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Report No.: 2408TW0104-U12
Report Version: 1.0
Issue Date: 2025-01-16

MEASUREMENT REPORT

FCC ID	:	**HD5-CK67X1N**
APPLICANT	:	**Honeywell International Inc**
Application Type	:	**Certification**
Product	:	**Mobile Computer**
Model No.	:	**CK67X1N**
Brand Name	:	**Honeywell**
FCC Classification	:	**PCS Licensed Transmitter worn on body (PCT)**
FCC Rule Part(s)	:	**Part2, Part22 Subpart H, Part24 Subpart E, Part27**
Test Procedure(s)	:	**ANSI C63.26 2015**
Received Date	:	**August 5, 2024**
Test Date	:	**November 15, 2024~January 15, 2025**

Tested By : Wen lee
(Wen Lee)

Reviewed By : Paddy Chen
(Paddy Chen)

Approved By : Chenz Ker
(Chenz Ker)

Testing Laboratory
3261

The test results only relate to the tested sample.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015.
Test results reported herein relate only to the item(s) tested.
The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2408TW0104-U12	1.0	Original Report	2025-01-16	

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General Information

Applicant	Honeywell International Inc
Applicant Address	9680 Old Bailes Rd. Fort Mill, SC 29707 United States
Manufacturer	Honeywell International Inc. Honeywell Safety and Productivity Solutions
Manufacturer Address	9680 Old Bailes Rd. Fort Mill, SC 29707 United States
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT FCC Registration No.	291082
Test Device Serial No.	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Canada, EU and TELEC Rules.

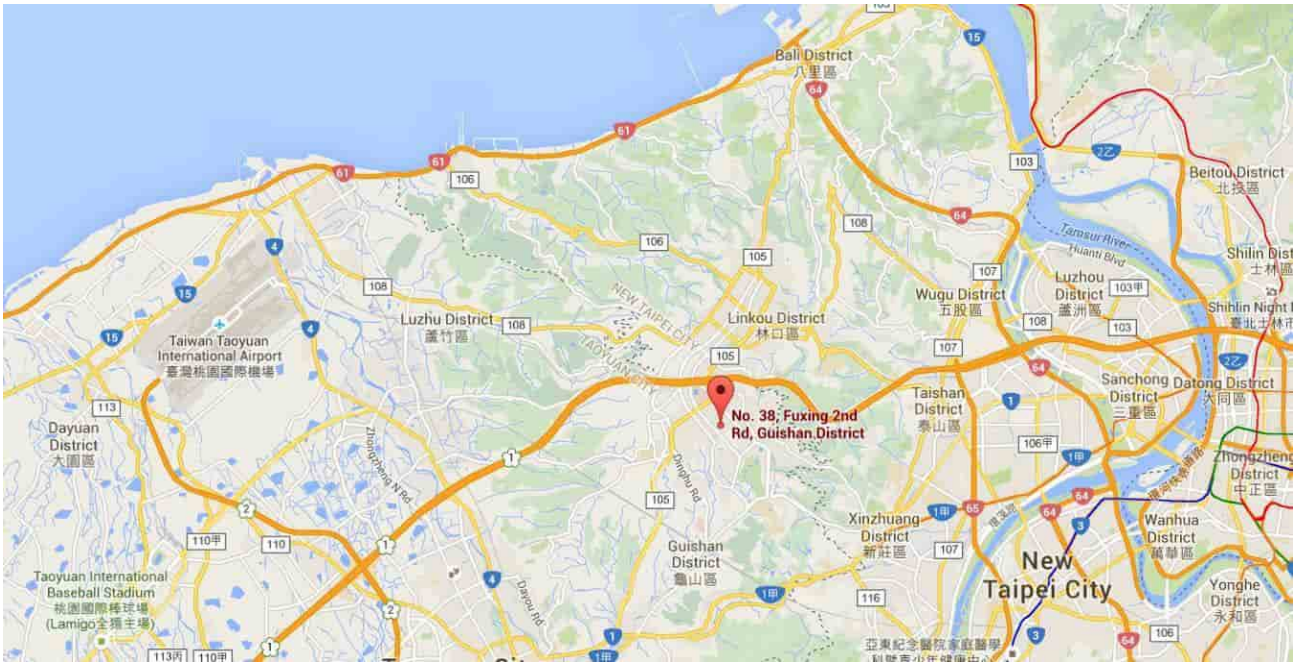
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



1.3. Product Information

Product Name	Mobile Computer
Model No.	CK67X1N
Brand Name	Honeywell
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	Main BT/BLE : V5.3 dual mode + 2nd BLE: V5.3 Single mode
NFC Specification	13.56MHz
WWAN Specification	4G-LTE: Band 2,4,5,7,12,13,14,17,25,26,30,38,41,42,43,48,66,71 5G-NR: n 2,5,7,12,13,14,25,26,30,38,41,48,66,71,77,78
2UL CA Intra-Band	5B; 7C; 38C; 41C; 48C; 66B; 66C
EUT Identification No.:	#24295D8051, #24295D80CF (Conducted) #24295D8059 (Radiated)
Operating Temperature Range	-20~50 °C
Supply Voltage Rating	DC 3.6V
Accessory	
Battery	Brand: Honeywell MODEL:CK65-BTSC Rating: 3.6Vdc, 7000mAh, 25.2Wh
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

Note:

1. For other features of this EUT, test report will be issued separately.
2. This product has 3 scanners, 5 keypads, can refer as below:

Scanner	S0703	S0803FR	S0803	--	--
Keypad	Alpha Numeric	Numeric	Large Numeric	53keys Alpha Numeric	42keys Numeric

3. This report selected S0803FR with Alpha Numeric as the main test.
4. For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.4. Radio Specification under Testing

E-UTRA Specification	
FDD TX Frequency Range (NR FDD SCS 15KHz)	LTE B2/NR n2: 1850 ~ 1910 MHz; LTE B4: 1710 ~ 1755 MHz; LTE B5/NR n5: 824 ~ 849 MHz; LTE B7/NR n7: 2500 ~ 2570 MHz; LTE B12/NR n12: 699 ~ 716 MHz; LTE B13/NR n13: 777 ~ 787 MHz; LTE B17: 704 ~ 716 MHz; LTE B25/NR n25: 1850 ~ 1915 MHz; LTE B26/NR n26: 814 ~ 849 MHz; LTE B30/NR n30: 2305 ~ 2315 MHz; LTE B66/NR n66: 1710 ~ 1780 MHz; LTE B71/NR n71: 663 ~ 698 MHz
FDD RX Frequency Range (NR FDD SCS 15KHz)	LTE B2/NR n2: 1930 ~ 1990 MHz; LTE B4: 2110 ~ 2155 MHz; LTE B5/NR n5: 869 ~ 894 MHz; LTE B7/NR n7: 2620 ~ 2690 MHz; LTE B12/NR n12: 729 ~ 746 MHz; LTE B13/NR n13: 746 ~ 756 MHz; LTE B17: 734 ~ 746 MHz; LTE B25/NR n25: 1930 ~ 1995 MHz; LTE B26/NR n26: 859 ~ 894 MHz; LTE B30/NR n30: 2350 ~ 2360 MHz; LTE B66/NR n66: 2110 ~ 2200 MHz; LTE B71/NR n71: 617 ~ 652 MHz
TDD TX & RX Frequency Range (NR TDD SCS 30KHz)	LTE B38/NR n38: 2570 ~ 2620 MHz; LTE B41/NR n41: 2496 ~ 2690 MHz; LTE B42/NR n77, n78: 3450 ~ 3550 MHz; LTE B43: 3600 ~ 3700 MHz; LTE B43/NR n78: 3700 ~ 3800 MHz; NR n77: 3700 ~ 3980 MHz
HUPE Band (Power Class 2)	LTE B41; LTE B42; NR n41; NR n77; NR n78
2UL CA Outra-Band	CA_2A+4A/5A/7A/12A/13A/14A/17A/30A/66A/71A; CA_4A+5A/12A/13A/17A/30A/66A/71A; CA_5A+7A/30A/66A CA_7A+13A/66A; CA_12A+30A/66A; CA_13A+30A/66A CA_14A+30A/66A; CA_30A+66A; CA_66A+71A
2UL ENDC Combination	LTE B2+NR n5/n12/n41/n66/n71/n77/n78; LTE B2-B13(DL)+NR n66; LTE B4+NR n78; LTE B5+NR n2/n7/n66/n77/n78; LTE B7+NR n2/n5/n66/n71/n77/n78; LTE B12+NR n2/n7/n25/n38/n41/n66/n77/n78; LTE B13+NR n2/n66/n77; LTE B14+NR n2/n30/n66/n71/n77; LTE B25+NR n41/n77/n78; LTE B26+NR n41; LTE B30+NR n2/n5/n66/n77; LTE B38+NR n78 LTE B41+NR n77/n78; LTE B48+NR n5/n66; LTE B66+NR n2/n5/n12/n41/n71/n77/n78; LTE B71+NR n38/n66/n78
Type of Modulation	UL up to 256QAM, DL up to 256QAM

1.5. Description of Available Antennas

Antenna Type			LDS				
Technology	Frequency Range (MHz)		Max Peak Gain (dBi)				
	TX	RX	ANT0	ANT1	ANT2	ANT5	ANT6
LTE B2/ NR n2	1850 ~ 1910	1930 ~ 1990	--	1.19	-0.41	--	--
LTE Band 4	1710 ~ 1755	2110 ~ 2155	--	1.19	0.59	--	--
LTE B5/ NR n5	824 ~ 849	869 ~ 894	-3.38	--	-0.97	--	--
LTE B7/ NR n7	2500 ~ 2570	2620 ~ 2690	--	1.38	-0.23	--	--
LTE B12/ NR n12	699 ~ 716	729 ~ 746	-3.38	--	-0.97	--	--
LTE B13/ NR n13	777 ~ 787	746 ~ 756	-3.38	--	-0.97	--	--
LTE Band 17	704 ~ 716	734 ~ 746	-3.38	--	-0.97	--	--
LTE B25/ NR n25	1850 ~ 1915	1930 ~ 1995	--	1.19	-0.41	--	--
LTE B26/ NR n26	814 ~ 849	859 ~ 894	-3.38	--	-0.97	--	--
LTE B30/ NR n30	2305 ~ 2315	2350 ~ 2360	--	-0.56	-0.63	--	--
LTE B38/ NR n38	2570 ~ 2620		--	1.38	-0.23	--	--
LTE B41	2496 ~ 2690		--	1.38	--	--	--
NR n41	2496 ~ 2690		--	1.38	-0.23	--	--
LTE B66/ NR n66	1710 ~ 1780	2110 ~ 2200	--	1.19	0.59	--	--
LTE B71/ NR n71	663 ~ 698	617 ~ 652	-3.58	--	--	--	--
LTE B42	3450 ~ 3550		--	--	--	-1.50	-1.51
LTE B43	3600 ~ 3700		--	--	--	-1.50	-1.51
LTE B43/ NR n78	3700 ~ 3800		--	--	--	-1.50	-1.51
LTE B48/ NR n48	3550 ~ 3700		--	--	--	-1.50	-1.51
NR n77/ NR n78	3450 ~ 3550		--	--	--	-1.50	-1.51
NR n77	3700 ~ 3980		--	--	--	-1.50	-1.51

Note

1: All antenna information (Antenna type and Peak Gain) is provided by the manufacturer.
2: The typical antennas used to calculate the ERP (EIRP).
3. Ant0 support TX functions for LB (617MHz-960MHz).
4. Ant1 support TX functions for MB+HB (1710MHz-2690MHz).
5. Ant2 support TX functions for MB+HB (1805MHz-2690MHz).
6. Ant5 support TX functions for UHB (3300MHz-3800MHz).
7. Ant6 support TX functions for UHB (3300MHz-3800MHz).
8. The device supports two PAs for LTE 2UL CA Outra-Band or ENDC.
9. The device supports two PAs for LTE Band 2/4/7/25/30/38/41/66: Main PA (Ant1) and Other PA (Ant2).
10. The device supports two PAs for LTE Band 48: Main PA (Ant6) and Other PA (Ant5).
11. The device supports two PAs for NR n2/n66: Main PA (Ant1) and Other PA (Ant2).

1.6. Test Methodology

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

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 22, Part 24, Part 27, Part 96
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r02: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01: Determining ERP and EIRP

2. DESCRIPTION OF TEST

2.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Test Result
2.1049	Occupied Bandwidth	Conducted	Pass
2.1055, 22.355, 24.235, 27.54	Frequency Stability		Pass
2.1046, 22.913(a)(5), 24.232(c) 27.50(a)(3) (b)(10) (c)(10) (d)(4) (h)(2) (k)(3) (j)(3)	Transmitter Output Power		Pass
2.1051, 22.917(a), 24.238(a) 27.53(a) (c) (f) (g) (h) (m) (i) (n)	Transmitter unwanted emissions (band-edge)		Pass
2.1051, 22.917(a), 24.238(a) 27.53(a) (c) (f) (g) (h) (m) (i) (n)	Transmitter unwanted emissions (spurious)		
2.1053, 22.917(a), 24.238(a) 27.53(a) (c) (f) (g) (h) (m) (i) (n)	Transmitter Spurious Emissions	Radiated	Pass

Notes:

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2) All supported modulation types were evaluated. The worst-case emission of modulation was selected. Therefore, the Frequency Stability, Transmitter unwanted emissions (band-edge), Transmitter unwanted emissions (spurious), Radiated Spurious Emissions were presented worst-case in the test report.
3) For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
4) LTE SISO mode and NR SISO mode was worst-case mode. Therefore, this report is tested to support other PA band mode for LTE Band 2/4/7/25/30/38/41/48/66 and NR n2/n66.
5) LTE Band 25 (1850 ~ 1915 MHz) overlaps the entire frequency range of LTE Band 2 (1850 ~ 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.
6) LTE Band 41 (2496 ~ 2690 MHz) overlaps the entire frequency range of LTE Band 38 (2570 ~ 2620 MHz). Therefore, test data provided in this report covers Band 38 as well as Band 41.
7) LTE Band 66 (1710 ~ 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 ~ 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.
8) LTE 2UL CA 41C (2496 ~ 2690 MHz) overlaps the entire frequency range of LTE 2UL CA 38C (2570 ~ 2620 MHz). Therefore, test data provided in this report covers 2UL CA 38C as well as 2UL CA 41C.

LTE 2UL CA Test Items	Bandwidth	Modulation	RB Combination	Test Channel
Occupied Bandwidth	All BW	All Modulation	Full	Low/Middle/High
Transmitter Output Power	All BW	All Modulation	1RB/Half/Full	Low/Middle/High
Band Edge	All BW	QPSK	1RB/Half/Full	Low/High
Conducted Emissions	All BW	All Modulation	1RB	Low/Middle/High
NOTE: LTE 2UL CA Intra-Band for 5B/7C/38C/41C/48C/66B/66C.				

ENDC LTE Test Items	Bandwidth	Modulation	RB Combination	Test Channel
Transmitter Output Power	All BW	All Modulation	1RB/Half/Full	Low/Middle/High
Band Edge	All BW	QPSK	1RB/Half/Full	Low/High
Conducted Emissions	All BW	All Modulation	1RB	Low/Middle/High
Radiated Emissions	Minimum BW	QPSK	1RB	Middle
NOTE: Other PA band mode for LTE Band 2/4/7/25/30/38/41/48/66.				

ENDC NR Test Items	Bandwidth	Modulation	RB Combination	Test Channel
Transmitter Output Power	All BW	All DFT Modulation and CP_QPSK Modulation	Edge_1RB Inner_1RB Inner Full RB Outer full RB	Low/Middle/High
Band Edge	All BW	DFT_BPSK	Edge_1RB Outer full RB	Low/High
Conducted Emissions	All BW	All DFT Modulation	Inner_1RB	Low/Middle/High
Radiated Emissions	Minimum BW	DFT_BPSK	Inner_1RB	Middle
NOTE: Other PA band mode for NR n2/n66.				

Note:

1. All modes of operation and data rates were investigated. The test results shown in the above part represent the worst case emissions.
2. All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.

2.2. Occupied Bandwidth

According to FCC Part 2.1049

The occupied bandwidth, that 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 shall be measured.

2.3. Frequency Stability / Temperature Variation

According to FCC Part 2.1055, 22.355, 24.235, 27.54

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

a.) Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – For Part 22, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

2.4. Conducted Output Power Measurment

According to FCC Part 2.1046, 22.913, 24.232, 27.50

According to KDB 412172 D01 Section 1.2 Power Approach

EIRP = PT + GT – LC = ERP + 2.15 dB, ERP = EIRP – 2.15 dB

PT = transmitter output power in dBm

GT = gain of the transmitting antenna in dBi

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB.

Technology	ERP Power Limit	Technology	EIRP Power Limit
LTE Band 5/ NR n5	7W (38.45dBm)	LTE Band 2/ NR n2	2W (33dBm)
LTE 2UL CA 5B	7W (38.45dBm)	LTE B4	1W (30dBm)
LTE Band 12/ NR n12	3W (34.77dBm)	LTE Band 7/ NR n7	2W (33dBm)
LTE Band 13/ NR n13	3W (34.77dBm)	LTE 2UL CA 7C	2W (33dBm)
LTE Band 17	3W (34.77dBm)	LTE Band 25/ NR n25	2W (33dBm)
LTE Band 26/ NR n26	7W (38.45dBm)	LTE Band 30/ NR n30	250mW (24dBm)
LTE Band 71/ NR n71	3W (34.77dBm)	LTE Band 38/ NR n38	2W (33dBm)
LTE 2UL CA 38C	2W (33dBm)	NR n77	1W (30dBm)
LTE Band 41/ NR n41	2W (33dBm)	NR n78	1W (30dBm)
LTE Band 66/ NR n66	1W (30dBm)	LTE 2UL CA 41C	2W (33dBm)
LTE 2UL CA 38C	2W (33dBm)		

2.5. Peak-Average Ratio

According to FCC Part 22.913, 24.232, 27.50

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

2.6. Spurious and Harmonic Emissions at Antenna Terminal

According to FCC Part 2.1051, 22.917, 24.238, 27.53

For LTE B2/B4/B5/B12/B17/B25/B26(824-849MHz)/B66/B71, 2UL CA 5B/66B/66C, NR n2/n4/n5/n12/n17/n25/n26(824-849MHz)/n66/n71

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. The emission limit equal to -13dBm. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

For LTE B13 and NR n13

For operations in the 776-788 MHz band, the FCC limit is 43 + 10 log(P) dB below the transmitter power (P) in a 100 kHz bandwidth. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed. In addition, the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power (P), by at least 65 + 10 log (P) dB, for mobile and portable equipment.

For LTE B7/B38/B41, 2UL CA 7C/38C/41C, NR n7/n38/n41

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

For LTE B30, NR n30

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:
(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;
(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

For 27.53(n)(2), LTE B42, NR n77/n78

For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For 27.53(i)(2), LTE B43, NR n77/n78

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

2.7. Conducted and Radiated Spurious Emissions

According to FCC Part 2.1051, 2.1053, 22.917, 24.238, 27.53

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

For LTE B2/B4/B5/B12/B17/B25/B26(824-849MHz)/B42/B43/B66/B71, 2UL CA 5B/66B/66C, NR n2/n4/n5/n12/n17/n25/n26(824-849MHz)/n66/n71/n77/n78

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

For LTE B13 and NR n13

For operations in the 776-788 MHz band, the FCC limit is 43 + 10 log(P) dB below the transmitter power (P) in a 100 kHz bandwidth.

For operations in the 775-788 MHz band, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP). The emission limit equal to -40dBm.

For LTE B7/B38/B41, 2UL CA 7C/38C/41C, NR n7/n38/n41

For mobile digital stations, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 55 + 10 log(P) dB. The emission limit equal to -25dBm.

For LTE B30, NR n30

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

3. TEST EQUIPMENT CALIBRATION DATE

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Acitve Loop Antenna	Schwarzbeck	FMZB 1519B	MRTTWA00002	1 year	2025/5/7
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00086	1 year	2025/11/5
Broadband Hornantenna	RFSPIN	DRH18-E	MRTTWA00087	1 year	2025/5/20
Broadband Preamplifier	EMC Instruments corporation	EMC118A45SE	MRTTWA00088	1 year	2025/5/14
Breitband Hornantenna	Schwarzbeck	BBHA 9170	MRTTWA00004	1 year	2025/3/26
Broadband Amplifier	Schwarzbeck	BBV 9721	MRTTWA00006	1 year	2025/3/21
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2025/3/5
Signal Analyzer	R&S	FSVA3044	MRTTWA00092	1 year	2025/6/20
Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2025/6/14
Cable	Rosnol	K1K50-UP0264-K1K50-4M	MRTTWE00012	1 year	2025/6/14

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2025/9/24
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2025/8/12
USB Wideband Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2025/3/12
Wideband Radio Communication Taster	R&S	CMW 500	MRTTWA00084	1 year	2025/10/23
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MRTTWA00089	1 year	2025/5/30

Test Software

Software	Version	Function
e3	9.160520a	EMI Test Software

4. Decision Rules and Measurement Uncertainty

4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Radiated Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~30MHz: ± 3.92dB 30MHz~1GHz: ± 4.25dB 1GHz~18GHz: ± 4.40dB 18GHz~40GHz: ± 4.45dB
Frequency Error
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ±78.4Hz
Conducted Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ± 0.84dB
Conducted Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):± 2.65 dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ±3.3%
Temp. / Humidity
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ±0.82°C/ ±3%
DC Voltage
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): ±0.3%

Note:
Determining compliance is based on the test results met the regulation limits or requirements declared by clients, and the test results don't take into account the value of measurement uncertainty.

5. TEST RESULT

5.1. Summary

Maximum Conducted Power and ERP/EIRP Power

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows

ERP or EIRP = P_{Meas} + G_T

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively. (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

ERP = EIRP -2.15

LTE 2ULCA Band		5B	Antenna Gain (dBi)		-3.38
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum ERP (W)	ERP Limit (W)
8MHz (3+5)	QPSK	24.97	0.314	0.088	7
	16QAM	24.97	0.314	0.088	7
	64QAM	24.67	0.293	0.082	7
	256QAM	23.78	0.239	0.067	7
8MHz (5+3)	QPSK	24.84	0.305	0.085	7
	16QAM	24.97	0.314	0.088	7
	64QAM	24.76	0.299	0.084	7
	256QAM	23.84	0.242	0.068	7
15MHz (5+10)	QPSK	24.77	0.300	0.084	7
	16QAM	24.11	0.258	0.072	7
	64QAM	23.34	0.216	0.060	7
	256QAM	19.93	0.098	0.028	7
15MHz (10+5)	QPSK	24.61	0.289	0.081	7
	16QAM	24.19	0.262	0.073	7
	64QAM	22.96	0.198	0.055	7
	256QAM	19.99	0.100	0.028	7
20MHz (10+10)	QPSK	24.70	0.295	0.083	7
	16QAM	23.90	0.245	0.069	7
	64QAM	23.10	0.204	0.057	7
	256QAM	19.96	0.099	0.028	7

LTE 2ULCA Band		7C	Antenna Gain (dBi)		1.38
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
25MHz (15+10)	QPSK	24.80	0.302	0.415	2
	16QAM	24.16	0.261	0.358	2
	64QAM	20.47	0.111	0.153	2
	256QAM	19.39	0.087	0.119	2
30MHz (10+20)	QPSK	24.69	0.294	0.405	2
	16QAM	24.27	0.267	0.367	2
	64QAM	20.68	0.117	0.161	2
	256QAM	20.44	0.111	0.152	2
30MHz (15+15)	QPSK	24.98	0.315	0.433	2
	16QAM	24.41	0.276	0.379	2
	64QAM	20.44	0.111	0.152	2
	256QAM	19.44	0.088	0.121	2
30MHz (20+10)	QPSK	24.98	0.315	0.433	2
	16QAM	24.31	0.270	0.371	2
	64QAM	20.62	0.115	0.158	2
	256QAM	20.12	0.103	0.141	2
35MHz (15+20)	QPSK	24.52	0.283	0.389	2
	16QAM	23.59	0.229	0.314	2
	64QAM	20.33	0.108	0.148	2
	256QAM	19.27	0.085	0.116	2
35MHz (20+15)	QPSK	24.93	0.311	0.428	2
	16QAM	24.49	0.281	0.386	2
	64QAM	20.71	0.118	0.162	2
	256QAM	20.02	0.100	0.138	2
40MHz (20+20)	QPSK	24.84	0.305	0.419	2
	16QAM	23.90	0.245	0.337	2
	64QAM	20.40	0.110	0.151	2
	256QAM	19.59	0.091	0.125	2

LTE 2ULCA Band		38C	Antenna Gain (dBi)		1.38
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
30MHz (15+15)	QPSK	24.99	0.316	0.434	2
	16QAM	24.18	0.262	0.360	2
	64QAM	23.47	0.222	0.305	2
	256QAM	21.70	0.148	0.203	2
40MHz (20+20)	QPSK	24.90	0.309	0.425	2
	16QAM	24.99	0.316	0.434	2
	64QAM	22.70	0.186	0.256	2
	256QAM	21.36	0.137	0.188	2

LTE 2ULCA Band		41C	Antenna Gain (dBi)		1.38
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
25MHz (5+20)	QPSK	26.81	0.480	0.659	2
	16QAM	25.88	0.387	0.532	2
	64QAM	24.70	0.295	0.406	2
	256QAM	21.72	0.149	0.204	2
25MHz (10+15)	QPSK	26.86	0.485	0.667	2
	16QAM	26.32	0.429	0.589	2
	64QAM	25.15	0.327	0.450	2
	256QAM	22.23	0.167	0.230	2
25MHz (15+10)	QPSK	25.84	0.384	0.527	2
	16QAM	24.87	0.307	0.422	2
	64QAM	23.95	0.248	0.341	2
	256QAM	21.42	0.139	0.191	2
25MHz (20+5)	QPSK	26.99	0.500	0.687	2
	16QAM	26.45	0.442	0.607	2
	64QAM	25.47	0.352	0.484	2
	256QAM	22.50	0.178	0.244	2
30MHz (10+20)	QPSK	25.01	0.317	0.436	2
	16QAM	24.28	0.268	0.368	2
	64QAM	23.28	0.213	0.292	2
	256QAM	21.35	0.136	0.187	2
30MHz (15+15)	QPSK	26.91	0.491	0.675	2
	16QAM	25.82	0.382	0.525	2
	64QAM	24.69	0.294	0.405	2
	256QAM	21.76	0.150	0.206	2
30MHz (20+10)	QPSK	25.63	0.366	0.502	2
	16QAM	24.54	0.284	0.391	2
	64QAM	23.64	0.231	0.318	2
	256QAM	21.27	0.134	0.184	2
35MHz (15+20)	QPSK	26.29	0.426	0.585	2
	16QAM	25.29	0.338	0.465	2
	64QAM	24.38	0.274	0.377	2
	256QAM	21.29	0.135	0.185	2

LTE 2ULCA Band		41C	Antenna Gain (dBi)		1.38
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
35MHz (20+15)	QPSK	26.88	0.488	0.670	2
	16QAM	25.83	0.383	0.526	2
	64QAM	24.76	0.299	0.411	2
	256QAM	21.85	0.153	0.210	2
40MHz (20+20)	QPSK	26.11	0.408	0.561	2
	16QAM	25.31	0.340	0.467	2
	64QAM	24.15	0.260	0.357	2
	256QAM	21.33	0.136	0.187	2

LTE 2ULCA Band		66C	Antenna Gain (dBi)		1.19
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
10MHz (5+5)	QPSK	24.76	0.299	0.394	1
	16QAM	23.65	0.232	0.305	1
	64QAM	21.53	0.142	0.187	1
	256QAM	20.54	0.113	0.149	1
15MHz (5+10)	QPSK	24.85	0.305	0.402	1
	16QAM	23.96	0.249	0.327	1
	64QAM	21.19	0.132	0.173	1
	256QAM	20.38	0.109	0.144	1
15MHz (10+5)	QPSK	24.73	0.297	0.391	1
	16QAM	24.25	0.266	0.350	1
	64QAM	21.73	0.149	0.196	1
	256QAM	20.62	0.115	0.152	1
20MHz (5+15)	QPSK	25.40	0.347	0.456	1
	16QAM	24.12	0.258	0.340	1
	64QAM	21.54	0.143	0.187	1
	256QAM	20.38	0.109	0.144	1
20MHz (10+10)	QPSK	25.13	0.326	0.429	1
	16QAM	24.50	0.282	0.371	1
	64QAM	21.45	0.140	0.184	1
	256QAM	20.69	0.117	0.154	1
20MHz (15+5)	QPSK	24.92	0.310	0.408	1
	16QAM	24.12	0.258	0.340	1
	64QAM	21.35	0.136	0.179	1
	256QAM	20.58	0.114	0.150	1

LTE 2ULCA Band		66C	Antenna Gain (dBi)		1.19
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
25MHz (5+20)	QPSK	24.85	0.305	0.402	1
	16QAM	23.89	0.245	0.322	1
	64QAM	21.59	0.144	0.190	1
	256QAM	20.44	0.111	0.146	1
25MHz (10+15)	QPSK	24.73	0.297	0.391	1
	16QAM	24.20	0.263	0.346	1
	64QAM	21.26	0.134	0.176	1
	256QAM	20.22	0.105	0.138	1
25MHz (15+10)	QPSK	25.04	0.319	0.420	1
	16QAM	24.25	0.266	0.350	1
	64QAM	21.30	0.135	0.177	1
	256QAM	20.47	0.111	0.147	1
25MHz (20+5)	QPSK	24.99	0.316	0.415	1
	16QAM	24.02	0.252	0.332	1
	64QAM	21.54	0.143	0.187	1
	256QAM	20.58	0.114	0.150	1
30MHz (10+20)	QPSK	24.75	0.299	0.393	1
	16QAM	24.29	0.269	0.353	1
	64QAM	21.49	0.141	0.185	1
	256QAM	20.59	0.115	0.151	1
30MHz (15+15)	QPSK	25.04	0.319	0.420	1
	16QAM	24.28	0.268	0.352	1
	64QAM	21.51	0.142	0.186	1
	256QAM	20.68	0.117	0.154	1
30MHz (20+10)	QPSK	24.77	0.300	0.394	1
	16QAM	23.96	0.249	0.327	1
	64QAM	21.13	0.130	0.171	1
	256QAM	20.55	0.114	0.149	1
35MHz (15+20)	QPSK	24.89	0.308	0.406	1
	16QAM	24.29	0.269	0.353	1
	64QAM	21.58	0.144	0.189	1
	256QAM	20.85	0.122	0.160	1

LTE 2ULCA Band		66C	Antenna Gain (dBi)		1.19
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
35MHz (20+15)	QPSK	25.05	0.320	0.421	1
	16QAM	23.92	0.247	0.324	1
	64QAM	21.26	0.134	0.176	1
	256QAM	20.45	0.111	0.146	1
40MHz (20+20)	QPSK	24.78	0.301	0.395	1
	16QAM	24.27	0.267	0.352	1
	64QAM	21.53	0.142	0.187	1
	256QAM	20.80	0.120	0.158	1

LTE Band		B7 (Ant2)	Antenna Gain (dBi)		-0.23
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
5M	QPSK	23.24	0.211	0.200	2
	16QAM	23.24	0.211	0.200	2
	64QAM	22.26	0.168	0.160	2
	256QAM	19.27	0.085	0.080	2
10M	QPSK	23.25	0.211	0.200	2
	16QAM	23.26	0.212	0.201	2
	64QAM	22.26	0.168	0.160	2
	256QAM	19.32	0.086	0.081	2
15M	QPSK	23.16	0.207	0.196	2
	16QAM	23.16	0.207	0.196	2
	64QAM	22.17	0.165	0.156	2
	256QAM	19.33	0.086	0.081	2
20M	QPSK	23.13	0.206	0.195	2
	16QAM	23.10	0.204	0.194	2
	64QAM	22.30	0.170	0.161	2
	256QAM	19.21	0.083	0.079	2

LTE Band		B25 (Ant2)	Antenna Gain (dBi)		-0.41
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
1.4M	QPSK	22.36	0.172	0.157	2
	16QAM	22.39	0.173	0.158	2
	64QAM	21.41	0.138	0.126	2
	256QAM	18.53	0.071	0.065	2
3M	QPSK	22.39	0.173	0.158	2
	16QAM	22.58	0.181	0.165	2
	64QAM	21.47	0.140	0.128	2
	256QAM	18.54	0.071	0.065	2
5M	QPSK	22.47	0.177	0.161	2
	16QAM	22.42	0.175	0.159	2
	64QAM	21.41	0.138	0.126	2
	256QAM	18.51	0.071	0.065	2
10M	QPSK	22.53	0.179	0.163	2
	16QAM	22.44	0.175	0.160	2
	64QAM	21.62	0.145	0.132	2
	256QAM	18.52	0.071	0.065	2
15M	QPSK	22.65	0.184	0.167	2
	16QAM	22.67	0.185	0.168	2
	64QAM	21.63	0.146	0.132	2
	256QAM	18.61	0.073	0.066	2
20M	QPSK	22.58	0.181	0.165	2
	16QAM	22.61	0.182	0.166	2
	64QAM	21.58	0.144	0.131	2
	256QAM	18.44	0.070	0.064	2

LTE Band		B30 (Ant2)	Antenna Gain (dBi)		-0.63
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
5M	QPSK	23.29	0.213	0.185	0.25 (24dBm)
	16QAM	22.61	0.182	0.158	0.25 (24dBm)
	64QAM	22.04	0.160	0.138	0.25 (24dBm)
	256QAM	19.53	0.090	0.078	0.25 (24dBm)
10M	QPSK	23.04	0.201	0.174	0.25 (24dBm)
	16QAM	22.67	0.185	0.160	0.25 (24dBm)
	64QAM	21.86	0.153	0.133	0.25 (24dBm)
	256QAM	19.56	0.090	0.078	0.25 (24dBm)

LTE Band		B41 (Ant2)	Antenna Gain (dBi)		-0.23
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
5M	QPSK	23.89	0.245	0.232	2
	16QAM	23.62	0.230	0.218	2
	64QAM	24.01	0.252	0.239	2
	256QAM	21.97	0.157	0.149	2
10M	QPSK	24.15	0.260	0.247	2
	16QAM	23.57	0.228	0.216	2
	64QAM	24.02	0.252	0.239	2
	256QAM	21.95	0.157	0.149	2
15M	QPSK	23.75	0.237	0.225	2
	16QAM	23.46	0.222	0.210	2
	64QAM	23.92	0.247	0.234	2
	256QAM	22.05	0.160	0.152	2
20M	QPSK	23.76	0.238	0.225	2
	16QAM	23.38	0.218	0.207	2
	64QAM	23.78	0.239	0.226	2
	256QAM	21.92	0.156	0.148	2

LTE Band		B66 (Ant2)	Antenna Gain (dBi)		0.59
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
1.4M	QPSK	23.91	0.246	0.282	1
	16QAM	22.90	0.195	0.223	1
	64QAM	22.02	0.159	0.182	1
	256QAM	19.11	0.081	0.093	1
3M	QPSK	23.91	0.246	0.282	1
	16QAM	22.75	0.188	0.216	1
	64QAM	22.01	0.159	0.182	1
	256QAM	19.03	0.080	0.092	1
5M	QPSK	23.89	0.245	0.281	1
	16QAM	22.95	0.197	0.226	1
	64QAM	21.94	0.156	0.179	1
	256QAM	19.06	0.081	0.092	1
10M	QPSK	23.97	0.249	0.286	1
	16QAM	22.95	0.197	0.226	1
	64QAM	22.05	0.160	0.184	1
	256QAM	19.32	0.086	0.098	1
15M	QPSK	23.80	0.240	0.275	1
	16QAM	22.66	0.185	0.211	1
	64QAM	21.77	0.150	0.172	1
	256QAM	18.90	0.078	0.089	1
20M	QPSK	23.77	0.238	0.273	1
	16QAM	22.79	0.190	0.218	1
	64QAM	21.83	0.152	0.175	1
	256QAM	18.86	0.077	0.088	1

NR Other_PA Band		n2 (Ant2)	Antenna Gain (dBi)		-0.41
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
5MHz	DFT_BPSK	24.81	0.303	0.275	2
	DFT_QPSK	24.93	0.311	0.283	2
	DFT_16QAM	24.00	0.251	0.229	2
	DFT_64QAM	22.65	0.184	0.167	2
	DFT_256QAM	20.47	0.111	0.101	2
10MHz	DFT_BPSK	24.99	0.316	0.287	2
	DFT_QPSK	24.56	0.286	0.260	2
	DFT_16QAM	23.83	0.242	0.220	2
	DFT_64QAM	22.61	0.182	0.166	2
	DFT_256QAM	20.05	0.101	0.092	2
15MHz	DFT_BPSK	24.72	0.296	0.270	2
	DFT_QPSK	24.49	0.281	0.256	2
	DFT_16QAM	23.79	0.239	0.218	2
	DFT_64QAM	22.69	0.186	0.169	2
	DFT_256QAM	19.76	0.095	0.086	2
20MHz	DFT_BPSK	24.60	0.288	0.262	2
	DFT_QPSK	24.69	0.294	0.268	2
	DFT_16QAM	23.73	0.236	0.215	2
	DFT_64QAM	22.50	0.178	0.162	2
	DFT_256QAM	19.86	0.097	0.088	2

NR Other_PA Band		n66 (Ant2)	Antenna Gain (dBi)		0.59
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
5MHz	DFT_BPSK	24.73	0.297	0.340	1
	DFT_QPSK	24.87	0.307	0.352	1
	DFT_16QAM	23.88	0.244	0.280	1
	DFT_64QAM	22.61	0.182	0.209	1
	DFT_256QAM	19.64	0.092	0.105	1
10MHz	DFT_BPSK	24.65	0.292	0.334	1
	DFT_QPSK	24.30	0.269	0.308	1
	DFT_16QAM	23.47	0.222	0.255	1
	DFT_64QAM	22.36	0.172	0.197	1
	DFT_256QAM	19.32	0.086	0.098	1
15MHz	DFT_BPSK	24.52	0.283	0.324	1
	DFT_QPSK	24.31	0.270	0.309	1
	DFT_16QAM	23.52	0.225	0.258	1
	DFT_64QAM	22.48	0.177	0.203	1
	DFT_256QAM	19.57	0.091	0.104	1
20MHz	DFT_BPSK	24.66	0.292	0.335	1
	DFT_QPSK	24.58	0.287	0.329	1
	DFT_16QAM	23.61	0.230	0.263	1
	DFT_64QAM	22.34	0.171	0.196	1
	DFT_256QAM	19.43	0.088	0.100	1
25MHz	DFT_BPSK	23.88	0.244	0.280	1
	DFT_QPSK	23.59	0.229	0.262	1
	DFT_16QAM	22.66	0.185	0.211	1
	DFT_64QAM	21.84	0.153	0.175	1
	DFT_256QAM	19.93	0.098	0.113	1
30MHz	DFT_BPSK	23.63	0.231	0.264	1
	DFT_QPSK	23.41	0.219	0.251	1
	DFT_16QAM	22.44	0.175	0.201	1
	DFT_64QAM	21.54	0.143	0.163	1
	DFT_256QAM	19.63	0.092	0.105	1

NR Other_PA Band		n66 (Ant2)	Antenna Gain (dBi)		0.59
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
35MHz	DFT_BPSK	23.87	0.244	0.279	1
	DFT_QPSK	23.54	0.226	0.259	1
	DFT_16QAM	22.55	0.180	0.206	1
	DFT_64QAM	21.68	0.147	0.169	1
	DFT_256QAM	19.66	0.092	0.106	1
40MHz	DFT_BPSK	23.69	0.234	0.268	1
	DFT_QPSK	23.33	0.215	0.247	1
	DFT_16QAM	22.39	0.173	0.199	1
	DFT_64QAM	21.47	0.140	0.161	1
	DFT_256QAM	19.46	0.088	0.101	1

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
2UL_CA_5B	8MHz(3+5)	7M43G7D	7M45W7D	7M45W7D	7M42W7D
	8MHz(5+3)	7M47G7D	7M47W7D	7M44W7D	7M47W7D
	15MHz(5+10)	13M7G7D	13M8W7D	13M8W7D	13M7W7D
	15MHz(10+5)	13M8G7D	13M8W7D	13M8W7D	13M9W7D
	20MHz(10+10)	18M7G7D	18M8W7D	18M7W7D	18M7W7D

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
2UL_CA_7C	25MHz(15+10)	23M1G7D	23M1W7D	23M1W7D	23M1W7D
	30MHz(10+20)	27M6G7D	27M6W7D	27M6W7D	27M6W7D
	30MHz(15+15)	28M2G7D	28M2W7D	28M2W7D	28M3W7D
	30MHz(20+10)	27M6G7D	27M7W7D	27M7W7D	27M6W7D
	35MHz(15+20)	32M5G7D	32M5W7D	32M6W7D	32M5W7D
	35MHz(20+15)	32M6G7D	32M5W7D	32M5W7D	32M6W7D
	40MHz(20+20)	37M5G7D	37M4W7D	37M5W7D	37M5W7D

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
2UL_CA_38C	30MHz(15+15)	28M3G7D	28M3W7D	28M3W7D	28M3W7D
	40MHz(20+20)	37M6G7D	37M5W7D	37M5W7D	37M6W7D

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
2UL_CA_41C	25MHz(5+20)	22M9G7D	22M8W7D	22M9W7D	22M8W7D
	25MHz(10+15)	23M0G7D	23M1W7D	23M0W7D	23M0W7D
	25MHz(15+10)	23M1G7D	23M1W7D	23M1W7D	23M1W7D
	25MHz(20+5)	22M9G7D	22M9W7D	22M8W7D	22M9W7D
	30MHz(10+20)	27M6G7D	27M7W7D	27M6W7D	27M7W7D
	30MHz(15+15)	28M3G7D	28M2W7D	28M3W7D	28M3W7D
	30MHz(20+10)	27M8G7D	27M7W7D	27M7W7D	27M8W7D
	35MHz(15+20)	32M6G7D	32M7W7D	32M6W7D	32M6W7D
	35MHz(20+15)	32M6G7D	32M6W7D	32M6W7D	32M7W7D
	40MHz(20+20)	37M6G7D	37M5W7D	37M5W7D	37M5W7D

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
2UL_CA_66B	10MHz(5+5)	9M23G7D	9M23W7D	9M23W7D	9M2W7D
	15MHz(5+10)	13M8G7D	13M8W7D	13M8W7D	13M8W7D
	15MHz(10+5)	13M8G7D	13M8W7D	13M8W7D	13M8W7D
	20MHz(5+15)	18M0G7D	18M1W7D	18M1W7D	18M2W7D
	20MHz(10+10)	18M7G7D	18M8W7D	18M8W7D	18M7W7D
	20MHz(15+5)	18M2G7D	18M2W7D	18M2W7D	18M2W7D

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
2UL_CA_66C	25MHz(5+20)	22M8G7D	22M8W7D	22M6W7D	22M7W7D
	25MHz(10+15)	23M0G7D	23M1W7D	23M1W7D	23M0W7D
	25MHz(15+10)	23M1G7D	23M1W7D	23M1W7D	23M1W7D
	25MHz(20+5)	22M9G7D	22M9W7D	22M8W7D	22M8W7D
	30MHz(10+20)	27M6G7D	27M6W7D	27M5W7D	27M6W7D
	30MHz(15+15)	28M3G7D	28M3W7D	28M1W7D	28M2W7D
	30MHz(20+10)	27M8G7D	27M7W7D	27M7W7D	27M6W7D
	35MHz(15+20)	32M6G7D	32M5W7D	32M5W7D	32M5W7D
	35MHz(20+15)	32M5G7D	32M5W7D	32M7W7D	32M6W7D
	40MHz(20+20)	37M4G7D	37M5W7D	37M4W7D	37M4W7D

5.2. Occupied Bandwidth

5.2.1 Test Limit

The occupied bandwidth, that 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 shall be measured.

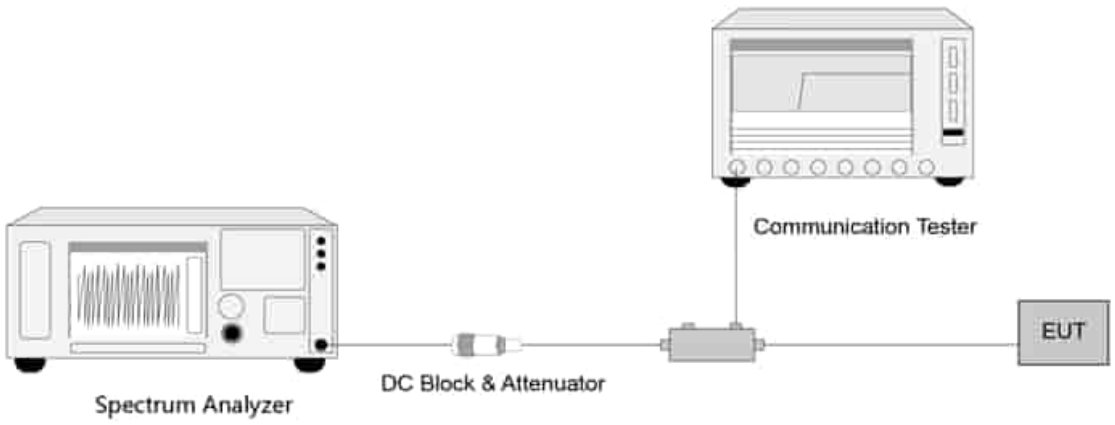
5.2.2 Test Procedure used

ANSI C63.26-2015 - Section 5.4.4

5.2.3 Test Setting

1. Set center frequency to the nominal EUT channel center frequency
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

5.2.4 Test Setup



5.2.5 Test Result

Refer to Appendix A.1

5.3. Frequency Stability Under Temperature & Voltage Variations

5.3.1 Test Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

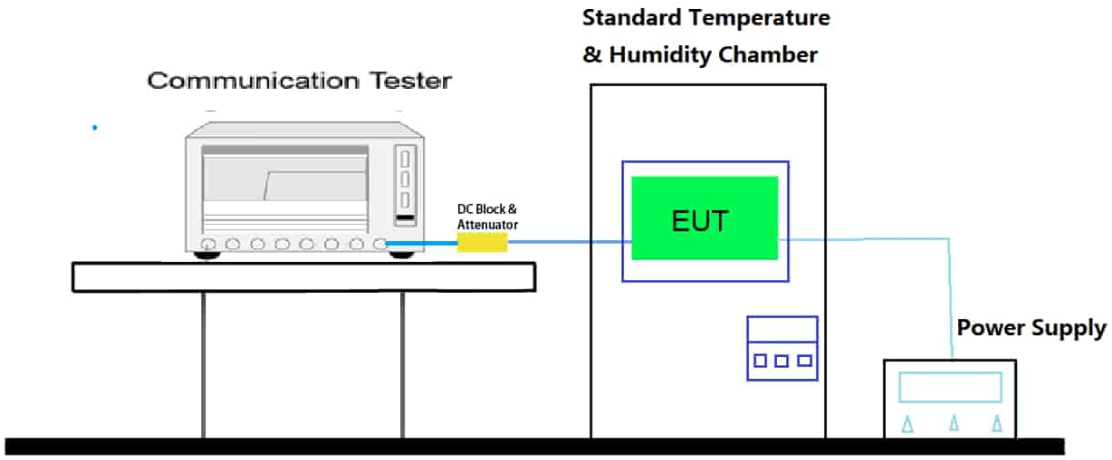
5.3.2 Test Procedure

ANSI C63.26-2015 - Section 5.6

5.3.3 Frequency Stability Under Voltage Variations

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, recordthe maximum

5.3.4 Test Setup



5.3.5 Test Result

Note: These Band (5B; 7C; 38C; 41C; 48C; 66B; 66C) have already been considered in SISO (report No: 2408TW0104-U11 & 2408TW0104-U13), and their SISO can cover CA.

5.4. Transmitter Output Power Measurement

5.4.1 Test Limit

Technology	ERP Power Limit	Technology	EIRP Power Limit
LTE 2UL CA 5B	7W (38.45dBm)	LTE Band 2/ NR n2	2W (33dBm)
		LTE Band 4	1W (30dBm)
		LTE Band 7	2W (33dBm)
		LTE 2UL CA 7C	2W (33dBm)
		LTE Band 25	2W (33dBm)
		LTE Band 30	250mW (24dBm)
		LTE Band 38	2W (33dBm)
		LTE 2UL CA 38C	2W (33dBm)
		LTE Band 41	2W (33dBm)
		LTE 2UL CA 41C	2W (33dBm)
		LTE Band 66/ NR n66	1W (30dBm)
		LTE 2UL CA 66B, 66C	1W (30dBm)

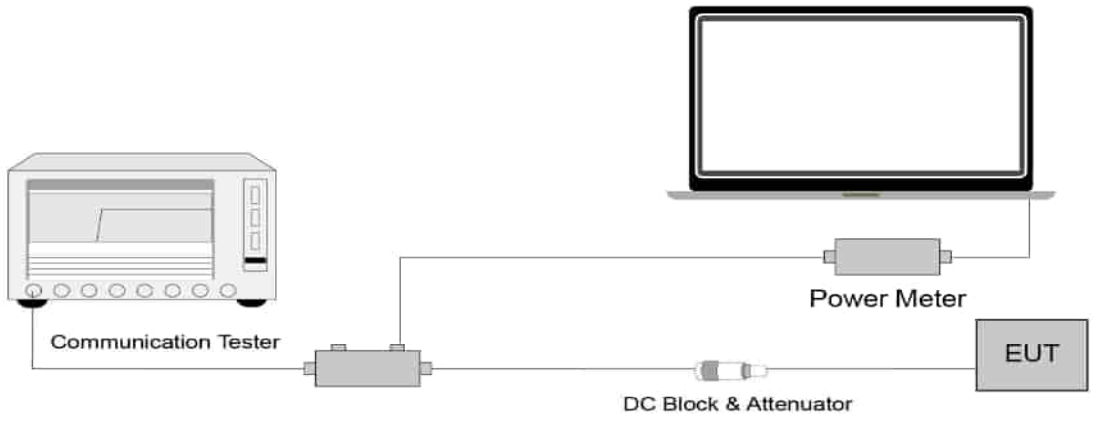
5.4.2 Test Procedure

ANSI C63.26-2015 - Section 5.2.4.2

5.4.3 Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

5.4.4 Test Setup



5.4.5 Test Result

Refer to Appendix A.2

5.5. Peak-Average Ratio

5.5.1 Test Limit

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure.

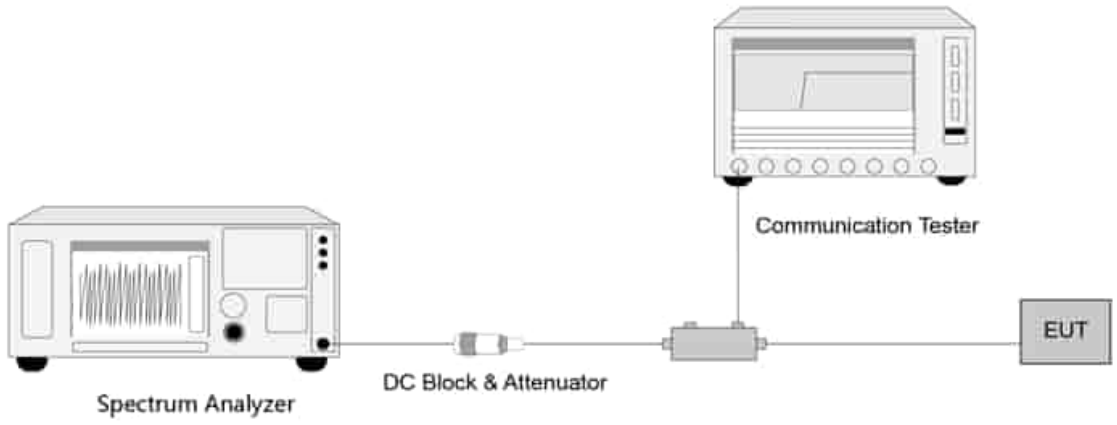
5.5.2 Test Procedure

ANSI C63.26-2015 - Section 5.2.3.4 (CCDF).

5.5.3 Test Setting

1. Set the resolution / measurement bandwidth ≥ signal's occupied bandwidth
2. Set the number of counts to a value that stabilizes the measured CCDF curve
3. Record the maximum PARR level associated with a probability of 0.1%

5.5.4 Test Setup



5.5.5 Test Result

NA

5.6. Transmitter unwanted emissions (band-edge) Measurement

5.6.1 Test Limit

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

For LTE B7/B38/B41, 2UL CA 7C/38C/41C

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

For LTE B30

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:
(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;
(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

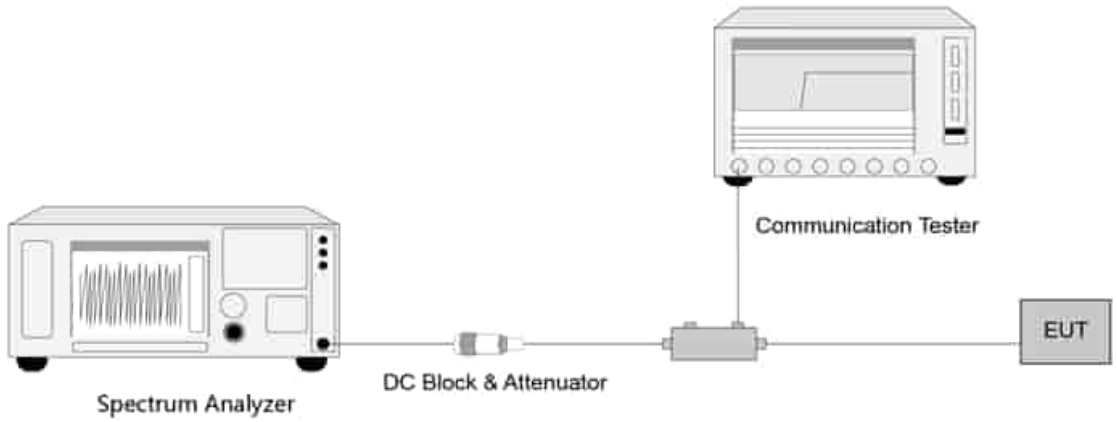
5.6.2 Test Procedure

ANSI C63.26-2015 - Section 5.7.

5.6.3 Test Setting

In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

5.6.4 Test Setup



5.6.4 Test Result

Refer to Appendix A.3

5.7. Transmitter unwanted emissions (spurious) Measurement

5.7.1 Test Limit

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

For LTE B7/B38/B41, 2UL CA 7C/38C/41C

For mobile digital stations, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 55 + 10 log(P) dB. The emission limit equal to -25dBm.

For LTE B30

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz. The emission limit equal to -40dBm.

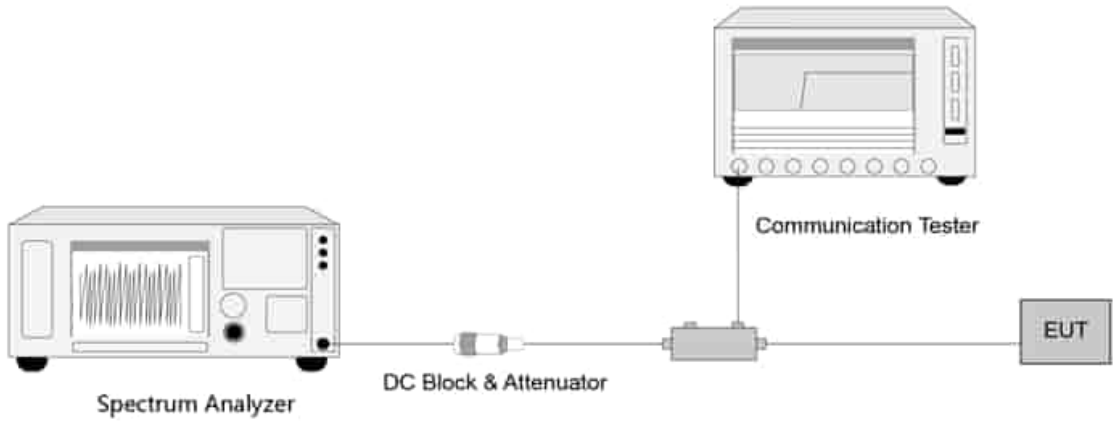
5.7.2 Test Procedure

ANSI C63.26-2015 - Section 5.7

5.7.3 Test Setting

1. Set the analyzer frequency to low, Mid or high channel.
2. RBW = specified resolution bandwidth of 100 kHz is at or below 1GHz and 1MHz is above 1GHz
3. VBW ≥ 3*RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.
7. Use the peak marker function to determine the maximum amplitude level.

5.7.4 Test Setup



5.7.5 Test Result

Refer to Appendix A.4

5.8. Radiated Spurious Emissions Measurement

5.8.1 Test Limit

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

For LTE B7/B38/B41

For mobile digital stations, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 55 + 10 log(P) dB. The emission limit equal to -25dBm.

For LTE B30

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz. The emission limit equal to -40dBm.

5.8.2 Test Procedure

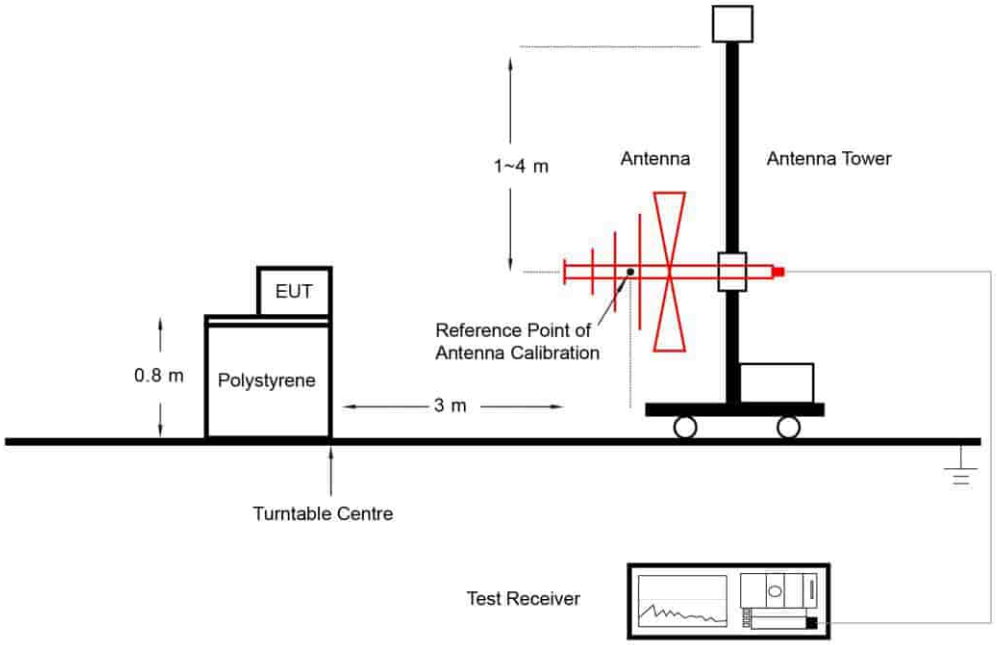
ANSI C63.26-2015 - Section 5.7

5.8.3 Test Setting

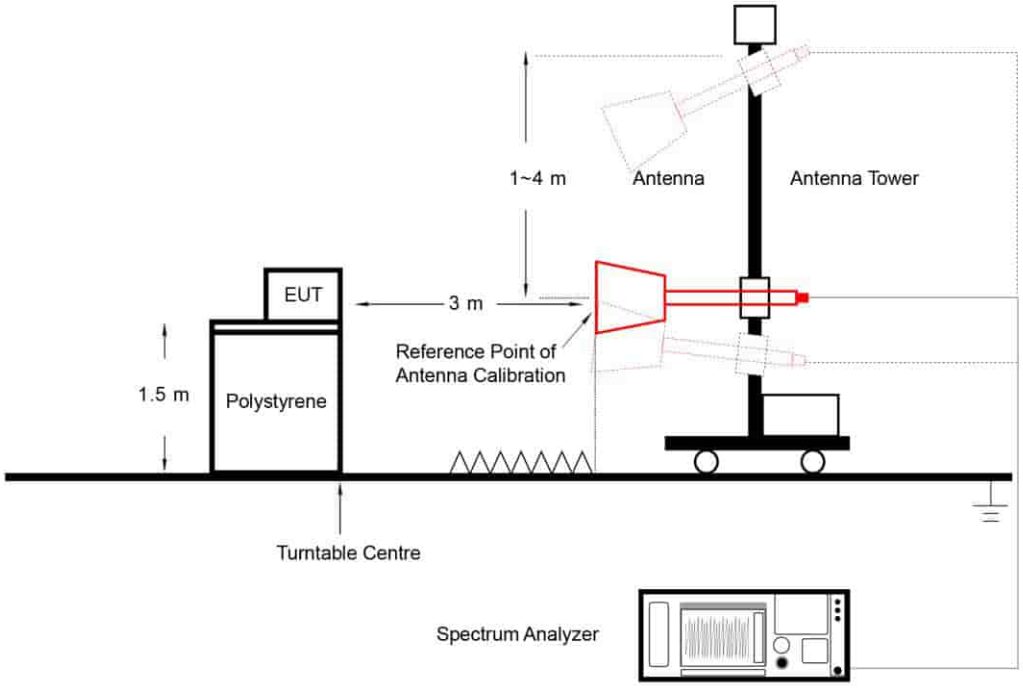
1. RBW = 120kHz or 1MHz
2. VBW ≥ 3*RBW
3. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
4. Detector = CISPR quasi-peak / average detector (Below 1 GHz, compliance with the limits shall be demonstrated using a CISPR quasi-peak detector and the related measurement bandwidth. Above 1 GHz, compliance with the limits shall be demonstrated using a linear average detector with a minimum resolution bandwidth of 1 MHz.)
5. The trace was allowed to stabilize

5.8.4 Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.8.5 Test Result

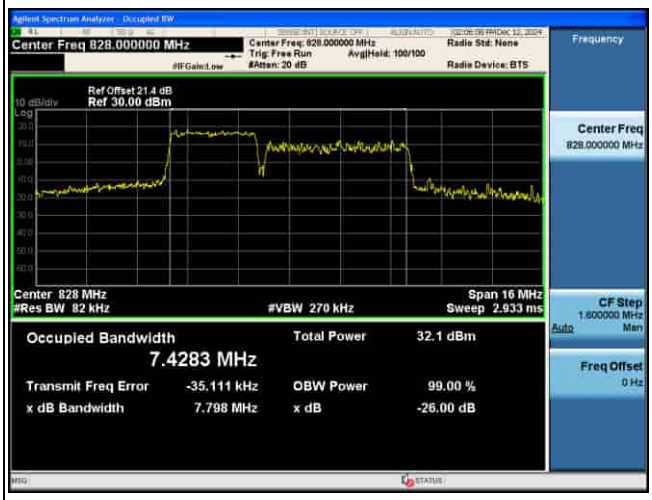
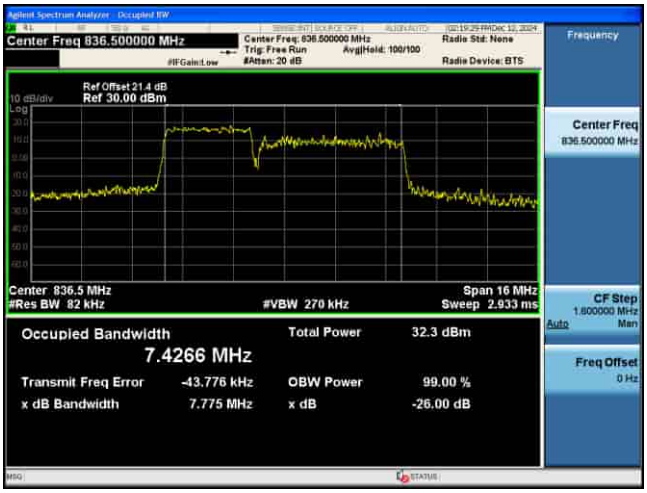
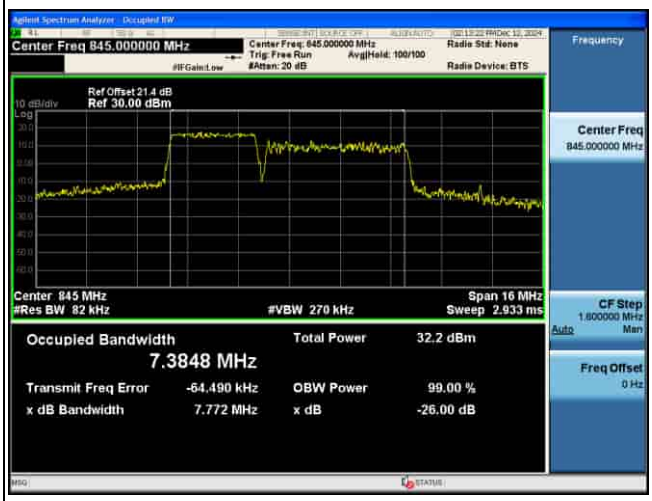
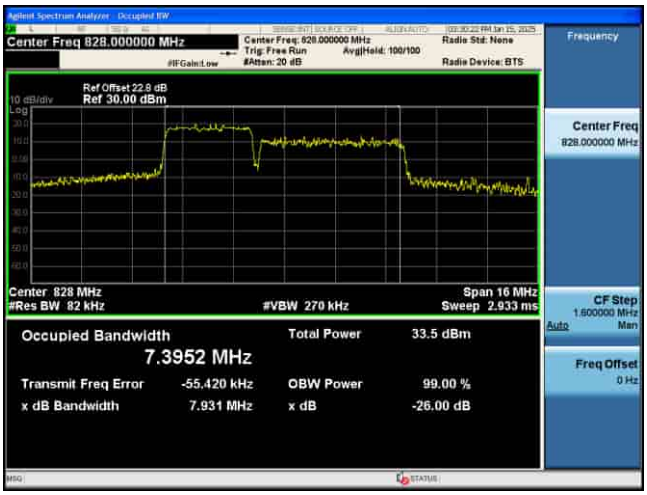
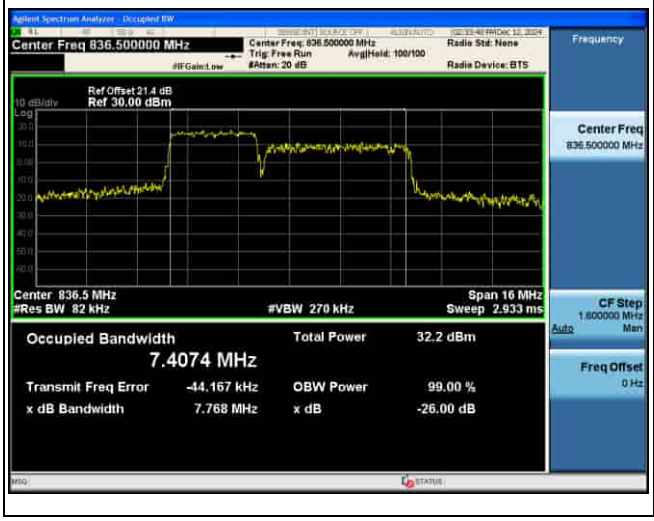
Refer to Appendix A.5

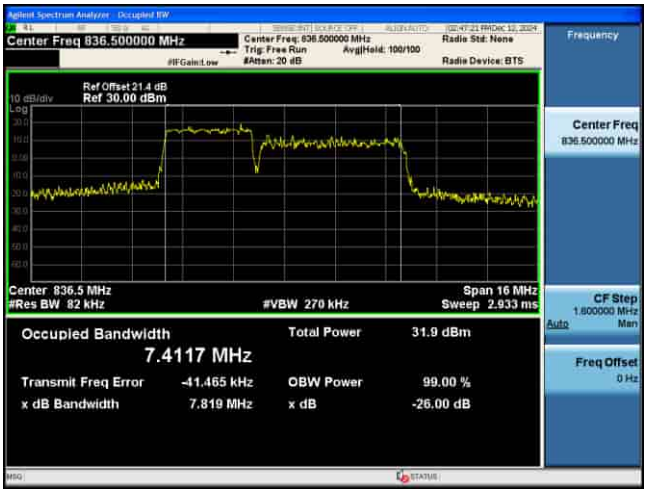
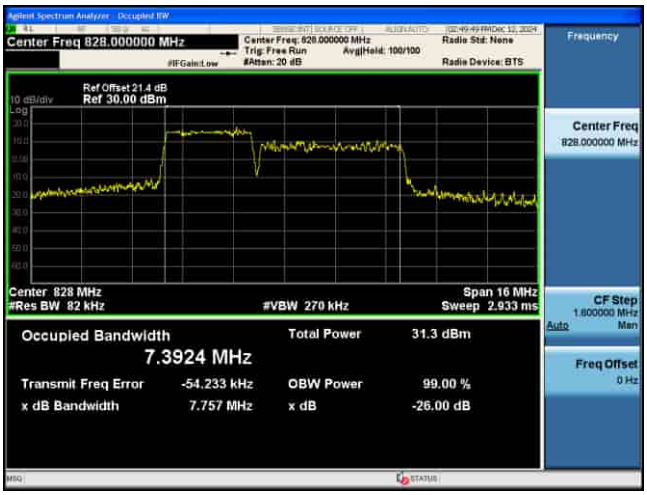
Appendix A : TEST RESULT DATA

A1. Occupied Bandwidth Test Result

A1.1 LTE 2UL 5B

LTE 2UL_CA_5B												
BW	Frequency (MHz)		Channel		99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
	PCC	SCC	PCC	SCC	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
8MHz (3+5)	825.6	829.5	20416	20455	7.4283	7.3952	7.4198	7.3924	7.798	7.931	7.805	7.757
	834.1	838	20501	20540	7.4266	7.4074	7.4117	7.4165	7.775	7.768	7.819	7.803
	842.6	846.5	20586	20625	7.3848	7.417	7.4496	7.3669	7.772	7.8690	7.828	7.813
8MHz (5+3)	826.5	830.4	20425	20464	7.4682	7.4434	7.4336	7.4421	7.871	8.170	8.144	7.976
	835	838.9	20510	20549	7.4401	7.4174	7.4144	7.4595	7.917	7.942	7.867	7.807
	843.5	847.4	20595	20634	7.4482	7.4899	7.4426	7.4682	7.922	7.923	7.944	7.859
15MHz (5+10)	826.8	834	20428	20500	13.741	13.830	13.828	13.787	14.46	14.49	14.41	14.43
	831.8	839	20478	20550	13.794	13.756	13.798	13.786	14.44	14.41	14.42	14.44
	836.8	844	20528	20600	13.711	13.689	13.691	13.666	14.59	14.39	14.51	14.44
15MHz (10+5)	829	836.2	20450	20522	13.881	13.829	13.812	13.848	14.60	14.51	14.46	14.59
	834	841.2	20500	20572	13.812	13.811	13.805	13.945	14.55	14.72	14.68	14.55
	839	846.2	20550	20622	13.780	13.753	13.810	13.827	14.47	14.53	14.49	14.58
20MHz (10+10)	829	838.9	20450	20549	18.711	18.776	18.717	18.693	19.59	19.61	19.53	19.59
	831.6	841.5	20476	20575	18.709	18.646	18.645	18.689	19.60	19.49	19.50	19.66
	834.1	844	20501	20600	18.618	18.605	18.650	18.599	19.33	19.59	19.62	19.59

OCC_4G_2ULCA_5B_8M(3M+5M)_.QPSK_CH20416+20455	OCC_4G_2ULCA_5B_8M(3M+5M)_.QPSK_CH20501+20540
	
OCC_4G_2ULCA_5B_8M(3M+5M)_.QPSK_CH20586+20625	OCC_4G_2ULCA_5B_8M(3M+5M)_16QAM_CH20416+20455
	
OCC_4G_2ULCA_5B_8M(3M+5M)_16QAM_CH20501+20540	OCC_4G_2ULCA_5B_8M(3M+5M)_16QAM_CH20586+20625
	

OCC_4G_2ULCA_5B_8M(3M+5M)_64QAM_CH20416+20455	OCC_4G_2ULCA_5B_8M(3M+5M)_64QAM_CH20501+20540
	
OCC_4G_2ULCA_5B_8M(3M+5M)_64QAM_CH20586+20625	OCC_4G_2ULCA_5B_8M(3M+5M)_256QAM_CH20416+20455
	
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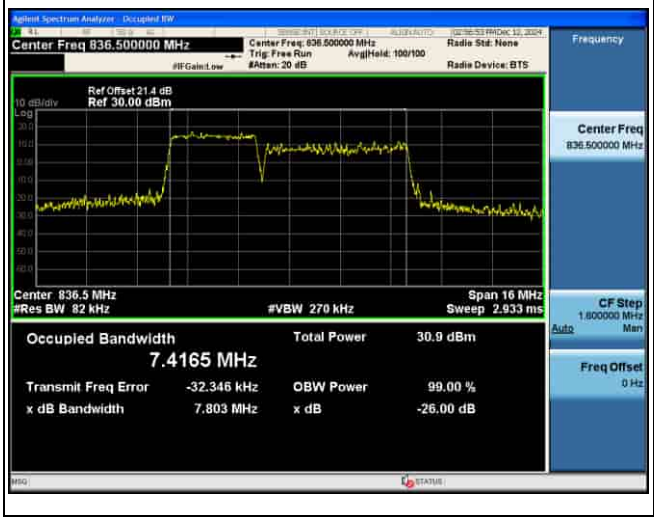
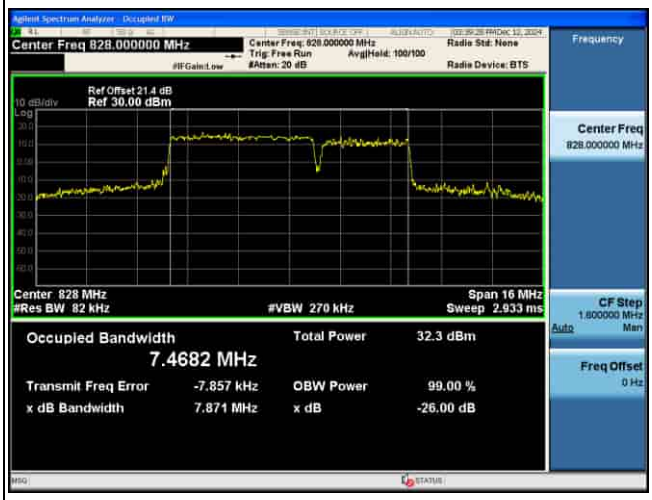
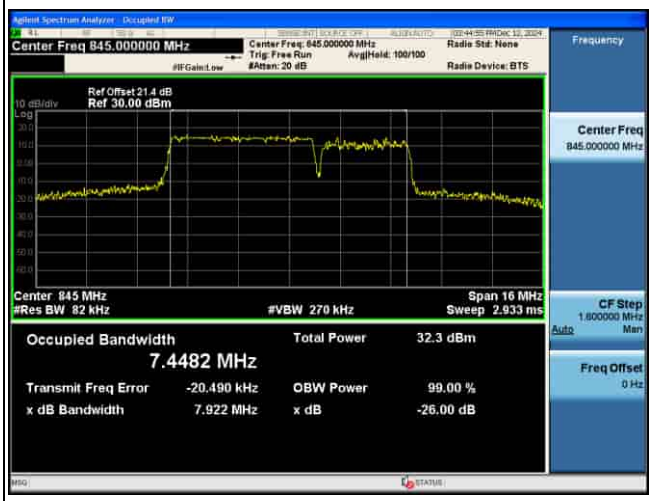
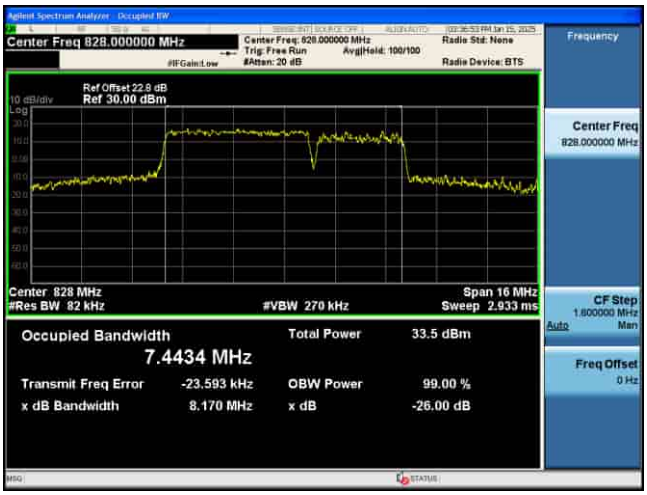
	

OCC_4G_2ULCA_5B_8M(5M+3M)_.QPSK_CH20425+20464	OCC_4G_2ULCA_5B_8M(5M+3M)_.QPSK_CH20510+20549
	
OCC_4G_2ULCA_5B_8M(5M+3M)_.QPSK_CH20595+20634	OCC_4G_2ULCA_5B_8M(5M+3M)_16QAM_CH20425+20464
	
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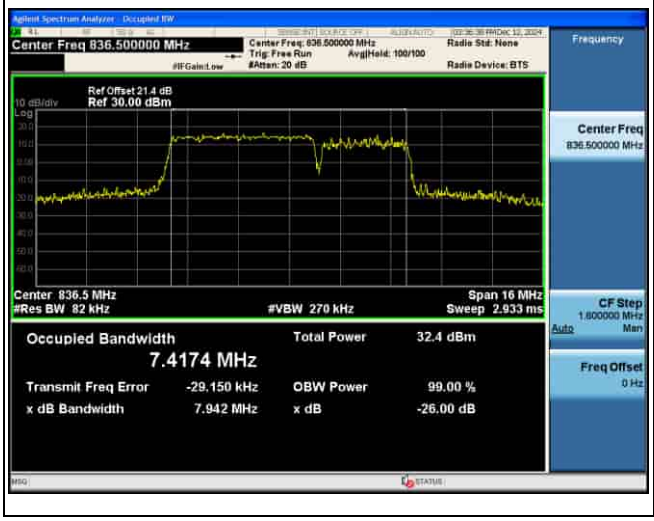
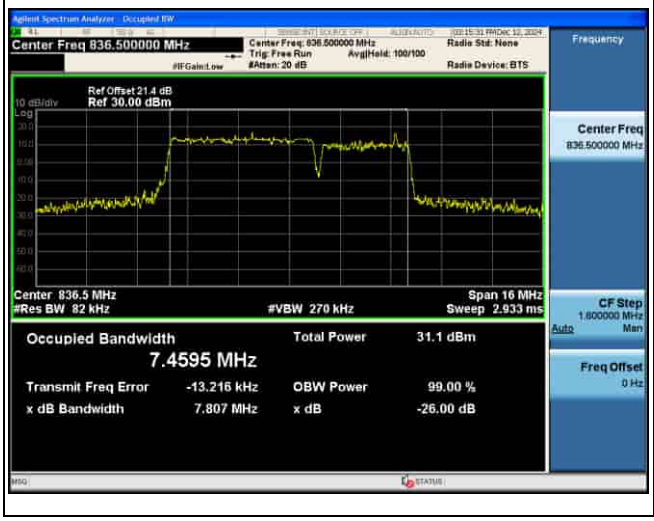
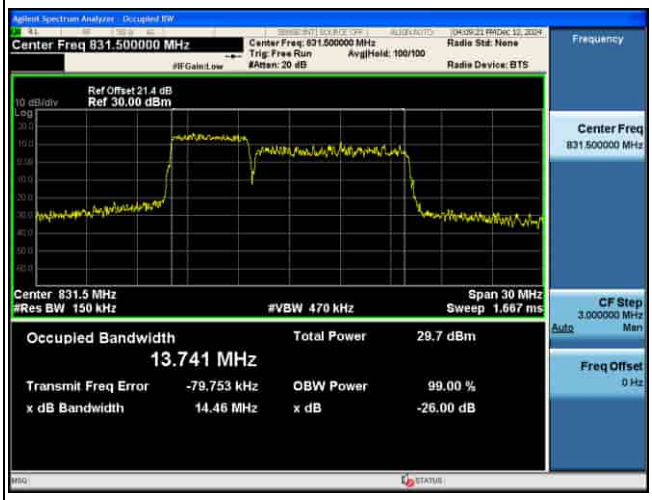
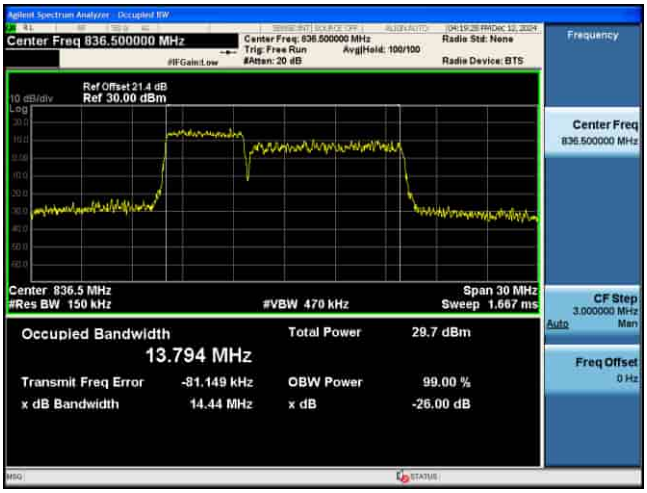
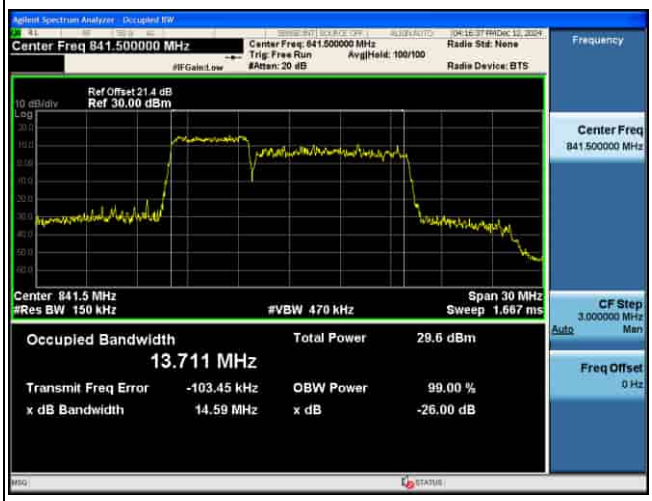
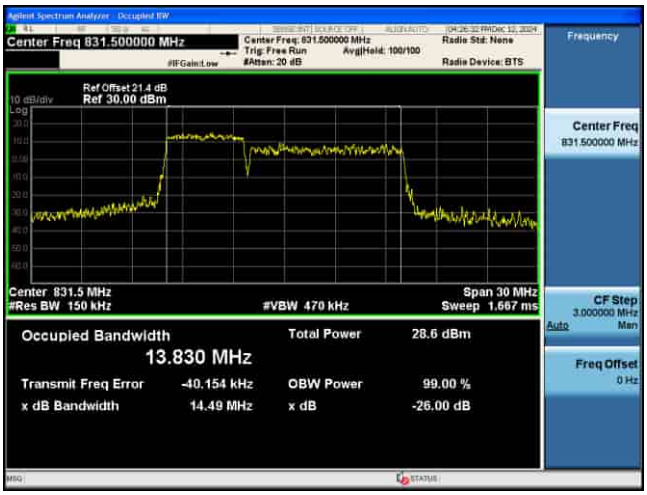
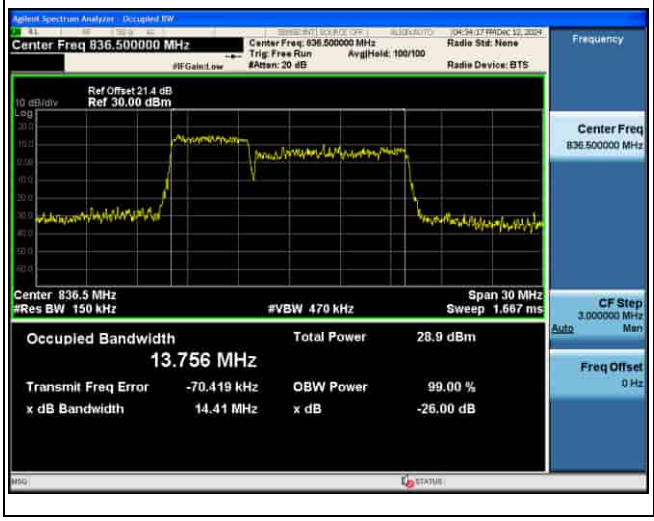
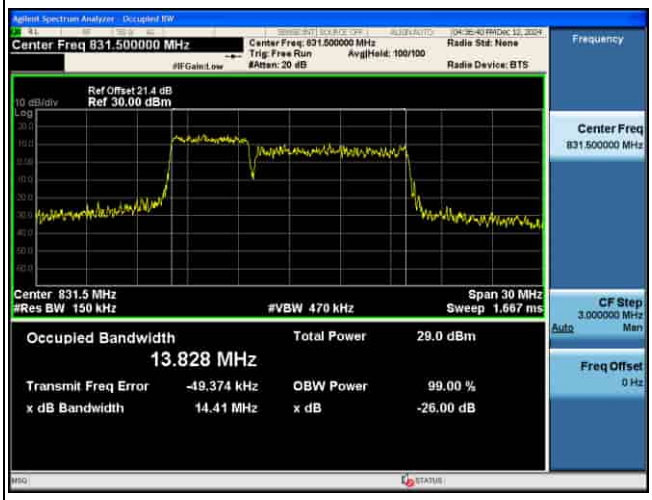
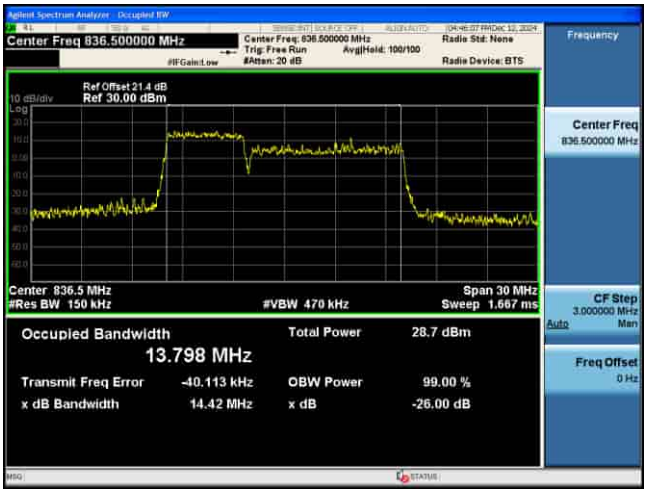
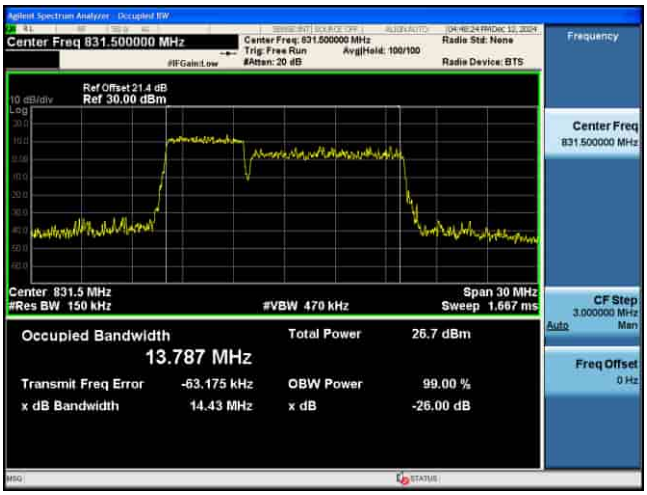
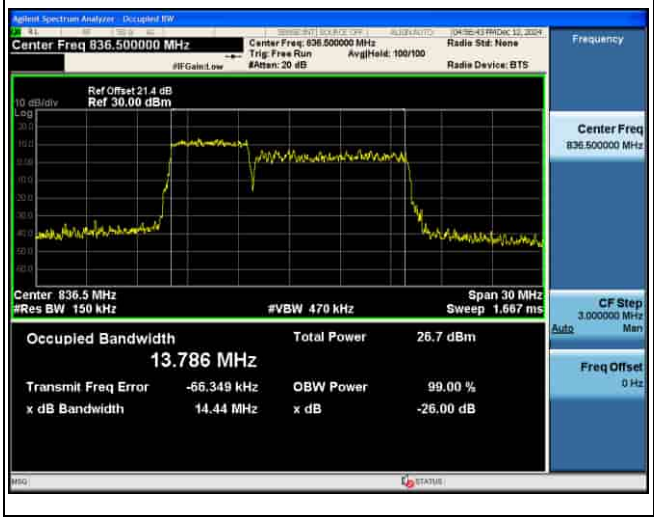
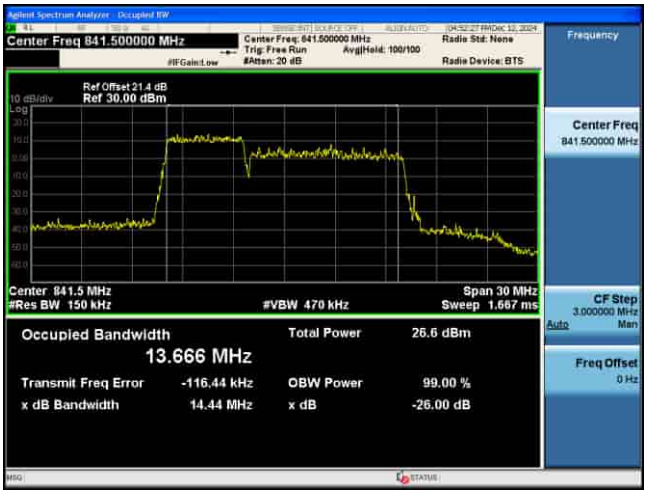
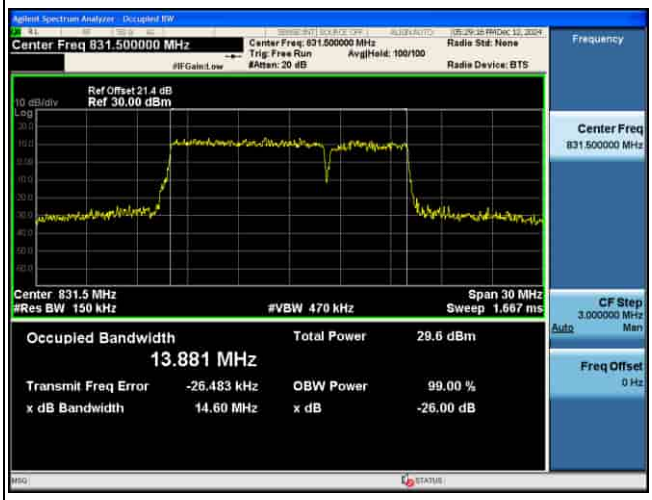
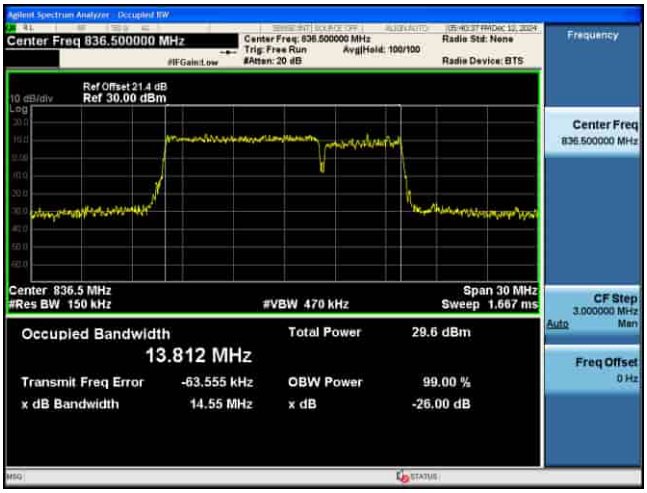
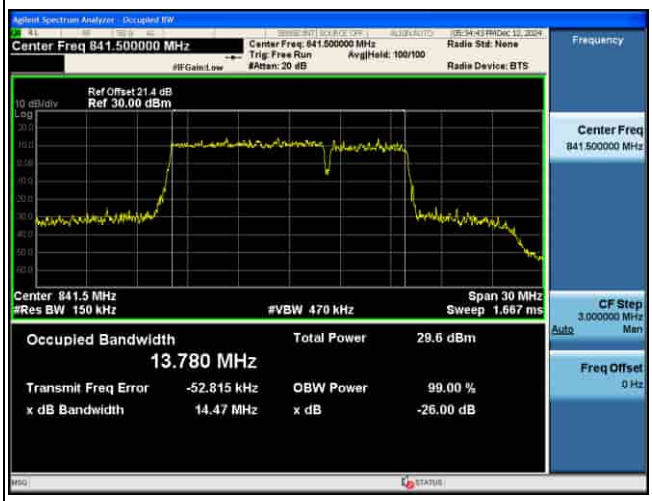
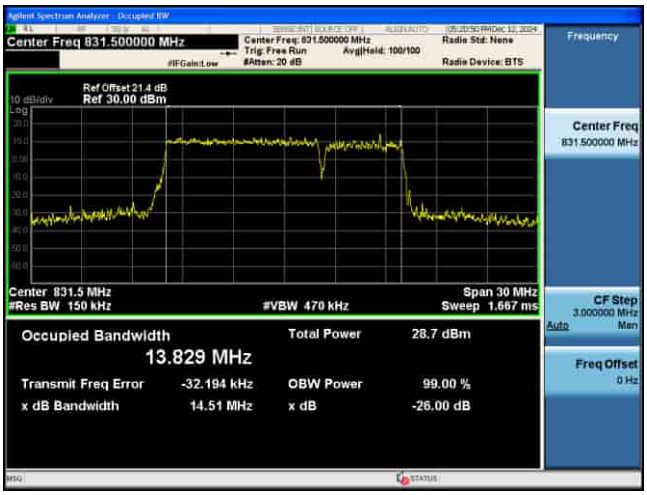
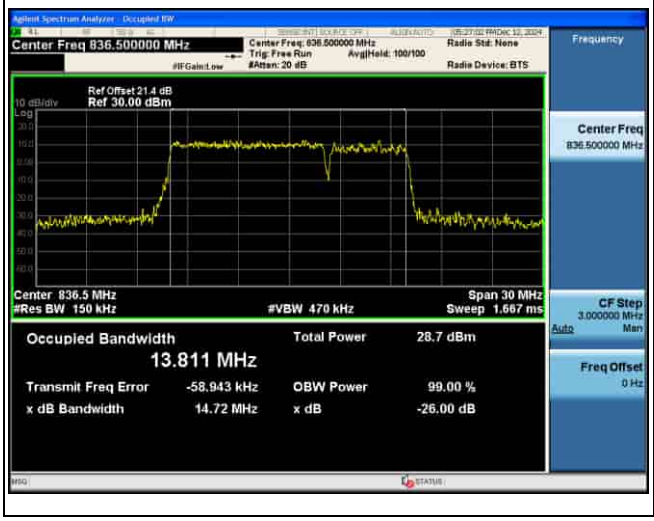
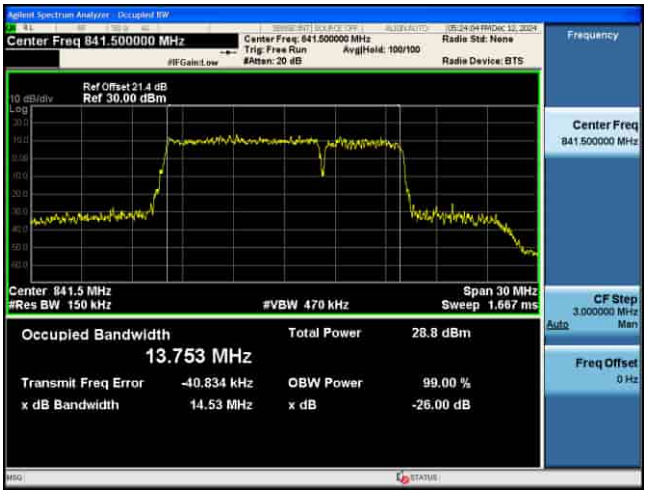
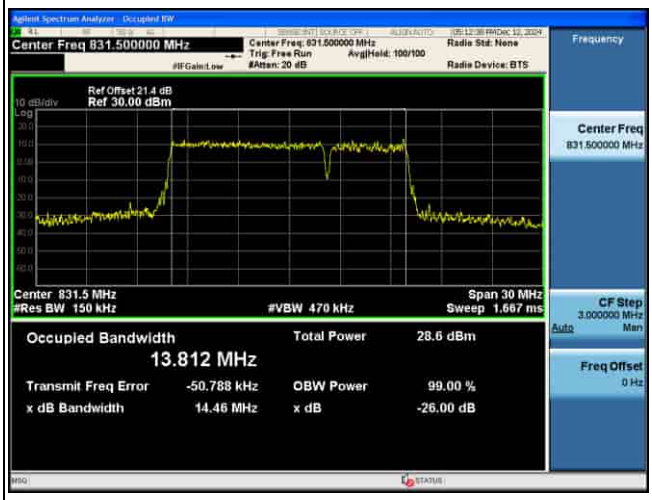
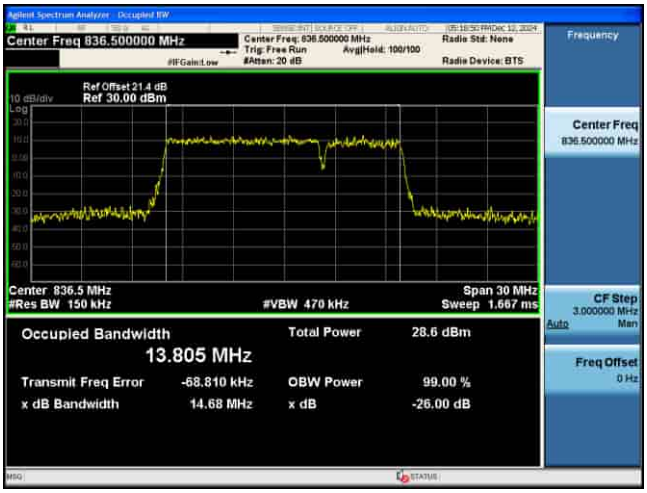
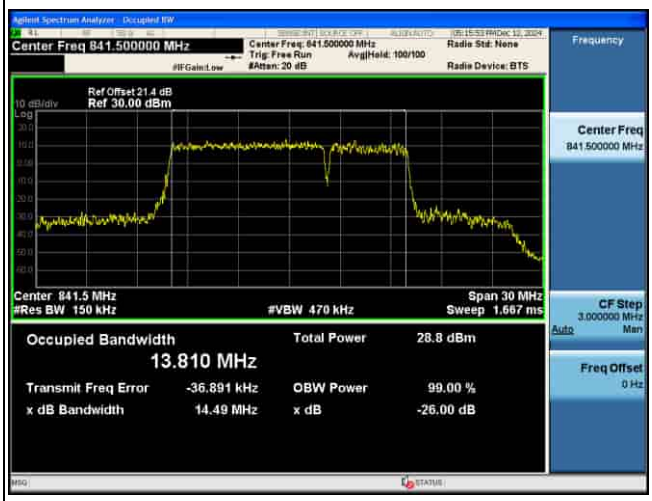
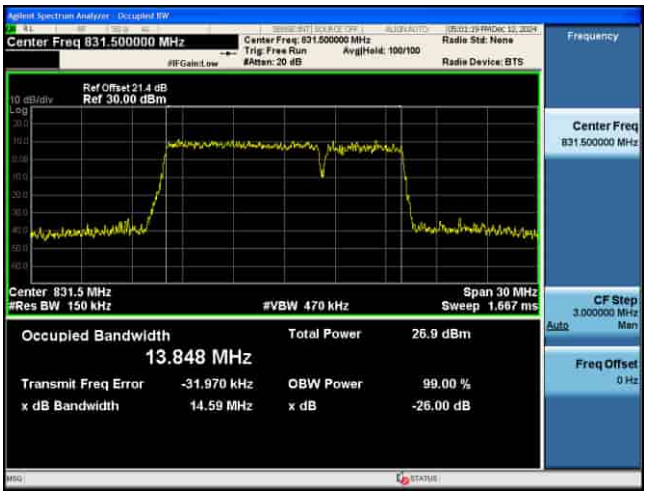
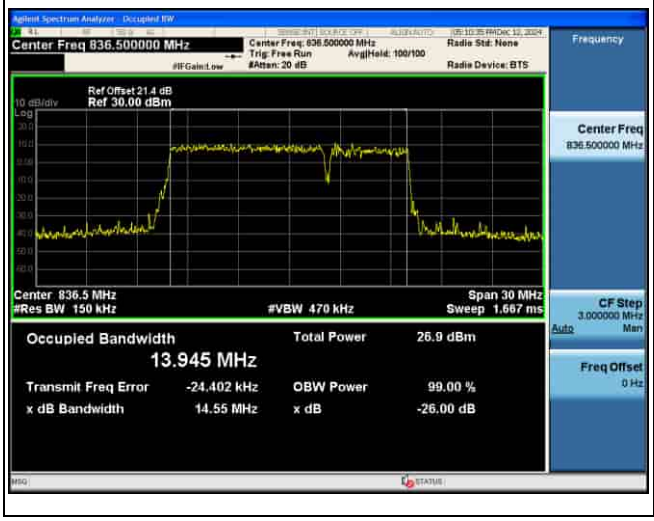
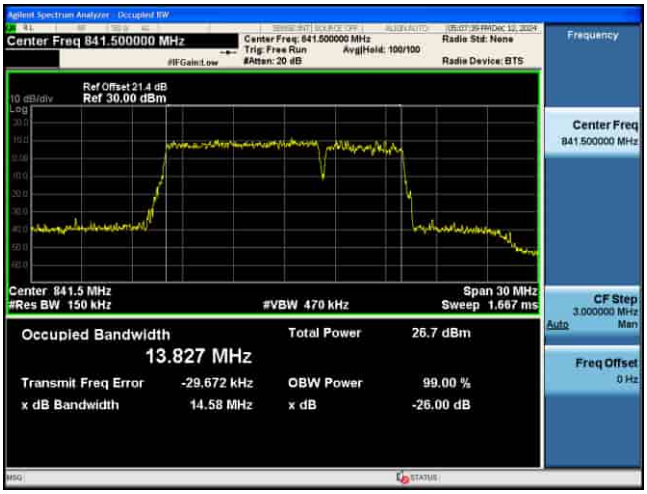
	

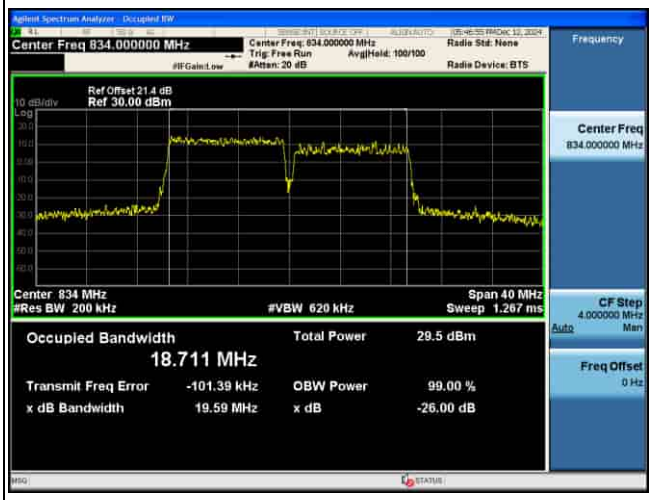
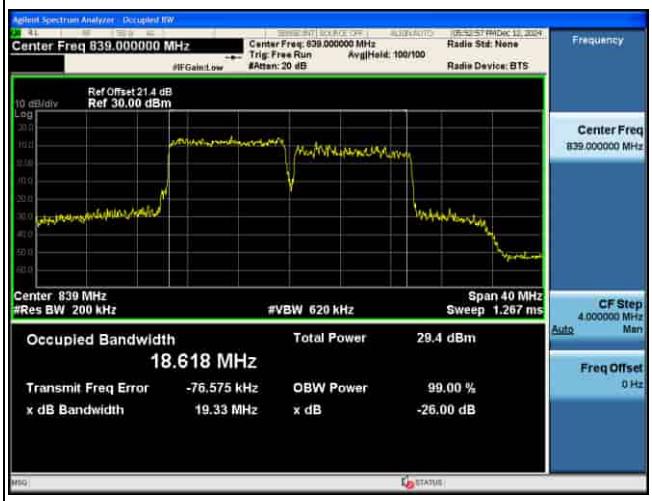
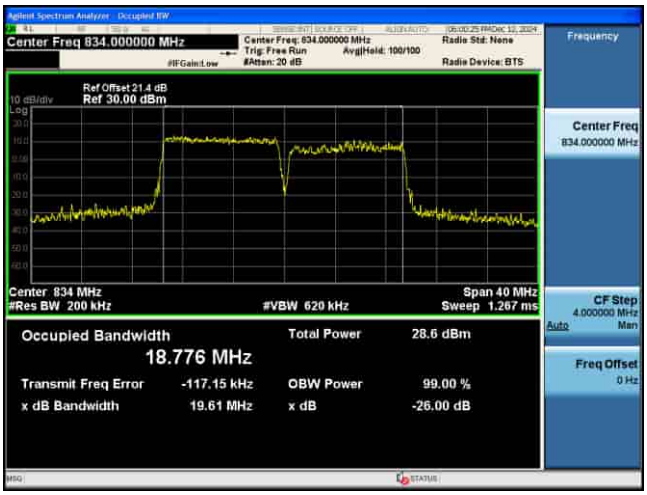
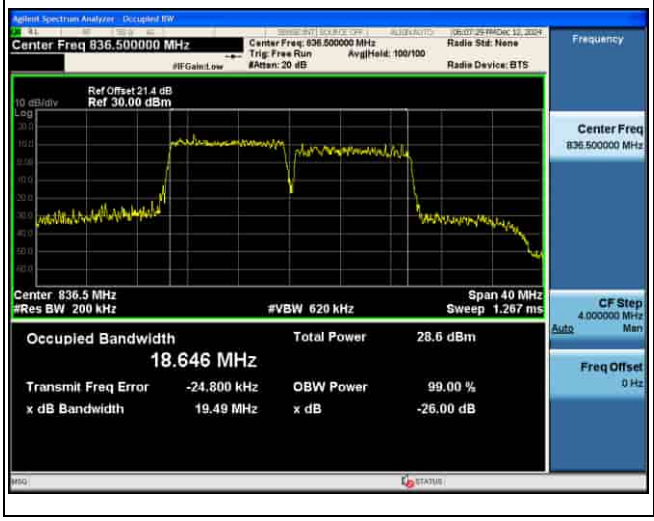
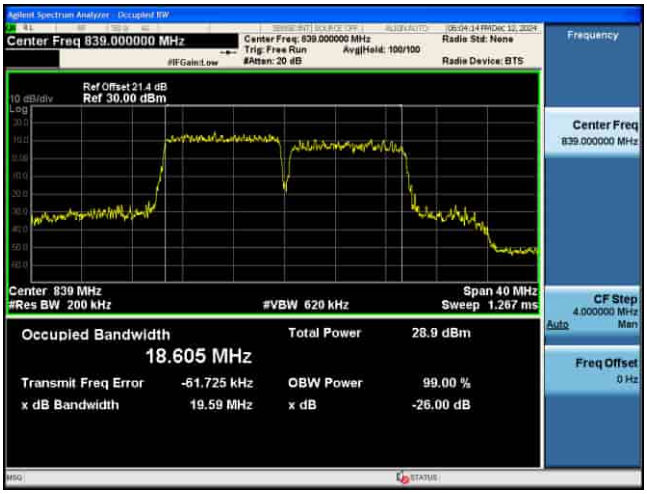
OCC_4G_2ULCA_5B_8M(5M+3M)_64QAM_CH20425+20464	OCC_4G_2ULCA_5B_8M(5M+3M)_64QAM_CH20510+20549
	
OCC_4G_2ULCA_5B_8M(5M+3M)_64QAM_CH20595+20634	OCC_4G_2ULCA_5B_8M(5M+3M)_256QAM_CH20425+20464
	
OCC_4G_2ULCA_5B_8M(5M+3M)_256QAM_CH20510+20549	OCC_4G_2ULCA_5B_8M(5M+3M)_256QAM_CH20595+20634
	

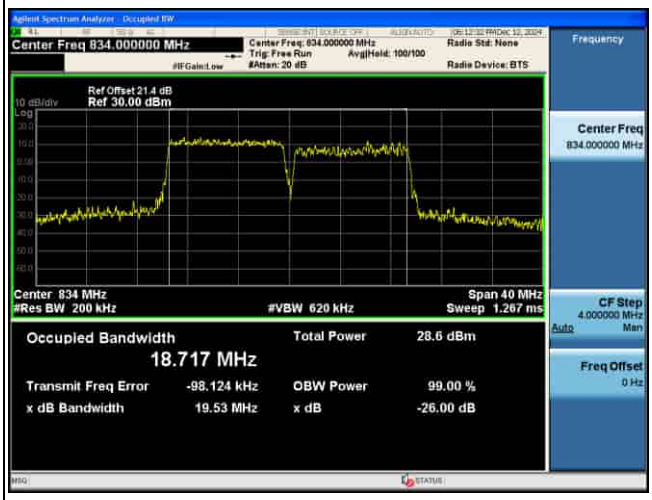
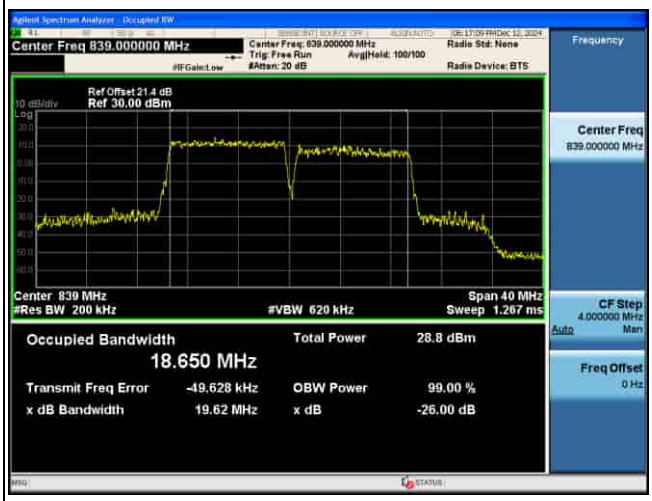
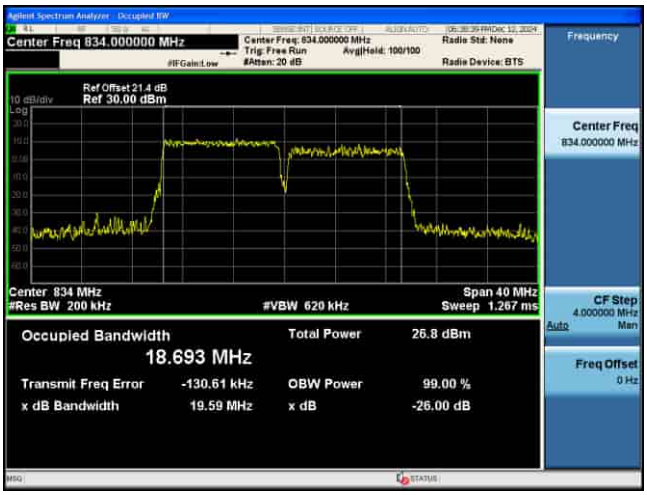
OCC_4G_2ULCA_5B_15M(5M+10M)_.QPSK_CH20428+20500	OCC_4G_2ULCA_5B_15M(5M+10M)_.QPSK_CH20478+20550
	
OCC_4G_2ULCA_5B_15M(5M+10M)_.QPSK_CH20528+20600	OCC_4G_2ULCA_5B_15M(5M+10M)_16QAM_CH20428+20500
	
OCC_4G_2ULCA_5B_15M(5M+10M)_16QAM_CH20478+20550	OCC_4G_2ULCA_5B_15M(5M+10M)_16QAM_CH20528+20600
	

OCC_4G_2ULCA_5B_15M(5M+10M)_64QAM_CH20428+20500	OCC_4G_2ULCA_5B_15M(5M+10M)_64QAM_CH20478+20550
	
OCC_4G_2ULCA_5B_15M(5M+10M)_64QAM_CH20528+20600	OCC_4G_2ULCA_5B_15M(5M+10M)_256QAM_CH20428+20500
	
OCC_4G_2ULCA_5B_15M(5M+10M)_256QAM_CH20478+20550	OCC_4G_2ULCA_5B_15M(5M+10M)_256QAM_CH20528+20600
	

OCC_4G_2ULCA_5B_15M(10M+5M)_.QPSK_CH20450+20522	OCC_4G_2ULCA_5B_15M(10M+5M)_.QPSK_CH20500+20572
	
OCC_4G_2ULCA_5B_15M(10M+5M)_.QPSK_CH20550+20622	OCC_4G_2ULCA_5B_15M(10M+5M)_16QAM_CH20450+20522
	
OCC_4G_2ULCA_5B_15M(10M+5M)_16QAM_CH20500+20572	OCC_4G_2ULCA_5B_15M(10M+5M)_16QAM_CH20550+20622
	

OCC_4G_2ULCA_5B_15M(10M+5M)_64QAM_CH20450+20522	OCC_4G_2ULCA_5B_15M(10M+5M)_64QAM_CH20500+20572
	
OCC_4G_2ULCA_5B_15M(10M+5M)_64QAM_CH20550+20622	OCC_4G_2ULCA_5B_15M(10M+5M)_256QAM_CH20450+20522
	
OCC_4G_2ULCA_5B_15M(10M+5M)_256QAM_CH20500+20572	OCC_4G_2ULCA_5B_15M(10M+5M)_256QAM_CH20550+20622
	

OCC_4G_2ULCA_5B_20M(10M+10M)_.QPSK_CH20450+20549	OCC_4G_2ULCA_5B_20M(10M+10M)_.QPSK_CH20476+20575
	
OCC_4G_2ULCA_5B_20M(10M+10M)_.QPSK_CH20501+20600	OCC_4G_2ULCA_5B_20M(10M+10M)_16QAM_CH20450+20549
	
OCC_4G_2ULCA_5B_20M(10M+10M)_16QAM_CH20476+20575	OCC_4G_2ULCA_5B_20M(10M+10M)_16QAM_CH20501+20600
	

OCC_4G_2ULCA_5B_20M(10M+10M)_64QAM_CH20450+20549	OCC_4G_2ULCA_5B_20M(10M+10M)_64QAM_CH20476+20575
	
OCC_4G_2ULCA_5B_20M(10M+10M)_64QAM_CH20501+20600	OCC_4G_2ULCA_5B_20M(10M+10M)_256QAM_CH20450+20549
	
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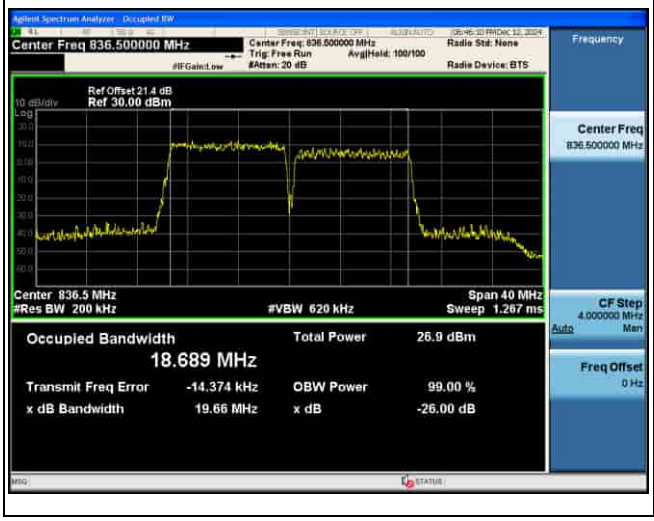
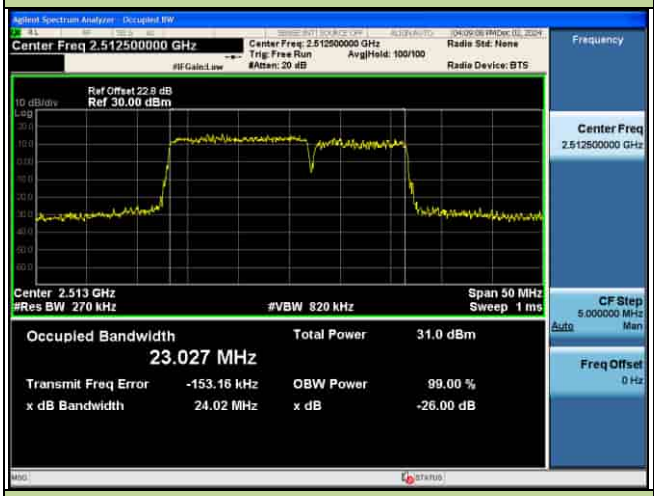
	

A1.2 LTE 2UL 7C

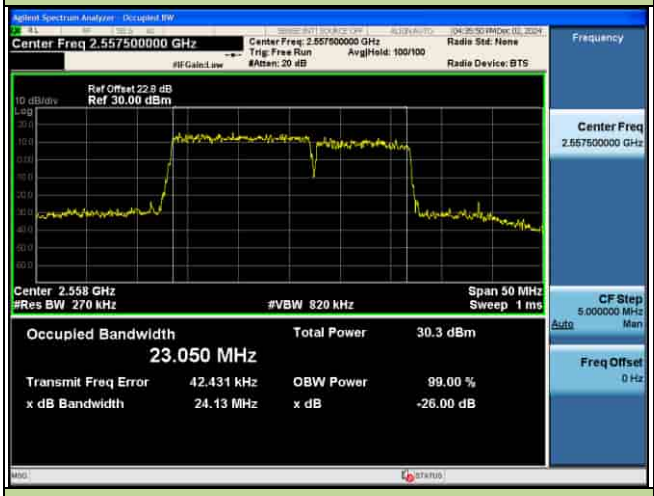
LTE 2UL_CA_7C												
BW	Frequency (MHz)		Channel		99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
	PCC	SCC	PCC	SCC	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
25MHz (15+10)	2507.5	2519.5	20825	20945	23.027	23.015	23.064	23.000	24.02	24.11	24.16	23.90
	2530.1	2542.1	21051	21171	22.964	23.077	23.046	23.060	24.16	24.18	23.96	24.04
	2552.7	2564.7	21277	21397	23.050	22.963	23.026	22.985	24.13	24.04	24.06	24.09
30MHz (10+20)	2505.5	2519.9	20805	20949	27.598	27.646	27.410	27.535	28.58	28.67	28.62	28.76
	2525.6	2540	21006	21150	27.540	27.433	27.538	27.616	28.76	28.68	28.67	28.77
	2546.6	2560	21206	21350	27.548	27.439	27.619	27.598	28.70	28.71	28.68	28.70
30MHz (15+15)	2507.5	2522.5	20825	20975	28.213	28.188	28.247	28.292	29.29	29.34	29.35	29.44
	2527.5	2542.5	21025	21175	28.059	28.209	28.153	28.066	29.49	29.53	29.35	29.49
	2547.5	2562.5	21225	21375	28.189	28.161	28.212	28.214	29.64	29.61	29.17	29.47
30MHz (20+10)	2510	2524.4	20850	20994	27.597	27.629	27.653	27.541	29.07	29.02	28.87	28.81
	2530.1	2544.5	21051	21195	27.508	27.696	27.648	27.625	29.06	28.71	28.91	28.99
	2550.1	2564.5	21251	21395	27.635	27.597	27.710	27.545	28.72	28.94	28.74	28.85
35MHz (15+20)	2507.8	2524.9	20828	20999	32.442	32.370	32.552	32.454	33.73	33.94	33.80	33.76
	2525.3	2542.4	21003	21174	32.475	32.515	32.454	32.365	34.09	33.67	33.86	33.70
	2542.9	2560	21179	21350	32.371	32.425	32.455	32.463	33.95	33.90	33.64	33.75
35MHz (20+15)	2510	2527.1	20850	21021	32.539	32.480	32.505	32.585	34.16	33.72	33.72	34.30
	2527.6	2544.7	21026	21197	32.482	32.506	32.504	32.435	33.97	33.73	34.04	33.62
	2545.1	2562.2	21201	21372	32.561	32.448	32.494	32.592	34.29	34.18	33.97	34.07
40MHz (20+20)	2510	2529.8	20850	21048	37.433	37.449	37.549	37.433	38.87	38.93	38.88	38.83
	2525.1	2544.9	21001	21199	37.329	37.420	37.427	37.455	39.25	38.94	38.89	38.87
	2540.2	2560	21152	21350	37.487	37.322	37.399	37.382	38.98	38.89	38.84	39.23

OCC_4G_2ULCA_7C_25M(15M+10M)_.QPSK_CH20825+20945

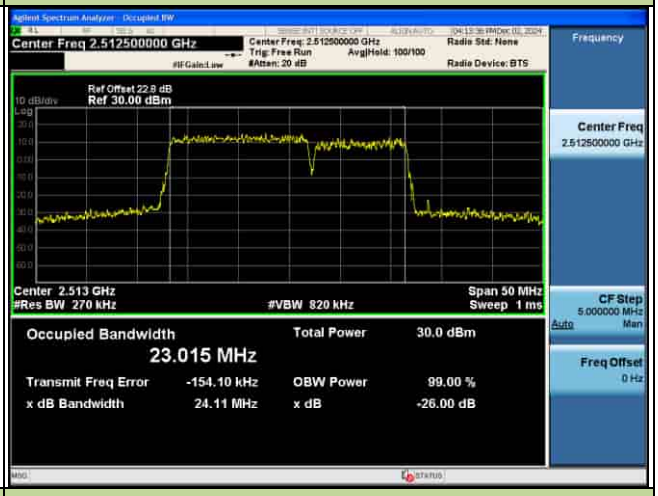


OCC_4G_2ULCA_7C_25M(15M+10M)_.QPSK_CH21051+21171

OCC_4G_2ULCA_7C_25M(15M+10M)_.QPSK_CH21277+21397

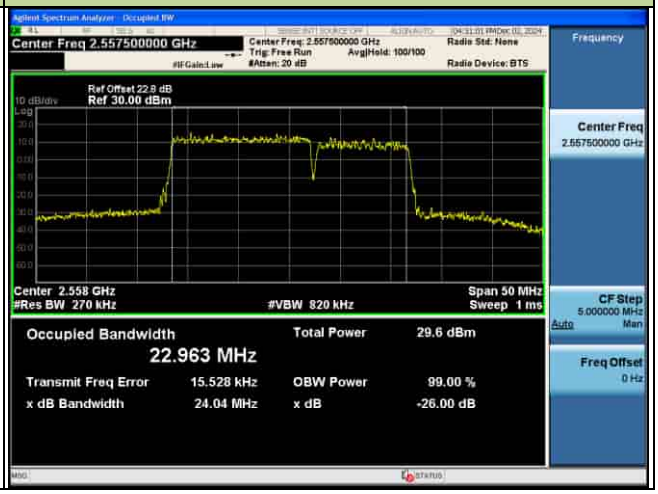


OCC_4G_2ULCA_7C_25M(15M+10M)_16QAM_CH20825+20945



OCC_4G_2ULCA_7C_25M(15M+10M)_16QAM_CH21051+21171

OCC_4G_2ULCA_7C_25M(15M+10M)_16QAM_CH21277+21397



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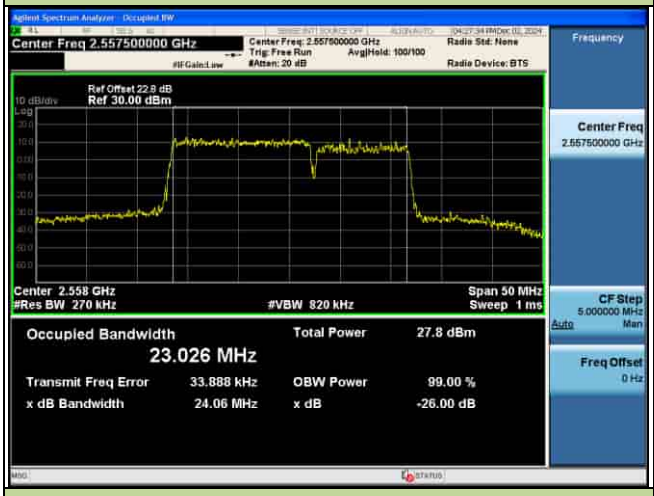
OCC_4G_2ULCA_7C_25M(15M+10M)_64QAM_CH21051+21171

OCC_4G_2ULCA_7C_25M(15M+10M)_64QAM_CH21277+21397



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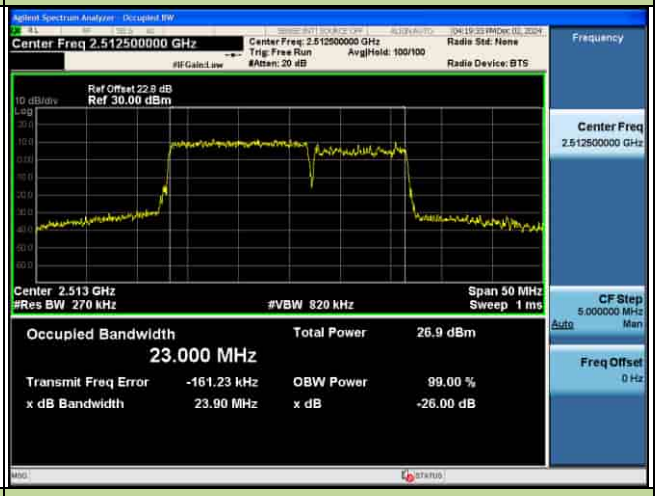
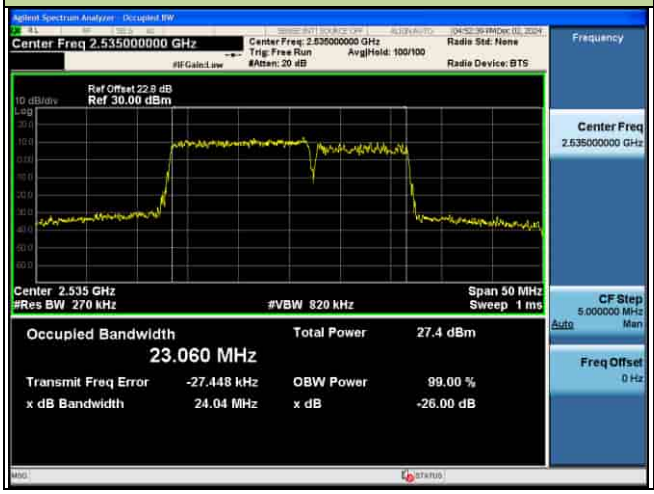


OCC_4G_2ULCA_7C_25M(15M+10M)_256QAM_CH21051+21171



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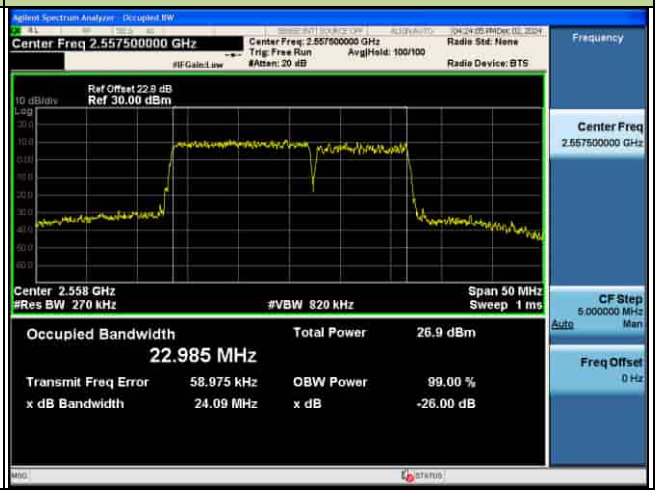

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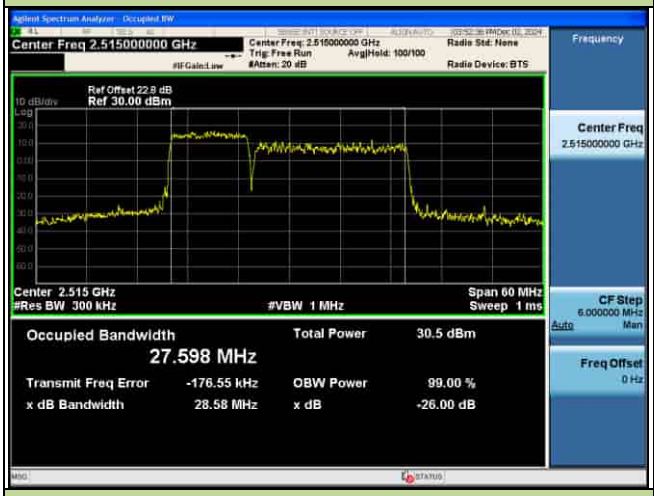

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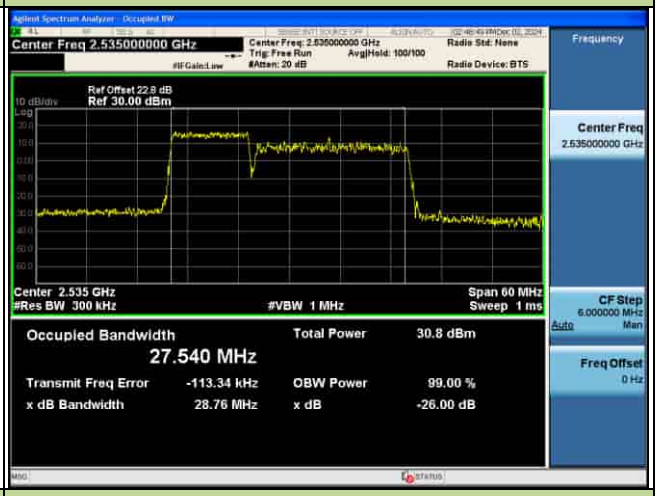
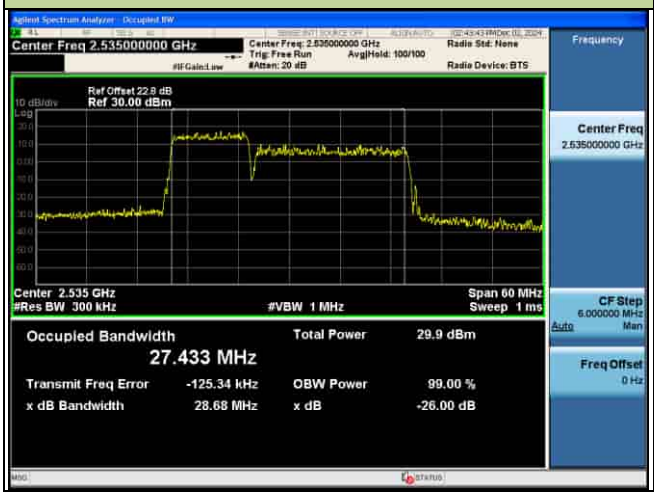


OCC_4G_2ULCA_7C_30M(10M+20M)_.QPSK_CH21206+21350

OCC_4G_2ULCA_7C_30M(10M+20M)_16QAM_CH20805+20949

OCC_4G_2ULCA_7C_30M(10M+20M)_16QAM_CH21006+21150



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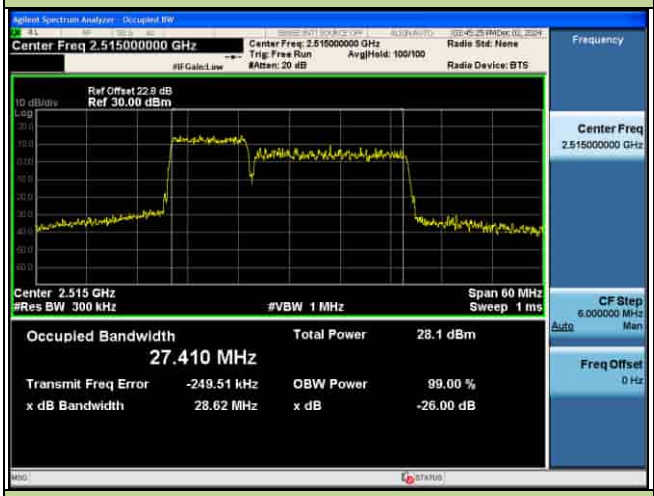
OCC_4G_2ULCA_7C_30M(10M+20M)_64QAM_CH20805+20949



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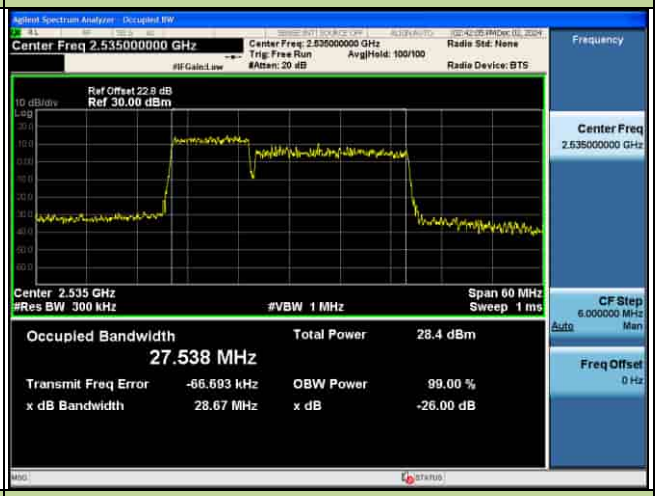

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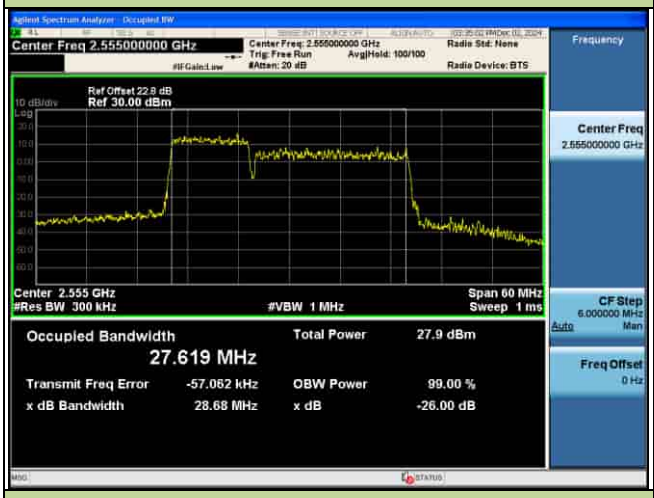

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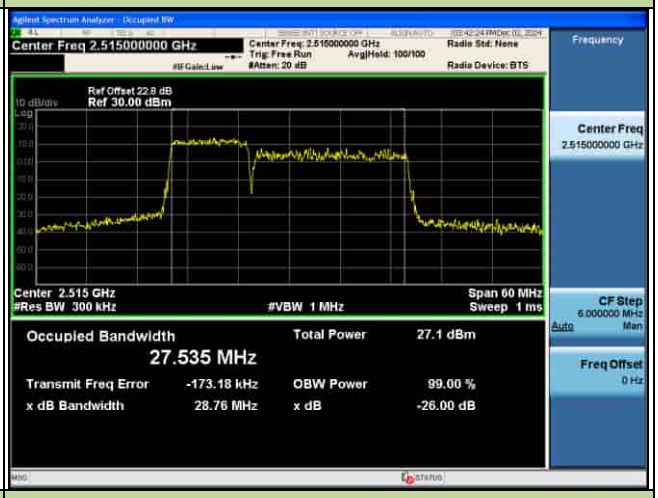

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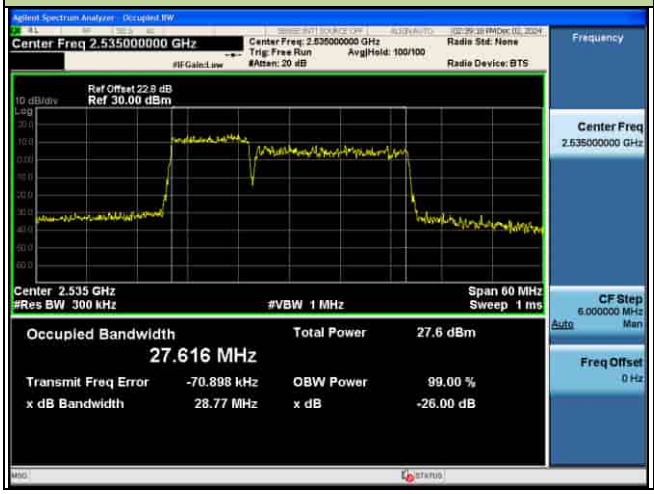

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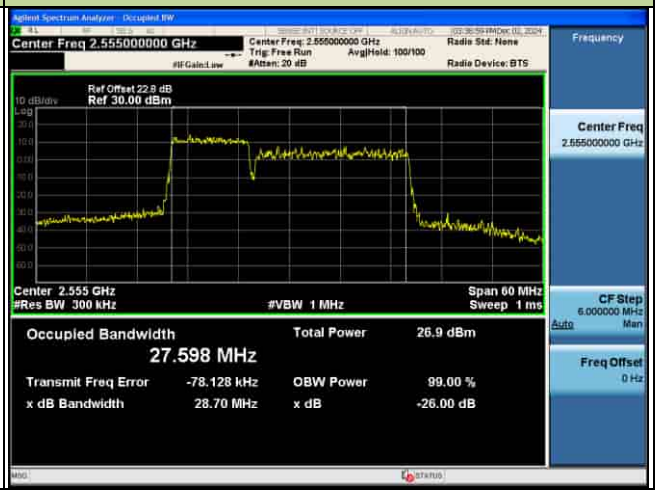

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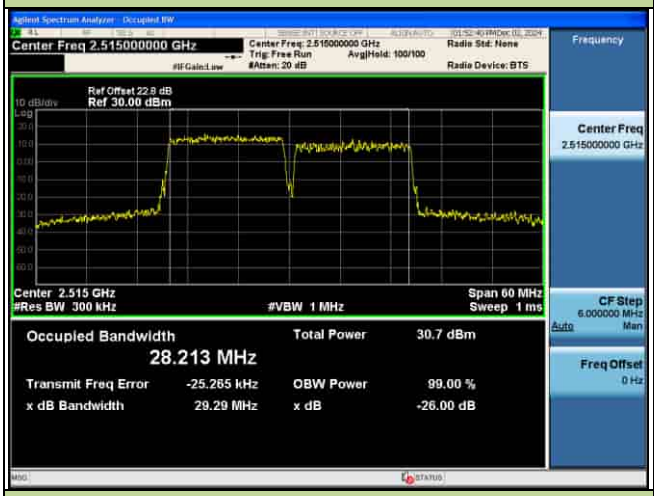

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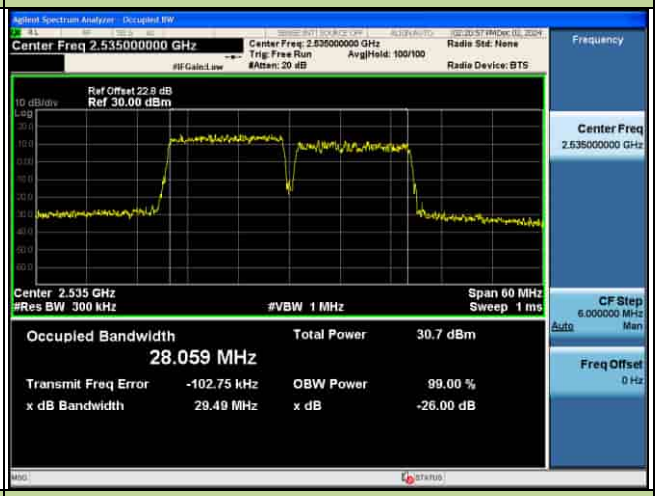

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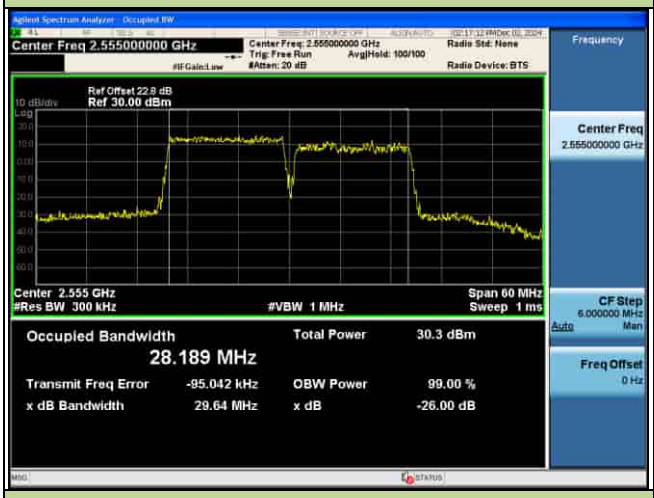

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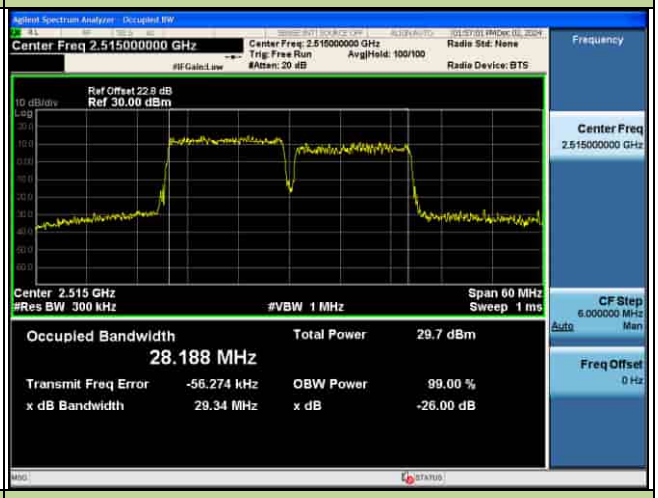

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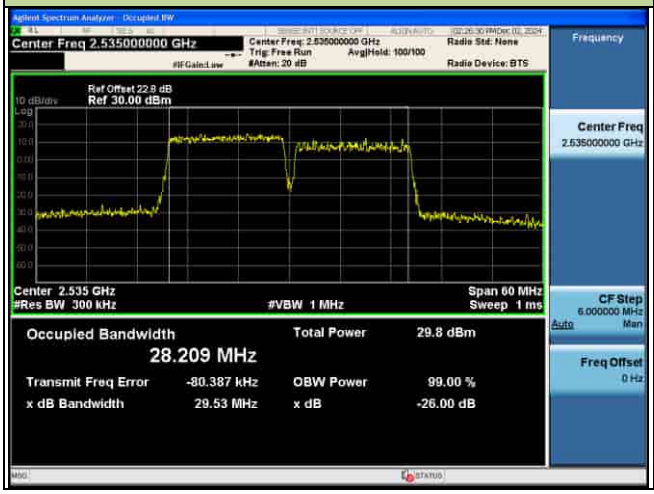

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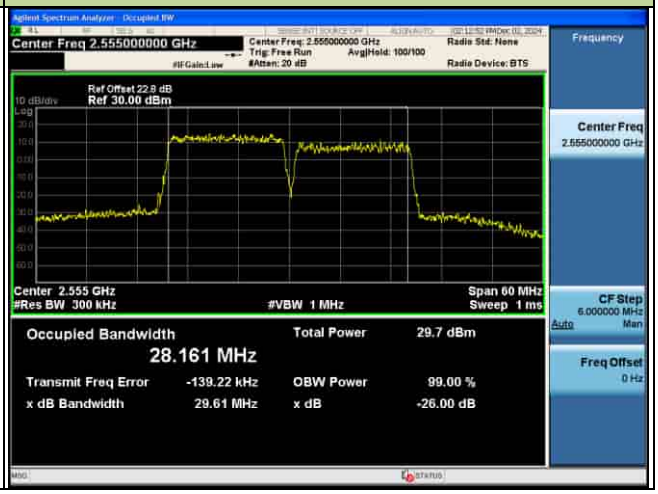

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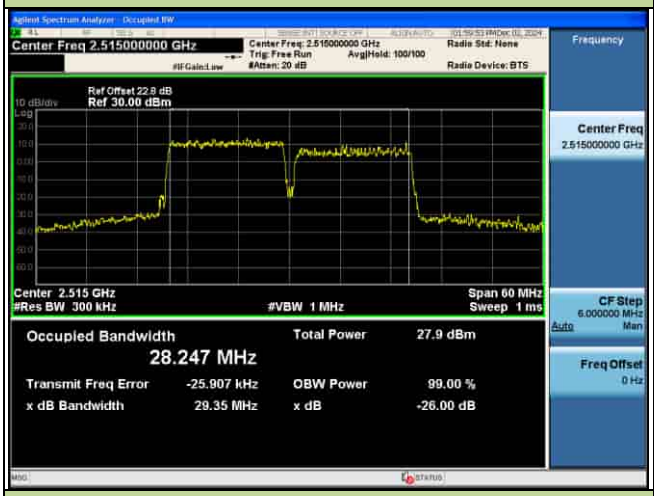

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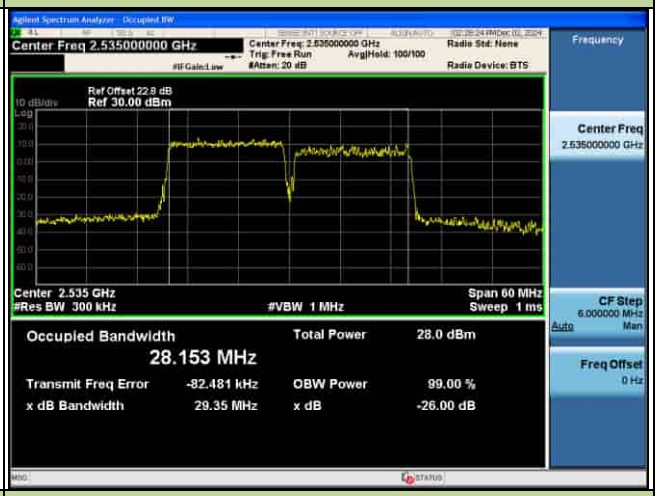

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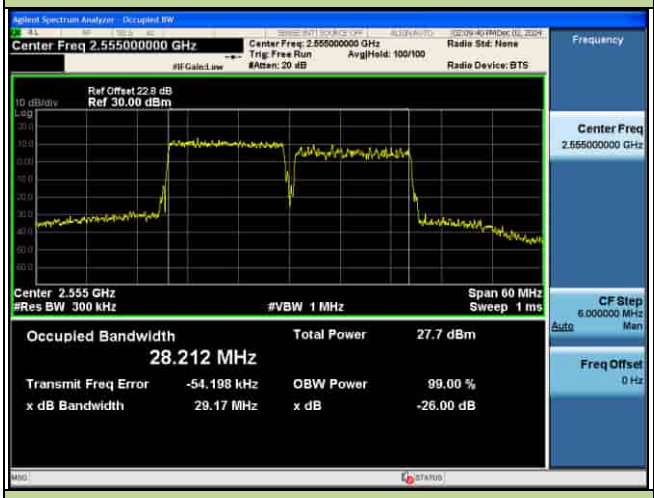

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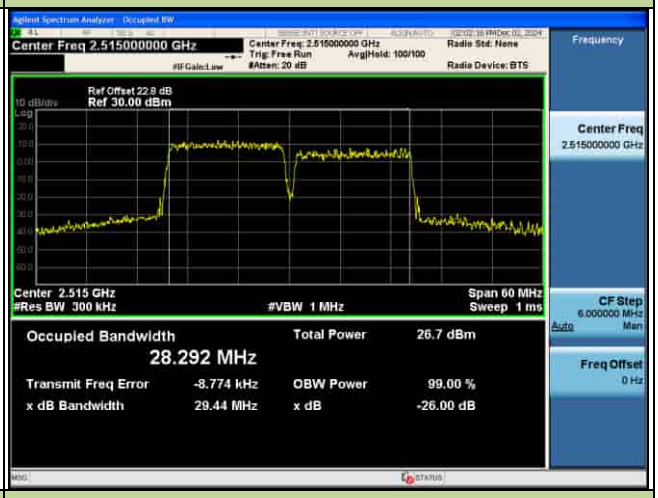

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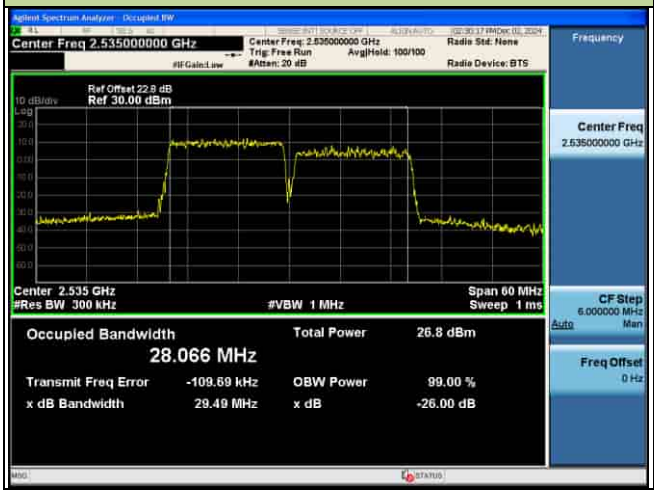

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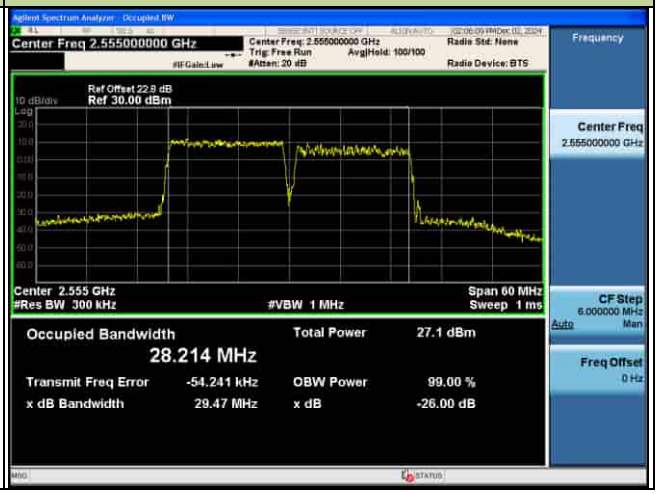

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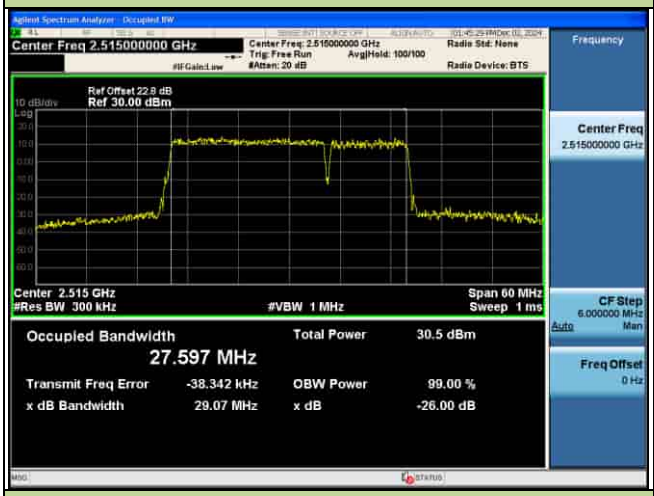

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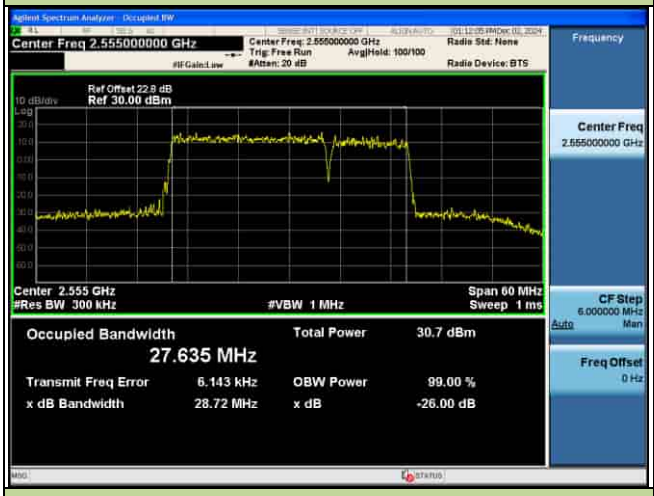

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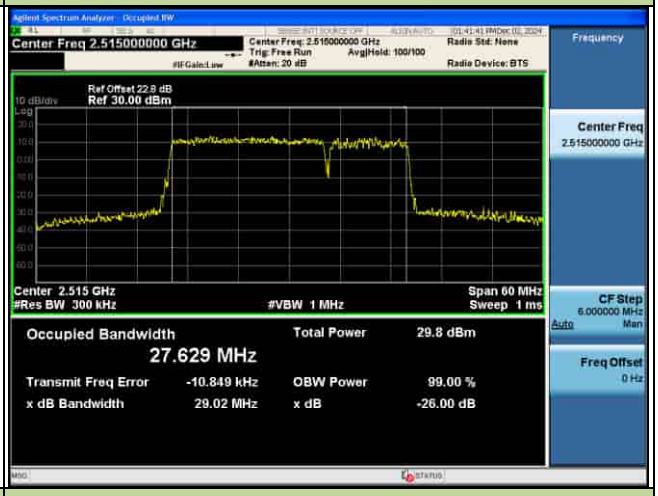

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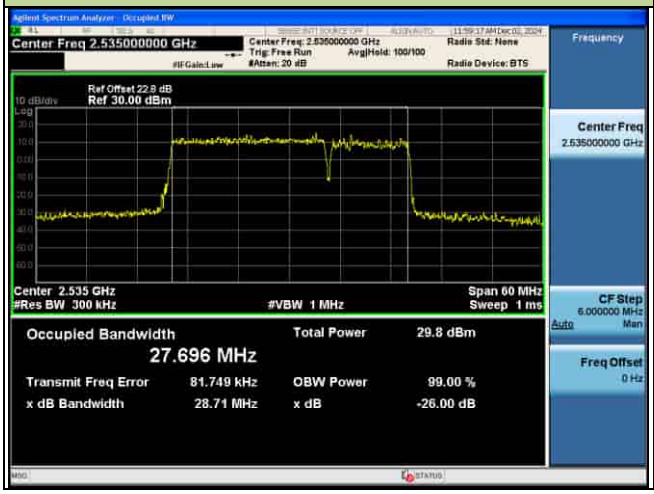
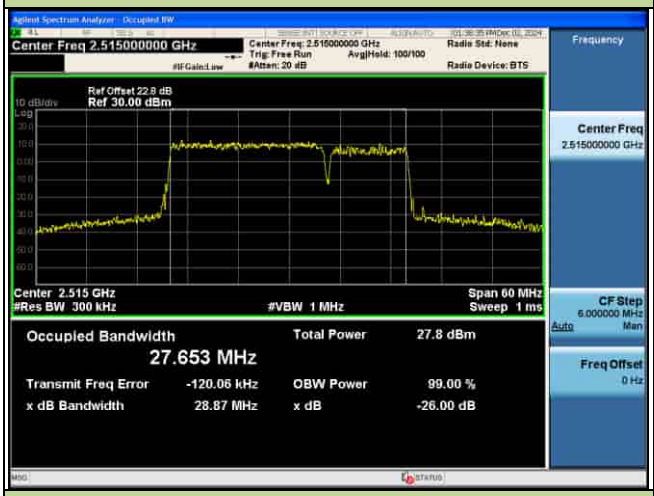


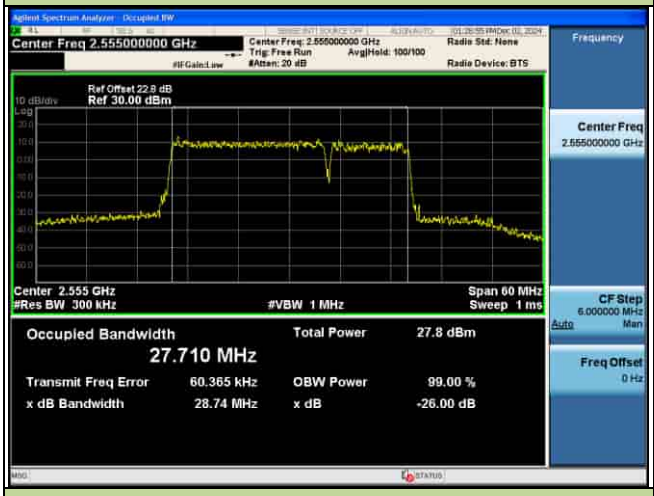
OCC_4G_2ULCA_7C_30M(20M+10M)_16QAM_CH21251+21395

OCC_4G_2ULCA_7C_30M(20M+10M)_64QAM_CH20850+20994

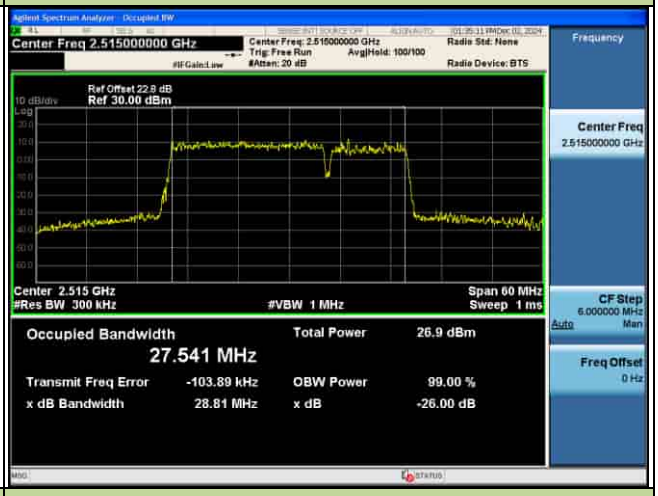


OCC_4G_2ULCA_7C_30M(20M+10M)_64QAM_CH21051+21195

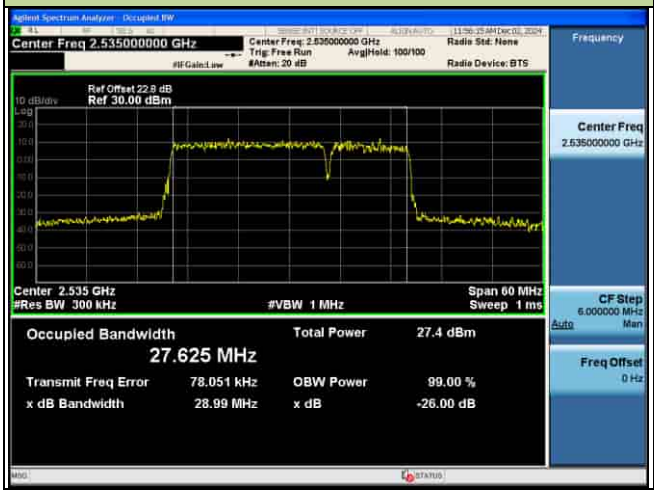
OCC_4G_2ULCA_7C_30M(20M+10M)_64QAM_CH21251+21395



OCC_4G_2ULCA_7C_30M(20M+10M)_256QAM_CH20850+20994



OCC_4G_2ULCA_7C_30M(20M+10M)_256QAM_CH21051+21195



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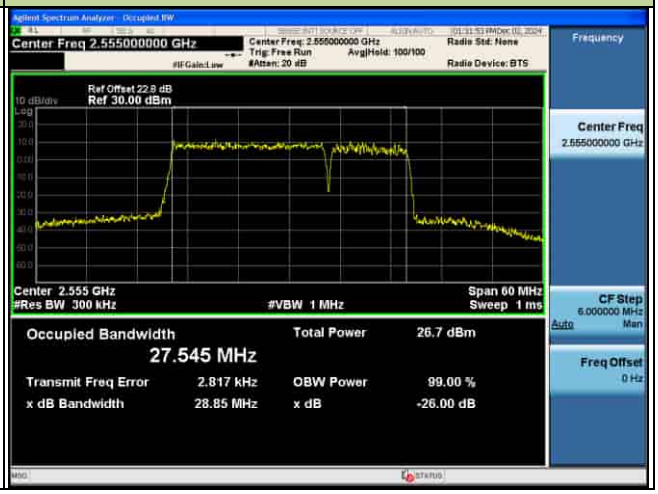
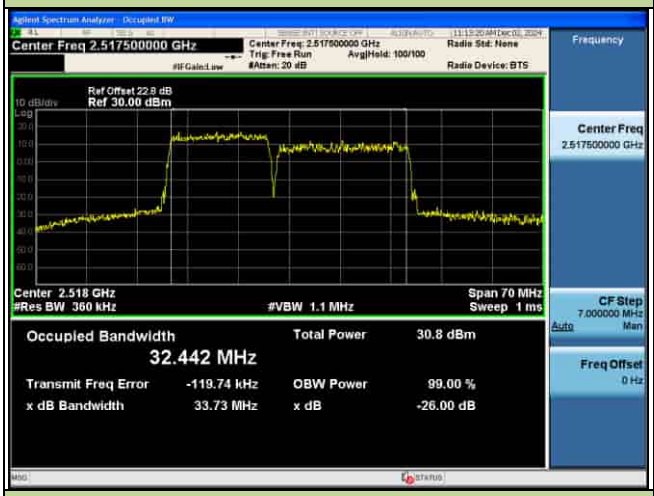
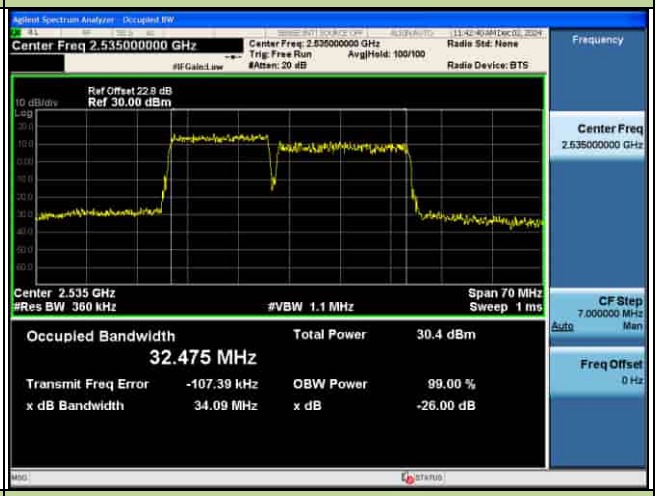


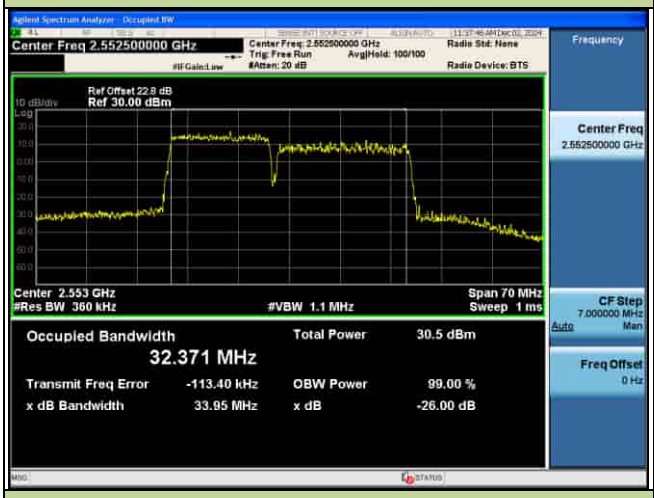
OCC_4G_2ULCA_7C_35M(15M+20M)_.QPSK_CH20828+20999



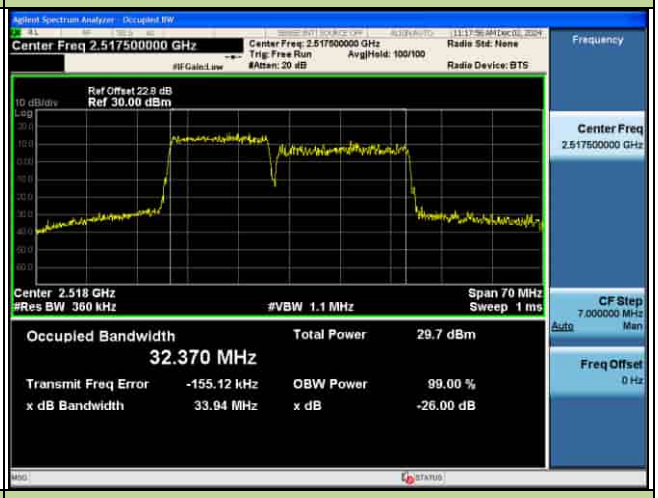
OCC_4G_2ULCA_7C_35M(15M+20M)_.QPSK_CH21003+21174



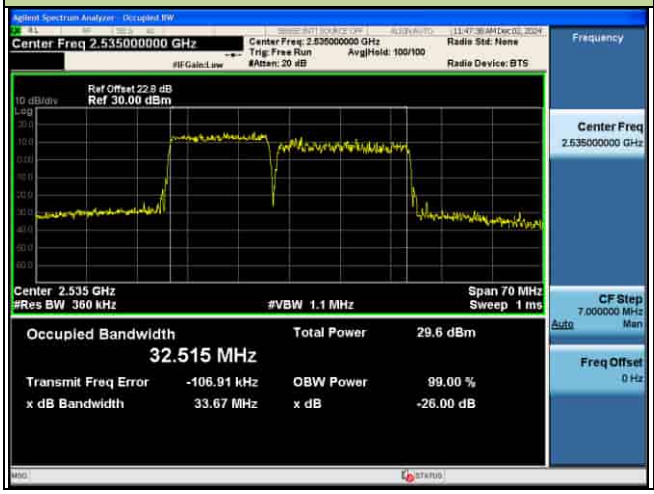
OCC_4G_2ULCA_7C_35M(15M+20M)_.QPSK_CH21179+21350



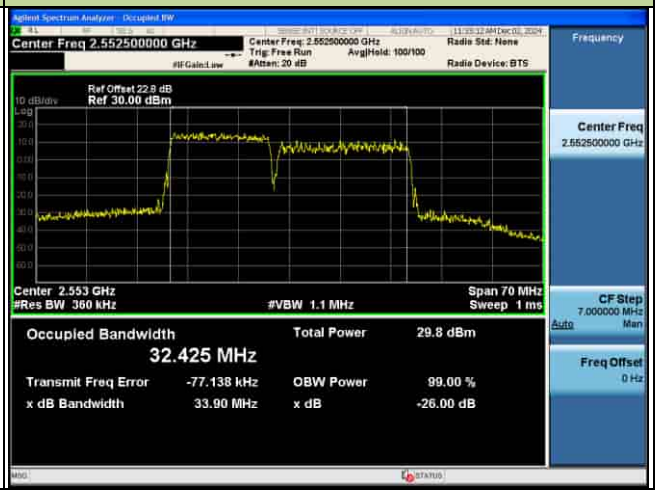
OCC_4G_2ULCA_7C_35M(15M+20M)_16QAM_CH20828+20999



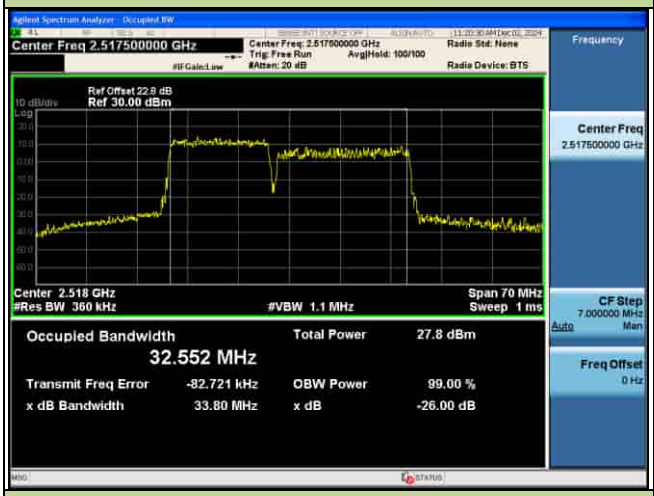
OCC_4G_2ULCA_7C_35M(15M+20M)_16QAM_CH21003+21174



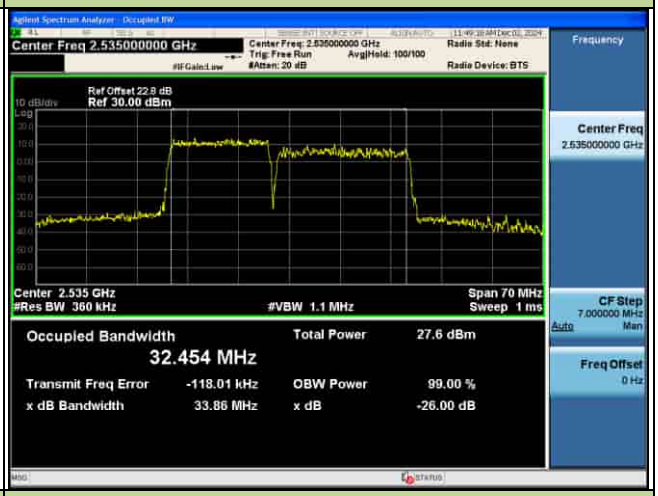
OCC_4G_2ULCA_7C_35M(15M+20M)_16QAM_CH21179+21350



OCC_4G_2ULCA_7C_35M(15M+20M)_64QAM_CH20828+20999

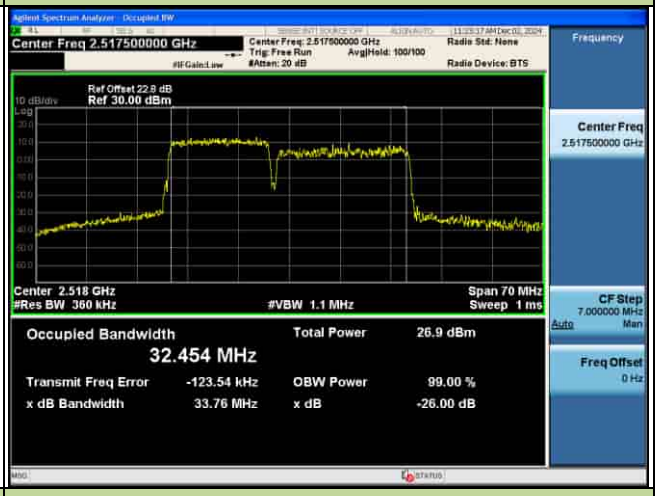


OCC_4G_2ULCA_7C_35M(15M+20M)_64QAM_CH21003+21174

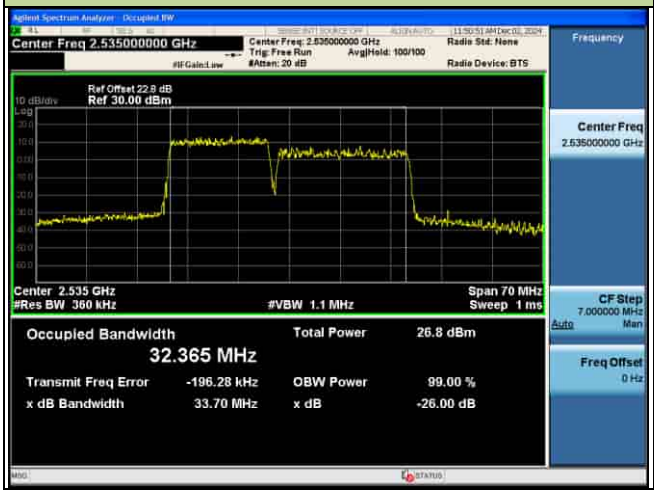


OCC_4G_2ULCA_7C_35M(15M+20M)_64QAM_CH21179+21350

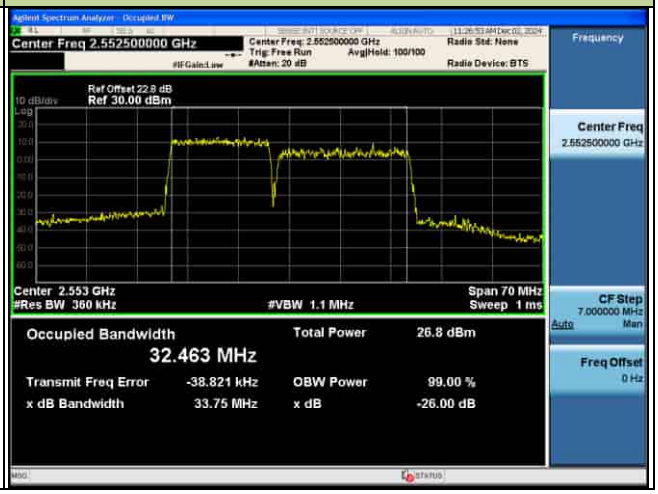
OCC_4G_2ULCA_7C_35M(15M+20M)_256QAM_CH20828+20999



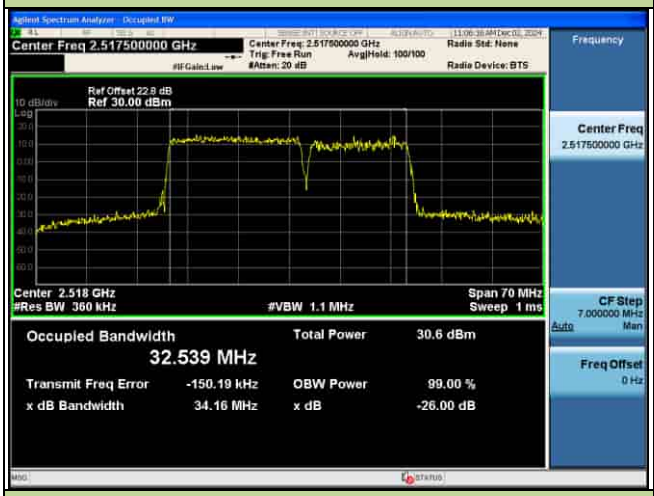
OCC_4G_2ULCA_7C_35M(15M+20M)_256QAM_CH21003+21174



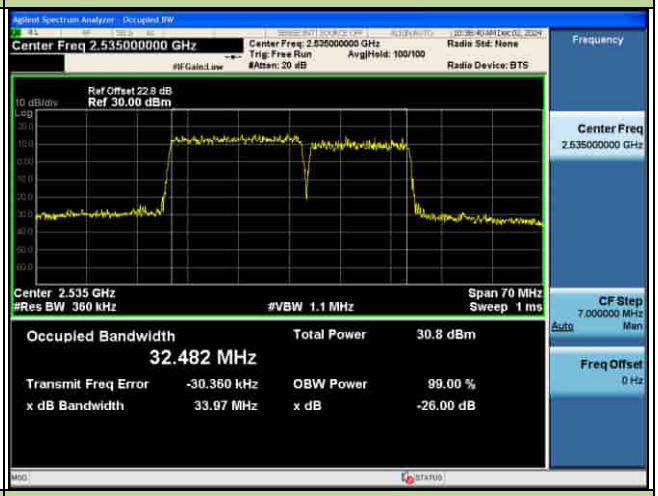
OCC_4G_2ULCA_7C_35M(15M+20M)_256QAM_CH21179+21350



OCC_4G_2ULCA_7C_35M(20M+15M)_.QPSK_CH20850+21021

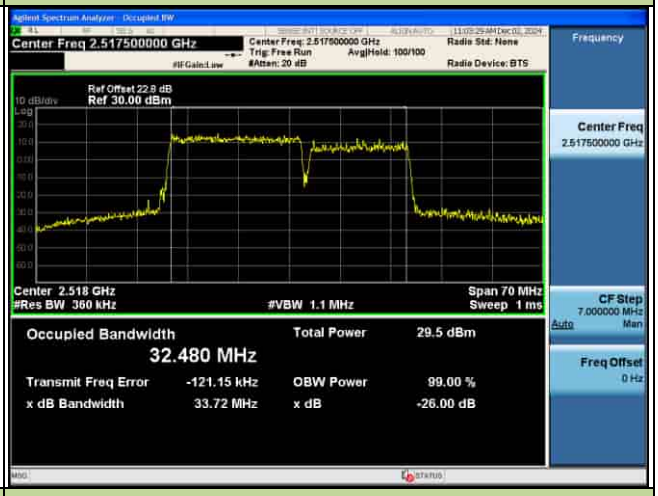


OCC_4G_2ULCA_7C_35M(20M+15M)_.QPSK_CH21026+21197



OCC_4G_2ULCA_7C_35M(20M+15M)_.QPSK_CH21201+21372

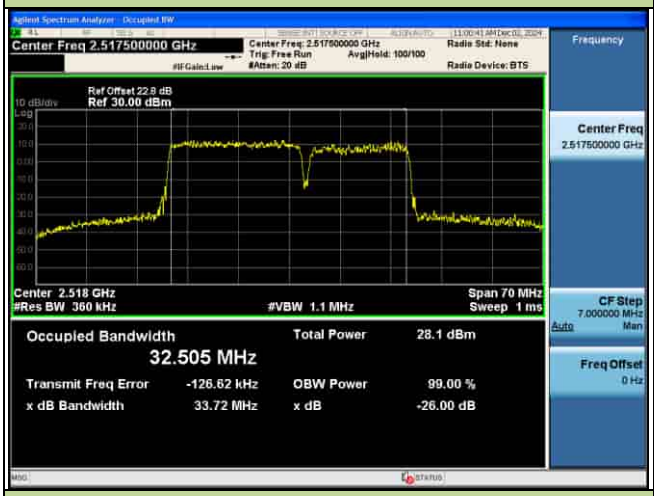
OCC_4G_2ULCA_7C_35M(20M+15M)_16QAM_CH20850+21021



OCC_4G_2ULCA_7C_35M(20M+15M)_16QAM_CH21026+21197

OCC_4G_2ULCA_7C_35M(20M+15M)_16QAM_CH21201+21372

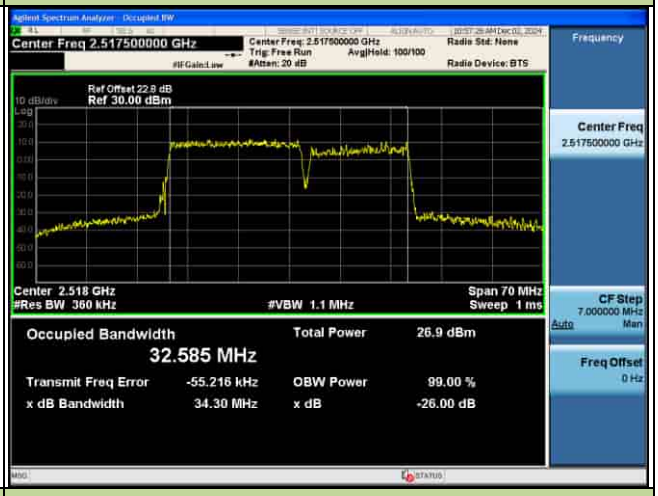
OCC_4G_2ULCA_7C_35M(20M+15M)_64QAM_CH20850+21021



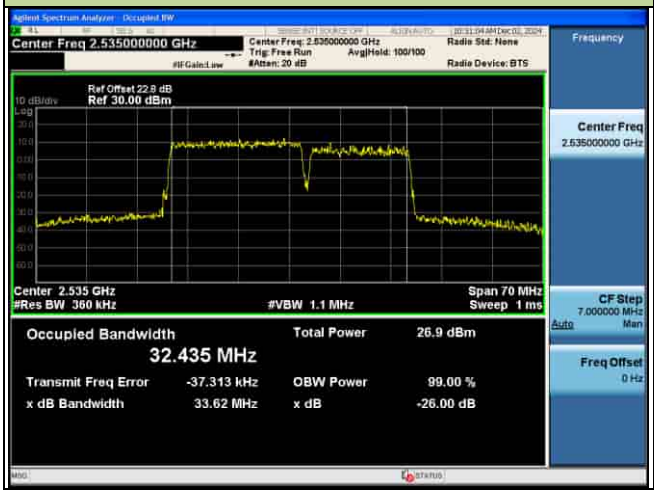
OCC_4G_2ULCA_7C_35M(20M+15M)_64QAM_CH21026+21197

OCC_4G_2ULCA_7C_35M(20M+15M)_64QAM_CH21201+21372

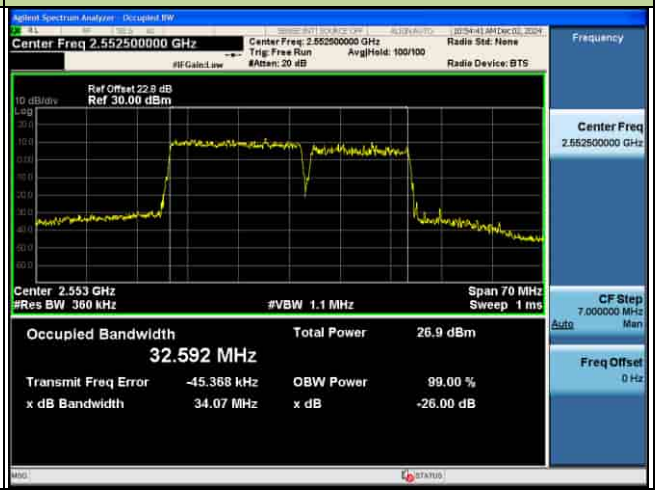
OCC_4G_2ULCA_7C_35M(20M+15M)_256QAM_CH20850+21021



OCC_4G_2ULCA_7C_35M(20M+15M)_256QAM_CH21026+21197



OCC_4G_2ULCA_7C_35M(20M+15M)_256QAM_CH21201+21372

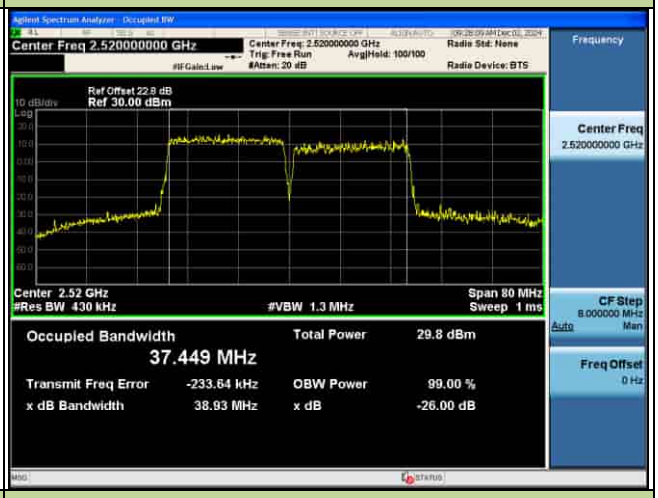


OCC_4G_2ULCA_7C_40M(20M+20M)_.QPSK_CH20850+21048

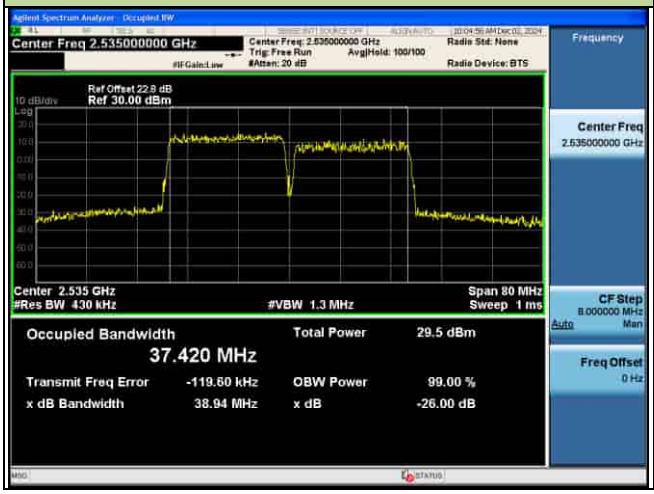
OCC_4G_2ULCA_7C_40M(20M+20M)_.QPSK_CH21001+21199

OCC_4G_2ULCA_7C_40M(20M+20M)_.QPSK_CH21152+21350

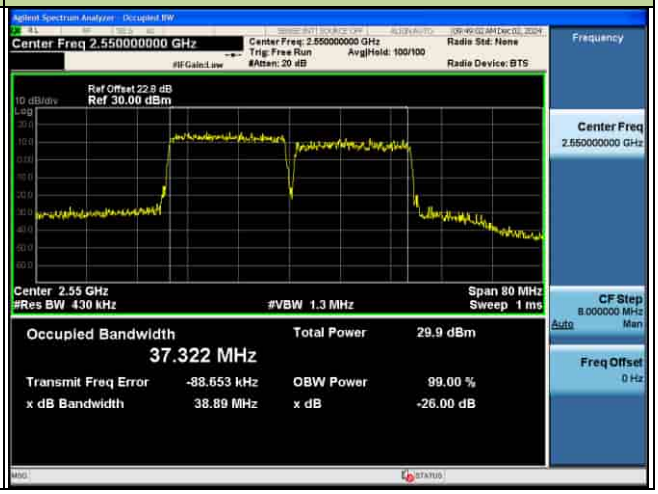
OCC_4G_2ULCA_7C_40M(20M+20M)_16QAM_CH20850+21048



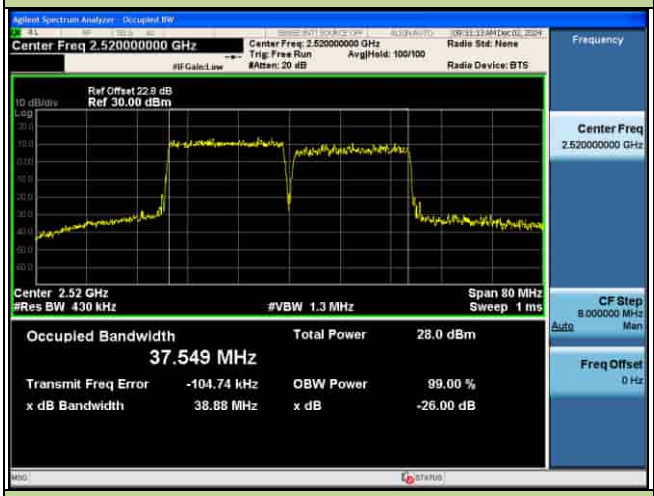
OCC_4G_2ULCA_7C_40M(20M+20M)_16QAM_CH21001+21199



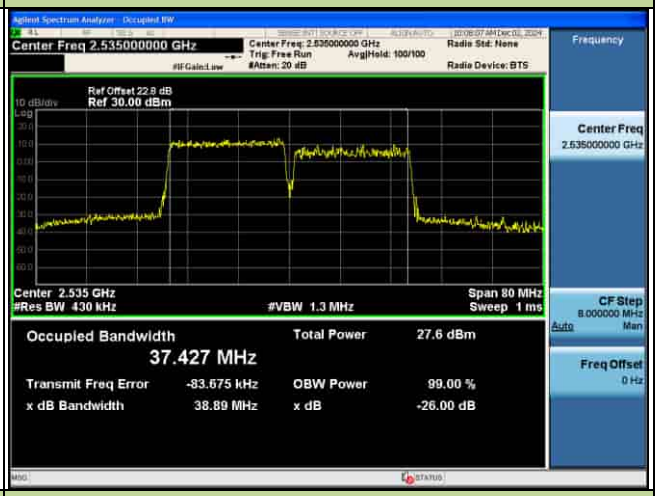
OCC_4G_2ULCA_7C_40M(20M+20M)_16QAM_CH21152+21350



OCC_4G_2ULCA_7C_40M(20M+20M)_64QAM_CH20850+21048

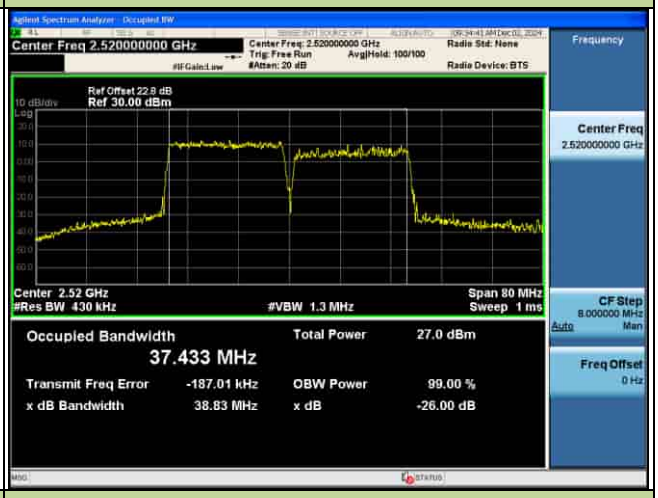


OCC_4G_2ULCA_7C_40M(20M+20M)_64QAM_CH21001+21199

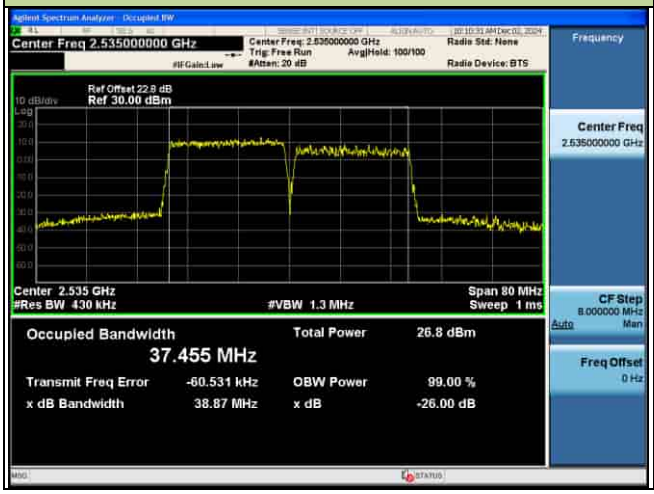


OCC_4G_2ULCA_7C_40M(20M+20M)_64QAM_CH21152+21350

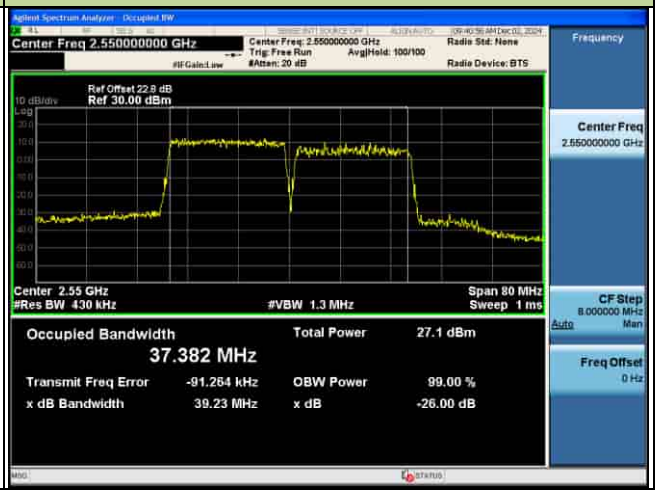
OCC_4G_2ULCA_7C_40M(20M+20M)_256QAM_CH20850+21048



OCC_4G_2ULCA_7C_40M(20M+20M)_256QAM_CH21001+21199

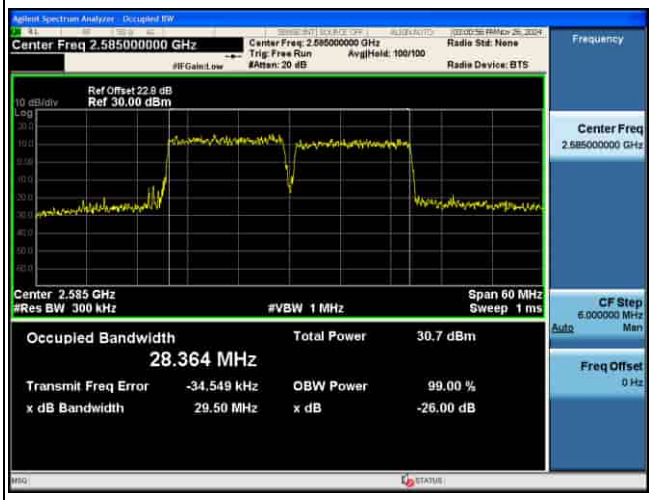
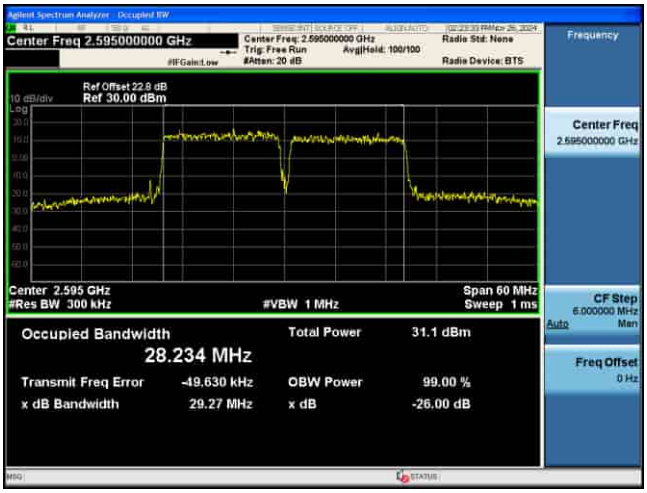
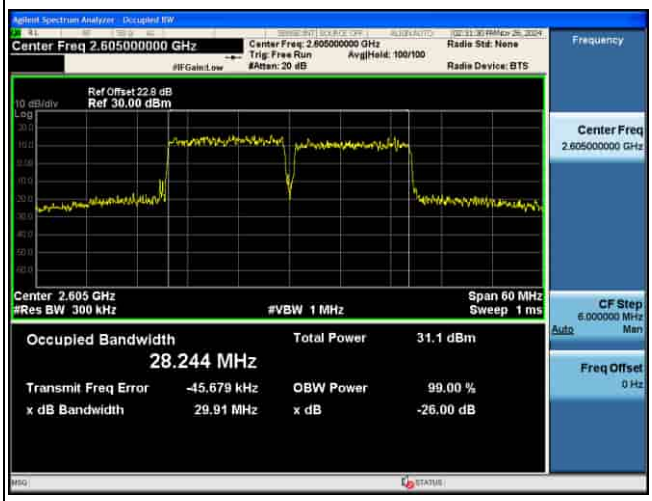
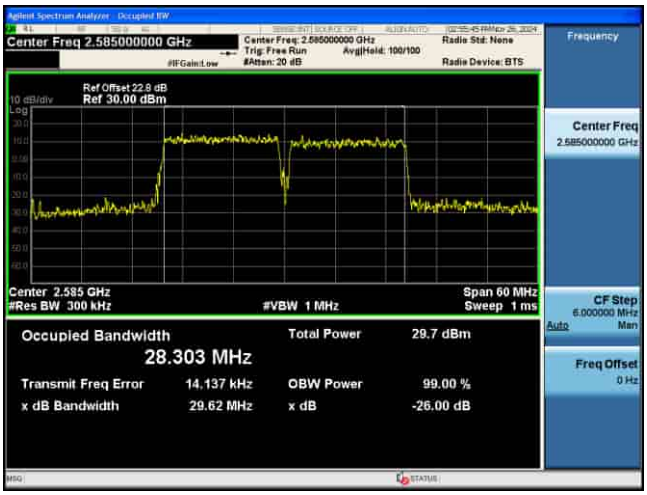
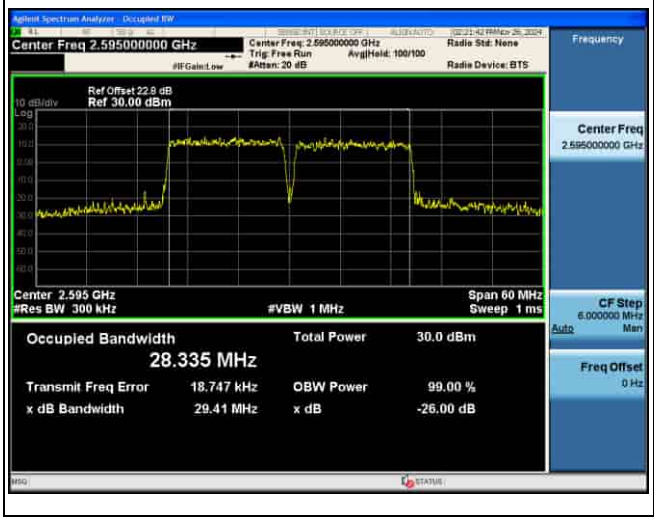
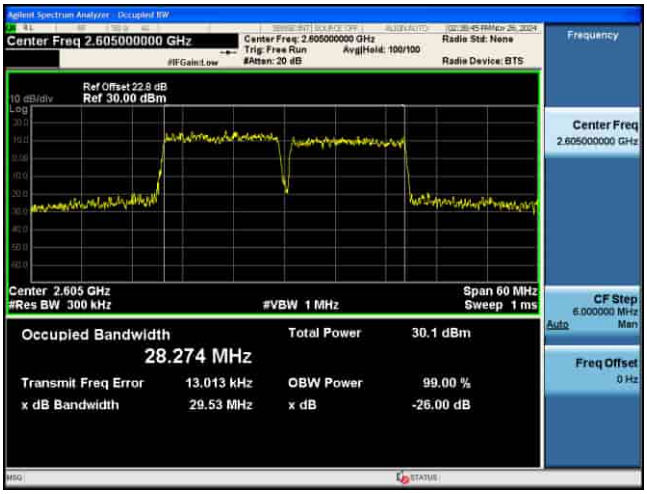


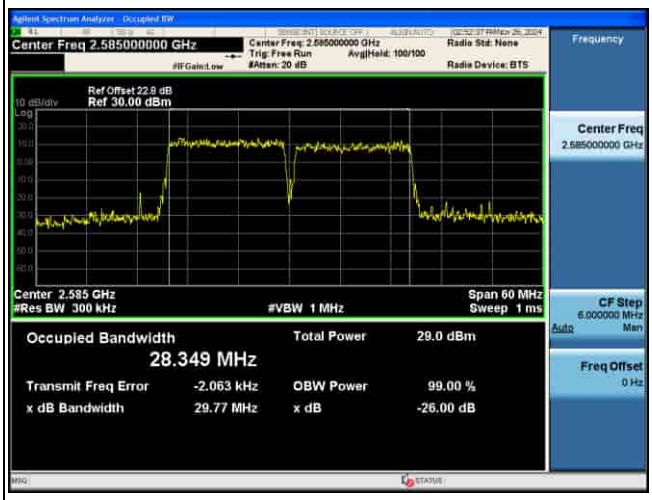
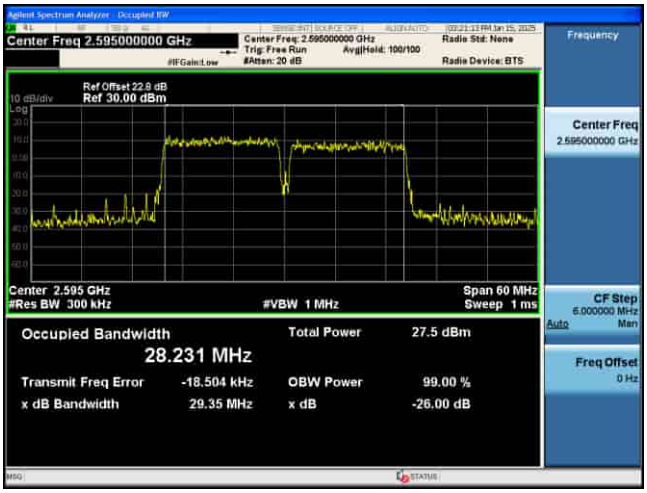
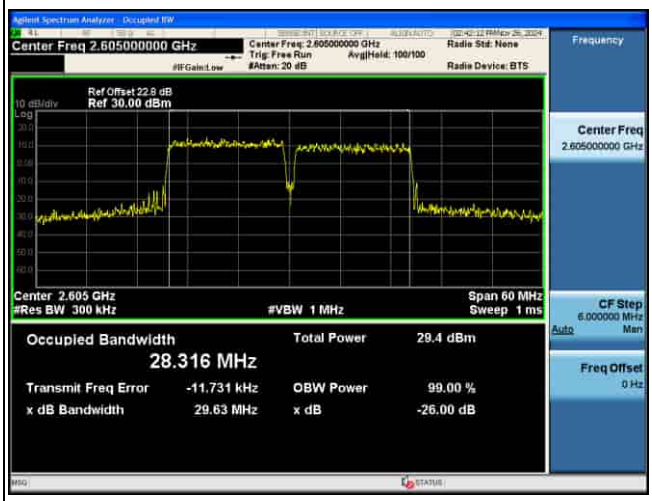
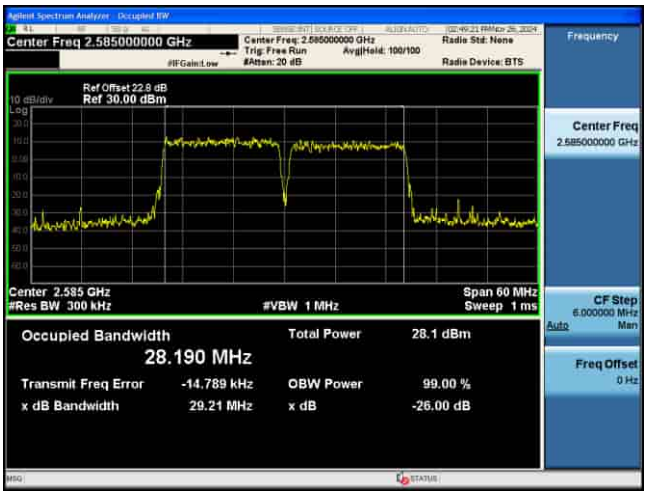
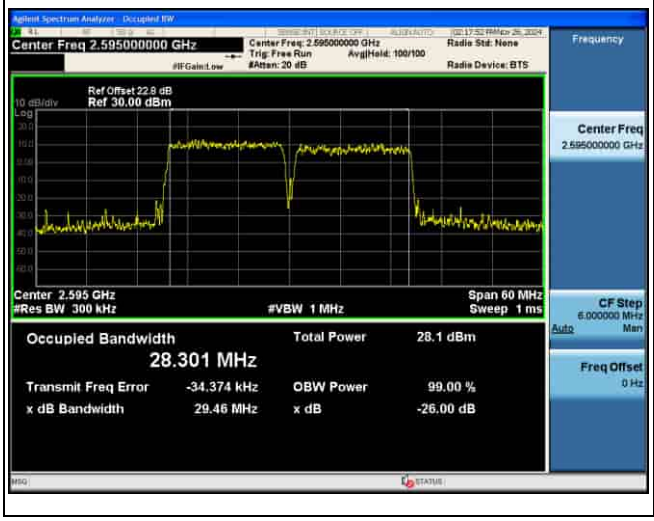
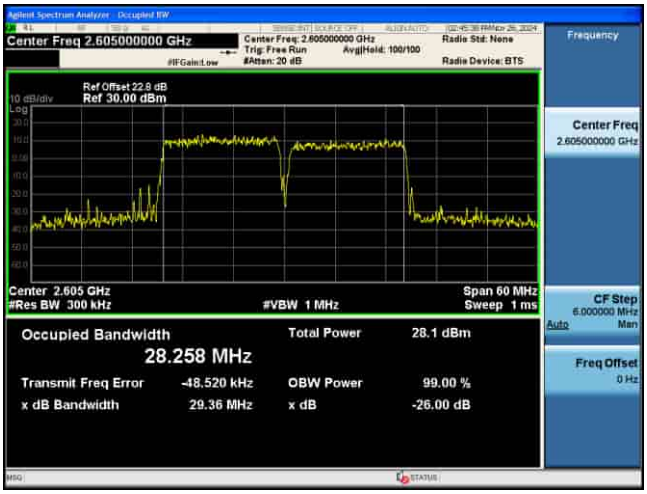
OCC_4G_2ULCA_7C_40M(20M+20M)_256QAM_CH21152+21350

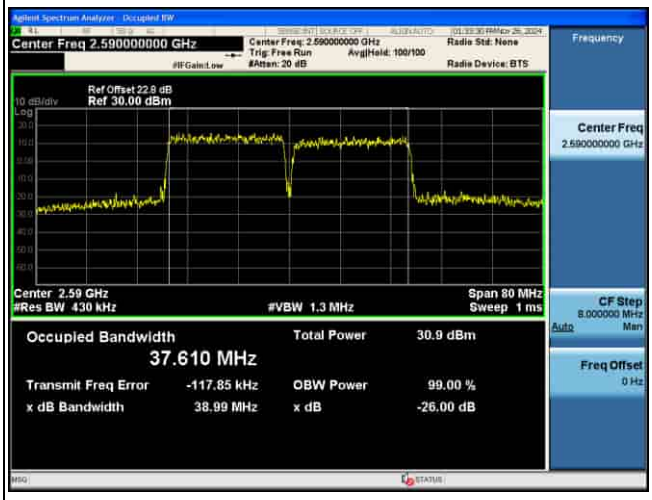
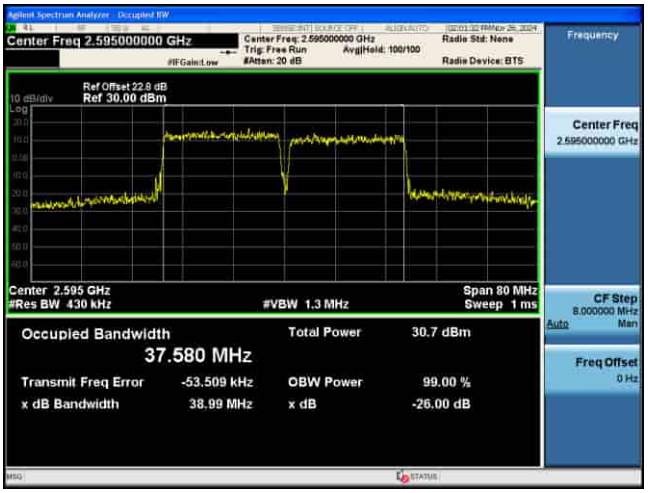
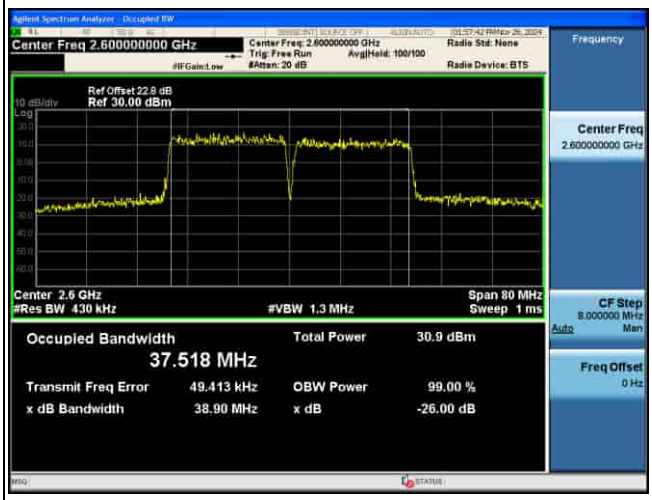
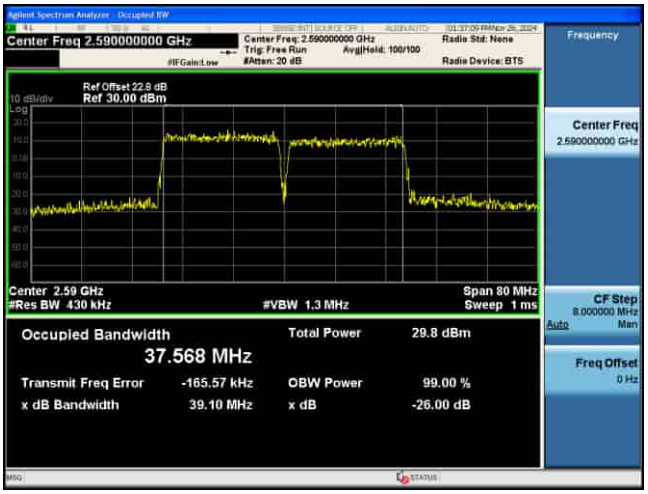
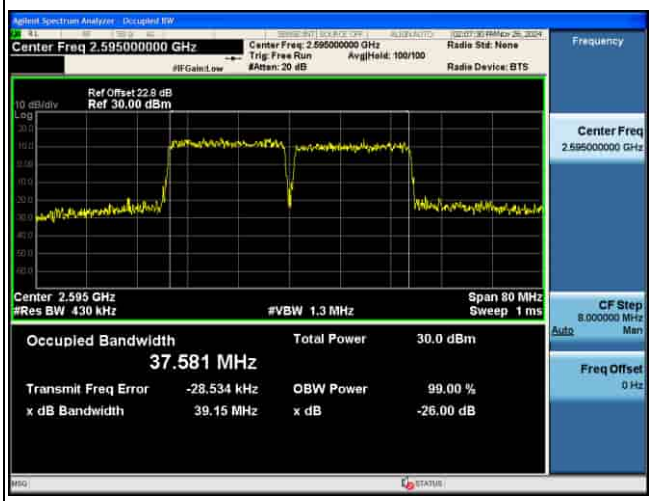
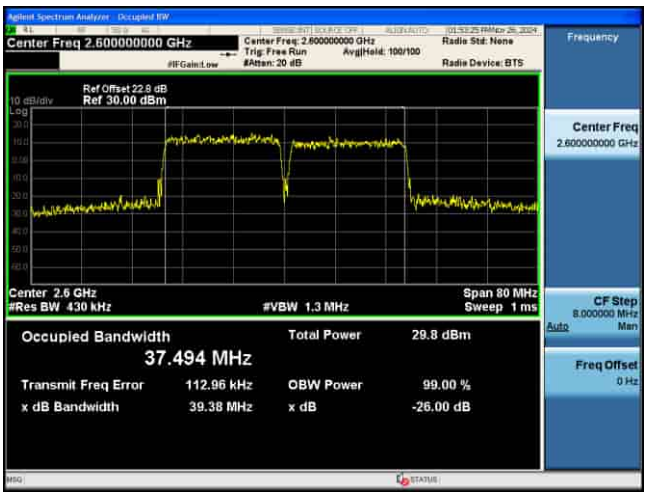


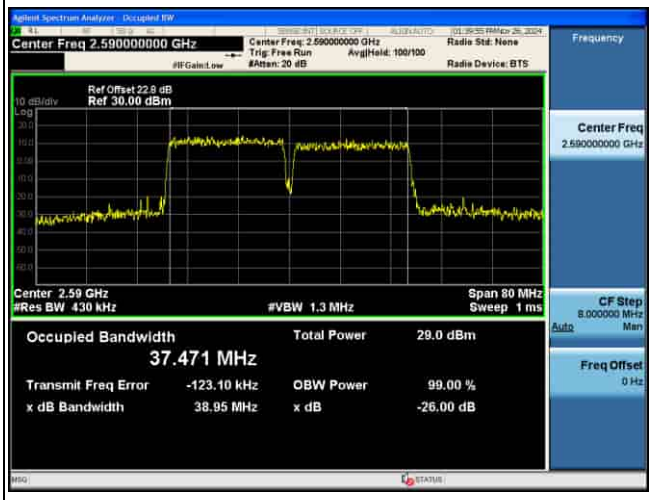
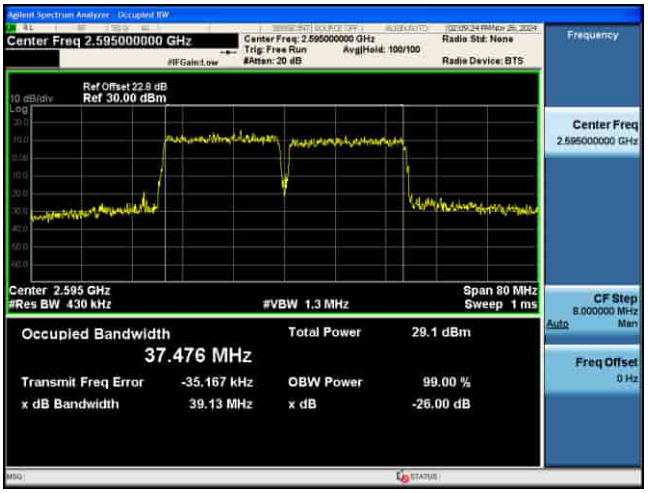
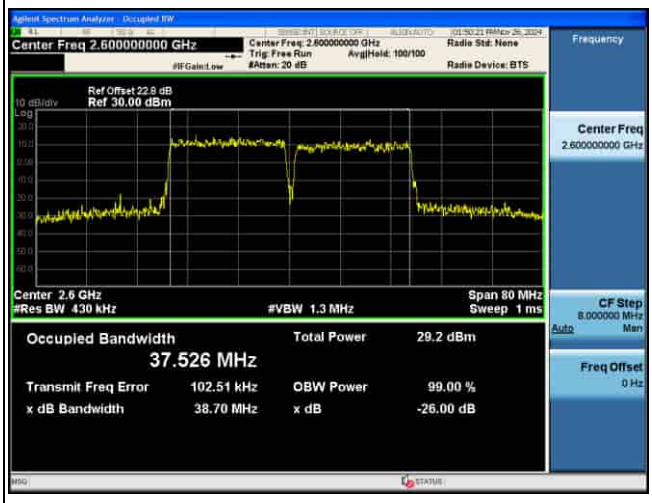
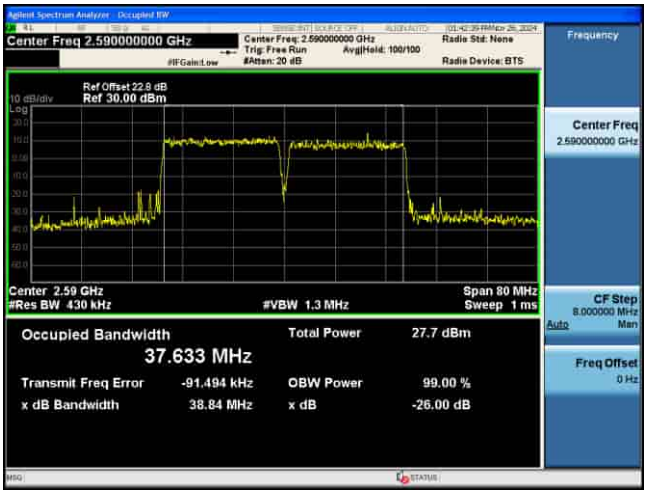
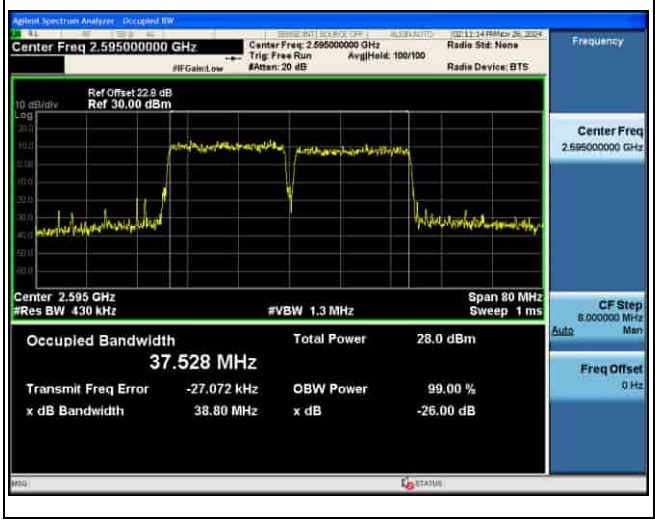
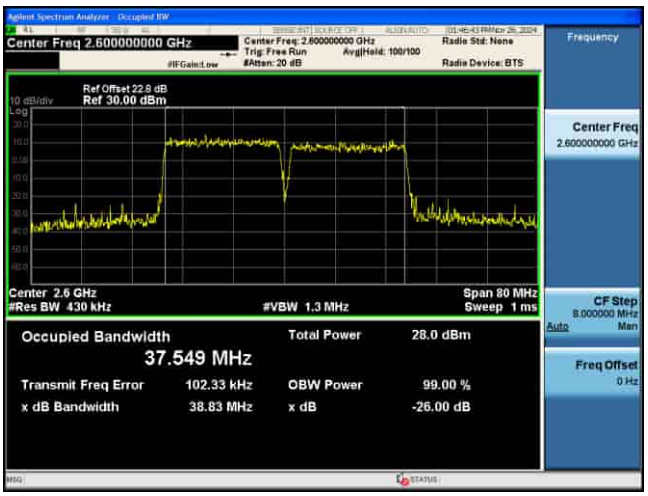
A1.3 LTE 2UL 38C

LTE 2UL_CA_38C												
BW	Frequency (MHz)		Channel		99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
	PCC	SCC	PCC	SCC	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
30MHz (15+15)	2577.5	2592.5	37825	37975	28.364	28.303	28.349	28.190	29.50	29.62	29.77	29.21
	2587.5	2602.5	37925	38075	28.234	28.335	28.231	28.301	29.27	29.41	29.35	29.46
	2597.5	2612.5	38025	38175	28.244	28.274	28.316	28.258	29.91	29.53	29.63	29.36
40MHz (20+20)	2580	2599.8	37850	38048	37.610	37.568	37.471	37.633	38.99	39.10	38.95	38.84
	2585.1	2604.9	37901	38099	37.580	37.581	37.476	37.528	38.99	39.15	39.13	38.80
	2590.2	2610	37952	38150	37.518	37.494	37.526	37.549	38.90	39.38	38.70	38.83

OCC_4G_2ULCA_38C_30M(15M+15M)_.QPSK_CH37825+37975	OCC_4G_2ULCA_38C_30M(15M+15M)_.QPSK_CH37925+38075
	
OCC_4G_2ULCA_38C_30M(15M+15M)_.QPSK_CH38025+38175	OCC_4G_2ULCA_38C_30M(15M+15M)_16QAM_CH37825+37975
	
OCC_4G_2ULCA_38C_30M(15M+15M)_16QAM_CH37925+38075	OCC_4G_2ULCA_38C_30M(15M+15M)_16QAM_CH38025+38175
	

OCC_4G_2ULCA_38C_30M(15M+15M)_64QAM_CH37825+37975	OCC_4G_2ULCA_38C_30M(15M+15M)_64QAM_CH37925+38075
	
OCC_4G_2ULCA_38C_30M(15M+15M)_64QAM_CH38025+38175	OCC_4G_2ULCA_38C_30M(15M+15M)_256QAM_CH37825+37975
	
OCC_4G_2ULCA_38C_30M(15M+15M)_256QAM_CH37925+38075	OCC_4G_2ULCA_38C_30M(15M+15M)_256QAM_CH38025+38175
	

OCC_4G_2ULCA_38C_40M(20M+20M)_.QPSK_CH37850+38048	OCC_4G_2ULCA_38C_40M(20M+20M)_.QPSK_CH37901+38099
	
OCC_4G_2ULCA_38C_40M(20M+20M)_.QPSK_CH37952+38150	OCC_4G_2ULCA_38C_40M(20M+20M)_16QAM_CH37850+38048
	
OCC_4G_2ULCA_38C_40M(20M+20M)_16QAM_CH37901+38099	OCC_4G_2ULCA_38C_40M(20M+20M)_16QAM_CH37952+38150
	

OCC_4G_2ULCA_38C_40M(20M+20M)_64QAM_CH37850+38048	OCC_4G_2ULCA_38C_40M(20M+20M)_64QAM_CH37901+38099
	
OCC_4G_2ULCA_38C_40M(20M+20M)_64QAM_CH37952+38150	OCC_4G_2ULCA_38C_40M(20M+20M)_256QAM_CH37850+38048
	
OCC_4G_2ULCA_38C_40M(20M+20M)_256QAM_CH37901+38099	OCC_4G_2ULCA_38C_40M(20M+20M)_256QAM_CH37952+38150
	

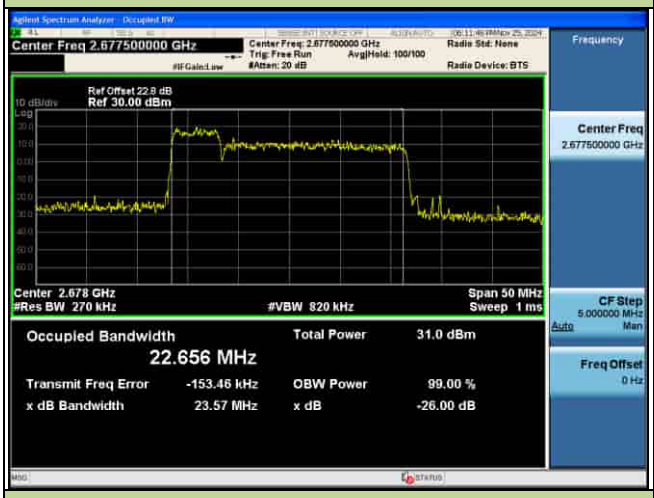
A1.4 LTE 2UL 41C

LTE 2UL_CA_41C												
BW	Frequency (MHz)		Channel		99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
	PCC	SCC	PCC	SCC	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
25MHz (5+20)	2499.3	2511	39683	39800	22.881	22.835	22.857	22.772	23.55	23.72	23.58	23.54
	2583.8	2595.5	40528	40645	22.657	22.790	22.839	22.784	23.63	23.72	23.68	23.55
	2668.3	2680	41373	41490	22.656	22.735	22.787	22.762	23.57	23.48	23.57	23.57
25MHz (10+15)	2501.3	2513.3	39703	39823	23.024	23.091	23.023	23.046	23.84	24.18	23.90	24.06
	2585.9	2597.9	40549	40669	22.974	23.147	22.983	23.033	23.97	24.17	23.99	23.97
	2670.5	2682.5	41395	41515	23.020	22.998	23.019	23.035	23.89	24.81	24.04	24.04
25MHz (15+10)	2503.5	2511	39725	39845	23.007	23.112	23.006	23.063	23.86	24.26	24.20	24.15
	2588.1	2600.1	40571	40691	23.133	23.070	23.115	23.131	24.02	24.59	24.20	24.32
	2672.7	2684.7	41417	41537	23.047	23.044	23.053	23.038	24.67	23.90	24.59	23.98
25MHz (20+5)	2506	2517.7	39750	39867	22.864	22.764	22.766	22.788	23.66	23.68	23.54	23.77
	2590.5	2602.2	40595	40712	22.823	22.771	22.809	22.804	23.69	23.75	23.99	23.90
	2675	2686.7	41440	41557	22.830	22.885	22.806	22.855	23.92	23.58	23.59	23.88
30MHz (10+20)	2501.5	2515.9	39705	39849	27.555	27.639	27.631	27.661	28.54	28.68	28.70	28.80
	2583.6	2598	40526	40670	27.638	27.750	27.565	27.653	28.62	28.81	28.60	28.95
	2665.6	2680	41346	41490	27.645	27.504	27.617	27.513	28.69	28.64	28.76	28.64
30MHz (15+15)	2503.5	2518.5	39725	39875	28.167	28.101	28.303	28.214	29.22	29.57	29.24	29.30
	2585.5	2600.5	40545	40695	28.280	28.187	28.279	28.235	29.30	29.39	29.38	29.42
	2667.5	2682.5	41365	41515	28.208	28.226	28.146	28.303	29.50	29.27	29.19	29.23
30MHz (20+10)	2506	2520.4	39750	39894	27.738	27.643	27.640	27.635	28.86	28.63	28.69	29.13
	2588.1	2602.5	40571	40715	27.772	27.703	27.668	27.805	28.79	29.09	28.88	28.82
	2670.1	2684.5	41391	41535	27.696	27.711	27.681	27.666	29.16	29.24	29.06	28.66
35MHz (15+20)	2503.8	2520.9	39728	39899	32.540	32.646	32.433	32.631	33.87	33.99	33.89	33.64
	2583.3	2600.4	40523	40694	32.595	32.673	32.554	32.538	33.83	33.65	33.95	33.96
	2662.9	2680	41319	41490	32.477	32.602	32.614	32.543	33.82	34.02	33.92	33.98
35MHz (20+15)	2506	2523.1	39750	39921	32.555	32.566	32.495	32.712	34.01	33.75	33.90	33.82
	2583.1	2602.9	40546	40717	32.570	32.557	32.634	32.628	34.04	34.03	34.16	33.99
	2665.1	2682.2	41341	41512	32.409	32.548	32.526	32.558	34.10	34.34	33.96	33.94
40MHz (20+20)	2506	2525.8	39750	39948	37.456	37.461	37.549	37.369	38.87	38.84	38.83	39.83
	2583.1	2602.9	40521	40719	37.557	37.404	37.521	37.515	39.07	39.07	38.71	38.97
	2660.2	2680	41292	41490	37.428	37.472	37.428	37.406	39.05	39.05	39.06	39.19

OCC_4G_2ULCA_41C_25M(5M+20M)_.QPSK_CH39683+39800

OCC_4G_2ULCA_41C_25M(5M+20M)_.QPSK_CH40528+40645

OCC_4G_2ULCA_41C_25M(5M+20M)_.QPSK_CH41373+41490



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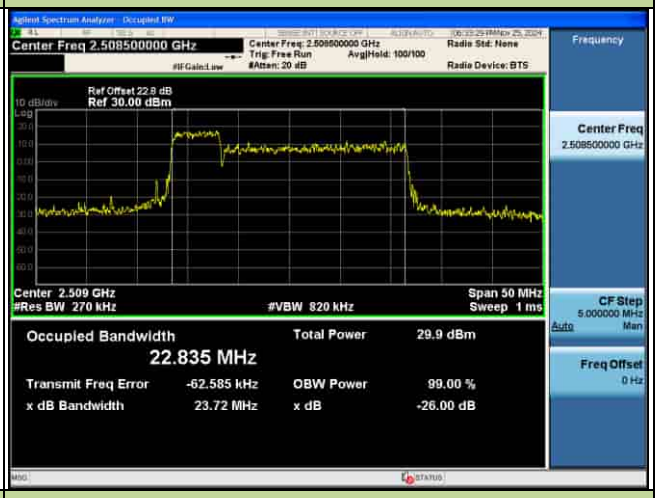

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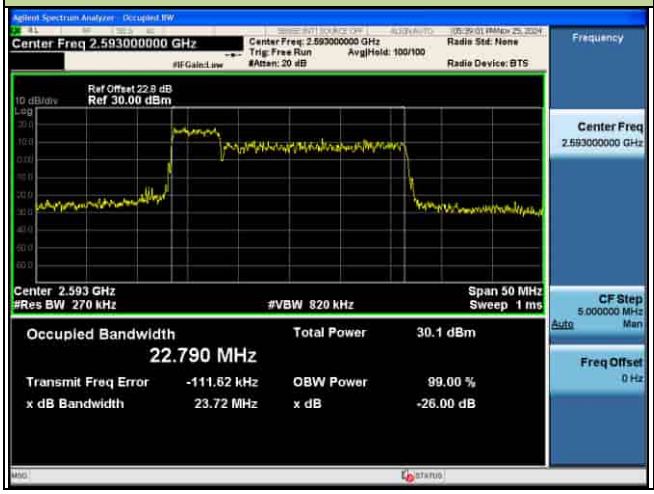

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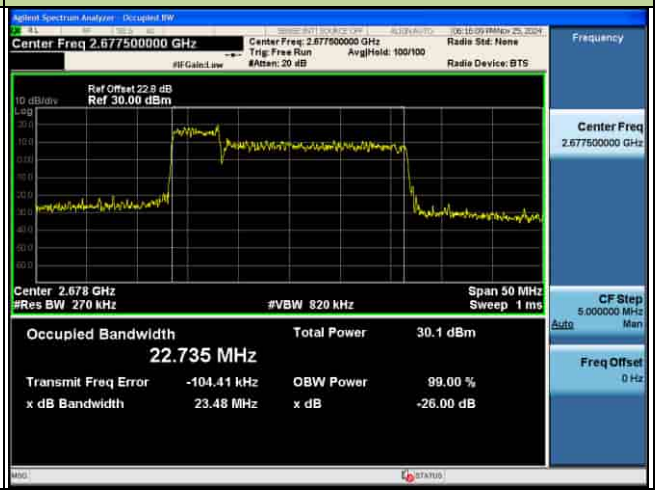

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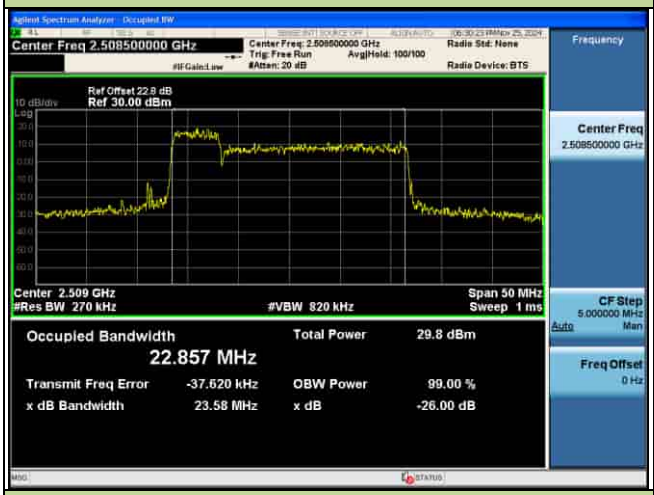

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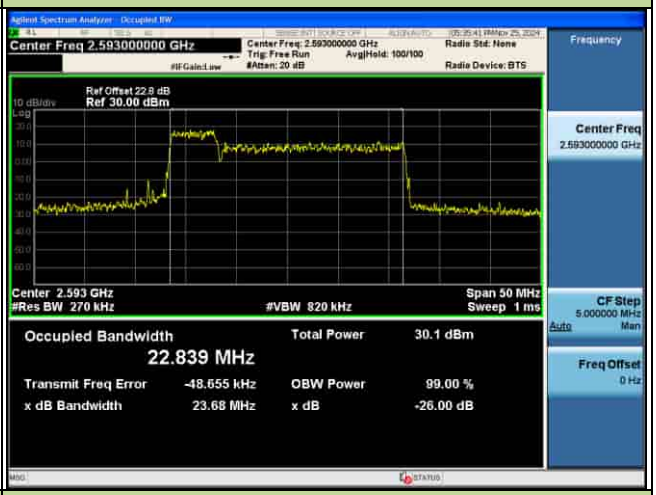

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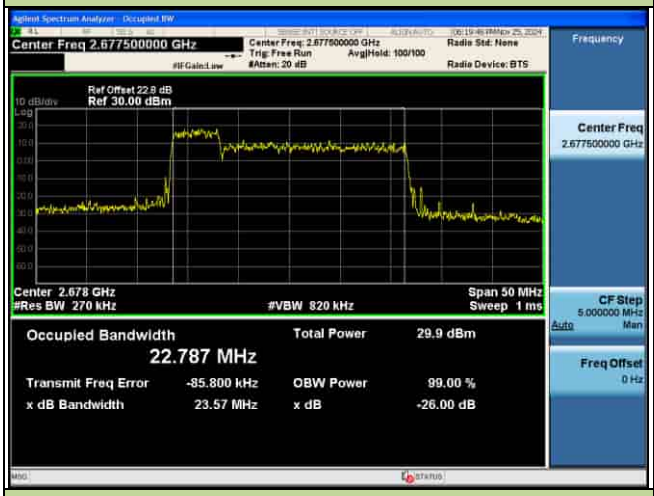

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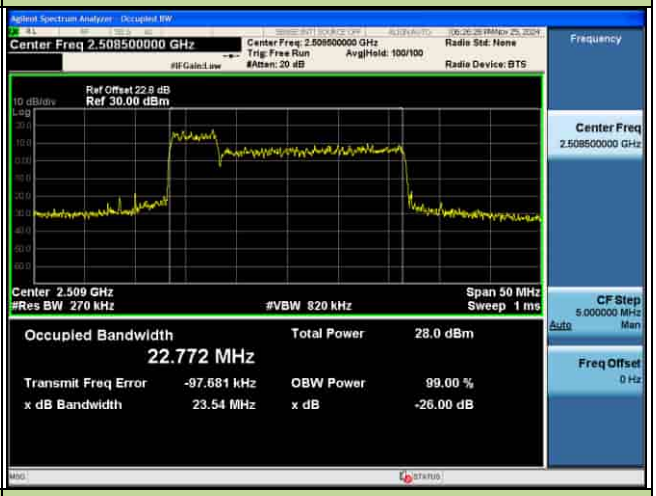

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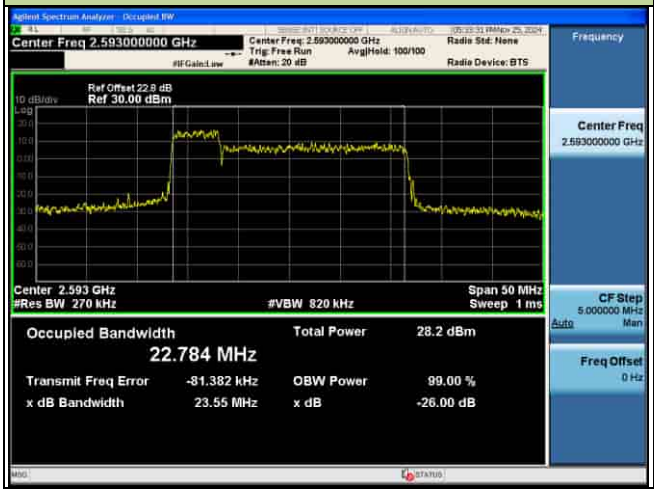

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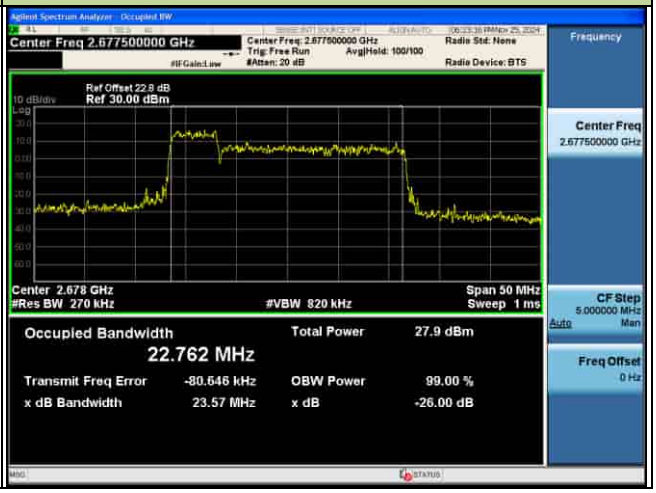
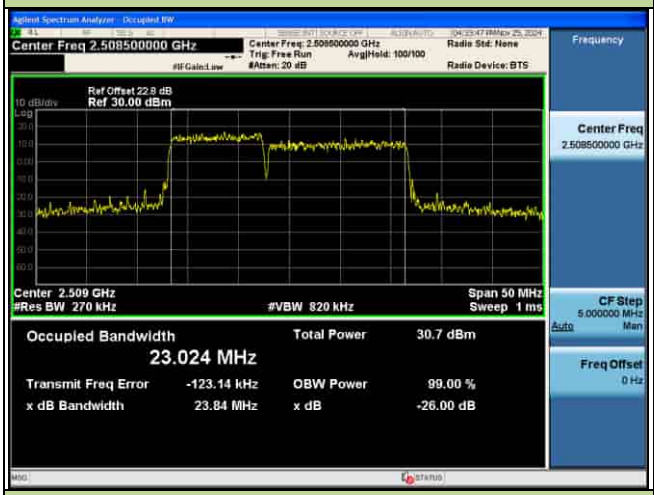
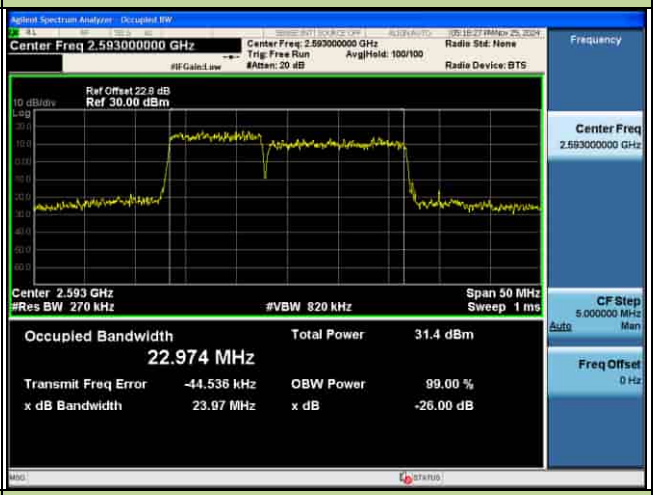
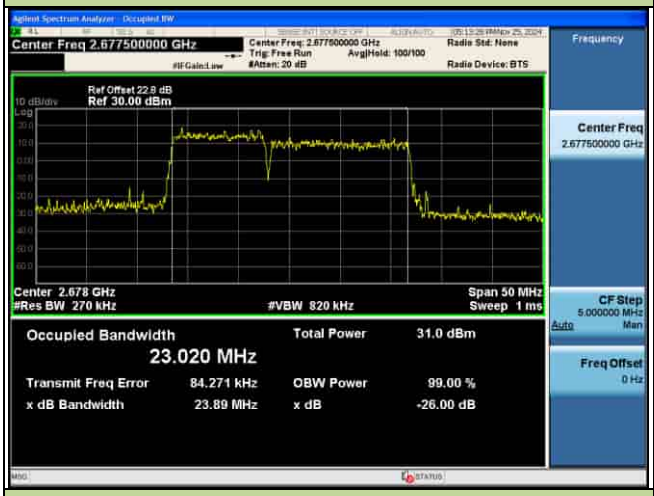
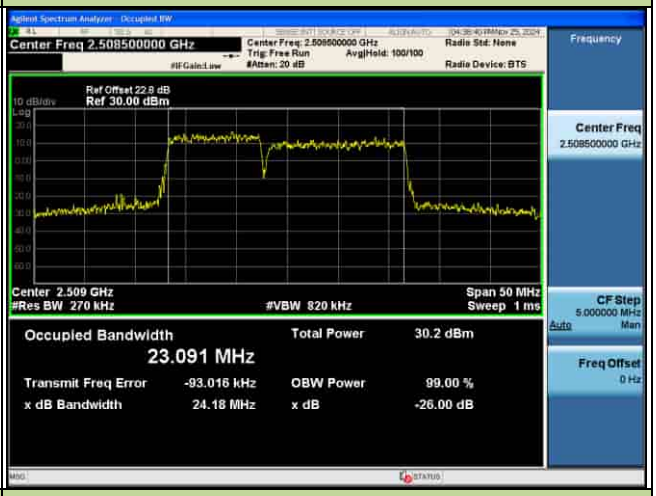
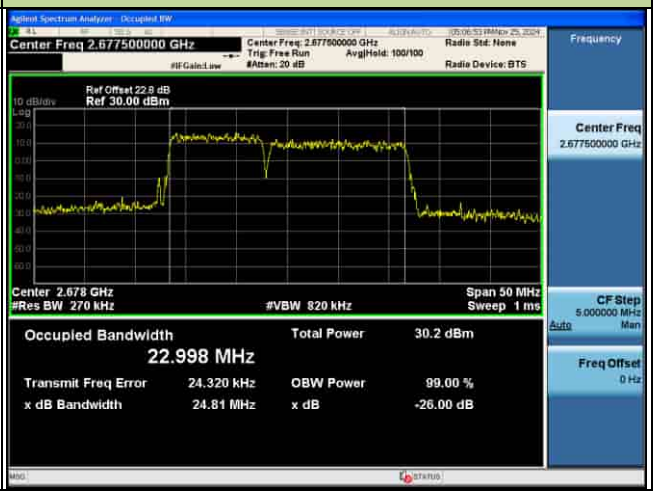
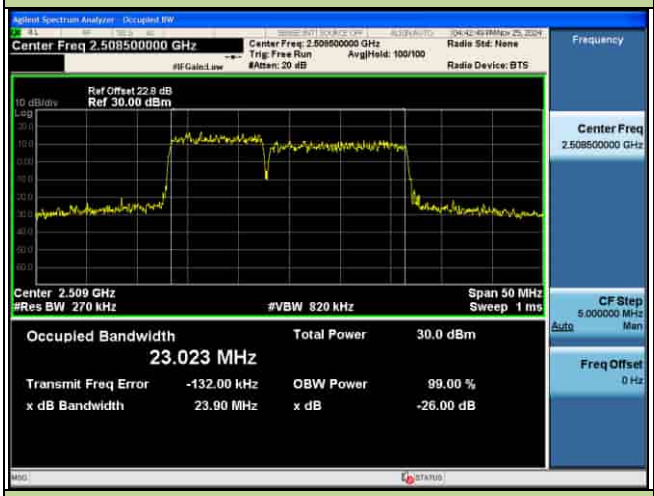
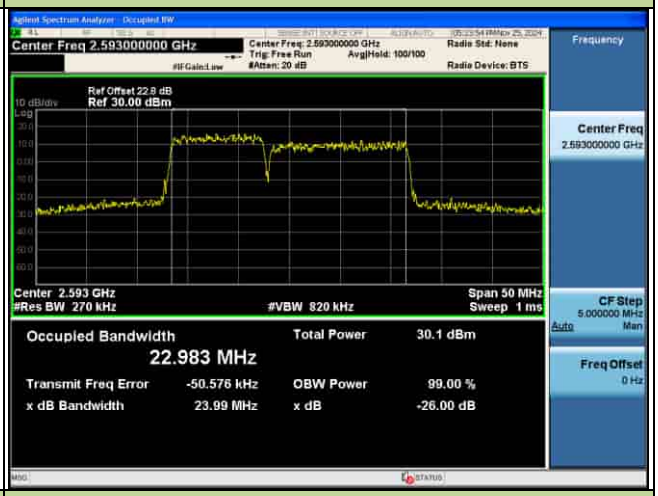


OCC_4G_2ULCA_41C_25M(10M+15M)_.QPSK_CH39703+39823	OCC_4G_2ULCA_41C_25M(10M+15M)_.QPSK_CH40549+40669
	
OCC_4G_2ULCA_41C_25M(10M+15M)_.QPSK_CH41395+41515	OCC_4G_2ULCA_41C_25M(10M+15M)_16QAM_CH39703+39823
	
OCC_4G_2ULCA_41C_25M(10M+15M)_16QAM_CH40549+40669	OCC_4G_2ULCA_41C_25M(10M+15M)_16QAM_CH41395+41515
	

OCC_4G_2ULCA_41C_25M(10M+15M)_64QAM_CH39703+39823



OCC_4G_2ULCA_41C_25M(10M+15M)_64QAM_CH40549+40669



OCC_4G_2ULCA_41C_25M(10M+15M)_64QAM_CH41395+41515

OCC_4G_2ULCA_41C_25M(10M+15M)_256QAM_CH39703+39823

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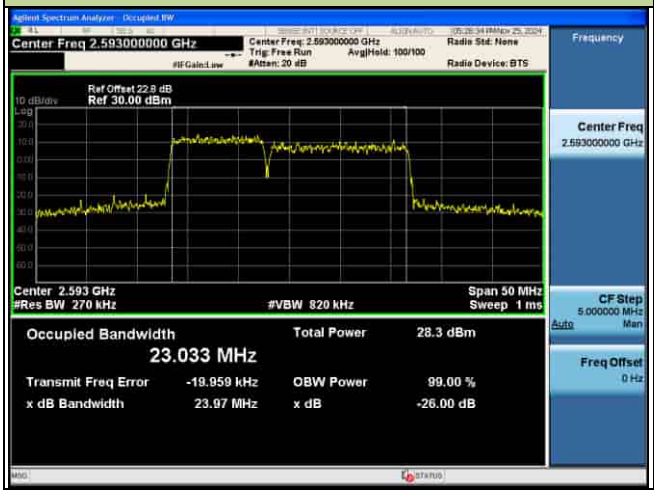

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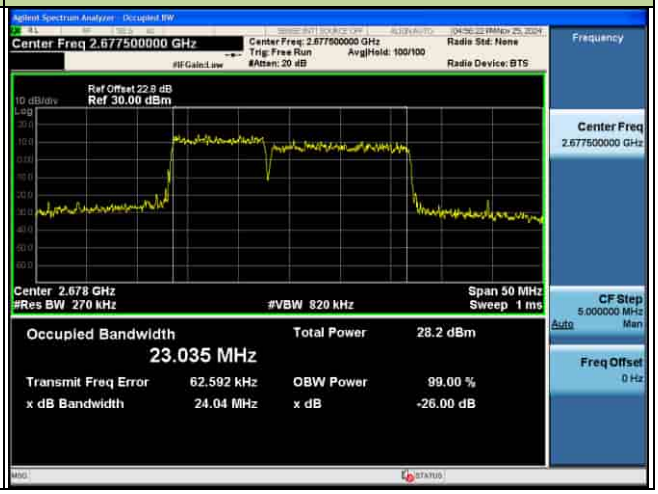

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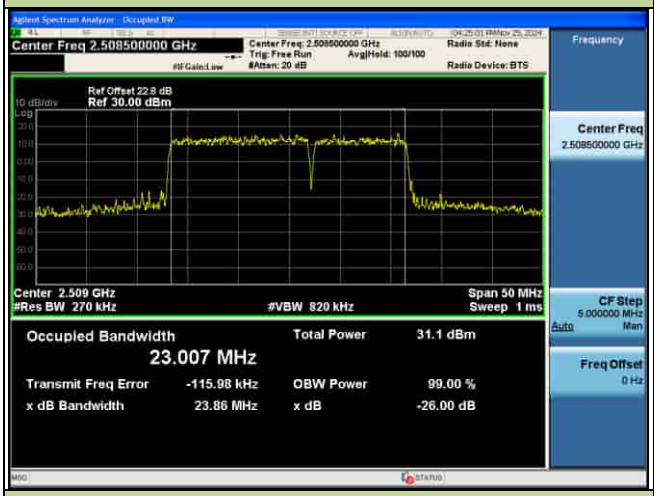

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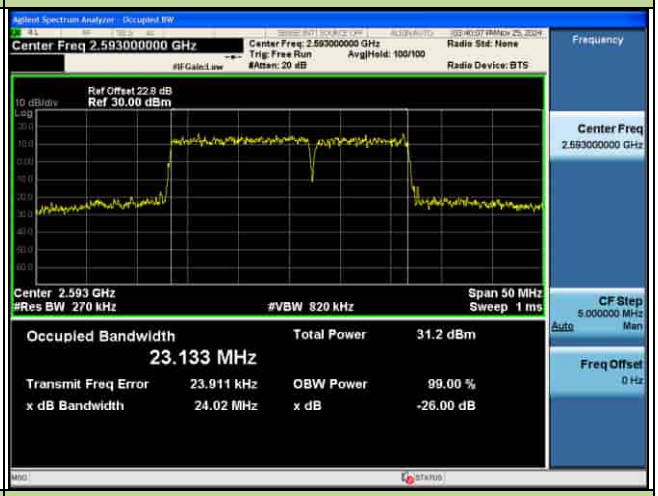

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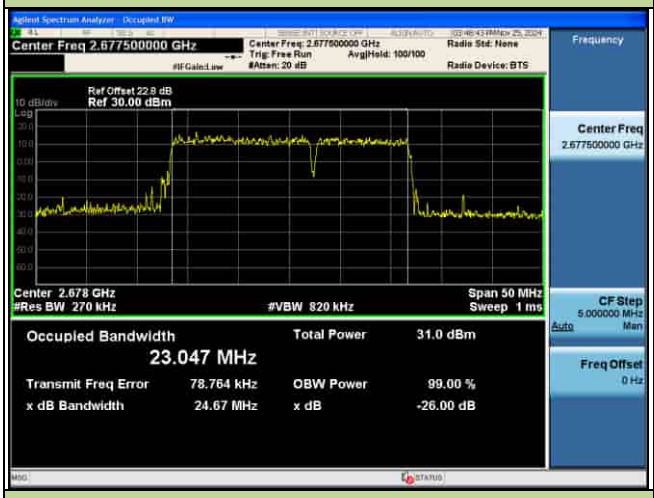

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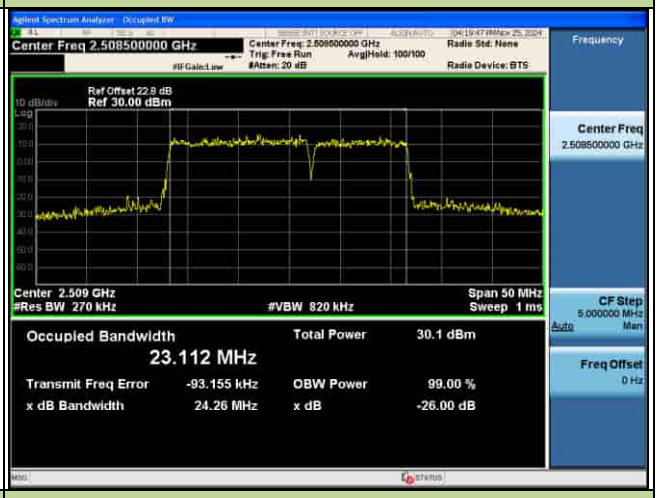

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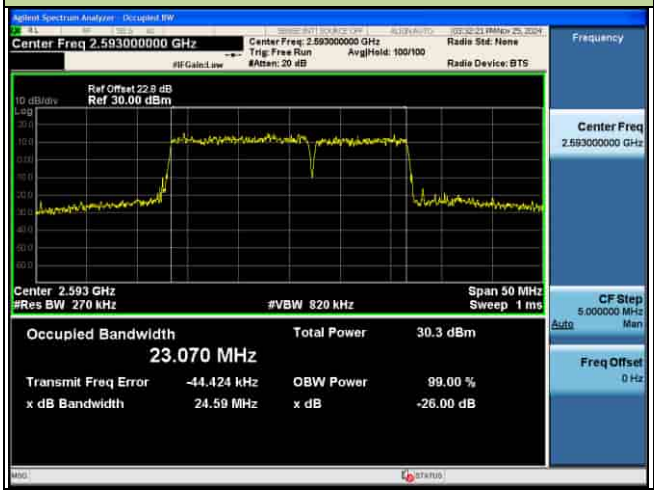

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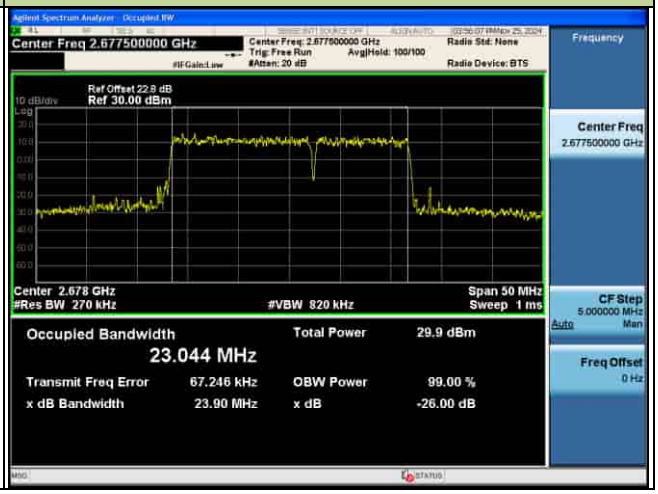
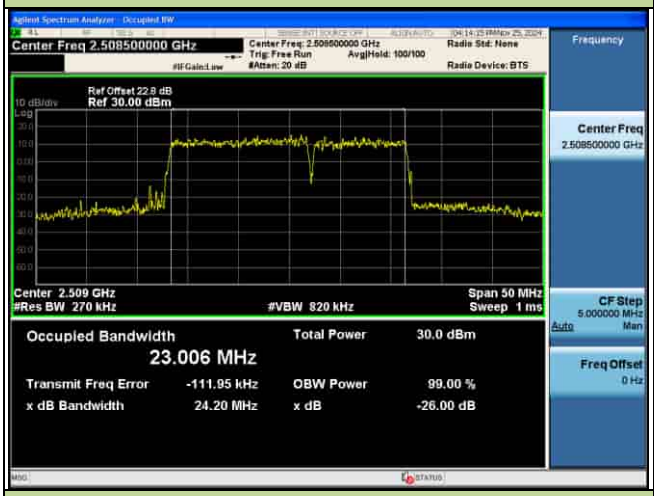
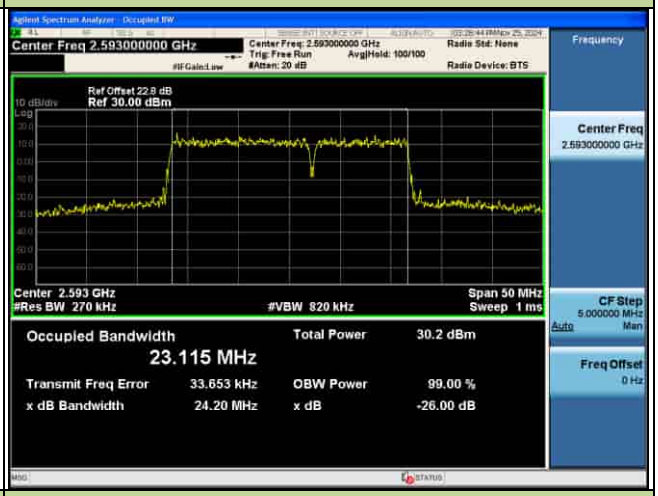


OCC_4G_2ULCA_41C_25M(15M+10M)_64QAM_CH39725+39845



OCC_4G_2ULCA_41C_25M(15M+10M)_64QAM_CH40571+40691



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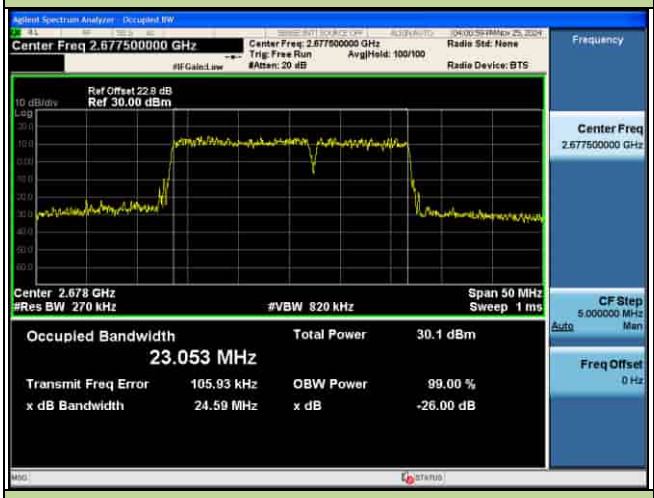

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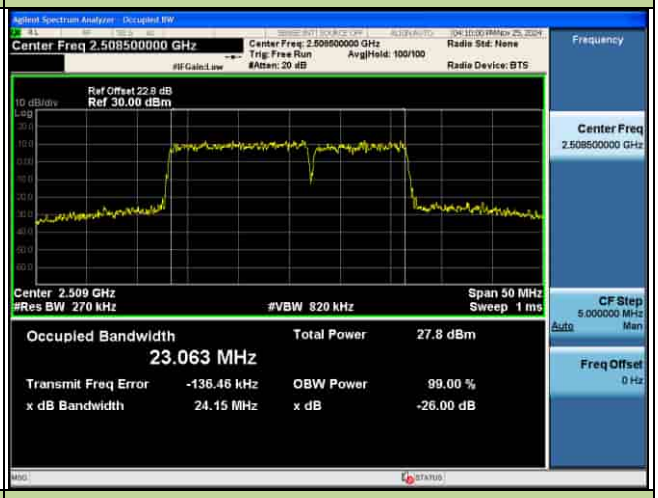

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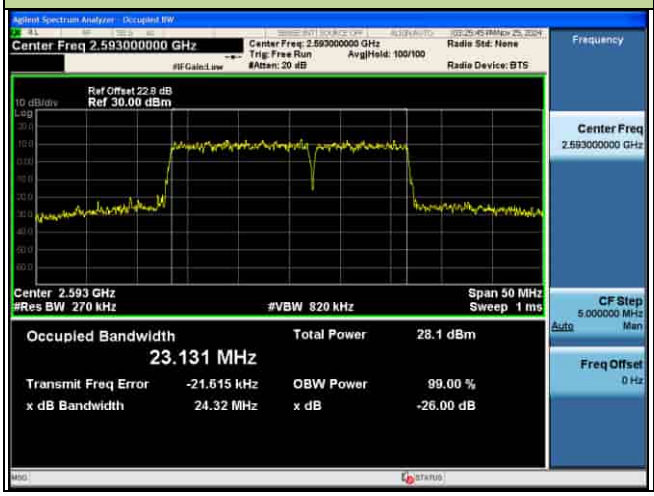
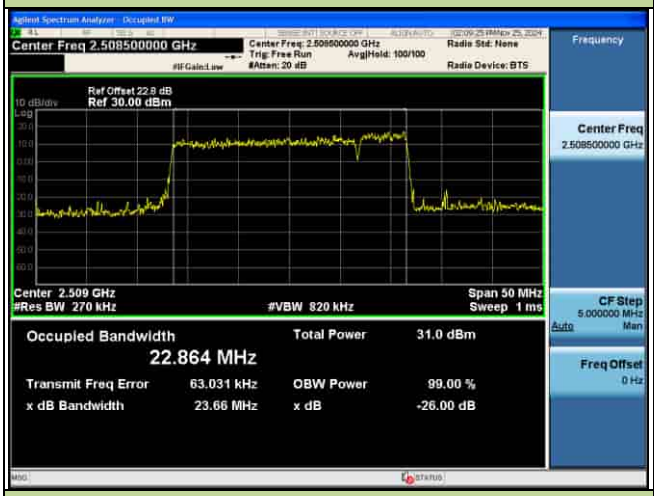


OCC_4G_2ULCA_41C_25M(15M+10M)_256QAM_CH41417+41537

OCC_4G_2ULCA_41C_25M(20M+5M)_.QPSK_CH39750+39867



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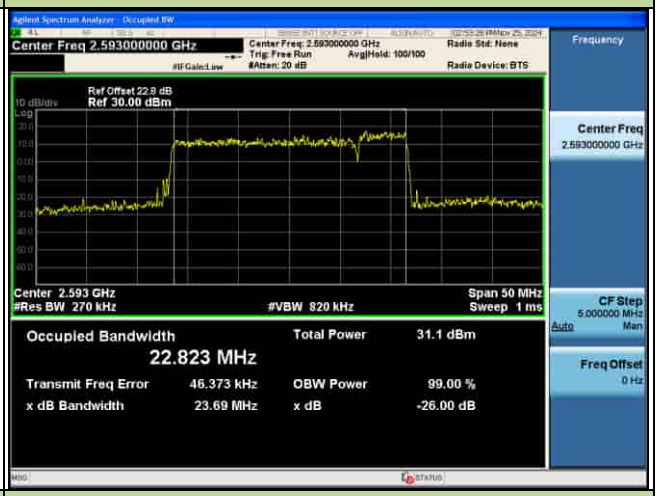

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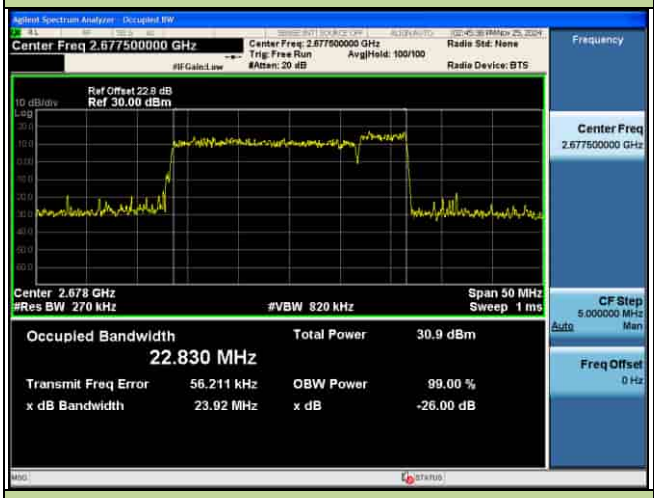

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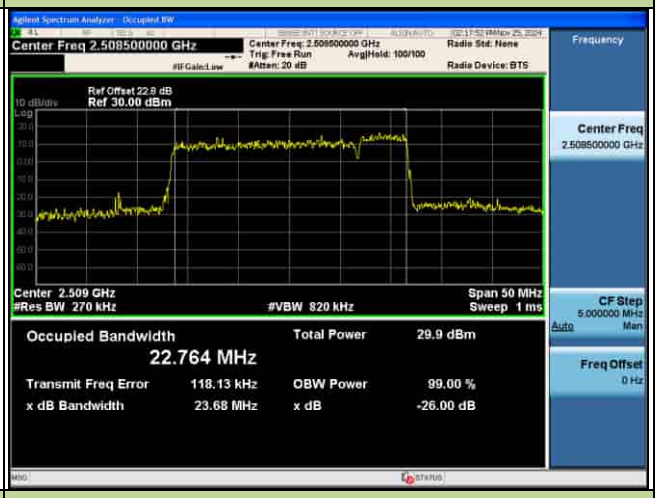

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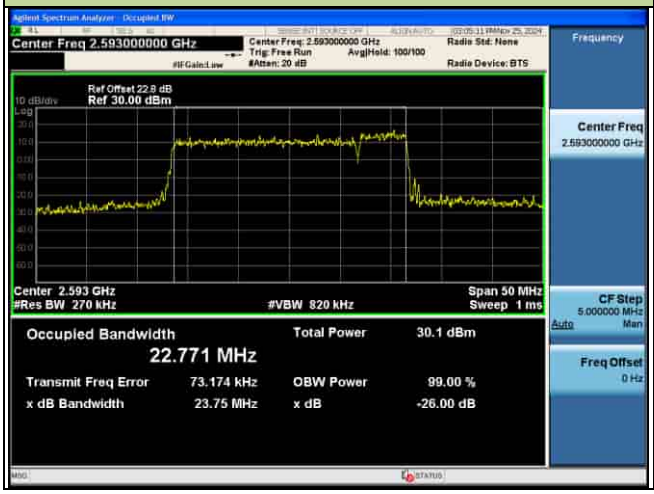

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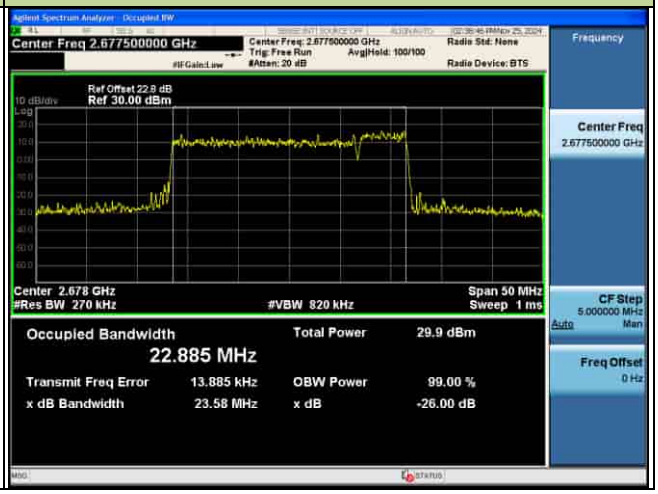

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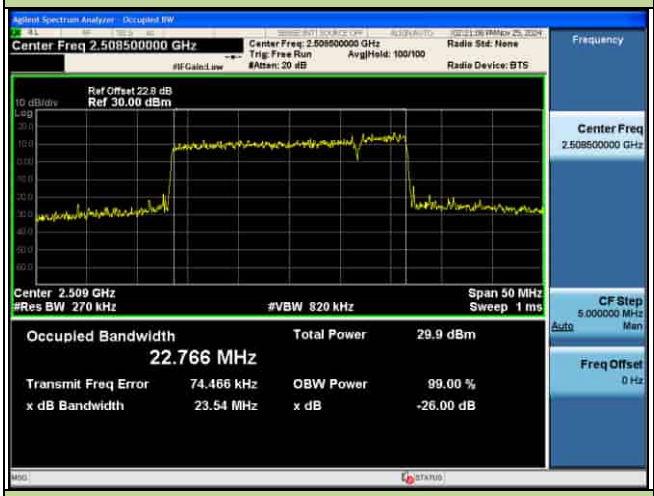

OCC_4G_2ULCA_41C_25M(20M+5M)_64QAM_CH40595+40712

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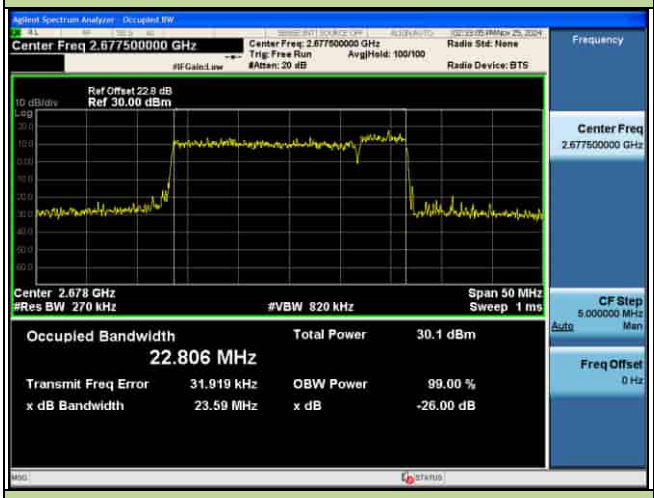

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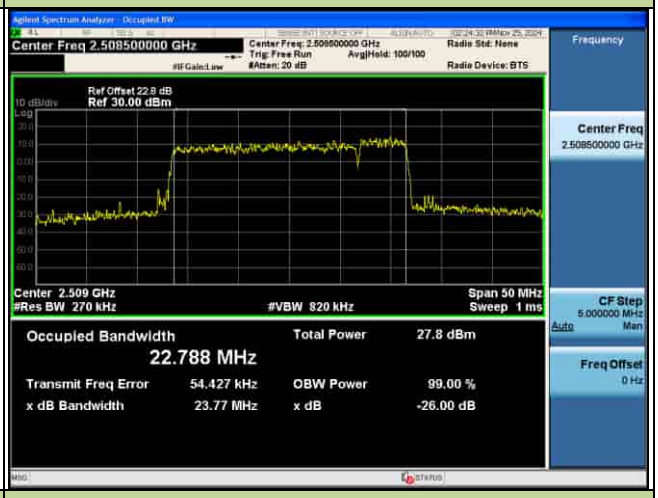
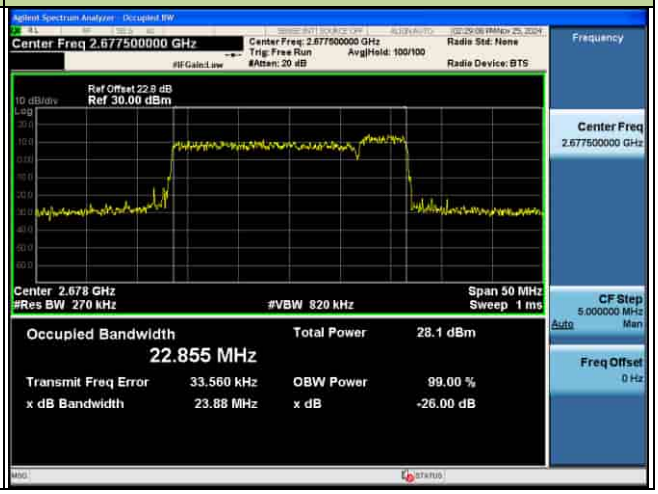


OCC_4G_2ULCA_41C_25M(20M+5M)_256QAM_CH40595+40712

OCC_4G_2ULCA_41C_25M(20M+5M)_256QAM_CH41440+41557



OCC_4G_2ULCA_41C_30M(10M+20M)_.QPSK_CH39705+39849

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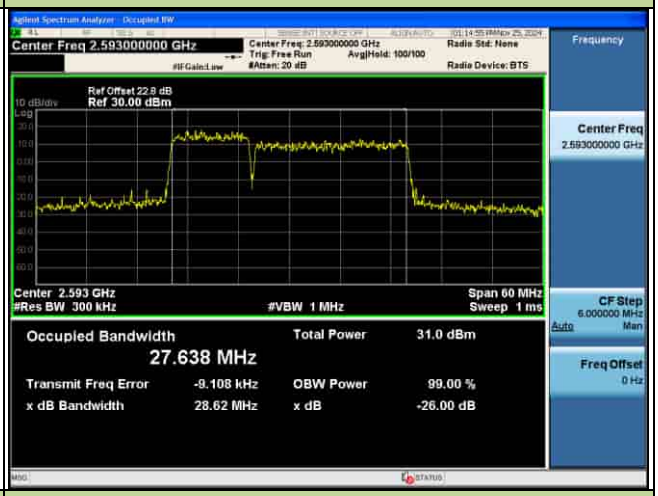

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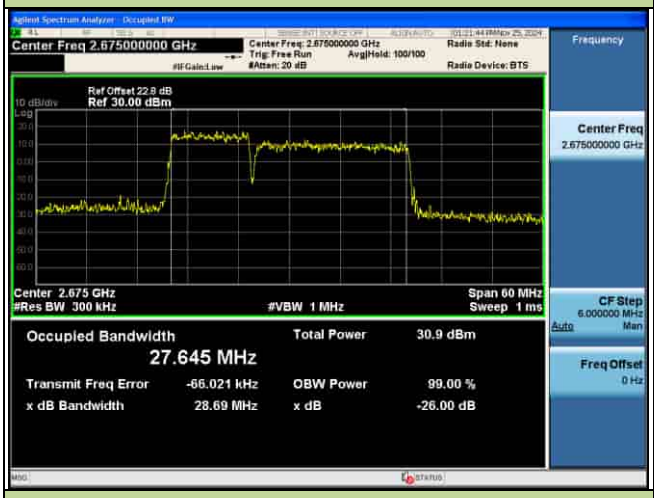

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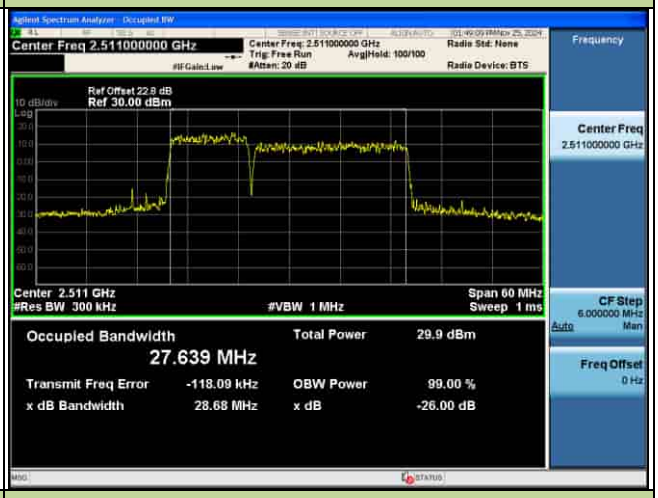

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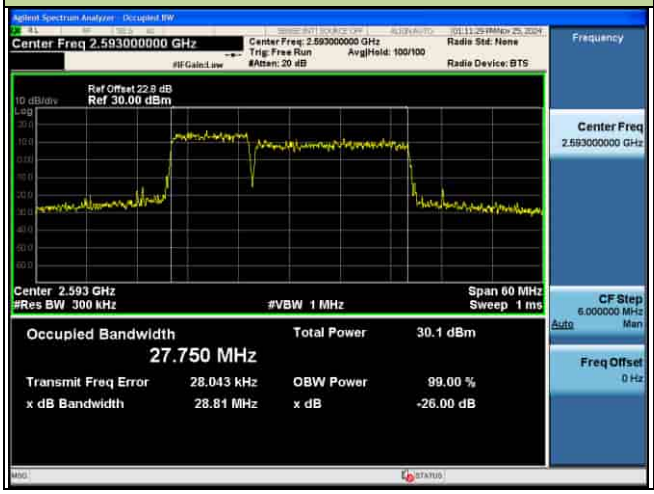

OCC_4G_2ULCA_41C_30M(10M+20M)_16QAM_CH41346+41490