TEST REPORT

APPLICANT	:	Sonim Technologies, Inc.
PRODUCT NAME	:	Mobile Hotspot
MODEL NAME	:	H500B
BRAND NAME	:	Sonim
FCC ID	:	WYPH500B
STANDARD(S)	:	47 CFR Part 2 47 CFR Part 22 47 CFR Part 24 47 CFR Part 27 47 CFR Part 90 47 CFR Part 96
RECEIPT DATE	:	2023-11-01
TEST DATE	:	2023-11-13 to 2023-12-25
ISSUE DATE	:	2024-02-20

Edited by: Gan Jing

Gan Jing (Rapporteur)

Approved by: Shen Junsheng

Shen Junsheng (Supervisor)

NOTE: This document is issued by Shenzhen Morlab Communications Technology Co., Ltd., the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

MORLAB

Shenzhen Morlab Communications Technology Co., Ltd.
FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

DIRECTORY

1. Technical Information ····· 3
1.1. Applicant and Manufacturer Information ····· 3
1.2. Equipment Under Test (EUT) Description ····· 3
1.3. Maximum E.R.P./E.I.R.P. and Emission Designator ····· 5
1.4. Test Standards and Results ····· 8
1.5. Environmental Conditions ····· 14
2. Summary Test Results And Description ····· 15
2.1. Transmitter Conducted Output Power ····· 15
2.2. Occupied Bandwidth ····· 23
2.3. Conducted Spurious Emissions ····· 101
2.4. Peak to Average Radio ····· 284
2.5. Band Edge ····· 339
2.6. Radiated Spurious Emissions ····· 381
Annex A Test Uncertainty ····· 649
Annex B Testing Laboratory Information ····· 650

Change History		
Version	Date	Reason for change
1.0	2024-02-20	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Sonim Technologies, Inc.
Applicant Address:	4445 Eastgate Mall, Suite 200, San Diego, CA 92121, USA
Manufacturer:	Sonim Technologies, Inc.
Manufacturer Address:	4445 Eastgate Mall, Suite 200, San Diego, CA 92121, USA

1.2. Equipment Under Test (EUT) Description

Product Name:	Mobile Hotspot	
Sample No.:	4#,9#	
Hardware Version:	V1.0	
Software Version:	H50.0-01-5.4.0-11.08.00	
Modulation Type:	QPSK, 16QAM, 64QAM,256QAM	
Operation Band:	Uplink:2A_4A; 2A_5A; 2A_7A; 2A_12A; 2A_13A; 2A_66A; 2A_71A; 4A_5A; 4A_7A; 4A_12A; 4A_13A; 4A_71A; 5A_7A; 5A_66A; 7A_12A; 12A_66A; 13A_66A; 66A_71A; 41C; 48C; 66B; 66C	
Channel Bandwidth:	Band 2	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
	Band 4	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
	Band 5	1.4MHz, 3MHz, 5MHz, 10MHz
	Band 7	5 MHz, 10MHz, 15MHz, 20MHz
	Band 12	1.4MHz, 3 MHz, 5 MHz, 10MHz
	Band 13	5 MHz, 10MHz
	Band 66	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
	Band 71	5MHz, 10MHz, 15MHz, 20MHz
	LTE 41C	5MHz+20MHz,20MHz+5MHz,10MHz+15MHz, 15MHz+10MHz,10MHz+20MHz,20MHz+10MHz 15MHz+15MHz,15MHz+20MHz,20MHz+15MHz,20 MHz+20MHz
	LTE 48C	5MHz+20MHz,20MHz+5MHz,10MHz+20MHz,20M Hz+10MHz,15MHz+20MHz,20MHz+15MHz,20MHz +20MHz
	LTE 66B	5MHz+5MHz,5MHz+10MHz,10MHz+5MHz,5MHz+

		15MHz,15MHz+5MHz,10MHz+10MHz
	LTE 66C	5MHz+20MHz,20MHz+5MHz,10MHz+15MHz, 15MHz+10MHz,10MHz+20MHz,20MHz+10MHz 15MHz+15MHz,15MHz+20MHz,20MHz+15MHz,20 MHz+20MHz
Antenna Type:	PIFA Antenna	
Antenna Gain:	Band 2	ANT0:2.40 dBi,ANT1:2.17dBi
	Band 4	ANT0:1.29 dBi ,ANT1:1.93dBi
	Band 5	ANT4:-1.44 dBi
	Band 7	ANT0:0.35 dBi
	Band 12	ANT4:-2.61 dBi
	Band 13	ANT4:-2.58 dBi
	Band 41	ANT0:0.74 dBi
	Band 48	ANT2:-0.14 dBi,ANT3:-0.03 dBi
	Band 66	ANT0:1.29 dBi,ANT1:1.93 dBi
Accessory Information:	Battery	
	Brand Name:	sonim
	Model No.:	BAT-06000-01S
	Serial No.:	N/A
	Capacity:	6000mAh
	Rated Voltage:	3.85V
	Charge Limit:	4.4V
	Manufacturer:	Guangdong Fenghua New Energy Co.,Ltd.
	AC Adapter	
	Brand Name:	N/A
	Model No.:	1-CHUSQ302-097
	Serial No.:	N/A
	Rated Output:	5V⎓3A or 9V⎓2.0A or 12V⎓1.5A
	Rated Input:	100-240V~50/60Hz, 0.5A
	Manufacturer:	HUIZHOU PUAN ELEOTRONICS CO.,LTD

Note1: 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

Channel bandwidth	Maximum ERP/EIRP（W）			
CA_41C_PC2	QPSK	16QAM	64QAM	256QAM
20+20	0.408	/	/	/
CA_41C_PC3	QPSK	16QAM	64QAM	256QAM
20+20	0.182	/	/	/
CA_48C	QPSK	16QAM	64QAM	256QAM
20+20	0.108	/	/	/
CA_66B	QPSK	16QAM	64QAM	256QAM
10+10	0.268	/	/	/
CA_66C	QPSK	16QAM	64QAM	256QAM
20+20	0.263	/	/	/
CA_2A-4A	QPSK	16QAM	64QAM	256QAM
20+20	0.298	/	/	/
CA_2A-5A	QPSK	16QAM	64QAM	256QAM
20+10	0.267	/	/	/
CA_2A-7A	QPSK	16QAM	64QAM	256QAM
20+20	0.057	/	/	/
CA_2A-12A	QPSK	16QAM	64QAM	256QAM
20+5	0.274	/	/	/
CA_2A-13A	QPSK	16QAM	64QAM	256QAM
20+10	0.267	/	/	
CA_2A-66A	QPSK	16QAM	64QAM	256QAM
20+20	0.294	/	/	/
CA_2A-71A	QPSK	16QAM	64QAM	256QAM
20+20	0.284	/	/	/
CA_4A-5A	QPSK	16QAM	64QAM	256QAM
20+10	0.230	/	/	/
CA_4A-7A	QPSK	16QAM	64QAM	256QAM
20+20	0.044	/	/	
CA_4A-12A	QPSK	16QAM	64QAM	256QAM
20+5	0.237	/	/	/
CA_4A-13A	QPSK	16QAM	64QAM	256QAM
20+10	0.229	/	/	/
CA_4A-71A	QPSK	16QAM	64QAM	256QAM
20+10	0.248	/	/	/
CA_5A-7A	QPSK	16QAM	64QAM	256QAM

10+20	0.230	/	/	/
CA_5A-66A	QPSK	16QAM	64QAM	256QAM
10+20	0.321	/	/	/
CA_7A-12A	QPSK	16QAM	64QAM	256QAM
20+5	0.126	/	/	/
CA_12A-66A	QPSK	16QAM	64QAM	256QAM
5+20	0.252	/	/	/
CA_13A-66A	QPSK	16QAM	64QAM	256QAM
10+20	0.244	/	/	/
CA_66A-71A	QPSK	16QAM	64QAM	256QAM
20+20	0.239	/	/	/

Channel bandwidth	**Emission Designator (99%OBW)**			
LTE 41C	QPSK	16QAM	64QAM	256QAM
5+20	22M9G7D	22M9W7D	22M9W7D	22M8W7D
10+15	23M2G7D	23M1W7D	23M1W7D	23M1W7D
10+20	27M8G7D	27M8W7D	27M8W7D	27M7W7D
15+10	23M2G7D	23M1W7D	23M1W7D	23M2W7D
15+15	28M4G7D	28M3W7D	28M4W7D	28M3W7D
15+20	32M6G7D	32M7W7D	32M7W7D	32M7W7D
20+5	22M9G7D	22M9W7D	22M8W7D	22M9W7D
20+10	27M8G7D	27M8W7D	27M8W7D	27M8W7D
20+15	32M7G7D	32M7W7D	32M7W7D	32M6W7D
20+20	37M6G7D	37M5W7D	37M6W7D	37M6W7D
LTE 48C	QPSK	16QAM	64QAM	256QAM
5+20	22M8G7D	22M9W7D	22M8W7D	22M8W7D
10+20	27M7G7D	27M7W7D	27M6W7D	27M7W7D
15+20	32M5G7D	32M5W7D	32M6W7D	32M6W7D
20+5	22M9G7D	22M9W7D	22M8W7D	22M9W7D
20+10	27M7G7D	27M7W7D	27M8W7D	27M7W7D
20+15	32M6G7D	32M6W7D	32M6W7D	32M5W7D
20+20	37M4G7D	37M5W7D	37M6W7D	37M4W7D
LTE 66B	QPSK	16QAM	64QAM	256QAM
5+5	9M28G7D	9M28W7D	9M31W7D	9M30W7D
5+10	14M0G7D	13M9W7D	13M9W7D	13M9W7D
5+15	18M3G7D	18M3W7D	18M3W7D	18M3W7D
10+5	14M0G7D	13M9W7D	13M9W7D	13M9W7D

10+10	18M9G7D	18M9W7D	18M9W7D	18M9W7D
15+5	18M3G7D	18M3W7D	18M3W7D	18M3W7D
LTE 66C	QPSK	16QAM	64QAM	256QAM
5+20	22M8G7D	22M8W7D	22M8W7D	22M8W7D
10+15	23M1G7D	23M1W7D	23M1W7D	23M1W7D
10+20	27M8G7D	27M7W7D	27M7W7D	27M7W7D
15+10	23M1G7D	23M1W7D	23M2W7D	23M1W7D
15+15	28M4G7D	28M3W7D	28M4W7D	28M3W7D
15+20	32M6G7D	32M6W7D	32M6W7D	32M6W7D
20+5	22M9G7D	22M9W7D	22M9W7D	22M9W7D
20+10	27M8G7D	27M8W7D	27M8W7D	27M7W7D
20+15	32M6G7D	32M6W7D	32M7W7D	32M7W7D
20+20	37M5G7D	37M5W7D	37M6W7D	37M5W7D

1.4. Test Standards and Results

The objective of the report is to perform testing according to Part 2, Part 22, Part 24, Part 27, Part 90 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 22	Public Mobile Services
3	47 CFR Part 24	Personal Communications Services
4	47 CFR Part 27	Miscellaneous Wireless Communications Services
6	47 CFR Part 96	CITIZENS BROADBAND RADIO SERVICE

B2			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §24.232(c)	EIRP ≤ 2 W	PASS
Peak-Average Ratio	§24.232(d)	Limit≤13 dB	PASS
Bandwidth	§2.1049	OBW: No limit EBW: No limit	PASS
Band Edges Compliance	§2.1051, §24.238(a)(b)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §24.238(a)(b)	≤ -13 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §24.238(a)	≤ -13 dBm/1MHz	PASS
Frequency Stability	§2.1055, §24.235	No limit	N/A

B4 & B66			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(d)(4)	EIRP ≤1 W	PASS
Peak-Average Ratio	§27.50(d) (5)	Limit≤13 dB	PASS

Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	PASS
Band Edges Compliance	§2.1051, §27.53(h)(1) §27.53(h)(3)(i)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §27.53(h)(1)	≤ -13 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §27.53(h)(1)	≤ -13 dBm/1MHz.	PASS
Frequency Stability	§2.1055, §27.54	No limit	N/A

B5			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913(a)(5)	ERP ≤ 7W	PASS
Peak-Average Ratio	N/A	N/A	N/A
Bandwidth	§2.1049	OBW: No limit EBW: No limit	PASS
Band Edges Compliance	§2.1051, §22.917(a)(b)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §22.917(a)	≤ -13 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §22.355	≤ -13 dBm/1MHz	PASS
Frequency Stability	§2.1055, §22.355	≤ ±2.5ppm	PASS

B7 & B41			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(h)(2)	EIRP ≤2W	PASS
Peak-Average Ratio	N/A	N/A	N/A
Bandwidth	§2.1049	OBW: No limit EBW: No limit	PASS
Band Edges Compliance	§2.1051, §27.53(m)(4)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)(4)	≤ -25 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §27.53(m)(4)	≤ -25 dBm/1MHz	PASS
Frequency Stability	§2.1055, §27.54	No limit	N/A

B12			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(c)(10)	ERP ≤3W	PASS
Peak-Average Ratio	N/A	N/A	N/A
Bandwidth	§2.1049	OBW: No limit EBW: No limit	PASS
Band Edges Compliance	§2.1051, §27.53(g)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	≤ -13 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	≤ -13 dBm/1MHz	PASS
Frequency Stability	§2.1055, §27.54	No limit	N/A

B13			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(b)(10)	ERP ≤3W	PASS
Peak-Average Ratio	N/A	N/A	N/A
Bandwidth	§2.1049	OBW: No limit EBW: No limit	PASS
Band Edges Compliance	§2.1051, §27.53(c)(2)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §27.53(c)(2)	≤ -13 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §27.53(c)(2)	≤ -13 dBm/1MHz	PASS
Frequency Stability	§2.1055, §27.54	No limit	N/A

B48			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §96.41(b)	Refer to section 2.1	PASS
Peak-Average Ratio	N/A	N/A	N/A
Bandwidth	§2.1049	OBW: No limit EBW: No limit	PASS
Band Edges Compliance	§2.1051, §96.41(e)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §96.41(e)	≤ -40 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §96.41(e)	≤ -40 dBm/1MHz	PASS
Frequency Stability	§2.1055, §27.54	No limit	N/A

B71			
Item	**FCC Rule No.**	**Requirements**	**Result**
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(c)(10)	EIRP ≤3 W	PASS
Peak-Average Ratio	N/A	N/A	N/A
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	PASS
Band Edges Compliance	§2.1051, §27.53(g)	Refer to section 2.6	PASS
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	≤ -13 dBm/1MHz	PASS
Field Strength of Spurious Radiation	§2.1053, §27.53(g)	≤ -13 dBm/1MHz.	PASS
Frequency Stability	§2.1055, §27.54	No limit	N/A

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

Test Item	Test Date	Test Engineer	Result	Method Determination /Remark
Transmitter Conducted Output Power and E.R.P./E.I.R.P.	2024/01/09	Yu Xiaoming Gan Jing	PASS	No deviation
Occupied Bandwidth	2023/12/06	Gan Jing	PASS	No deviation
Frequency Stability	2023/12/06	Gan Jing	PASS	No deviation
Peak to Average Radio	2023/12/06-2023/12/07	Gan Jing	PASS	No deviation
Conducted Spurious Emissions	2023/12/04-2023/12/06	Gan Jing	PASS	No deviation
Band Edge	2023/12/06	Gan Jing	PASS	No deviation
Radiated Spurious Emissions	2023/12/21	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 equipments. The ref offset 23.5dB contains two parts that cable loss 13.5dB and Attenuator 10dB.

1.5. Environmental Conditions

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

Temperature (°C):	15-35
Relative Humidity (%):	30-60

2. Summary Test Results And Description

2.1. Transmitter Conducted Output Power

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).

According to FCC section 24.232 (c) for LTE Band 2,Mobile and portable stations are limited to 2 watts E.I.R.P. and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to FCC section 27.50 (d)(4) for LTE Band 4/66, Fixed, mobile and portable (hand-held) stations in the 1710-1755MHz band are limited to 1wat E.I.R.P.

According to FCC section22.913 (a)(2) for LTE Band 5, the E.R.P. of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 27.50 (h)(2) for LTE Band 7/41, Mobile and other user stations. Mobile stations are limited to 2 watts E.I.R.P. All user stations are limited to 2 watts transmitter output power.

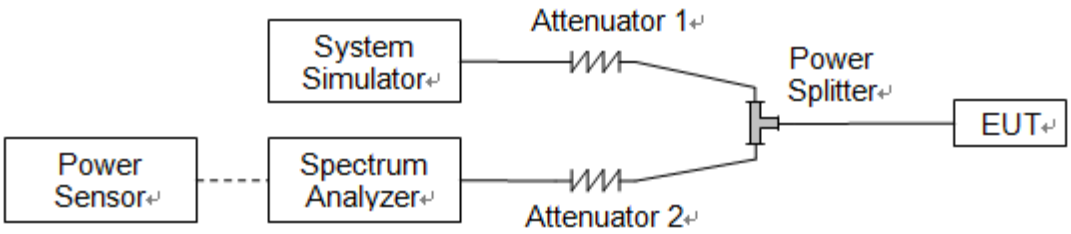
According to FCC section 27.50 (b)(10)for LTE Band 13, Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts E.R.P.

According to FCC section 27.50 (c)(10)for LTE Band 12/71,Portable stations (hand-held devices) operating in the 704-716MHz band are limited to 3watts E.R.P.

According to FCC section 96.41(b) for LTE Band 48, 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 in this paragraph (b):

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

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.

E.I.R.P. (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)
E.R.P. (dBm) = E.I.R.P. (dBm) - 2.15

2.1.4. Result

Conducted Output Power

CA_41C PC2								
Combination:20MHz+20MHz(100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)
			RB Size	RB Offset	RB Size	RB Offset		
39750	39948	QPSK	1	0	0	0	1	25.37
40529	40712	QPSK	1	0	0	0	1	25.27
41292	41490	QPSK	1	0	0	0	1	25.23

CA_41C PC3								
Combination:20MHz+20MHz(100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)
			RB Size	RB Offset	RB Size	RB Offset		
39750	39948	QPSK	1	0	0	0	1	21.87
40529	40712	QPSK	1	0	0	0	1	21.77
41292	41490	QPSK	1	0	0	0	1	21.73

CA_48C								
Combination:20MHz+20MHz(100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)
			RB Size	RB Offset	RB Size	RB Offset		
55340	55538	QPSK	1	0	0	0	1	20.33
55891	56089	QPSK	1	0	0	0	1	20.38
56442	56640	QPSK	1	0	0	0	1	20.29

CA_66B								
Combination:10MHz+10MHz(50RB+50RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)
			RB Size	RB Offset	RB Size	RB Offset		
132022	132121	QPSK	1	0	100	0	1	22.11

132373	132472	QPSK	1	0	100	0	1	22.35
132523	132622	QPSK	1	0	100	0	1	22.20

CA_66C								
Combination:20MHz+20MHz(100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)
			RB Size	RB Offset	RB Size	RB Offset		
132072	132270	QPSK	1	0	0	0	1	22.18
132323	132521	QPSK	1	0	0	0	1	22.22
132374	132572	QPSK	1	0	0	0	1	22.27

Configure	CA Configuration	PCC				
		Band	BW (MHz)	UL Channel	UL Fre. (MHz)	UL Mode (Modulation/RB/Offset)
Inter-band	CA_2A-4A	2	20	18700	1860	QPSK/1#0
	CA_2A-5A	2	20	18700	1860	QPSK/1#0
	CA_2A-7A	2	20	18700	1860	QPSK/1#0
	CA_2A-12A	2	20	18700	1860	QPSK/1#0
	CA_2A-13A	2	20	18700	1860	QPSK/1#0
	CA_2A-66A	2	20	18700	1860	QPSK/1#0
	CA_2A-71A	2	20	18700	1860	QPSK/1#0
	CA_4A-5A	4	20	20050	1720	QPSK/1#0
	CA_4A-7A	4	20	20050	1720	QPSK/1#0
	CA_4A-12A	4	20	20050	1720	QPSK/1#0
	CA_4A-13A	4	20	20050	1720	QPSK/1#0
	CA_4A-71A	4	20	20050	1720	QPSK/1#0
	CA_5A-7A	5	10	20450	829	QPSK/1#0
	CA_5A-66A	5	10	20450	829	QPSK/1#0
	CA_7A-12A	7	20	20850	2510	QPSK/1#0
	CA_12A-66A	12	5	23035	701.5	QPSK/1#0
	CA_13A-66A	13	10	23230	782	QPSK/1#0
	CA_66A-71A	66	20	132072	1720	QPSK/1#0

SCC				
Band	BW (MHz)	UL Channel	UL Fre. (MHz)	Measured Power(dBm)
4	20	20300	1745	22.34
5	10	20600	844	21.86
7	20	21350	2560	15.17
12	5	23155	713.5	21.98
13	10	23230	782	21.87
66	20	132572	1770	22.28
71	20	133372	688	22.14
5	10	20600	844	21.68
7	20	21350	2560	14.48
12	5	23155	713.5	21.82
13	10	23230	782	21.67
71	20	133372	688	22.01
7	20	21350	2560	23.27
66	20	132572	1770	23.14
12	5	23155	713.5	20.65
66	20	132572	1770	22.08
66	20	132572	1770	21.95
71	20	133372	688	21.85

Effective Radiated Power and Effective Isotropic Radiated Power

LTE CA_41C PC2									
Combination:20MHz+20MHz(100RB+100RB)									
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)	Measured EIRP(W)
			RB Size	RB Offset	RB Size	RB Offset			
39750	39948	QPSK	1	0	100	0	1	26.11	0.408
40521	40719	QPSK	1	0	100	0	1	26.01	0.399
41292	41490	QPSK	1	0	100	0	1	25.97	0.395

LTE CA_41C PC3									
Combination:20MHz+20MHz(100RB+100RB)									
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)	Measured EIRP(W)
			RB Size	RB Offset	RB Size	RB Offset			
39750	39948	QPSK	1	0	100	0	1	22.61	0.182
40521	40719	QPSK	1	0	100	0	1	22.51	0.178
41292	41490	QPSK	1	0	100	0	1	22.47	0.177

LTE CA_48C									
Combination:20MHz+20MHz(100RB+100RB)									
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)	Measured EIRP(W)
			RB Size	RB Offset	RB Size	RB Offset			
55340	55538	QPSK	1	0	100	0	1	20.30	0.107
55891	56089	QPSK	1	0	100	0	1	20.35	0.108
56442	56640	QPSK	1	0	100	0	1	20.26	0.106

LTE CA_66B									
Combination:20MHz+20MHz(100RB+100RB)									
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)	Measured EIRP(W)
			RB Size	RB Offset	RB Size	RB Offset			
132022	132121	QPSK	1	0	100	0	1	24.04	0.254
132373	132472	QPSK	1	0	100	0	1	24.28	0.268
132523	132622	QPSK	1	0	100	0	1	24.13	0.259

LTE CA_66C									
Combination:20MHz+20MHz(100RB+100RB)									
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power(dBm)	Measured EIRP(W)
			RB Size	RB Offset	RB Size	RB Offset			
132072	132270	QPSK	1	0	100	0	1	24.11	0.258
132323	132521	QPSK	1	0	100	0	1	24.15	0.260
132374	132572	QPSK	1	0	100	0	1	24.20	0.263

Configure	CA Configuration	PCC				
		Band	BW (MHz)	UL Channel	UL Fre. (MHz)	UL Mode (Modulation/RB/Offset)
Inter-band	CA_2A-4A	2	20	18700	1860	QPSK/1#0
	CA_2A-5A	2	20	18700	1860	QPSK/1#0
	CA_2A-7A	2	20	18700	1860	QPSK/1#0
	CA_2A-12A	2	20	18700	1860	QPSK/1#0
	CA_2A-13A	2	20	18700	1860	QPSK/1#0
	CA_2A-66A	2	20	18700	1860	QPSK/1#0
	CA_2A-71A	2	20	18700	1860	QPSK/1#0
	CA_4A-5A	4	20	20050	1720	QPSK/1#0
	CA_4A-7A	4	20	20050	1720	QPSK/1#0
	CA_4A-12A	4	20	20050	1720	QPSK/1#0
	CA_4A-13A	4	20	20050	1720	QPSK/1#0
	CA_4A-71A	4	20	20050	1720	QPSK/1#0
	CA_5A-7A	5	10	20450	829	QPSK/1#0
	CA_5A-66A	5	10	20450	829	QPSK/1#0
	CA_7A-12A	7	20	20850	2510	QPSK/1#0
	CA_12A-66A	12	5	23035	701.5	QPSK/1#0
	CA_13A-66A	13	10	23230	782	QPSK/1#0
	CA_66A-71A	66	20	132072	1720	QPSK/1#0

SCC					
Band	BW (MHz)	UL Channel	UL Fre. (MHz)	Measured Power(dBm)	EIRP(W)
4	20	20300	1745	24.74	0.298
5	10	20600	844	24.26	0.267
7	20	21350	2560	17.57	0.057
12	5	23155	713.5	24.38	0.274
13	10	23230	782	24.27	0.267
66	20	132572	1770	24.68	0.294
71	20	133372	688	24.54	0.284
5	10	20600	844	23.61	0.230
7	20	21350	2560	16.41	0.044
12	5	23155	713.5	23.75	0.237
13	10	23230	782	23.60	0.229
71	20	133372	688	23.94	0.248

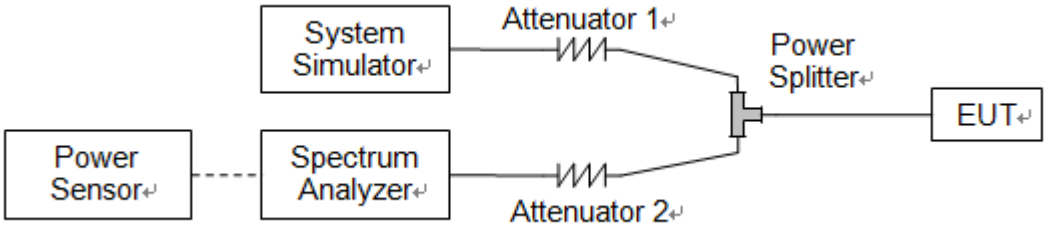
7	20	21350	2560	23.62	0.230
66	20	132572	1770	25.07	0.321
12	5	23155	713.5	21.00	0.126
66	20	132572	1770	24.01	0.252
66	20	132572	1770	23.88	0.244
71	20	133372	688	23.78	0.239

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	PCC CH	SCC CH	Modulation	99% BW (MHz)	26dB BW (MHz)	Verdict
41C	5+20	Low	39683	39800	QPSK	22.87	23.71	PASS
41C	5+20	Low	39683	39800	16QAM	22.87	23.75	PASS
41C	5+20	Low	39683	39800	64QAM	22.88	23.79	PASS
41C	5+20	Low	39683	39800	256QAM	22.75	23.78	PASS
41C	20+5	Low	39750	39867	QPSK	22.84	23.88	PASS
41C	20+5	Low	39750	39867	16QAM	22.82	24.00	PASS
41C	20+5	Low	39750	39867	64QAM	22.81	23.96	PASS
41C	20+5	Low	39750	39867	256QAM	22.86	23.93	PASS
41C	10+15	Low	39703	39823	QPSK	23.08	24.29	PASS
41C	10+15	Low	39703	39823	16QAM	23.07	24.42	PASS
41C	10+15	Low	39703	39823	64QAM	23.10	24.19	PASS
41C	10+15	Low	39703	39823	256QAM	23.07	24.20	PASS
41C	15+10	Low	39725	39845	QPSK	23.17	24.46	PASS
41C	15+10	Low	39725	39845	16QAM	23.04	24.41	PASS
41C	15+10	Low	39725	39845	64QAM	23.07	24.58	PASS
41C	15+10	Low	39725	39845	256QAM	23.12	24.22	PASS
41C	10+20	Low	39705	39849	QPSK	27.77	29.08	PASS
41C	10+20	Low	39705	39849	16QAM	27.75	29.03	PASS
41C	10+20	Low	39705	39849	64QAM	27.75	28.81	PASS
41C	10+20	Low	39705	39849	256QAM	27.74	28.99	PASS
41C	20+10	Low	39750	39894	QPSK	27.69	29.15	PASS
41C	20+10	Low	39750	39894	16QAM	27.70	29.05	PASS
41C	20+10	Low	39750	39894	64QAM	27.67	29.17	PASS
41C	20+10	Low	39750	39894	256QAM	27.73	29.16	PASS
41C	15+15	Low	39725	39875	QPSK	28.37	29.82	PASS
41C	15+15	Low	39725	39875	16QAM	28.28	29.86	PASS
41C	15+15	Low	39725	39875	64QAM	28.36	29.59	PASS
41C	15+15	Low	39725	39875	256QAM	28.32	29.75	PASS
41C	15+20	Low	39728	39899	QPSK	32.59	34.45	PASS
41C	15+20	Low	39728	39899	16QAM	32.65	34.11	PASS
41C	15+20	Low	39728	39899	64QAM	32.55	34.04	PASS
41C	15+20	Low	39728	39899	256QAM	32.58	34.27	PASS
41C	20+15	Low	39750	39921	QPSK	32.53	34.10	PASS
41C	20+15	Low	39750	39921	16QAM	32.62	34.26	PASS
41C	20+15	Low	39750	39921	64QAM	32.65	34.09	PASS

41C	20+15	Low	39750	39921	256QAM	32.54	34.09	PASS
41C	20+20	Low	39750	39948	QPSK	37.51	39.37	PASS
41C	20+20	Low	39750	39948	16QAM	37.50	39.47	PASS
41C	20+20	Low	39750	39948	64QAM	37.53	39.13	PASS
41C	20+20	Low	39750	39948	256QAM	37.56	39.21	PASS
41C	5+20	Mid	40528	40645	QPSK	22.77	23.80	PASS
41C	5+20	Mid	40528	40645	16QAM	22.73	23.71	PASS
41C	5+20	Mid	40528	40645	64QAM	22.83	23.72	PASS
41C	5+20	Mid	40528	40645	256QAM	22.77	23.69	PASS
41C	20+5	Mid	40595	40712	QPSK	22.88	24.02	PASS
41C	20+5	Mid	40595	40712	16QAM	22.80	23.97	PASS
41C	20+5	Mid	40595	40712	64QAM	22.82	24.02	PASS
41C	20+5	Mid	40595	40712	256QAM	22.83	24.01	PASS
41C	10+15	Mid	40549	40669	QPSK	23.05	24.27	PASS
41C	10+15	Mid	40549	40669	16QAM	23.07	24.21	PASS
41C	10+15	Mid	40549	40669	64QAM	23.10	24.28	PASS
41C	10+15	Mid	40549	40669	256QAM	23.04	24.21	PASS
41C	15+10	Mid	40571	40691	QPSK	23.14	24.26	PASS
41C	15+10	Mid	40571	40691	16QAM	23.10	24.30	PASS
41C	15+10	Mid	40571	40691	64QAM	23.08	24.37	PASS
41C	15+10	Mid	40571	40691	256QAM	23.12	24.39	PASS
41C	10+20	Mid	40526	40670	QPSK	27.66	29.02	PASS
41C	10+20	Mid	40526	40670	16QAM	27.67	28.87	PASS
41C	10+20	Mid	40526	40670	64QAM	27.70	29.16	PASS
41C	10+20	Mid	40526	40670	256QAM	27.72	28.81	PASS
41C	20+10	Mid	40571	40715	QPSK	27.72	29.14	PASS
41C	20+10	Mid	40571	40715	16QAM	27.72	29.32	PASS
41C	20+10	Mid	40571	40715	64QAM	27.75	29.39	PASS
41C	20+10	Mid	40571	40715	256QAM	27.70	29.00	PASS
41C	15+15	Mid	40545	40695	QPSK	28.30	29.87	PASS
41C	15+15	Mid	40545	40695	16QAM	28.32	29.89	PASS
41C	15+15	Mid	40545	40695	64QAM	28.29	29.60	PASS
41C	15+15	Mid	40545	40695	256QAM	28.30	29.65	PASS
41C	15+20	Mid	40523	40694	QPSK	32.60	34.22	PASS
41C	15+20	Mid	40523	40694	16QAM	32.65	34.17	PASS
41C	15+20	Mid	40523	40694	64QAM	32.69	33.82	PASS
41C	15+20	Mid	40523	40694	256QAM	32.59	34.08	PASS
41C	20+15	Mid	40546	40717	QPSK	32.62	34.10	PASS

41C	20+15	Mid	40546	40717	16QAM	32.68	34.12	PASS
41C	20+15	Mid	40546	40717	64QAM	32.56	34.23	PASS
41C	20+15	Mid	40546	40717	256QAM	32.61	34.16	PASS
41C	20+20	Mid	40521	40719	QPSK	37.55	39.36	PASS
41C	20+20	Mid	40521	40719	16QAM	37.50	39.20	PASS
41C	20+20	Mid	40521	40719	64QAM	37.56	39.18	PASS
41C	20+20	Mid	40521	40719	256QAM	37.53	39.31	PASS
41C	5+20	High	41373	41490	QPSK	22.82	23.67	PASS
41C	5+20	High	41373	41490	16QAM	22.82	23.78	PASS
41C	5+20	High	41373	41490	64QAM	22.84	23.68	PASS
41C	5+20	High	41373	41490	256QAM	22.78	23.66	PASS
41C	20+5	High	41440	41557	QPSK	22.85	23.92	PASS
41C	20+5	High	41440	41557	16QAM	22.85	23.96	PASS
41C	20+5	High	41440	41557	64QAM	22.83	24.02	PASS
41C	20+5	High	41440	41557	256QAM	22.86	23.87	PASS
41C	10+15	High	41395	41515	QPSK	23.16	24.17	PASS
41C	10+15	High	41395	41515	16QAM	23.13	24.27	PASS
41C	10+15	High	41395	41515	64QAM	23.06	24.11	PASS
41C	10+15	High	41395	41515	256QAM	23.09	24.16	PASS
41C	15+10	High	41417	41537	QPSK	23.07	24.25	PASS
41C	15+10	High	41417	41537	16QAM	23.08	24.44	PASS
41C	15+10	High	41417	41537	64QAM	23.13	24.35	PASS
41C	15+10	High	41417	41537	256QAM	23.15	24.35	PASS
41C	10+20	High	41346	41490	QPSK	27.66	29.02	PASS
41C	10+20	High	41346	41490	16QAM	27.68	28.87	PASS
41C	10+20	High	41346	41490	64QAM	27.68	28.98	PASS
41C	10+20	High	41346	41490	256QAM	27.67	28.80	PASS
41C	20+10	High	41391	41535	QPSK	27.79	29.28	PASS
41C	20+10	High	41391	41535	16QAM	27.79	29.00	PASS
41C	20+10	High	41391	41535	64QAM	27.78	29.22	PASS
41C	20+10	High	41391	41535	256QAM	27.78	29.26	PASS
41C	15+15	High	41365	41515	QPSK	28.37	29.72	PASS
41C	15+15	High	41365	41515	16QAM	28.30	29.85	PASS
41C	15+15	High	41365	41515	64QAM	28.24	29.80	PASS
41C	15+15	High	41365	41515	256QAM	28.28	29.61	PASS
41C	15+20	High	41319	41490	QPSK	32.58	34.26	PASS
41C	15+20	High	41319	41490	16QAM	32.64	34.24	PASS
41C	15+20	High	41319	41490	64QAM	32.61	34.09	PASS

41C	15+20	High	41319	41490	256QAM	32.70	34.15	PASS
41C	20+15	High	41341	41512	QPSK	32.66	34.46	PASS
41C	20+15	High	41341	41512	16QAM	32.59	34.18	PASS
41C	20+15	High	41341	41512	64QAM	32.58	34.35	PASS
41C	20+15	High	41341	41512	256QAM	32.59	34.09	PASS
41C	20+20	High	41292	41490	QPSK	37.51	39.35	PASS
41C	20+20	High	41292	41490	16QAM	37.44	39.39	PASS
41C	20+20	High	41292	41490	64QAM	37.56	39.34	PASS
41C	20+20	High	41292	41490	256QAM	37.53	39.44	PASS
48C	5+20	Low	55273	55390	QPSK	22.76	23.67	PASS
48C	5+20	Low	55273	55390	16QAM	22.75	23.62	PASS
48C	5+20	Low	55273	55390	64QAM	22.72	23.67	PASS
48C	5+20	Low	55273	55390	256QAM	22.71	23.74	PASS
48C	20+5	Low	55340	55457	QPSK	22.82	23.95	PASS
48C	20+5	Low	55340	55457	16QAM	22.79	23.95	PASS
48C	20+5	Low	55340	55457	64QAM	22.82	23.98	PASS
48C	20+5	Low	55340	55457	256QAM	22.85	23.78	PASS
48C	10+20	Low	55295	55439	QPSK	27.58	28.87	PASS
48C	10+20	Low	55295	55439	16QAM	27.66	28.81	PASS
48C	10+20	Low	55295	55439	64QAM	27.57	28.91	PASS
48C	10+20	Low	55295	55439	256QAM	27.55	28.85	PASS
48C	20+10	Low	55340	55484	QPSK	27.71	29.16	PASS
48C	20+10	Low	55340	55484	16QAM	27.63	29.06	PASS
48C	20+10	Low	55340	55484	64QAM	27.67	29.17	PASS
48C	20+10	Low	55340	55484	256QAM	27.73	29.06	PASS
48C	15+20	Low	55318	55489	QPSK	32.53	33.92	PASS
48C	15+20	Low	55318	55489	16QAM	32.40	33.94	PASS
48C	15+20	Low	55318	55489	64QAM	32.44	33.94	PASS
48C	15+20	Low	55318	55489	256QAM	32.53	33.83	PASS
48C	20+15	Low	55340	55511	QPSK	32.36	33.90	PASS
48C	20+15	Low	55340	55511	16QAM	32.55	33.87	PASS
48C	20+15	Low	55340	55511	64QAM	32.58	33.95	PASS
48C	20+15	Low	55340	55511	256QAM	32.51	33.94	PASS
48C	20+20	Low	55340	55538	QPSK	37.38	38.93	PASS
48C	20+20	Low	55340	55538	16QAM	37.48	39.01	PASS
48C	20+20	Low	55340	55538	64QAM	37.34	38.93	PASS
48C	20+20	Low	55340	55538	256QAM	37.32	38.85	PASS
48C	5+20	Mid	55898	56015	QPSK	22.64	23.55	PASS

48C	5+20	Mid	55898	56015	16QAM	22.78	23.69	PASS
48C	5+20	Mid	55898	56015	64QAM	22.75	23.57	PASS
48C	5+20	Mid	55898	56015	256QAM	22.79	23.51	PASS
48C	20+5	Mid	55965	56082	QPSK	22.88	23.87	PASS
48C	20+5	Mid	55965	56082	16QAM	22.85	23.92	PASS
48C	20+5	Mid	55965	56082	64QAM	22.81	23.85	PASS
48C	20+5	Mid	55965	56082	256QAM	22.82	23.83	PASS
48C	10+20	Mid	55896	56040	QPSK	27.68	28.82	PASS
48C	10+20	Mid	55896	56040	16QAM	27.66	28.73	PASS
48C	10+20	Mid	55896	56040	64QAM	27.64	28.91	PASS
48C	10+20	Mid	55896	56040	256QAM	27.68	28.72	PASS
48C	20+10	Mid	55941	56085	QPSK	27.74	28.88	PASS
48C	20+10	Mid	55941	56085	16QAM	27.66	28.97	PASS
48C	20+10	Mid	55941	56085	64QAM	27.77	29.01	PASS
48C	20+10	Mid	55941	56085	256QAM	27.69	28.92	PASS
48C	15+20	Mid	55893	56064	QPSK	32.46	33.72	PASS
48C	15+20	Mid	55893	56064	16QAM	32.45	34.00	PASS
48C	15+20	Mid	55893	56064	64QAM	32.62	33.85	PASS
48C	15+20	Mid	55893	56064	256QAM	32.57	33.93	PASS
48C	20+15	Mid	55916	56087	QPSK	32.58	34.11	PASS
48C	20+15	Mid	55916	56087	16QAM	32.54	33.90	PASS
48C	20+15	Mid	55916	56087	64QAM	32.48	34.02	PASS
48C	20+15	Mid	55916	56087	256QAM	32.53	33.77	PASS
48C	20+20	Mid	55891	56089	QPSK	37.44	39.29	PASS
48C	20+20	Mid	55891	56089	16QAM	37.45	39.58	PASS
48C	20+20	Mid	55891	56089	64QAM	37.59	39.03	PASS
48C	20+20	Mid	55891	56089	256QAM	37.41	39.04	PASS
48C	5+20	High	56523	56640	QPSK	22.59	23.66	PASS
48C	5+20	High	56523	56640	16QAM	22.87	23.58	PASS
48C	5+20	High	56523	56640	64QAM	22.63	23.51	PASS
48C	5+20	High	56523	56640	256QAM	22.80	23.61	PASS
48C	20+5	High	56590	56707	QPSK	22.79	23.63	PASS
48C	20+5	High	56590	56707	16QAM	22.67	23.84	PASS
48C	20+5	High	56590	56707	64QAM	22.77	23.79	PASS
48C	20+5	High	56590	56707	256QAM	22.84	23.87	PASS
48C	10+20	High	56496	56640	QPSK	27.58	28.69	PASS
48C	10+20	High	56496	56640	16QAM	27.48	28.59	PASS
48C	10+20	High	56496	56640	64QAM	27.52	28.67	PASS

48C	10+20	High	56496	56640	256QAM	27.72	28.93	PASS
48C	20+10	High	56541	56685	QPSK	27.74	28.83	PASS
48C	20+10	High	56541	56685	16QAM	27.65	29.13	PASS
48C	20+10	High	56541	56685	64QAM	27.73	28.96	PASS
48C	20+10	High	56541	56685	256QAM	27.62	29.21	PASS
48C	15+20	High	56469	56640	QPSK	32.47	33.79	PASS
48C	15+20	High	56469	56640	16QAM	32.49	33.84	PASS
48C	15+20	High	56469	56640	64QAM	32.56	33.85	PASS
48C	15+20	High	56469	56640	256QAM	32.48	33.95	PASS
48C	20+15	High	56491	56662	QPSK	32.55	33.93	PASS
48C	20+15	High	56491	56662	16QAM	32.50	34.16	PASS
48C	20+15	High	56491	56662	64QAM	32.49	33.98	PASS
48C	20+15	High	56491	56662	256QAM	32.51	34.02	PASS
48C	20+20	High	56442	56640	QPSK	37.43	39.03	PASS
48C	20+20	High	56442	56640	16QAM	37.53	39.04	PASS
48C	20+20	High	56442	56640	64QAM	37.31	39.12	PASS
48C	20+20	High	56442	56640	256QAM	37.40	38.84	PASS
66B	5+5	Low	131997	132045	QPSK	9.27	9.89	PASS
66B	5+5	Low	131997	132045	16QAM	9.28	9.98	PASS
66B	5+5	Low	131997	132045	64QAM	9.27	9.94	PASS
66B	5+5	Low	131997	132045	256QAM	9.30	10.07	PASS
66B	5+10	Low	132000	132072	QPSK	13.90	14.83	PASS
66B	5+10	Low	132000	132072	16QAM	13.85	14.72	PASS
66B	5+10	Low	132000	132072	64QAM	13.92	14.92	PASS
66B	5+10	Low	132000	132072	256QAM	13.91	14.81	PASS
66B	10+5	Low	132022	132094	QPSK	13.93	15.04	PASS
66B	10+5	Low	132022	132094	16QAM	13.93	14.99	PASS
66B	10+5	Low	132022	132094	64QAM	13.91	15.01	PASS
66B	10+5	Low	132022	132094	256QAM	13.94	14.95	PASS
66B	5+15	Low	132002	132095	QPSK	18.29	19.48	PASS
66B	5+15	Low	132002	132095	16QAM	18.25	19.28	PASS
66B	5+15	Low	132002	132095	64QAM	18.23	19.27	PASS
66B	5+15	Low	132002	132095	256QAM	18.29	19.42	PASS
66B	15+5	Low	132047	132140	QPSK	18.30	19.68	PASS
66B	15+5	Low	132047	132140	16QAM	18.29	19.68	PASS
66B	15+5	Low	132047	132140	64QAM	18.33	19.63	PASS
66B	15+5	Low	132047	132140	256QAM	18.31	19.65	PASS
66B	10+10	Low	132022	132121	QPSK	18.88	20.28	PASS

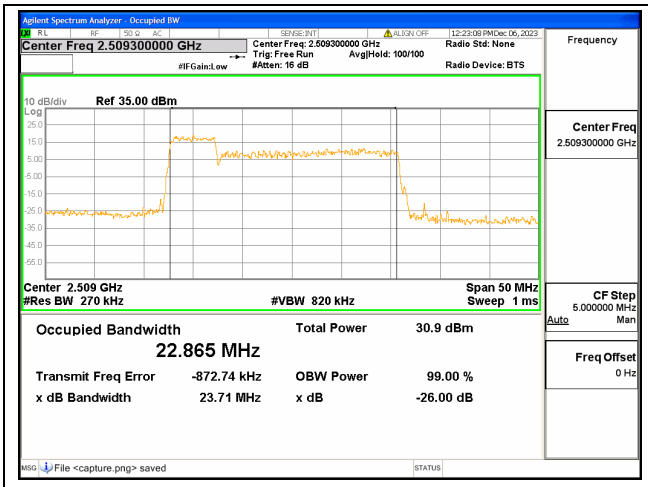
66B	10+10	Low	132022	132121	16QAM	18.88	20.18	PASS
66B	10+10	Low	132022	132121	64QAM	18.82	20.12	PASS
66B	10+10	Low	132022	132121	256QAM	18.84	20.13	PASS
66B	5+5	Mid	132398	132446	QPSK	9.28	10.15	PASS
66B	5+5	Mid	132398	132446	16QAM	9.26	10.03	PASS
66B	5+5	Mid	132398	132446	64QAM	9.29	9.96	PASS
66B	5+5	Mid	132398	132446	256QAM	9.27	10.03	PASS
66B	5+10	Mid	132375	132447	QPSK	13.96	14.81	PASS
66B	5+10	Mid	132375	132447	16QAM	13.92	14.93	PASS
66B	5+10	Mid	132375	132447	64QAM	13.91	14.78	PASS
66B	5+10	Mid	132375	132447	256QAM	13.87	14.84	PASS
66B	10+5	Mid	132397	132469	QPSK	13.95	15.04	PASS
66B	10+5	Mid	132397	132469	16QAM	13.91	14.98	PASS
66B	10+5	Mid	132397	132469	64QAM	13.92	14.96	PASS
66B	10+5	Mid	132397	132469	256QAM	13.93	14.93	PASS
66B	5+15	Mid	132353	132446	QPSK	18.29	19.47	PASS
66B	5+15	Mid	132353	132446	16QAM	18.32	19.34	PASS
66B	5+15	Mid	132353	132446	64QAM	18.27	19.28	PASS
66B	5+15	Mid	132353	132446	256QAM	18.22	19.45	PASS
66B	15+5	Mid	132398	132491	QPSK	18.32	19.75	PASS
66B	15+5	Mid	132398	132491	16QAM	18.29	19.64	PASS
66B	15+5	Mid	132398	132491	64QAM	18.26	19.58	PASS
66B	15+5	Mid	132398	132491	256QAM	18.32	19.49	PASS
66B	10+10	Mid	132373	132472	QPSK	18.85	20.08	PASS
66B	10+10	Mid	132373	132472	16QAM	18.88	20.17	PASS
66B	10+10	Mid	132373	132472	64QAM	18.87	20.14	PASS
66B	10+10	Mid	132373	132472	256QAM	18.89	20.16	PASS
66B	5+5	High	132599	132647	QPSK	9.28	9.99	PASS
66B	5+5	High	132599	132647	16QAM	9.28	10.02	PASS
66B	5+5	High	132599	132647	64QAM	9.31	10.06	PASS
66B	5+5	High	132599	132647	256QAM	9.29	10.01	PASS
66B	5+10	High	132550	132622	QPSK	13.93	14.83	PASS
66B	5+10	High	132550	132622	16QAM	13.89	14.80	PASS
66B	5+10	High	132550	132622	64QAM	13.90	14.75	PASS
66B	5+10	High	132550	132622	256QAM	13.89	14.85	PASS
66B	10+5	High	132572	132644	QPSK	13.92	14.98	PASS
66B	10+5	High	132572	132644	16QAM	13.93	15.07	PASS
66B	10+5	High	132572	132644	64QAM	13.93	15.00	PASS

66B	10+5	High	132572	132644	256QAM	13.92	14.99	PASS
66B	5+15	High	132504	132597	QPSK	18.22	19.29	PASS
66B	5+15	High	132504	132597	16QAM	18.22	19.35	PASS
66B	5+15	High	132504	132597	64QAM	18.19	19.26	PASS
66B	5+15	High	132504	132597	256QAM	18.19	19.22	PASS
66B	15+5	High	132549	132642	QPSK	18.28	19.62	PASS
66B	15+5	High	132549	132642	16QAM	18.32	19.57	PASS
66B	15+5	High	132549	132642	64QAM	18.27	19.77	PASS
66B	15+5	High	132549	132642	256QAM	18.23	19.50	PASS
66B	10+10	High	132523	132622	QPSK	18.82	20.18	PASS
66B	10+10	High	132523	132622	16QAM	18.81	20.15	PASS
66B	10+10	High	132523	132622	64QAM	18.85	20.12	PASS
66B	10+10	High	132523	132622	256QAM	18.80	20.18	PASS
66C	10+15	Low	132025	132145	QPSK	23.05	24.05	PASS
66C	10+15	Low	132025	132145	16QAM	23.04	24.25	PASS
66C	10+15	Low	132025	132145	64QAM	23.08	24.19	PASS
66C	10+15	Low	132025	132145	256QAM	23.06	24.20	PASS
66C	15+10	Low	132047	132167	QPSK	23.12	24.53	PASS
66C	15+10	Low	132047	132167	16QAM	23.12	24.60	PASS
66C	15+10	Low	132047	132167	64QAM	23.13	24.44	PASS
66C	15+10	Low	132047	132167	256QAM	23.06	24.47	PASS
66C	10+20	Low	132027	132171	QPSK	27.65	28.88	PASS
66C	10+20	Low	132027	132171	16QAM	27.72	28.97	PASS
66C	10+20	Low	132027	132171	64QAM	27.62	29.15	PASS
66C	10+20	Low	132027	132171	256QAM	27.67	28.84	PASS
66C	20+10	Low	132072	132216	QPSK	27.77	29.30	PASS
66C	20+10	Low	132072	132216	16QAM	27.74	29.16	PASS
66C	20+10	Low	132072	132216	64QAM	27.75	29.11	PASS
66C	20+10	Low	132072	132216	256QAM	27.69	29.32	PASS
66C	15+15	Low	132047	132197	QPSK	28.38	29.84	PASS
66C	15+15	Low	132047	132197	16QAM	28.26	29.65	PASS
66C	15+15	Low	132047	132197	64QAM	28.29	29.66	PASS
66C	15+15	Low	132047	132197	256QAM	28.27	29.71	PASS
66C	15+20	Low	132050	132221	QPSK	32.56	34.08	PASS
66C	15+20	Low	132050	132221	16QAM	32.53	34.11	PASS
66C	15+20	Low	132050	132221	64QAM	32.54	34.23	PASS
66C	15+20	Low	132050	132221	256QAM	32.52	34.00	PASS
66C	20+15	Low	132072	132243	QPSK	32.60	34.45	PASS

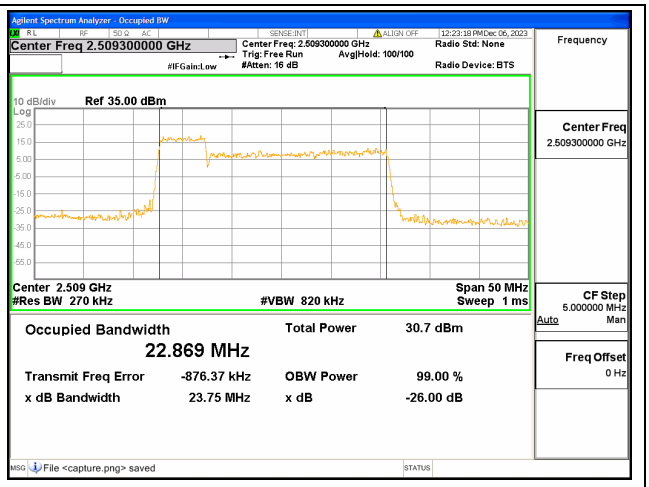
66C	20+15	Low	132072	132243	16QAM	32.56	34.19	PASS
66C	20+15	Low	132072	132243	64QAM	32.61	34.13	PASS
66C	20+15	Low	132072	132243	256QAM	32.56	34.25	PASS
66C	20+5	Low	132072	132189	QPSK	22.85	24.15	PASS
66C	20+5	Low	132072	132189	16QAM	22.87	24.09	PASS
66C	20+5	Low	132072	132189	64QAM	22.87	24.05	PASS
66C	20+5	Low	132072	132189	256QAM	22.88	23.93	PASS
66C	5+20	Low	132005	132122	QPSK	22.81	23.73	PASS
66C	5+20	Low	132005	132122	16QAM	22.69	23.73	PASS
66C	5+20	Low	132005	132122	64QAM	22.74	23.80	PASS
66C	5+20	Low	132005	132122	256QAM	22.75	23.85	PASS
66C	20+20	Low	132072	132270	QPSK	37.52	39.29	PASS
66C	20+20	Low	132072	132270	16QAM	37.45	39.37	PASS
66C	20+20	Low	132072	132270	64QAM	37.42	39.37	PASS
66C	20+20	Low	132072	132270	256QAM	37.40	39.26	PASS
66C	10+15	Mid	132351	132471	QPSK	23.07	24.34	PASS
66C	10+15	Mid	132351	132471	16QAM	23.09	24.15	PASS
66C	10+15	Mid	132351	132471	64QAM	23.07	24.23	PASS
66C	10+15	Mid	132351	132471	256QAM	23.09	24.15	PASS
66C	15+10	Mid	132373	132493	QPSK	23.12	24.52	PASS
66C	15+10	Mid	132373	132493	16QAM	23.06	24.45	PASS
66C	15+10	Mid	132373	132493	64QAM	23.16	24.45	PASS
66C	15+10	Mid	132373	132493	256QAM	23.11	24.45	PASS
66C	10+20	Mid	132328	132472	QPSK	27.77	28.83	PASS
66C	10+20	Mid	132328	132472	16QAM	27.71	28.99	PASS
66C	10+20	Mid	132328	132472	64QAM	27.69	28.97	PASS
66C	10+20	Mid	132328	132472	256QAM	27.69	28.91	PASS
66C	20+10	Mid	132373	132517	QPSK	27.71	29.19	PASS
66C	20+10	Mid	132373	132517	16QAM	27.82	29.20	PASS
66C	20+10	Mid	132373	132517	64QAM	27.72	29.35	PASS
66C	20+10	Mid	132373	132517	256QAM	27.72	29.21	PASS
66C	15+15	Mid	132347	132497	QPSK	28.27	29.82	PASS
66C	15+15	Mid	132347	132497	16QAM	28.28	29.64	PASS
66C	15+15	Mid	132347	132497	64QAM	28.39	29.63	PASS
66C	15+15	Mid	132347	132497	256QAM	28.24	29.88	PASS
66C	15+20	Mid	132325	132496	QPSK	32.58	34.35	PASS
66C	15+20	Mid	132325	132496	16QAM	32.64	34.30	PASS
66C	15+20	Mid	132325	132496	64QAM	32.64	34.25	PASS

66C	15+20	Mid	132325	132496	256QAM	32.60	34.10	PASS
66C	20+15	Mid	132348	132519	QPSK	32.57	34.17	PASS
66C	20+15	Mid	132348	132519	16QAM	32.60	34.30	PASS
66C	20+15	Mid	132348	132519	64QAM	32.60	34.22	PASS
66C	20+15	Mid	132348	132519	256QAM	32.70	34.15	PASS
66C	20+5	Mid	132397	132514	QPSK	22.85	24.22	PASS
66C	20+5	Mid	132397	132514	16QAM	22.86	23.95	PASS
66C	20+5	Mid	132397	132514	64QAM	22.87	24.14	PASS
66C	20+5	Mid	132397	132514	256QAM	22.87	24.18	PASS
66C	5+20	Mid	132330	132447	QPSK	22.76	23.69	PASS
66C	5+20	Mid	132330	132447	16QAM	22.75	23.76	PASS
66C	5+20	Mid	132330	132447	64QAM	22.82	23.75	PASS
66C	5+20	Mid	132330	132447	256QAM	22.82	23.75	PASS
66C	20+20	Mid	132323	132521	QPSK	37.41	39.24	PASS
66C	20+20	Mid	132323	132521	16QAM	37.45	39.28	PASS
66C	20+20	Mid	132323	132521	64QAM	37.44	39.40	PASS
66C	20+20	Mid	132323	132521	256QAM	37.42	39.49	PASS
66C	10+15	High	132477	132597	QPSK	23.01	24.17	PASS
66C	10+15	High	132477	132597	16QAM	22.96	24.17	PASS
66C	10+15	High	132477	132597	64QAM	23.00	24.39	PASS
66C	10+15	High	132477	132597	256QAM	22.98	24.19	PASS
66C	15+10	High	132499	132619	QPSK	23.05	24.30	PASS
66C	15+10	High	132499	132619	16QAM	22.99	24.36	PASS
66C	15+10	High	132499	132619	64QAM	23.04	24.45	PASS
66C	15+10	High	132499	132619	256QAM	23.08	24.28	PASS
66C	10+20	High	132428	132572	QPSK	27.57	29.00	PASS
66C	10+20	High	132428	132572	16QAM	27.66	28.80	PASS
66C	10+20	High	132428	132572	64QAM	27.60	28.94	PASS
66C	10+20	High	132428	132572	256QAM	27.55	28.78	PASS
66C	20+10	High	132473	132617	QPSK	27.73	29.30	PASS
66C	20+10	High	132473	132617	16QAM	27.69	29.17	PASS
66C	20+10	High	132473	132617	64QAM	27.66	29.21	PASS
66C	20+10	High	132473	132617	256QAM	27.69	29.14	PASS
66C	15+15	High	132447	132597	QPSK	28.34	29.68	PASS
66C	15+15	High	132447	132597	16QAM	28.20	29.59	PASS
66C	15+15	High	132447	132597	64QAM	28.29	29.73	PASS
66C	15+15	High	132447	132597	256QAM	28.27	29.74	PASS
66C	15+20	High	132401	132572	QPSK	32.53	34.03	PASS

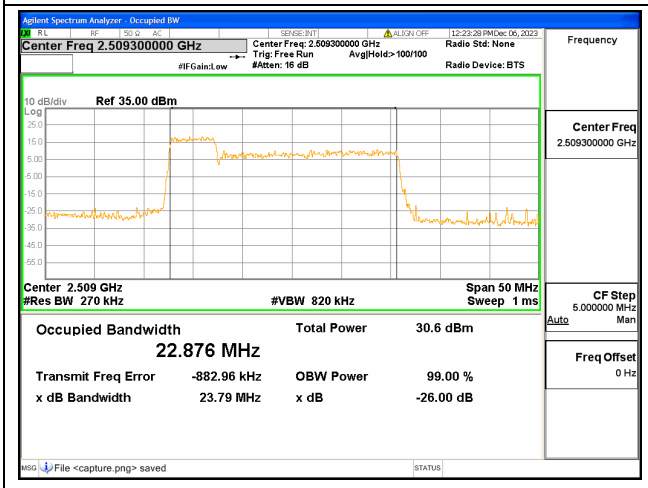
66C	15+20	High	132401	132572	16QAM	32.54	34.16	PASS
66C	15+20	High	132401	132572	64QAM	32.53	34.07	PASS
66C	15+20	High	132401	132572	256QAM	32.54	34.16	PASS
66C	20+15	High	132423	132594	QPSK	32.58	34.21	PASS
66C	20+15	High	132423	132594	16QAM	32.53	34.25	PASS
66C	20+15	High	132423	132594	64QAM	32.66	34.20	PASS
66C	20+15	High	132423	132594	256QAM	32.69	34.26	PASS
66C	20+5	High	132522	132639	QPSK	22.85	23.98	PASS
66C	20+5	High	132522	132639	16QAM	22.84	24.08	PASS
66C	20+5	High	132522	132639	64QAM	22.93	23.97	PASS
66C	20+5	High	132522	132639	256QAM	22.81	24.13	PASS
66C	5+20	High	132455	132572	QPSK	22.81	23.78	PASS
66C	5+20	High	132455	132572	16QAM	22.74	23.87	PASS
66C	5+20	High	132455	132572	64QAM	22.77	23.74	PASS
66C	5+20	High	132455	132572	256QAM	22.75	23.68	PASS
66C	20+20	High	132374	132572	QPSK	37.49	39.36	PASS
66C	20+20	High	132374	132572	16QAM	37.50	39.30	PASS
66C	20+20	High	132374	132572	64QAM	37.56	39.25	PASS
66C	20+20	High	132374	132572	256QAM	37.48	39.36	PASS



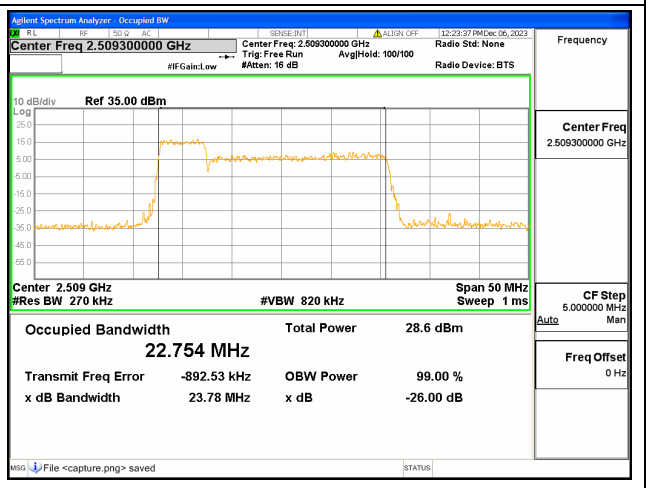
41C / 5+20MHz / QPSK/ Low CH



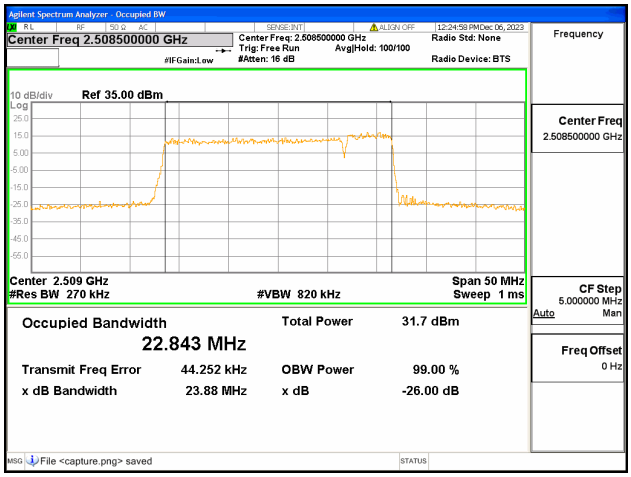
41C / 5+20MHz / 16QAM/ Low CH



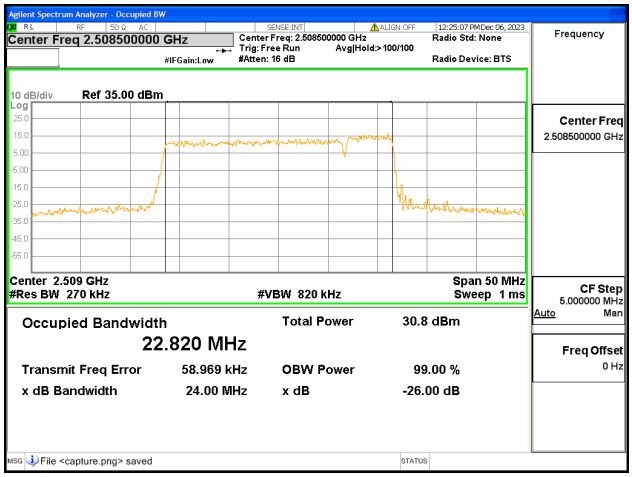
41C / 5+20MHz / 64QAM/ Low CH



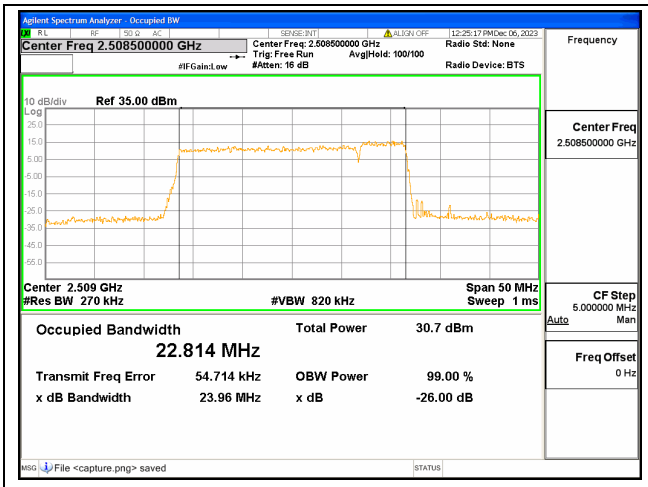
41C / 5+20MHz / 256QAM/ Low CH



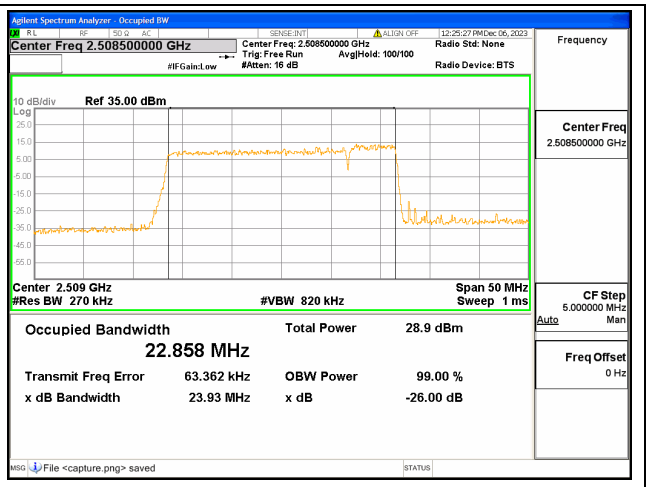
41C / 20+5MHz / QPSK/ Low CH



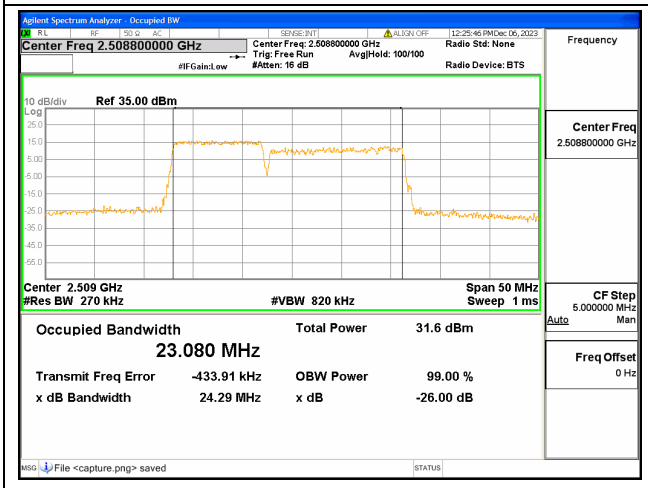
41C / 20+5MHz / 16QAM/ Low CH



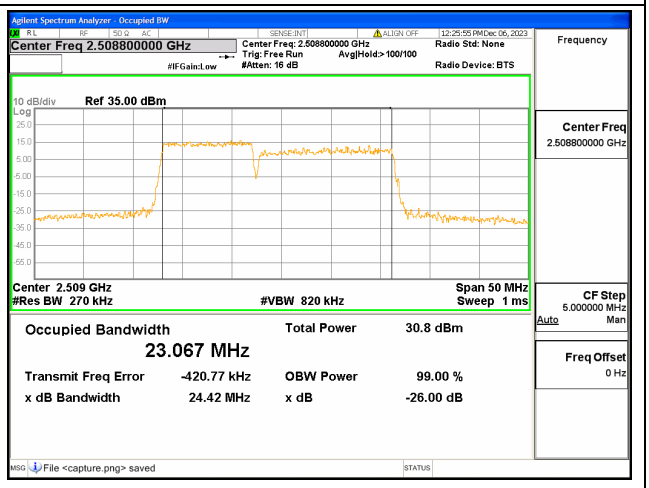
41C / 20+5MHz / 64QAM/ Low CH



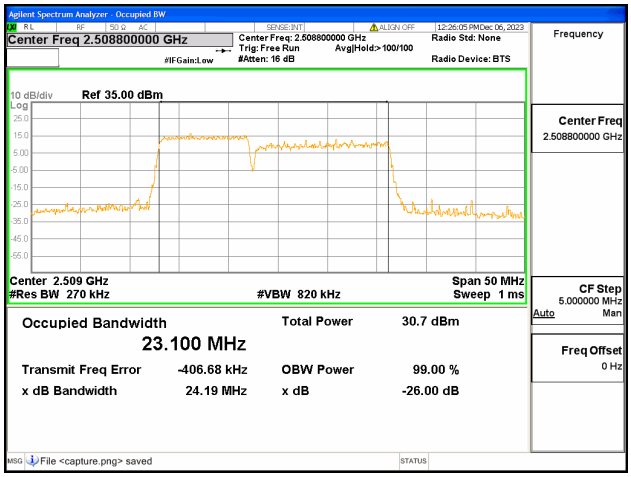
41C / 20+5MHz / 256QAM/ Low CH



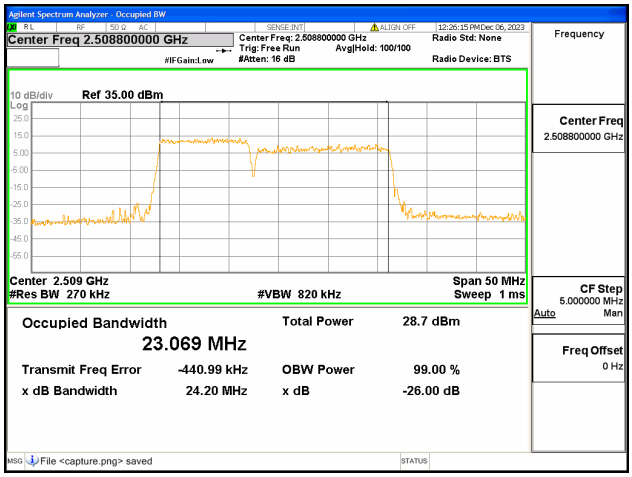
41C / 10+15MHz / QPSK/ Low CH



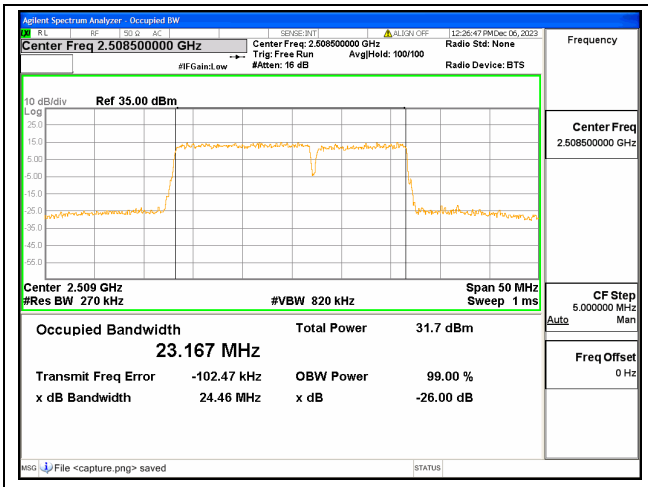
41C / 10+15MHz / 16QAM/ Low CH



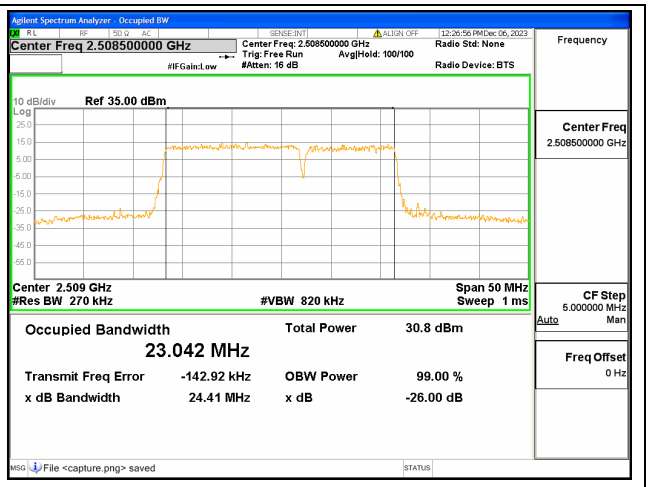
41C / 10+15MHz / 64QAM/ Low CH



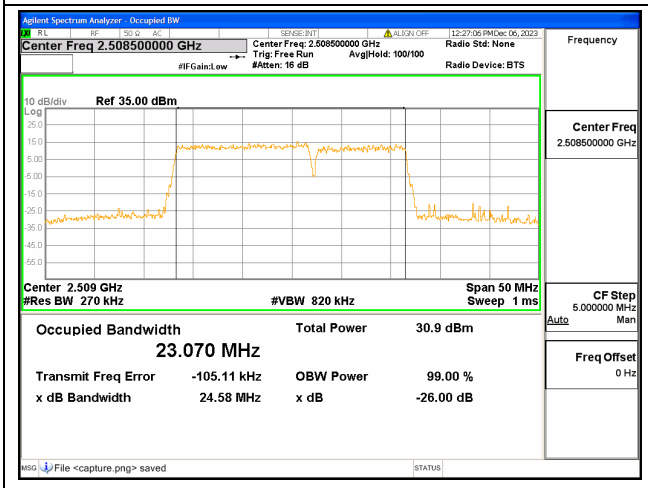
41C / 10+15MHz / 256QAM/ Low CH



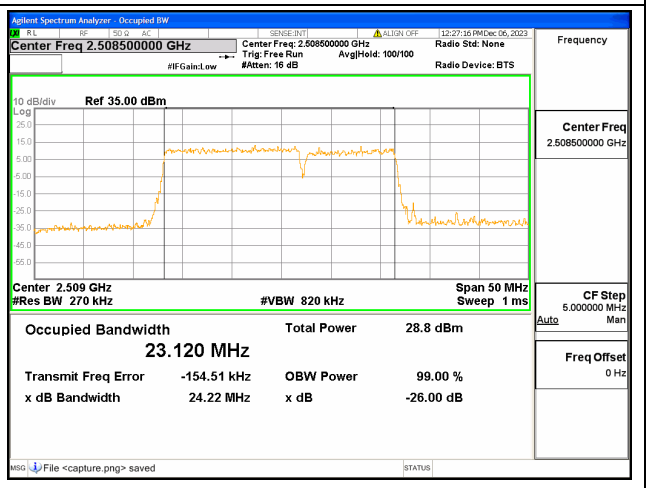
41C / 15+10MHz / QPSK/ Low CH



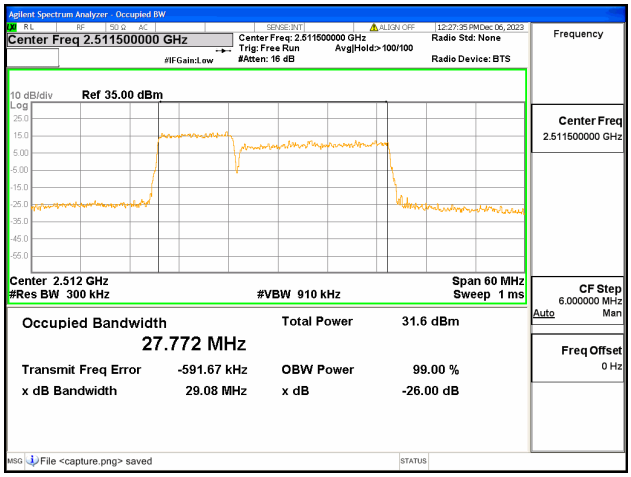
41C / 15+10MHz / 16QAM/ Low CH



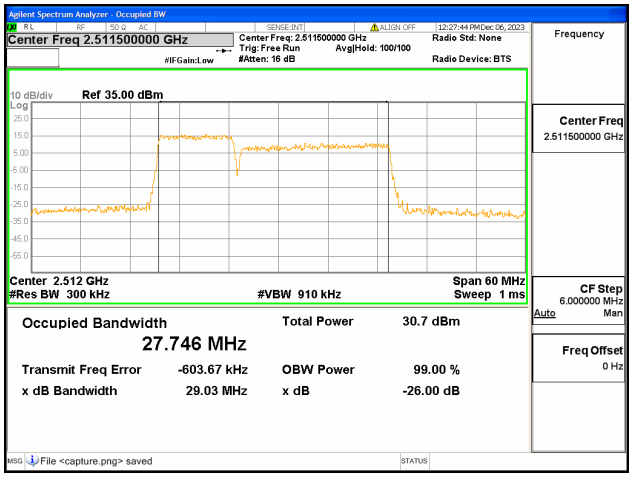
41C / 15+10MHz / 64QAM/ Low CH



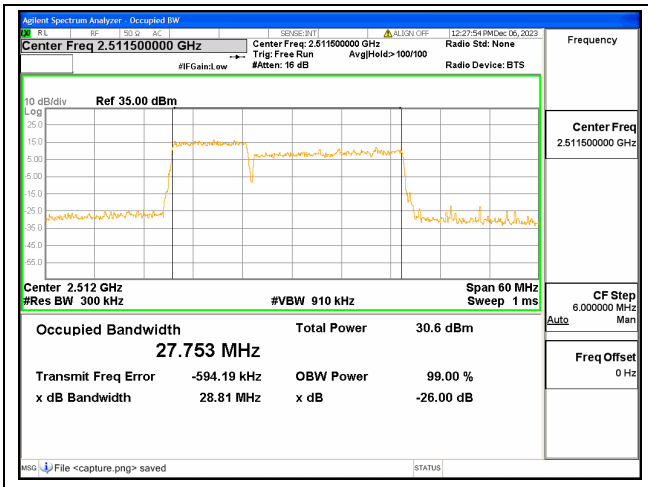
41C / 15+10MHz / 256QAM/ Low CH



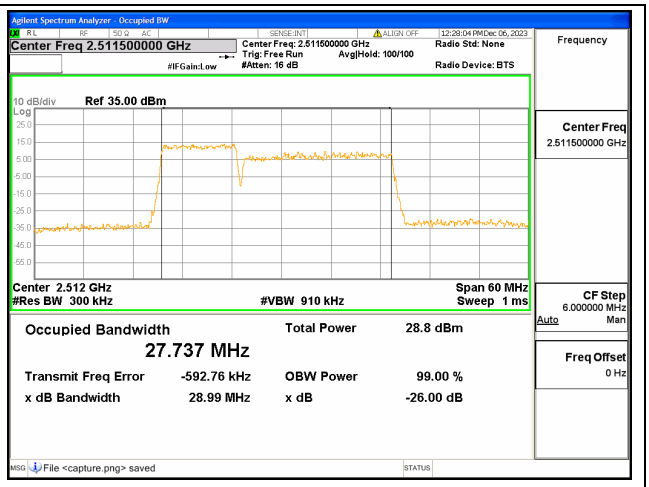
41C / 10+20MHz / QPSK/ Low CH



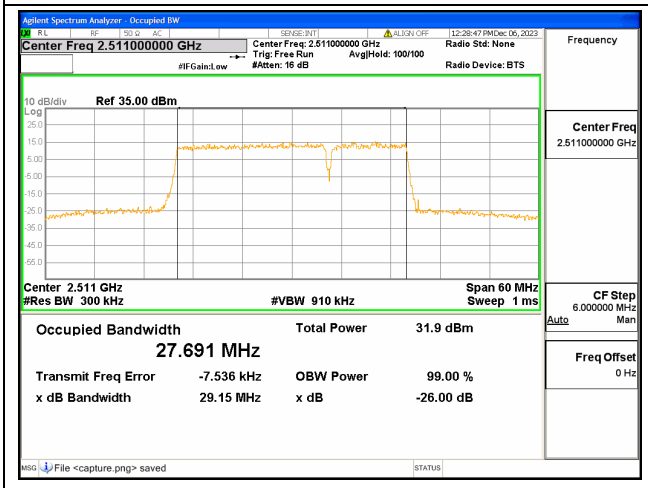
41C / 10+20MHz / 16QAM/ Low CH



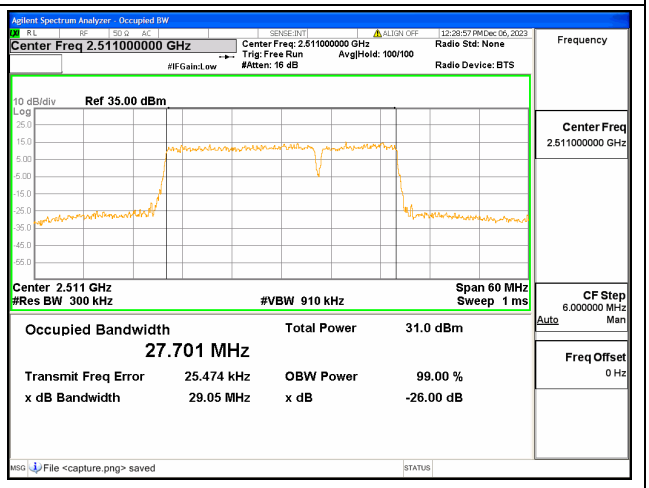
41C / 10+20MHz / 64QAM/ Low CH



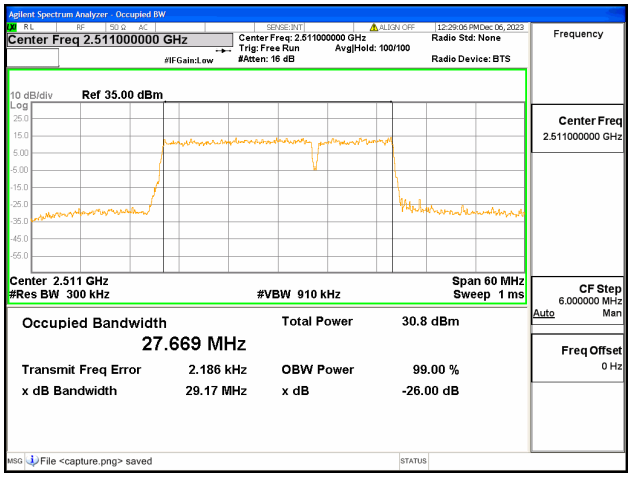
41C / 10+20MHz / 256QAM/ Low CH



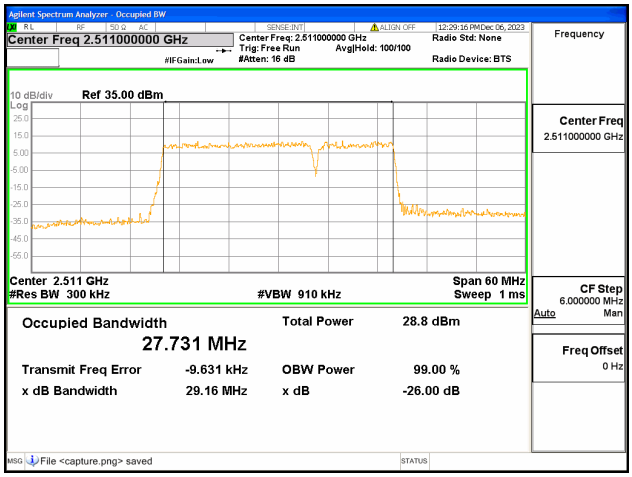
41C / 20+10MHz / QPSK/ Low CH



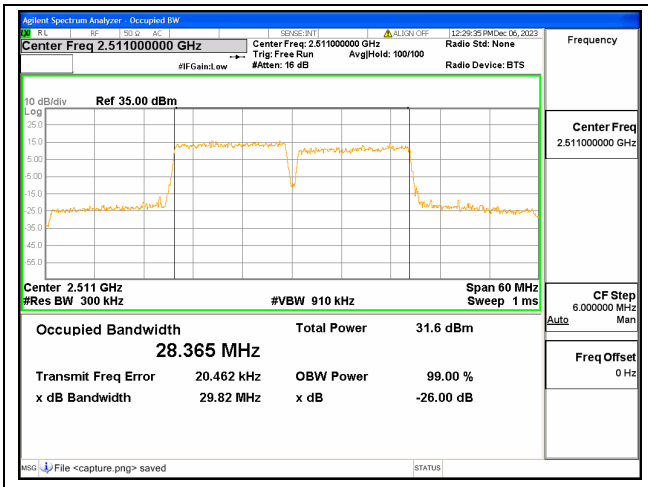
41C / 20+10MHz / 16QAM/ Low CH



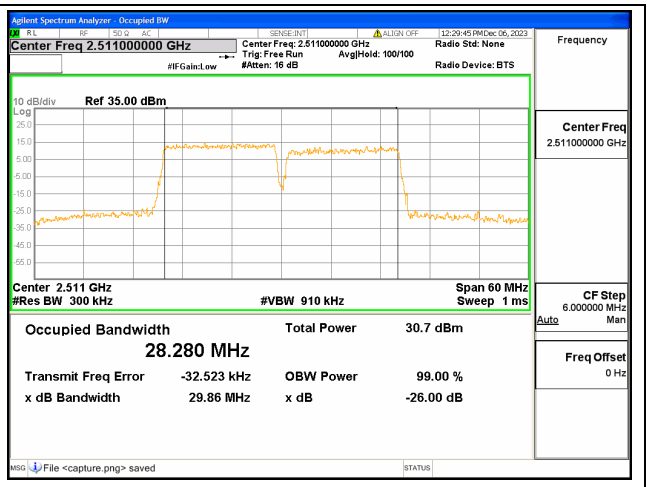
41C / 20+10MHz / 64QAM/ Low CH



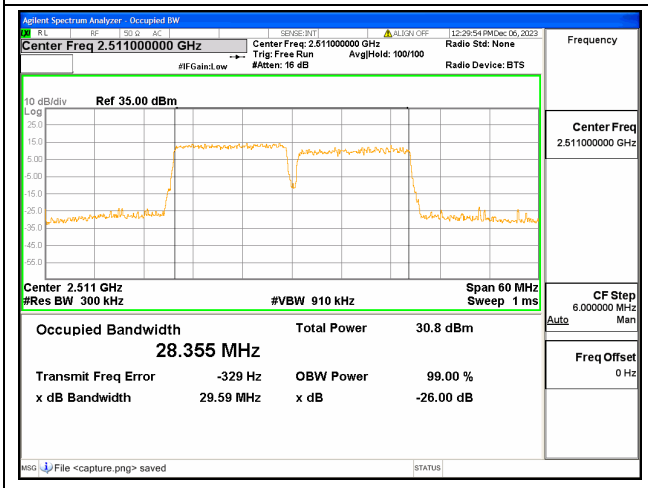
41C / 20+10MHz / 256QAM/ Low CH



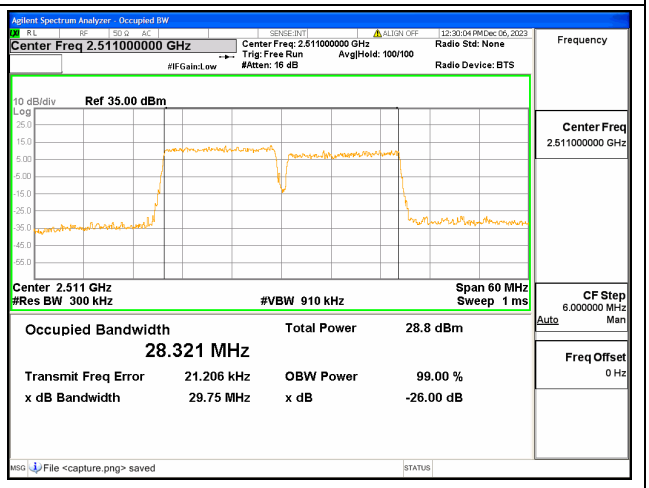
41C / 15+15MHz / QPSK/ Low CH



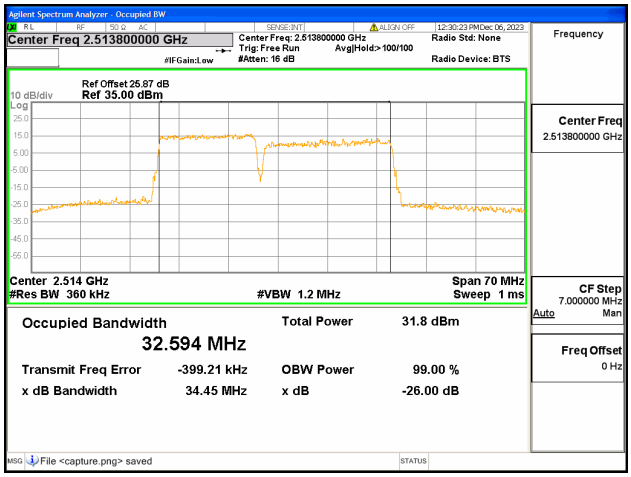
41C / 15+15MHz / 16QAM/ Low CH



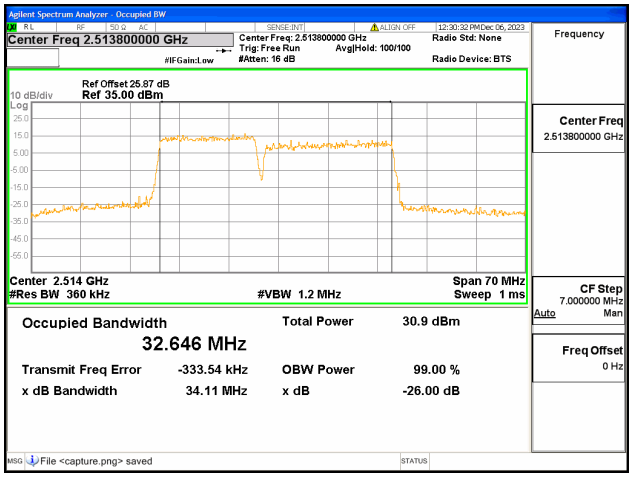
41C / 15+15MHz / 64QAM/ Low CH



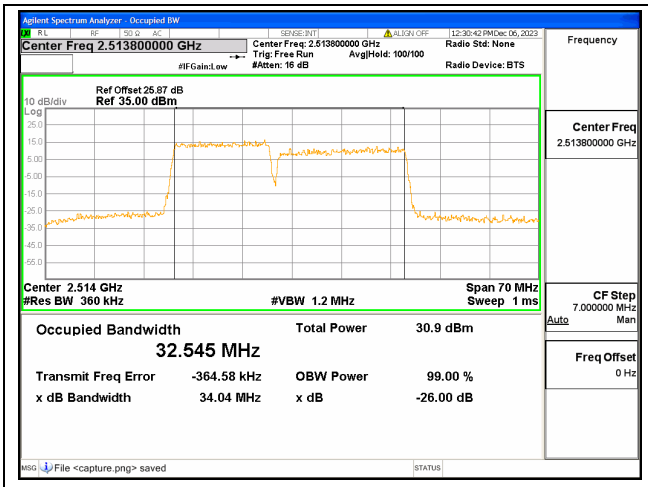
41C / 15+15MHz / 256QAM/ Low CH



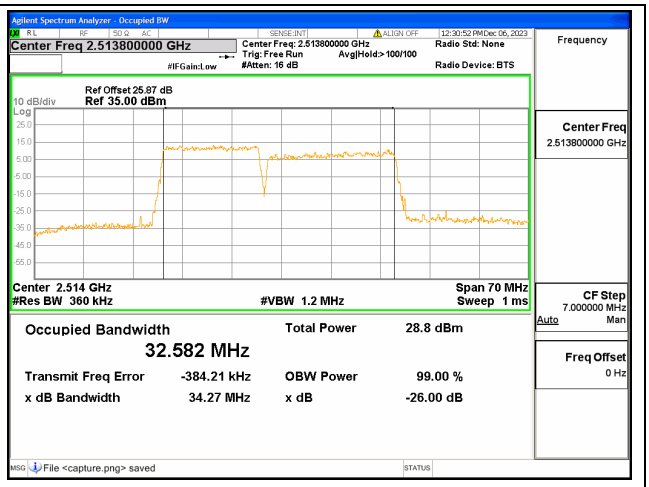
41C / 15+20MHz / QPSK/ Low CH



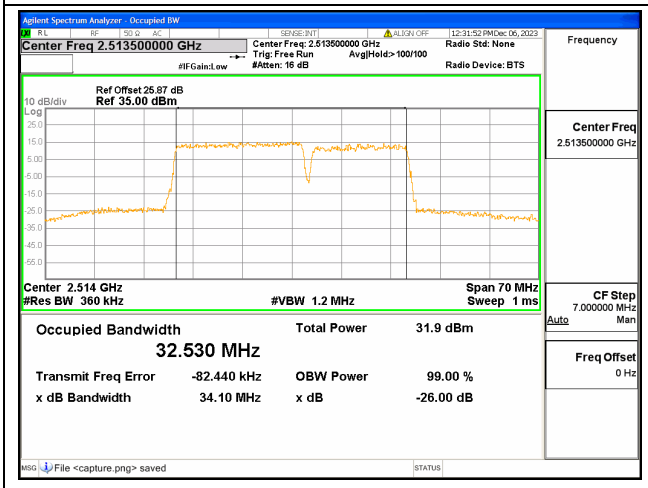
41C / 15+20MHz / 16QAM/ Low CH



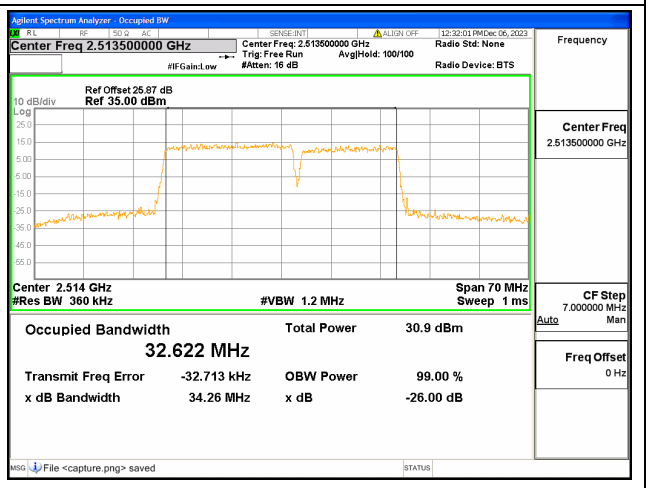
41C / 15+20MHz / 64QAM/ Low CH



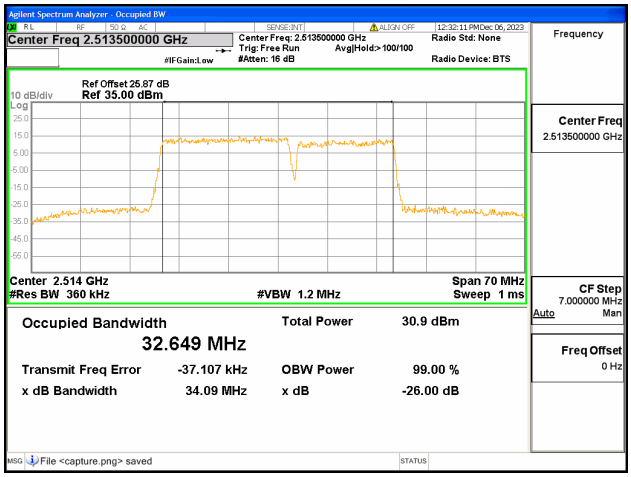
41C / 15+20MHz / 256QAM/ Low CH



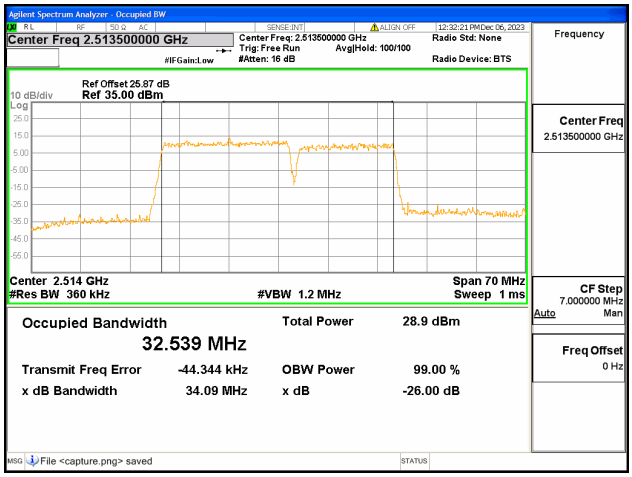
41C / 20+15MHz / QPSK/ Low CH



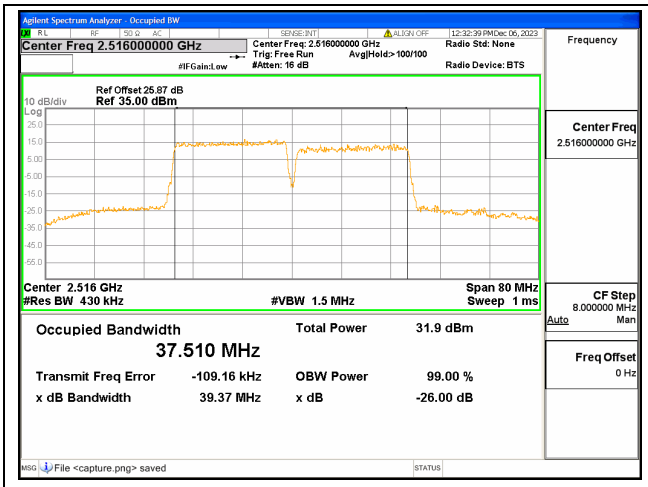
41C / 20+15MHz / 16QAM/ Low CH



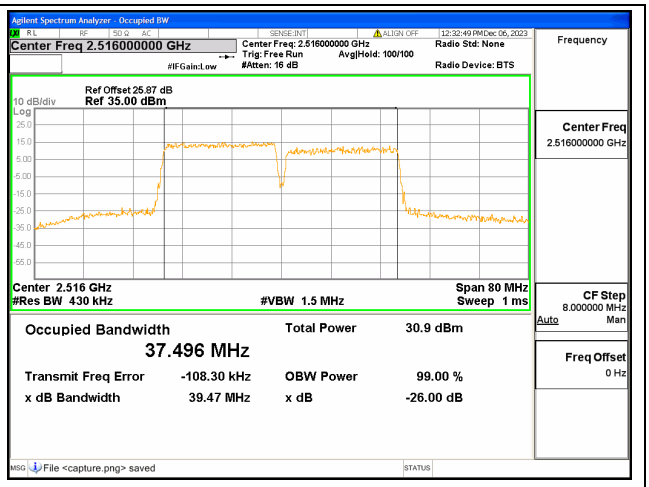
41C / 20+15MHz / 64QAM/ Low CH



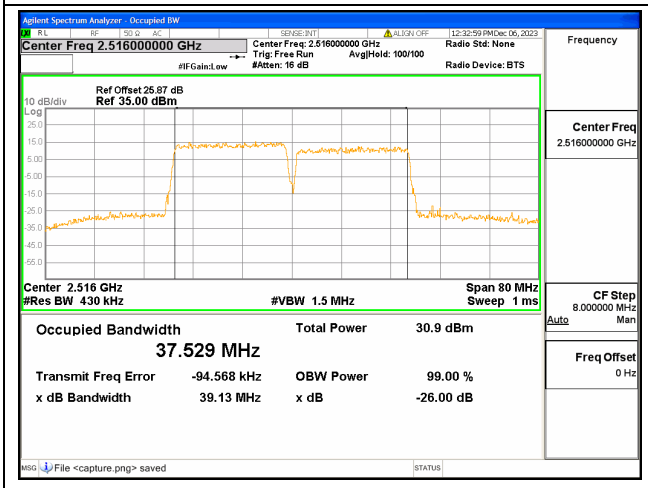
41C / 20+15MHz / 256QAM/ Low CH



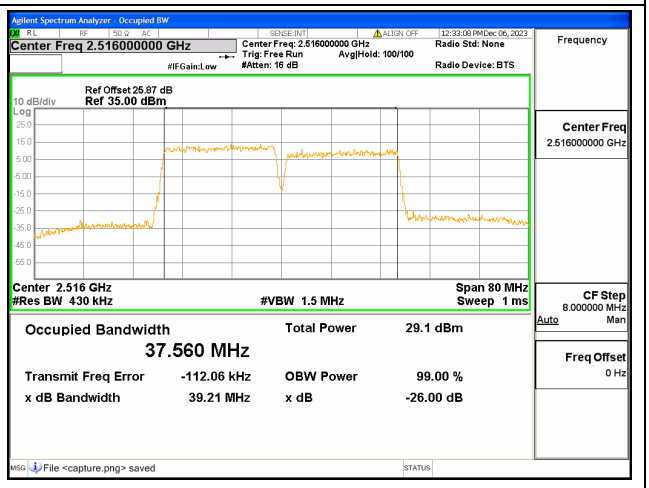
41C / 20+20MHz / QPSK/ Low CH



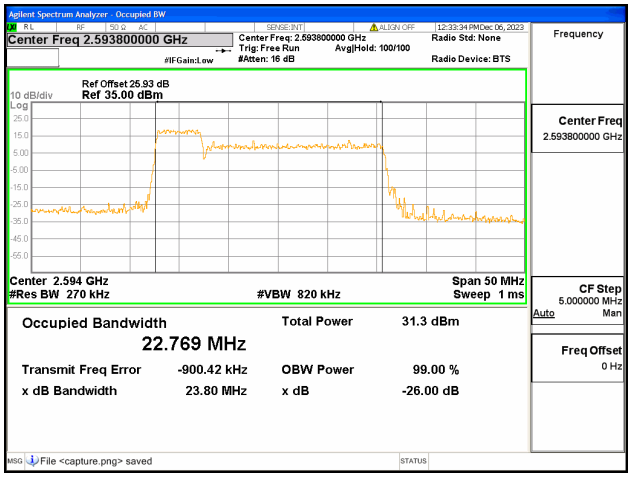
41C / 20+20MHz / 16QAM/ Low CH



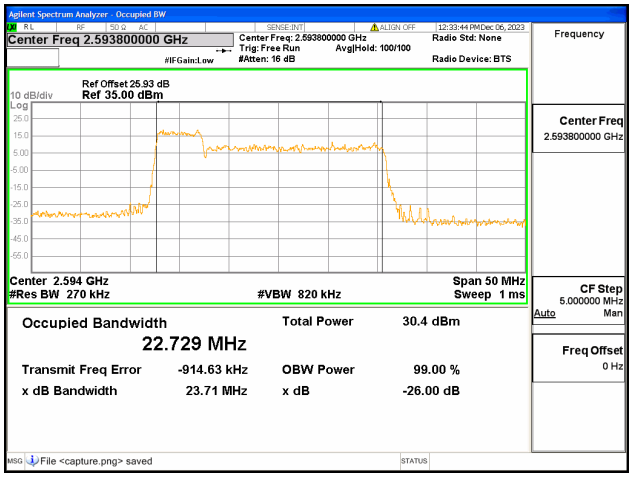
41C / 20+20MHz / 64QAM/ Low CH



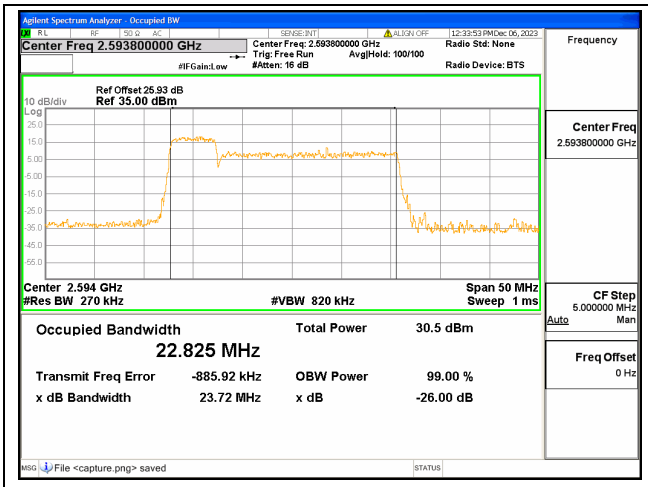
41C / 20+20MHz / 256QAM/ Low CH



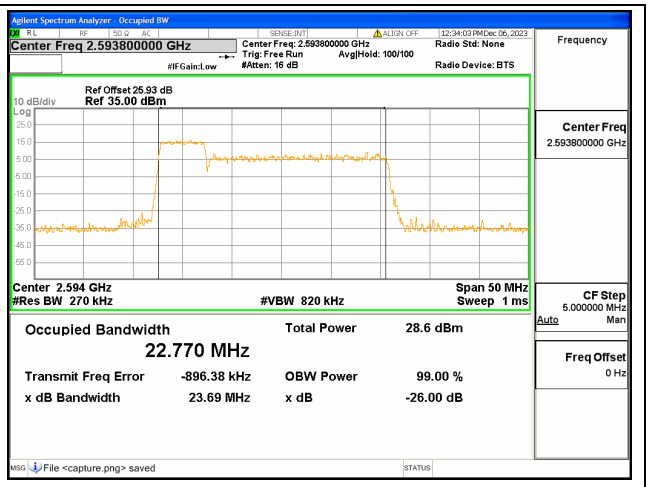
41C / 5+20MHz / QPSK/ Mid CH



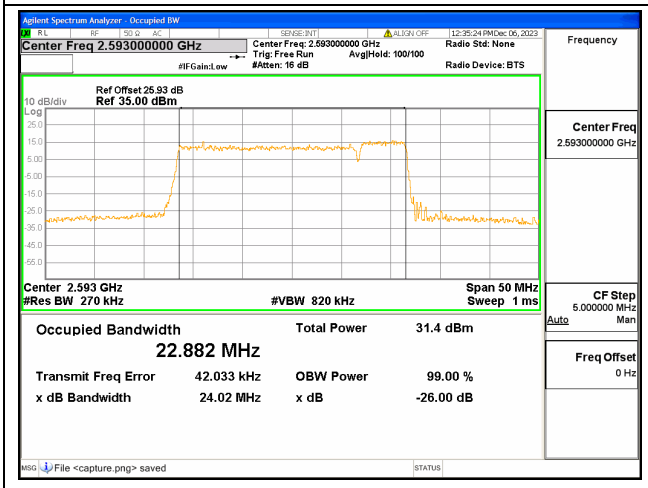
41C / 5+20MHz / 16QAM/ Mid CH



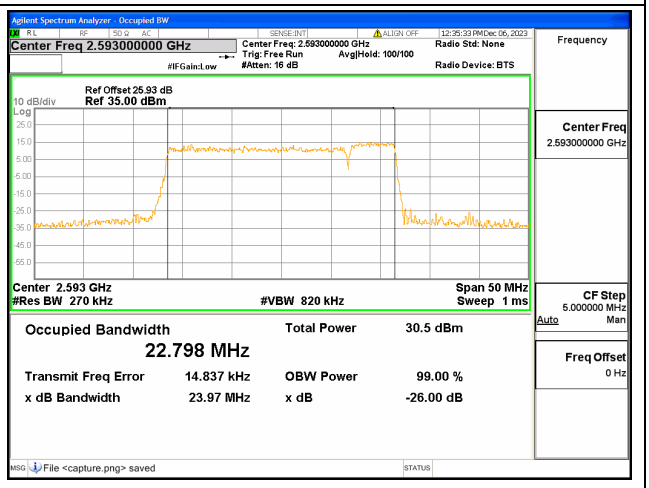
41C / 5+20MHz / 64QAM/ Mid CH



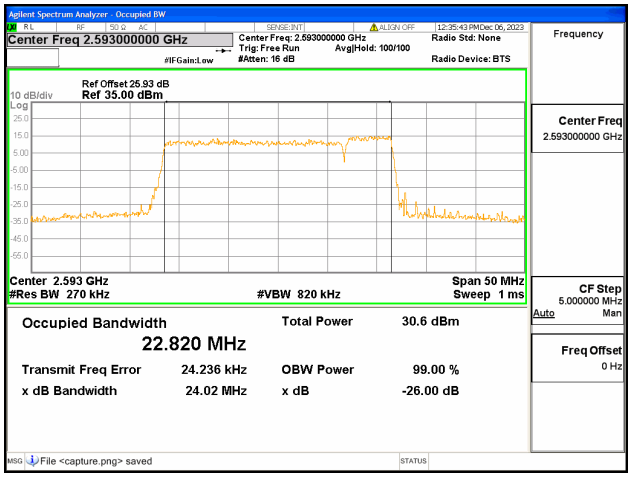
41C / 5+20MHz / 256QAM/ Mid CH



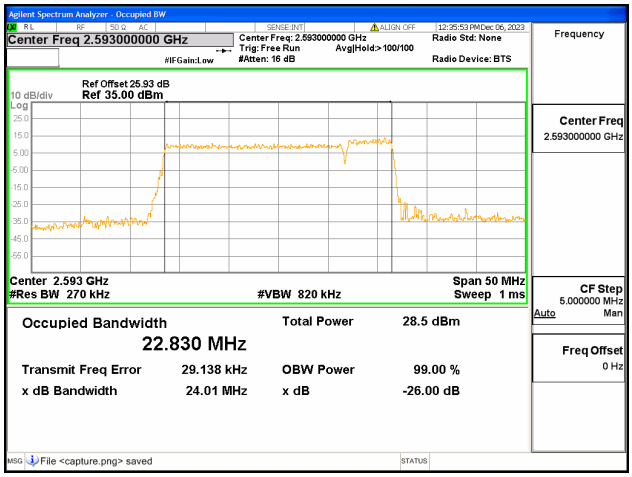
41C / 20+5MHz / QPSK/ Mid CH



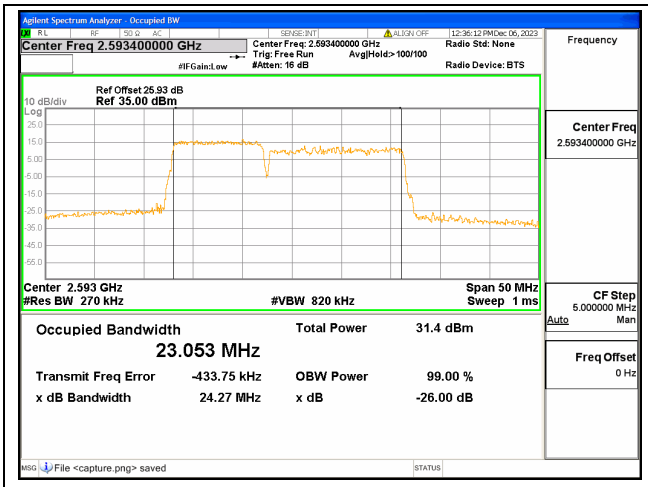
41C / 20+5MHz / 16QAM/ Mid CH



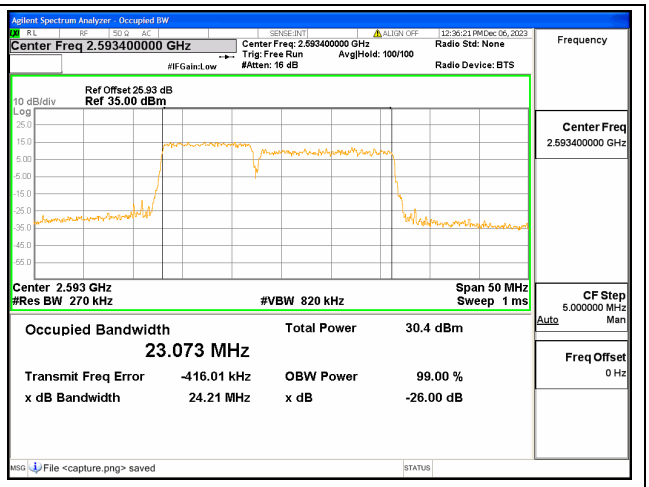
41C / 20+5MHz / 64QAM/ Mid CH



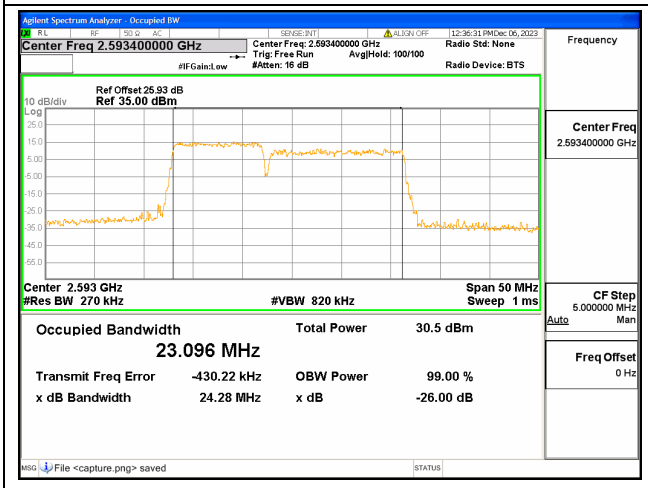
41C / 20+5MHz / 256QAM/ Mid CH



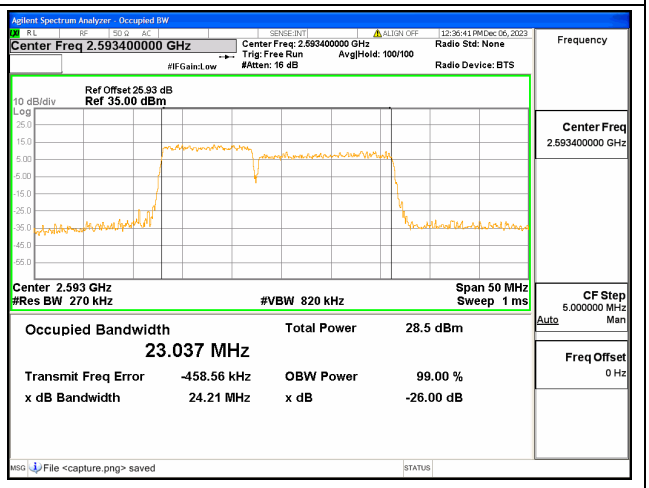
41C / 10+15MHz / QPSK/ Mid CH



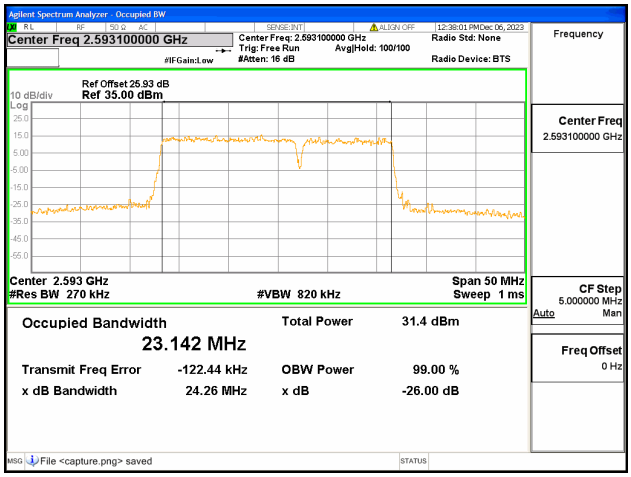
41C / 10+15MHz / 16QAM/ Mid CH



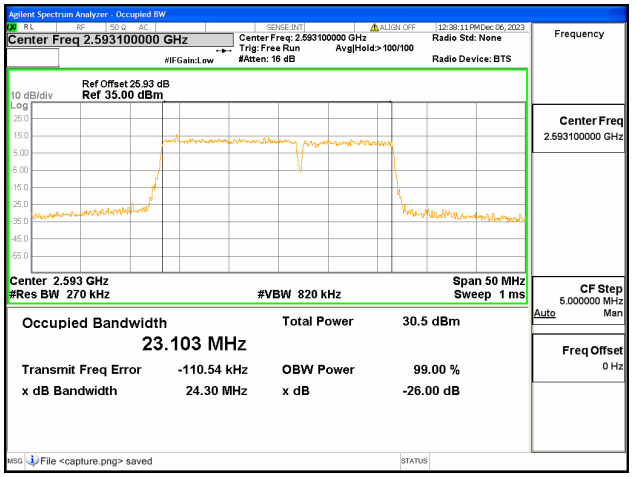
41C / 10+15MHz / 64QAM/ Mid CH



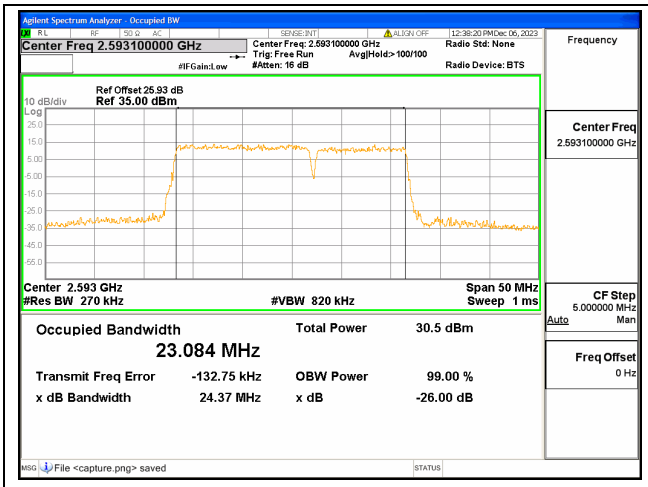
41C / 10+15MHz / 256QAM/ Mid CH



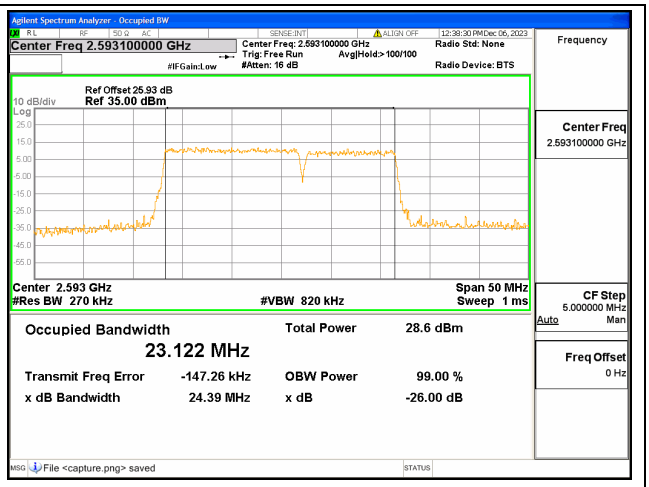
41C / 15+10MHz / QPSK/ Mid CH



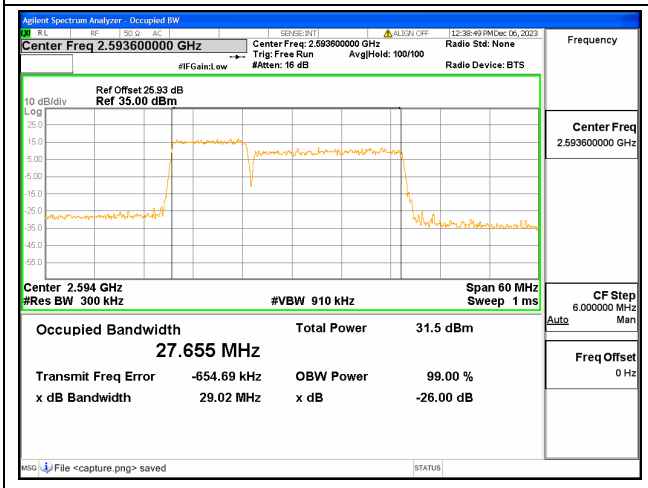
41C / 15+10MHz / 16QAM/ Mid CH



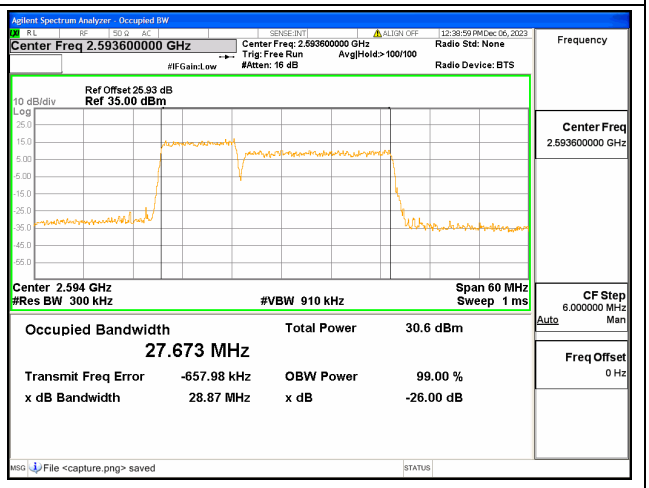
41C / 15+10MHz / 64QAM/ Mid CH



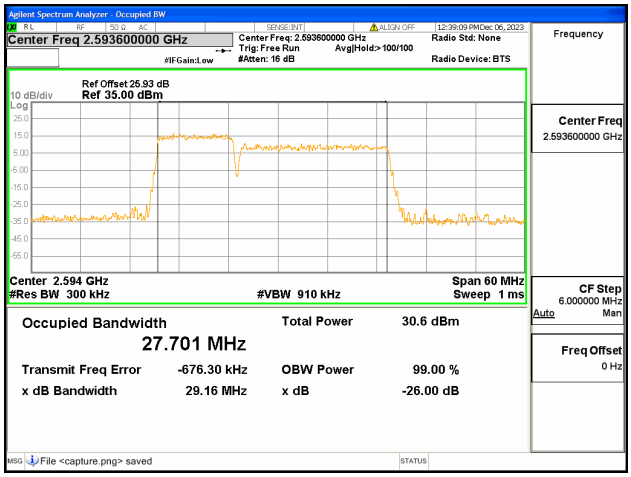
41C / 15+10MHz / 256QAM/ Mid CH



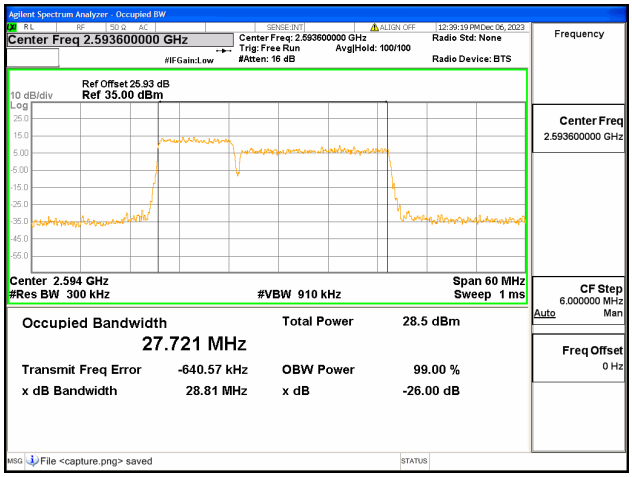
41C / 10+20MHz / QPSK/ Mid CH



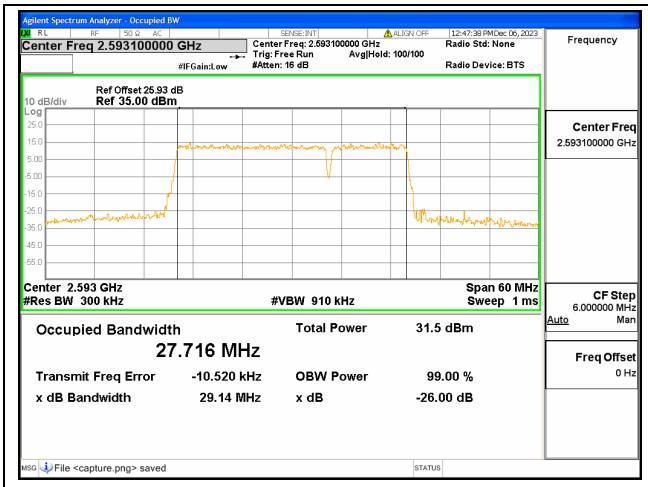
41C / 10+20MHz / 16QAM/ Mid CH



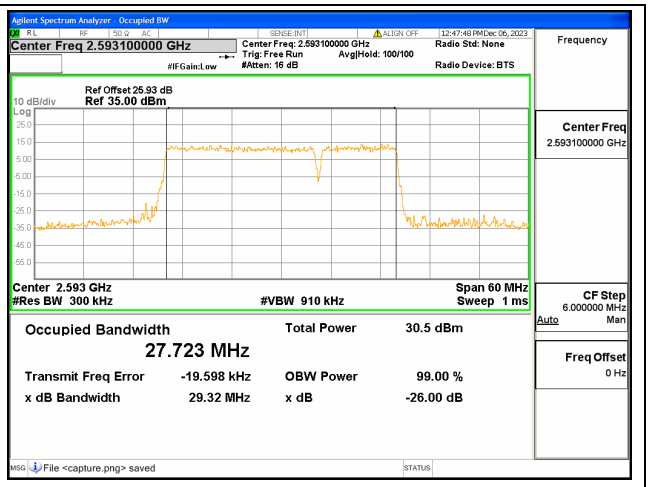
41C / 10+20MHz / 64QAM/ Mid CH



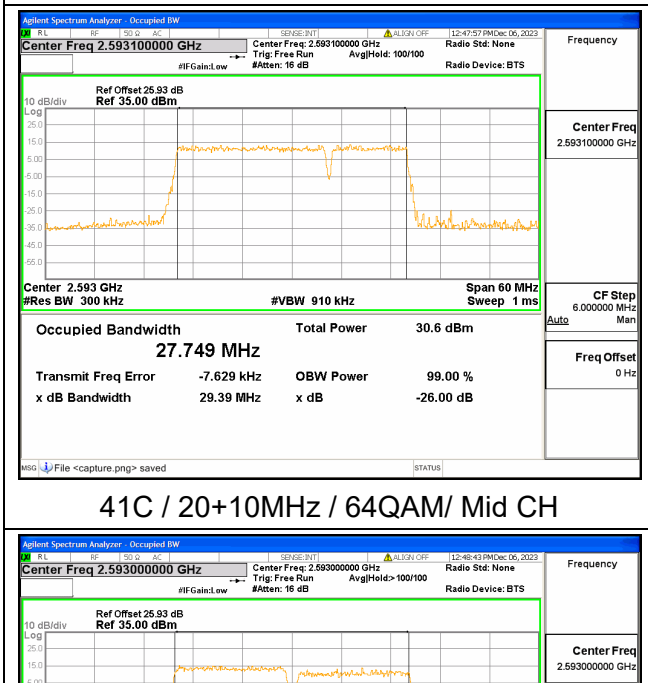
41C / 10+20MHz / 256QAM/ Mid CH



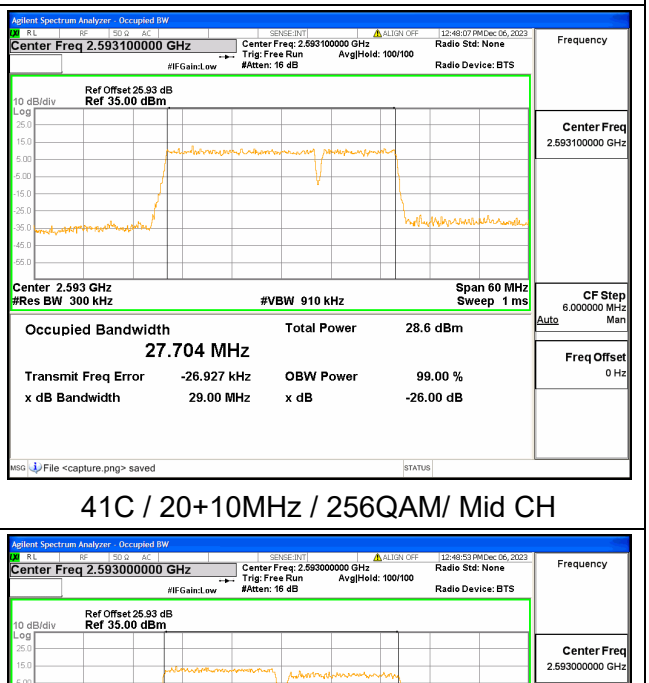
41C / 20+10MHz / QPSK/ Mid CH



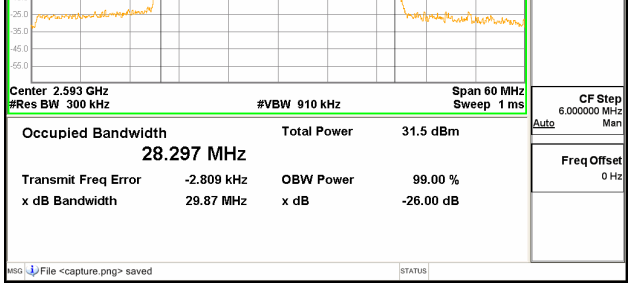
41C / 20+10MHz / 16QAM/ Mid CH



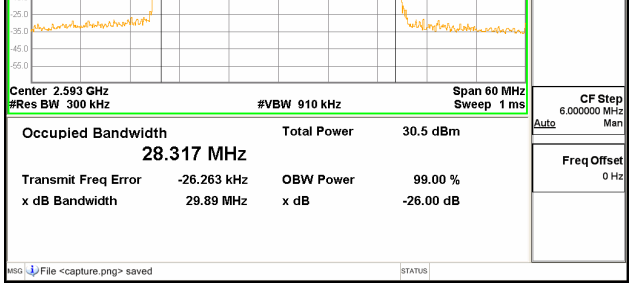
41C / 20+10MHz / 64QAM/ Mid CH



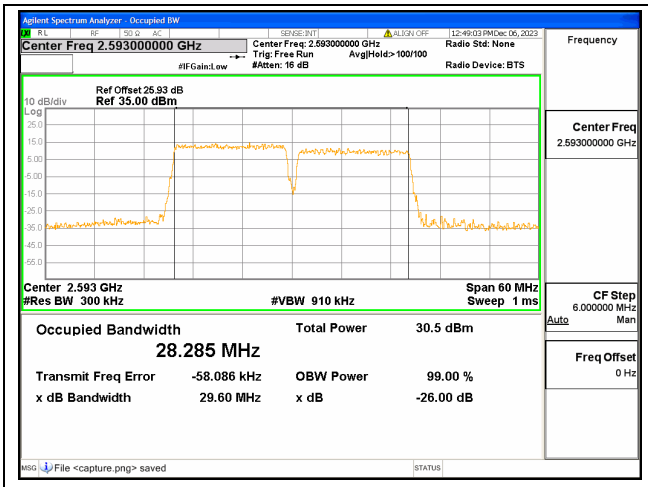
41C / 20+10MHz / 256QAM/ Mid CH



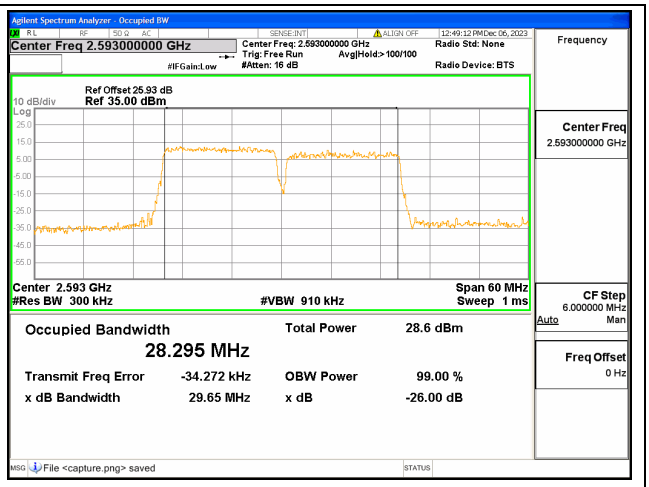
41C / 15+15MHz / QPSK/ Mid CH



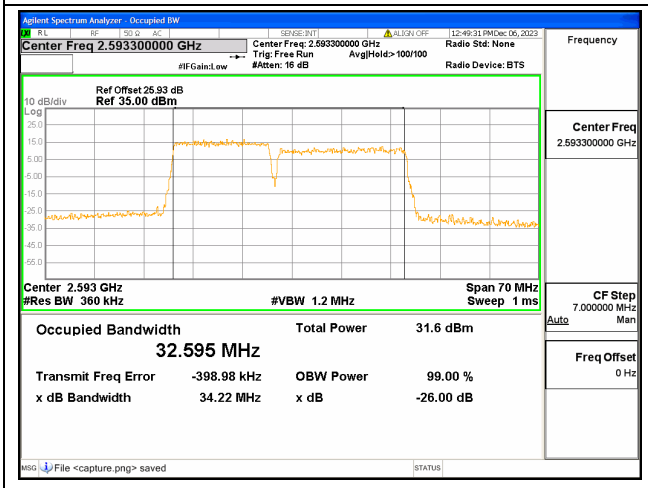
41C / 15+15MHz / 16QAM/ Mid CH



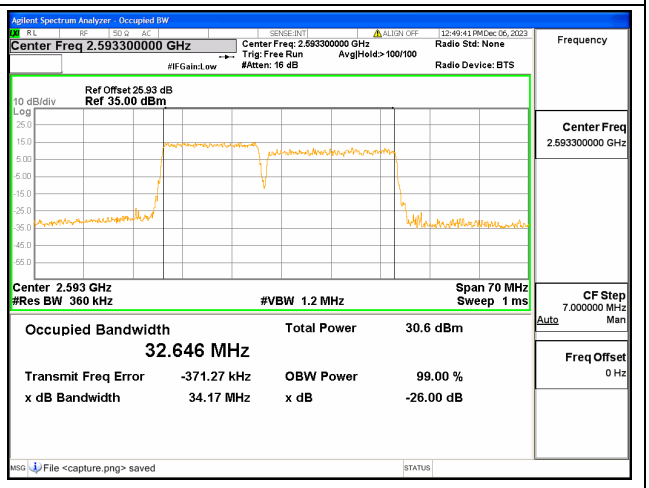
41C / 15+15MHz / 64QAM/ Mid CH



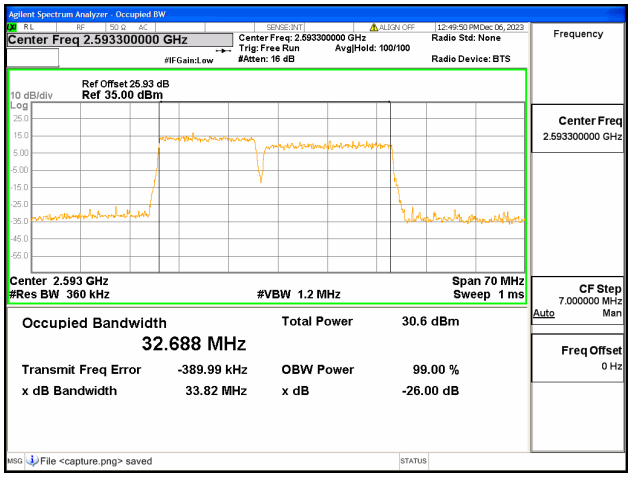
41C / 15+15MHz / 256QAM/ Mid CH



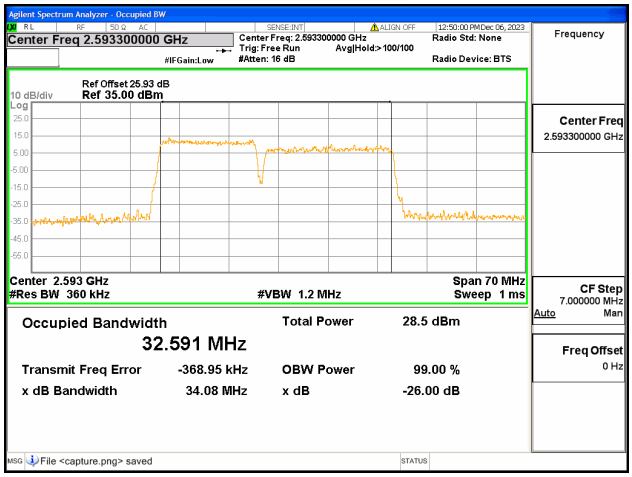
41C / 15+20MHz / QPSK/ Mid CH



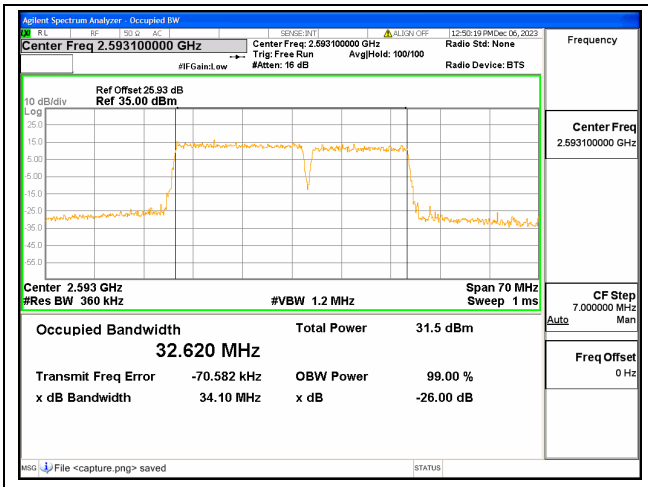
41C / 15+20MHz / 16QAM/ Mid CH



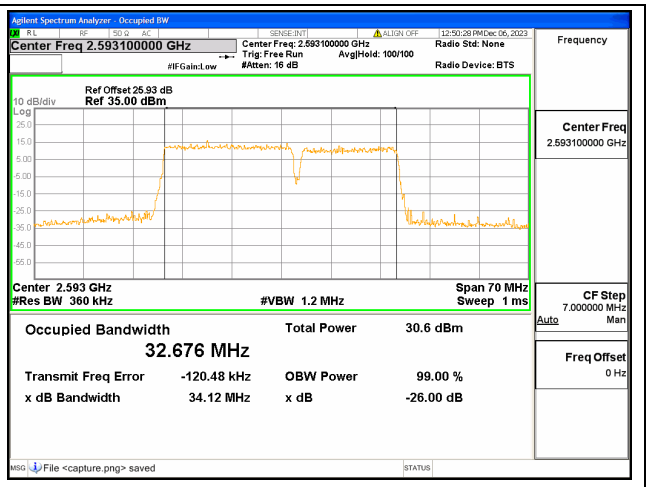
41C / 15+20MHz / 64QAM/ Mid CH



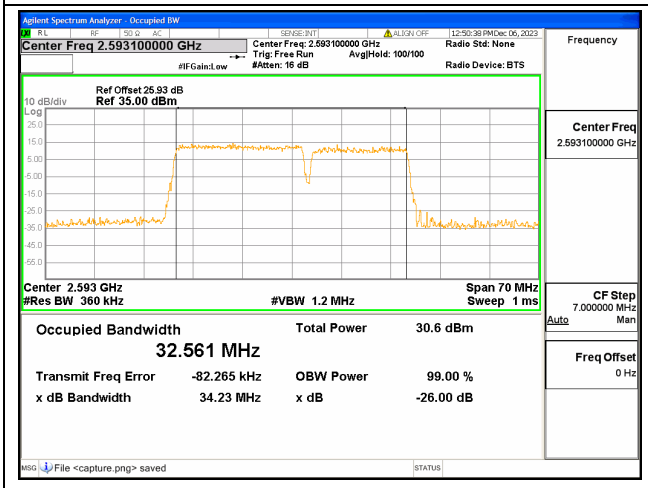
41C / 15+20MHz / 256QAM/ Mid CH



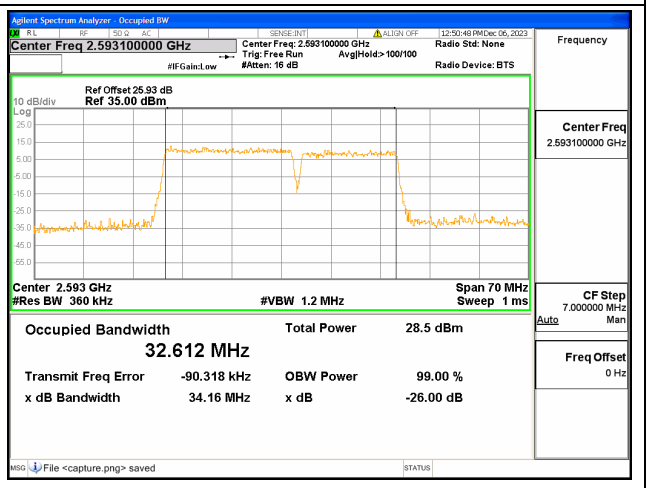
41C / 20+15MHz / QPSK/ Mid CH



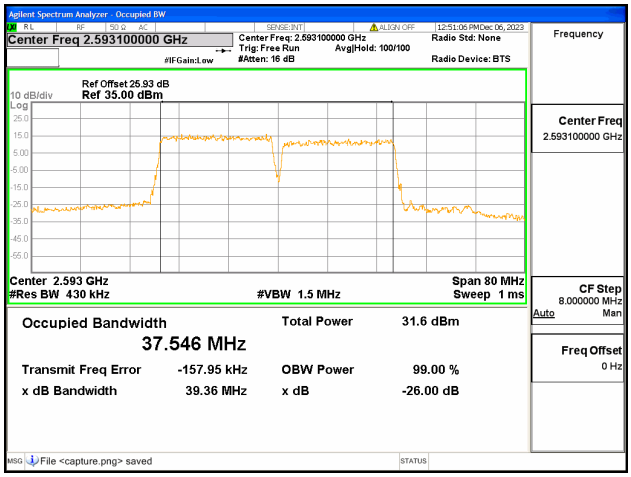
41C / 20+15MHz / 16QAM/ Mid CH



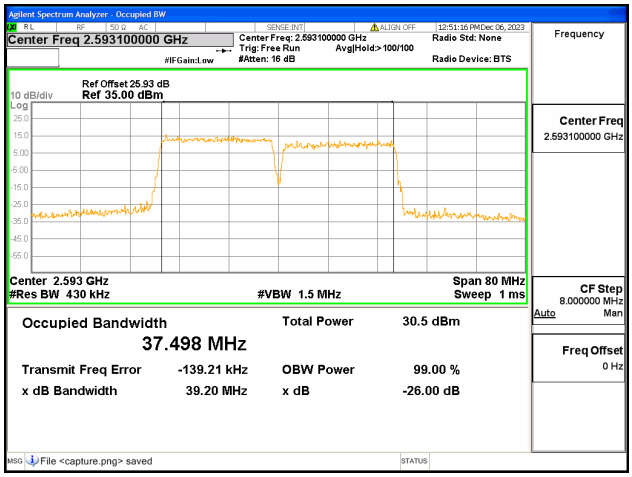
41C / 20+15MHz / 64QAM/ Mid CH



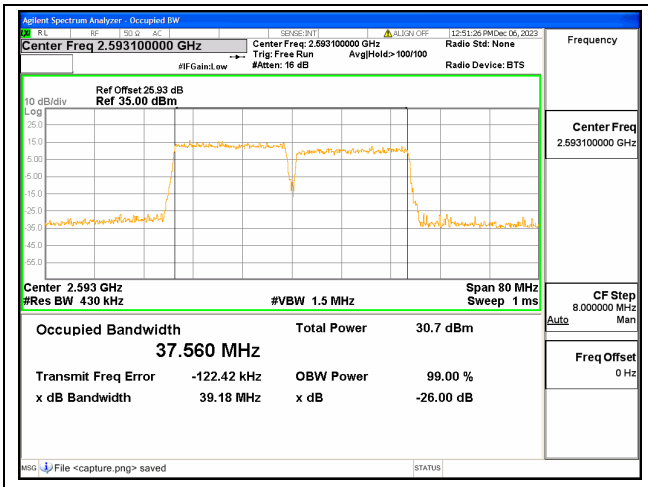
41C / 20+15MHz / 256QAM/ Mid CH



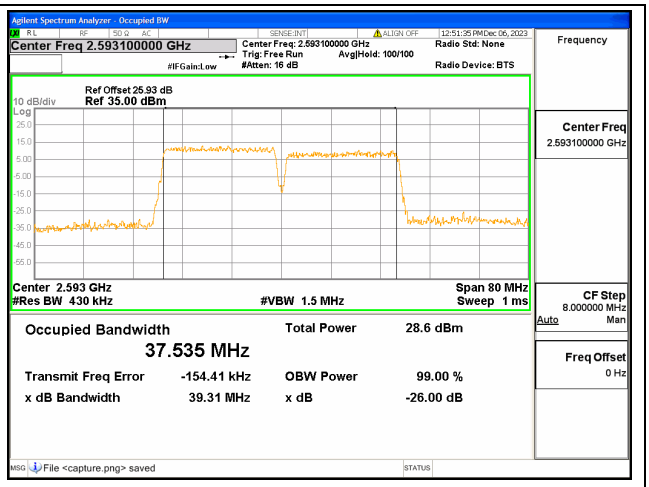
41C / 20+20MHz / QPSK/ Mid CH



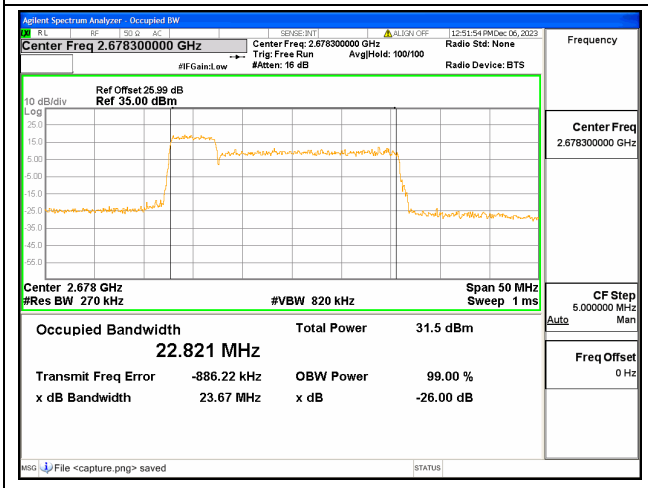
41C / 20+20MHz / 16QAM/ Mid CH



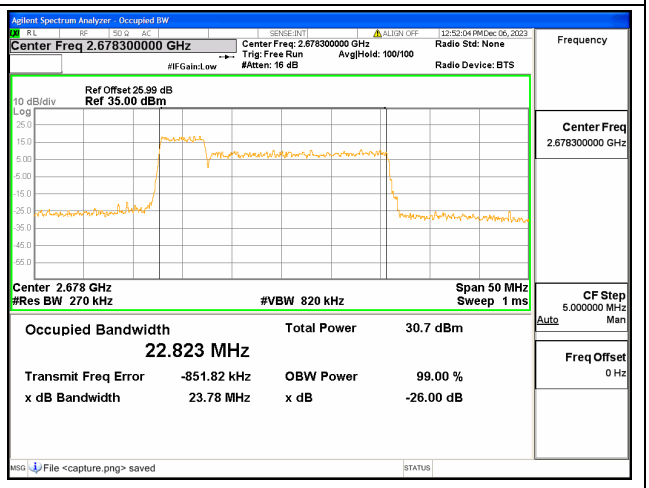
41C / 20+20MHz / 64QAM/ Mid CH



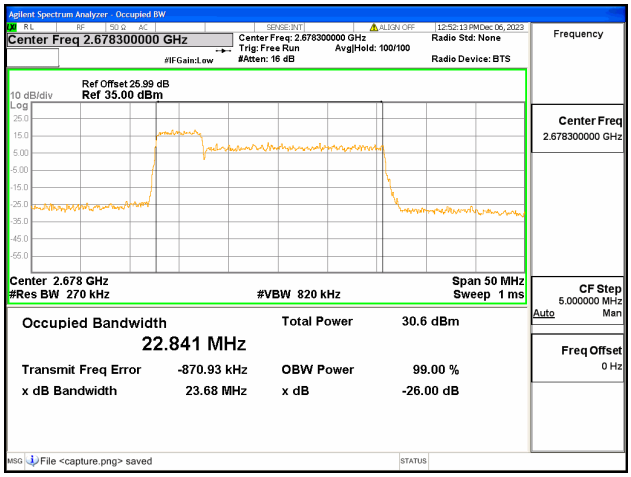
41C / 20+20MHz / 256QAM/ Mid CH



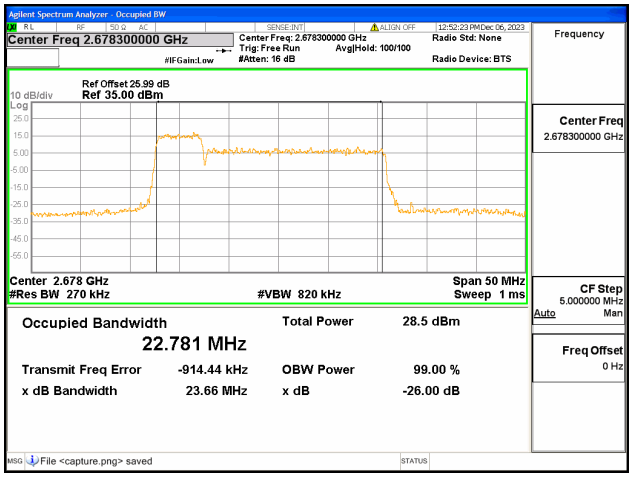
41C / 5+20MHz / QPSK/ High CH



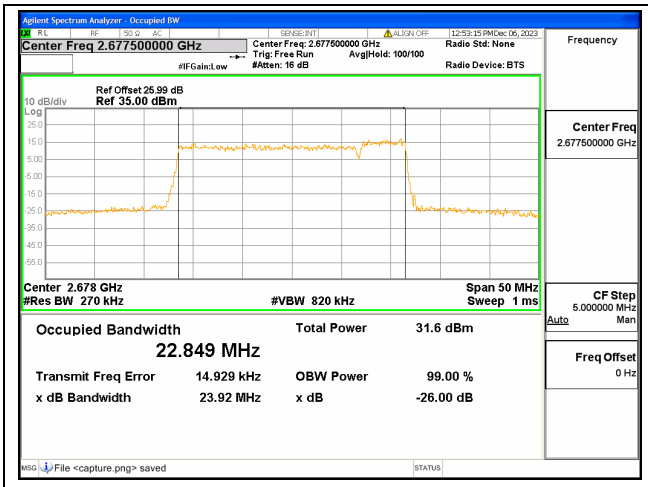
41C / 5+20MHz / 16QAM/ High CH



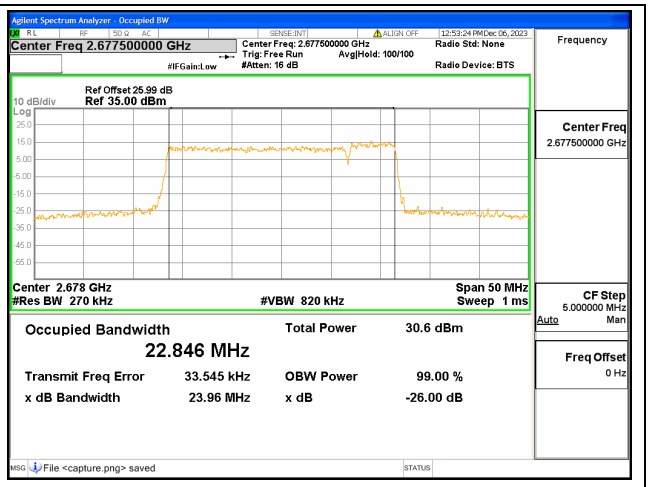
41C / 5+20MHz / 64QAM/ High CH



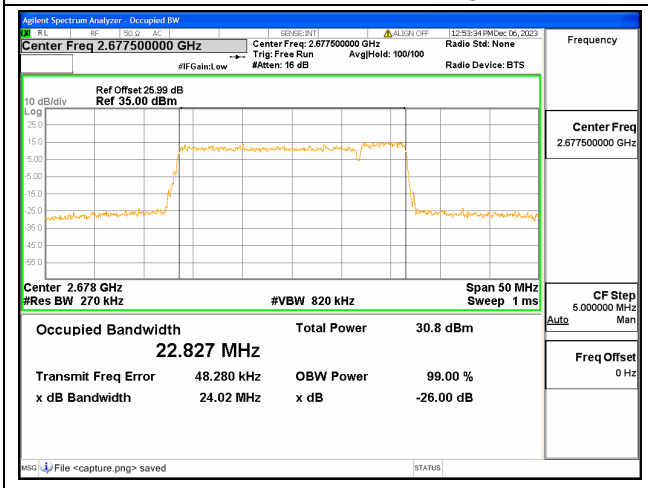
41C / 5+20MHz / 256QAM/ High CH



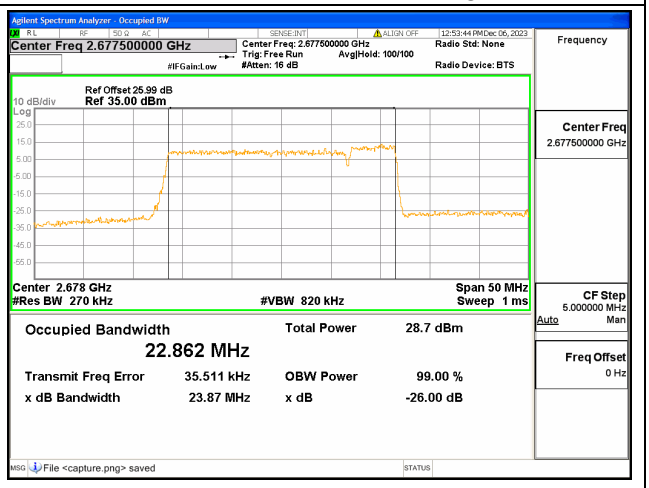
41C / 20+5MHz / QPSK/ High CH



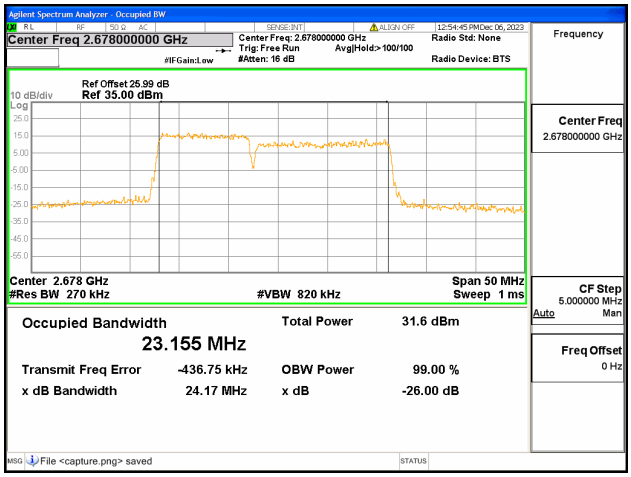
41C / 20+5MHz / 16QAM/ High CH



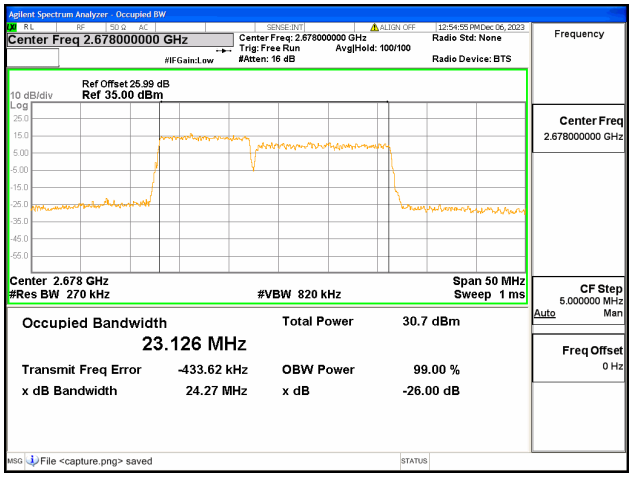
41C / 20+5MHz / 64QAM/ High CH



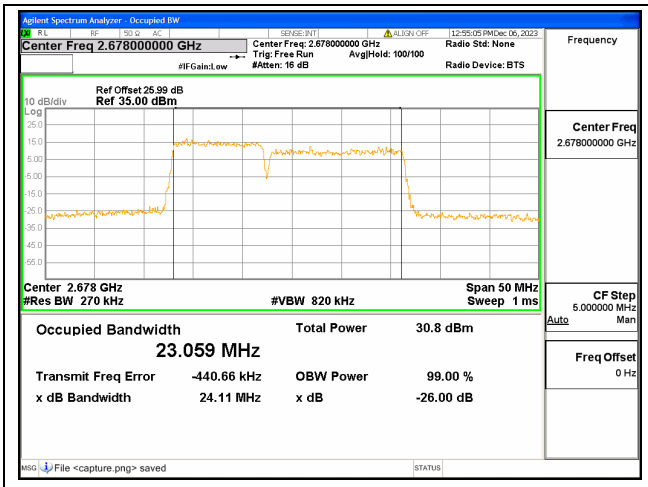
41C / 20+5MHz / 256QAM/ High CH



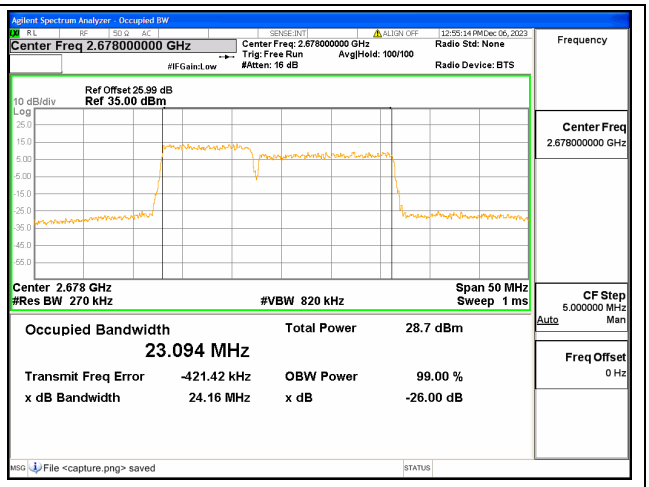
41C / 10+15MHz / QPSK/ High CH



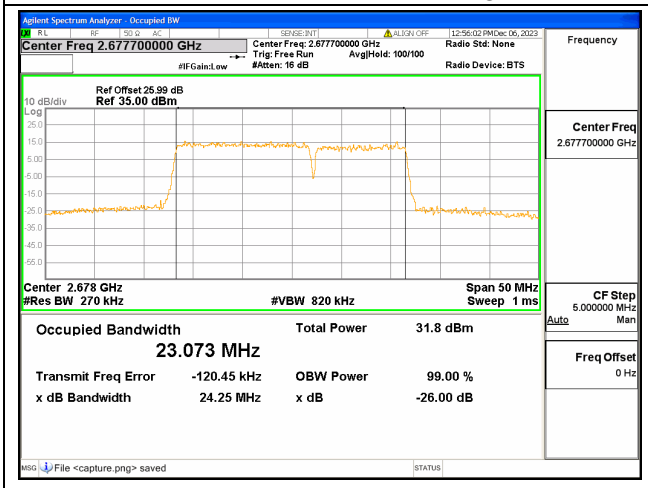
41C / 10+15MHz / 16QAM/ High CH



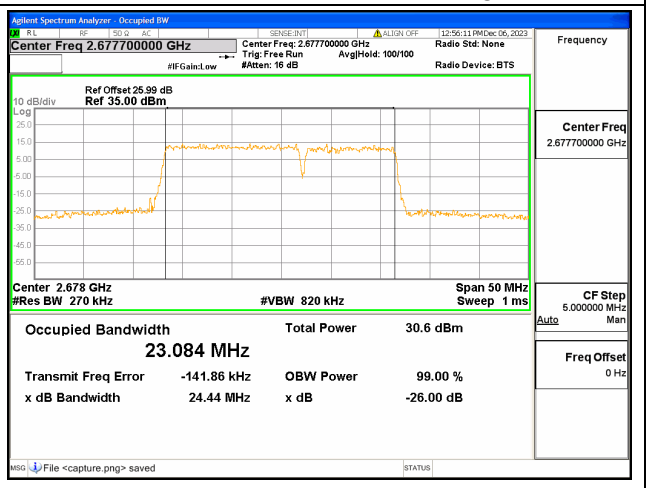
41C / 10+15MHz / 64QAM/ High CH



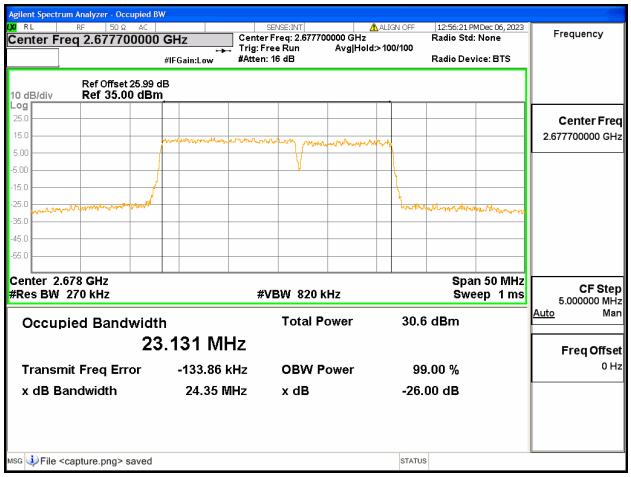
41C / 10+15MHz / 256QAM/ High CH



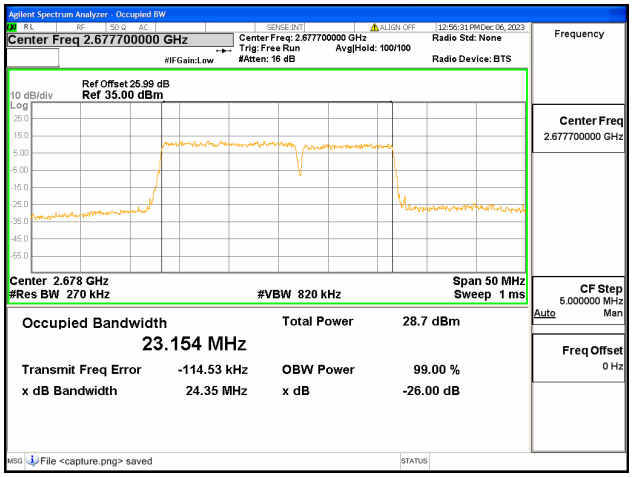
41C / 15+10MHz / QPSK/ High CH



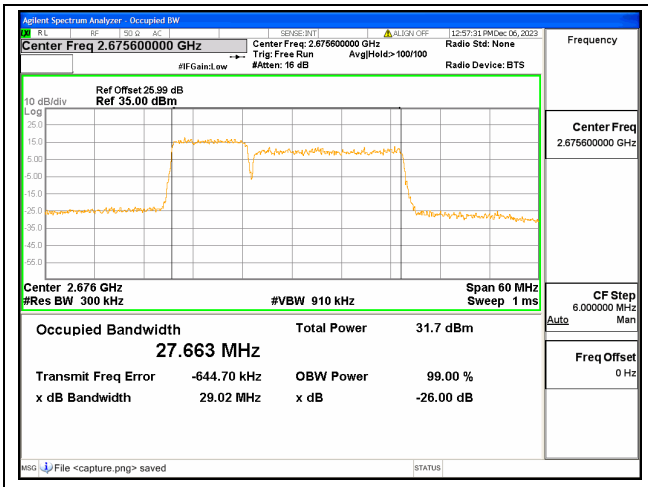
41C / 15+10MHz / 16QAM/ High CH



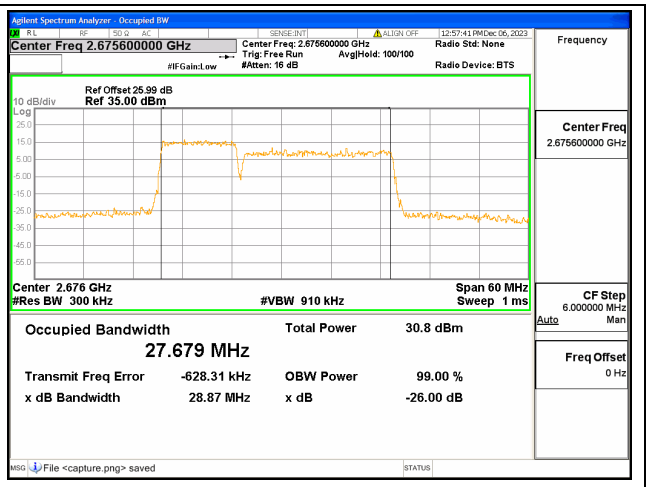
41C / 15+10MHz / 64QAM/ High CH



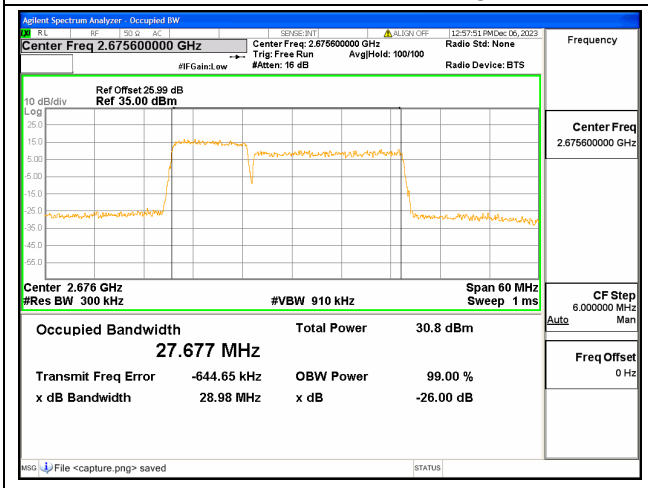
41C / 15+10MHz / 256QAM/ High CH



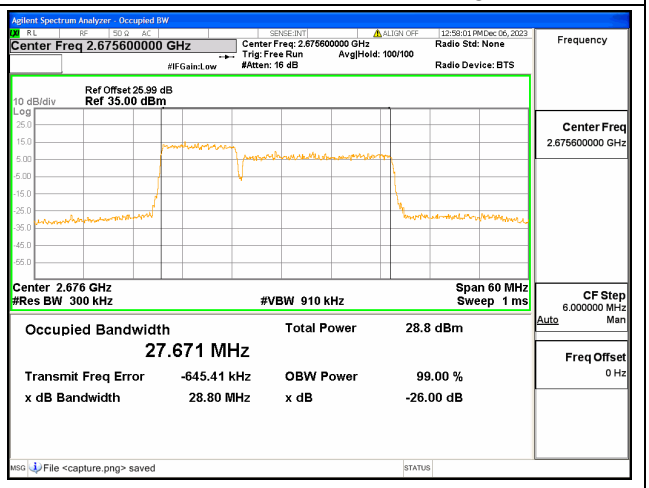
41C / 10+20MHz / QPSK/ High CH



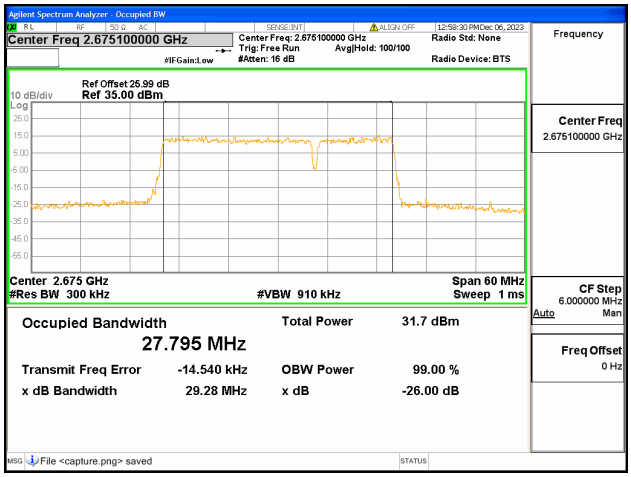
41C / 10+20MHz / 16QAM/ High CH



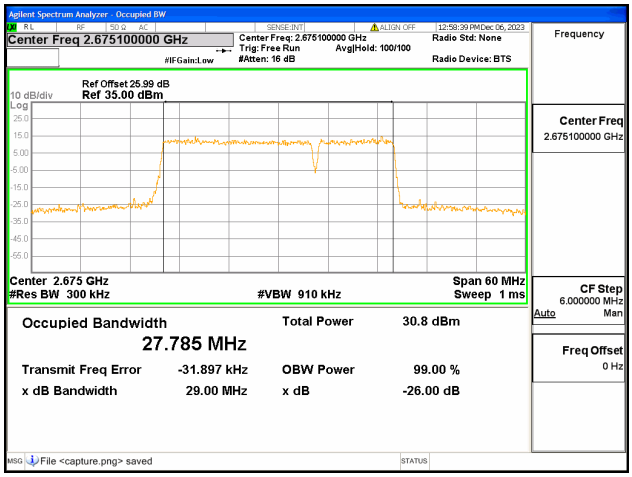
41C / 10+20MHz / 64QAM/ High CH



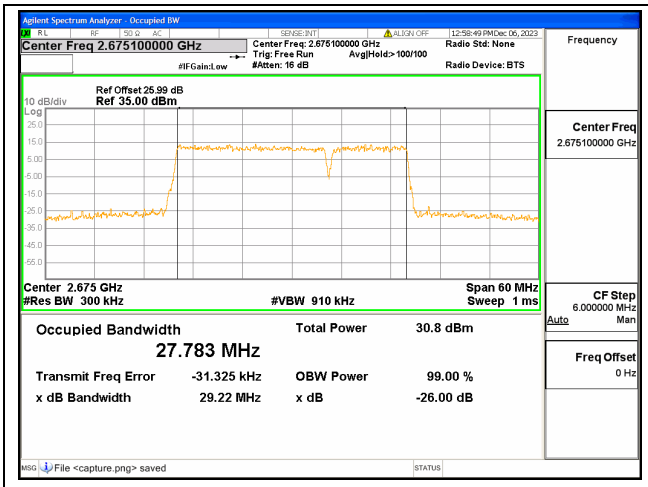
41C / 10+20MHz / 256QAM/ High CH



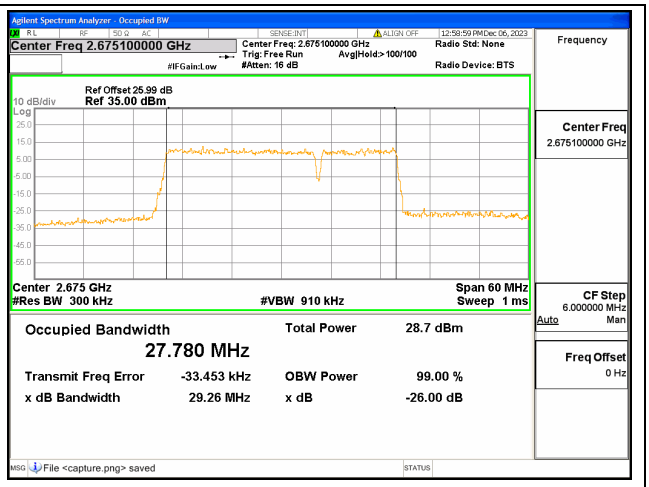
41C / 20+10MHz / QPSK/ High CH



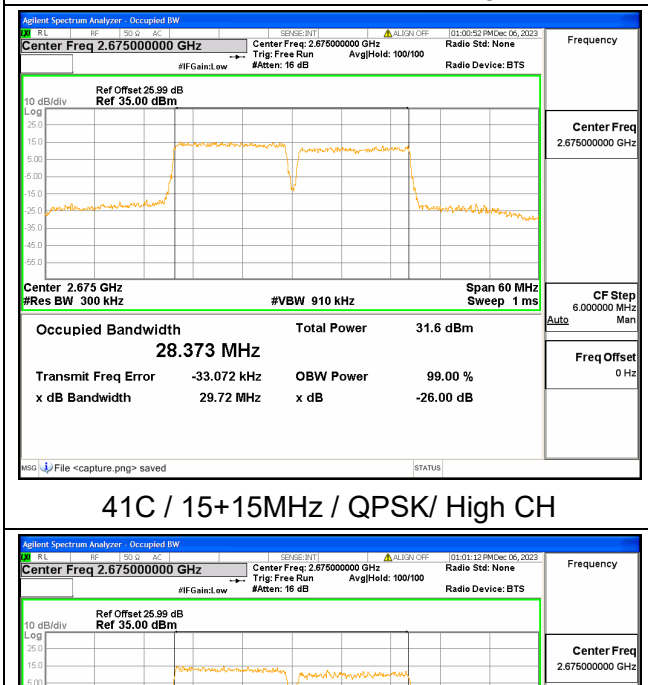
41C / 20+10MHz / 16QAM/ High CH



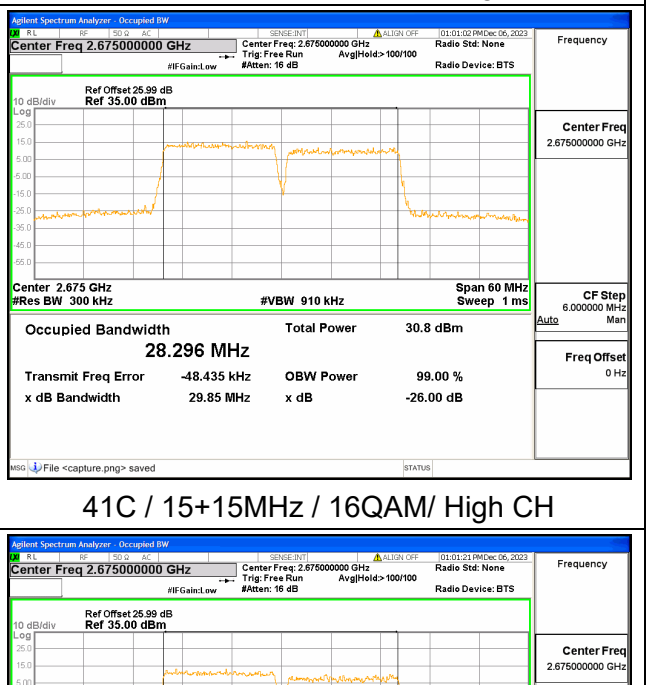
41C / 20+10MHz / 64QAM/ High CH



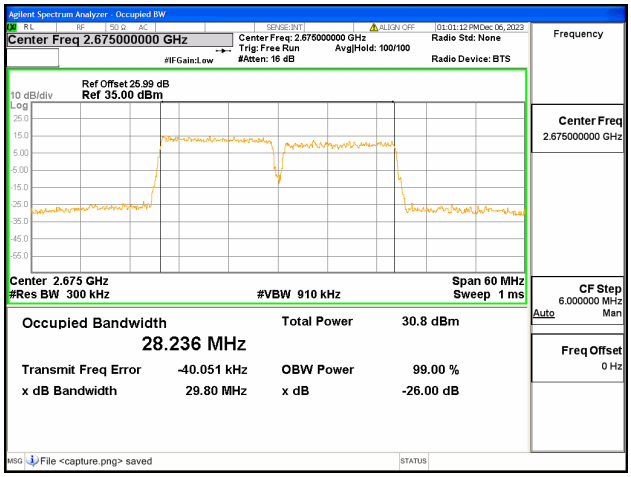
41C / 20+10MHz / 256QAM/ High CH



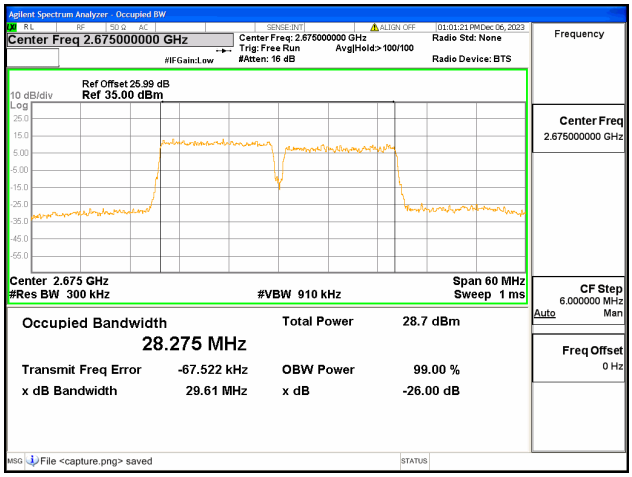
41C / 15+15MHz / QPSK/ High CH



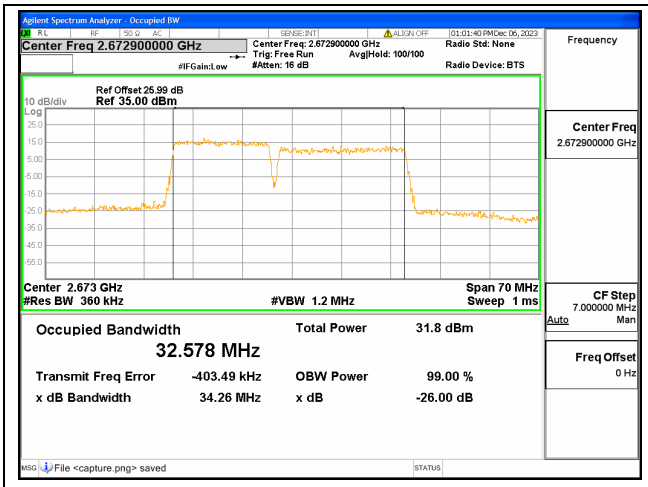
41C / 15+15MHz / 16QAM/ High CH



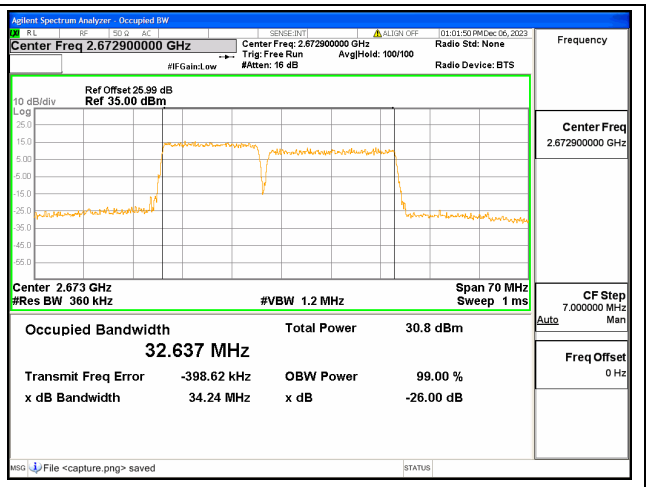
41C / 15+15MHz / 64QAM/ High CH



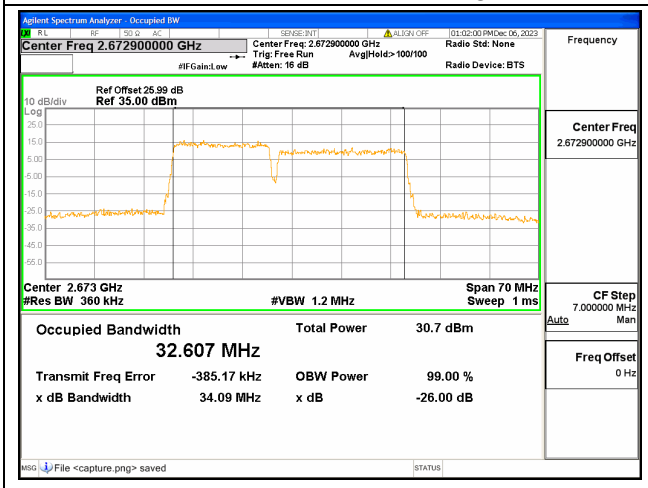
41C / 15+15MHz / 256QAM/ High CH



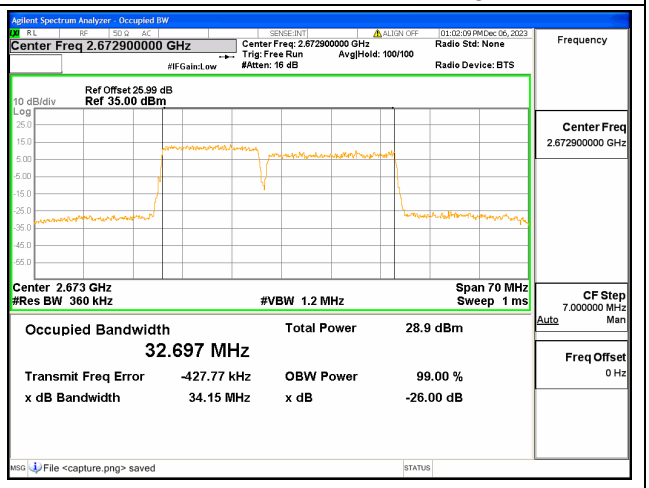
41C / 15+20MHz / QPSK/ High CH



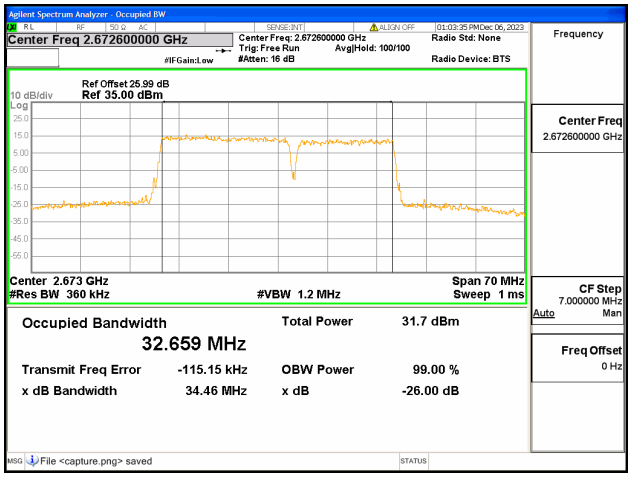
41C / 15+20MHz / 16QAM/ High CH



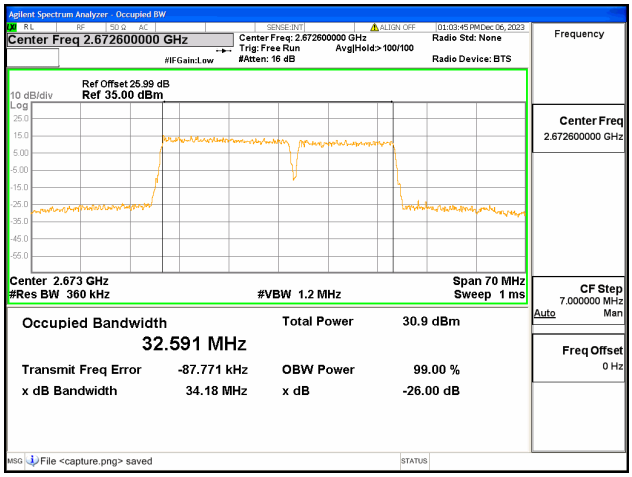
41C / 15+20MHz / 64QAM/ High CH



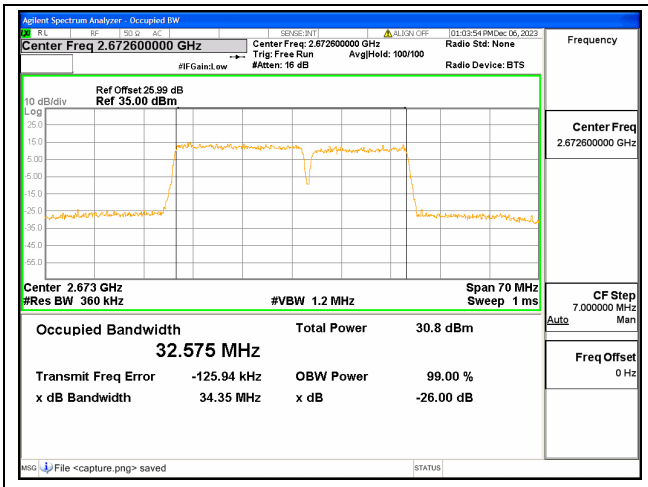
41C / 15+20MHz / 256QAM/ High CH



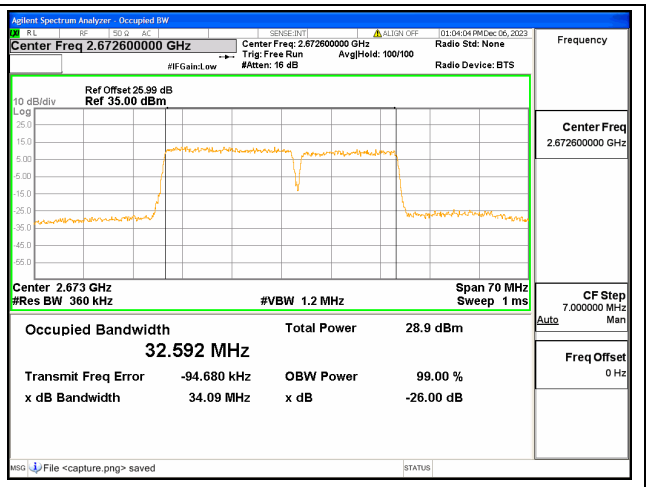
41C / 20+15MHz / QPSK/ High CH



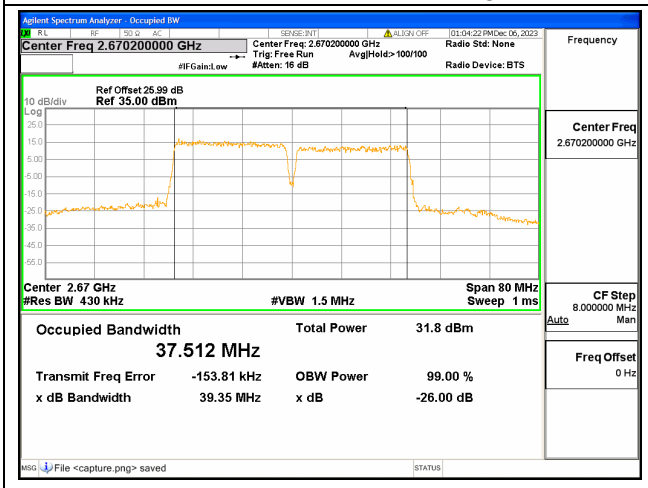
41C / 20+15MHz / 16QAM/ High CH



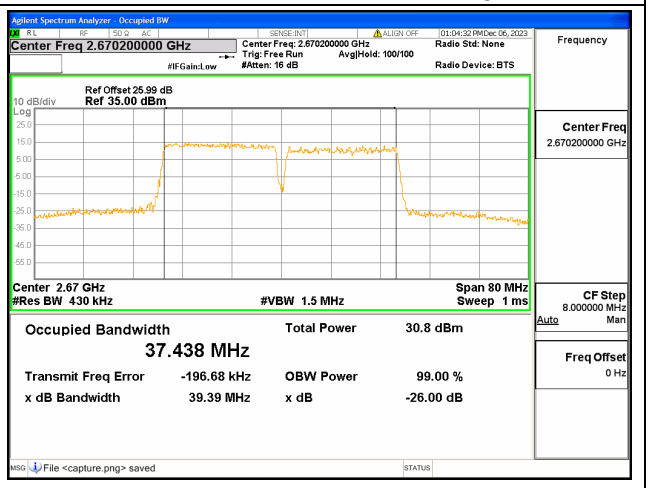
41C / 20+15MHz / 64QAM/ High CH



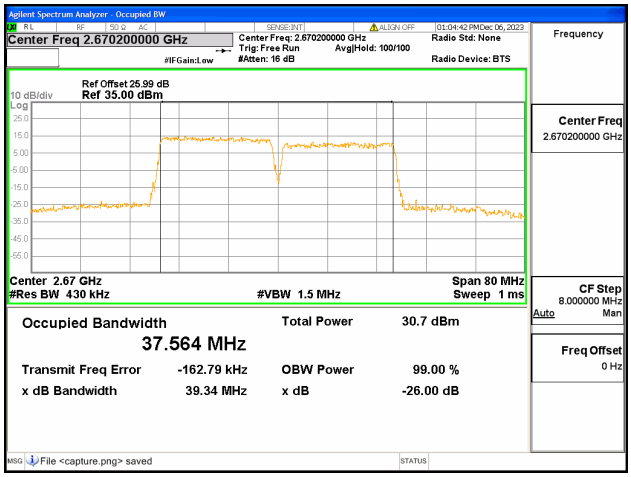
41C / 20+15MHz / 256QAM/ High CH



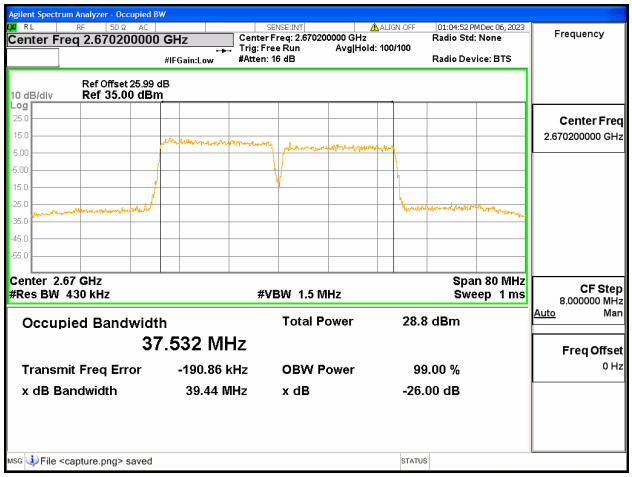
41C / 20+20MHz / QPSK/ High CH



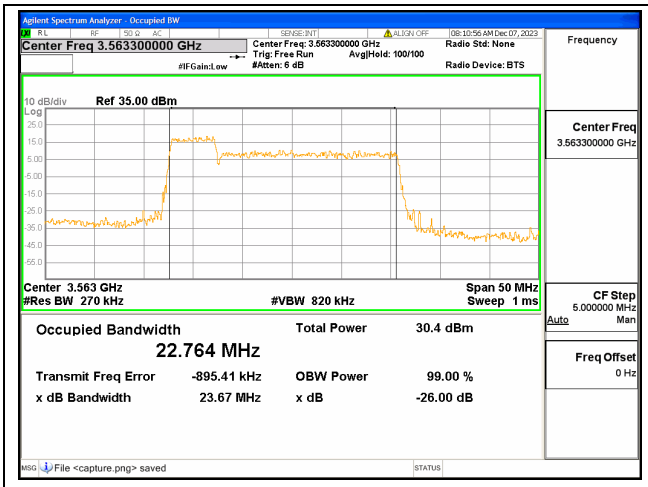
41C / 20+20MHz / 16QAM/ High CH



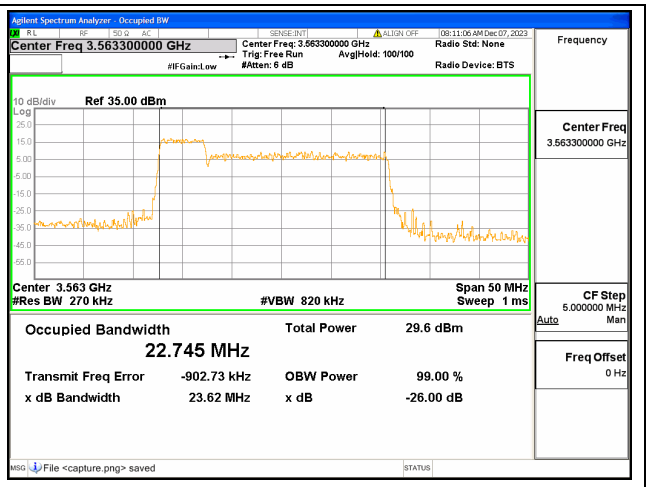
41C / 20+20MHz / 64QAM/ High CH



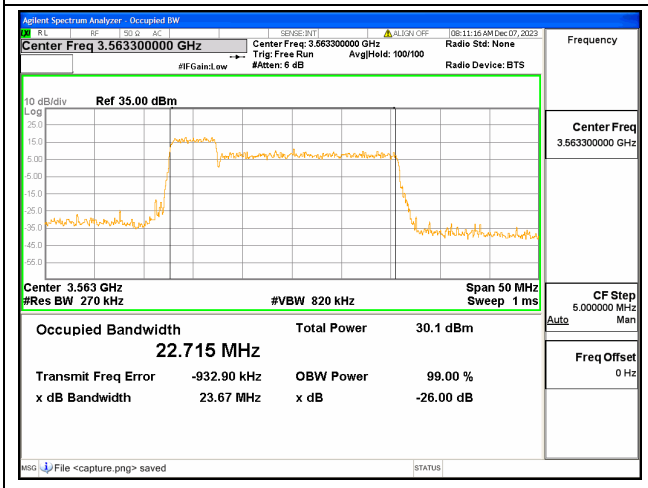
41C / 20+20MHz / 256QAM/ High CH



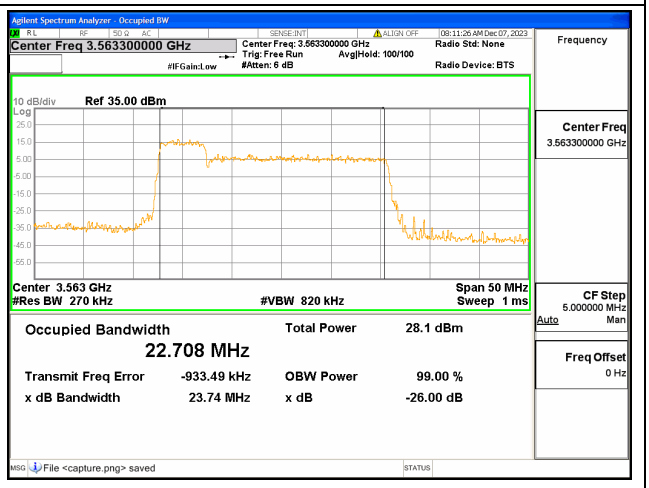
48C / 5+20MHz / QPSK/ Low CH



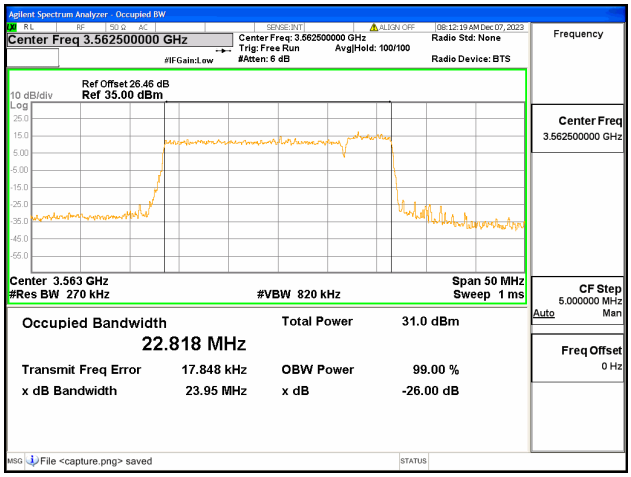
48C / 5+20MHz / 16QAM/ Low CH



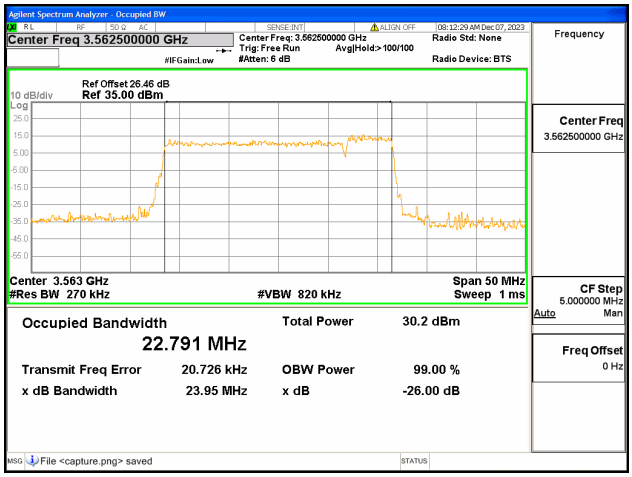
48C / 5+20MHz / 64QAM/ Low CH



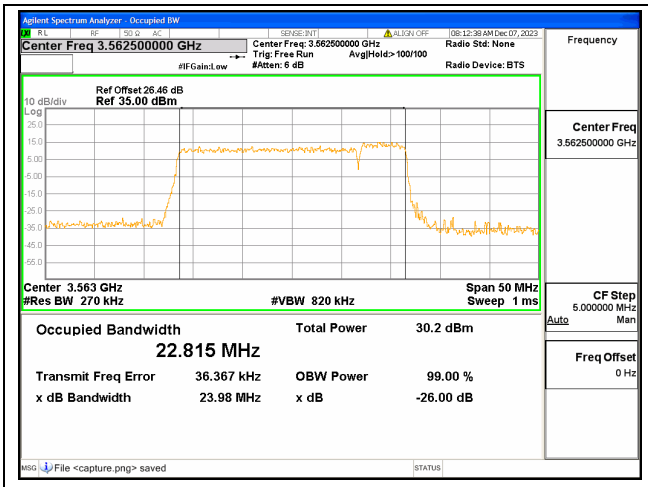
48C / 5+20MHz / 256QAM/ Low CH



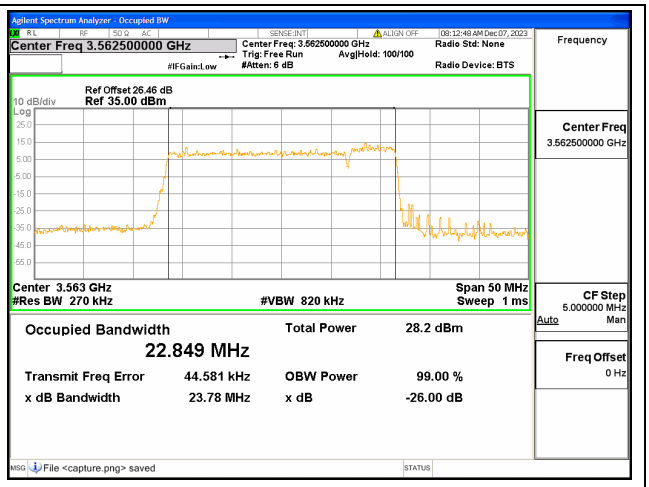
48C / 20+5MHz / QPSK/ Low CH



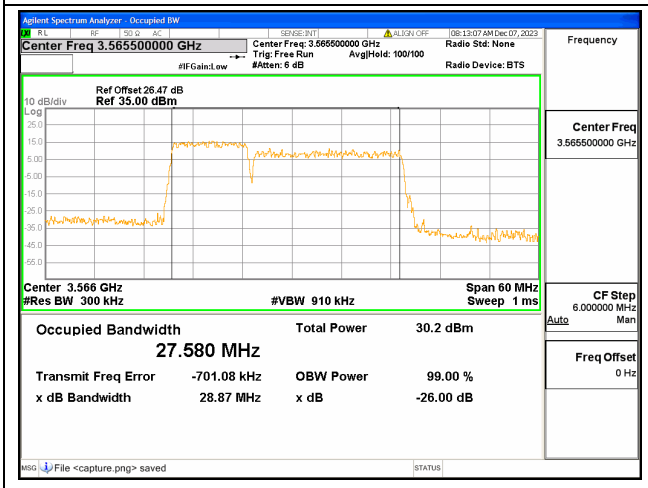
48C / 20+5MHz / 16QAM/ Low CH



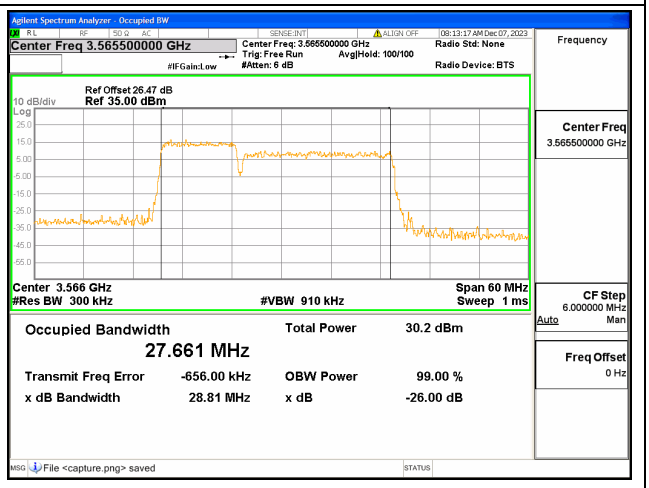
48C / 20+5MHz / 64QAM/ Low CH



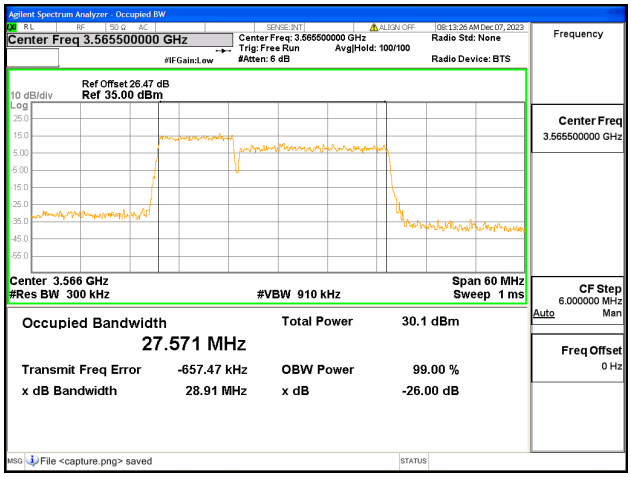
48C / 20+5MHz / 256QAM/ Low CH



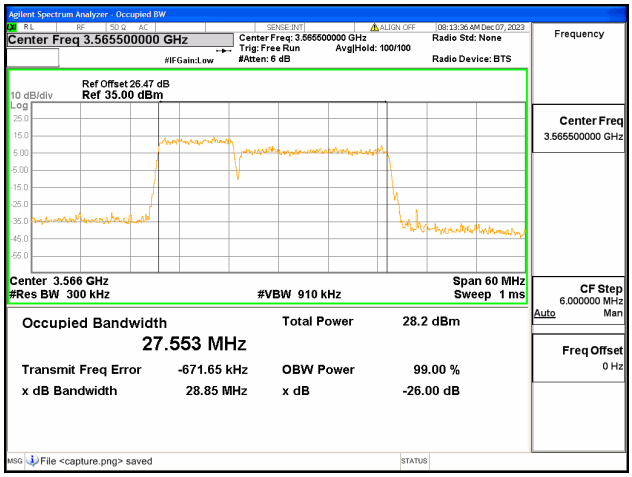
48C / 10+20MHz / QPSK/ Low CH



48C / 10+20MHz / 16QAM/ Low CH



48C / 10+20MHz / 64QAM/ Low CH



48C / 10+20MHz / 256QAM/ Low CH