REPORT No.: SZ23080316W05

TEST REPORT

APPLICANT	:	Reliance Communications LLC
PRODUCT NAME	:	Orbic Style 5G
MODEL NAME	:	R678L5S
BRAND NAME	:	Orbic
FCC ID	:	2ABGH-R678L5S
STANDARD(S)	:	47 CFR Part 2 47 CFR Part 96
RECEIPT DATE	:	2023-11-28
TEST DATE	:	2024-01-02 to 2024-03-06
ISSUE DATE	:	2024-04-11

Edited by: Peng Mi (Rapporteur)

Approved by: Shen Junsheng (Supervisor)

MORLAB

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DIRECTORY

Change History		
Version	**Date**	**Reason for change**
1.0	2024-04-11	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Reliance Communications LLC
Applicant Address:	555 Wireless Blvd. Hauppauge, NY 11788, USA
Manufacturer:	Unimaxcomm
Manufacturer Address:	35F,HBC HuiLong Center Building-II Minzhi Street,Longhua, Shenzhen, P.R. China 518110

1.2. Equipment Under Test (EUT) Description

Product Name:	Orbic Style 5G	
Sample No.:	3#	
Hardware Version:	V1.0	
Software Version:	R678L5S_V1.0.24_BVZ	
Modulation Type:	QPSK, 16QAM, 64QAM	
Operation Band:	Band 48	
Carrier Aggregation(UL):	CA_5B, CA_48C, CA_66B, CA_66C, CA_2A-4A, CA_2A-5A, CA_2A-13A, CA_2A-66A, CA_4A-5A, CA_4A-13A, CA_5A-66A, CA_13A-66A	
Frequency Range:	LTE Band 48	Tx: 3550MHz–3700MHz
		Rx: 3550MHz–3700MHz
Channel Bandwidth	LTE Band 48	5MHz, 10MHz, 15MHz, 20MHz
Antenna Type:	PIFA Antenna	
Antenna Gain:	LTE Band 48	ANT 6: -0.40dB
Accessory Information:	Battery	
	Brand Name:	Orbic
	Model No.:	BTE-5004
	Serial No.:	N/A
	Capacity:	4870mAh
	Rated Voltage:	3.87V
	Charge Limit:	4.45V
	Manufacturer:	Shenzhen Aerospace Electronic Co.,Ltd.

Accessory Information:	AC Adapter	
	Brand Name:	Orbic
	Model No.:	OACH023US1
	Serial No.:	N/A
	Rated Output:	5V⎓3A; 9V⎓2A; 12V⎓1.5A
	Rated Input:	100-240V~50/60Hz, 0.5A
	Manufacturer 1:	WATAI ELECTRONICS PRIVATE LIMITED
	Manufacturer 2:	KANGYIN ELECTRONIC TECHNOLOGY CO.,LTD
	USB Cable	
	Model No.:	HX-YLMK-06
	Manufacturer:	HUIZHOU WASHIN ELECTRONICS CO.,LTD

Note 1: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Maximum E.R.P./E.I.R.P. and Emission Designator

LTE Band 48	Maximum E.R.P./E.I.R.P. (W)			Emission Designator (99%OBW)		
BW(MHz)	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
20	0.191	0.155	0.120	18M0G7D	18M0W7D	18M0W7D
15	0.190	0.152	0.119	13M5G7D	13M5W7D	13M5W7D
10	0.189	0.155	0.117	9M04G7D	9M02W7D	9M01W7D
5	0.188	0.150	0.120	4M53G7D	4M52W7D	4M52W7D

1.4. Test Standards and Results

The objective of the report is to perform testing according to Part 2 and Part 96 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 96	CITIZENS BROADBAND RADIO SERVICE

Test detailed items/section required by FCC rules and results are as below:

Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
2.1046, 96.41(b)	Transmitter Conducted Output Power and ERP/EIRP	Jan. 02, 2024	Shen Biaohong Gan Jing	PASS	No deviation
2.1049	Occupied Bandwidth	Jan. 02, 2024	Gan Jing	PASS	No deviation
96.41(g)	Peak -Average Ratio	Jan. 02, 2024	Gan Jing	PASS	No deviation
2.1055	Frequency Stability	Mar. 05, 2024	Gan Jing	PASS	No deviation
2.1051, 96.41(e)	Conducted Spurious Emissions	Jan. 02, 2024	Gan Jing	PASS	No deviation
2.1051, 96.41(e)	Band Edge	Jan. 02, 2024	Gan Jing	PASS	No deviation
2.1051, 96.41(e)	Radiated Spurious Emissions	Jan. 19 to 22, 2024	Gao Jianrou	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 and ANSI/TIA-603-E-2016.

Note 2: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipment. The ref offset 24.5dB contains two parts that cable loss 14.5dB and Attenuator 10dB.

Note 3: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 4: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

1.5. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106

2. 47 CFR Part 2, Part 96 Requirements

2.1. Transmitter Conducted Output Power and E.R.P./E.I.R.P.

2.1.1. Requirement

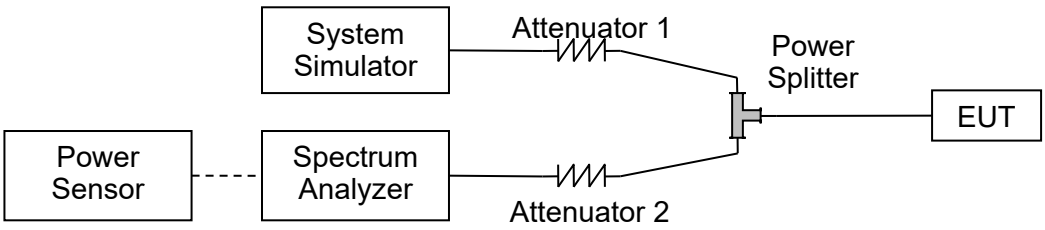
According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

The maximum effective isotropic radiated power (EIRP) and maximum Power Spectral Density (PSD) of any CBSD and End User Device must comply with the limits shown in the table as below paragraph.

Device	Maximum EIRP (dBm/10 megahertz)	Maximum PSD (dBm/MHz)
End User Device	23	n/a
Category A CBSD	30	20
Category B CBSD[1]	47	37

Additional requirement, the maximum effective isotropic radiated power (EIRP) limit for 15MHz bandwidth is 24.76dBm, and for 20MHz bandwidth is 26.00dBm.

2.1.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.1.3.Test procedure

KDB 971168 D01v03 Section 5.2 and ANSI/TIA-603-E-2016.

EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)
ERP (dBm) = EIPR (dBm) - 2.15

2.1.4.Result

Conducted Output Power:

LTE Band 48						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				55340	55990	56640
Frequency (MHz)				3560	3625	3690
20	QPSK	1	0	23.11	22.96	23.21
20	QPSK	1	49	23.07	22.80	23.15
20	QPSK	1	99	23.00	22.90	23.02
20	QPSK	50	0	22.08	22.02	22.17
20	QPSK	50	24	22.06	21.77	22.17
20	QPSK	50	50	21.98	21.87	22.14
20	QPSK	100	0	22.06	21.91	22.26
20	16QAM	1	0	22.29	22.17	22.31
20	16QAM	1	49	22.28	22.12	22.30
20	16QAM	1	99	22.21	22.09	22.27
20	16QAM	50	0	20.96	21.04	21.15
20	16QAM	50	24	20.98	20.94	21.11
20	16QAM	50	50	20.92	20.78	21.07
20	16QAM	100	0	21.05	20.77	21.09
20	64QAM	1	0	20.99	20.86	21.18
20	64QAM	1	49	21.04	20.88	21.08
20	64QAM	1	99	21.07	20.85	21.15
20	64QAM	50	0	19.99	19.88	20.05
20	64QAM	50	24	19.99	19.79	20.01
20	64QAM	50	50	19.90	19.80	20.03
20	64QAM	100	0	19.79	19.83	20.00

LTE Band 48						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				55315	55990	56665
Frequency (MHz)				3557.5	3625	3692.5
15	QPSK	1	0	23.01	22.81	23.18
15	QPSK	1	37	23.02	22.75	23.15
15	QPSK	1	74	22.90	22.76	23.02
15	QPSK	36	0	22.11	22.07	22.14
15	QPSK	36	20	22.05	21.87	22.13
15	QPSK	36	39	21.91	21.80	22.07
15	QPSK	75	0	22.02	21.93	22.17
15	16QAM	1	0	22.15	22.05	22.22
15	16QAM	1	37	22.09	22.04	22.16
15	16QAM	1	74	22.10	22.05	22.09
15	16QAM	36	0	21.06	20.80	21.16
15	16QAM	36	20	20.96	20.94	21.19
15	16QAM	36	39	20.81	20.81	20.97
15	16QAM	75	0	21.03	20.80	21.05
15	64QAM	1	0	20.95	21.10	21.17
15	64QAM	1	37	21.04	20.84	21.16
15	64QAM	1	74	21.08	20.79	21.14
15	64QAM	36	0	19.93	19.86	20.00
15	64QAM	36	20	19.89	19.95	20.03
15	64QAM	36	39	19.95	19.68	19.90
15	64QAM	75	0	19.88	19.81	19.92

LTE Band 48						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				55290	55990	56690
Frequency (MHz)				3555	3625	3695
10	QPSK		0	22.97	23.00	23.17
10	QPSK	1	25	22.92	22.74	23.05
10	QPSK	1	49	22.89	22.79	23.02
10	QPSK	25	0	22.05	21.95	22.12
10	QPSK	25	12	22.03	21.82	22.11
10	QPSK	25	25	21.93	21.79	22.01
10	QPSK	50	0	21.91	21.87	22.09
10	16QAM	1	0	22.21	22.17	22.29
10	16QAM	1	25	22.14	22.16	22.25
10	16QAM	1	49	22.10	22.11	22.17
10	16QAM	25	0	21.04	20.83	21.11
10	16QAM	25	12	21.03	20.73	21.12
10	16QAM	25	25	20.82	20.79	21.01
10	16QAM	50	0	21.03	20.76	21.05
10	64QAM		0	21.10	21.01	21.08
10	64QAM	1	25	21.09	20.91	21.06
10	64QAM	1	49	21.03	20.82	21.02
10	64QAM	25	0	20.02	19.89	20.06
10	64QAM	25	12	19.89	19.91	19.93
10	64QAM	25	25	19.74	19.85	20.07
10	64QAM	50	0	19.78	19.91	19.84

LTE Band 48						
BW [MHz]	Modulation	RB Size	RB Offset	Average Power Low Ch. / Freq.	Average Power Middle Ch. / Freq.	Average Power High Ch. / Freq.
Channel				55265	55990	56175
Frequency (MHz)				3552.5	3625	3697.5
5	QPSK	1	0	23.05	23.02	23.15
5	QPSK	1	12	23.04	22.75	23.13
5	QPSK	1	24	23.00	22.77	23.09
5	QPSK	12	0	22.05	21.92	22.12
5	QPSK	12	7	22.01	21.94	22.11
5	QPSK	12	13	21.85	21.79	22.08
5	QPSK	25	0	22.04	21.80	22.06
5	16QAM	1	0	22.16	22.08	22.17
5	16QAM	1	12	22.14	22.08	22.09
5	16QAM	1	24	22.05	22.01	22.12
5	16QAM	12	0	21.04	20.94	21.06
5	16QAM	12	7	20.92	20.73	21.05
5	16QAM	12	13	20.96	20.71	21.02
5	16QAM	25	0	20.91	20.83	21.01
5	64QAM	1	0	21.09	21.01	21.19
5	64QAM	1	12	21.04	20.96	21.14
5	64QAM	1	24	20.96	20.95	21.13
5	64QAM	12	0	19.93	19.79	20.14
5	64QAM	12	7	19.87	19.91	20.05
5	64QAM	12	13	19.82	19.80	19.99
5	64QAM	25	0	19.98	19.80	20.09

Effective Radiated Power and Effective Isotropic Radiated Power:

LTE Band 48				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				55340		55990		56640	
Frequency (MHz)				3560		3625		3690	
				dBm	W	dBm	W	dBm	W
20	QPSK	1	0	22.71	0.187	22.56	0.180	22.81	0.191
20	QPSK	1	49	22.67	0.185	22.40	0.174	22.75	0.188
20	QPSK	1	99	22.60	0.182	22.50	0.178	22.62	0.183
20	QPSK	50	0	21.68	0.147	21.62	0.145	21.77	0.150
20	QPSK	50	24	21.66	0.147	21.37	0.137	21.77	0.150
20	QPSK	50	50	21.58	0.144	21.47	0.140	21.74	0.149
20	QPSK	100	0	21.66	0.147	21.51	0.142	21.86	0.153
20	16QAM	1	0	21.89	0.155	21.77	0.150	21.91	0.155
20	16QAM	1	49	21.88	0.154	21.72	0.149	21.90	0.155
20	16QAM	1	99	21.81	0.152	21.69	0.148	21.87	0.154
20	16QAM	50	0	20.56	0.114	20.64	0.116	20.75	0.119
20	16QAM	50	24	20.58	0.114	20.54	0.113	20.71	0.118
20	16QAM	50	50	20.52	0.113	20.38	0.109	20.67	0.117
20	16QAM	100	0	20.65	0.116	20.37	0.109	20.69	0.117
20	64QAM	1	0	20.59	0.115	20.46	0.111	20.78	0.120
20	64QAM	1	49	20.64	0.116	20.48	0.112	20.68	0.117
20	64QAM	1	99	20.67	0.117	20.45	0.111	20.75	0.119
20	64QAM	50	0	19.59	0.091	19.48	0.089	19.65	0.092
20	64QAM	50	24	19.59	0.091	19.39	0.087	19.61	0.091
20	64QAM	50	50	19.50	0.089	19.40	0.087	19.63	0.092
20	64QAM	100	0	19.39	0.087	19.43	0.088	19.60	0.091

LTE Band 48				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				55315		55990		56665	
Frequency (MHz)				3557.5		3625		3692.5	
				dBm	W	dBm	W	dBm	W
15	QPSK	1	0	22.61	0.182	22.41	0.174	22.78	0.190
15	QPSK	1	37	22.62	0.183	22.35	0.172	22.75	0.188
15	QPSK	1	74	22.50	0.178	22.36	0.172	22.62	0.183
15	QPSK	36	0	21.71	0.148	21.67	0.147	21.74	0.149
15	QPSK	36	20	21.65	0.146	21.47	0.140	21.73	0.149
15	QPSK	36	39	21.51	0.142	21.40	0.138	21.67	0.147
15	QPSK	75	0	21.62	0.145	21.53	0.142	21.77	0.150
15	16QAM	1	0	21.75	0.150	21.65	0.146	21.82	0.152
15	16QAM	1	37	21.69	0.148	21.64	0.146	21.76	0.150
15	16QAM	1	74	21.70	0.148	21.65	0.146	21.69	0.148
15	16QAM	36	0	20.66	0.116	20.40	0.110	20.76	0.119
15	16QAM	36	20	20.56	0.114	20.54	0.113	20.79	0.120
15	16QAM	36	39	20.41	0.110	20.41	0.110	20.57	0.114
15	16QAM	75	0	20.63	0.116	20.40	0.110	20.65	0.116
15	64QAM	1	0	20.55	0.114	20.70	0.117	20.77	0.119
15	64QAM	1	37	20.64	0.116	20.44	0.111	20.76	0.119
15	64QAM	1	74	20.68	0.117	20.39	0.109	20.74	0.119
15	64QAM	36	0	19.53	0.090	19.46	0.088	19.60	0.091
15	64QAM	36	20	19.49	0.089	19.55	0.090	19.63	0.092
15	64QAM	36	39	19.55	0.090	19.28	0.085	19.50	0.089
15	64QAM	75	0	19.48	0.089	19.41	0.087	19.52	0.090

LTE Band 48				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				55290		55990		56690	
Frequency (MHz)				3555		3625		3695	
				dBm	W	dBm	W	dBm	W
10	QPSK	1	0	22.57	0.181	22.60	0.182	22.77	0.189
10	QPSK	1	25	22.52	0.179	22.34	0.171	22.65	0.184
10	QPSK	1	49	22.49	0.177	22.39	0.173	22.62	0.183
10	QPSK	25	0	21.65	0.146	21.55	0.143	21.72	0.149
10	QPSK	25	12	21.63	0.146	21.42	0.139	21.71	0.148
10	QPSK	25	25	21.53	0.142	21.39	0.138	21.61	0.145
10	QPSK	50	0	21.51	0.142	21.47	0.140	21.69	0.148
10	16QAM	1	0	21.81	0.152	21.77	0.150	21.89	0.155
10	16QAM	1	25	21.74	0.149	21.76	0.150	21.85	0.153
10	16QAM	1	49	21.70	0.148	21.71	0.148	21.77	0.150
10	16QAM	25	0	20.64	0.116	20.43	0.110	20.71	0.118
10	16QAM	25	12	20.63	0.116	20.33	0.108	20.72	0.118
10	16QAM	25	25	20.42	0.110	20.39	0.109	20.61	0.115
10	16QAM	50	0	20.63	0.116	20.36	0.109	20.65	0.116
10	64QAM	1	0	20.70	0.117	20.61	0.115	20.68	0.117
10	64QAM	1	25	20.69	0.117	20.51	0.112	20.66	0.116
10	64QAM	1	49	20.63	0.116	20.42	0.110	20.62	0.115
10	64QAM	25	0	19.62	0.092	19.49	0.089	19.66	0.092
10	64QAM	25	12	19.49	0.089	19.51	0.089	19.53	0.090
10	64QAM	25	25	19.34	0.086	19.45	0.088	19.67	0.093
10	64QAM	50	0	19.38	0.087	19.51	0.089	19.44	0.088

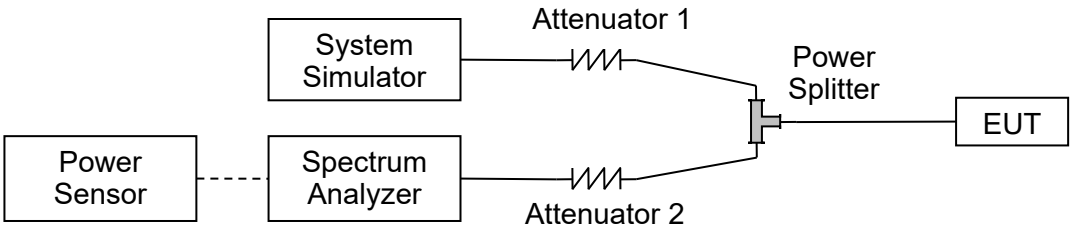
LTE Band 48				Measured E.I.R.P.					
BW [MHz]	Modulation	RB Size	RB Offset	Low Ch. / Freq.		Middle Ch. / Freq.		High Ch. / Freq.	
Channel				55265		55990		56175	
Frequency (MHz)				3552.5		3625		3697.5	
				dBm	W	dBm	W	dBm	W
5	QPSK	1	0	22.65	0.184	22.62	0.183	22.75	0.188
5	QPSK	1	12	22.64	0.184	22.35	0.172	22.73	0.187
5	QPSK	1	24	22.60	0.182	22.37	0.173	22.69	0.186
5	QPSK	12	0	21.65	0.146	21.52	0.142	21.72	0.149
5	QPSK	12	7	21.61	0.145	21.54	0.143	21.71	0.148
5	QPSK	12	13	21.45	0.140	21.39	0.138	21.68	0.147
5	QPSK	25	0	21.64	0.146	21.40	0.138	21.66	0.147
5	16QAM	1	0	21.76	0.150	21.68	0.147	21.77	0.150
5	16QAM	1	12	21.74	0.149	21.68	0.147	21.69	0.148
5	16QAM	1	24	21.65	0.146	21.61	0.145	21.72	0.149
5	16QAM	12	0	20.64	0.116	20.54	0.113	20.66	0.116
5	16QAM	12	7	20.52	0.113	20.33	0.108	20.65	0.116
5	16QAM	12	13	20.56	0.114	20.31	0.107	20.62	0.115
5	16QAM	25	0	20.51	0.112	20.43	0.110	20.61	0.115
5	64QAM	1	0	20.69	0.117	20.61	0.115	20.79	0.120
5	64QAM	1	12	20.64	0.116	20.56	0.114	20.74	0.119
5	64QAM	1	24	20.56	0.114	20.55	0.114	20.73	0.118
5	64QAM	12	0	19.53	0.090	19.39	0.087	19.74	0.094
5	64QAM	12	7	19.47	0.089	19.51	0.089	19.65	0.092
5	64QAM	12	13	19.42	0.087	19.40	0.087	19.59	0.091
5	64QAM	25	0	19.58	0.091	19.40	0.087	19.69	0.093

2.2. Occupied Bandwidth

2.2.1.Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

2.2.2.Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.2.3.Test procedure

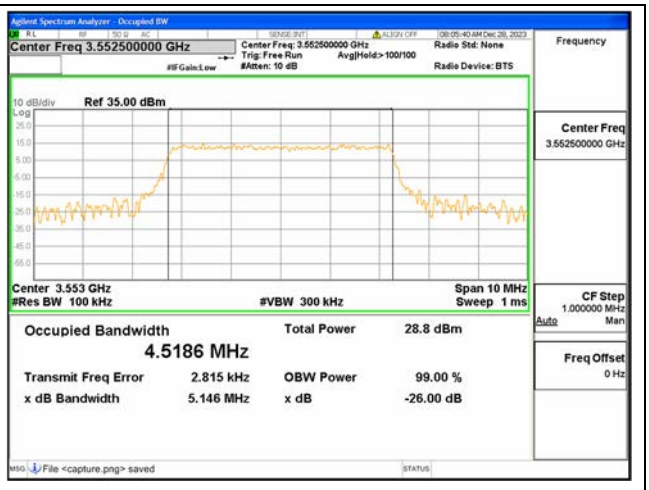
KDB 971168 D01v03 Section 4.1 and ANSI/TIA-603-E-2016.

2.2.4.Test Result

LTE Band	BW(MHz)	Channel Level	Channel	Frequency (MHz)	Modulation	99% BW (MHz)	26dB BW (MHz)	Verdict
B48	5	Low	55265	3552.5	QPSK	4.5263	5.1179	PASS
B48	5	Low	55265	3552.5	16QAM	4.5186	5.1456	PASS
B48	5	Low	55265	3552.5	64QAM	4.5169	5.0975	PASS
B48	5	Mid	55990	3625	QPSK	4.4800	5.4367	PASS
B48	5	Mid	55990	3625	16QAM	4.4864	5.0002	PASS
B48	5	Mid	55990	3625	64QAM	4.5166	5.1349	PASS
B48	5	High	56715	3697.5	QPSK	4.5140	4.9024	PASS
B48	5	High	56715	3697.5	16QAM	4.4984	5.2721	PASS
B48	5	High	56715	3697.5	64QAM	4.5106	5.1084	PASS
B48	10	Low	55290	3555	QPSK	9.0364	10.2024	PASS
B48	10	Low	55290	3555	16QAM	9.0225	10.4149	PASS
B48	10	Low	55290	3555	64QAM	9.0094	10.3553	PASS
B48	10	Mid	55990	3625	QPSK	8.9920	9.9562	PASS
B48	10	Mid	55990	3625	16QAM	8.9739	10.6407	PASS
B48	10	Mid	55990	3625	64QAM	8.9912	10.5205	PASS
B48	10	High	56690	3695	QPSK	8.9915	9.9481	PASS
B48	10	High	56690	3695	16QAM	8.9870	9.6613	PASS
B48	10	High	56690	3695	64QAM	9.0113	10.0278	PASS
B48	15	Low	55315	3557.5	QPSK	13.508	14.984	PASS
B48	15	Low	55315	3557.5	16QAM	13.487	15.239	PASS
B48	15	Low	55315	3557.5	64QAM	13.517	15.528	PASS
B48	15	Mid	55990	3625	QPSK	13.491	14.636	PASS
B48	15	Mid	55990	3625	16QAM	13.467	14.782	PASS
B48	15	Mid	55990	3625	64QAM	13.431	14.464	PASS
B48	15	High	56665	3692.5	QPSK	13.466	15.410	PASS
B48	15	High	56665	3692.5	16QAM	13.507	14.613	PASS
B48	15	High	56665	3692.5	64QAM	13.446	15.492	PASS
B48	20	Low	55340	3560	QPSK	18.029	20.948	PASS
B48	20	Low	55340	3560	16QAM	18.008	20.192	PASS
B48	20	Low	55340	3560	64QAM	17.996	20.496	PASS
B48	20	Mid	55990	3625	QPSK	18.005	20.050	PASS
B48	20	Mid	55990	3625	16QAM	17.946	19.971	PASS
B48	20	Mid	55990	3625	64QAM	17.964	20.035	PASS
B48	20	High	56640	3690	QPSK	17.958	19.713	PASS
B48	20	High	56640	3690	16QAM	17.983	20.571	PASS

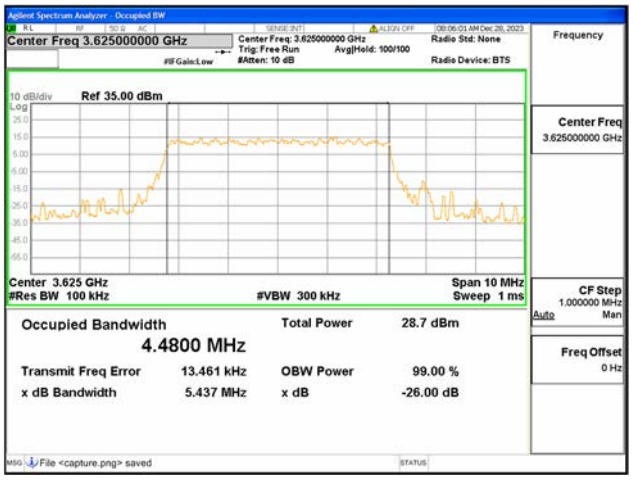
B48	20	High	56640	3690	64QAM	17.932	19.670	PASS

B48 / 5MHz / QPSK/ Low CH

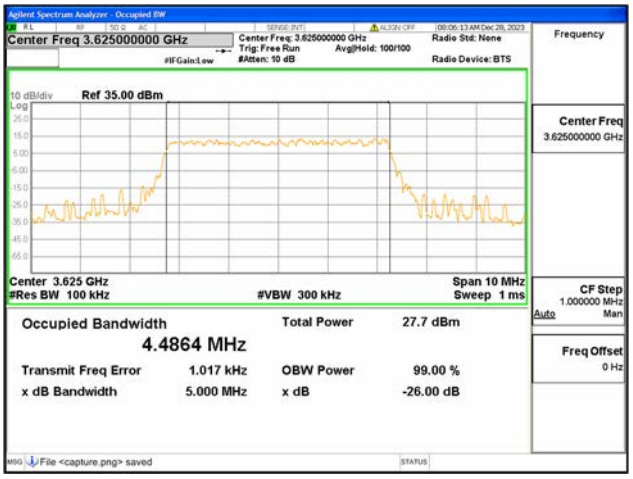


B48 / 5MHz / 16QAM/ Low CH

B48 / 5MHz / 64QAM/ Low CH

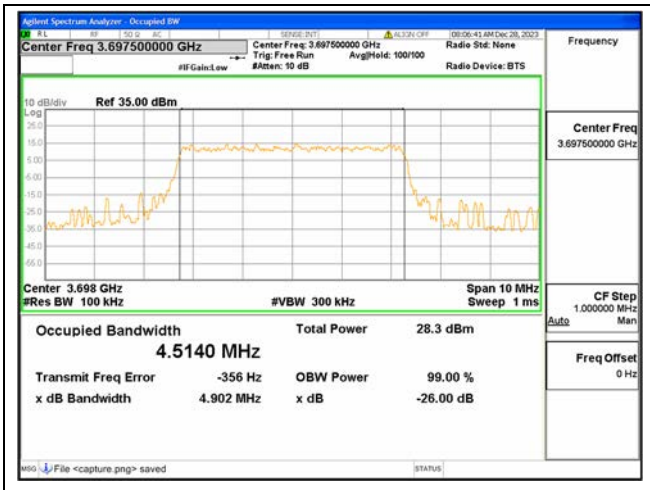


B48 / 5MHz / QPSK/ Mid CH

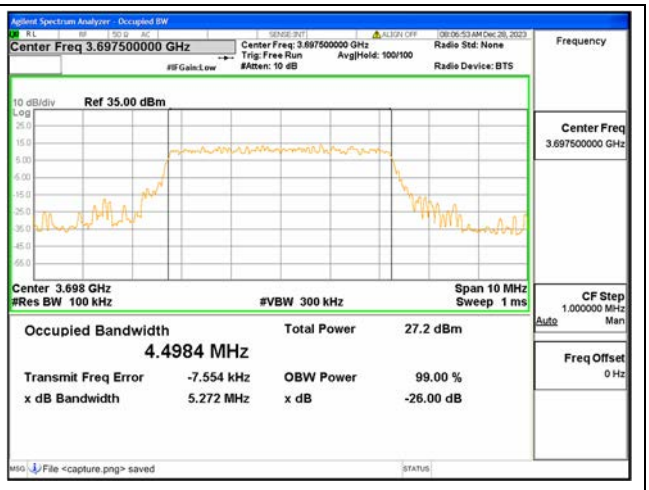


B48 / 5MHz / 16QAM/ Mid CH

B48 / 5MHz / 64QAM/ Mid CH

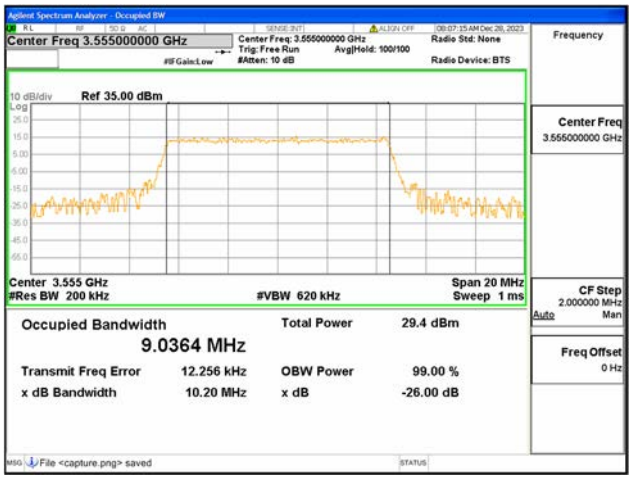


B48 / 5MHz / QPSK/ High CH

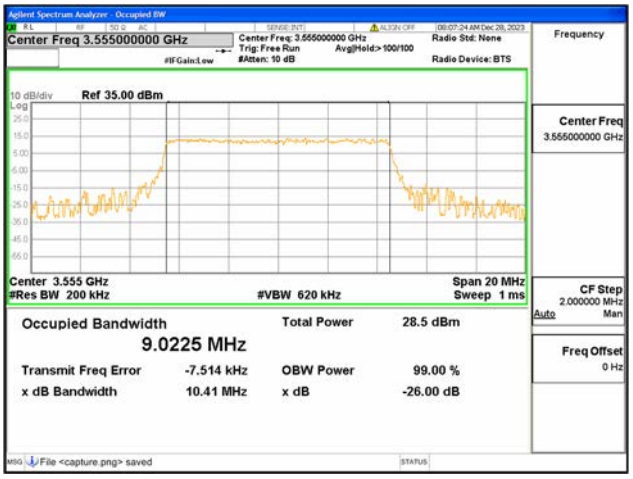


B48 / 5MHz / 16QAM/ High CH

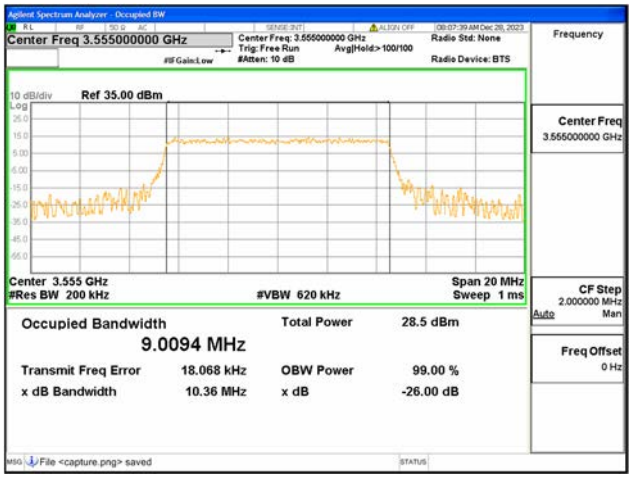
B48 / 5MHz / 64QAM/ High CH



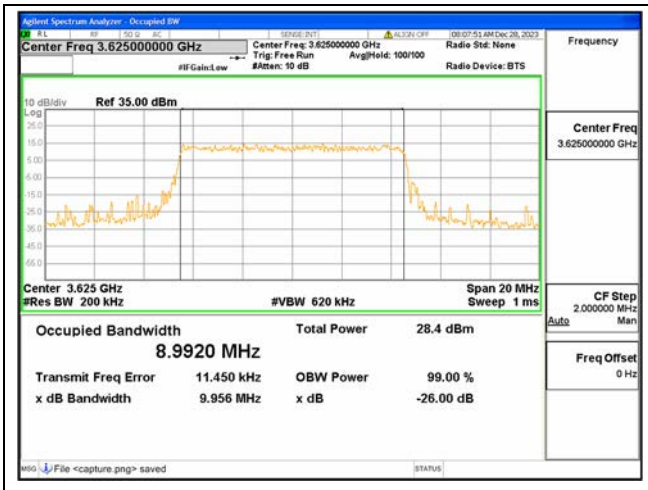
B48 / 10MHz / QPSK/ Low CH



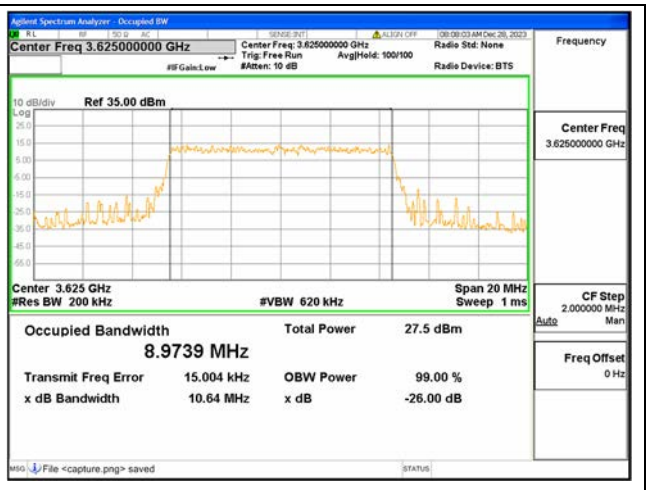
B48 / 10MHz / 16QAM/ Low CH



B48 / 10MHz / 64QAM/ Low CH



B48 / 10MHz / QPSK/ Mid CH

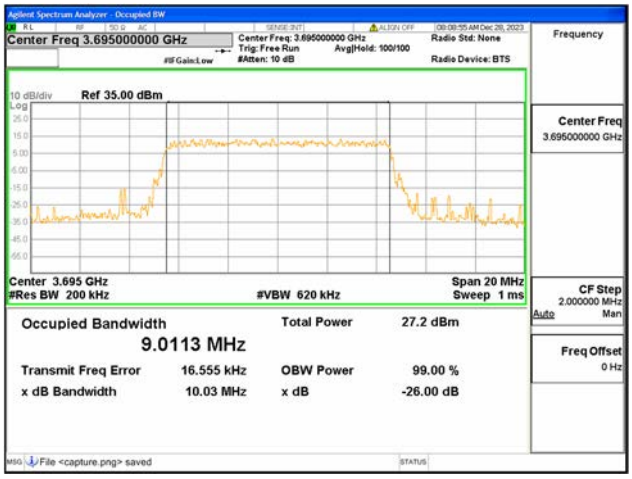


B48 / 10MHz / 16QAM/ Mid CH

B48 / 10MHz / 64QAM/ Mid CH

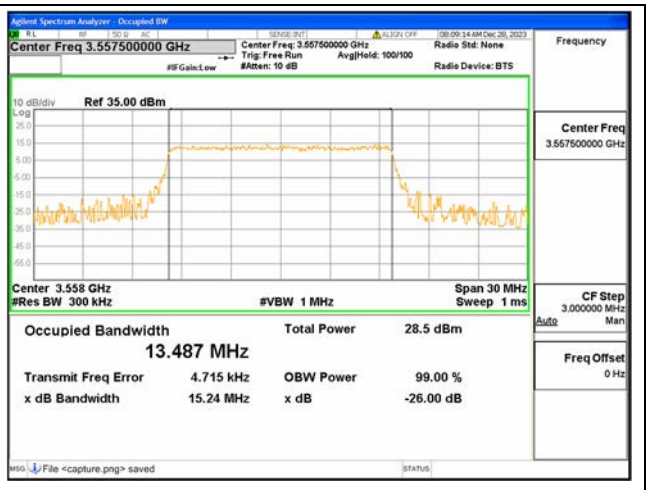
B48 / 10MHz / QPSK/ High CH

B48 / 10MHz / 16QAM/ High CH

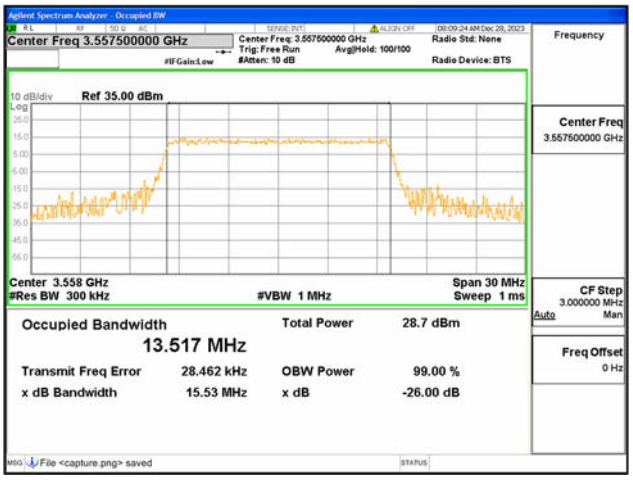


B48 / 10MHz / 64QAM/ High CH

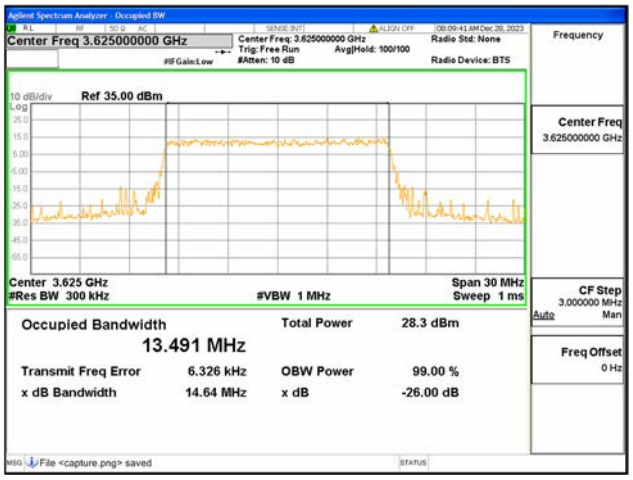
B48 / 15MHz / QPSK/ Low CH



B48 / 15MHz / 16QAM/ Low CH



B48 / 15MHz / 64QAM/ Low CH

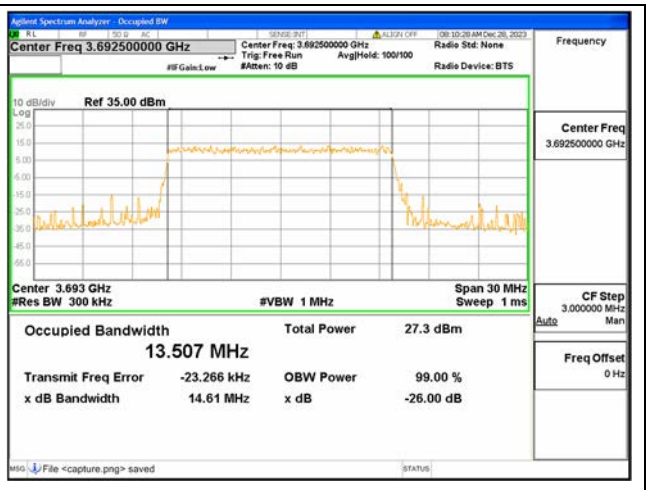


B48 / 15MHz / QPSK/ Mid CH

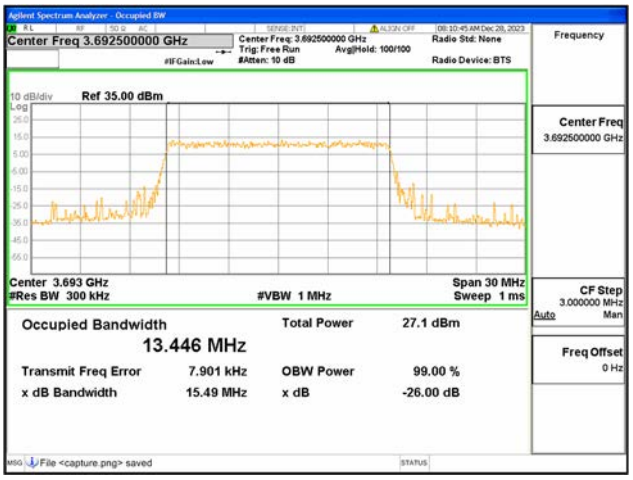
B48 / 15MHz / 16QAM/ Mid CH

B48 / 15MHz / 64QAM/ Mid CH

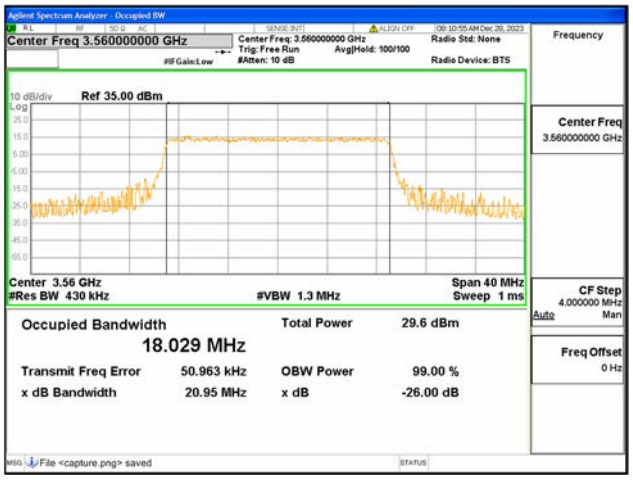
B48 / 15MHz / QPSK/ High CH



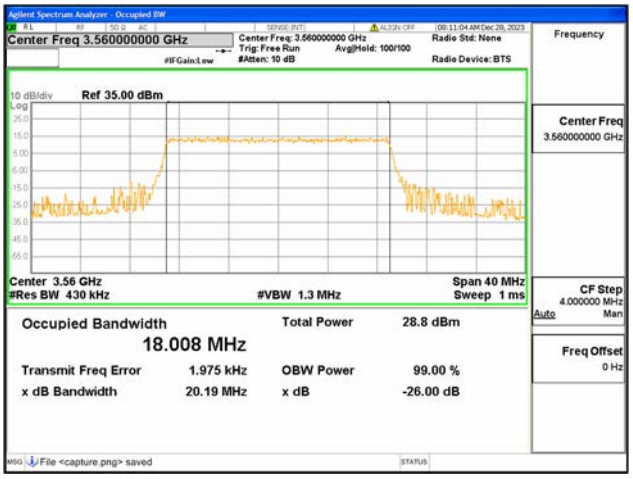
B48 / 15MHz / 16QAM/ High CH



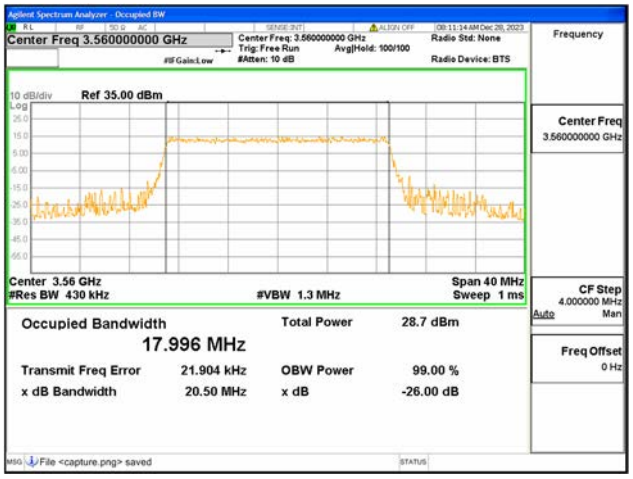
B48 / 15MHz / 64QAM/ High CH



B48 / 20MHz / QPSK/ Low CH

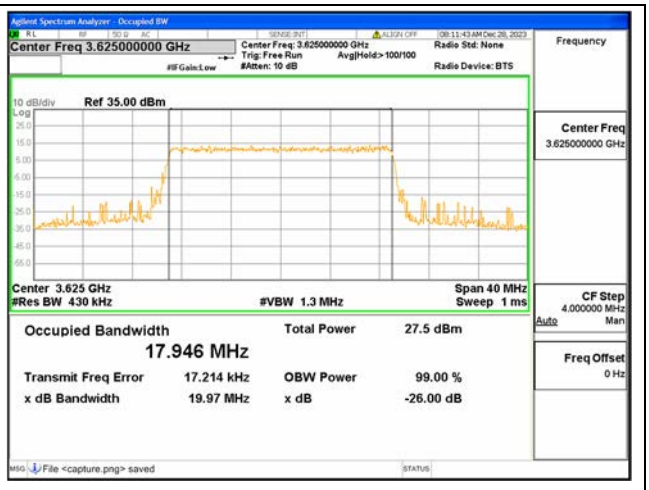


B48 / 20MHz / 16QAM/ Low CH

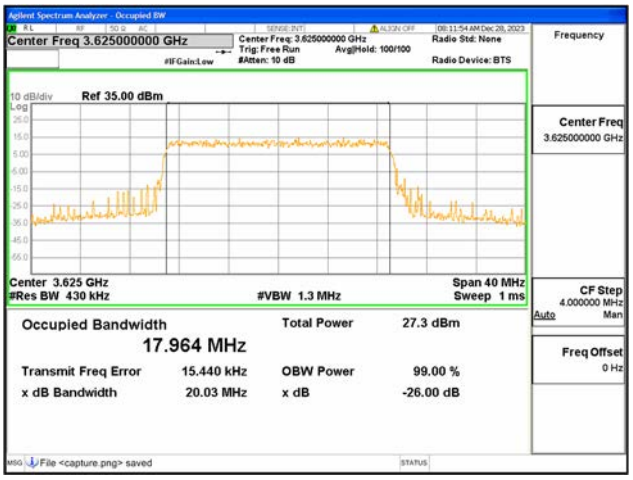


B48 / 20MHz / 64QAM/ Low CH

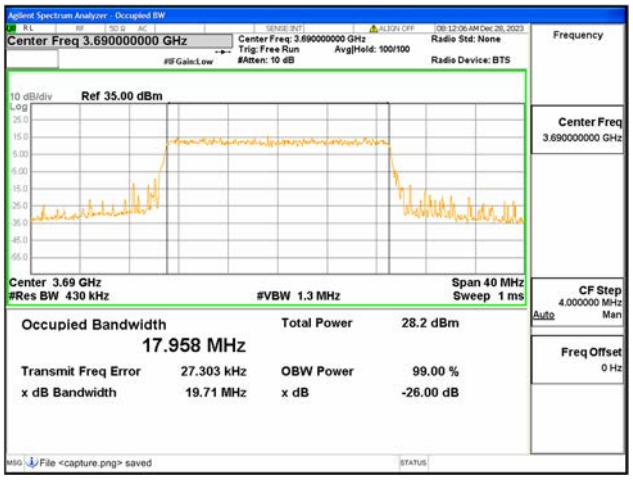
B48 / 20MHz / QPSK/ Mid CH



B48 / 20MHz / 16QAM/ Mid CH

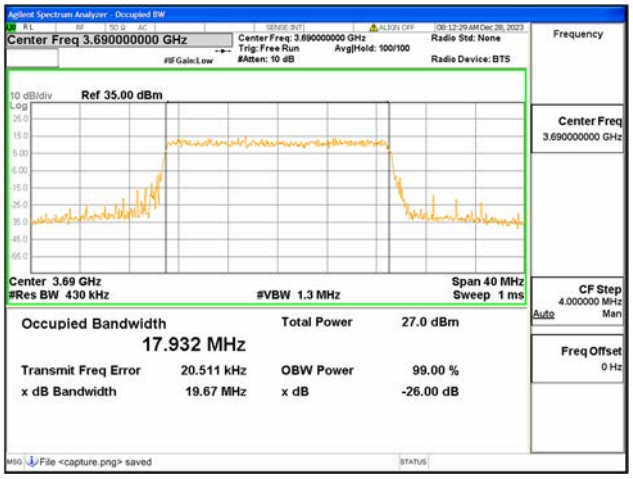


B48 / 20MHz / 64QAM/ Mid CH



B48 / 20MHz / QPSK/ High CH

B48 / 20MHz / 16QAM/ High CH



B48 / 20MHz / 64QAM/ High CH

2.3. Frequency Stability

2.3.1.Requirement

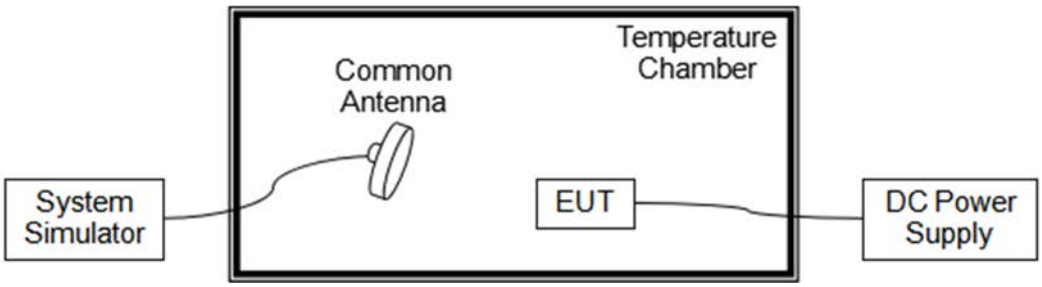
According to FCC section 2.1055 & 90.213, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.

(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

Note: The operating temperature of EUT is from 0°C to 45°C, which are specified by the applicant.

2.3.2.Test Description



The EUT which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2.3.3.Test procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.

2.3.4.Test Result

The nominal, highest and lowest extreme voltages are separately 3.87V, 4.45V and 3.60V, which are specified by the applicant; the normal temperature here used is 20°C.

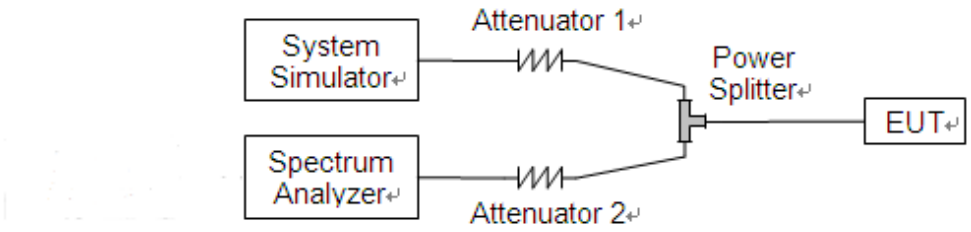
LTE Band 48, 64QAM, Channel 55990, Frequency 3625.0MHz Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp(°C)**	**Fre. Dev.(Hz)**	**Deviation (ppm)**	**Result**
Normal	3.87	+20(Ref)	20	**0.006**	PASS
Normal		0	-9	-0.002	
Normal		+10	14	0.004	
Normal		+20	2	0.001	
Normal		+30	18	0.005	
Normal		+40	20	**0.006**	
Normal		+45	20	**0.006**	
High	4.45	+20	13	0.004	
BATT.ENDPOINT	3.460	+20	18	0.005	

2.4. Peak to Average Radio

2.4.1.Requirement

According to FCC 96.41(g), the peak-to-average power ratio (PAPR) of any CBSD transmitter output power must not exceed 13 dB.

2.4.2.Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

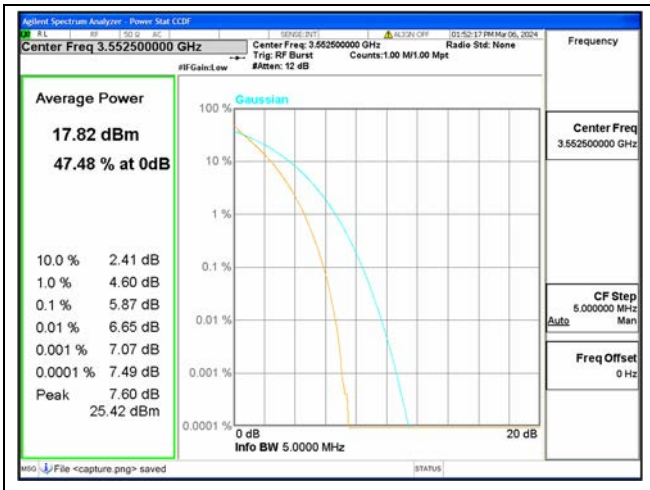
2.4.3.Test procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

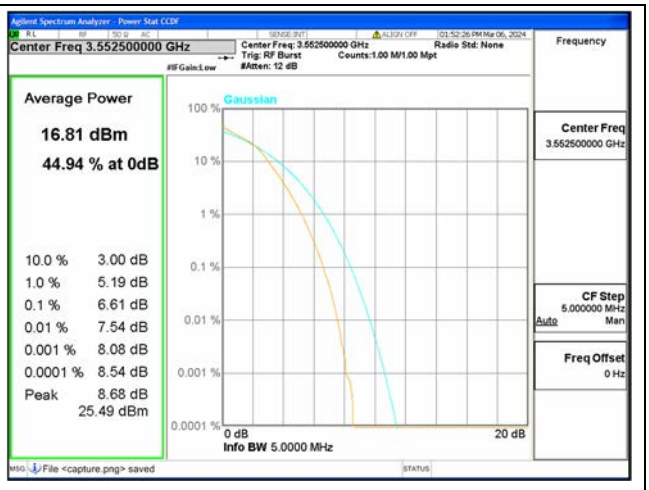
2.4.4.Test Result

LTE Band	BW(MHz)	Channel Level	Channel	Frequency (MHz)	Modulation	Peak to Average Radio(dB)	Verdict
B48	5	Low	55265	3552.5	QPSK	5.87	PASS
B48	5	Low	55265	3552.5	16QAM	6.61	PASS
B48	5	Low	55265	3552.5	64QAM	6.60	PASS
B48	5	Mid	55990	3625	QPSK	5.90	PASS
B48	5	Mid	55990	3625	16QAM	6.71	PASS
B48	5	Mid	55990	3625	64QAM	6.55	PASS
B48	5	High	56715	3697.5	QPSK	5.96	PASS
B48	5	High	56715	3697.5	16QAM	6.63	PASS
B48	5	High	56715	3697.5	64QAM	6.70	PASS
B48	10	Low	55290	3555	QPSK	5.83	PASS
B48	10	Low	55290	3555	16QAM	6.59	PASS
B48	10	Low	55290	3555	64QAM	6.58	PASS
B48	10	Mid	55990	3625	QPSK	5.88	PASS
B48	10	Mid	55990	3625	16QAM	6.62	PASS
B48	10	Mid	55990	3625	64QAM	6.61	PASS
B48	10	High	56690	3695	QPSK	5.89	PASS
B48	10	High	56690	3695	16QAM	6.67	PASS
B48	10	High	56690	3695	64QAM	6.64	PASS
B48	15	Low	55315	3557.5	QPSK	5.90	PASS
B48	15	Low	55315	3557.5	16QAM	6.54	PASS
B48	15	Low	55315	3557.5	64QAM	6.70	PASS
B48	15	Mid	55990	3625	QPSK	5.88	PASS
B48	15	Mid	55990	3625	16QAM	6.55	PASS
B48	15	Mid	55990	3625	64QAM	6.78	PASS
B48	15	High	56665	3692.5	QPSK	5.95	PASS
B48	15	High	56665	3692.5	16QAM	6.70	PASS
B48	15	High	56665	3692.5	64QAM	6.83	PASS
B48	20	Low	55340	3560	QPSK	5.83	PASS
B48	20	Low	55340	3560	16QAM	6.52	PASS
B48	20	Low	55340	3560	64QAM	6.63	PASS
B48	20	Mid	55990	3625	QPSK	5.90	PASS
B48	20	Mid	55990	3625	16QAM	6.54	PASS
B48	20	Mid	55990	3625	64QAM	6.74	PASS
B48	20	High	56640	3690	QPSK	5.84	PASS
B48	20	High	56640	3690	16QAM	6.59	PASS

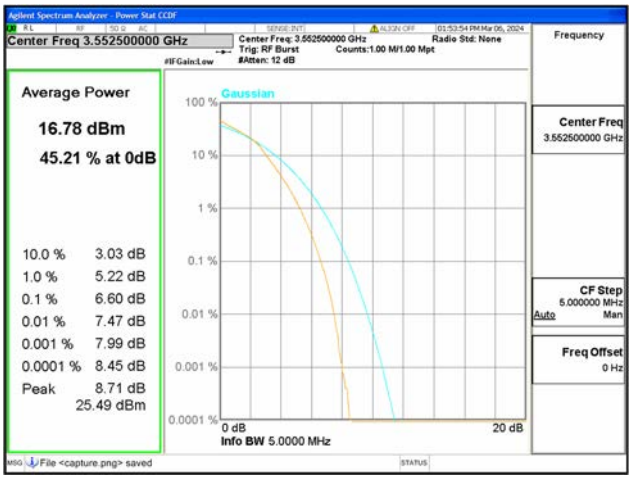
B48	20	High	56640	3690	64QAM	6.71	PASS



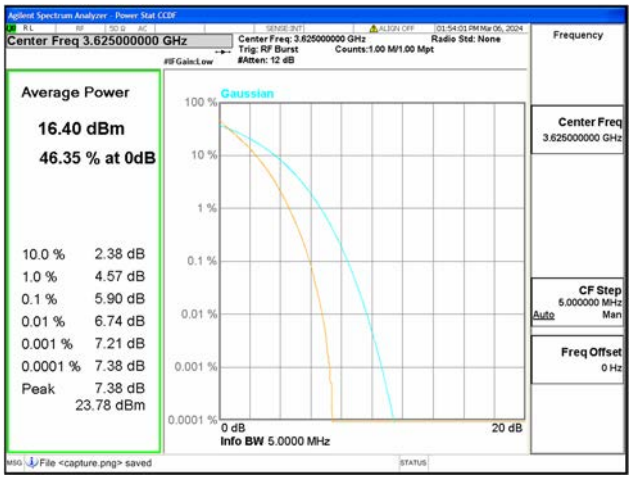
B48 / 5MHz / Low CH / QPSK



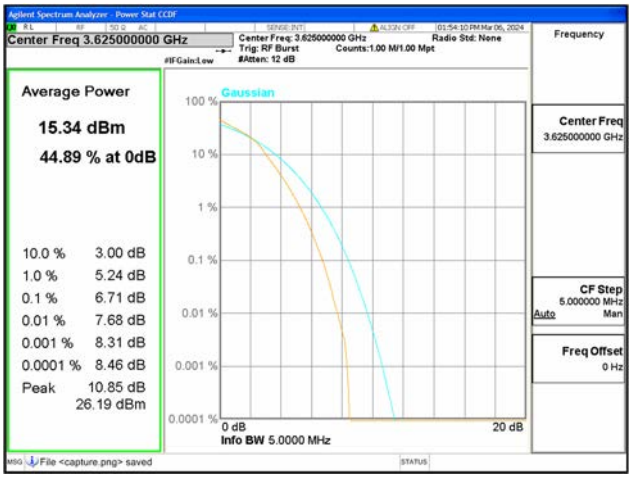
B48 / 5MHz / Low CH / 16QAM



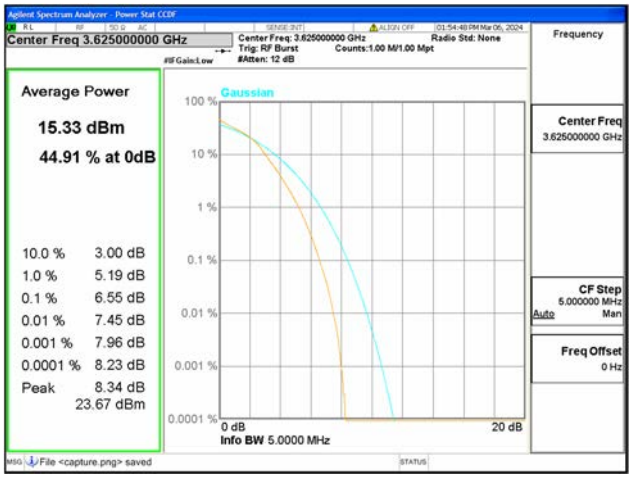
B48 / 5MHz / Low CH / 64QAM



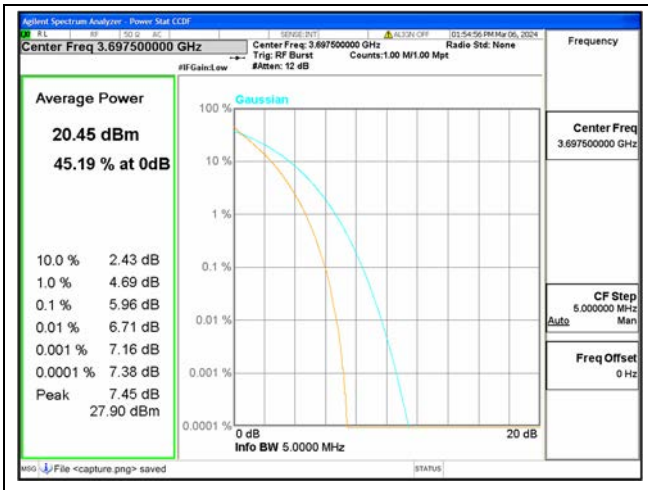
B48 / 5MHz / Mid CH / QPSK



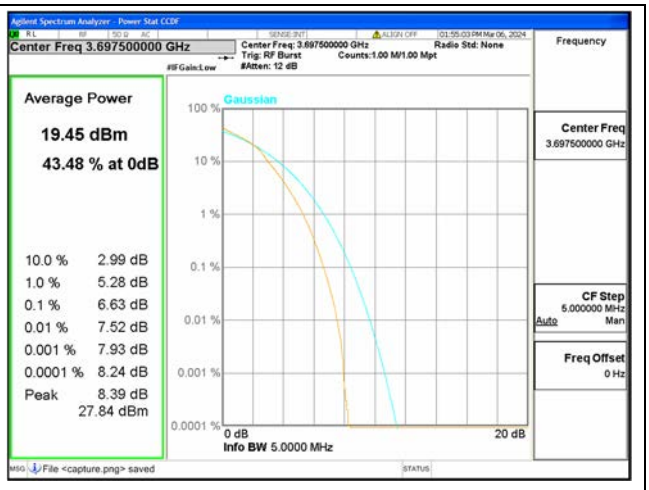
B48 / 5MHz / Mid CH / 16QAM



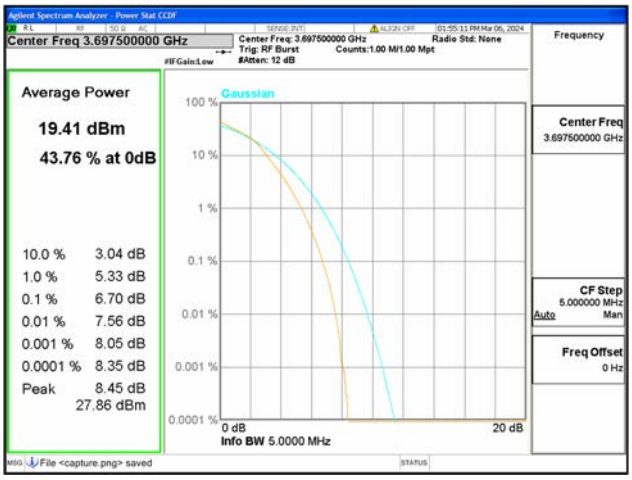
B48 / 5MHz / Mid CH / 64QAM



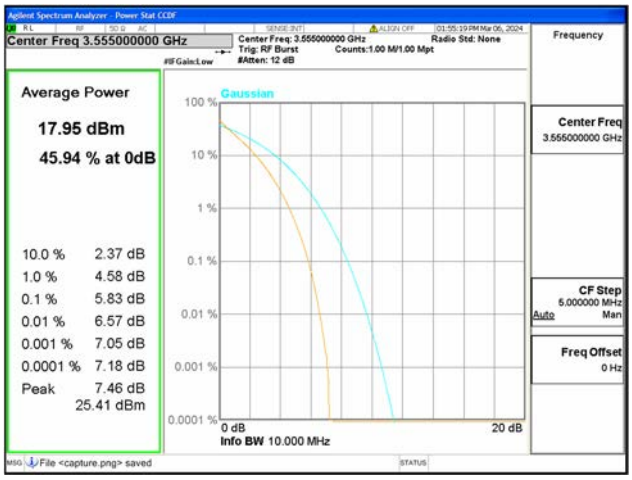
B48 / 5MHz / High CH / QPSK



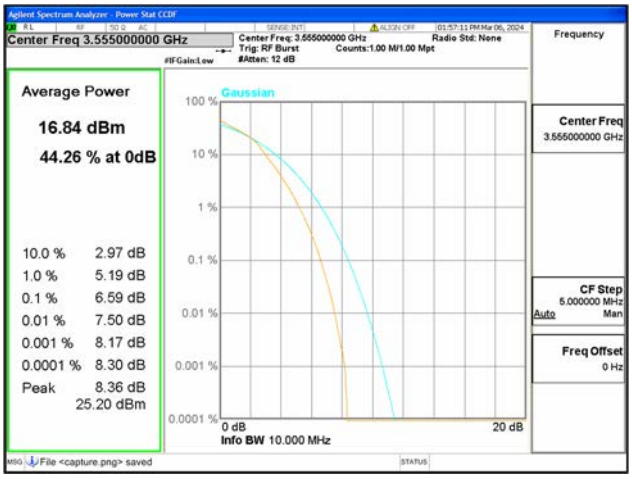
B48 / 5MHz / High CH / 16QAM



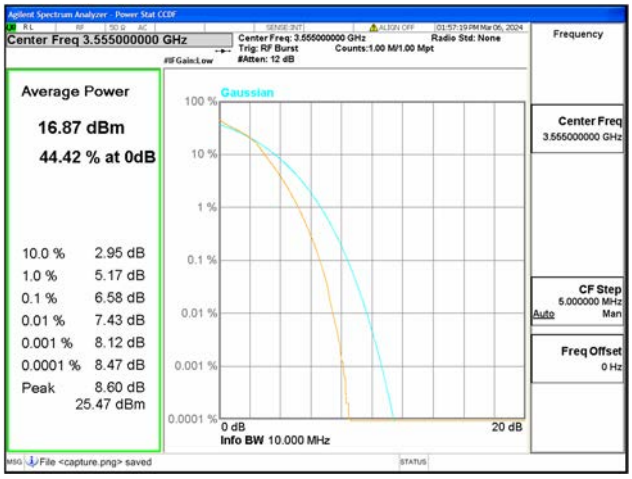
B48 / 5MHz / High CH / 64QAM



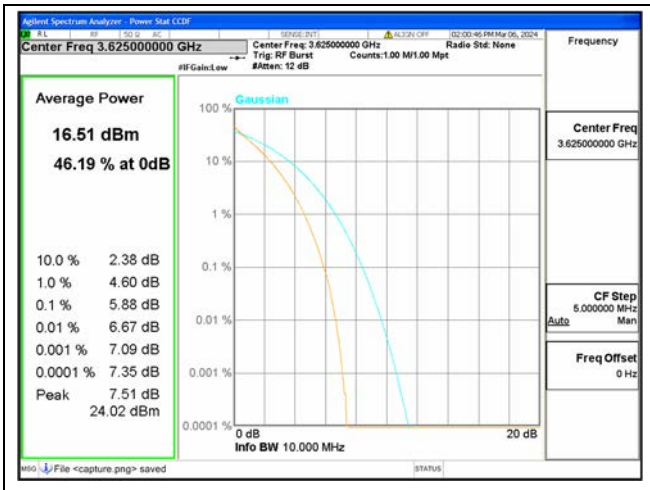
B48 / 10MHz / Low CH / QPSK



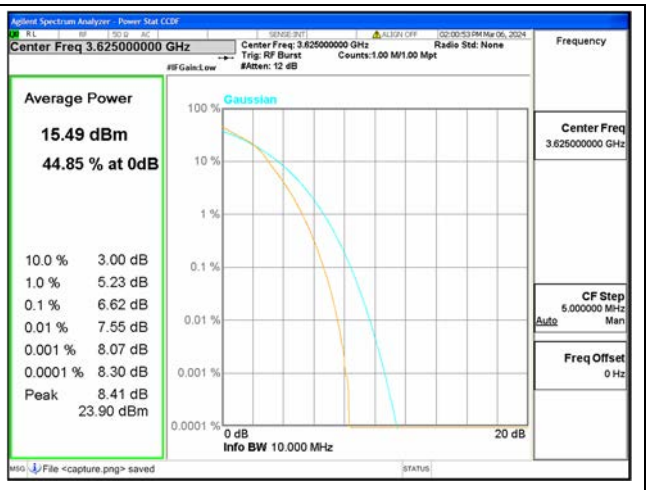
B48 / 10MHz / Low CH / 16QAM



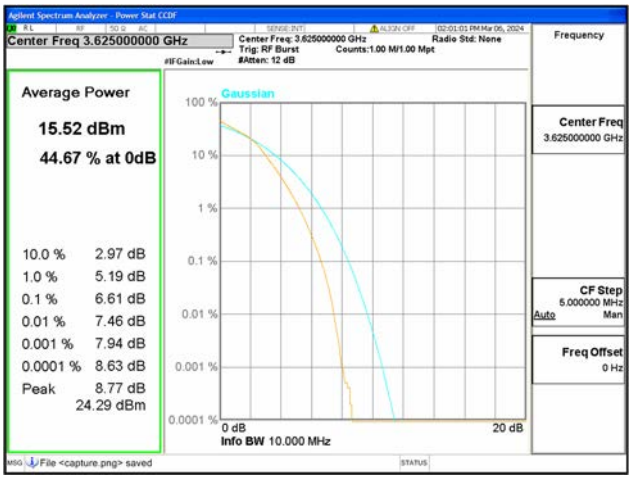
B48 / 10MHz / Low CH / 64QAM



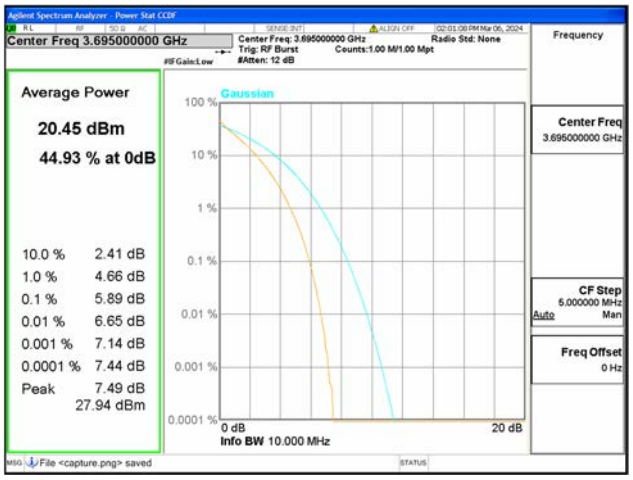
B48 / 10MHz / Mid CH / QPSK



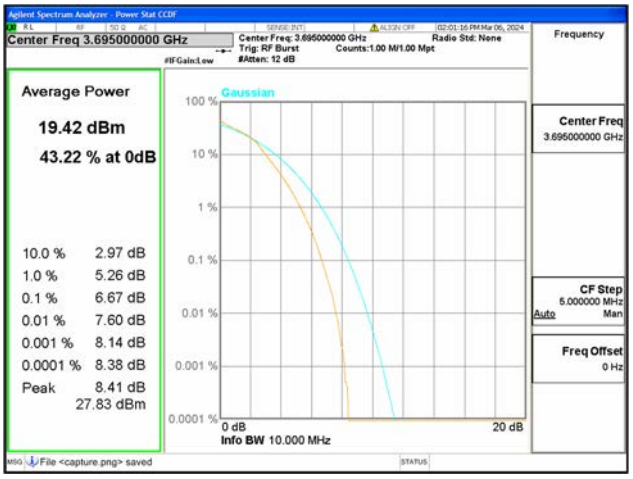
B48 / 10MHz / Mid CH / 16QAM



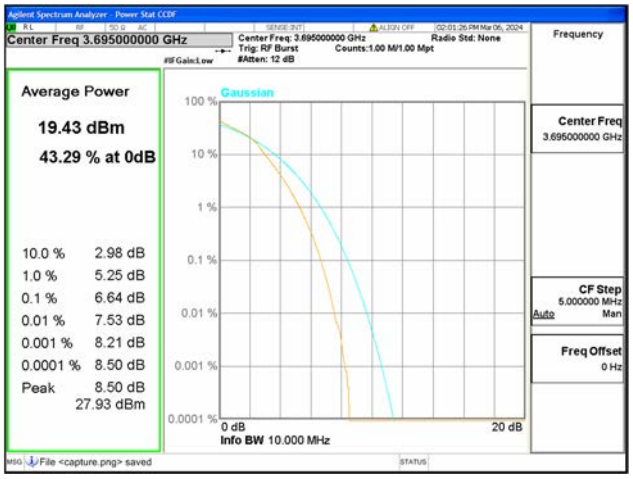
B48 / 10MHz / Mid CH / 64QAM



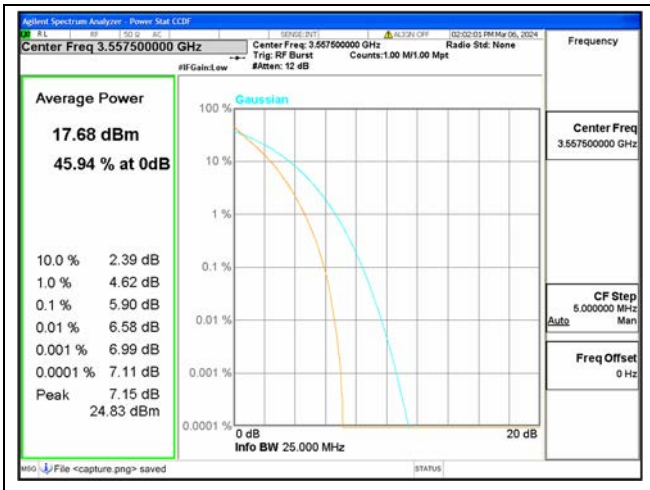
B48 / 10MHz / High CH / QPSK



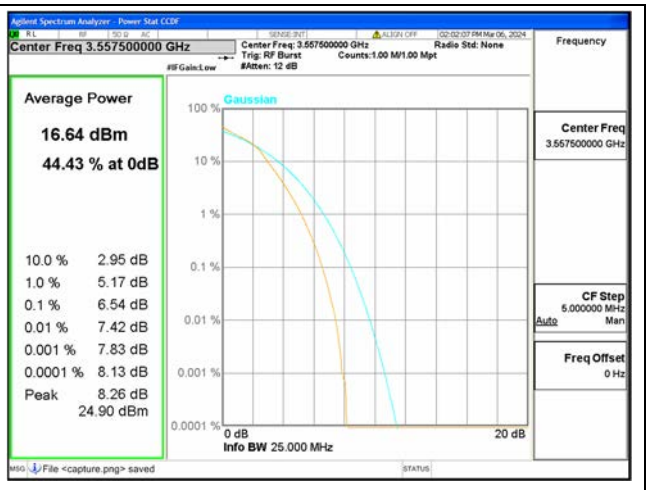
B48 / 10MHz / High CH / 16QAM



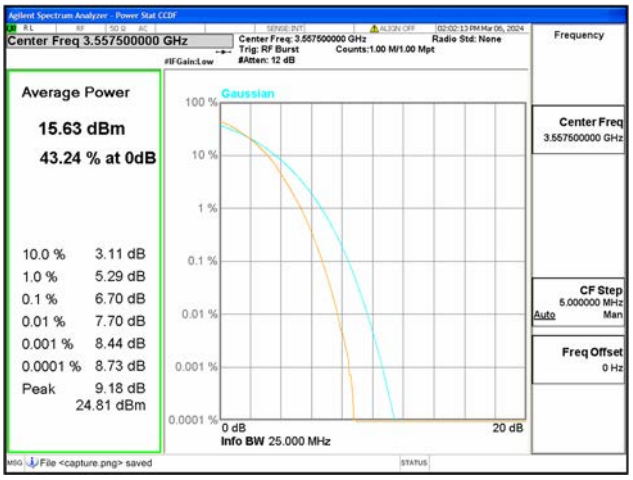
B48 / 10MHz / High CH / 64QAM



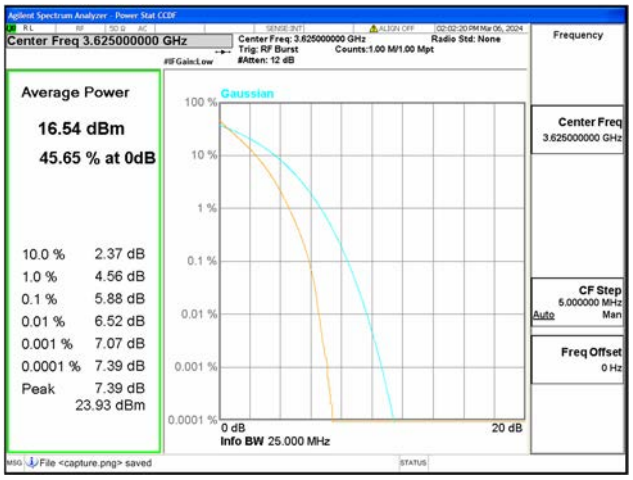
B48 / 15MHz / Low CH / QPSK



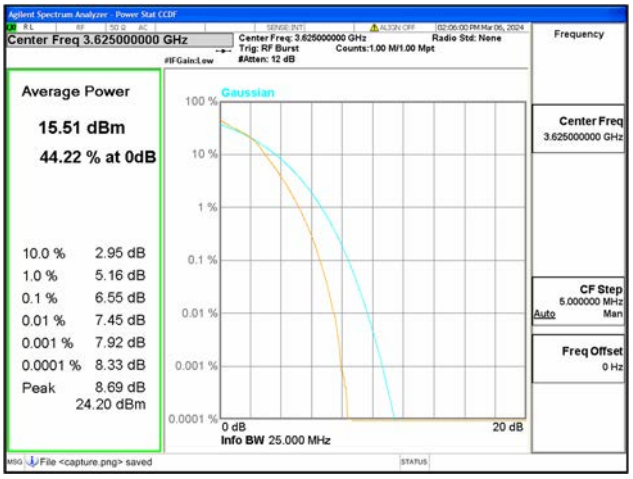
B48 / 15MHz / Low CH / 16QAM



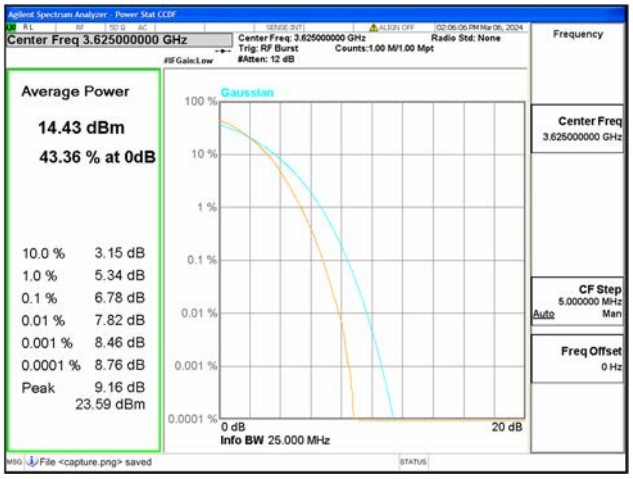
B48 / 15MHz / Low CH / 64QAM



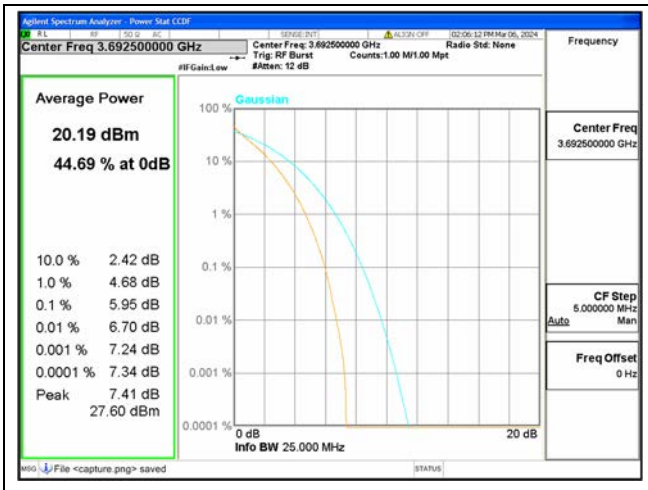
B48 / 15MHz / Mid CH / QPSK



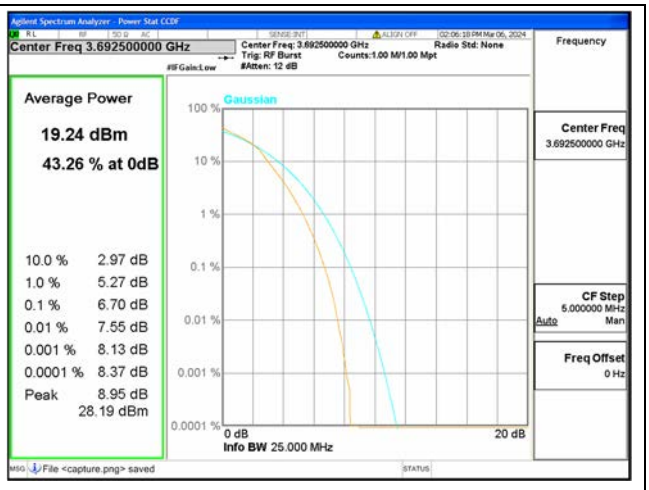
B48 / 15MHz / Mid CH / 16QAM



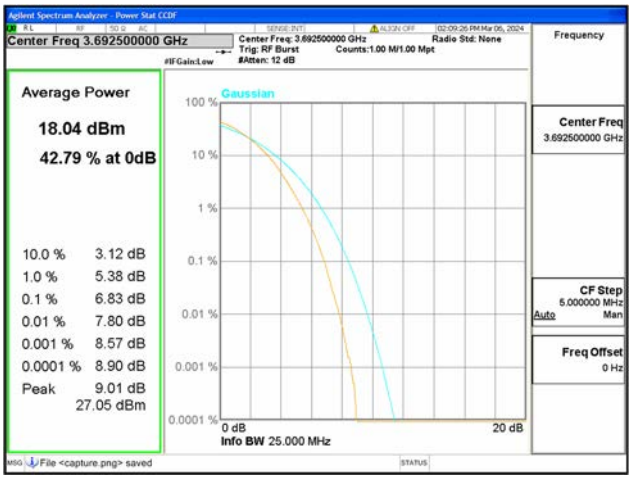
B48 / 15MHz / Mid CH / 64QAM



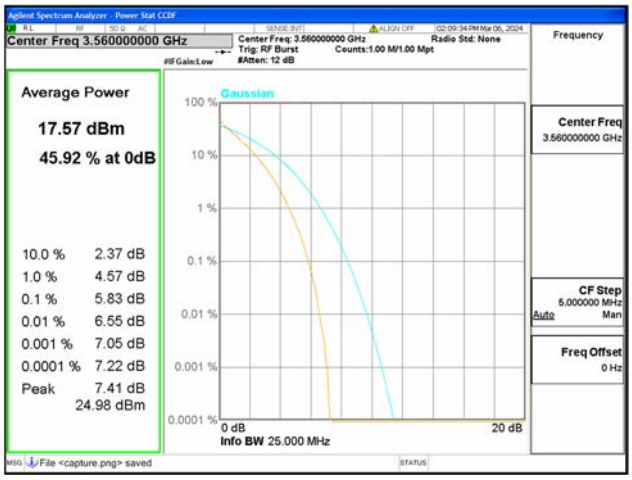
B48 / 15MHz / High CH / QPSK



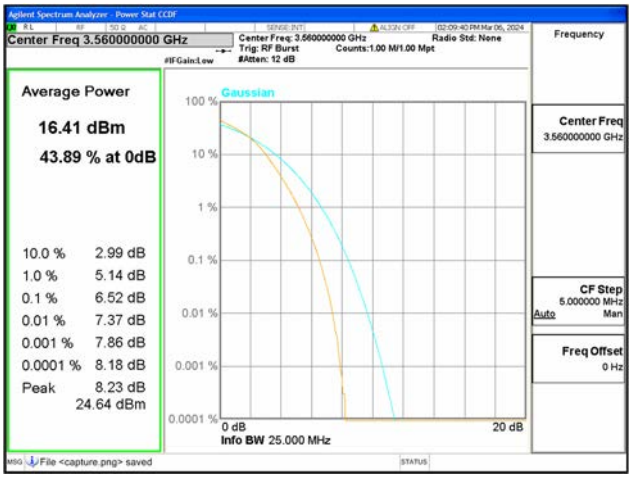
B48 / 15MHz / High CH / 16QAM



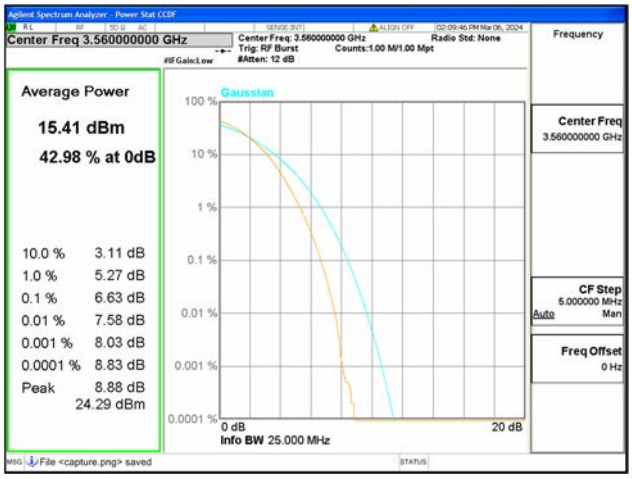
B48 / 15MHz / High CH / 64QAM



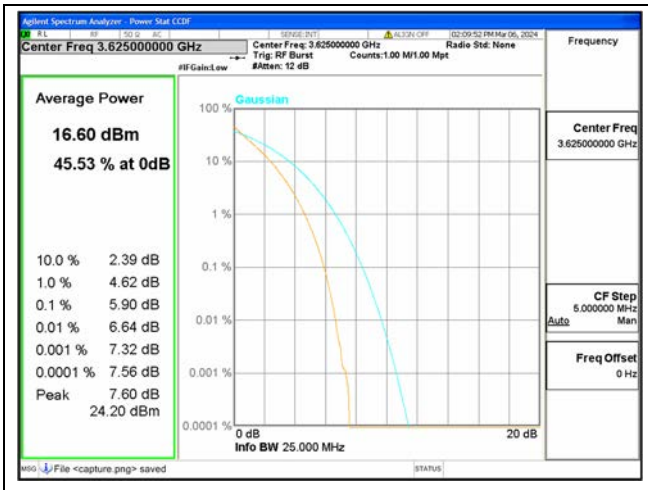
B48 / 20MHz / Low CH / QPSK



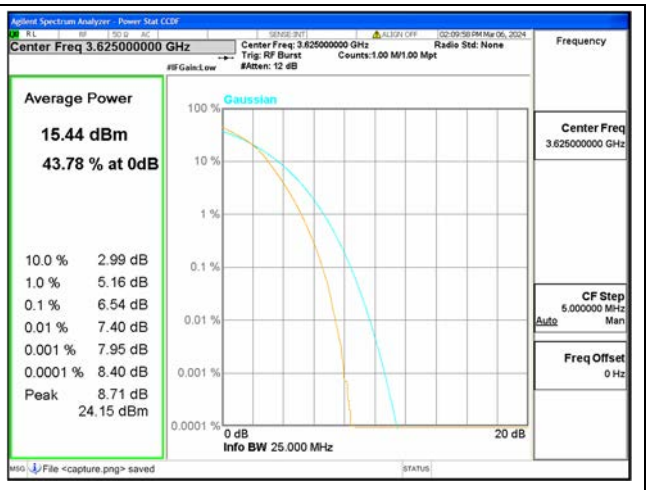
B48 / 20MHz / Low CH / 16QAM



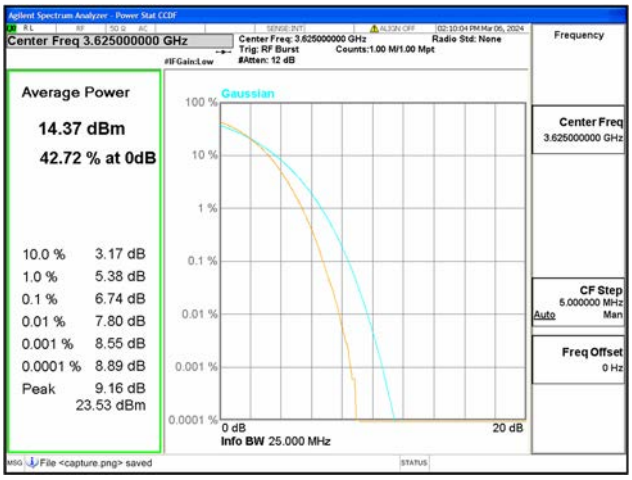
B48 / 20MHz / Low CH / 64QAM



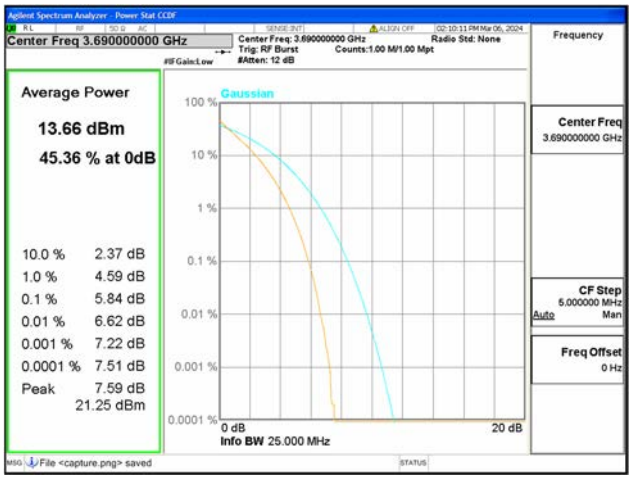
B48 / 20MHz / Mid CH / QPSK



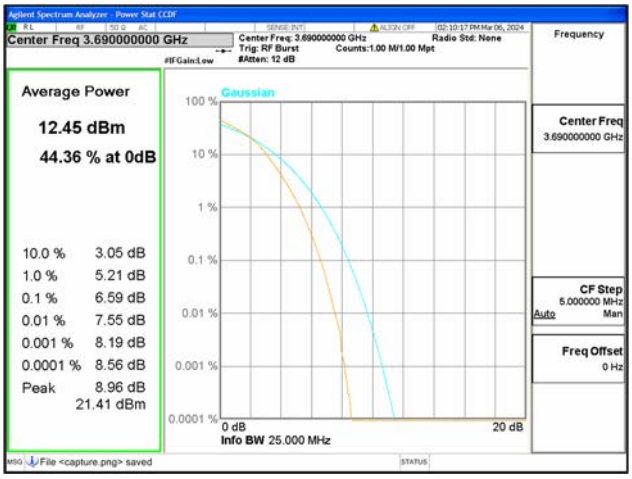
B48 / 20MHz / Mid CH / 16QAM



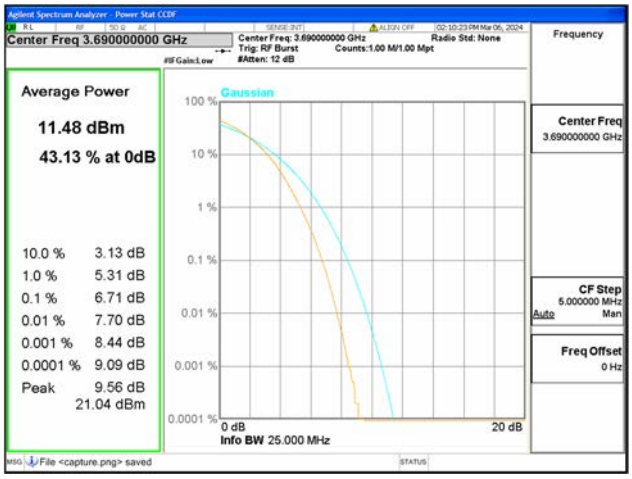
B48 / 20MHz / Mid CH / 64QAM



B48 / 20MHz / High CH / QPSK



B48 / 20MHz / High CH / 16QAM



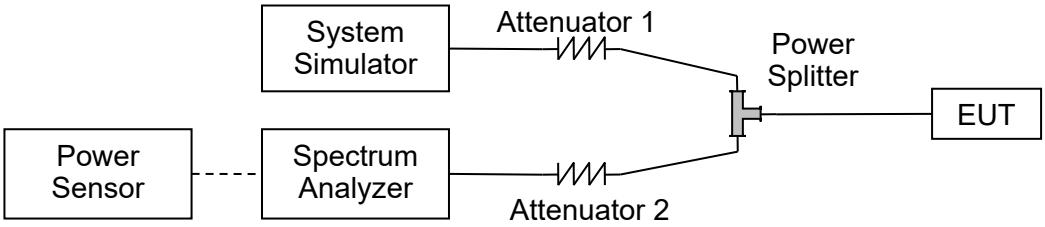
B48 / 20MHz / High CH / 64QAM

2.5. Conducted Spurious Emissions

2.5.1.Requirement

According to FCC section 96.41(e), the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

2.5.2.Test Description



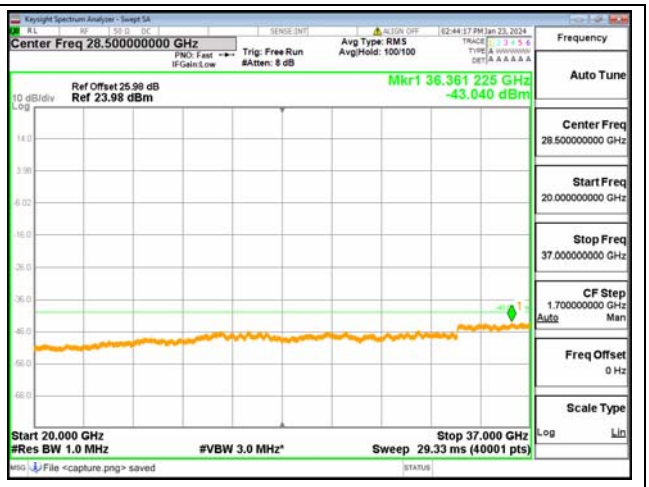
The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.5.1.Test procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

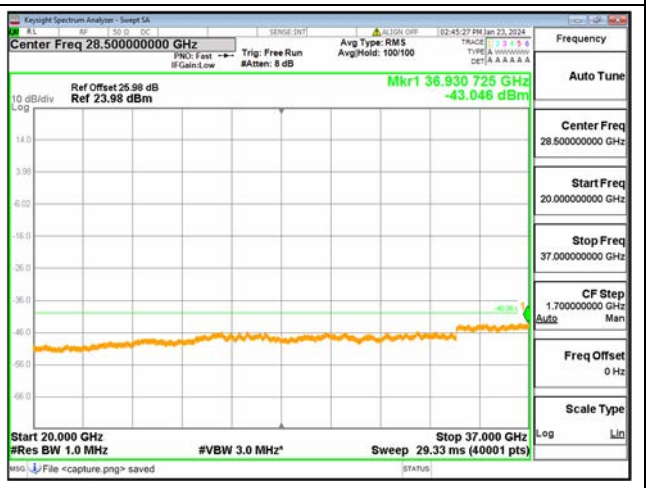
2.5.2.Test Result

B48-30M-20G / 5MHz / Low CH / QPSK



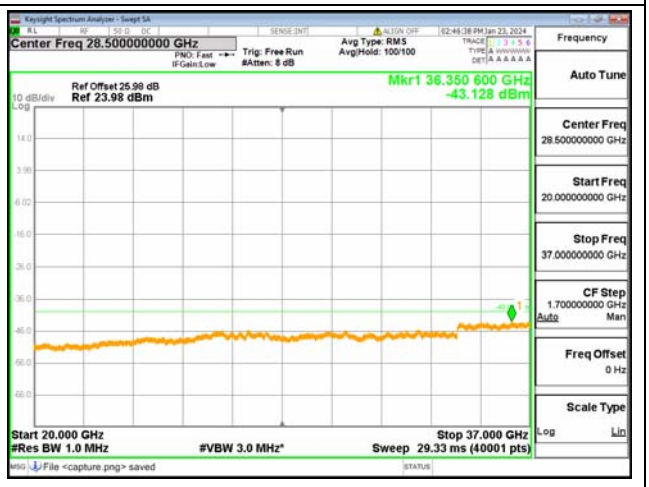
B48-20G-37G / 5MHz / Low CH / QPSK

B48-30M-20G / 5MHz / Mid CH / QPSK

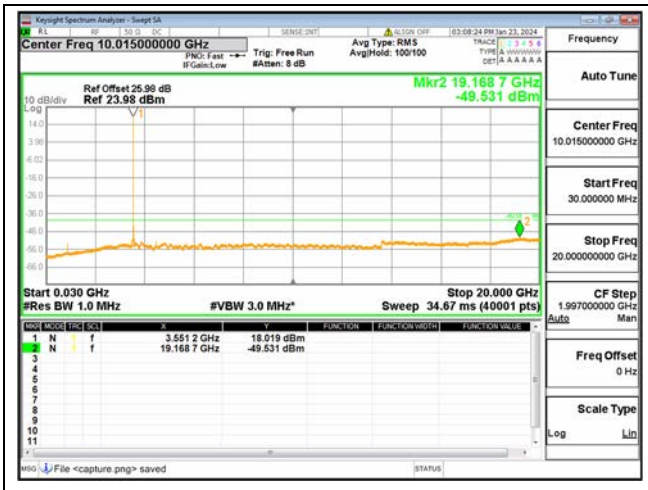


B48-20G-37G / 5MHz / Mid CH / QPSK

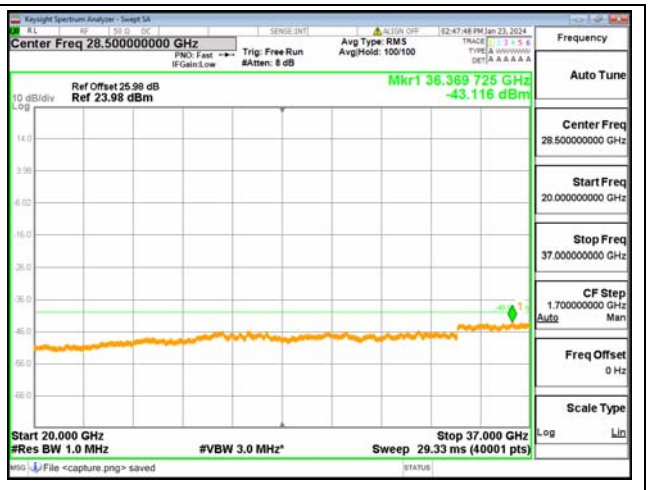
B48-30M-20G / 5MHz / High CH / QPSK



B48-20G-37G / 5MHz / High CH / QPSK



B48-30M-20G / 10MHz / Low CH / QPSK

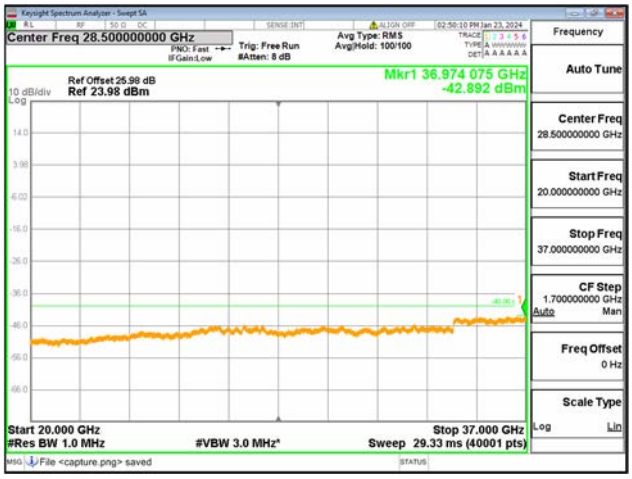


B48-20G-37G / 10MHz / Low CH / QPSK

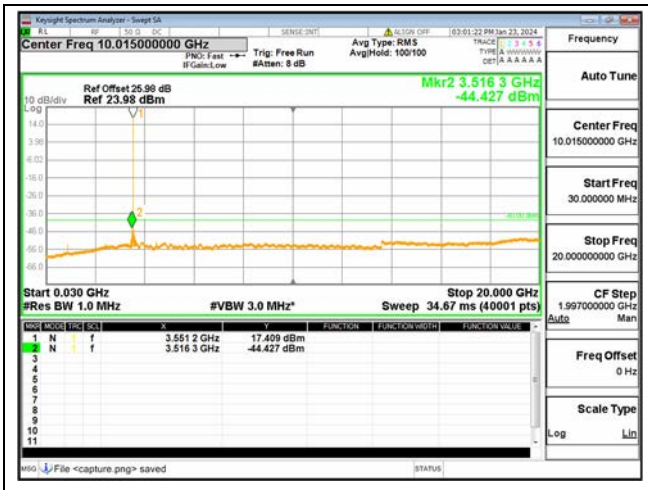
B48-30M-20G / 10MHz / Mid CH / QPSK

B48-20G-37G / 10MHz / Mid CH / QPSK

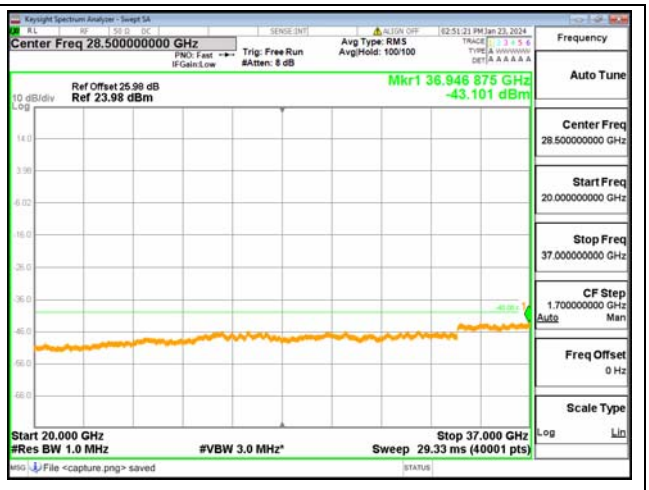
B48-30M-20G / 10MHz / High CH / QPSK



B48-20G-37G / 10MHz / High CH / QPSK

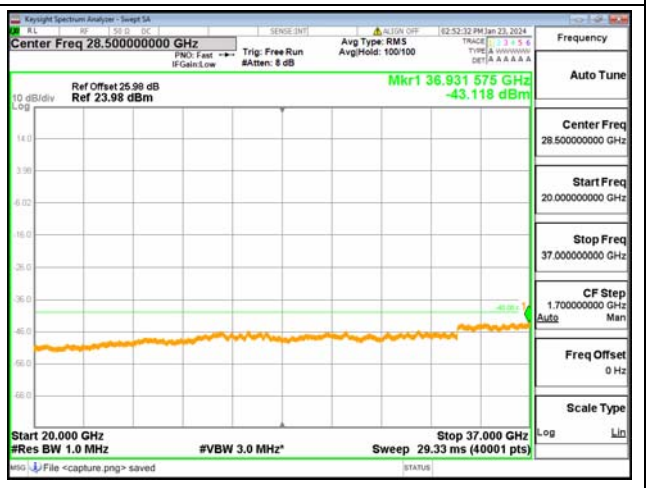


B48-30M-20G / 15MHz / Low CH / QPSK

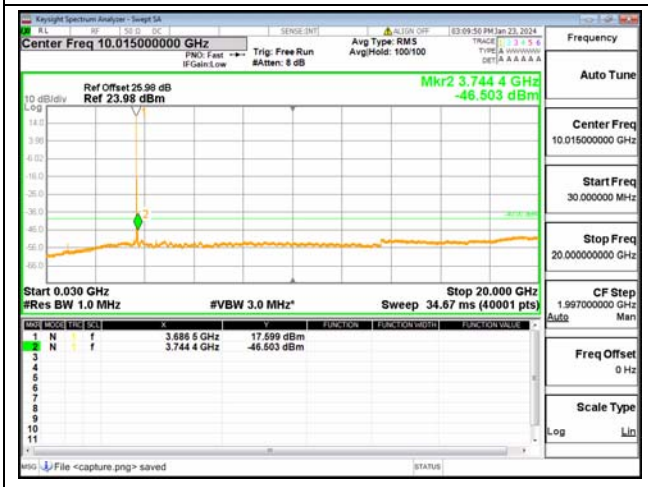


B48-20G-37G / 15MHz / Low CH / QPSK

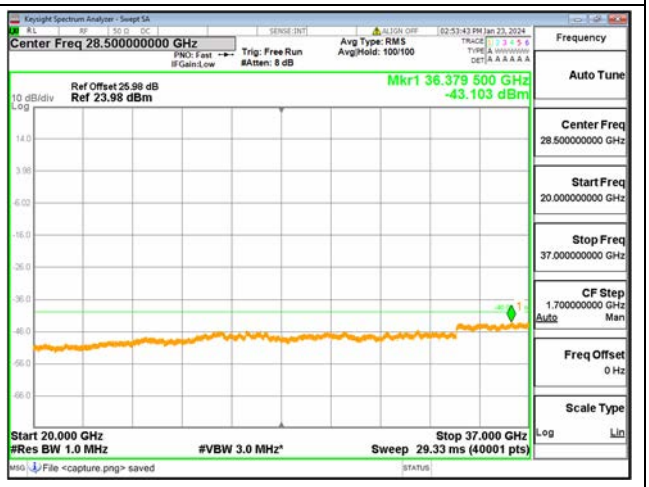
B48-30M-20G / 15MHz / Mid CH / QPSK



B48-20G-37G / 15MHz / Mid CH / QPSK

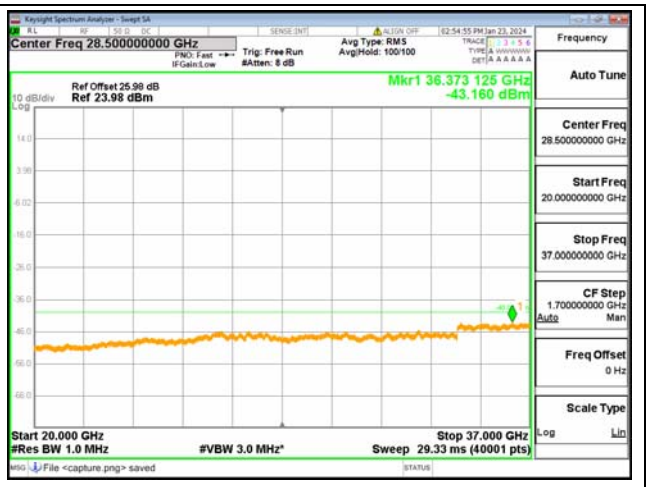


B48-30M-20G / 15MHz / High CH / QPSK

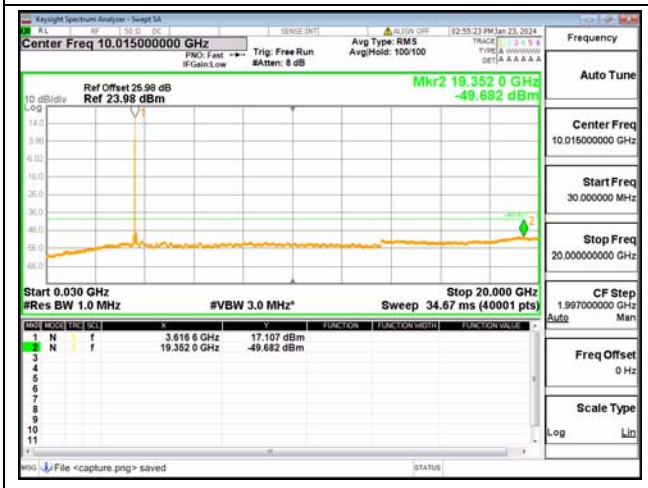


B48-20G-37G / 15MHz / High CH / QPSK

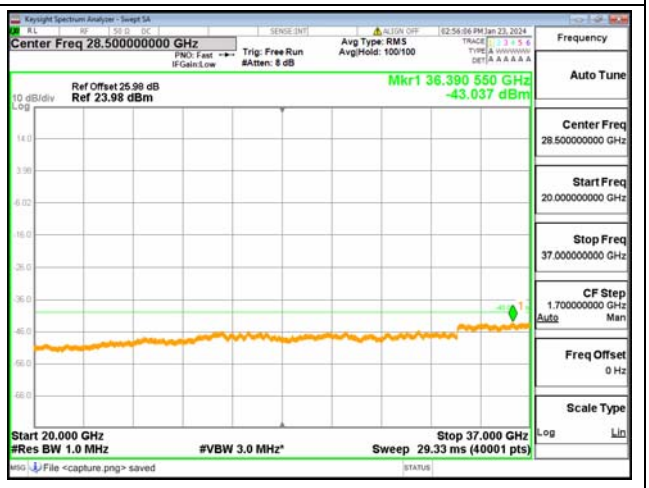
B48-30M-20G / 20MHz / Low CH / QPSK



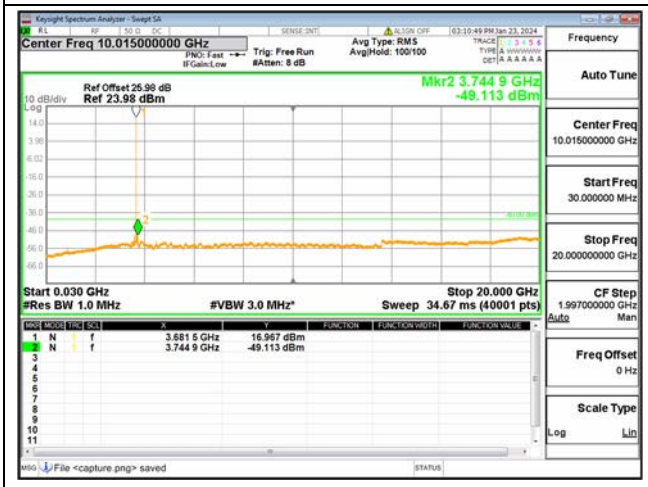
B48-20G-37G / 20MHz / Low CH / QPSK



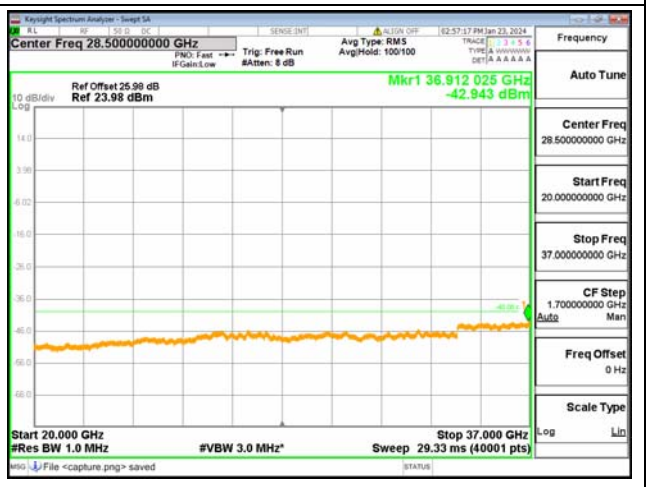
B48-30M-20G / 20MHz / Mid CH / QPSK



B48-20G-37G / 20MHz / Mid CH / QPSK



B48-30M-20G / 20MHz / High CH / QPSK



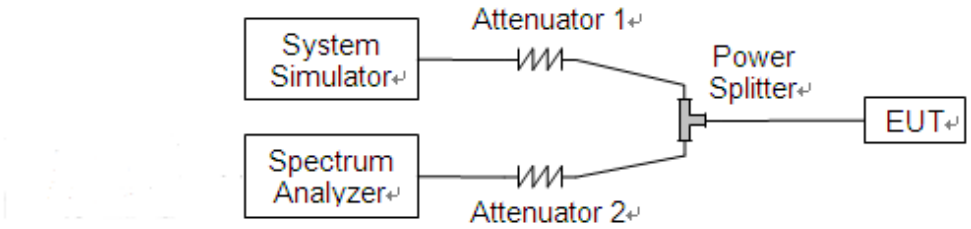
B48-20G-37G / 20MHz / High CH / QPSK

2.6. Band Edge

2.6.1.Requirement

Part 96.41(e)(1)(i)
For channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed −13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed −25 dBm/MHz.
Part 96.41(e)(1)(ii)
For channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed −25 dBm/MHz.
Part 96.41(e)(2)
For CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

2.6.2.Test Description

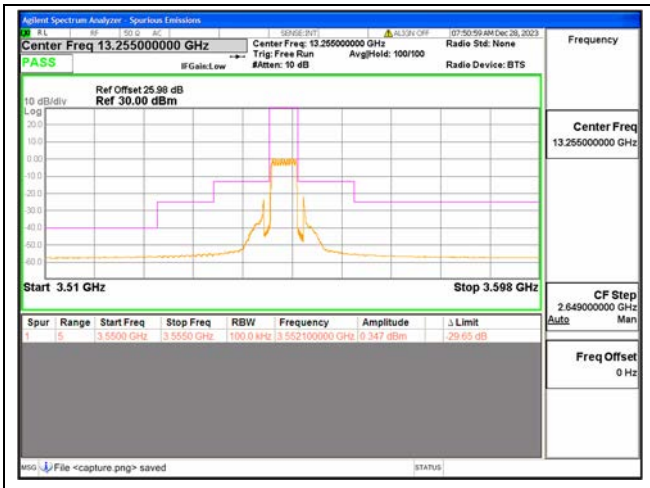


The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

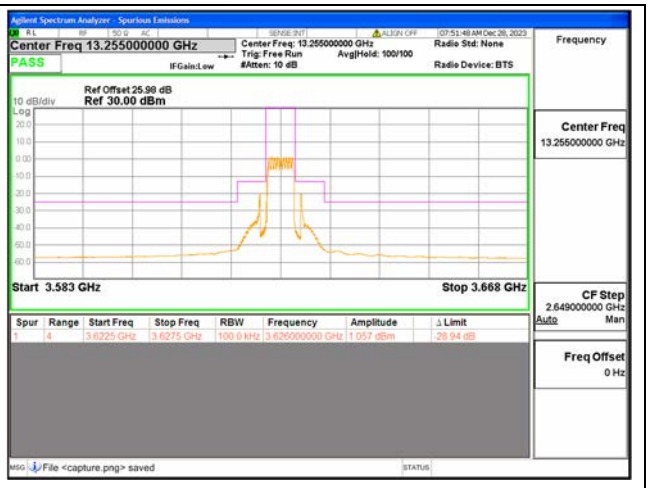
2.6.3.Test procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

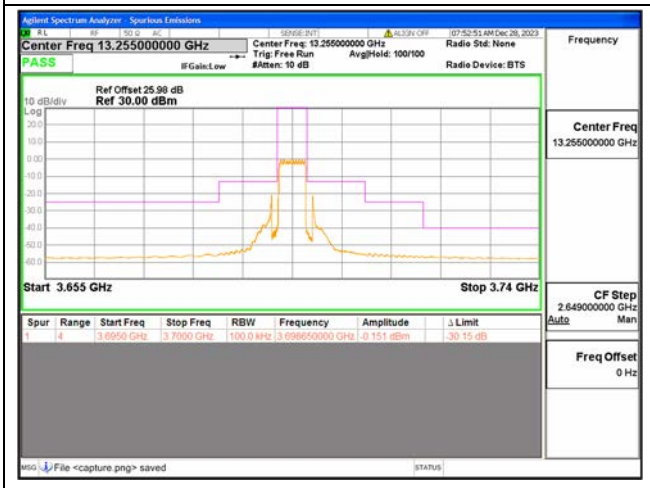
2.6.4.Test Result



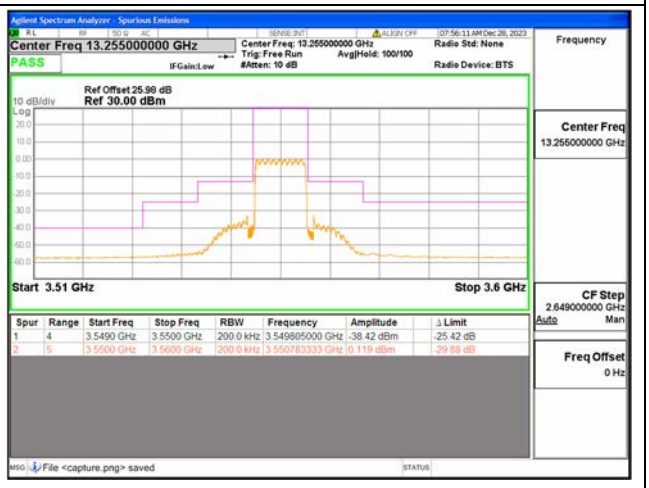
B48 / 5MHz / Low CH / QPSK / FULL RB



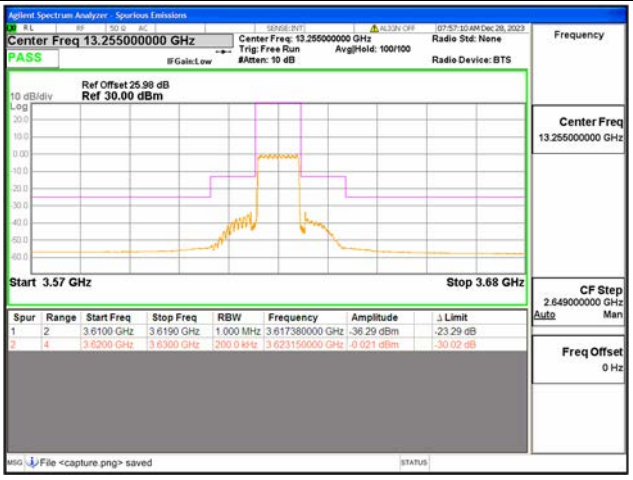
B48 / 5MHz / Mid CH / QPSK / FULL RB



B48 / 5MHz / High CH / QPSK / FULL RB



B48 / 10MHz / Low CH / QPSK / FULL RB



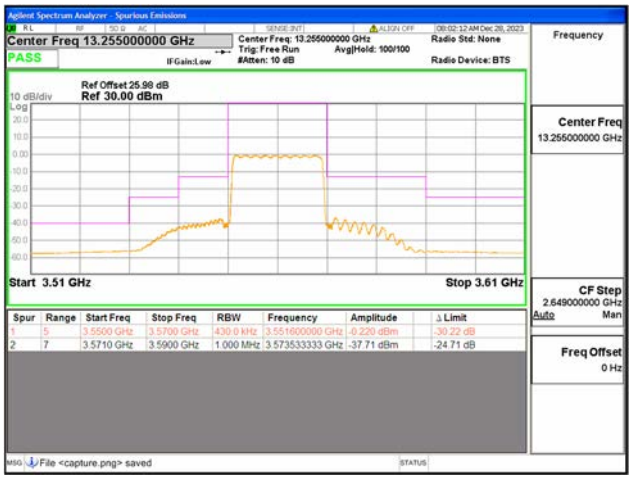
B48 / 10MHz / Mid CH / QPSK / FULL RB

B48 / 10MHz / High CH / QPSK / FULL RB

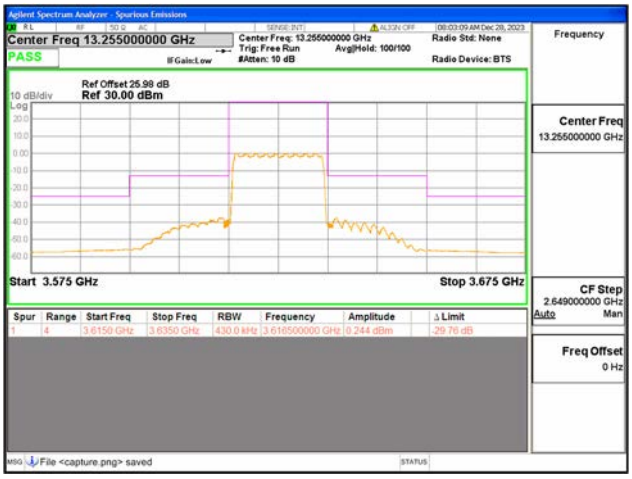
B48 / 15MHz / Low CH / QPSK / FULL RB

B48 / 15MHz / Mid CH / QPSK / FULL RB

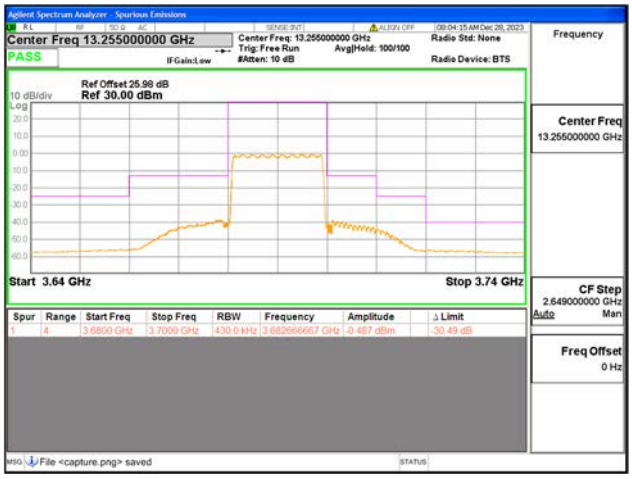
B48 / 15MHz / High CH / QPSK / FULL RB



B48 / 20MHz / Low CH / QPSK / FULL RB



B48 / 20MHz / Mid CH / QPSK / FULL RB



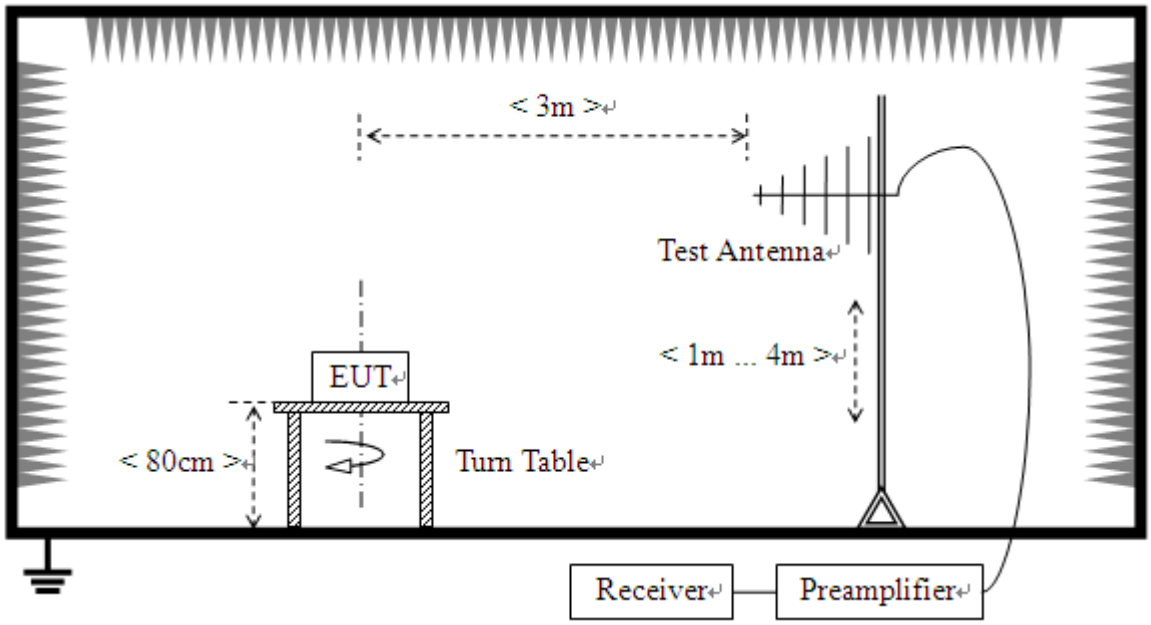
B48 / 20MHz / High CH / QPSK / FULL RB

2.7. Radiated Spurious Emissions

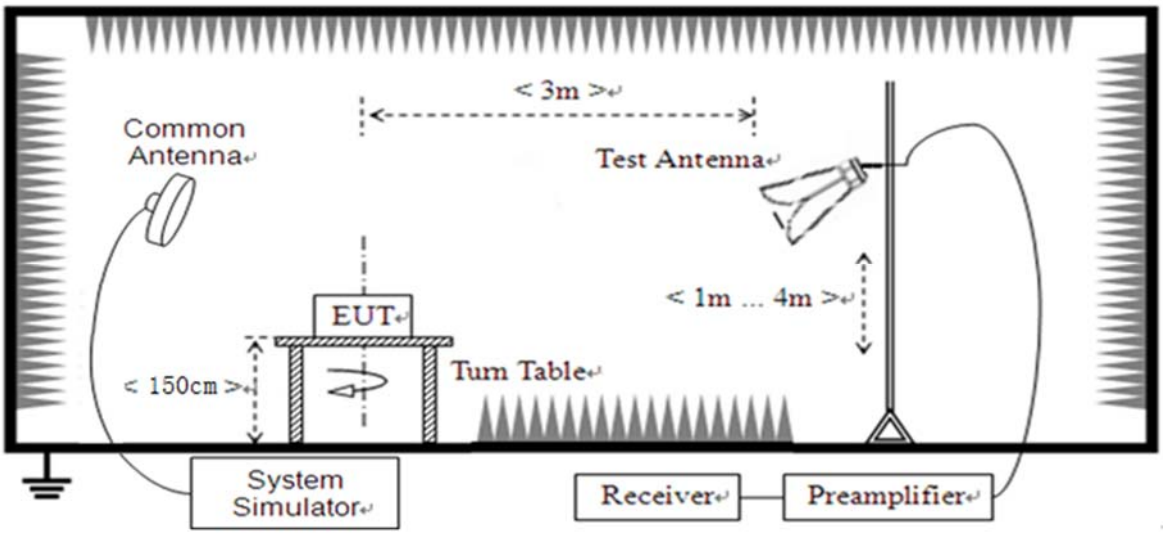
2.7.1.Requirement

The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.

2.7.2.Test Description



(For the test frequency from 30MHz to1GHz)



(For the test frequency above 1GHz)

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.
A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.
In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360°to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

2.7.3.Test procedure

KDB 971168 D01v03 Section 5.8 and ANSI/TIA-603-E-2016.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements.

For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements.

2.7.4.Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions.

The substitution corrections are obtained as described below:

$A_{SUBST} = P_{SUBST\_TX} - P_{SUBST\_RX} - L_{SUBST\_CABLES} + G_{SUBST\_TX\_ANT}$

$A_{TOT} = L_{CABLES} + A_{SUBST}$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

$G_{SUBST\_TX\_ANT}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the test spectrum analyze, so spectrum analyze reading is the final values which contain the data of A_{TOT}.

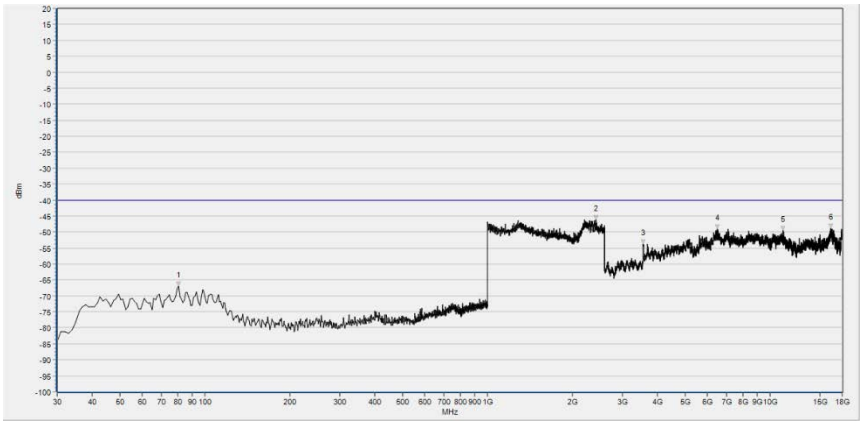
Note1: The power of the EUT transmitting frequency should be ignored.

Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

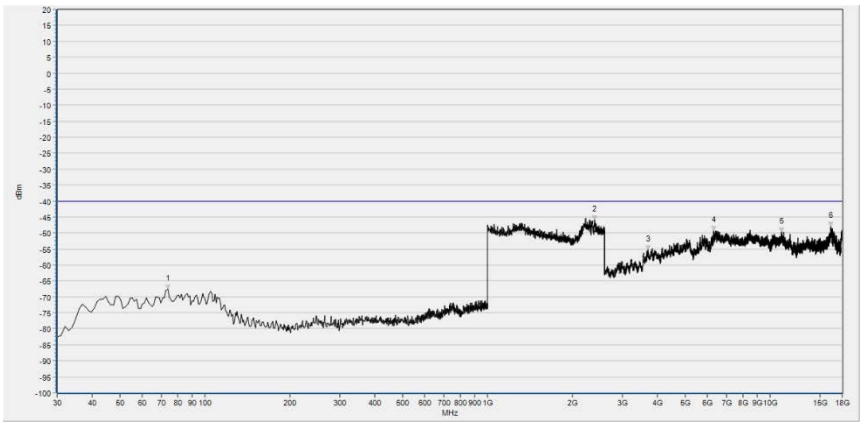
Note3: All bandwidth and modulation were considered and evaluated respectively by performing full test for each band, only the worst cases (Max Bandwidth and QPSK mode) were recorded in this test report.

Note4: N/A means the frequency is the basic frequency or the base station frequency, they are no need to verdict.

LTE Band 48, 20MHz BW, Low Channel, QPSK

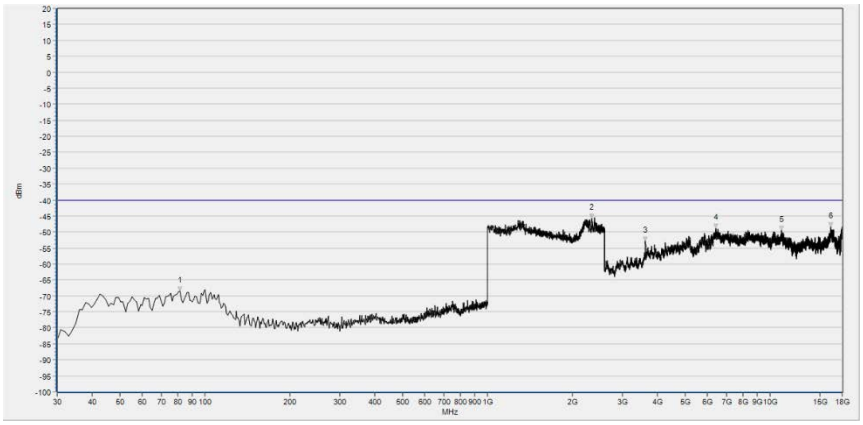


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	80.490	-66.98	-40.00	Horizontal	PASS
2	2415.816	-46.07	-40.00	Horizontal	PASS
3	3558.072	-53.82	-40.00	Horizontal	N/A
4	6515.463	-49.13	-40.00	Horizontal	PASS
5	11136.387	-49.50	-40.00	Horizontal	PASS
6	16444.289	-48.83	-40.00	Horizontal	PASS

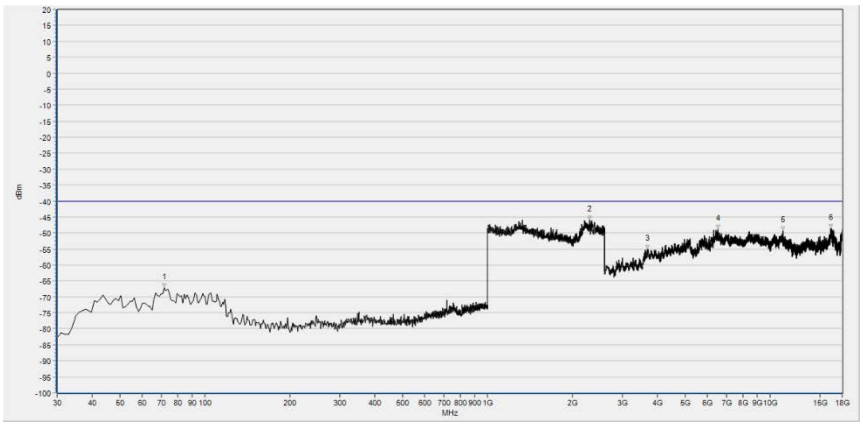


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	73.694	-67.65	-40.00	Vertical	PASS
2	2398.198	-46.03	-40.00	Vertical	PASS
3	3690.538	-55.22	-40.00	Vertical	PASS
4	6330.626	-49.38	-40.00	Vertical	PASS
5	11010.082	-49.63	-40.00	Vertical	PASS
6	16382.677	-47.97	-40.00	Vertical	PASS

LTE Band 48, 20MHz BW, Mid Channel, QPSK

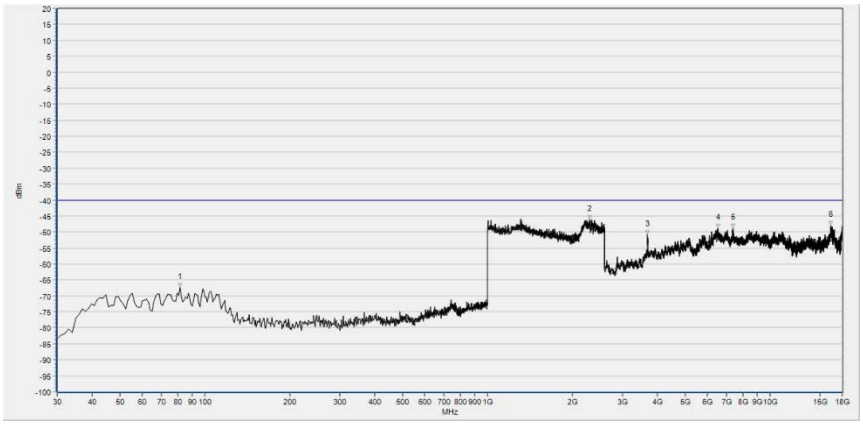


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	81.461	-68.59	-40.00	Horizontal	PASS
2	2342.142	-45.61	-40.00	Horizontal	PASS
3	3619.684	-52.81	-40.00	Horizontal	N/A
4	6413.803	-48.76	-40.00	Horizontal	PASS
5	10963.873	-49.54	-40.00	Horizontal	PASS
6	16419.644	-48.37	-40.00	Horizontal	PASS

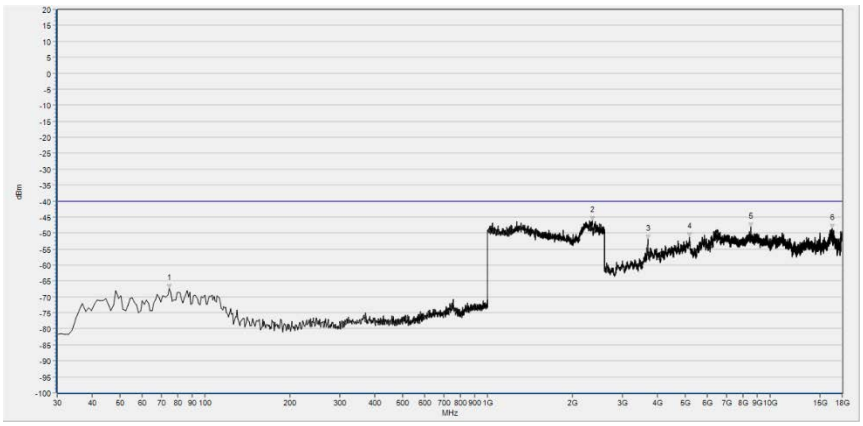


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	71.752	-67.15	-40.00	Vertical	PASS
2	2300.501	-45.89	-40.00	Vertical	PASS
3	3675.135	-55.08	-40.00	Vertical	PASS
4	6533.947	-48.91	-40.00	Vertical	PASS
5	11130.226	-49.19	-40.00	Vertical	PASS
6	16407.321	-48.54	-40.00	Vertical	PASS

LTE Band 48, 20MHz BW, High Channel, QPSK



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	81.461	-67.36	-40.00	Horizontal	PASS
2	2300.501	-46.14	-40.00	Horizontal	PASS
3	3684.377	-50.74	-40.00	Horizontal	N/A
4	6527.786	-48.86	-40.00	Horizontal	PASS
5	7393.439	-48.87	-40.00	Horizontal	PASS
6	16410.402	-47.96	-40.00	Horizontal	PASS



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	74.665	-67.35	-40.00	Vertical	PASS
2	2346.947	-46.21	-40.00	Vertical	PASS
3	3693.619	-52.06	-40.00	Vertical	N/A
4	5181.556	-51.35	-40.00	Vertical	PASS
5	8570.234	-48.26	-40.00	Vertical	PASS
6	16561.352	-48.56	-40.00	Vertical	PASS

2.8. End User Device Additional Requirements (CBSD Protocol)

2.8.1.Requirement

According to FCC section Part 96.47,

(a) End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation. An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.

(b) Any device operated at higher power than specified for End User Devices in Part 96.41 will be classified as, and subject to, the operational requirements of a CBSD.

2.8.2.Test Description

End user device additional requirements (CBSD Protocol) are tested per the test procedures listedbelow. During testing, the EUT is connected to a certified CBSD (kingsignal LBS7320 FCC ID: 2AVFNLBS7320) as a companion device to show compliance with Part 96.47.End User Devices may operate only if they can positively receive and decode an authorizationsignal transmitted by a CBSD, including the frequencies and power limits for their operationAn End User Device must discontinue operations, change frequencies, or change its operationapower level within 10 seconds of receiving instructions from its associated CBSD.

2.8.3.Test Procedure

KDB 940660 D01 Part 96 CBRS Eqpt v02.

2.8.4.Test Result

The EUT was connected via an RF cable to a certified CBSD and spectrum analyzer

Test Graph 1:

a. Setup frequency with 3610MHz - 3630MHz

b. Check EUT Tx frequency.

c. Disable AP service and check EUT stop transmission within 10s.

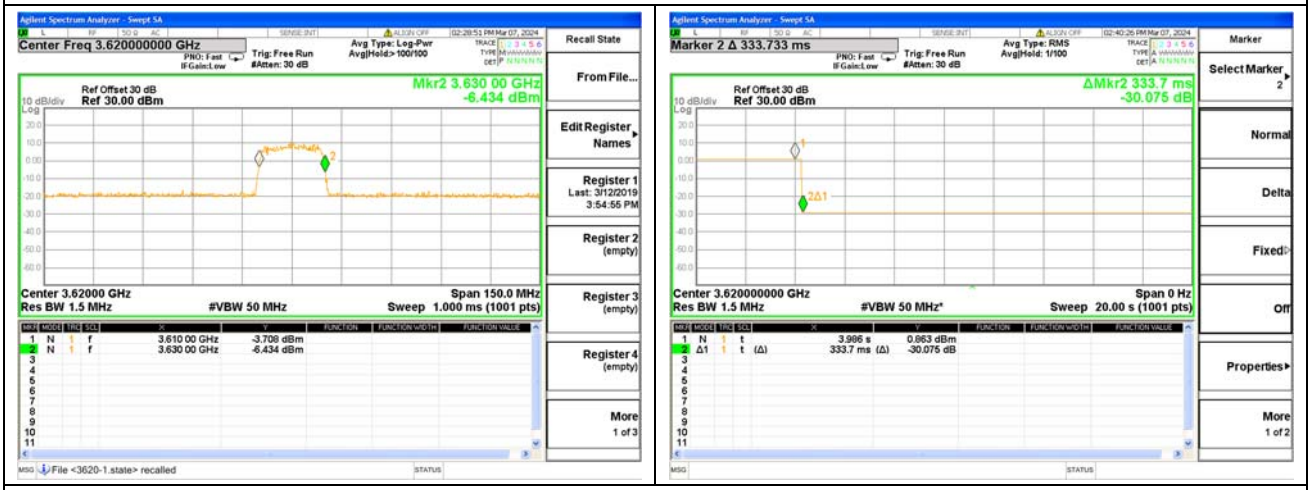
Test Graph 2:

a. Setup frequency with 3660MHz - 3680MHz

b. Check EUT Tx frequency.

c. Disable AP service and check EUT stop transmission within 10s

Test Graph 1

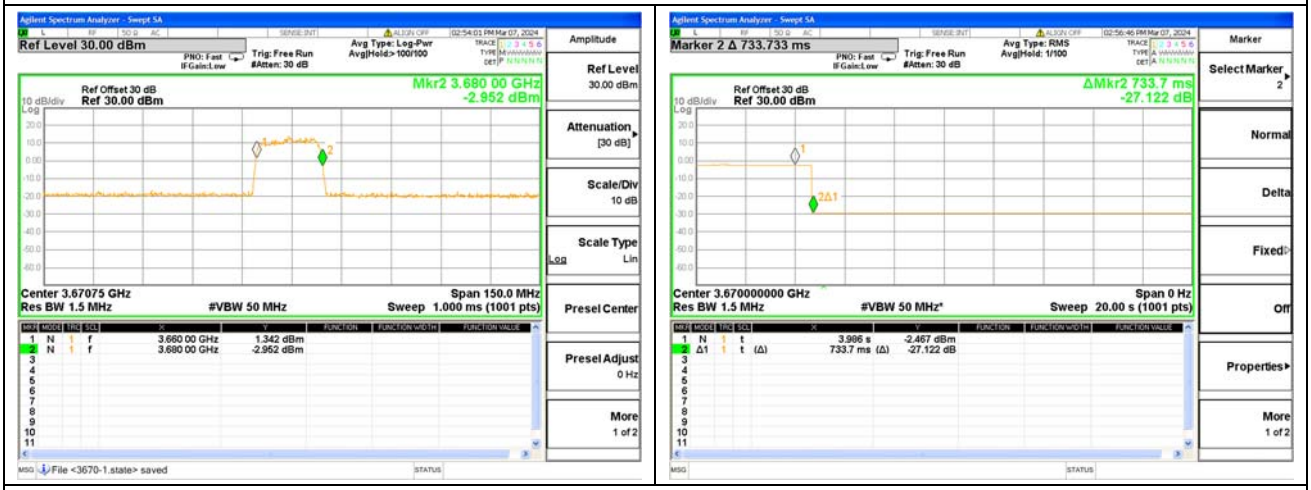


Note:

Marker 1: CBSD sends instructions to discontinue LTE operations.

Marker 2: EUT discontinues operation

Test Graph 2



Note:

Marker 1: CBSD sends instructions to discontinue LTE operations.

Marker 2: EUT discontinues operation

Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test Items	Uncertainty
Output Power	±2.22 dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Band Edge	±2.77 dB
Equivalent Isotropic Radiated Power	±2.22 dB
Radiated Spurious Emissions	±6 dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.

4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
EXA Signal Analyzer	MY54170556	N9030A	Agilent	2023.06.21	2024.06.20
Communication Test Station	6261830572	MT8821C	Anritsu	2023.06.21	2024.06.20
Temperature Chamber	S022177101 00089002	KMT-36LF 1A0	KOMEG	2023.09.19	2024.09.18

4.2 List of Software Used

Description	Manufacturer	Software Version
Morlab FCC LTE Test System	MORLAB	V6.45
MORLAB EMCR	MORLAB	V1.2

4.3 Radiated Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
System Simulator	152038	CMW500	R&S	2023.10.17	2024.10.16
Receiver	MY54130016	N9038A	Agilent	2023.06.21	2024.06.20
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2023.07.01	2024.06.30
Test Antenna - Horn	9120D-963	BBHA 9120D	Schwarzbeck	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	2023.07.04	2024.07.03
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KKF-2	Qualwave	2023.07.04	2024.07.03
Preamplifier (10MHz-6GHz)	46732	S10M100L3802	LUCIX CORP.	2023.07.04	2024.07.03
Preamplifier (2GHz-18GHz)	61171/61172	S020180L3203	LUCIX CORP.	2023.06.27	2024.06.26
Preamplifier (18GHz-40GHz)	DS77209	DCLNA0118-40C-S	Decentest	2023.06.27	2024.06.26
Notch Filter	N/A	WRCGV -LTE B42	Wainwright	N/A	N/A
Notch Filter	N/A	WRCGV -LTE B43	Wainwright	N/A	N/A
Notch Filter	N/A	WRCGV -LTE B48	Wainwright	N/A	N/A
Anechoic Chamber	N/A	9m*6m*6m	CRT	2022.05.10	2025.05.09

END OF REPORT