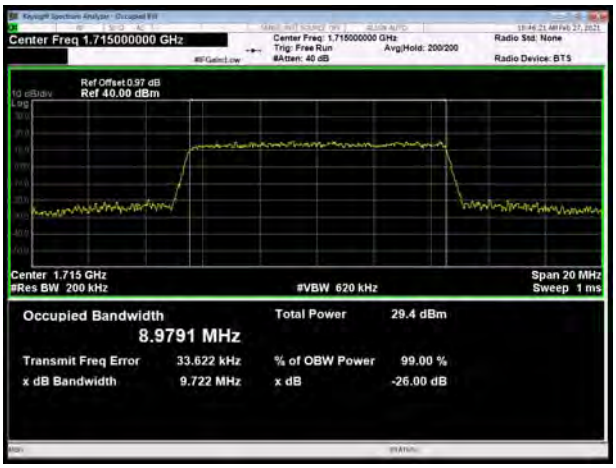
LTE Band 66 64QAM 3MHz CH-High



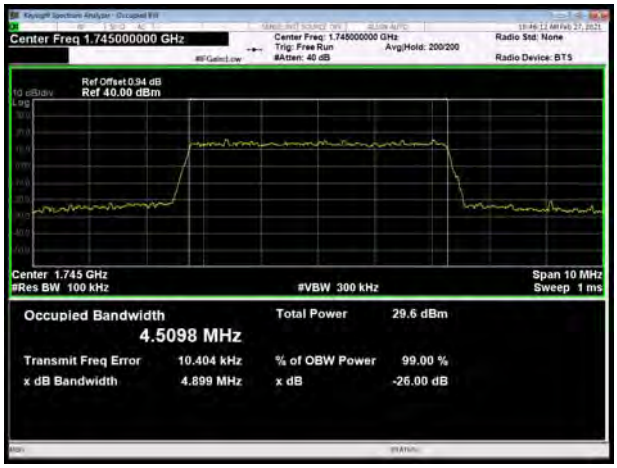
LTE Band 66 64QAM 5MHz CH-Low



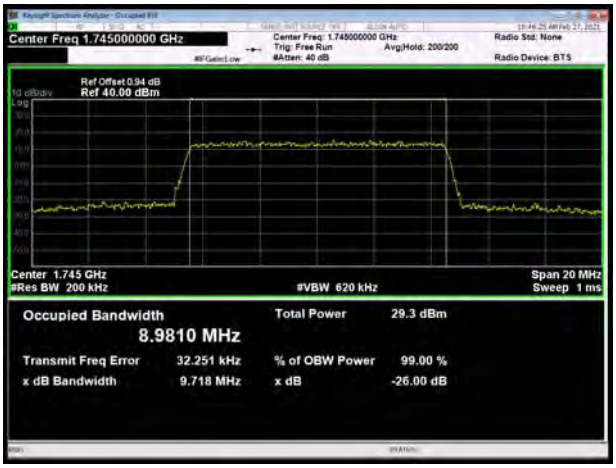
LTE Band 66 64QAM 10MHz CH-Low



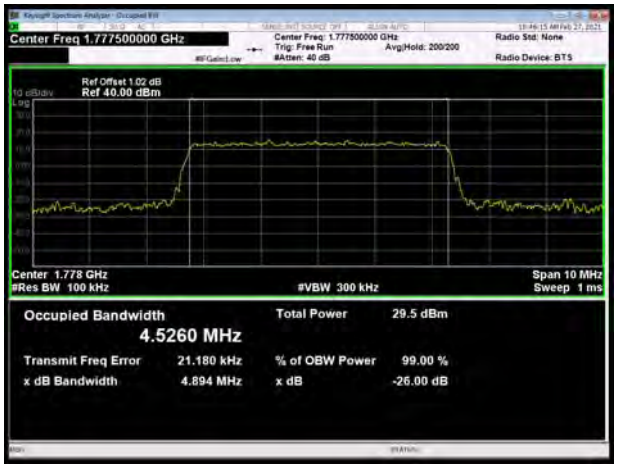
LTE Band 66 64QAM 5MHz CH-Middle



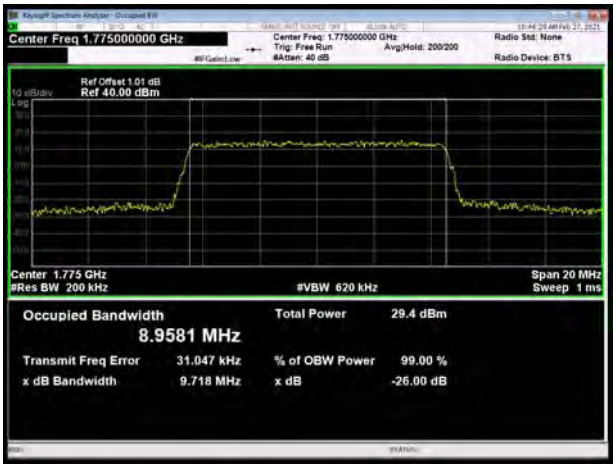
LTE Band 66 64QAM 10MHz CH-Middle



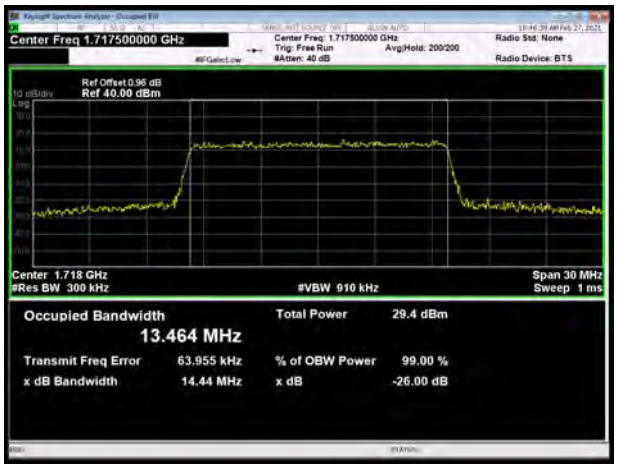
LTE Band 66 64QAM 5MHz CH-High



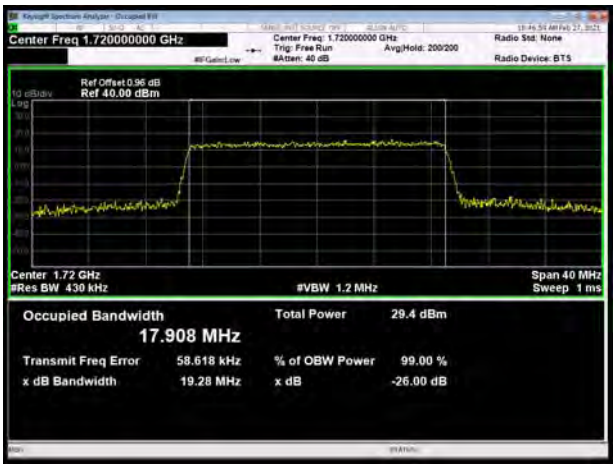
LTE Band 66 64QAM 10MHz CH-High



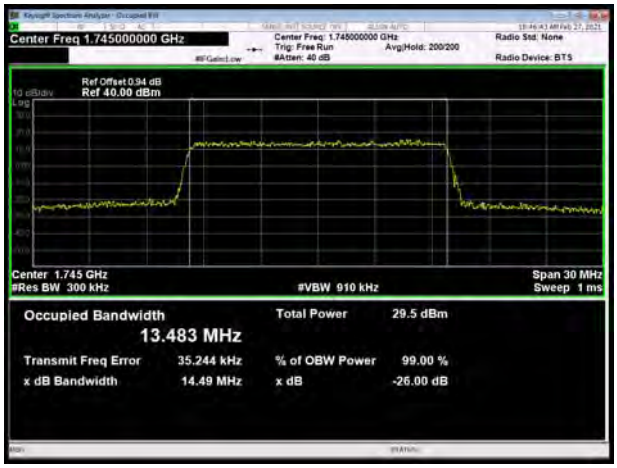
LTE Band 66 64QAM 15MHz CH-Low



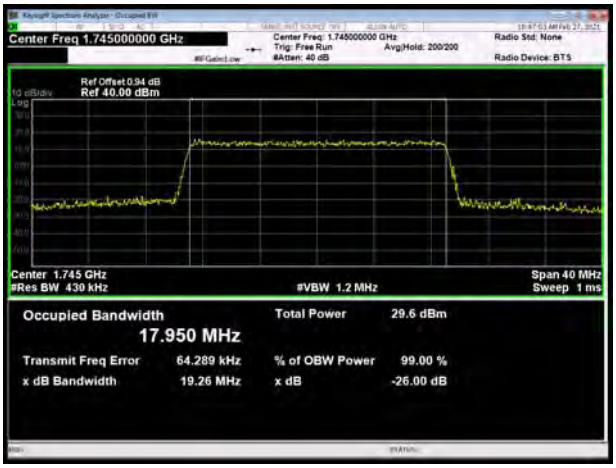
LTE Band 66 64QAM 20MHz CH-Low



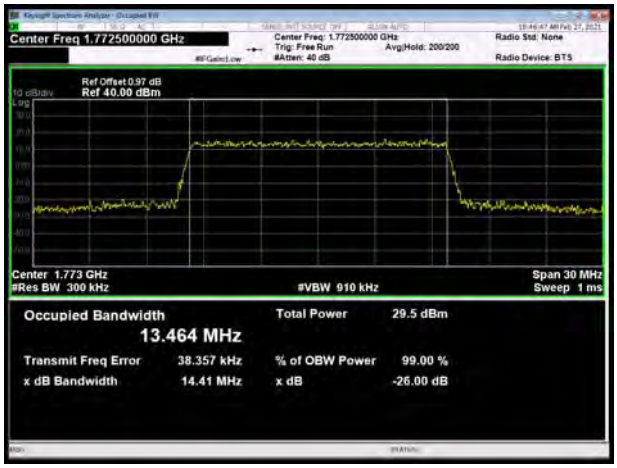
LTE Band 66 64QAM 15MHz CH-Middle



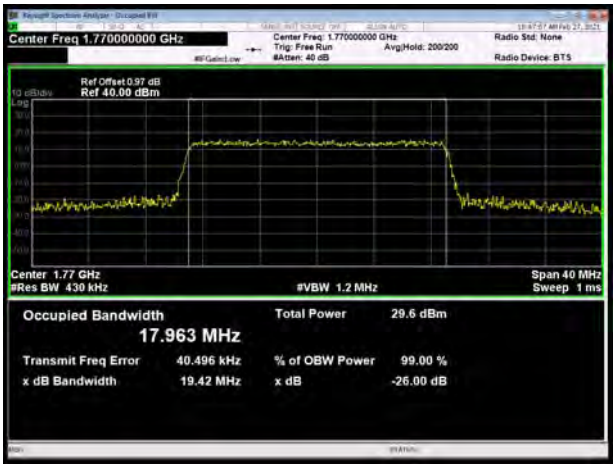
LTE Band 66 64QAM 20MHz CH-Middle



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

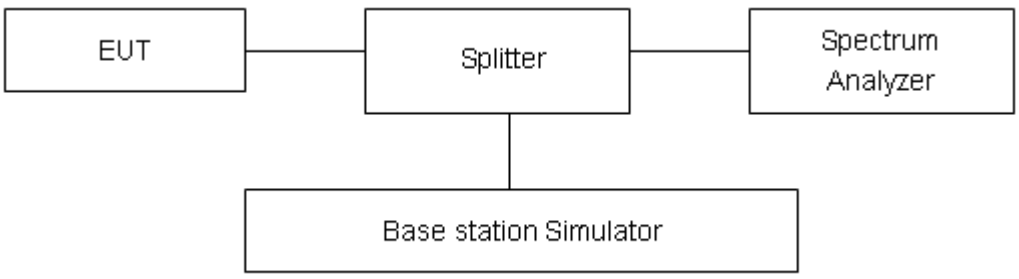
Method of Measurement

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.

RBW is set to 15kHz, VBW is set to 43kHz for LTE Band 66 (1.4MHz).
RBW is set to 30 kHz, VBW is set to 91 kHz for LTE Band 66 (3MHz).
RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 17/66 (5MHz).
RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 17/66 (10MHz).
RBW is set to 150 kHz, VBW is set to 510 kHz for LTE Band 66 (15MHz).
RBW is set to 200 kHz, VBW is set to 620 kHz for LTE Band 66 (20MHz)
RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 12(1.4MHz/3MHz/5MHz/10MHz).

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"

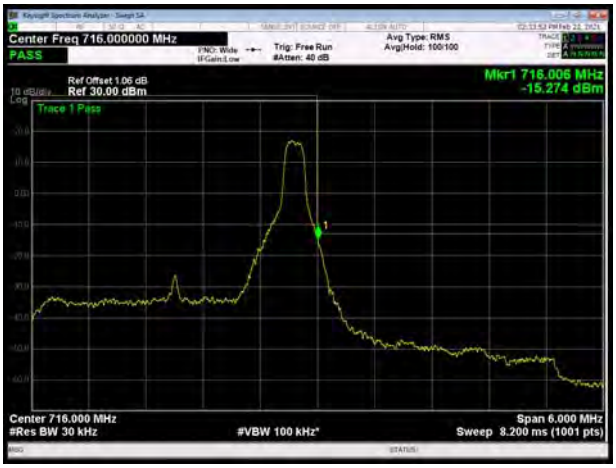
Rule Part 27.53(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.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

Measurement Uncertainty

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

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

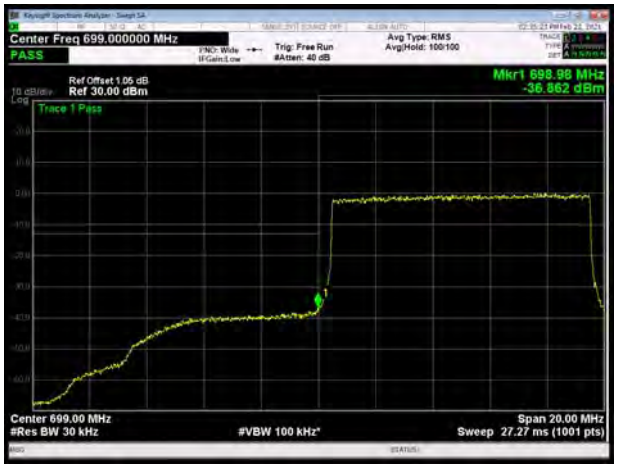
LTE Band 12 QPSK 5MHz CH-Low, 100%RB

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

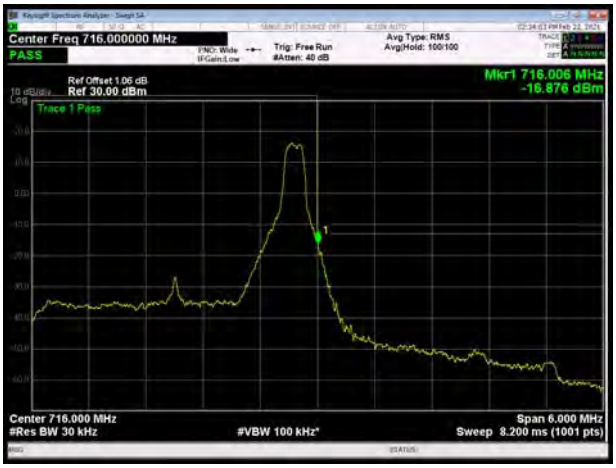
LTE Band 12 16QAM 1.4MHz CH-High, 1 RB

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

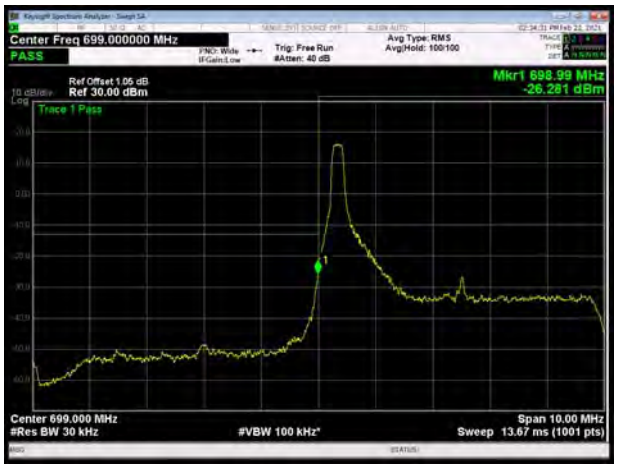
LTE Band 12 16QAM 3MHz CH-High, 1 RB



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

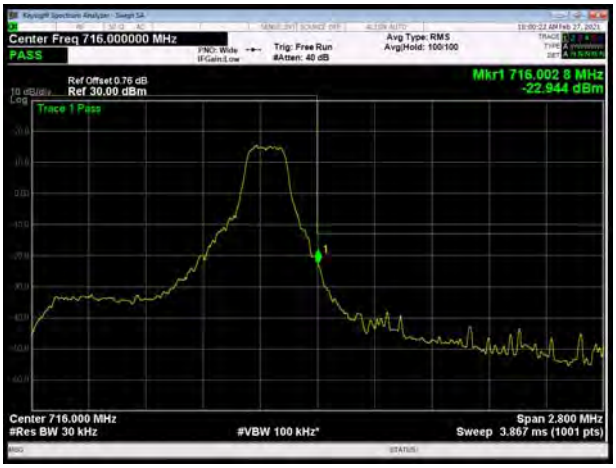
LTE Band 12 16QAM 10MHz CH-High, 1 RB

LTE Band 12 16QAM 10MHz CH-Low, 100%RB

LTE Band 12 16QAM 10MHz CH-High, 100%RB

LTE Band 12 64QAM 1.4MHz CH-Low, 1 RB

LTE Band 12 64QAM 1.4MHz CH-High, 1 RB



LTE Band 12 64QAM 1.4MHz CH-Low, 100%RB

LTE Band 12 64QAM 1.4MHz CH-High, 100%RB

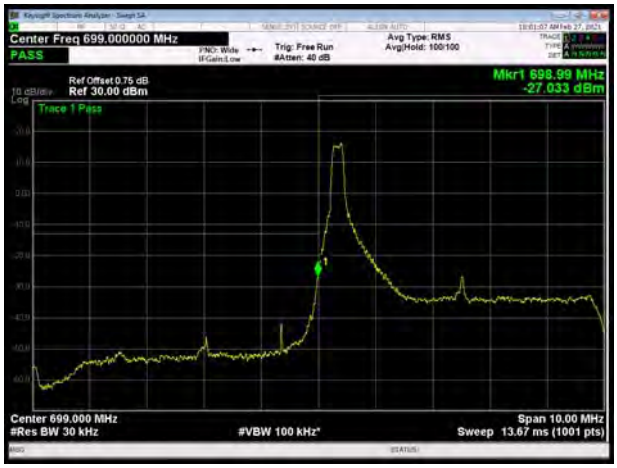
LTE Band 12 64QAM 3MHz CH-Low, 1 RB

LTE Band 12 64QAM 3MHz CH-High, 1 RB

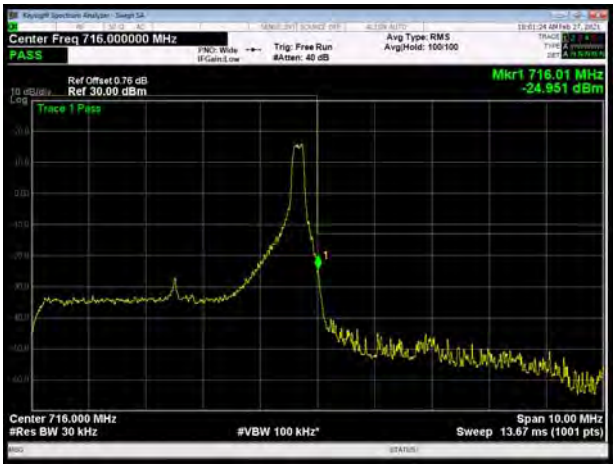
LTE Band 12 64QAM 3MHz CH-Low, 100%RB

LTE Band 12 64QAM 3MHz CH-High, 100%RB

LTE Band 12 64QAM 5MHz CH-Low, 1 RB



LTE Band 12 64QAM 5MHz CH-High, 1 RB



LTE Band 12 64QAM 5MHz CH-Low, 100%RB

LTE Band 12 64QAM 5MHz CH-High, 100%RB

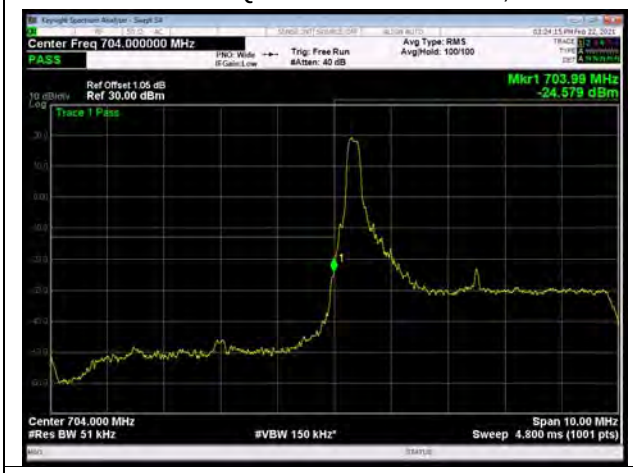
LTE Band 12 64QAM 10MHz CH-Low, 1 RB

LTE Band 12 64QAM 10MHz CH-High, 1 RB

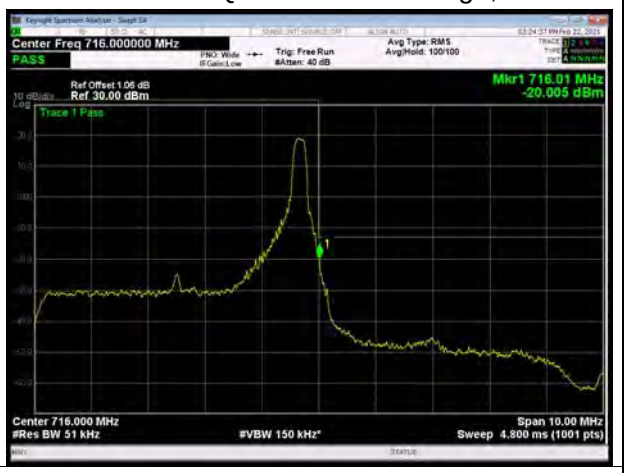
LTE Band 12 64QAM 10MHz CH-Low, 100%RB

LTE Band 12 64QAM 10MHz CH-High, 100%RB

LTE Band 17 QPSK 5MHz CH-Low, 1 RB

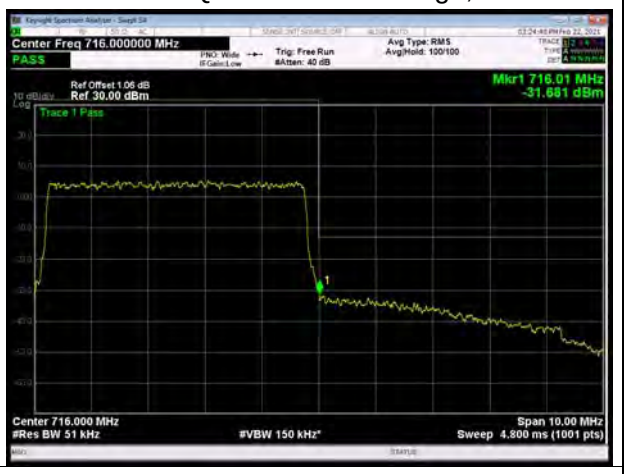


LTE Band 17 QPSK 5MHz CH-High, 1 RB

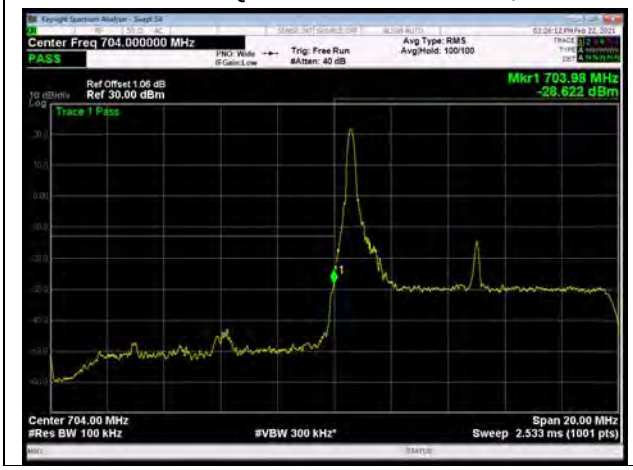


LTE Band 17 QPSK 5MHz CH-Low, 100%RB

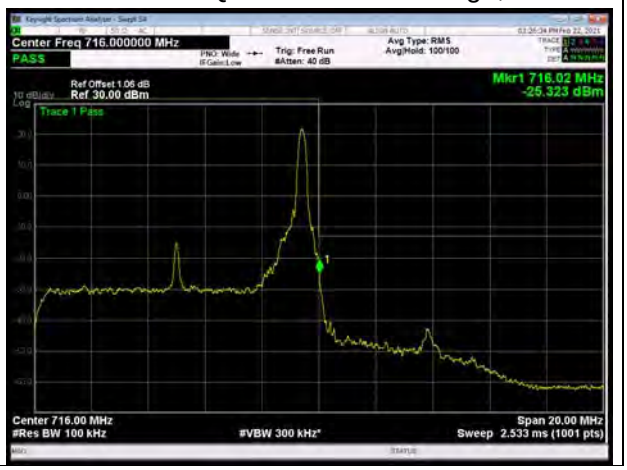
LTE Band 17 QPSK 5MHz CH-High, 100%RB



LTE Band 17 QPSK 10MHz CH-Low, 1 RB



LTE Band 17 QPSK 10MHz CH-High, 1 RB



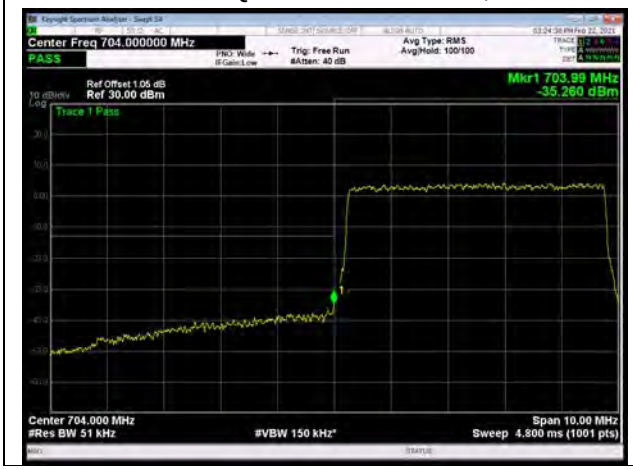
LTE Band 17 QPSK 10MHz CH-Low, 100%RB

LTE Band 17 QPSK 10MHz CH-High, 100%RB

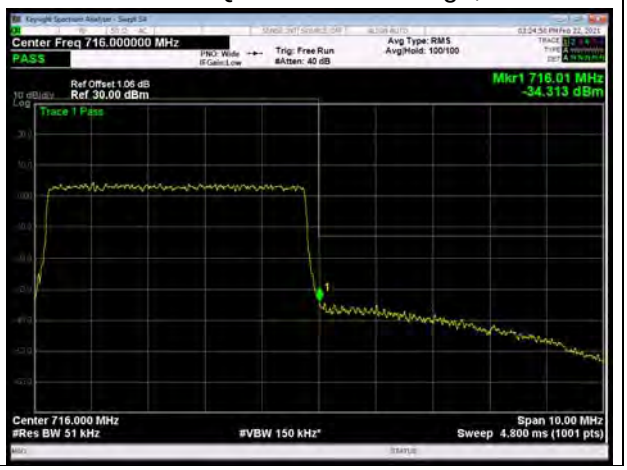
LTE Band 1716QAM 5MHz CH-Low, 1 RB

LTE Band 17 16QAM 5MHz CH-High, 1 RB

LTE Band 1716QAM 5MHz CH-Low, 100%RB

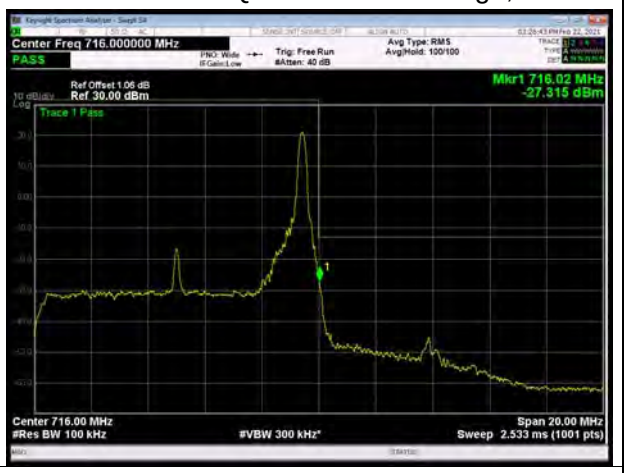


LTE Band 17 16QAM 5MHz CH-High, 100%RB

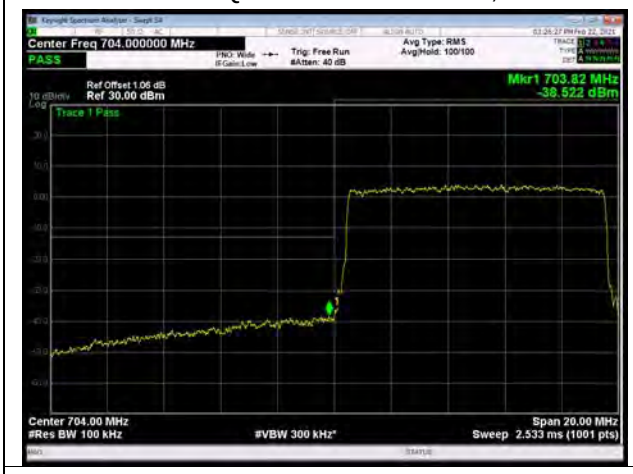


LTE Band 1716QAM 10MHz CH-Low, 1 RB

LTE Band 17 16QAM 10MHz CH-High, 1 RB



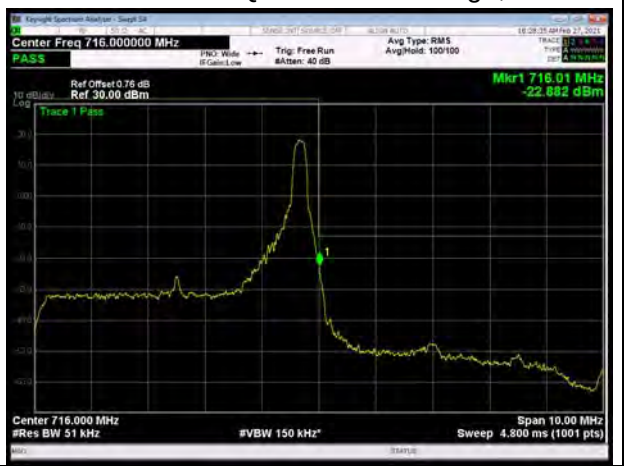
LTE Band 1716QAM 10MHz CH-Low, 100%RB



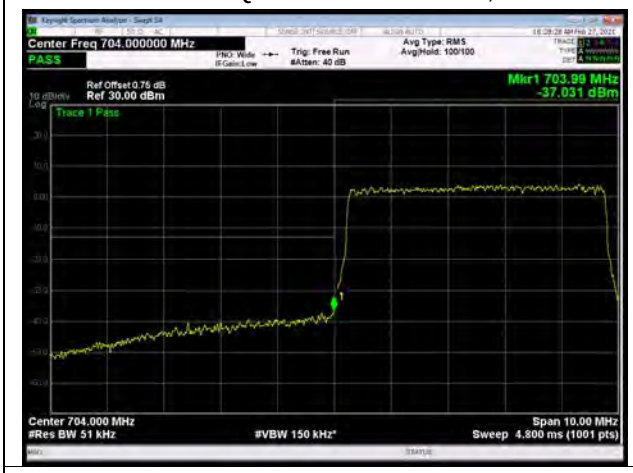
LTE Band 17 16QAM 10MHz CH-High, 100%RB

LTE Band 17 64QAM 5MHz CH-Low, 1 RB

LTE Band 17 64QAM 5MHz CH-High, 1 RB



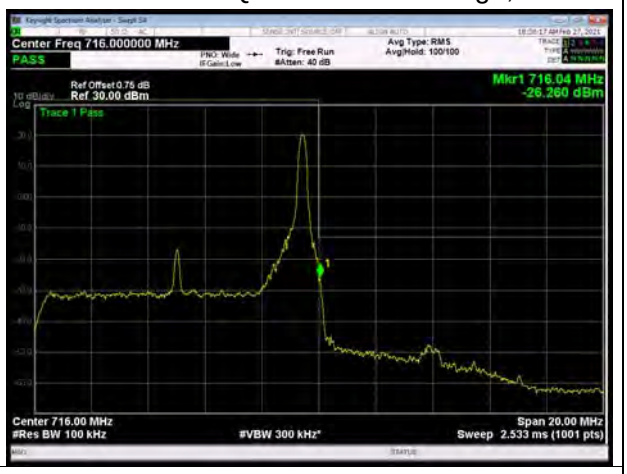
LTE Band 17 64QAM 5MHz CH-Low, 100%RB



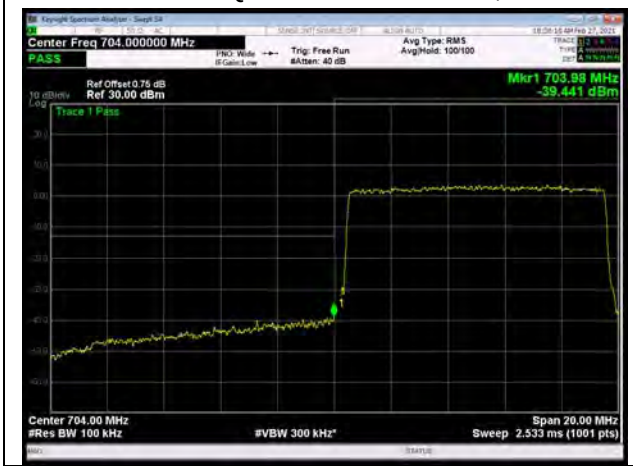
LTE Band 17 64QAM 5MHz CH-High, 100%RB

LTE Band 17 64QAM 10MHz CH-Low, 1 RB

LTE Band 17 64QAM 10MHz CH-High, 1 RB

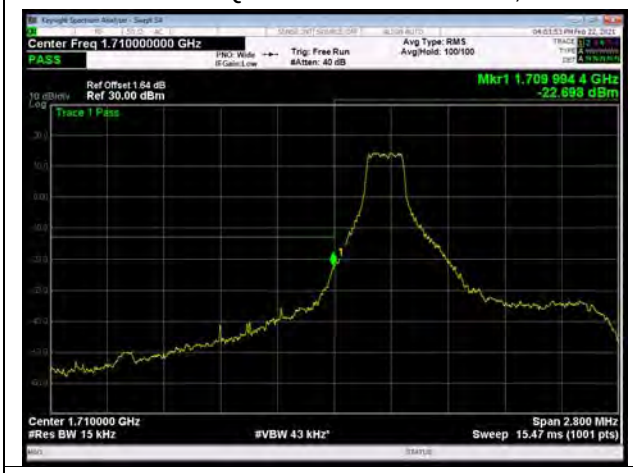


LTE Band 17 64QAM 10MHz CH-Low, 100%RB

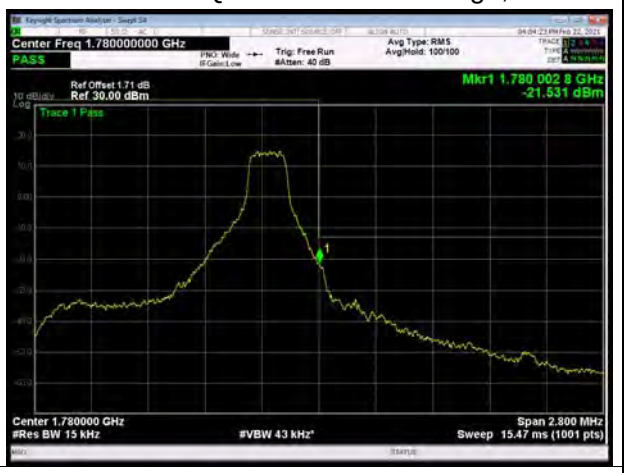


LTE Band 17 64QAM 10MHz CH-High, 100%RB

LTE Band 66 QPSK 1.4MHz CH-Low, 1 RB



LTE Band 66 QPSK 1.4MHz CH-High, 1 RB

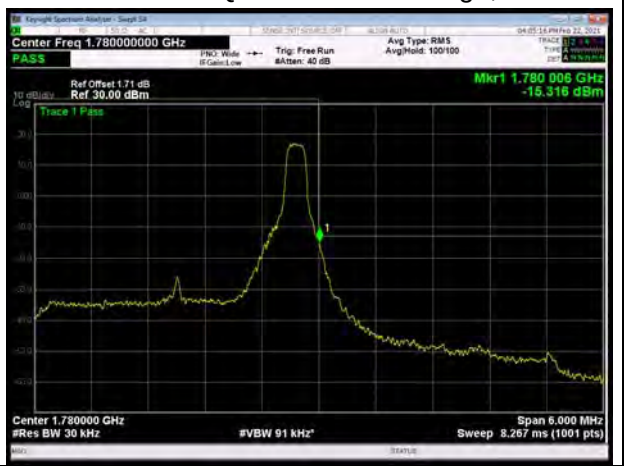


LTE Band 66 QPSK 1.4MHz CH-Low, 100%RB

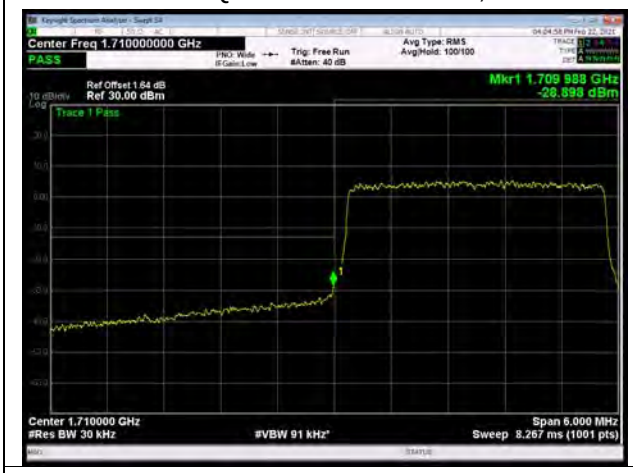
LTE Band 66 QPSK 1.4MHz CH-High, 100%RB

LTE Band 66 QPSK 3MHz CH-Low, 1 RB

LTE Band 66 QPSK 3MHz CH-High, 1 RB

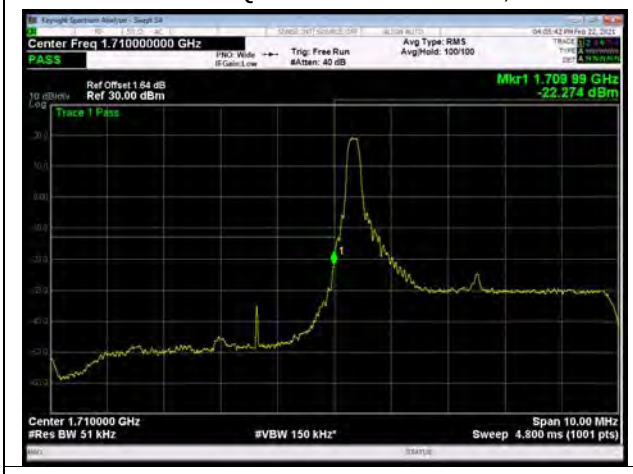


LTE Band 66 QPSK 3MHz CH-Low, 100%RB



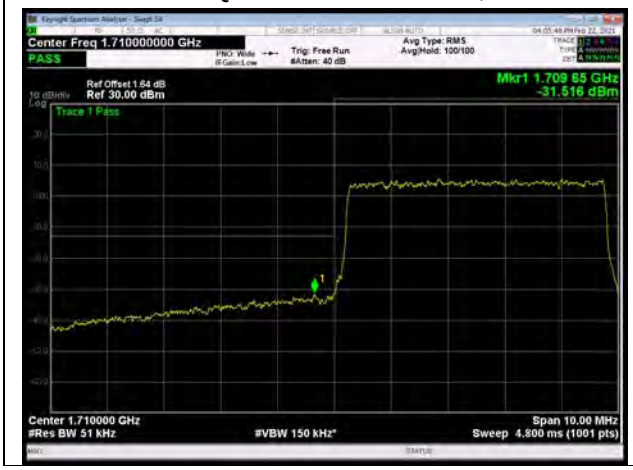
LTE Band 66 QPSK 3MHz CH-High, 100%RB

LTE Band 66 QPSK 5MHz CH-Low, 1 RB



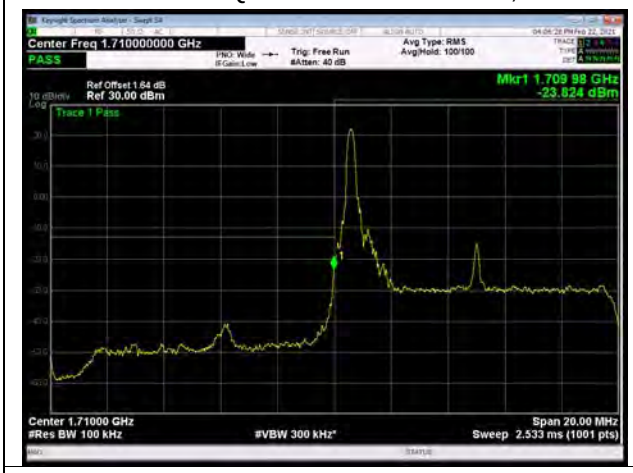
LTE Band 66 QPSK 5MHz CH-High, 1 RB

LTE Band 66 QPSK 5MHz CH-Low, 100%RB



LTE Band 66 QPSK 5MHz CH-High, 100%RB

LTE Band 66 QPSK 10MHz CH-Low, 1 RB

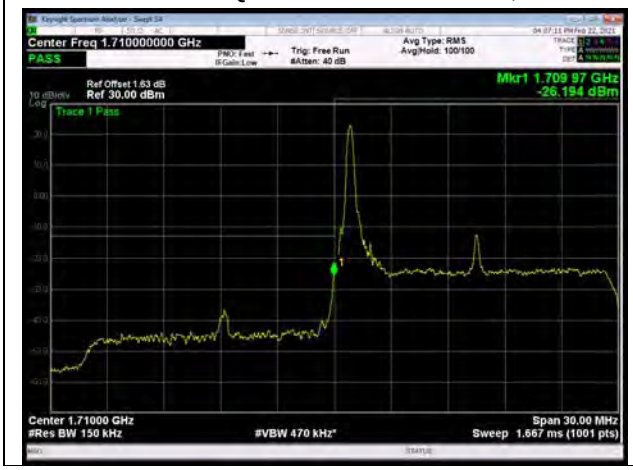


LTE Band 66 QPSK 10MHz CH-High, 1 RB

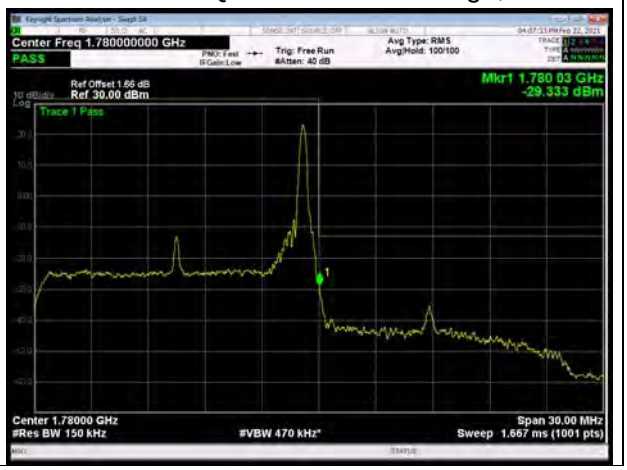
LTE Band 66 QPSK 10MHz CH-Low, 100%RB

LTE Band 66 QPSK 10MHz CH-High, 100%RB

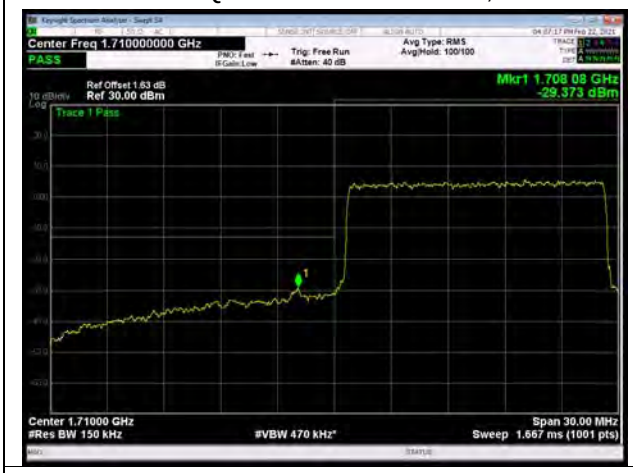
LTE Band 66 QPSK 15MHz CH-Low, 1 RB



LTE Band 66 QPSK 15MHz CH-High, 1 RB



LTE Band 66 QPSK 15MHz CH-Low, 100%RB

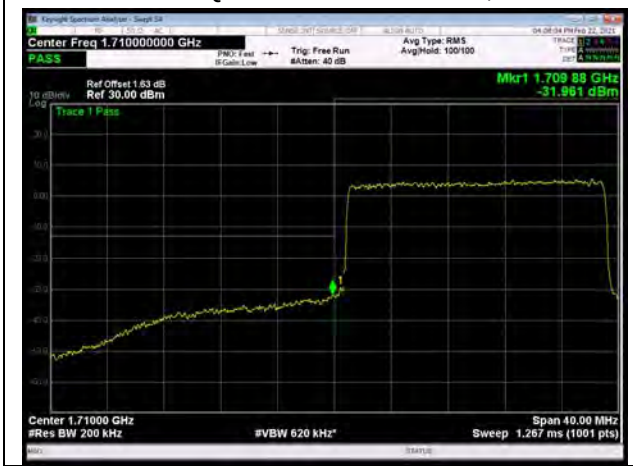


LTE Band 66 QPSK 15MHz CH-High, 100%RB

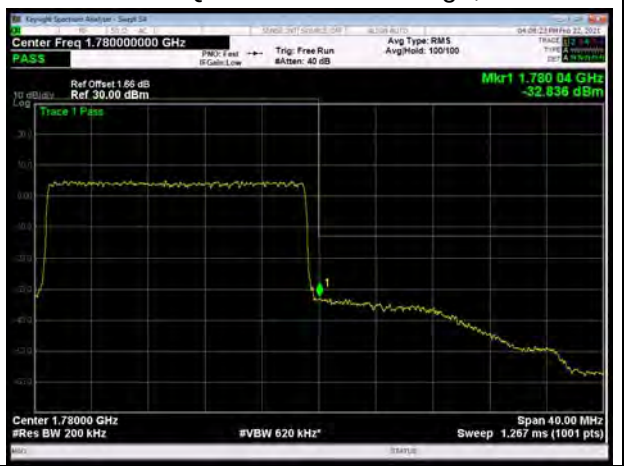
LTE Band 66 QPSK 20MHz CH-Low, 1 RB

LTE Band 66 QPSK 20MHz CH-High, 1 RB

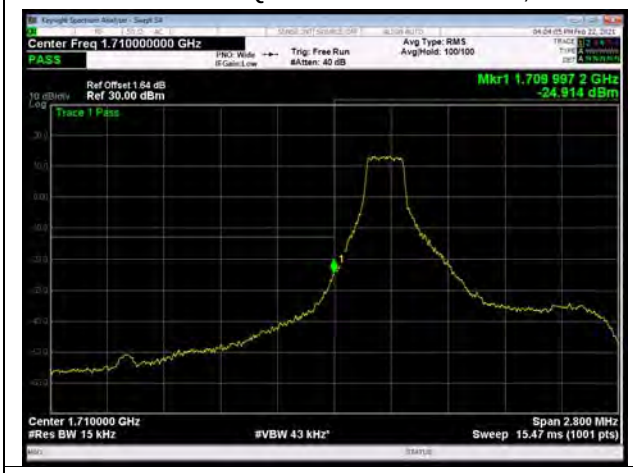
LTE Band 66 QPSK 20MHz CH-Low, 100%RB



LTE Band 66 QPSK 20MHz CH-High, 100%RB



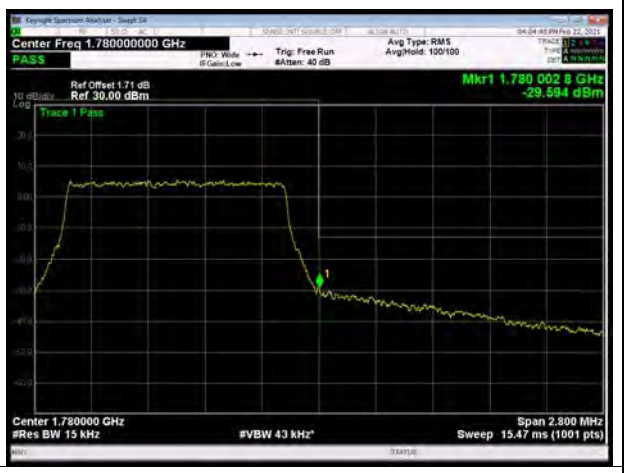
LTE Band 66 16QAM 1.4MHz CH-Low, 1 RB



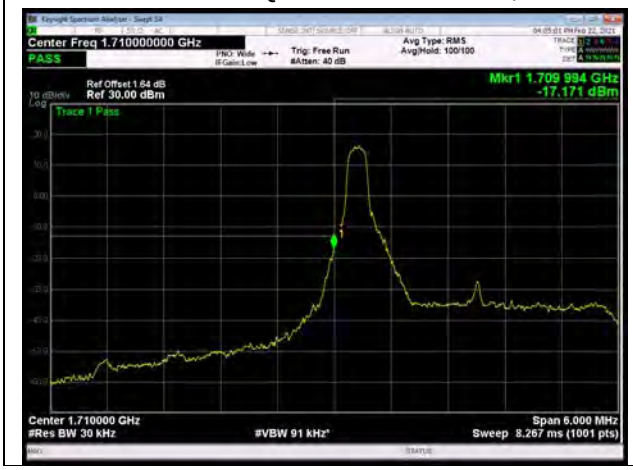
LTE Band 66 16QAM 1.4MHz CH-High, 1 RB

LTE Band 66 16QAM 1.4MHz CH-Low, 100%RB

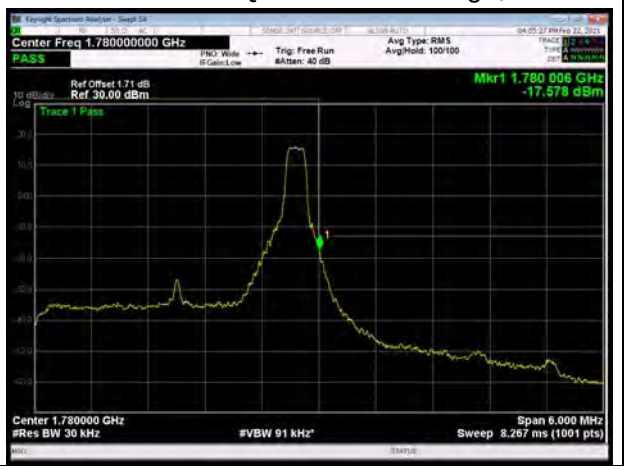
LTE Band 66 16QAM 1.4MHz CH-High, 100%RB



LTE Band 66 16QAM 3MHz CH-Low, 1 RB



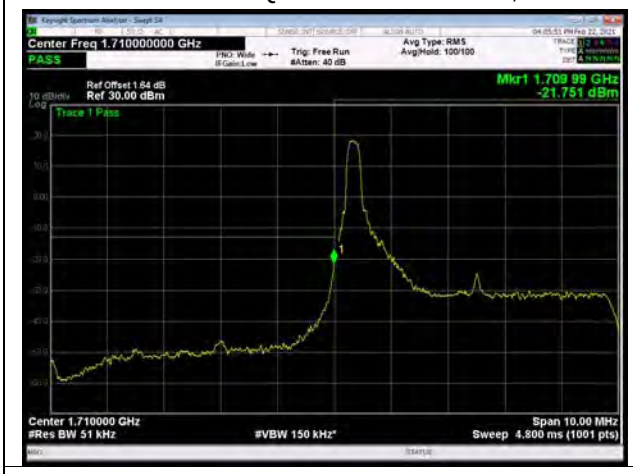
LTE Band 66 16QAM 3MHz CH-High, 1 RB



LTE Band 66 16QAM 3MHz CH-Low, 100%RB

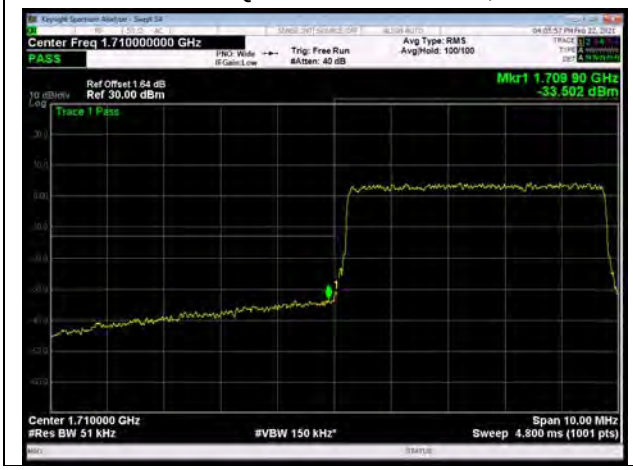
LTE Band 66 16QAM 3MHz CH-High, 100%RB

LTE Band 66 16QAM 5MHz CH-Low, 1 RB



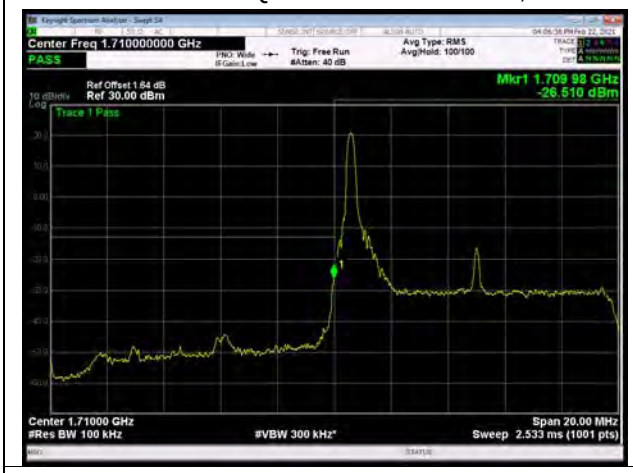
LTE Band 66 16QAM 5MHz CH-High, 1 RB

LTE Band 66 16QAM 5MHz CH-Low, 100%RB



LTE Band 66 16QAM 5MHz CH-High, 100%RB

LTE Band 66 16QAM 10MHz CH-Low, 1 RB



LTE Band 66 16QAM 10MHz CH-High, 1 RB

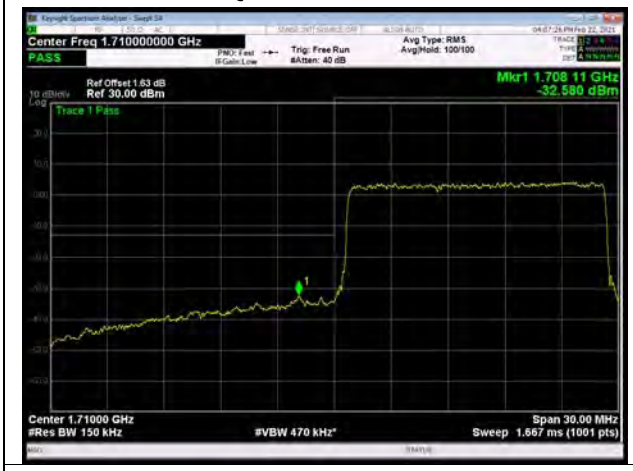
LTE Band 66 16QAM 10MHz CH-Low, 100%RB

LTE Band 66 16QAM 10MHz CH-High, 100%RB

LTE Band 66 16QAM 15MHz CH-Low, 1 RB

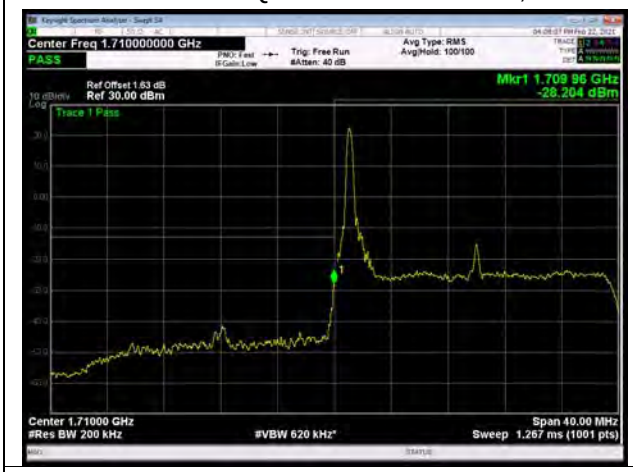
LTE Band 66 16QAM 15MHz CH-High, 1 RB

LTE Band 66 16QAM 15MHz CH-Low, 100%RB



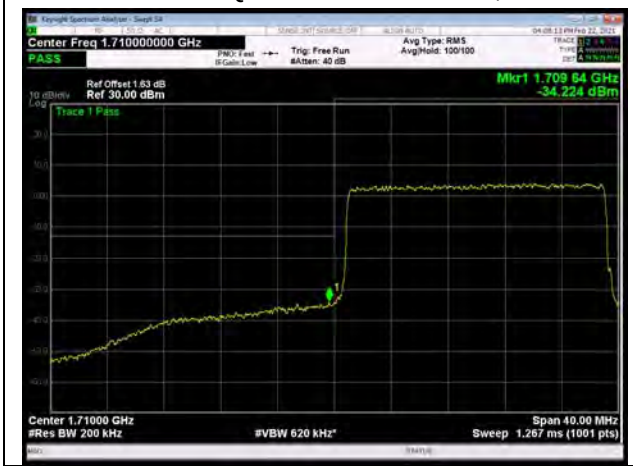
LTE Band 66 16QAM 15MHz CH-High, 100%RB

LTE Band 66 16QAM 20MHz CH-Low, 1 RB



LTE Band 66 16QAM 20MHz CH-High, 1 RB

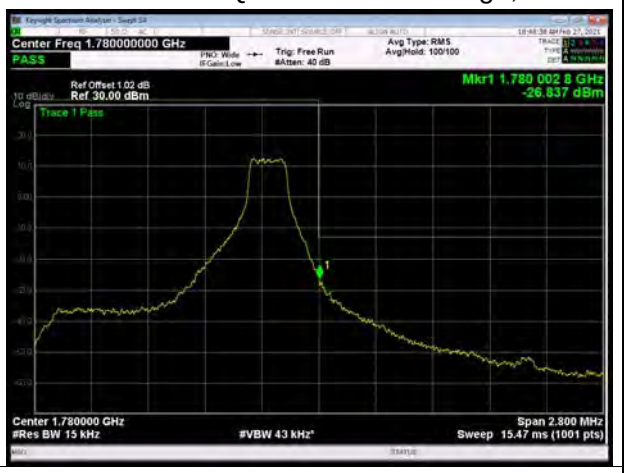
LTE Band 66 16QAM 20MHz CH-Low, 100%RB



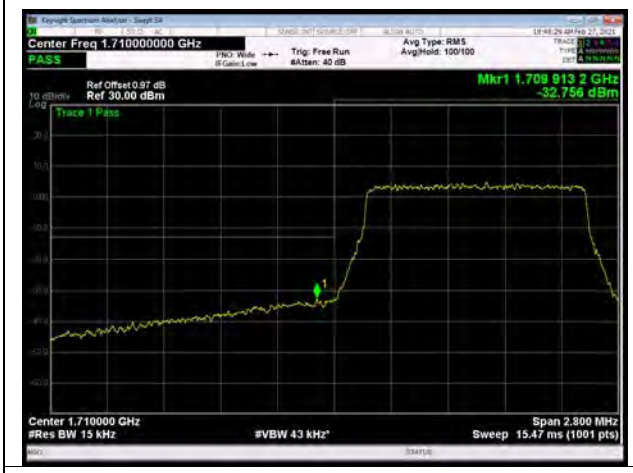
LTE Band 66 16QAM 20MHz CH-High, 100%RB

LTE Band 66 64QAM 1.4MHz CH-Low, 1 RB

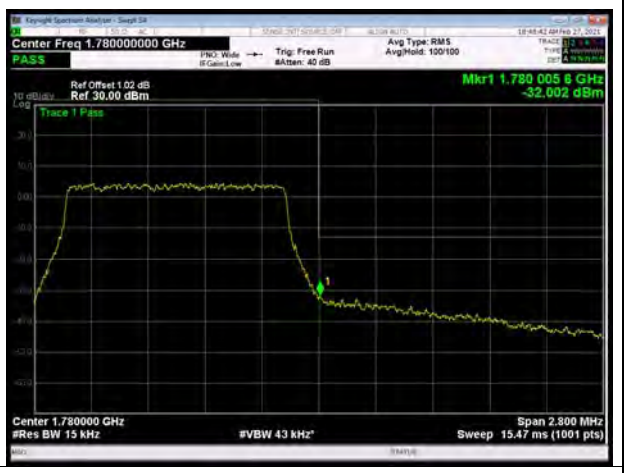
LTE Band 66 64QAM 1.4MHz CH-High, 1 RB



LTE Band 66 64QAM 1.4MHz CH-Low, 100%RB

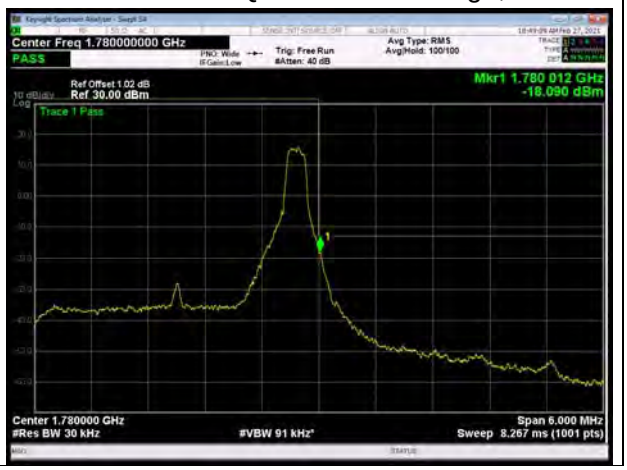


LTE Band 66 64QAM 1.4MHz CH-High, 100%RB



LTE Band 66 64QAM 3MHz CH-Low, 1 RB

LTE Band 66 64QAM 3MHz CH-High, 1 RB

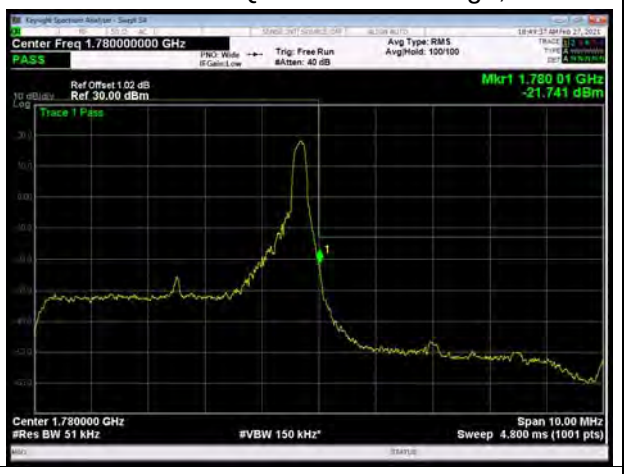


LTE Band 66 64QAM 3MHz CH-Low, 100%RB

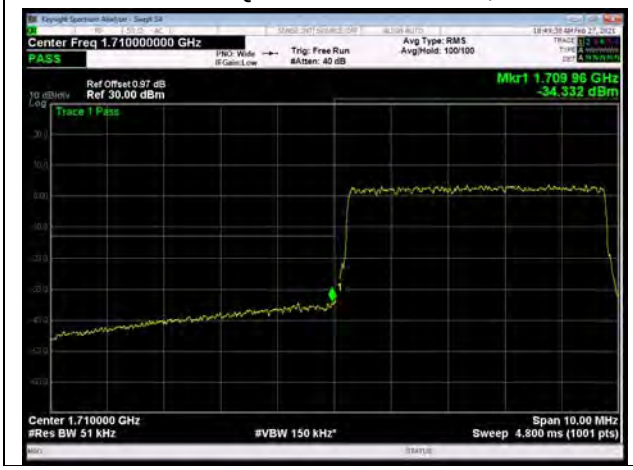
LTE Band 66 64QAM 3MHz CH-High, 100%RB

LTE Band 66 64QAM 5MHz CH-Low, 1 RB

LTE Band 66 64QAM 5MHz CH-High, 1 RB

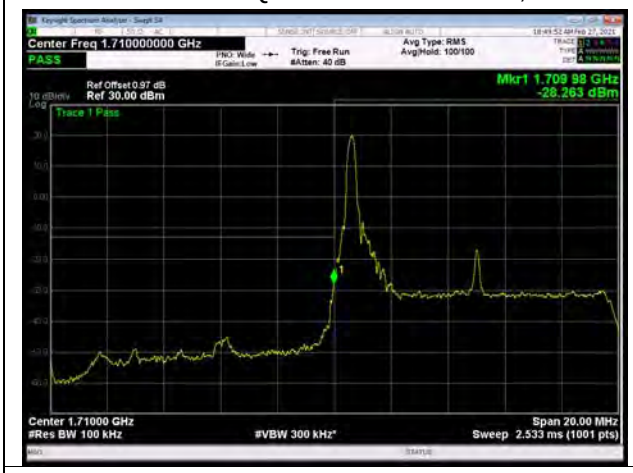


LTE Band 66 64QAM 5MHz CH-Low, 100%RB



LTE Band 66 64QAM 5MHz CH-High, 100%RB

LTE Band 66 64QAM 10MHz CH-Low, 1 RB



LTE Band 66 64QAM 10MHz CH-High, 1 RB

LTE Band 66 64QAM 10MHz CH-Low, 100%RB

LTE Band 66 64QAM 10MHz CH-High, 100%RB

LTE Band 66 64QAM 15MHz CH-Low, 1 RB

LTE Band 66 64QAM 15MHz CH-High, 1 RB

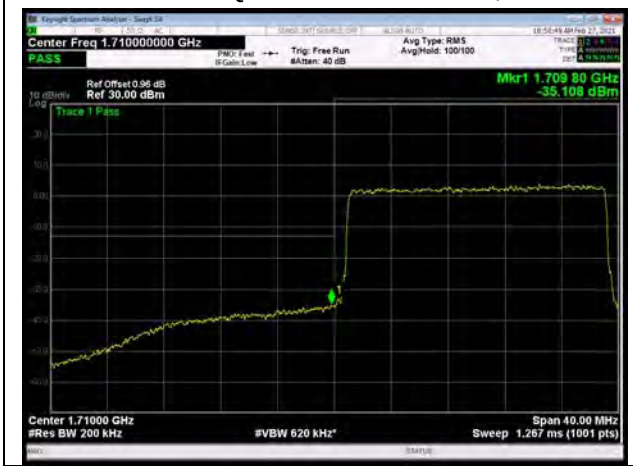
LTE Band 66 64QAM 15MHz CH-Low, 100%RB

LTE Band 66 64QAM 15MHz CH-High, 100%RB

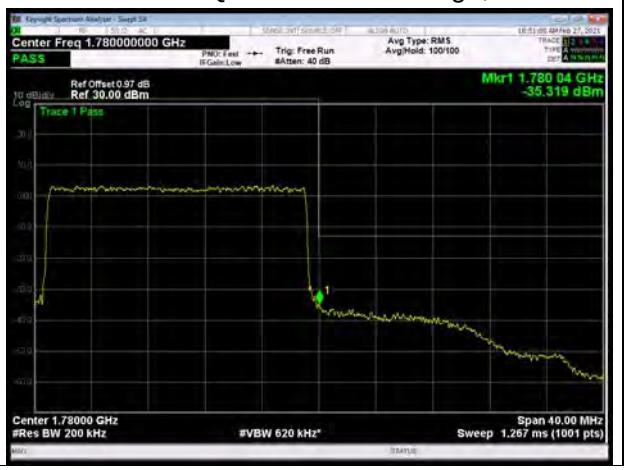
LTE Band 66 64QAM 20MHz CH-Low, 1 RB

LTE Band 66 64QAM 20MHz CH-High, 1 RB

LTE Band 66 64QAM 20MHz CH-Low, 100%RB



LTE Band 66 64QAM 20MHz CH-High, 100%RB



5.4 Peak-to-Average Power Ratio (PAPR)

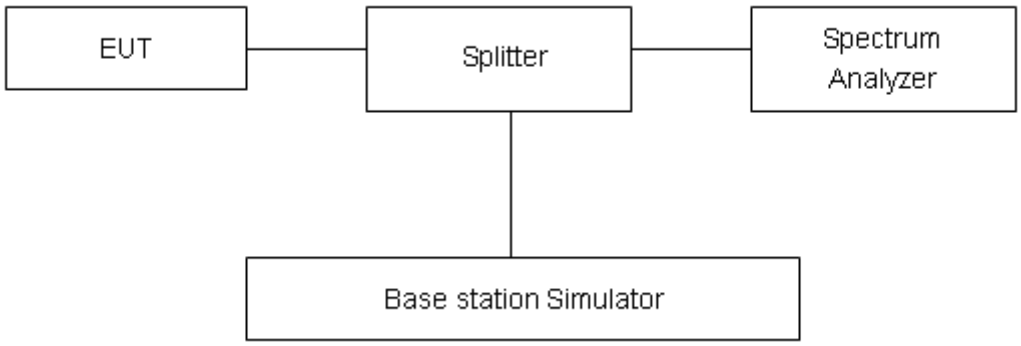
Ambient condition

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 thenormal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

LTE Band 12								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	23017	699.7	27.69	23.01	4.68	≤13	PASS
		23095	707.5	28.11	23.04	5.07	≤13	PASS
		23173	715.3	27.55	23.06	4.49	≤13	PASS
	3	23025	700.5	27.79	23.00	4.79	≤13	PASS
		23095	707.5	28.03	23.05	4.98	≤13	PASS
		23165	714.5	27.73	23.04	4.69	≤13	PASS
	5	23035	701.5	27.96	23.10	4.86	≤13	PASS
		23095	707.5	28.18	23.12	5.06	≤13	PASS
		23155	713.5	27.97	23.11	4.86	≤13	PASS
	10	23060	704	28.12	23.11	5.01	≤13	PASS
		23095	707.5	28.08	23.03	5.05	≤13	PASS
		23130	711	28.18	23.07	5.11	≤13	PASS
16QAM	1.4	23017	699.7	27.48	21.98	5.50	≤13	PASS
		23095	707.5	27.82	22.00	5.82	≤13	PASS
		23173	715.3	27.43	22.09	5.34	≤13	PASS
	3	23025	700.5	27.66	21.98	5.68	≤13	PASS
		23095	707.5	27.93	22.04	5.89	≤13	PASS
		23165	714.5	27.60	22.03	5.57	≤13	PASS
	5	23035	701.5	27.78	22.10	5.68	≤13	PASS
		23095	707.5	28.01	22.12	5.89	≤13	PASS
		23155	713.5	27.80	22.12	5.68	≤13	PASS
	10	23060	704	27.95	22.07	5.88	≤13	PASS
		23095	707.5	27.92	22.01	5.91	≤13	PASS
		23130	711	27.93	22.05	5.88	≤13	PASS
64QAM	1.4M	23017	699.7	27.19	21.63	5.56	≤13	PASS
		23095	707.5	27.63	21.70	5.93	≤13	PASS
		23173	715.3	27.23	21.71	5.52	≤13	PASS
	3M	23025	700.5	27.35	21.66	5.69	≤13	PASS
		23095	707.5	27.65	21.68	5.97	≤13	PASS
		23165	714.5	27.33	21.69	5.64	≤13	PASS
	5M	23035	701.5	27.47	21.77	5.70	≤13	PASS
		23095	707.5	27.73	21.79	5.94	≤13	PASS
		23155	713.5	27.52	21.77	5.75	≤13	PASS
	10M	23060	704	27.67	21.72	5.95	≤13	PASS
		23095	707.5	27.64	21.66	5.98	≤13	PASS
		23130	711	27.67	21.71	5.96	≤13	PASS

LTE Band 17								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	23755	706.5	28.13	23.07	5.06	≤13	PASS
		23790	710	28.01	23.06	4.95	≤13	PASS
		23825	713.5	27.95	23.08	4.87	≤13	PASS
	10	23780	709	28.07	23.00	5.07	≤13	PASS
		23790	710	28.14	23.06	5.08	≤13	PASS
		23800	711	28.19	23.07	5.12	≤13	PASS
16QAM	5	23755	706.5	28.00	22.09	5.91	≤13	PASS
		23790	710	27.77	22.05	5.72	≤13	PASS
		23825	713.5	27.77	22.11	5.66	≤13	PASS
	10	23780	709	27.90	21.97	5.93	≤13	PASS
		23790	710	27.92	22.00	5.92	≤13	PASS
		23800	711	27.94	22.03	5.91	≤13	PASS
64QAM	5M	23755	706.5	27.81	21.83	5.98	≤13	PASS
		23790	710	27.67	21.85	5.82	≤13	PASS
		23825	713.5	27.63	21.84	5.79	≤13	PASS
	10M	23780	709	27.68	21.68	6.00	≤13	PASS
		23790	710	27.67	21.66	6.01	≤13	PASS
		23800	711	27.75	21.71	6.04	≤13	PASS

LTE Band 66								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	131979	1710.7	26.84	22.36	4.48	≤13	PASS
		132322	1745	28.56	23.32	5.24	≤13	PASS
		132665	1779.3	27.70	23.53	4.17	≤13	PASS
	3	131987	1711.5	27.82	23.15	4.67	≤13	PASS
		132322	1745	28.48	23.17	5.31	≤13	PASS
		132657	1778.5	27.69	23.28	4.41	≤13	PASS
	5	131997	1712.5	27.95	23.19	4.76	≤13	PASS
		132322	1745	28.62	23.24	5.38	≤13	PASS
		132647	1777.5	27.86	23.32	4.54	≤13	PASS
	10	132022	1715	28.09	23.22	4.87	≤13	PASS
		132322	1745	28.59	23.29	5.30	≤13	PASS
		132622	1775	28.06	23.33	4.73	≤13	PASS
	15	132047	1717.5	28.60	23.35	5.25	≤13	PASS
		132322	1745	28.93	23.37	5.56	≤13	PASS
		132597	1772.5	28.55	23.44	5.11	≤13	PASS
	20	132072	1720	28.41	23.20	5.21	≤13	PASS
		132322	1745	28.70	23.32	5.38	≤13	PASS
		132572	1770	28.50	23.35	5.15	≤13	PASS
16QAM	1.4	131979	1710.7	27.67	22.29	5.38	≤13	PASS
		132322	1745	28.36	22.37	5.99	≤13	PASS
		132665	1779.3	27.57	22.49	5.08	≤13	PASS
	3	131987	1711.5	27.70	22.09	5.61	≤13	PASS
		132322	1745	28.32	22.20	6.12	≤13	PASS
		132657	1778.5	27.58	22.25	5.33	≤13	PASS
	5	131997	1712.5	27.79	22.24	5.55	≤13	PASS
		132322	1745	28.40	22.32	6.08	≤13	PASS
		132647	1777.5	27.73	22.37	5.36	≤13	PASS
	10	132022	1715	27.92	22.23	5.69	≤13	PASS
		132322	1745	28.44	22.32	6.12	≤13	PASS
		132622	1775	27.94	22.34	5.60	≤13	PASS
	15	132047	1717.5	28.19	22.28	5.91	≤13	PASS
		132322	1745	28.56	22.32	6.24	≤13	PASS
		132597	1772.5	28.23	22.40	5.83	≤13	PASS
	20	132072	1720	28.20	22.25	5.95	≤13	PASS
		132322	1745	28.52	22.36	6.16	≤13	PASS
		132572	1770	28.27	22.35	5.92	≤13	PASS

64QAM	1.4	131979	1710.7	27.07	21.56	5.51	≤13	PASS
		132322	1745	27.73	21.63	6.10	≤13	PASS
		132665	1779.3	26.99	21.74	5.25	≤13	PASS
	3	131987	1711.5	27.10	21.40	5.70	≤13	PASS
		132322	1745	27.62	21.38	6.24	≤13	PASS
		132657	1778.5	27.03	21.53	5.50	≤13	PASS
	5	131997	1712.5	27.19	21.54	5.65	≤13	PASS
		132322	1745	27.77	21.57	6.20	≤13	PASS
		132647	1777.5	27.18	21.61	5.57	≤13	PASS
	10	132022	1715	27.34	21.54	5.80	≤13	PASS
		132322	1745	27.82	21.59	6.23	≤13	PASS
		132622	1775	27.39	21.60	5.79	≤13	PASS
	15	132047	1717.5	27.62	21.55	6.07	≤13	PASS
		132322	1745	27.92	21.55	6.37	≤13	PASS
		132597	1772.5	27.60	21.62	5.98	≤13	PASS
	20	132072	1720	27.59	21.54	6.05	≤13	PASS
		132322	1745	27.87	21.60	6.27	≤13	PASS
		132572	1770	27.64	21.61	6.03	≤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.

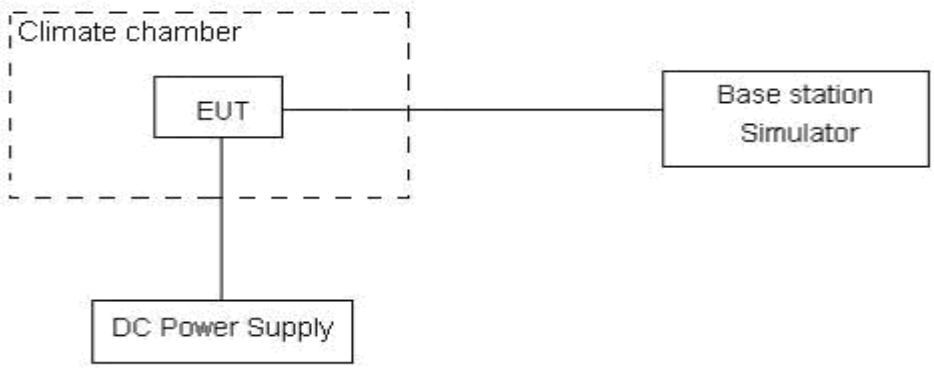
Frequency Stability (Voltage Variation)

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 3.6V and 4.45 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=0.01ppm.

Test Result

LTE Band 12								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	9.88	6.01	9.00	0.00526	0.00319	0.00479	PASS
Extreme（50℃）		12.75	15.72	16.74	0.00678	0.00836	0.00890	PASS
Extreme（40℃）		16.20	10.40	17.87	0.00862	0.00553	0.00951	PASS
Extreme（30℃）		8.20	2.38	11.61	0.00436	0.00127	0.00618	PASS
Extreme（20℃）		1.82	5.96	13.09	0.00097	0.00317	0.00696	PASS
Extreme（10℃）		6.08	8.56	9.55	0.00323	0.00456	0.00508	PASS
Extreme（0℃）		1.72	7.46	8.70	0.00091	0.00397	0.00463	PASS
Extreme（-10℃）		17.51	6.55	8.08	0.00931	0.00348	0.00430	PASS
Extreme（-20℃）		11.95	2.57	12.25	0.00635	0.00137	0.00652	PASS
Extreme（-30℃）		12.47	15.21	2.23	0.00663	0.00809	0.00118	PASS
25℃	LV	17.58	14.12	15.50	0.00935	0.00751	0.00824	PASS
	HV	5.78	4.42	9.05	0.00307	0.00235	0.00482	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	5.68	12.73	8.65	0.00302	0.00677	0.00460	PASS
Extreme（50℃）		5.80	5.52	1.29	0.00308	0.00294	0.00069	PASS
Extreme（40℃）		17.71	5.75	12.31	0.00942	0.00306	0.00655	PASS
Extreme（30℃）		10.14	7.64	14.47	0.00539	0.00407	0.00769	PASS
Extreme（20℃）		7.47	10.23	5.69	0.00397	0.00544	0.00303	PASS
Extreme（10℃）		11.25	13.11	2.57	0.00599	0.00697	0.00137	PASS
Extreme（0℃）		5.92	5.76	16.20	0.00315	0.00306	0.00862	PASS
Extreme（-10℃）		14.95	9.49	13.56	0.00795	0.00505	0.00721	PASS
Extreme（-20℃）		5.99	3.27	4.48	0.00319	0.00174	0.00238	PASS
Extreme（-30℃）		8.52	13.48	4.94	0.00453	0.00717	0.00263	PASS
25℃	LV	15.94	14.39	17.93	0.00848	0.00765	0.00953	PASS
	HV	2.24	2.37	8.64	0.00119	0.00126	0.00460	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℃）	Normal	15.89	1.10	15.10	0.00845	0.00059	0.00803	PASS
Extreme（50℃）		16.29	14.60	16.27	0.00866	0.00777	0.00865	PASS

Extreme（40℃）		14.91	7.53	7.05	0.00793	0.00400	0.00375	PASS
Extreme（30℃）		5.89	12.29	9.16	0.00313	0.00654	0.00487	PASS
Extreme（20℃）		12.33	15.51	15.97	0.00656	0.00825	0.00849	PASS
Extreme（10℃）		9.72	15.09	10.55	0.00517	0.00802	0.00561	PASS
Extreme（0℃）		14.79	10.72	8.40	0.00787	0.00570	0.00447	PASS
Extreme（-10℃）		6.86	10.13	15.48	0.00365	0.00539	0.00824	PASS
Extreme（-20℃）		3.93	12.77	8.16	0.00209	0.00679	0.00434	PASS
Extreme（-30℃）		16.34	13.34	4.52	0.00869	0.00710	0.00240	PASS
25℃	LV	5.45	2.93	17.28	0.00290	0.00156	0.00919	PASS
	HV	16.30	6.84	9.22	0.00867	0.00364	0.00491	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℃）	Normal	14.38	7.85	14.46	0.00765	0.00418	0.00769	PASS
Extreme（50℃）		17.06	16.09	14.57	0.00908	0.00856	0.00775	PASS
Extreme（40℃）		1.97	4.65	8.30	0.00105	0.00248	0.00442	PASS
Extreme（30℃）		11.82	14.70	1.97	0.00629	0.00782	0.00105	PASS
Extreme（20℃）		6.99	5.35	17.51	0.00372	0.00284	0.00931	PASS
Extreme（10℃）		12.83	2.35	9.95	0.00683	0.00125	0.00529	PASS
Extreme（0℃）		12.76	5.48	7.22	0.00679	0.00292	0.00384	PASS
Extreme（-10℃）		14.00	15.48	1.04	0.00745	0.00823	0.00055	PASS
Extreme（-20℃）		15.03	7.35	2.43	0.00800	0.00391	0.00129	PASS
Extreme（-30℃）		15.40	12.08	12.80	0.00819	0.00642	0.00681	PASS
25℃	LV	10.63	12.15	14.44	0.00565	0.00646	0.00768	PASS
	HV	7.59	11.33	15.75	0.00404	0.00603	0.00838	PASS

LTE Band 17								
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℃）	Normal	1.70	14.19	13.07	0.00091	0.00755	0.00695	PASS
Extreme（50℃）		8.88	7.51	3.27	0.00473	0.00399	0.00174	PASS
Extreme（40℃）		8.77	16.07	10.14	0.00466	0.00855	0.00539	PASS
Extreme（30℃）		3.35	8.16	15.87	0.00178	0.00434	0.00844	PASS
Extreme（20℃）		2.28	11.46	4.92	0.00121	0.00610	0.00262	PASS
Extreme（10℃）		4.50	6.96	14.09	0.00239	0.00370	0.00750	PASS
Extreme（0℃）		15.96	13.70	12.54	0.00849	0.00728	0.00667	PASS
Extreme（-10℃）		16.04	8.19	13.14	0.00853	0.00436	0.00699	PASS
Extreme（-20℃）		3.27	5.18	10.90	0.00174	0.00275	0.00580	PASS
Extreme（-30℃）		16.30	7.89	14.05	0.00867	0.00419	0.00747	PASS
25℃	LV	5.76	11.99	3.93	0.00306	0.00638	0.00209	PASS
	HV	2.79	6.67	2.95	0.00148	0.00355	0.00157	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℃）	Normal	10.17	8.16	4.41	0.00541	0.00434	0.00234	PASS
Extreme（50℃）		4.63	14.02	9.42	0.00247	0.00746	0.00501	PASS
Extreme（40℃）		10.15	1.43	7.76	0.00540	0.00076	0.00413	PASS
Extreme（30℃）		16.87	8.40	10.75	0.00897	0.00447	0.00572	PASS
Extreme（20℃）		14.02	8.33	2.24	0.00746	0.00443	0.00119	PASS
Extreme（10℃）		5.88	9.30	8.36	0.00313	0.00495	0.00445	PASS
Extreme（0℃）		16.69	11.68	9.52	0.00888	0.00621	0.00507	PASS
Extreme（-10℃）		13.06	2.70	10.78	0.00695	0.00144	0.00574	PASS
Extreme（-20℃）		5.58	7.19	8.70	0.00297	0.00382	0.00463	PASS
Extreme（-30℃）		12.75	5.60	2.65	0.00678	0.00298	0.00141	PASS
25℃	LV	10.28	3.38	5.52	0.00547	0.00180	0.00293	PASS
	HV	3.70	8.21	16.20	0.00197	0.00437	0.00862	PASS

LTE Band 66								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	15.56	8.37	4.03	0.00828	0.00445	0.00214	PASS
Extreme（50℃）		8.91	5.39	2.18	0.00474	0.00287	0.00116	PASS
Extreme（40℃）		14.22	5.94	5.95	0.00756	0.00316	0.00317	PASS
Extreme（30℃）		7.69	9.05	10.42	0.00409	0.00481	0.00554	PASS
Extreme（20℃）		16.68	12.02	11.95	0.00887	0.00640	0.00635	PASS
Extreme（10℃）		15.74	16.45	9.53	0.00837	0.00875	0.00507	PASS
Extreme（0℃）		4.88	17.72	3.20	0.00260	0.00942	0.00170	PASS
Extreme（-10℃）		1.40	7.94	10.12	0.00075	0.00422	0.00538	PASS
Extreme（-20℃）		11.56	17.25	13.98	0.00615	0.00917	0.00744	PASS
Extreme（-30℃）		3.98	6.80	14.46	0.00212	0.00362	0.00769	PASS
25℃	LV	12.25	14.44	17.32	0.00652	0.00768	0.00921	PASS
	HV	9.98	5.68	10.57	0.00531	0.00302	0.00562	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability （ppm）	Frequency Stability （ppm）	Frequency Stability （ppm）	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal（25℃）	Normal	2.90	10.82	12.90	0.00154	0.00575	0.00686	PASS
Extreme（50℃）		2.75	6.96	6.28	0.00146	0.00370	0.00334	PASS
Extreme（40℃）		8.89	7.19	12.75	0.00473	0.00382	0.00678	PASS
Extreme（30℃）		13.98	13.45	8.48	0.00744	0.00716	0.00451	PASS
Extreme（20℃）		4.60	11.68	8.47	0.00245	0.00622	0.00451	PASS
Extreme（10℃）		13.96	15.59	4.16	0.00742	0.00829	0.00221	PASS
Extreme（0℃）		14.25	14.46	8.33	0.00758	0.00769	0.00443	PASS
Extreme（-10℃）		1.24	17.50	11.68	0.00066	0.00931	0.00621	PASS
Extreme（-20℃）		10.33	1.42	11.54	0.00549	0.00076	0.00614	PASS
Extreme（-30℃）		17.12	13.80	1.09	0.00911	0.00734	0.00058	PASS
25℃	LV	15.42	9.85	12.05	0.00820	0.00524	0.00641	PASS
	HV	9.21	7.62	6.71	0.00490	0.00405	0.00357	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℃）	Normal	8.58	3.09	11.68	0.00456	0.00164	0.00621	PASS
Extreme（50℃）		3.52	15.80	1.93	0.00187	0.00840	0.00102	PASS
Extreme（40℃）		15.99	12.92	7.41	0.00851	0.00687	0.00394	PASS

Extreme（30℃）		3.56	9.01	3.94	0.00189	0.00479	0.00209	PASS
Extreme（20℃）		17.56	13.55	1.31	0.00934	0.00721	0.00070	PASS
Extreme（10℃）		10.62	2.35	11.05	0.00565	0.00125	0.00588	PASS
Extreme（0℃）		10.44	1.83	12.69	0.00555	0.00097	0.00675	PASS
Extreme（-10℃）		11.91	3.88	10.71	0.00633	0.00206	0.00570	PASS
Extreme（-20℃）		16.90	12.60	16.96	0.00899	0.00670	0.00902	PASS
Extreme（-30℃）		15.12	14.30	13.06	0.00804	0.00760	0.00695	PASS
25℃	LV	11.57	4.50	7.04	0.00615	0.00239	0.00374	PASS
	HV	11.54	7.57	2.17	0.00614	0.00403	0.00115	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℃）	Normal	4.78	17.98	11.05	0.00254	0.00957	0.00588	PASS
Extreme（50℃）		12.07	12.47	17.83	0.00642	0.00664	0.00948	PASS
Extreme（40℃）		13.50	14.53	15.34	0.00718	0.00773	0.00816	PASS
Extreme（30℃）		9.08	13.03	15.85	0.00483	0.00693	0.00843	PASS
Extreme（20℃）		5.20	1.31	5.59	0.00276	0.00070	0.00298	PASS
Extreme（10℃）		12.28	15.56	5.57	0.00653	0.00828	0.00297	PASS
Extreme（0℃）		9.19	11.89	1.67	0.00489	0.00632	0.00089	PASS
Extreme（-10℃）		4.85	13.93	16.04	0.00258	0.00741	0.00853	PASS
Extreme（-20℃）		11.61	14.50	16.12	0.00617	0.00771	0.00857	PASS
Extreme（-30℃）		10.84	9.51	10.34	0.00577	0.00506	0.00550	PASS
25℃	LV	10.45	2.75	6.90	0.00556	0.00146	0.00367	PASS
	HV	3.05	2.55	7.09	0.00162	0.00136	0.00377	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℃）	Normal	8.37	12.77	4.24	0.00445	0.00679	0.00226	PASS
Extreme（50℃）		3.39	15.81	15.30	0.00180	0.00841	0.00814	PASS
Extreme（40℃）		3.79	8.91	9.03	0.00201	0.00474	0.00480	PASS
Extreme（30℃）		5.07	10.76	2.35	0.00270	0.00573	0.00125	PASS
Extreme（20℃）		8.77	6.51	4.11	0.00466	0.00346	0.00219	PASS
Extreme（10℃）		14.68	10.97	8.91	0.00781	0.00583	0.00474	PASS
Extreme（0℃）		3.19	4.09	17.84	0.00170	0.00218	0.00949	PASS
Extreme（-10℃）		8.92	3.45	1.19	0.00474	0.00184	0.00063	PASS
Extreme（-20℃）		7.44	9.53	10.99	0.00396	0.00507	0.00585	PASS
Extreme（-30℃）		9.76	3.37	10.49	0.00519	0.00179	0.00558	PASS
25℃	LV	8.32	7.56	1.37	0.00443	0.00402	0.00073	PASS
	HV	3.56	10.70	8.10	0.00189	0.00569	0.00431	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℃）	Normal	13.83	9.36	3.50	0.00736	0.00498	0.00186	PASS
Extreme（50℃）		10.73	3.85	7.77	0.00571	0.00205	0.00413	PASS
Extreme（40℃）		12.80	14.31	1.53	0.00681	0.00761	0.00082	PASS
Extreme（30℃）		7.28	7.13	9.97	0.00387	0.00379	0.00530	PASS
Extreme（20℃）		10.54	3.10	9.11	0.00560	0.00165	0.00484	PASS
Extreme（10℃）		12.61	13.53	4.04	0.00671	0.00720	0.00215	PASS
Extreme（0℃）		5.88	4.86	3.10	0.00313	0.00259	0.00165	PASS
Extreme（-10℃）		4.42	5.17	9.10	0.00235	0.00275	0.00484	PASS
Extreme（-20℃）		16.22	10.13	15.66	0.00863	0.00539	0.00833	PASS
Extreme（-30℃）		12.35	12.78	4.48	0.00657	0.00680	0.00238	PASS
25℃	LV	13.90	7.05	17.53	0.00739	0.00375	0.00932	PASS
	HV	3.41	3.32	7.12	0.00181	0.00177	0.00379	PASS

5.6 Spurious Emissions at Antenna Terminals

Ambient condition

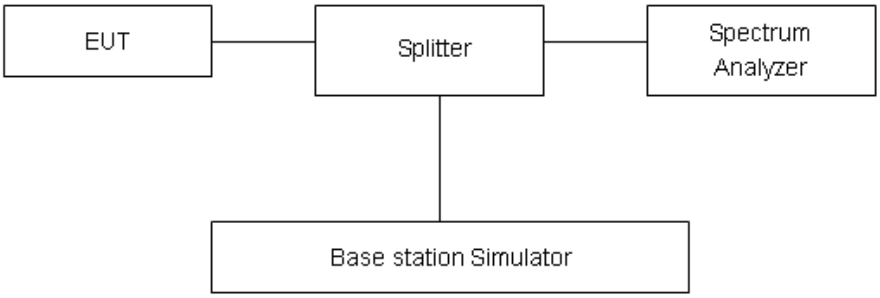
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 log10 (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.

Part 27.53(h)/(g) Limit	-13 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.

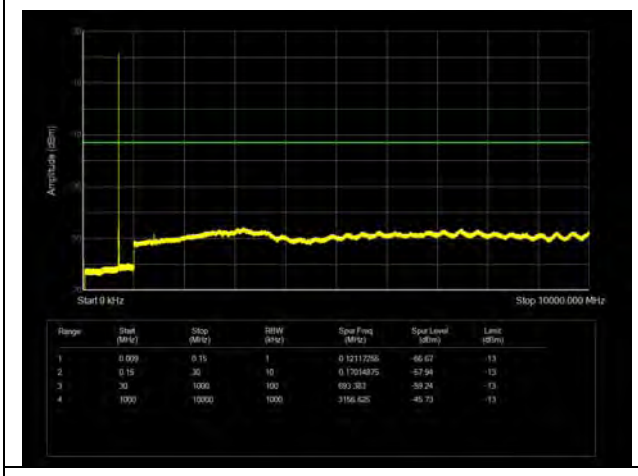
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

Test Result

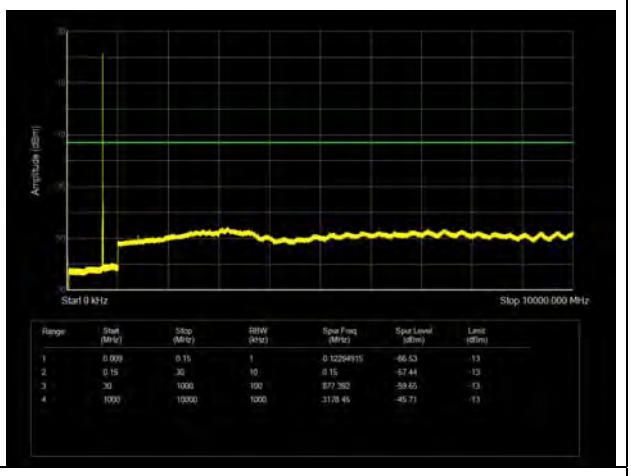
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

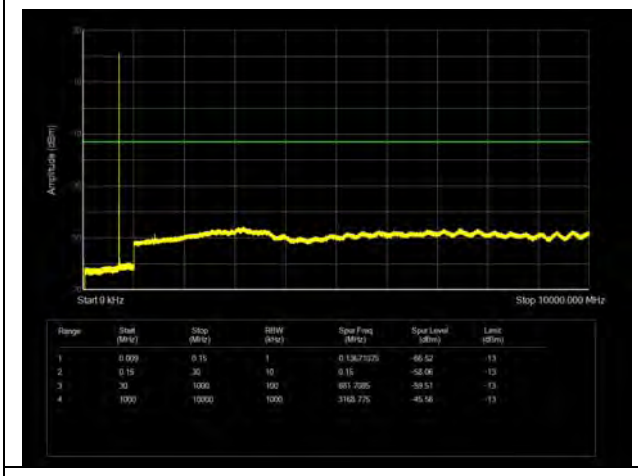
LTE Band 12 1.4MHz CH-Low 9kHz~10GHz



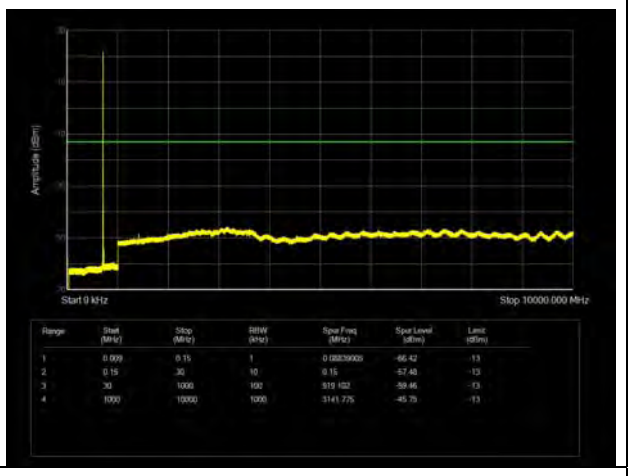
LTE Band 12 3MHz CH- Low 9kHz~10GHz



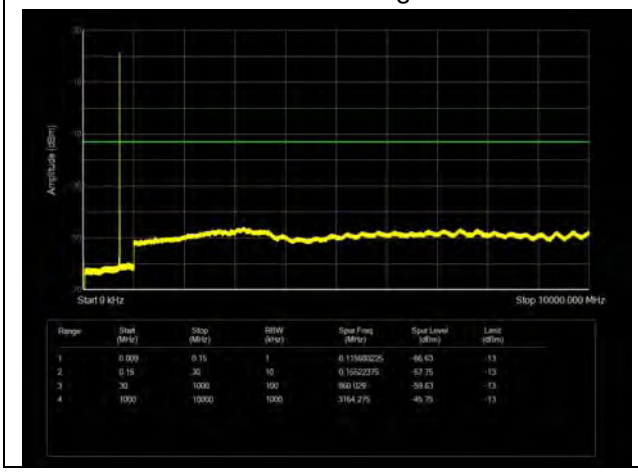
LTE Band 121.4MHz CH- Middle 9kHz~10GHz



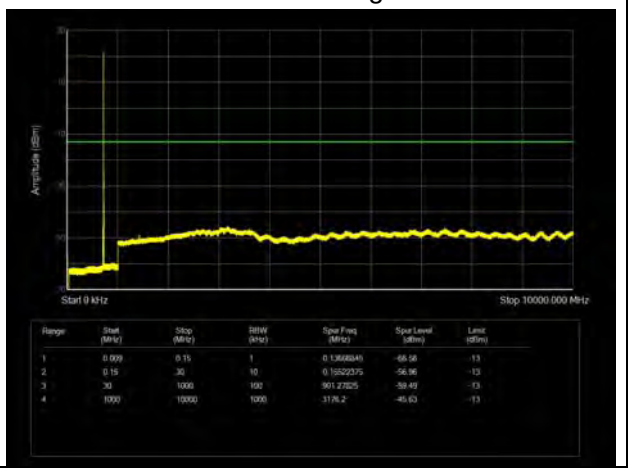
LTE Band 12 3MHz CH- Middle 9kHz~10GHz



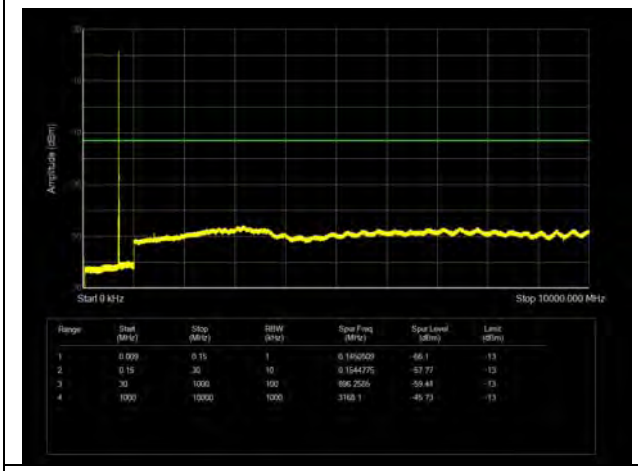
LTE Band 121.4MHz CH- High 9kHz~10GHz



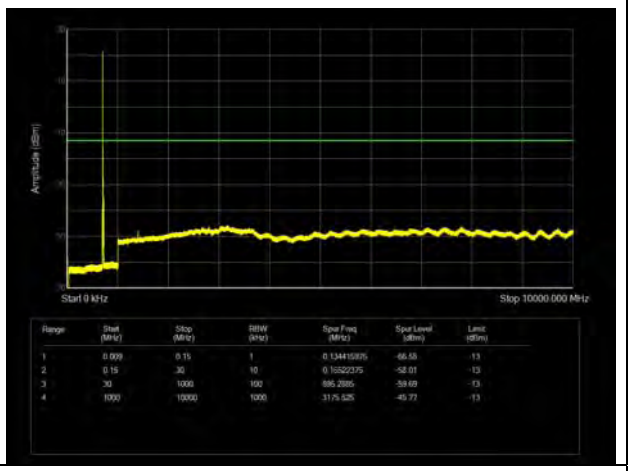
LTE Band 12 3MHz CH-High 9kHz~10GHz



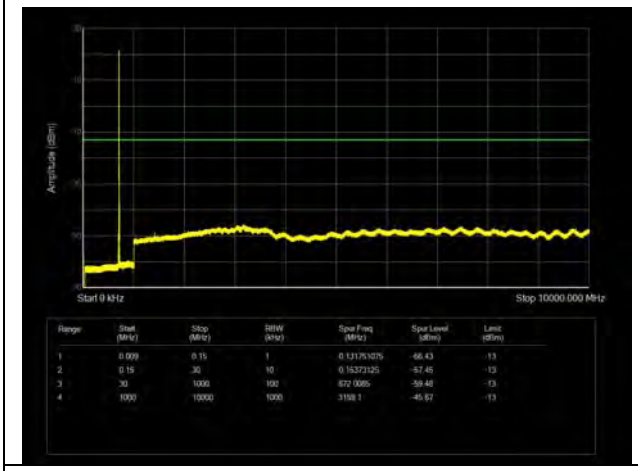
LTE Band 12 5MHz CH- Low 9kHz~10GHz



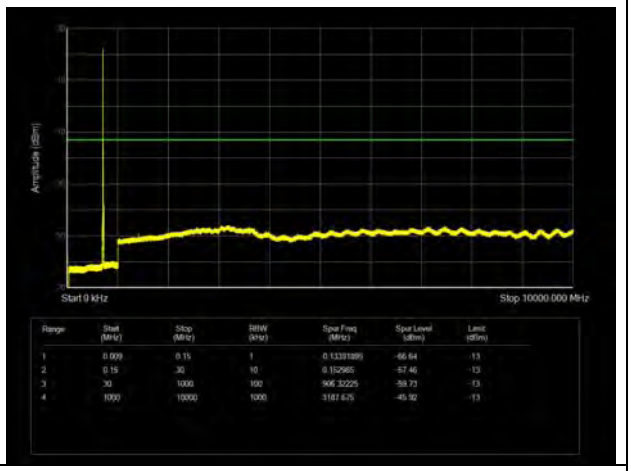
LTE Band 12 10MHz CH-Low 9kHz~10GHz



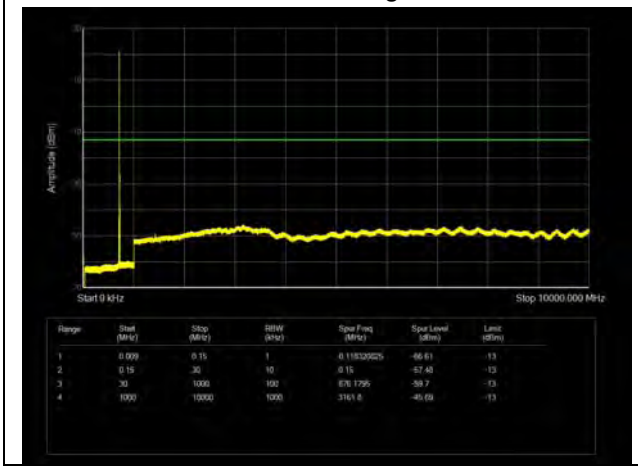
LTE Band 12 5MHz CH- Middle 9kHz~10GHz



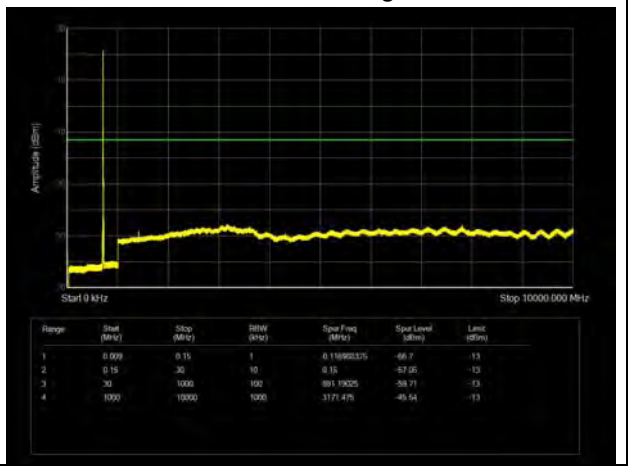
LTE Band 12 10MHz CH- Middle 9kHz~10GHz



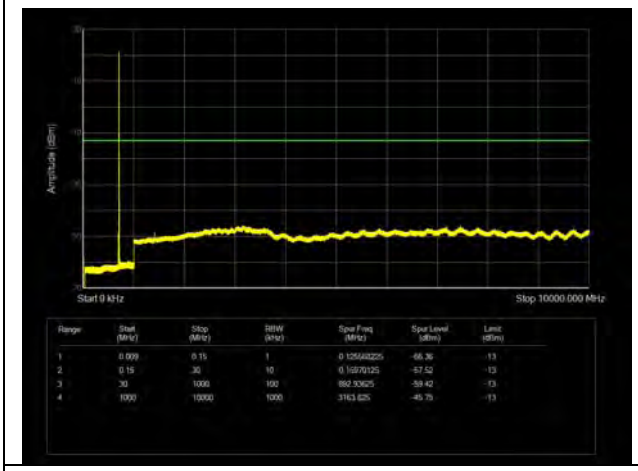
LTE Band 12 5MHz CH-High 9kHz~10GHz



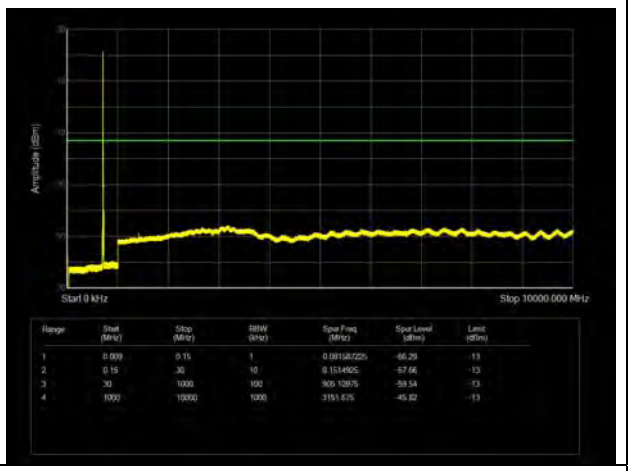
LTE Band 12 10MHz CH- High 9kHz~10GHz



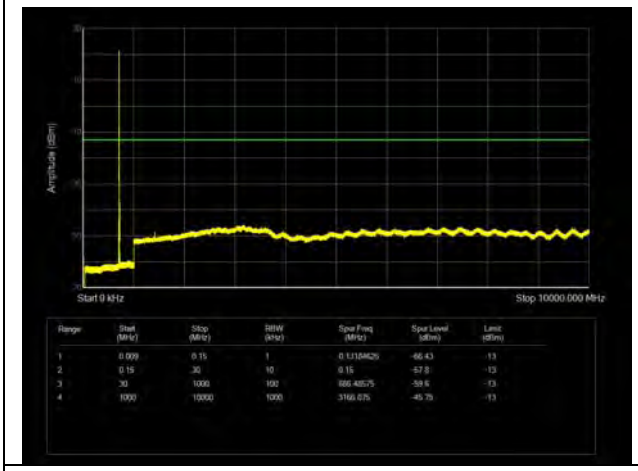
LTE Band 17 5MHz CH-Low 9kHz~10GHz



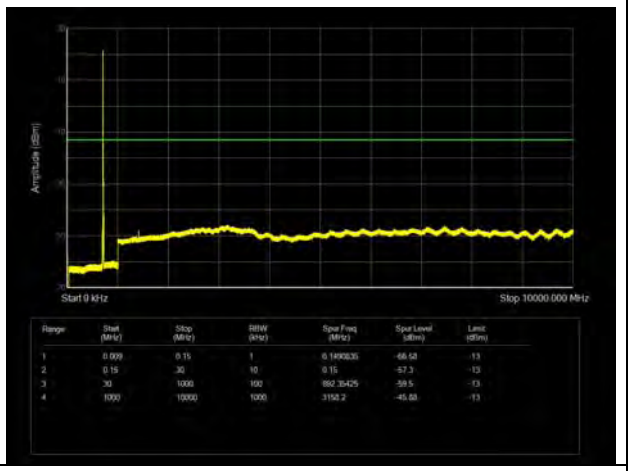
LTE Band 17 10MHz CH- Low 9kHz~10GHz



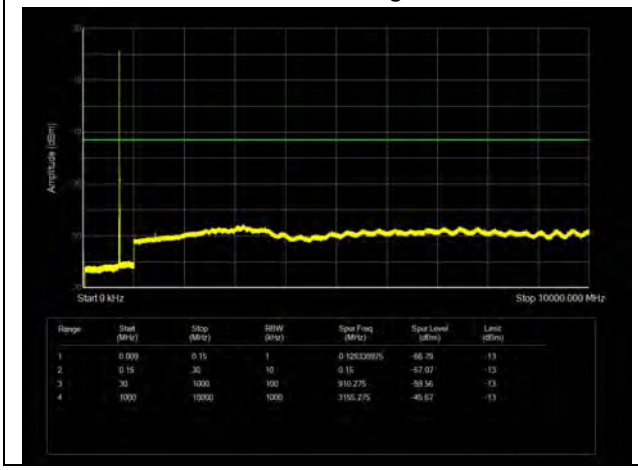
LTE Band 17 5MHz CH- Middle 9kHz~10GHz



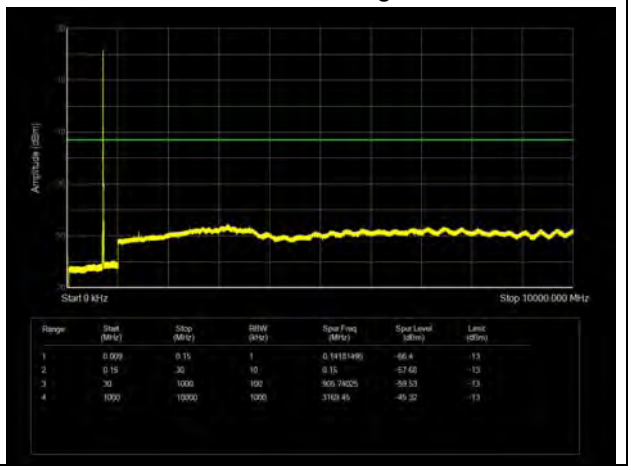
LTE Band 17 10MHz CH- Middle 9kHz~10GHz



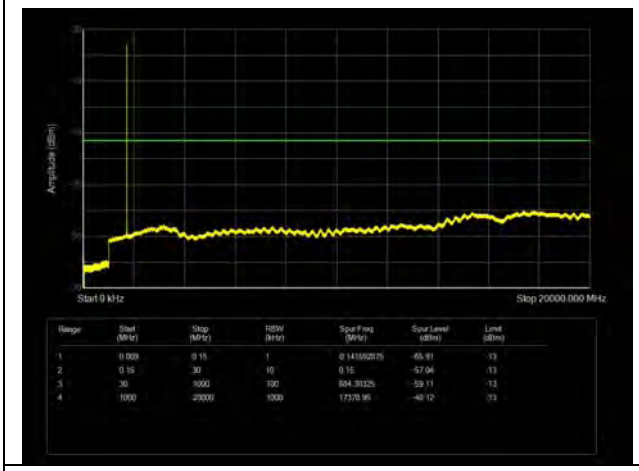
LTE Band 17 5MHz CH- High 9kHz~10GHz



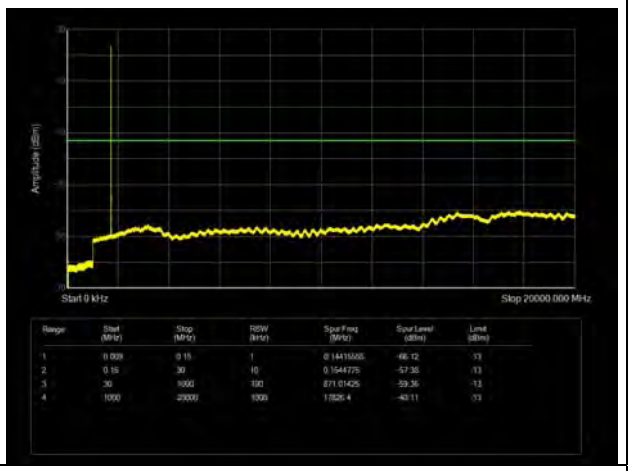
LTE Band 17 10MHz CH-High 9kHz~10GHz



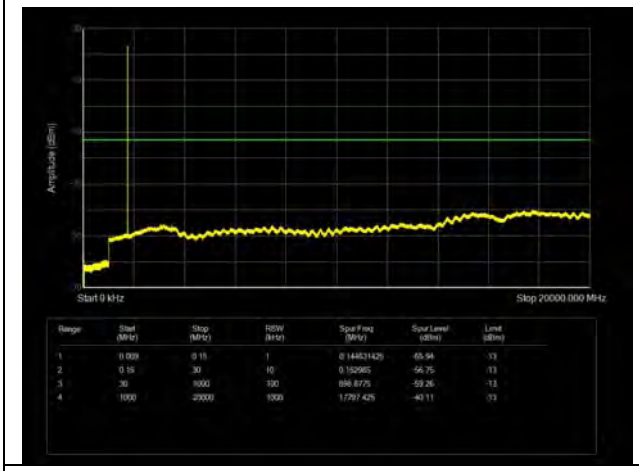
LTE Band 66 1.4MHz CH- Low 9kHz~20GHz



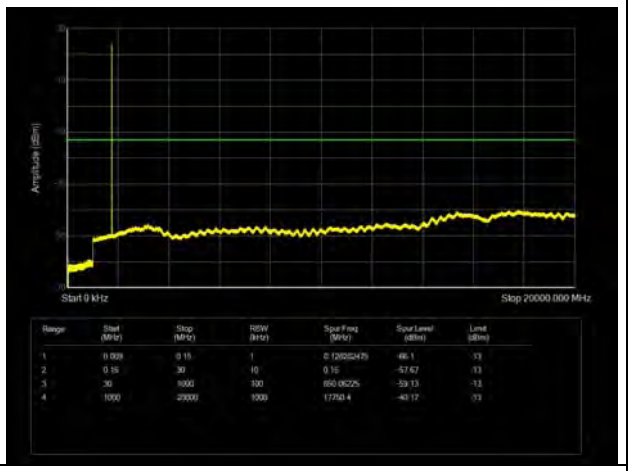
LTE Band 66 3MHz CH-Low 9kHz~20GHz



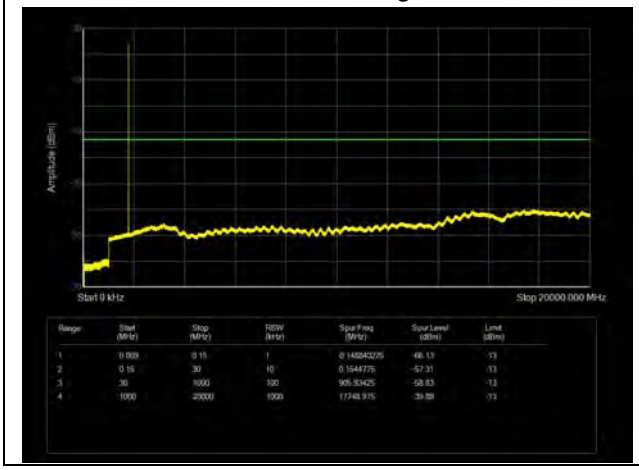
LTE Band 66 1.4MHz CH- Middle 9kHz~20GHz



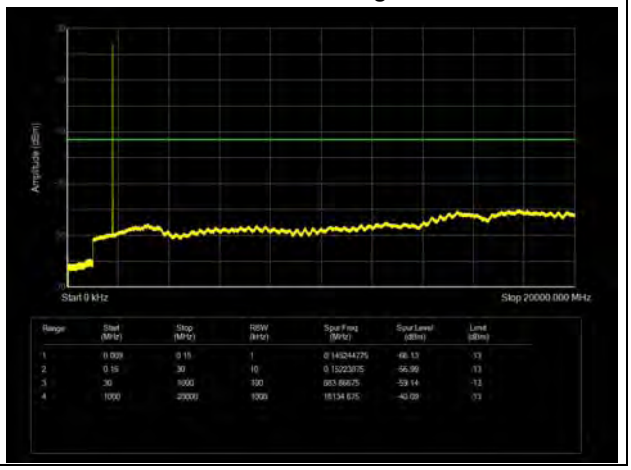
LTE Band 66 3MHz CH- Middle 9kHz~20GHz



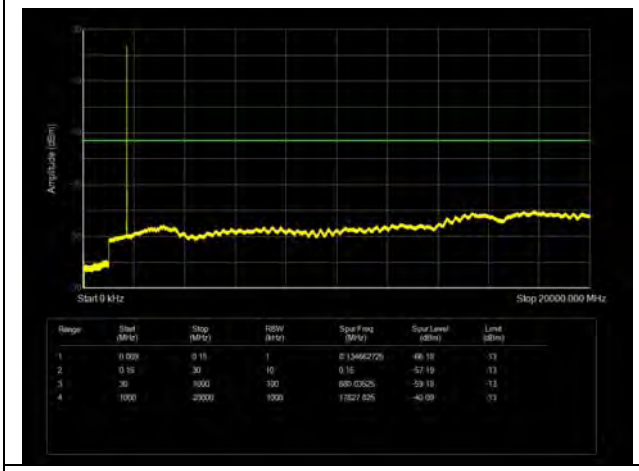
LTE Band 66 1.4MHz CH-High 9kHz~20GHz



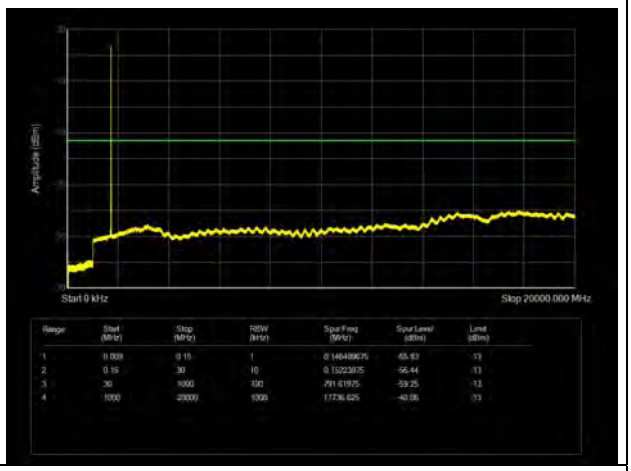
LTE Band 66 3MHz CH- High 9kHz~20GHz



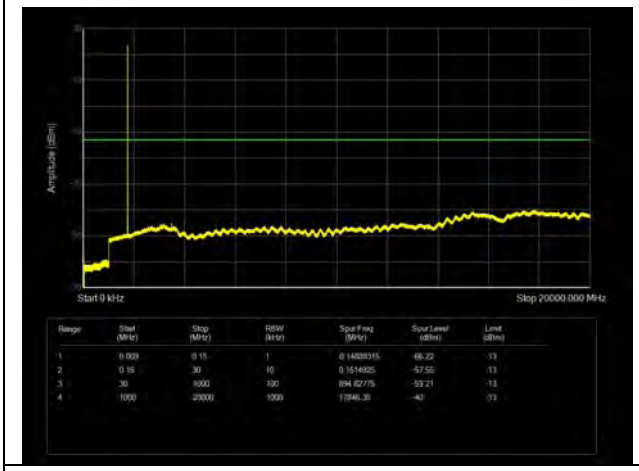
LTE Band 66 5MHz CH- Low 9kHz~20GHz



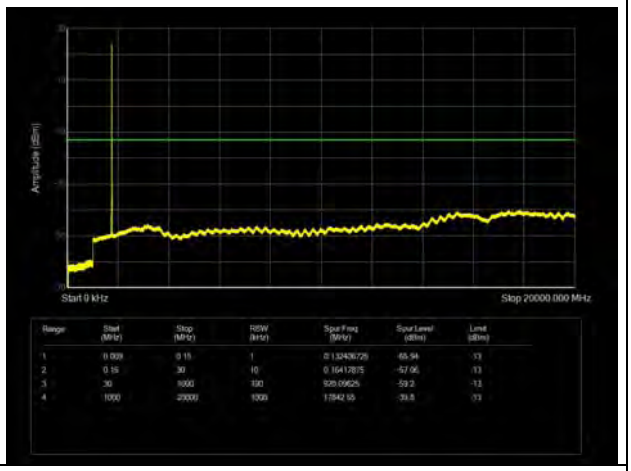
LTE Band 66 10MHz CH-Low 9kHz~20GHz



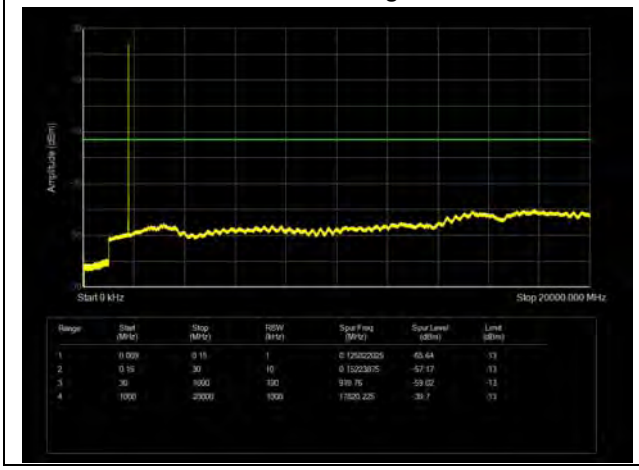
LTE Band 66 5MHz CH- Middle 9kHz~20GHz



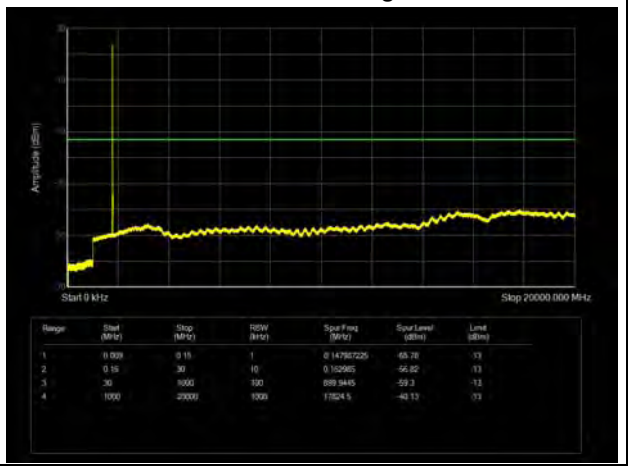
LTE Band 66 10MHz CH- Middle 9kHz~20GHz



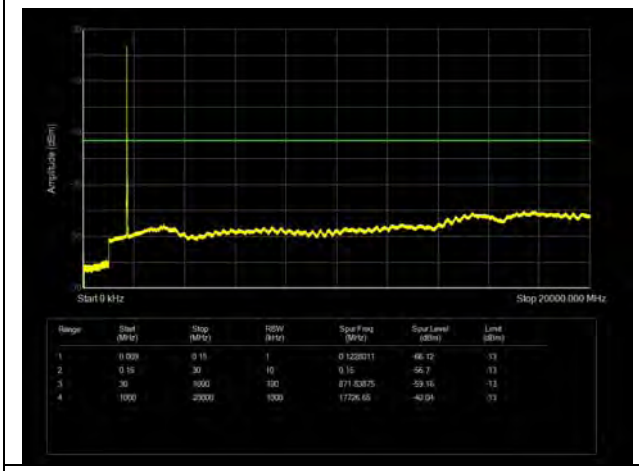
LTE Band 66 5MHz CH-High 9kHz~20GHz



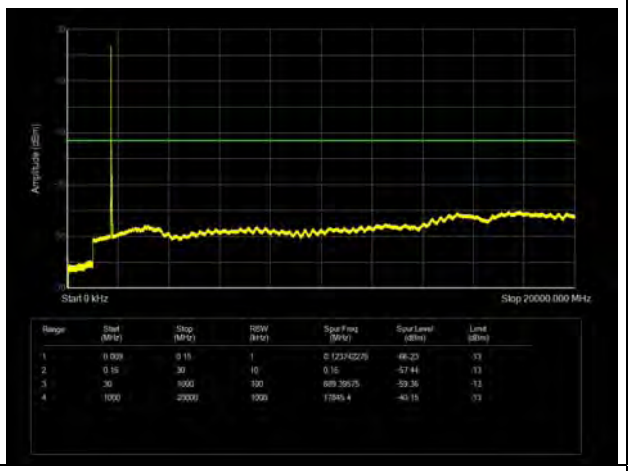
LTE Band 66 10MHz CH- High 9kHz~20GHz



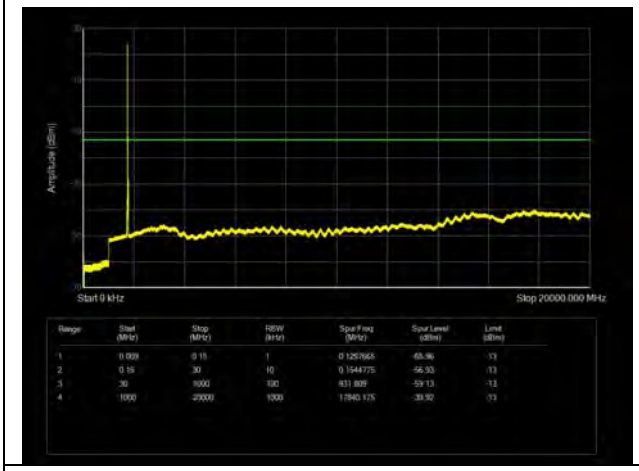
LTE Band 66 15MHz CH- Low 9kHz~20GHz



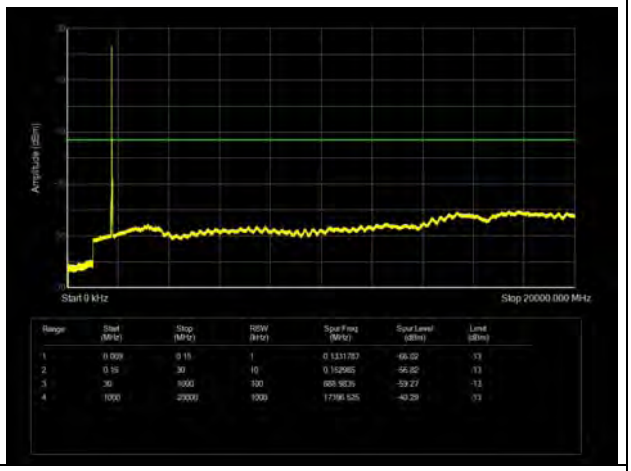
LTE Band 66 20MHz CH-Low 9kHz~20GHz



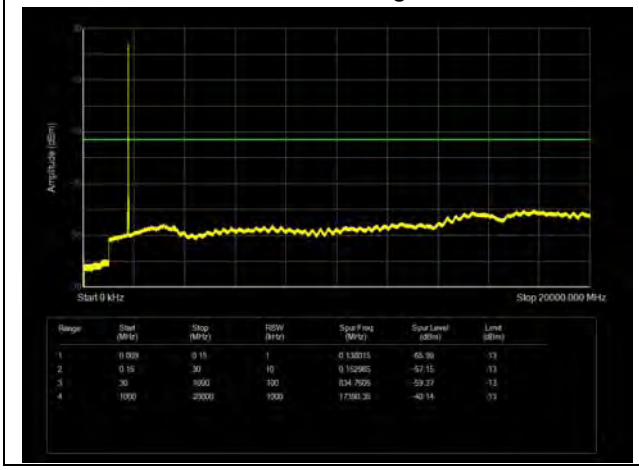
LTE Band 66 15MHz CH- Middle 9kHz~20GHz



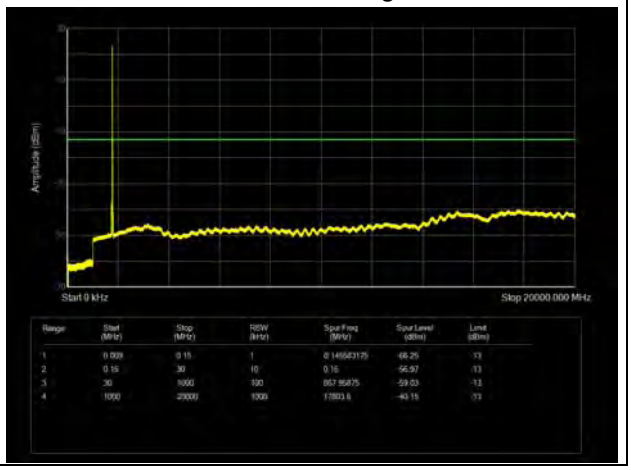
LTE Band 66 20MHz CH- Middle 9kHz~20GHz



LTE Band 66 15MHz CH-High 9kHz~20GHz



LTE Band 66 20MHz CH- High 9kHz~20GHz



5.7 Radiates Spurious Emission

Ambient condition

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

Method of Measurement

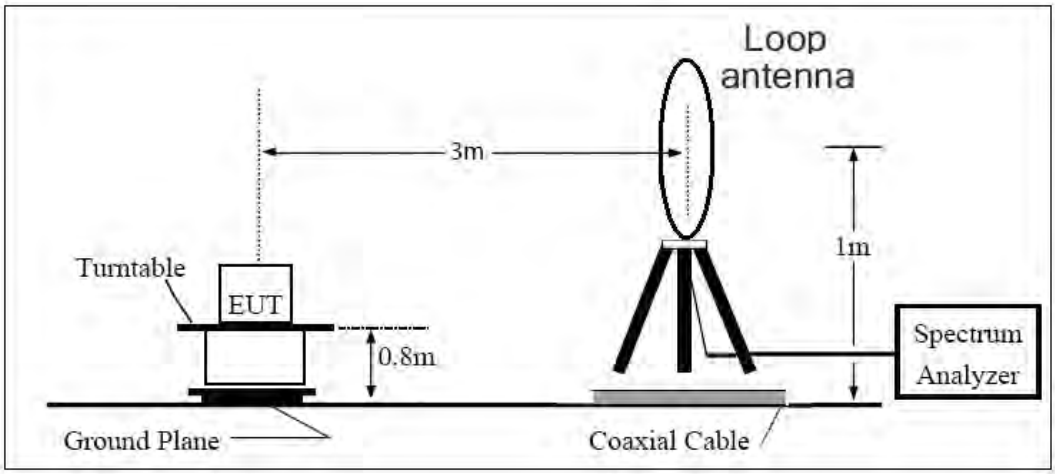
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable 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).
3. 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.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz-150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz ,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).
5. 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.
6. 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.
7. 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
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP

= EIRP-2.15dBi.

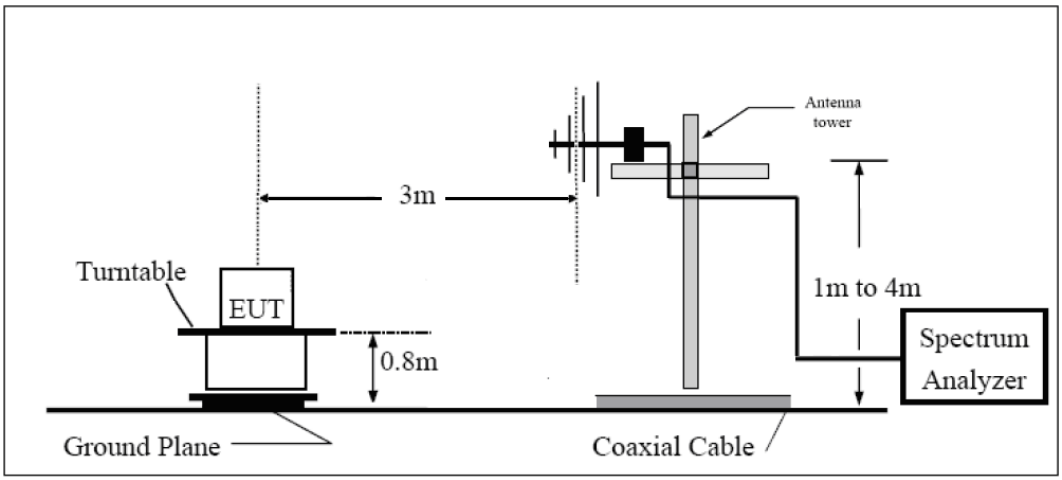
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

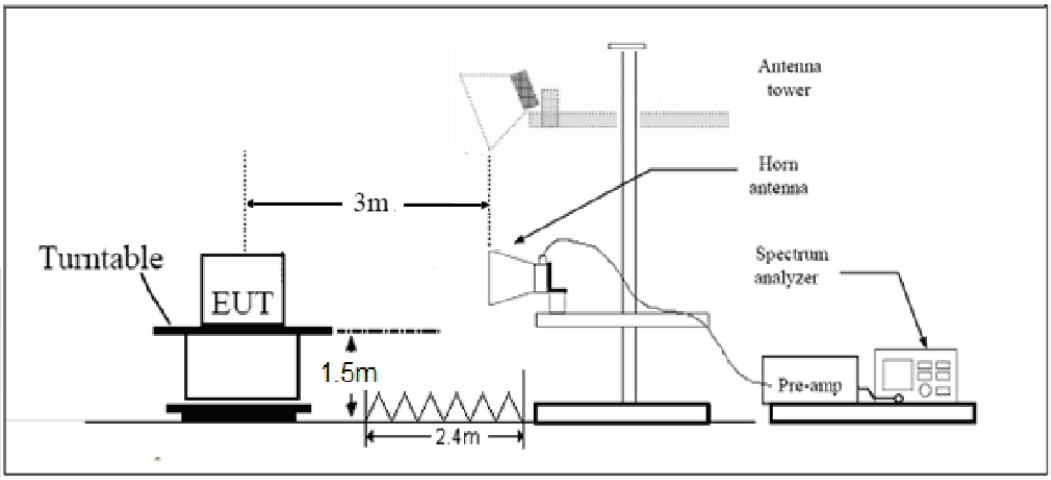
9KHz ~ 30MHz



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 log10 (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.

Part 27.53 (h)/(g) Limit	-13 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= ±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.

Main Antenna:

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

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-67.73	1.70	8.70	Horizontal	-60.73	-13.00	47.73	0
3	2122.50	-64.96	2.10	11.10	Horizontal	-55.96	-13.00	42.96	45
4	2830.00	-64.95	2.30	13.10	Horizontal	-54.15	-13.00	41.15	315
5	3537.50	-64.78	2.60	12.70	Horizontal	-54.68	-13.00	41.68	-54.68
6	4245.00	-64.35	3.30	12.50	Horizontal	-55.15	-13.00	42.15	-55.15
7	4952.50	-61.76	3.40	12.50	Horizontal	-52.66	-13.00	39.66	-52.66
8	5660.00	-61.72	3.30	12.50	Horizontal	-52.52	-13.00	39.52	-52.52
9	6367.50	-61.45	3.80	11.50	Horizontal	-53.75	-13.00	40.75	-53.75
10	7075.00	-59.74	4.20	11.80	Horizontal	-52.14	-13.00	39.14	-52.14
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 12 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1410.60	-66.67	1.70	8.70	Horizontal	-59.67	-13.00	46.67	180
3	2115.90	-65.62	2.10	11.10	Horizontal	-56.62	-13.00	43.62	270
4	2821.20	-65.78	2.30	13.10	Horizontal	-54.98	-13.00	41.98	315
5	3537.50	-66.60	2.60	12.70	Horizontal	-56.50	-13.00	43.50	0
6	4245.00	-64.42	3.30	12.50	Horizontal	-55.22	-13.00	42.22	315
7	4952.50	-61.96	3.40	12.50	Horizontal	-52.86	-13.00	39.86	45
8	5660.00	-61.97	3.30	12.50	Horizontal	-52.77	-13.00	39.77	180
9	6367.50	-60.86	3.80	11.50	Horizontal	-53.16	-13.00	40.16	315
10	7075.00	-58.89	4.20	11.80	Horizontal	-51.29	-13.00	38.29	45
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 12 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1406.40	-67.20	1.70	8.70	Horizontal	-60.20	-13.00	47.20	45
3	2109.60	-66.09	2.10	11.10	Horizontal	-57.09	-13.00	44.09	180
4	2812.80	-66.59	2.30	13.10	Horizontal	-55.79	-13.00	42.79	270
5	3537.50	-66.71	2.60	12.70	Horizontal	-56.61	-13.00	43.61	225
6	4245.00	-64.17	3.30	12.50	Horizontal	-54.97	-13.00	41.97	90
7	4952.50	-61.84	3.40	12.50	Horizontal	-52.74	-13.00	39.74	45
8	5660.00	-61.36	3.30	12.50	Horizontal	-52.16	-13.00	39.16	315
9	6367.50	-59.68	3.80	11.50	Horizontal	-51.98	-13.00	38.98	45
10	7075.00	-60.20	4.20	11.80	Horizontal	-52.60	-13.00	39.60	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 17 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1420.00	-66.17	1.70	8.70	Horizontal	-59.17	-13.00	46.17	0
3	2130.00	-63.51	2.10	11.10	Horizontal	-54.51	-13.00	41.51	45
4	2840.00	-64.97	2.50	13.10	Horizontal	-54.37	-13.00	41.37	315
5	3550.00	-65.15	2.60	12.70	Horizontal	-55.05	-13.00	42.05	225
6	4260.00	-64.44	3.30	12.50	Horizontal	-55.24	-13.00	42.24	315
7	4970.00	-62.02	3.40	12.50	Horizontal	-52.92	-13.00	39.92	45
8	5680.00	-62.55	3.40	12.80	Horizontal	-53.15	-13.00	40.15	0
9	6390.00	-59.88	4.10	11.50	Horizontal	-52.48	-13.00	39.48	225
10	7100.00	-58.99	4.20	12.20	Horizontal	-50.99	-13.00	37.99	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 17 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1420.00	-64.10	1.70	8.70	Horizontal	-57.10	-13.00	44.10	45
3	2130.00	-64.85	2.10	11.10	Horizontal	-55.85	-13.00	42.85	315
4	2840.00	-64.76	2.50	13.10	Horizontal	-54.16	-13.00	41.16	0
5	3550.00	-66.51	2.60	12.70	Horizontal	-56.41	-13.00	43.41	270
6	4260.00	-63.99	3.30	12.50	Horizontal	-54.79	-13.00	41.79	180
7	4970.00	-60.10	3.40	12.50	Horizontal	-51.00	-13.00	38.00	0
8	5680.00	-61.82	3.40	12.80	Horizontal	-52.42	-13.00	39.42	225
9	6390.00	-60.10	4.10	11.50	Horizontal	-52.70	-13.00	39.70	45
10	7100.00	-58.10	4.20	12.20	Horizontal	-50.10	-13.00	37.10	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 66 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	3460.50	-67.72	2.70	12.70	Horizontal	-57.72	-13.00	44.72	225
3	5191.50	-60.78	3.20	12.50	Horizontal	-51.48	-13.00	38.48	0
4	6930.00	-60.41	4.20	11.80	Horizontal	-52.81	-13.00	39.81	180
5	8662.50	-56.27	4.40	12.50	Horizontal	-48.17	-13.00	35.17	45
6	10395.00	-49.51	4.70	11.80	Horizontal	-42.41	-13.00	29.41	315
7	12127.50	-53.03	5.20	13.80	Horizontal	-44.43	-13.00	31.43	270
8	13860.00	-51.96	5.70	13.20	Horizontal	-44.46	-13.00	31.46	45
9	15592.50	-51.75	6.10	16.80	Horizontal	-41.05	-13.00	28.05	315
10	17325.00	-49.03	6.10	14.20	Horizontal	-40.93	-13.00	27.93	225
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 66 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	3460.50	-67.49	2.70	12.70	Horizontal	-57.49	-13.00	44.49	0
3	5191.50	-61.26	3.20	12.50	Horizontal	-51.96	-13.00	38.96	180
4	6930.00	-60.11	4.20	11.80	Horizontal	-52.51	-13.00	39.51	270
5	8662.50	-54.99	4.40	12.50	Horizontal	-46.89	-13.00	33.89	45
6	10395.00	-48.30	4.70	11.80	Horizontal	-41.20	-13.00	28.20	0
7	12127.50	-52.93	5.20	13.80	Horizontal	-44.33	-13.00	31.33	180
8	13860.00	-51.00	5.70	13.20	Horizontal	-43.50	-13.00	30.50	270
9	15592.50	-52.87	6.10	16.80	Horizontal	-42.17	-13.00	29.17	315
10	17325.00	-48.37	6.10	14.20	Horizontal	-40.27	-13.00	27.27	225
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 66 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	3447.00	-67.26	2.70	12.70	Horizontal	-57.26	-13.00	44.26	45
3	5170.50	-61.36	3.20	12.50	Horizontal	-52.06	-13.00	39.06	45
4	6930.00	-60.38	4.20	11.80	Horizontal	-52.78	-13.00	39.78	0
5	8662.50	-56.39	4.40	12.50	Horizontal	-48.29	-13.00	35.29	180
6	10395.00	-51.55	4.70	11.80	Horizontal	-44.45	-13.00	31.45	315
7	12127.50	-54.22	5.20	13.80	Horizontal	-45.62	-13.00	32.62	225
8	13860.00	-52.02	5.70	13.20	Horizontal	-44.52	-13.00	31.52	90
9	15592.50	-53.02	6.10	16.80	Horizontal	-42.32	-13.00	29.32	45
10	17325.00	-48.83	6.10	14.20	Horizontal	-40.73	-13.00	27.73	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.									

Second Antenna:

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

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1415.00	-66.54	1.70	8.70	Horizontal	-59.54	-13.00	46.54	90
3	2122.50	-65.08	2.10	11.10	Horizontal	-56.08	-13.00	43.08	225
4	2830.00	-66.11	2.30	13.10	Horizontal	-55.31	-13.00	42.31	45
5	3537.50	-65.43	2.60	12.70	Horizontal	-55.33	-13.00	42.33	0
6	4245.00	-63.91	3.30	12.50	Horizontal	-54.71	-13.00	41.71	90
7	4952.50	-61.20	3.40	12.50	Horizontal	-52.10	-13.00	39.10	45
8	5660.00	-61.53	3.30	12.50	Horizontal	-52.33	-13.00	39.33	180
9	6367.50	-60.34	3.80	11.50	Horizontal	-52.64	-13.00	39.64	315
10	7075.00	-58.40	4.20	11.80	Horizontal	-50.80	-13.00	37.80	45
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 12 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1410.60	-67.95	1.70	8.70	Horizontal	-60.95	-13.00	47.95	90
3	2115.90	-66.00	2.10	11.10	Horizontal	-57.00	-13.00	44.00	45
4	2821.20	-66.49	2.30	13.10	Horizontal	-55.69	-13.00	42.69	135
5	3537.50	-65.97	2.60	12.70	Horizontal	-55.87	-13.00	42.87	90
6	4245.00	-64.12	3.30	12.50	Horizontal	-54.92	-13.00	41.92	45
7	4952.50	-62.05	3.40	12.50	Horizontal	-52.95	-13.00	39.95	45
8	5660.00	-61.22	3.30	12.50	Horizontal	-52.02	-13.00	39.02	315
9	6367.50	-59.10	3.80	11.50	Horizontal	-51.40	-13.00	38.40	180
10	7075.00	-58.42	4.20	11.80	Horizontal	-50.82	-13.00	37.82	45
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 12 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1406.40	-67.57	1.70	8.70	Horizontal	-60.57	-13.00	47.57	315
3	2109.60	-66.94	2.10	11.10	Horizontal	-57.94	-13.00	44.94	45
4	2812.80	-65.09	2.30	13.10	Horizontal	-54.29	-13.00	41.29	90
5	3537.50	-63.76	2.60	12.70	Horizontal	-53.66	-13.00	40.66	270
6	4245.00	-64.04	3.30	12.50	Horizontal	-54.84	-13.00	41.84	45
7	4952.50	-61.79	3.40	12.50	Horizontal	-52.69	-13.00	39.69	180
8	5660.00	-61.41	3.30	12.50	Horizontal	-52.21	-13.00	39.21	45
9	6367.50	-59.97	3.80	11.50	Horizontal	-52.27	-13.00	39.27	315
10	7075.00	-59.72	4.20	11.80	Horizontal	-52.12	-13.00	39.12	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 17 QPSK 5MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1420.00	-68.25	1.70	8.70	Horizontal	-61.25	-13.00	48.25	90
3	2130.00	-66.09	2.10	11.10	Horizontal	-57.09	-13.00	44.09	45
4	2840.00	-66.85	2.50	13.10	Horizontal	-56.25	-13.00	43.25	135
5	3550.00	-65.93	2.60	12.70	Horizontal	-55.83	-13.00	42.83	90
6	4260.00	-63.54	3.30	12.50	Horizontal	-54.34	-13.00	41.34	90
7	4970.00	-61.40	3.40	12.50	Horizontal	-52.30	-13.00	39.30	315
8	5680.00	-61.70	3.40	12.80	Horizontal	-52.30	-13.00	39.30	225
9	6390.00	-59.91	4.10	11.50	Horizontal	-52.51	-13.00	39.51	180
10	7100.00	-58.77	4.20	12.20	Horizontal	-50.77	-13.00	37.77	45
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 17 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1420.00	-67.29	1.70	8.70	Horizontal	-60.29	-13.00	47.29	315
3	2130.00	-66.12	2.10	11.10	Horizontal	-57.12	-13.00	44.12	45
4	2840.00	-65.85	2.50	13.10	Horizontal	-55.25	-13.00	42.25	90
5	3550.00	-66.33	2.60	12.70	Horizontal	-56.23	-13.00	43.23	90
6	4260.00	-64.19	3.30	12.50	Horizontal	-54.99	-13.00	41.99	0
7	4970.00	-62.46	3.40	12.50	Horizontal	-53.36	-13.00	40.36	315
8	5680.00	-61.97	3.40	12.80	Horizontal	-52.57	-13.00	39.57	315
9	6390.00	-60.23	4.10	11.50	Horizontal	-52.83	-13.00	39.83	180
10	7100.00	-58.93	4.20	12.20	Horizontal	-50.93	-13.00	37.93	45
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 66 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	3460.50	-64.29	2.70	12.70	Horizontal	-54.29	-13.00	41.29	90
3	5191.50	-60.27	3.20	12.50	Horizontal	-50.97	-13.00	37.97	90
4	6930.00	-59.98	4.20	11.80	Horizontal	-52.38	-13.00	39.38	225
5	8662.50	-56.36	4.40	12.50	Horizontal	-48.26	-13.00	35.26	45
6	10395.00	-50.01	4.70	11.80	Horizontal	-42.91	-13.00	29.91	270
7	12127.50	-52.89	5.20	13.80	Horizontal	-44.29	-13.00	31.29	270
8	13860.00	-50.97	5.70	13.20	Horizontal	-43.47	-13.00	30.47	315
9	15592.50	-51.67	6.10	16.80	Horizontal	-40.97	-13.00	27.97	45
10	17325.00	-47.74	6.10	14.20	Horizontal	-39.64	-13.00	26.64	180
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 66 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	3460.50	-66.85	2.70	12.70	Horizontal	-56.85	-13.00	43.85	45
3	5191.50	-61.03	3.20	12.50	Horizontal	-51.73	-13.00	38.73	180
4	6930.00	-59.81	4.20	11.80	Horizontal	-52.21	-13.00	39.21	0
5	8662.50	-55.33	4.40	12.50	Horizontal	-47.23	-13.00	34.23	45
6	10395.00	-52.16	4.70	11.80	Horizontal	-45.06	-13.00	32.06	270
7	12127.50	-53.56	5.20	13.80	Horizontal	-44.96	-13.00	31.96	180
8	13860.00	-52.19	5.70	13.20	Horizontal	-44.69	-13.00	31.69	0
9	15592.50	-52.15	6.10	16.80	Horizontal	-41.45	-13.00	28.45	225
10	17325.00	-49.20	6.10	14.20	Horizontal	-41.10	-13.00	28.10	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 66 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	3447.00	-65.54	2.70	12.70	Horizontal	-55.54	-13.00	42.54	45
3	5170.50	-60.47	3.20	12.50	Horizontal	-51.17	-13.00	38.17	90
4	6930.00	-59.22	4.20	11.80	Horizontal	-51.62	-13.00	38.62	225
5	8662.50	-54.50	4.40	12.50	Horizontal	-46.40	-13.00	33.40	45
6	10395.00	-51.85	4.70	11.80	Horizontal	-44.75	-13.00	31.75	270
7	12127.50	-52.72	5.20	13.80	Horizontal	-44.12	-13.00	31.12	180
8	13860.00	-51.59	5.70	13.20	Horizontal	-44.09	-13.00	31.09	0
9	15592.50	-52.62	6.10	16.80	Horizontal	-41.92	-13.00	28.92	315
10	17325.00	-48.06	6.10	14.20	Horizontal	-39.96	-13.00	26.96	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

6 Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Signal Analyzer	R&S	FSV30	100815	2020-12-13	2021-12-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2020-12-13	2021-12-12
Preampflier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-12-10	2021-06-11
Software	R&S	EMC32	9.26.0	/	/

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

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.