



MRT Technology (Taiwan) Co., Ltd
Phone: +886-3-3288388
Fax: +886-3-3288918
Web: www.mrt-cert.com

Report No.: 2408TW0104-U15
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 : Citizens Band End User Devices (CBE)
FCC Rule Part(s) : Part2, Part96
Test Procedure(s) : ANSI C63.26 2015
Received Date : August 5, 2024
Test Date : November 11, 2024~January 15, 2025

Tested By : 
(Wen Lee)

Reviewed By : 
(Paddy Chen)

Approved By : 
(Chenz Ker)



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-U15	1.0	Original Report	2025-01-16	

CONTENTS

Description	Page
1. INTRODUCTION	6
1.1. Scope	6
1.2. MRT Test Location	6
1.3. Product Information	7
1.4. Radio Specification under Testing	8
1.5. Description of Available Antennas	9
1.6. Test Methodology	9
2. DESCRIPTION OF TEST	10
2.1. Summary	10
2.2. Occupied Bandwidth	12
2.3. Frequency Stability / Temperature Variation	12
2.4. Conducted Output Power Measurement	13
2.5. Peak-Average Ratio	13
2.6. Spurious and Harmonic Emissions at Antenna Terminal	14
2.7. Conducted and Radiated Spurious Emissions	15
3. TEST EQUIPMENT CALIBRATION DATE	16
4. Decision Rules and Measurement Uncertainty	17
4.1. Decision Rules	17
4.2. Measurement Uncertainty	17
5. TEST RESULT	18
5.1. Summary	18
5.2. Occupied Bandwidth	24
5.3. Frequency Stability Under Temperature & Voltage Variations	25
5.4. Transmitter Output Power Measurement	26
5.5. Transmitter unwanted emissions (band-edge) Measurement	28
5.6. Transmitter unwanted emissions (spurious) Measurement	30
5.7. Radiated Spurious Emissions Measurement	32
Appendix A : TEST RESULT DATA	34
A1. Occupied Bandwidth Test Result	34
A1.1 LTE Band 48 (Cover Band 43)	34
A1.2 NR n48	43
A1.3 LTE 2UL 48C	57
A2. Frequency Stability Test Result	73

A2.1 LTE Band 48 (Cover Band 43)	73
A2.2 NR n48.....	74
A3. Transmitter Output Power Test Result	75
A3.1 LTE Band 48 (Cover Band 43)	75
A3.2 NR n48.....	77
A3.3 NR n48_MIMO	79
A3.4 LTE 2UL 48C.....	82
A3.5 LTE Band 48	85
A4. Transmitter unwanted emissions (band-edge) Test Result	87
A4.1 LTE Band 48 (Cover Band 43)	87
A4.2 NR n48.....	91
A4.3 NR n48_MIMO	99
A4.4 LTE 2UL 48C.....	106
A4.5 LTE Band 48	134
A5. Transmitter unwanted emissions (spurious) Test Result	150
A5.1 LTE Band 48 (Cover Band 43)	150
A5.2 NR n48.....	166
A5.3 NR n48_MIMO	191
A6. Radiated Spurious Emissions Test Result	211
A6.1 LTE Band 48 (Cover Band 43)	211
A6.2 NR n48.....	212
A6.3 NR n48_MIMO	213
A6.4 NR n48 30KHz For Spot Check Data_SN_24295D8034	214
A6.5 NR n48 30KHz For Spot Check Data_SN_24296D82F9	215
A6.6 ENDC_ LTE_B48 (Ant5) + NR_n66 (Ant1) SCS 15KHz	216
A6.7 ENDC_ LTE_B48 (Ant5) + NR_n66 (Ant1) SCS 15KHz_SN_24295D8034	217
A6.8 ENDC_ LTE_B48 (Ant5) + NR_n66 (Ant1) SCS 15KHz_SN_24296D82F9	218
Appendix B : Test Photograph.....	219
Appendix C : External Photograph.....	219
Appendix D : Internal Photograph.....	219

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 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.

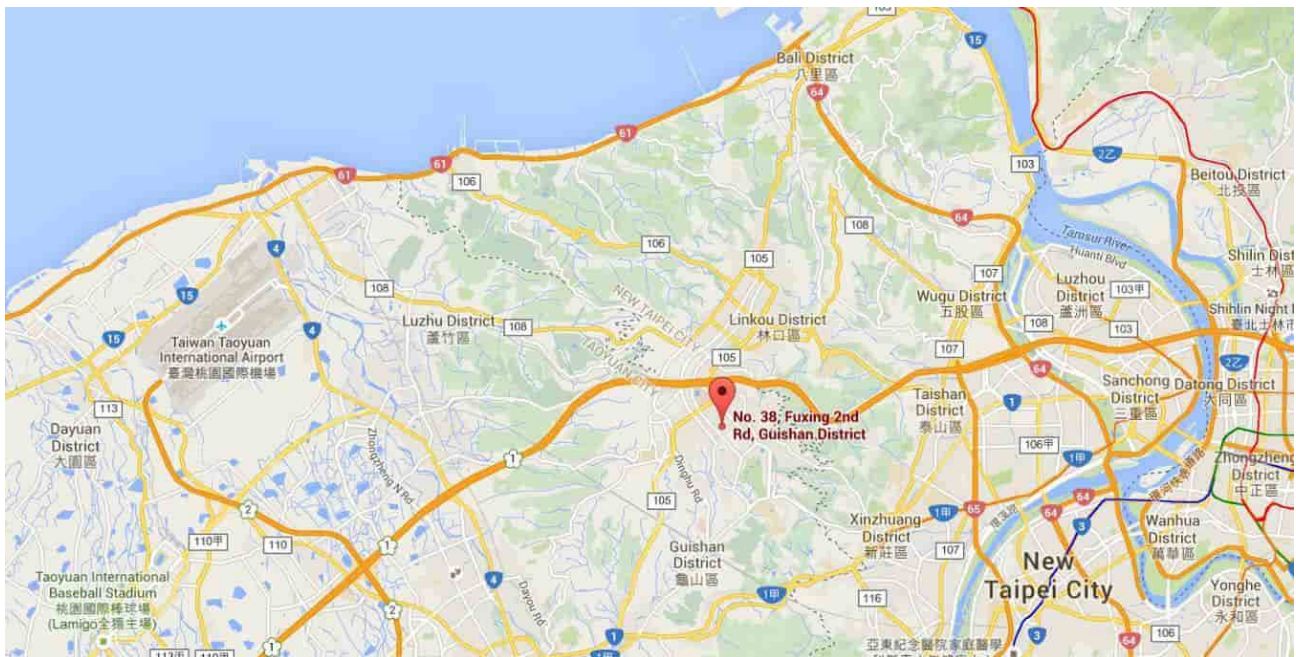
1. INTRODUCTION

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 + 2 nd 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
CA Intra-Band	5B; 7C; 38C; 41C; 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:

- For other features of this EUT, test report will be issued separately.
- 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

- This report selected S0803FR with Alpha Numeric as the main test.
- 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	
TDD TX & RX Frequency Range	LTE Band 43 (Part 96): 3600 ~ 3700 MHz; LTE B48/NR n48: 3550 ~ 3700 MHz LTE Band 48 (Part 96): 3550 ~ 3700 MHz; NR n48 (Part 96): 3550 ~ 3700 MHz;
2UL ENDC Combination	LTE B48+NR n5/n66;
Support Bandwidth	LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz NR n48: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz
Type of Modulation	UL up to 256QAM, DL up to 256QAM

3.5G Support Band	Part27 (3450-3550MHz)	Part96 (3550-3700MHz)	Part27 (3700-3980MHz)
LTE Band 43	N/A	PC3	PC3
LTE Band 48	N/A	PC3	N/A
NR n48	N/A	PC3	N/A

1.5. Description of Available Antennas

Antenna Type			LDS			
Technology	Frequency Range (MHz)		Max Peak Gain (dBi)			
	TX	RX	ANT3	ANT4	ANT5	ANT6
LTE Band 43	3600 ~ 3700		--	--	-1.50	-1.51
LTE Band 48	3550 ~ 3700		--	--	-1.50	-1.51
NR n48	3550 ~ 3700		-1.53	-1.54	-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. NR n48 support SRS functions.
4. Ant3 support SRS functions and its signal is switched from Ant5.
5. Ant4 support SRS functions and its signal is switched from Ant6.
6. Ant3+ANT4 support TX functions for n48 MIMO.
7. Ant5+ANT6 support TX functions for n48 MIMO.
8. Ant6 support TX functions for UHB (3300MHz-3800MHz).

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 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	Frequency Stability		Pass
2.1046, 96.41 (b)	Transmitter Output Power		Pass
2.1051, 96.41 (e)	Transmitter unwanted emissions (band-edge)		Pass
2.1051, 96.41 (e)	Transmitter unwanted emissions (spurious)		
2.1053, 96.41 (e)	Transmitter Spurious Emissions	Radiated	Pass
96.47	End user device additional requirements		Pass ^{Note5}

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 Band 48 (3550 ~ 3700 MHz) overlaps the entire frequency range of LTE Band 43 (3600 ~ 3700 MHz). Therefore, test data provided in this report covers Band 43 as well as Band 48.
- 5) Please refer to the report number "2410RSU052-U2" for this End user device additional requirements test data.

LTE Test Items	Bandwidth	Modulation	RB Combination	Test Channel
Occupied Bandwidth	All BW	All Modulation	Full	Low/Middle/High
Frequency Stability	Maximum BW	QPSK	Full	Middle
Transmitter Output Power	All BW	All Modulation	1RB/Half/Full	Low/Middle/High
Peak to Average Ratio	Maximum BW	All Modulation	Full	Middle
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	Low/Middle/High

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.

NR Test Items	Bandwidth	Modulation	RB Combination	Test Channel
Occupied Bandwidth	All BW	All DFT Modulation	Outer full RB	Low/Middle/High
Frequency Stability	Maximum BW	DFT_BPSK	Outer full RB	Middle
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
Peak to Average Ratio	Maximum BW	All DFT Modulation	Outer full RB	Middle
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	Low/Middle/High

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

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 $\pm 0.00025\%$ (± 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.

2.3.1. Conducted Output Power Measurement

According to FCC Part 2.1046, 96.41

According to KDB 412172 D01 Section 1.2 Power Approach

$EIRP = PT + GT - LC = ERP + 2.15 \text{ dB}$, $ERP = EIRP - 2.15 \text{ dB}$

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.

CBSD Technology	EIRP Power Limit
LTE Band 43	23dBm/10MHz
LTE Band 48	23dBm/10MHz
NR n48	23dBm/10MHz
CBSD frequency range 3550MHz ~ 3700MHz.	

Note: Country code (MCC 310) for LTE B43/B48 and NR n48.

2.4. Peak-Average Ratio

According to FCC Part 96.41

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.

2.5. Spurious and Harmonic Emissions at Antenna Terminal

According to FCC Part 2.1051, 96.41

For 96.41(e)(1)(2)

The conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz. Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

The conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

2.6. Conducted and Radiated Spurious Emissions

According to FCC Part 2.1051, 2.1053, 96.41

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 96.41(e)(1)(2)

The conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

3. TEST EQUIPMENT CALIBRATION DATE

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Active 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% ($U=2U_c(y)$): 9kHz~30MHz: $\pm 3.92\text{dB}$ 30MHz~1GHz: $\pm 4.25\text{dB}$ 1GHz~18GHz: $\pm 4.40\text{dB}$ 18GHz~40GHz: $\pm 4.45\text{dB}$
Frequency Error
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 78.4\text{Hz}$
Conducted Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 0.84\text{dB}$
Conducted Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 2.65\text{ dB}$
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 3.3\%$
Temp. / Humidity
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 0.82^\circ\text{C} / \pm 3\%$
DC Voltage
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): $\pm 0.3\%$

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

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T$$

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)

$$\text{ERP} = \text{EIRP} - 2.15$$

LTE Band		Band48	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	EIRP Limit
5MHz	QPSK	24.20	22.69	0.186	23dBm/10MHz
	16QAM	23.28	21.77	0.150	23dBm/10MHz
	64QAM	22.39	20.88	0.122	23dBm/10MHz
	256QAM	19.54	18.03	0.064	23dBm/10MHz
10MHz	QPSK	24.33	22.82	0.191	23dBm/10MHz
	16QAM	23.37	21.86	0.153	23dBm/10MHz
	64QAM	22.22	20.71	0.118	23dBm/10MHz
	256QAM	19.51	18.00	0.063	23dBm/10MHz
15MHz	QPSK	24.06	22.55	0.180	23dBm/10MHz
	16QAM	23.54	22.03	0.160	23dBm/10MHz
	64QAM	22.33	20.82	0.121	23dBm/10MHz
	256QAM	19.44	17.93	0.062	23dBm/10MHz
20MHz	QPSK	23.97	22.46	0.176	23dBm/10MHz
	16QAM	23.47	21.96	0.157	23dBm/10MHz
	64QAM	22.05	20.54	0.113	23dBm/10MHz
	256QAM	19.46	17.95	0.062	23dBm/10MHz

NR Band MCC: 310		N48	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	EIRP Limit
10MHz	DFT_BPSK	24.32	22.81	0.191	23dBm/10MHz
	DFT_QPSK	24.48	22.97	0.198	23dBm/10MHz
	DFT_16QAM	23.62	22.11	0.163	23dBm/10MHz
	DFT_64QAM	22.03	20.52	0.113	23dBm/10MHz
	DFT_256QAM	20.04	18.53	0.071	23dBm/10MHz
15MHz	DFT_BPSK	24.27	22.76	0.189	23dBm/10MHz
	DFT_QPSK	24.09	22.58	0.181	23dBm/10MHz
	DFT_16QAM	23.38	21.87	0.154	23dBm/10MHz
	DFT_64QAM	22.12	20.61	0.115	23dBm/10MHz
	DFT_256QAM	19.84	18.33	0.068	23dBm/10MHz
20MHz	DFT_BPSK	24.19	22.68	0.185	23dBm/10MHz
	DFT_QPSK	24.42	22.91	0.195	23dBm/10MHz
	DFT_16QAM	23.38	21.87	0.154	23dBm/10MHz
	DFT_64QAM	22.22	20.71	0.118	23dBm/10MHz
	DFT_256QAM	19.83	18.32	0.068	23dBm/10MHz
30MHz	DFT_BPSK	24.12	22.61	0.182	23dBm/10MHz
	DFT_QPSK	24.13	22.62	0.183	23dBm/10MHz
	DFT_16QAM	23.14	21.63	0.146	23dBm/10MHz
	DFT_64QAM	21.90	20.39	0.109	23dBm/10MHz
	DFT_256QAM	19.94	18.43	0.070	23dBm/10MHz
40MHz	DFT_BPSK	24.42	22.91	0.195	23dBm/10MHz
	DFT_QPSK	24.44	22.93	0.196	23dBm/10MHz
	DFT_16QAM	23.38	21.87	0.154	23dBm/10MHz
	DFT_64QAM	21.49	19.98	0.100	23dBm/10MHz
	DFT_256QAM	19.68	18.17	0.066	23dBm/10MHz

LTE 2ULCA Band		48C (MCC:310)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	EIRP Limit
25MHz (5+20)	QPSK	22.27	20.76	0.119	23dBm/10MHz
	16QAM	22.28	20.77	0.119	23dBm/10MHz
	64QAM	22.51	21.00	0.126	23dBm/10MHz
	256QAM	19.45	17.94	0.062	23dBm/10MHz
25MHz (20+5)	QPSK	22.97	21.46	0.140	23dBm/10MHz
	16QAM	23.03	21.52	0.142	23dBm/10MHz
	64QAM	22.90	21.39	0.138	23dBm/10MHz
	256QAM	20.76	19.25	0.084	23dBm/10MHz
30MHz (10+20)	QPSK	21.02	19.51	0.089	23dBm/10MHz
	16QAM	21.42	19.91	0.098	23dBm/10MHz
	64QAM	20.57	19.06	0.081	23dBm/10MHz
	256QAM	19.05	17.54	0.057	23dBm/10MHz
30MHz (20+10)	QPSK	21.45	19.94	0.099	23dBm/10MHz
	16QAM	21.31	19.80	0.095	23dBm/10MHz
	64QAM	21.03	19.52	0.090	23dBm/10MHz
	256QAM	18.74	17.23	0.053	23dBm/10MHz
35MHz (15+20)	QPSK	22.58	21.07	0.128	23dBm/10MHz
	16QAM	22.50	20.99	0.126	23dBm/10MHz
	64QAM	21.99	20.48	0.112	23dBm/10MHz
	256QAM	18.83	17.32	0.054	23dBm/10MHz
35MHz (20+15)	QPSK	23.40	21.89	0.155	23dBm/10MHz
	16QAM	23.34	21.83	0.152	23dBm/10MHz
	64QAM	22.20	20.69	0.117	23dBm/10MHz
	256QAM	19.47	17.96	0.063	23dBm/10MHz
40MHz (20+20)	QPSK	22.75	21.24	0.133	23dBm/10MHz
	16QAM	22.74	21.23	0.133	23dBm/10MHz
	64QAM	21.89	20.38	0.109	23dBm/10MHz
	256QAM	19.52	18.01	0.063	23dBm/10MHz

LTE Band		B48 (Ant5)	Antenna Gain (dBi)		-1.5
BW	Modulation	Conducted Peak Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	EIRP Limit
5M	QPSK	22.07	20.57	0.114	23dBm/10MHz
	16QAM	21.46	19.96	0.099	23dBm/10MHz
	64QAM	20.71	19.21	0.083	23dBm/10MHz
	256QAM	17.55	16.05	0.040	23dBm/10MHz
10M	QPSK	22.00	20.50	0.112	23dBm/10MHz
	16QAM	21.51	20.01	0.100	23dBm/10MHz
	64QAM	20.53	19.03	0.080	23dBm/10MHz
	256QAM	17.43	15.93	0.039	23dBm/10MHz
15M	QPSK	21.88	20.38	0.109	23dBm/10MHz
	16QAM	21.48	19.98	0.100	23dBm/10MHz
	64QAM	20.37	18.87	0.077	23dBm/10MHz
	256QAM	17.41	15.91	0.039	23dBm/10MHz
20M	QPSK	21.78	20.28	0.107	23dBm/10MHz
	16QAM	21.28	19.78	0.095	23dBm/10MHz
	64QAM	20.40	18.90	0.078	23dBm/10MHz
	256QAM	17.46	15.96	0.039	23dBm/10MHz

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
Band 48 MCC:310	5MHz	4M47G7D	4M48W7D	4M47W7D	4M47W7D
	10MHz	8M94G7D	8M93W7D	8M96W7D	8M97W7D
	15MHz	13M4G7D	13M4W7D	13M4W7D	13M4W7D
	20MHz	17M9G7D	17M9W7D	17M9W7D	17M9W7D

NR	BandWidth	Maximum 99% Occupied Bandwidth Designator				
		BPSK	QPSK	16QAM	64QAM	256QAM
n48	10MHz	8M6G7D	8M59G7D	8M6W7D	8M6W7D	8M6W7D
	15MHz	12M9G7D	12M9G7D	12M9W7D	12M9W7D	12M9W7D
	20MHz	17M9G7D	17M9G7D	17M9W7D	17M9W7D	17M9W7D
	30MHz	26M8G7D	26M8G7D	26M8W7D	26M8W7D	26M9W7D
	40MHz	35M8G7D	35M8G7D	37M8W7D	35M8W7D	36M8W7D

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
2UL_CA_48C	25MHz(5+20)	22M8G7D	22M9W7D	22M8W7D	22M8W7D
	25MHz(20+5)	22M8G7D	22M9W7D	22M9W7D	22M8W7D
	30MHz(10+20)	27M7G7D	27M7W7D	27M8W7D	27M7W7D
	30MHz(20+10)	27M8G7D	27M8W7D	27M7W7D	27M7W7D
	35MHz(15+20)	32M7G7D	32M7W7D	32M7W7D	32M6W7D
	35MHz(20+15)	32M7G7D	32M6W7D	32M7W7D	32M6W7D
	40MHz(20+20)	37M5G7D	37M5W7D	37M7W7D	37M5W7D

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.

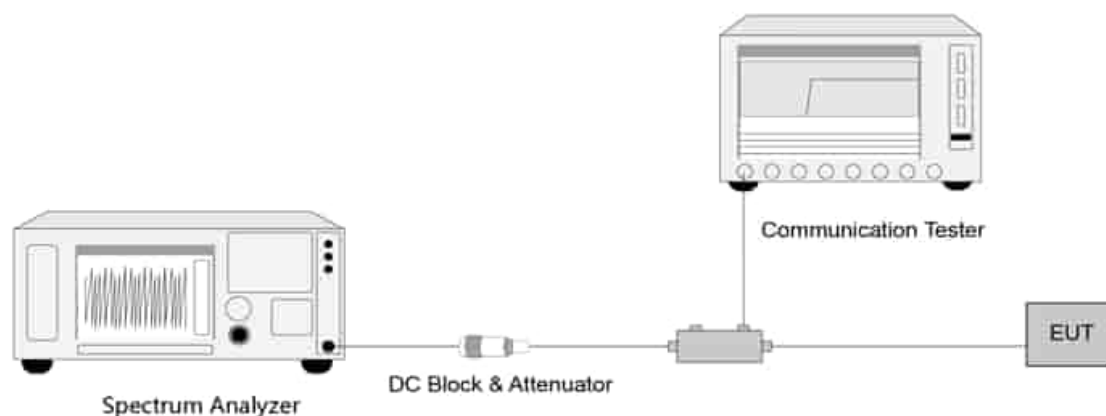
5.2.2 Test Procedure used

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 $\geq 3 \times$ 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 $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

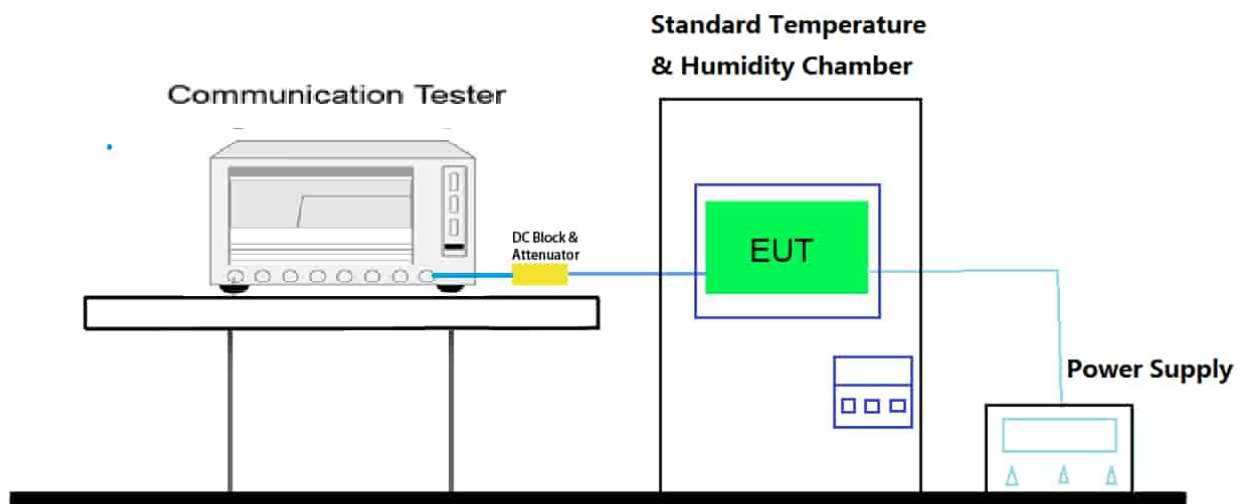
5.3.2 Test Procedure

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 ($\pm 15\%$) and endpoint, record the maximum

5.3.4 Test Setup



5.3.5 Test Result

Refer to Appendix A.2

5.4. Transmitter Output Power Measurement

5.4.1 Test Limit

CBSD Technology	EIRP Power Limit
LTE Band 43	23dBm/10MHz
LTE Band 48	23dBm/10MHz
NR n48	23dBm/10MHz
CBSD frequency range 3550MHz ~ 3700MHz.	

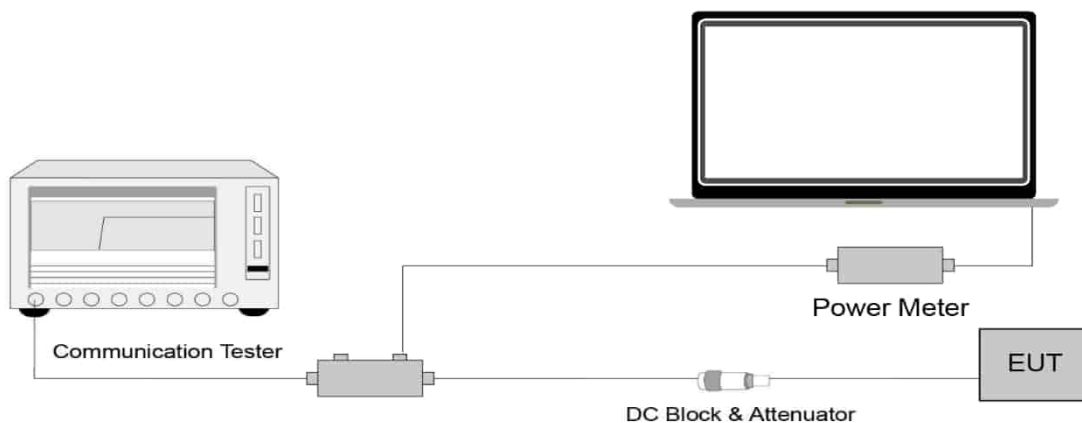
5.4.2 Test Procedure

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.3

5.5. Transmitter unwanted emissions (band-edge) Measurement

5.6.1 Test Limit

For 96.41(e)(1)(2)

The conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz.

The conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

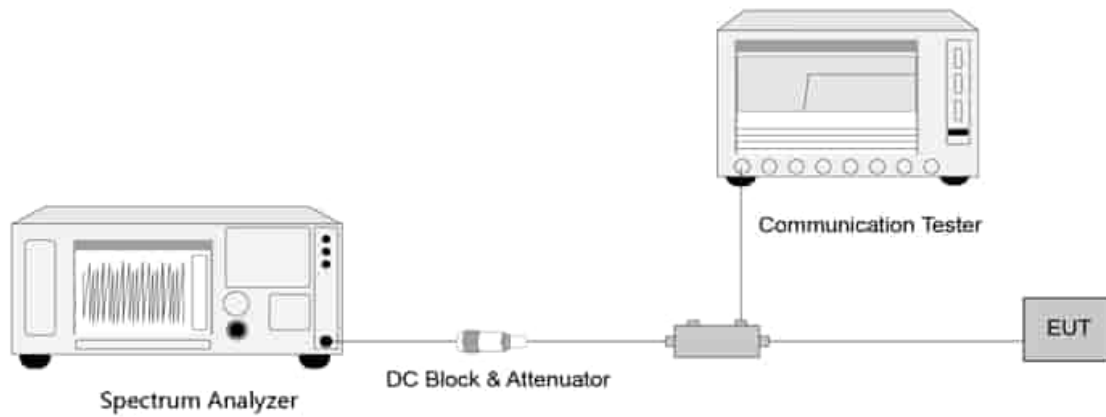
5.6.2 Test Procedure

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.4

5.6. 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 For 96.41(e)(2)

The conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

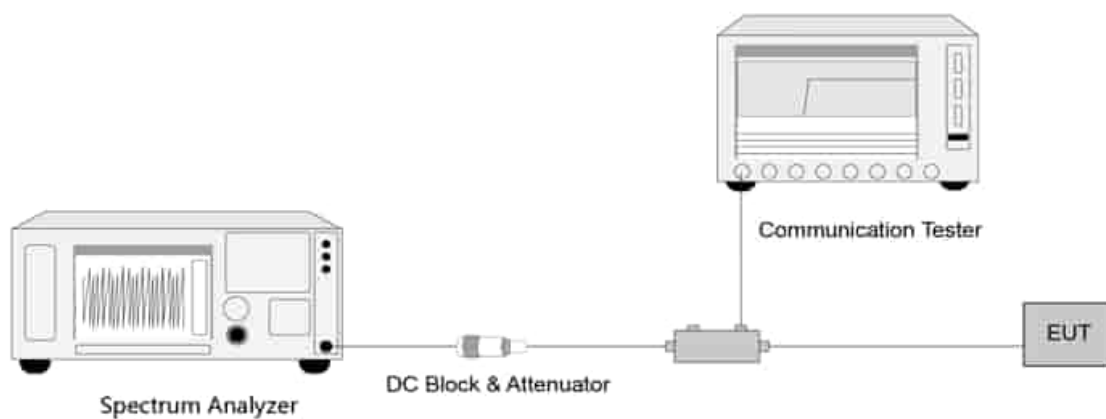
5.7.2 Test Procedure

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 $\geq 3 \times$ 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.5

5.7. 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 For 96.41(e)(2)

The conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

5.8.2 Test Procedure

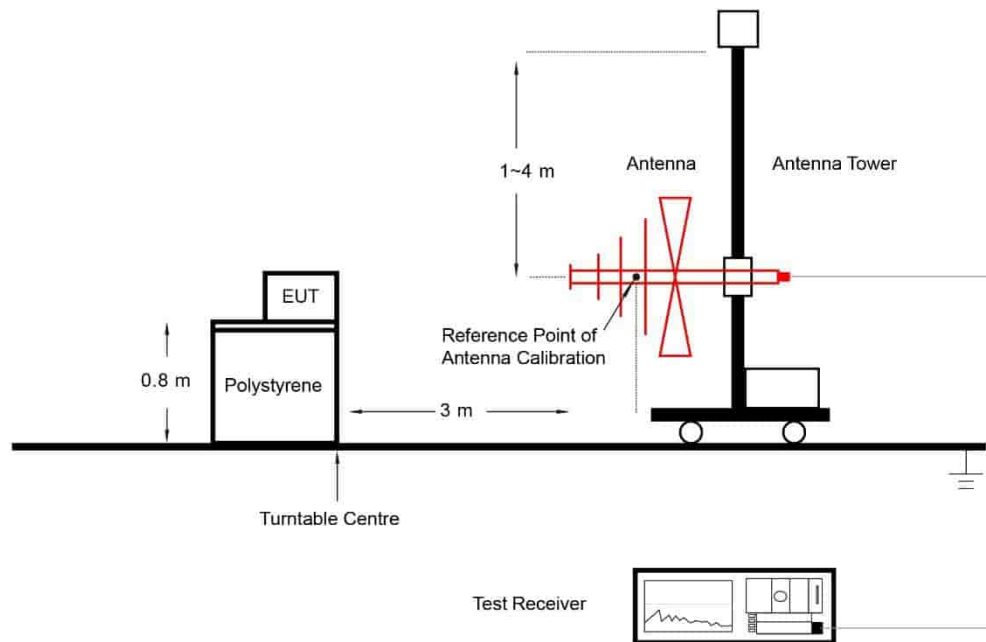
ANSI C63.26-2015 - Section 5.7

5.8.3 Test Setting

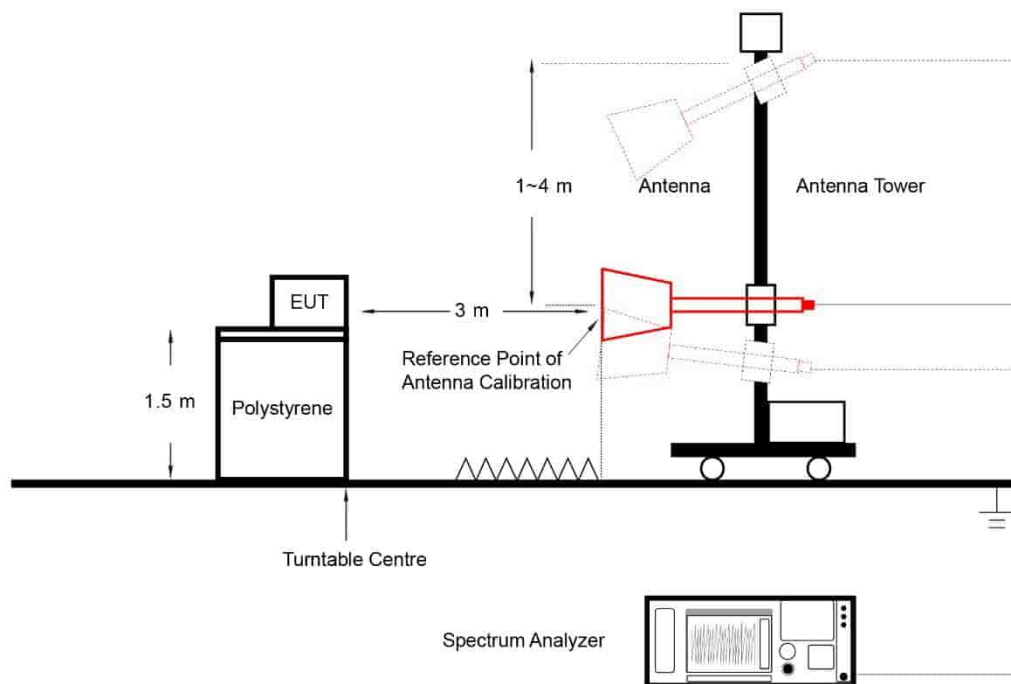
1. RBW = 120kHz or 1MHz
2. VBW $\geq 3 \times$ RBW
3. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
4. Detector = CISPR quasi-peak / average detector (Below 1 GHz, compliance with the limits shall be demonstrated using a CISPR quasi-peak detector and the 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.6.

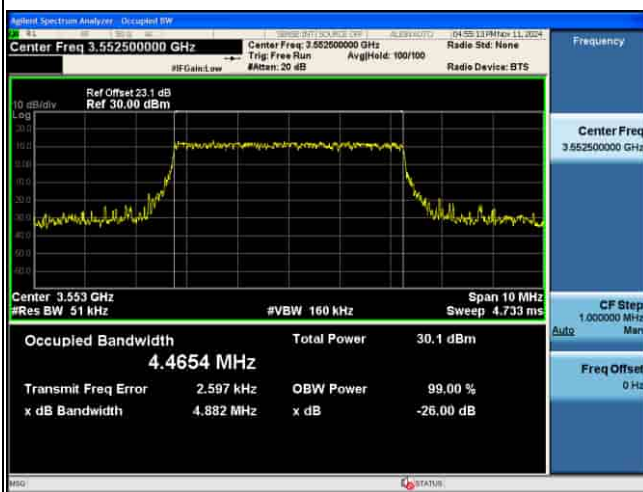
Appendix A : TEST RESULT DATA

A1. Occupied Bandwidth Test Result

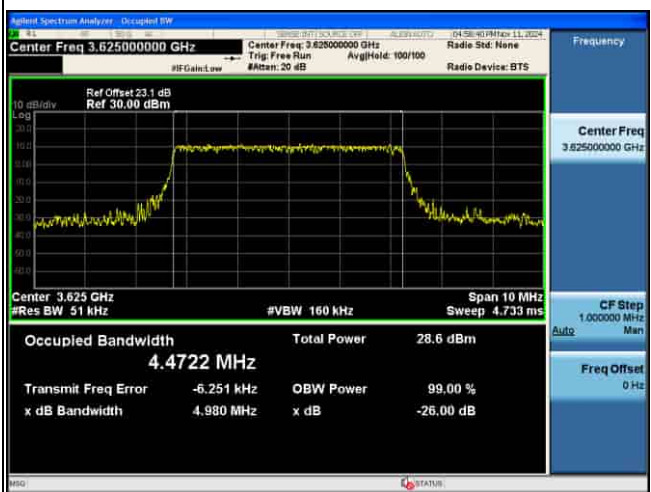
A1.1 LTE Band 48 (Cover Band 43)

LTE Band 48 MCC:310										
BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5M	55265	3552.5	4.4654	4.4799	4.4680	4.4616	4.882	4.894	4.927	4.911
5M	55990	3625	4.4722	4.4709	4.4397	4.4673	4.980	4.926	4.584	5.063
5M	56715	3697.5	4.4578	4.4644	4.4570	4.4658	4.950	4.994	5.048	4.940
10M	55290	3555	8.9445	8.9211	8.9561	8.9450	9.509	9.887	9.869	9.565
10M	55990	3625	8.9423	8.8980	8.9582	8.9659	9.660	9.697	9.792	9.542
10M	56690	3695	8.9306	8.9278	8.9584	8.9364	9.618	9.762	9.657	9.652
15M	55315	3557.5	13.372	13.418	13.403	13.417	14.17	14.37	14.25	14.37
15M	55990	3625	13.422	13.425	13.444	13.422	14.27	14.29	14.33	14.27
15M	56665	3692.5	13.415	13.407	13.409	13.393	14.10	14.53	14.62	14.42
20M	55340	3560	17.890	17.903	17.880	17.892	19.01	18.78	19.83	18.99
20M	55990	3625	17.936	17.902	17.904	17.923	19.05	18.77	18.98	18.89
20M	56640	3690	17.856	17.903	17.865	17.909	19.11	18.88	19.07	19.13

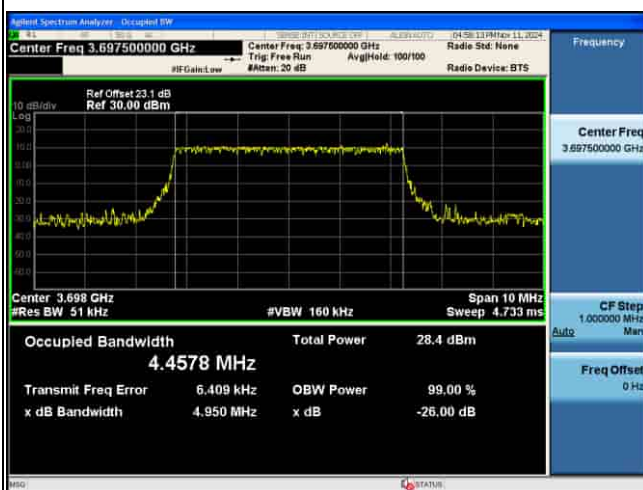
OCC_4G_B48_.QPSK_5M CH55265



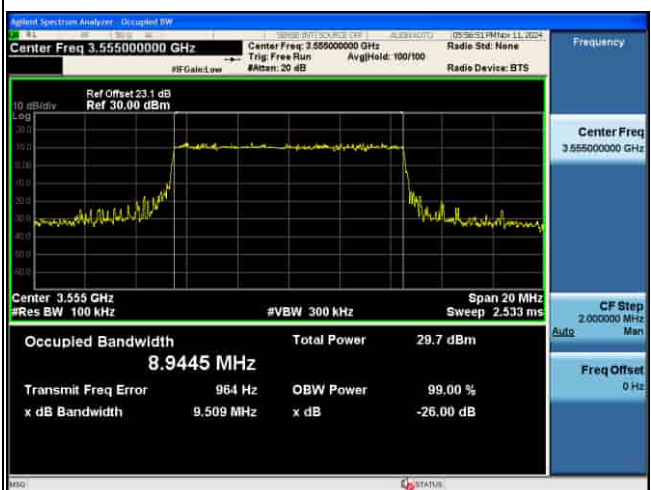
OCC_4G_B48_.QPSK_5M CH55990



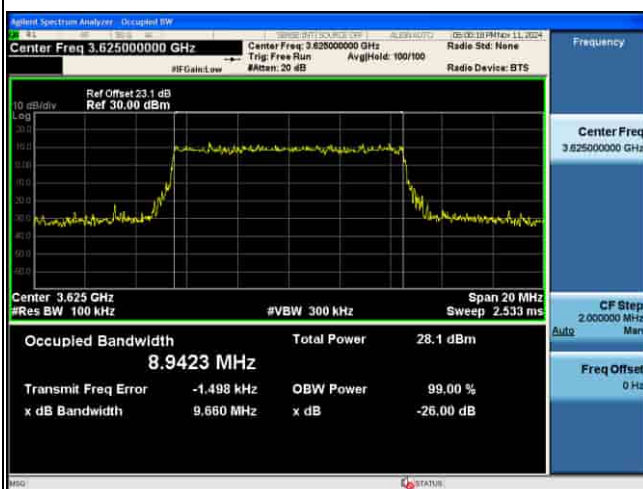
OCC_4G_B48_.QPSK_5M CH56715



OCC_4G_B48_.QPSK_10M CH55290



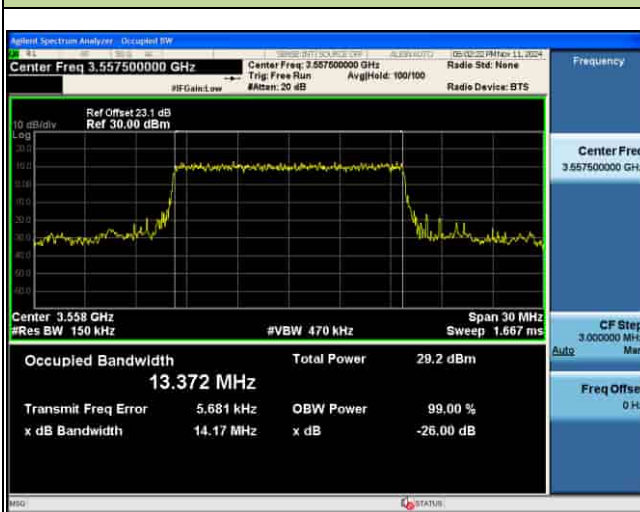
OCC_4G_B48_.QPSK_10M CH55990



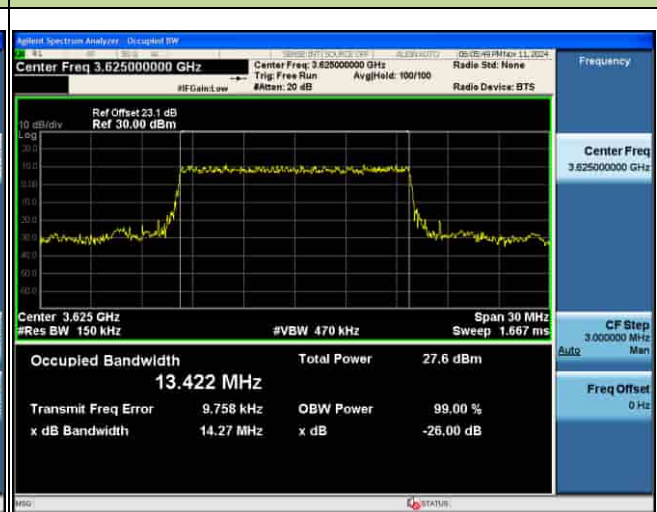
OCC_4G_B48_.QPSK_10M CH56690



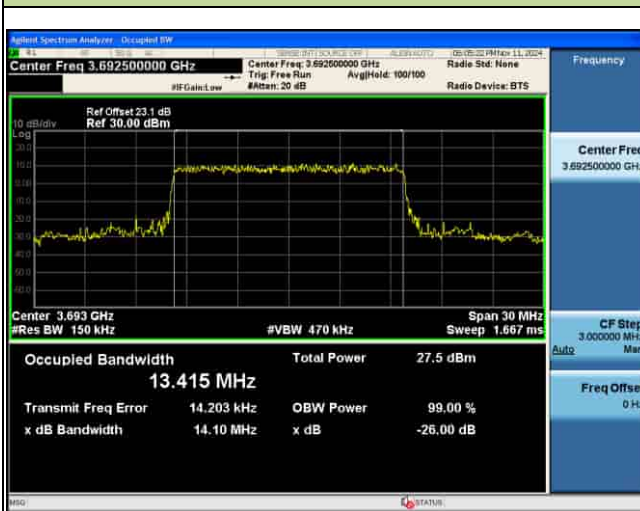
OCC_4G_B48_.QPSK_15M CH55315



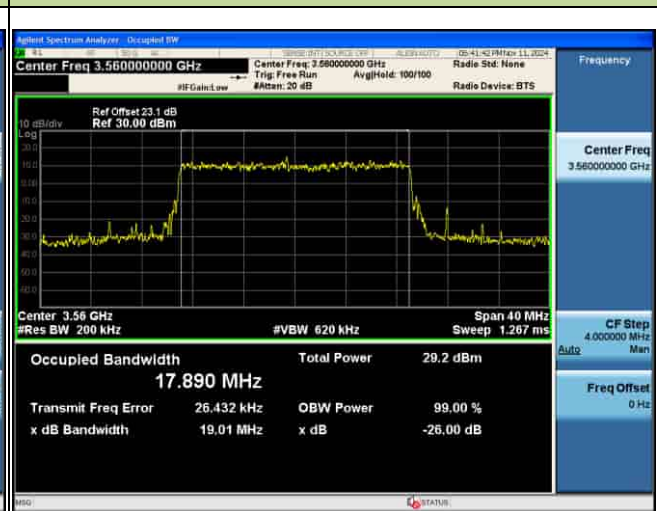
OCC_4G_B48_.QPSK_15M CH55990



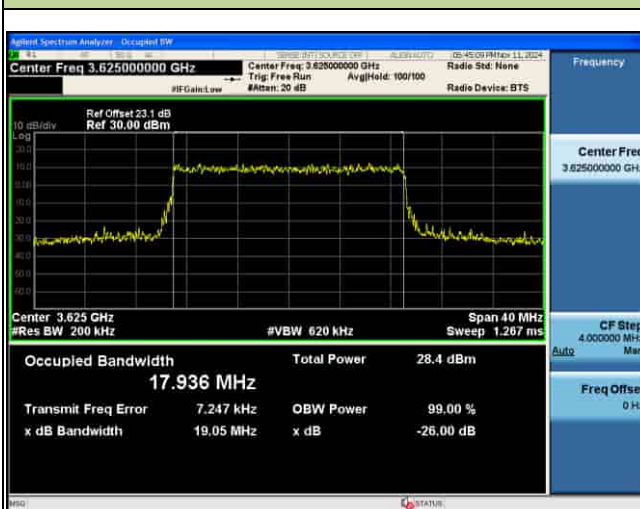
OCC_4G_B48_.QPSK_15M CH56665



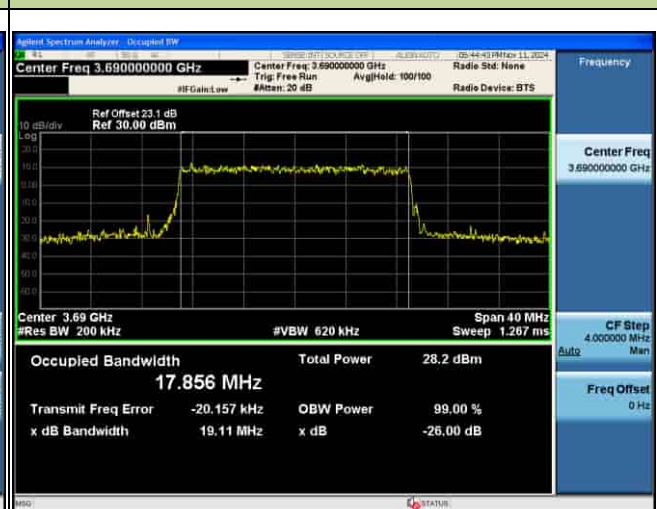
OCC_4G_B48_.QPSK_20M CH55340



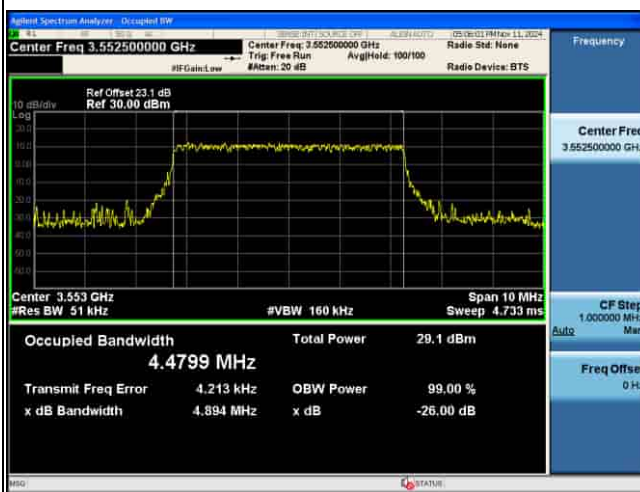
OCC_4G_B48_.QPSK_20M CH55990



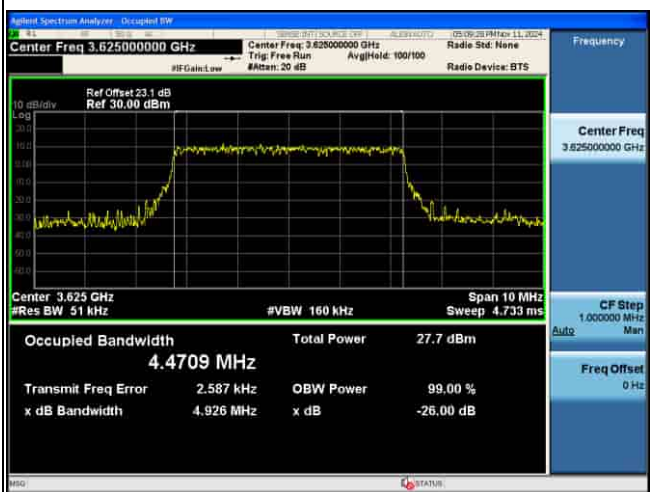
OCC_4G_B48_.QPSK_20M CH56640



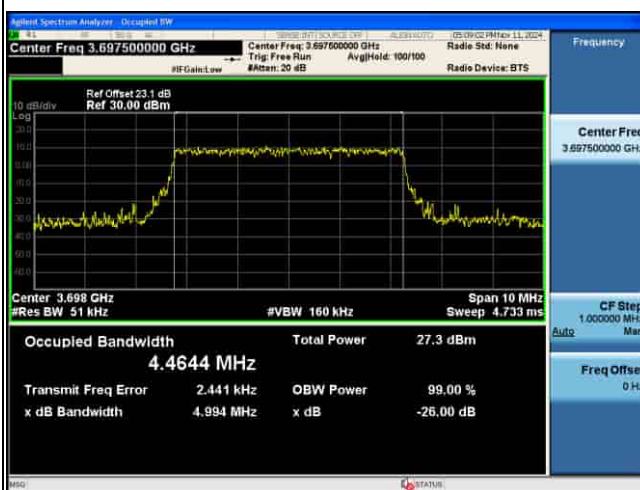
OCC_4G_B48_16QAM_5M CH55265



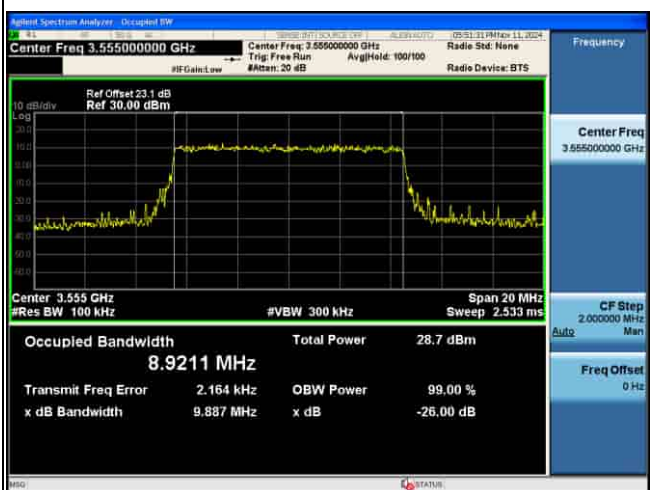
OCC_4G_B48_16QAM_5M CH55990



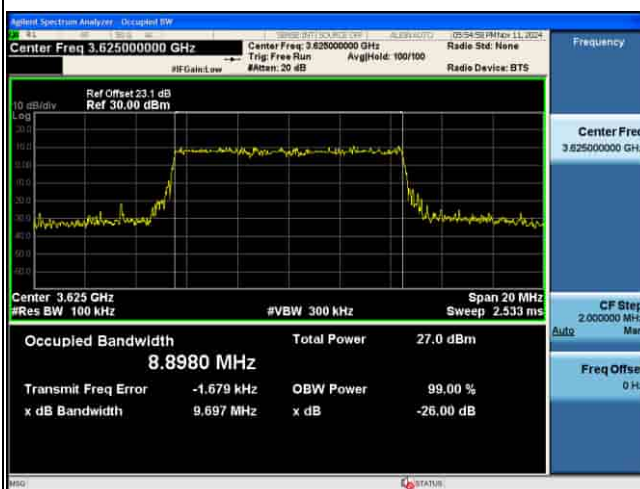
OCC_4G_B48_16QAM_5M CH56715



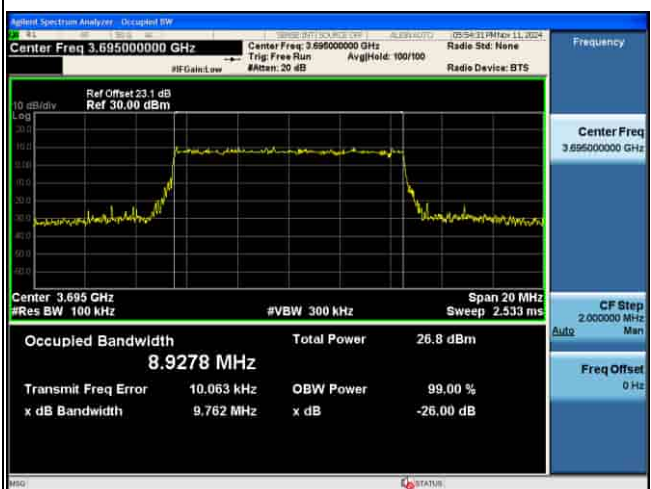
OCC_4G_B48_16QAM_10M CH55290



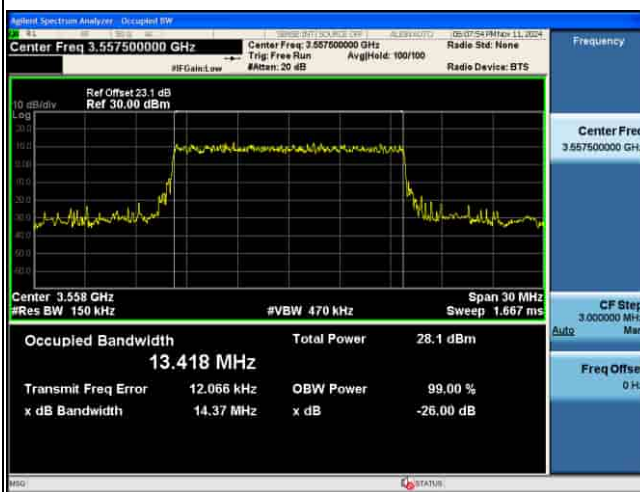
OCC_4G_B48_16QAM_10M CH55990



OCC_4G_B48_16QAM_10M CH56690



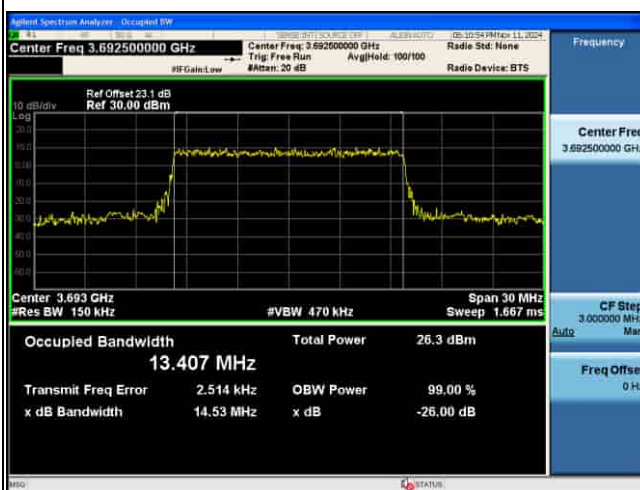
OCC_4G_B48_16QAM_15M CH55315



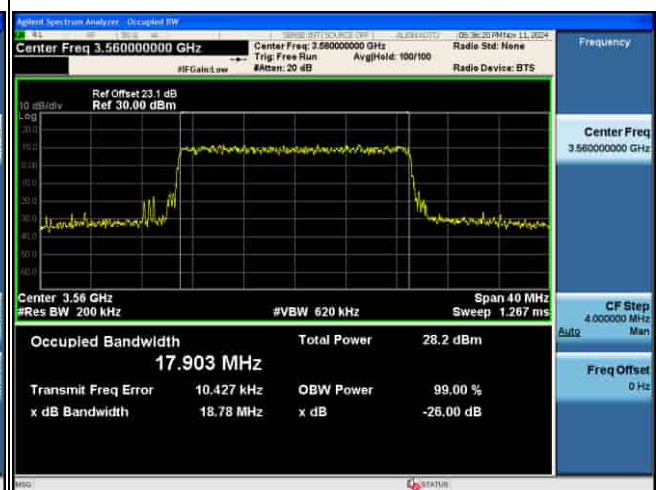
OCC_4G_B48_16QAM_15M CH55990



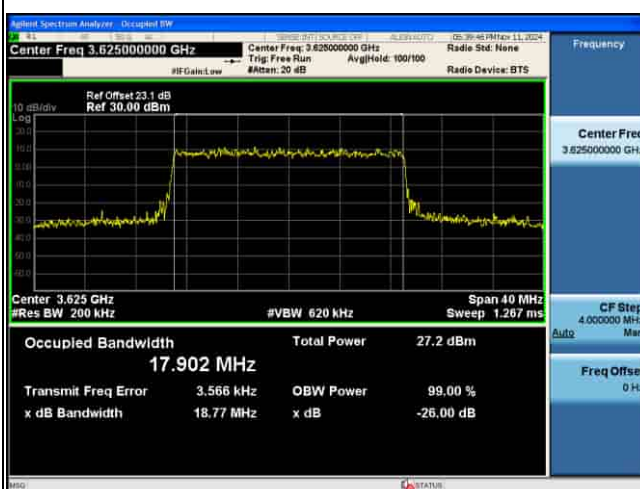
OCC_4G_B48_16QAM_15M CH56665



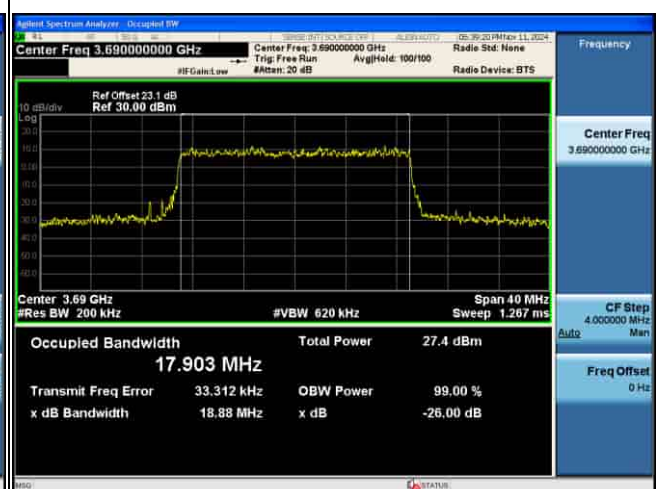
OCC_4G_B48_16QAM_20M CH55340



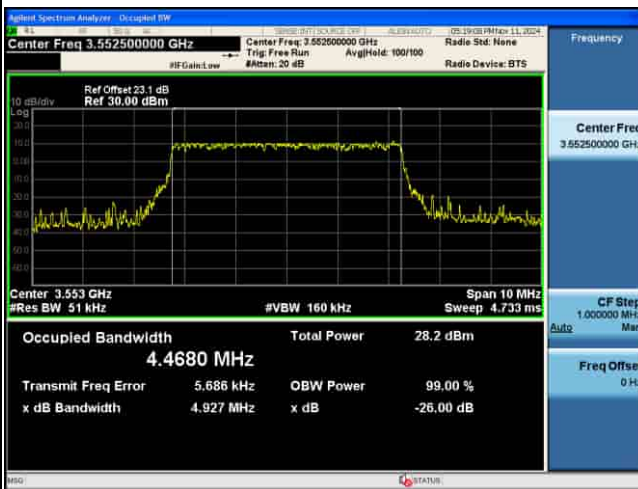
OCC_4G_B48_16QAM_20M CH55990



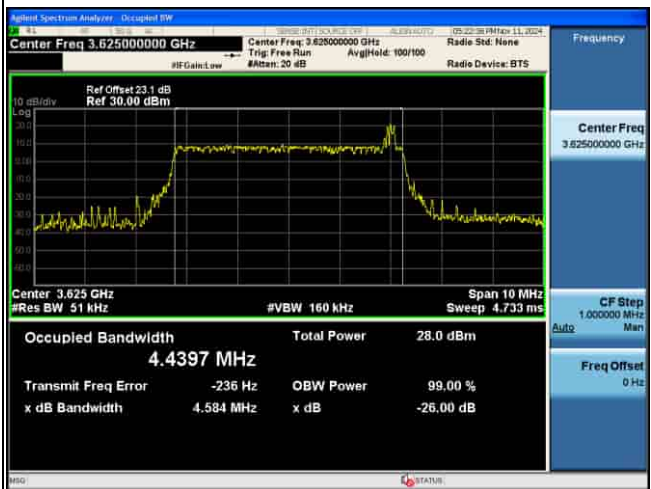
OCC_4G_B48_16QAM_20M CH56640



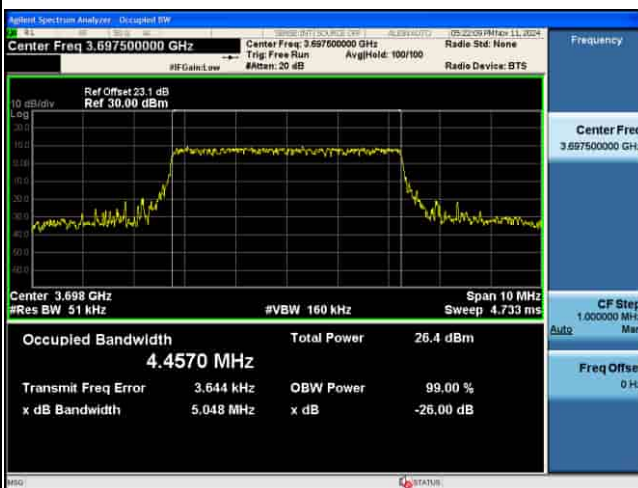
OCC_4G_B48_64QAM_5M CH55265



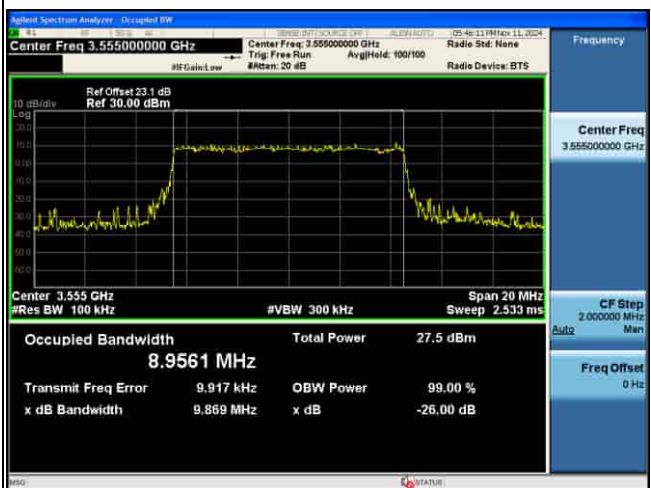
OCC_4G_B48_64QAM_5M CH55990



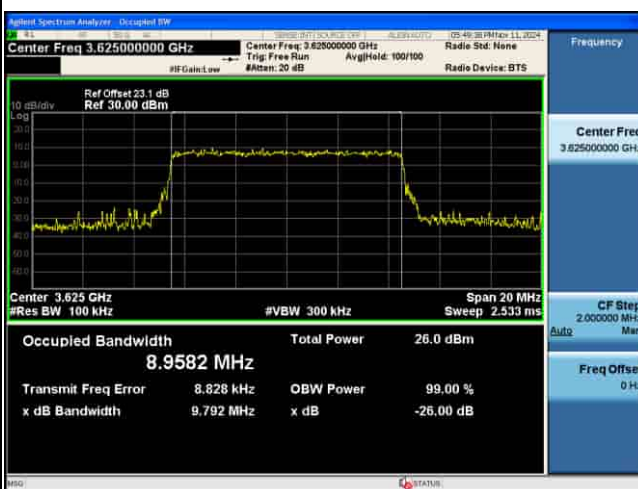
OCC_4G_B48_64QAM_5M CH56715



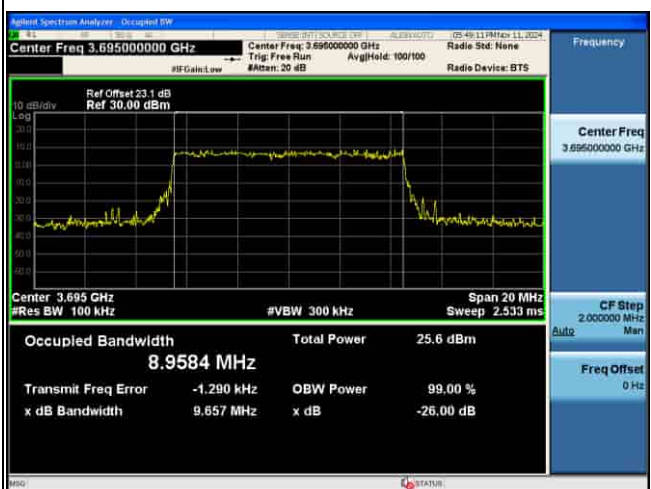
OCC_4G_B48_64QAM_10M CH55290



OCC_4G_B48_64QAM_10M CH55990

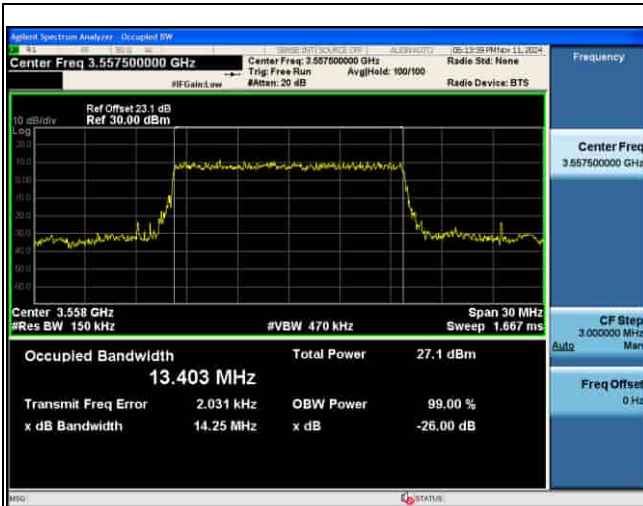


OCC_4G_B48_64QAM_10M CH56690

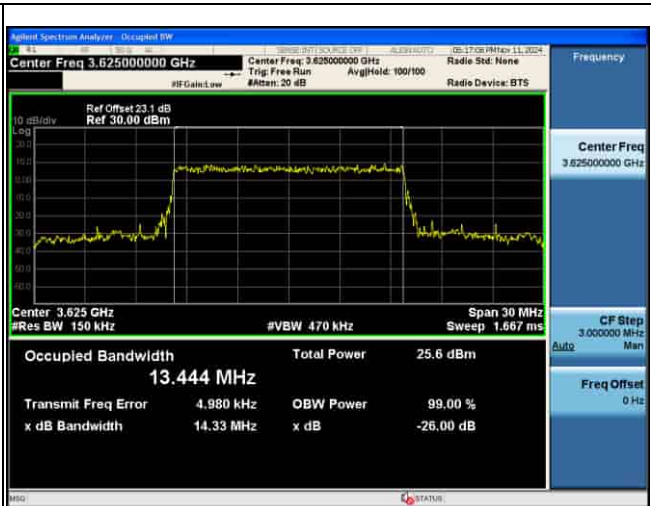


OCC_4G_B48_64QAM_15M CH55315

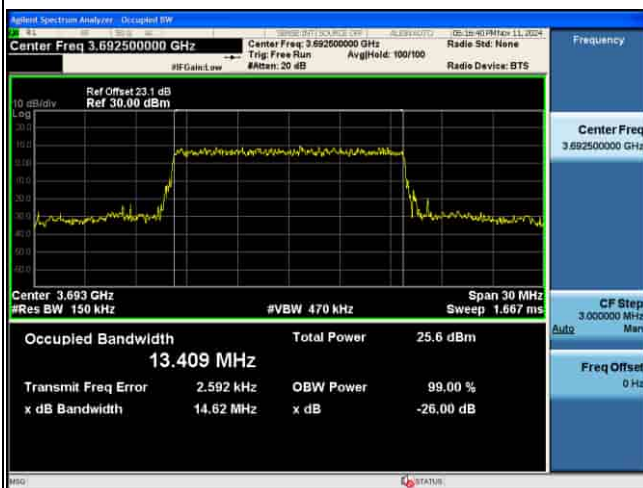
OCC_4G_B48_64QAM_15M CH55990



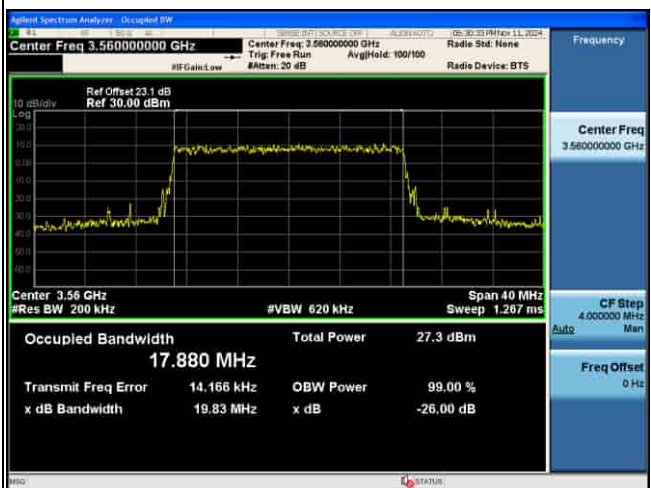
OCC_4G_B48_64QAM_15M CH56665



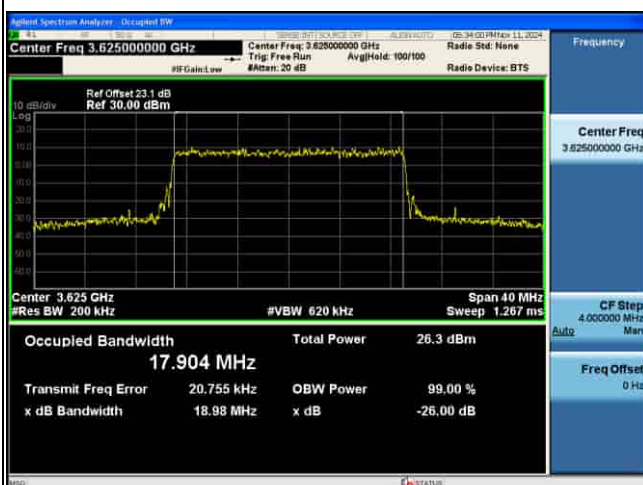
OCC_4G_B48_64QAM_20M CH55340



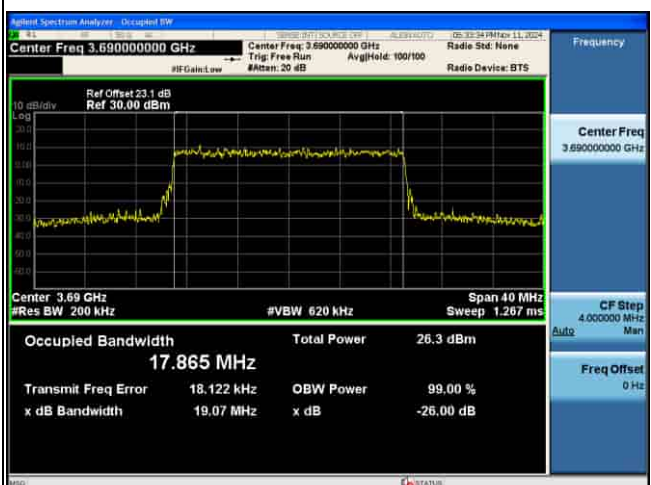
OCC_4G_B48_64QAM_20M CH55990



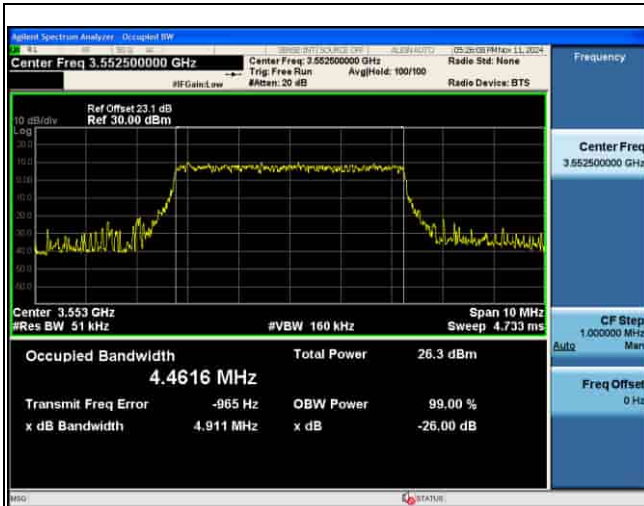
OCC_4G_B48_64QAM_20M CH56640



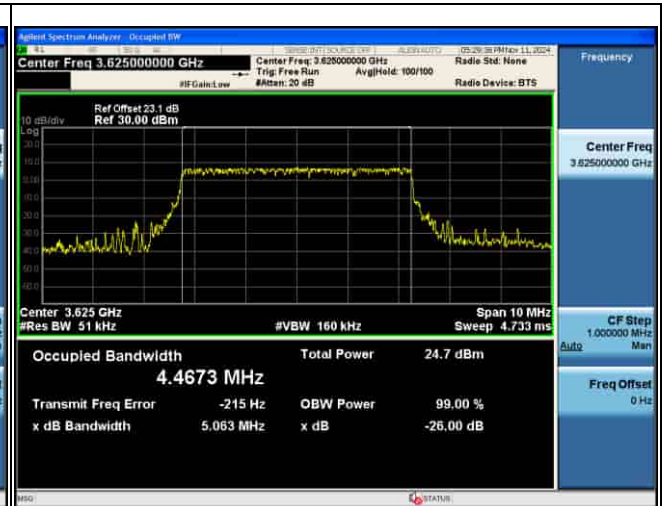
OCC_4G_B48_256QAM_5M CH55265



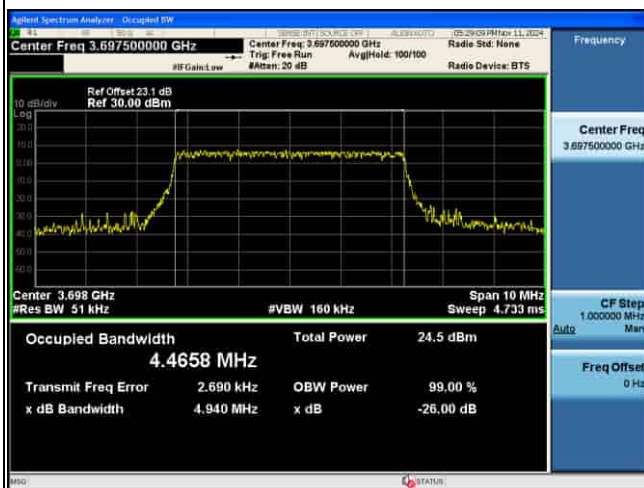
OCC_4G_B48_256QAM_5M CH55990



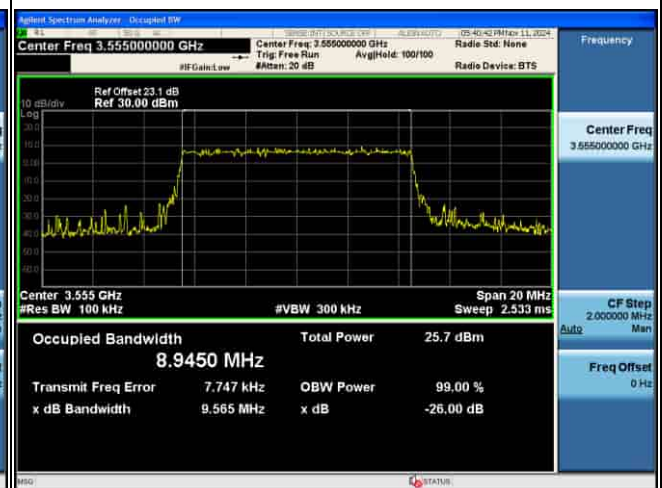
OCC_4G_B48_256QAM_5M CH56715



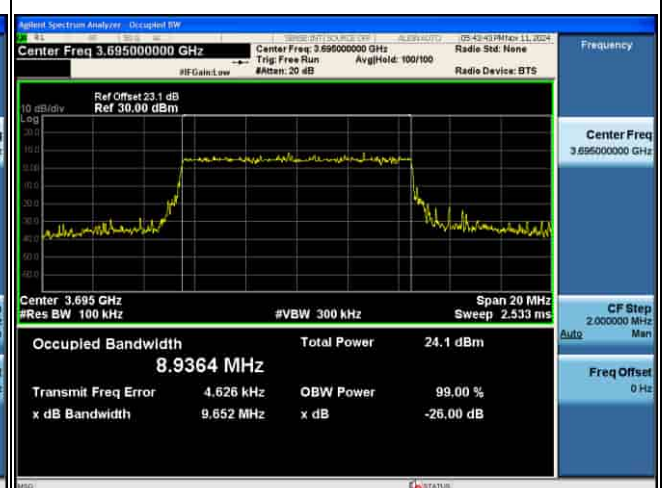
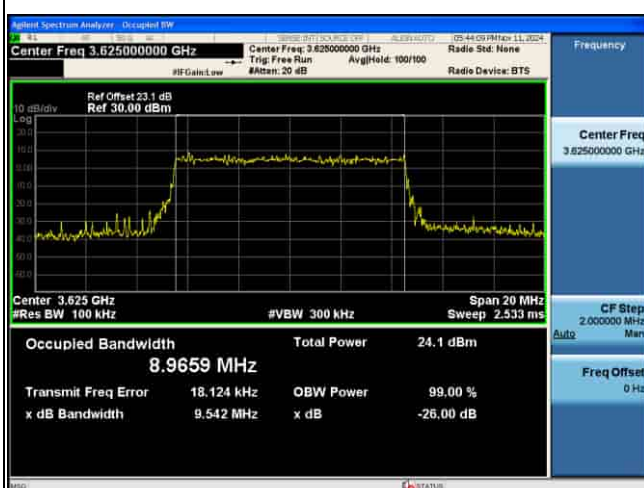
OCC_4G_B48_256QAM_10M CH55290



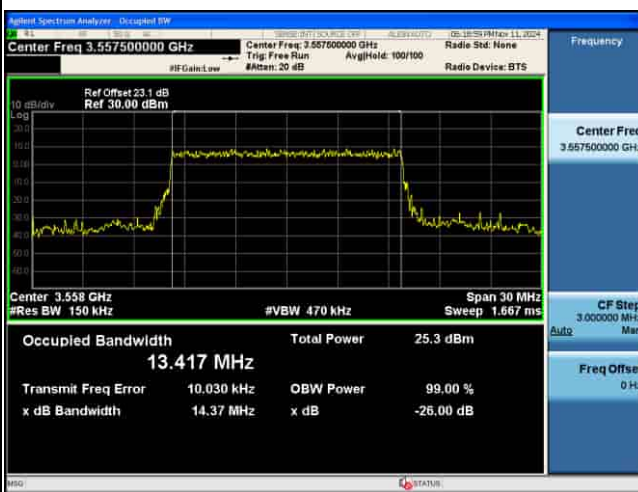
OCC_4G_B48_256QAM_10M CH55990



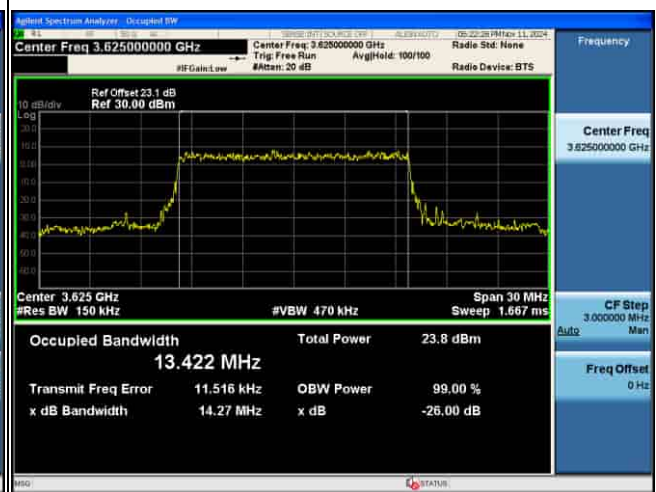
OCC_4G_B48_256QAM_10M CH56690



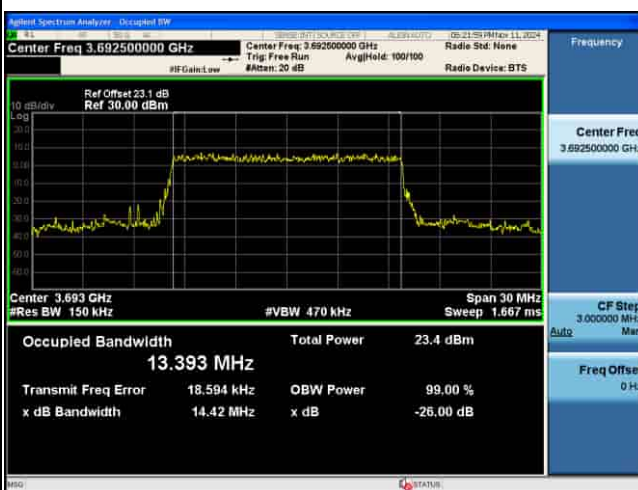
OCC_4G_B48_256QAM_15M CH55315



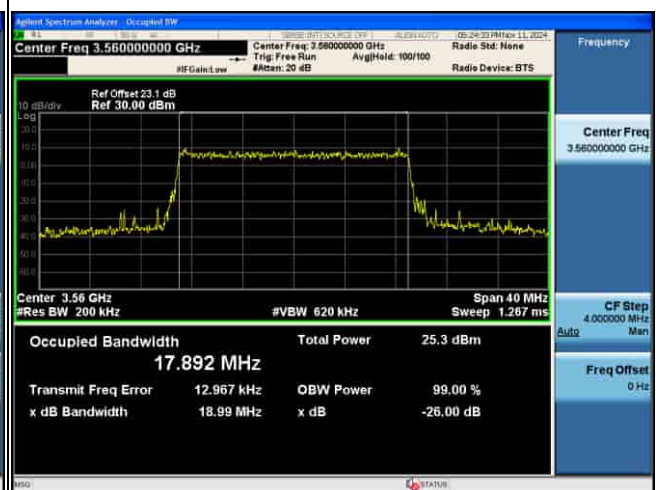
OCC_4G_B48_256QAM_15M CH55990



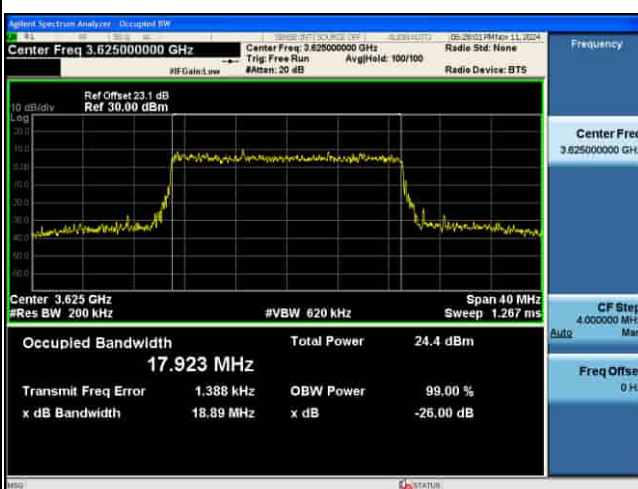
OCC_4G_B48_256QAM_15M CH56665



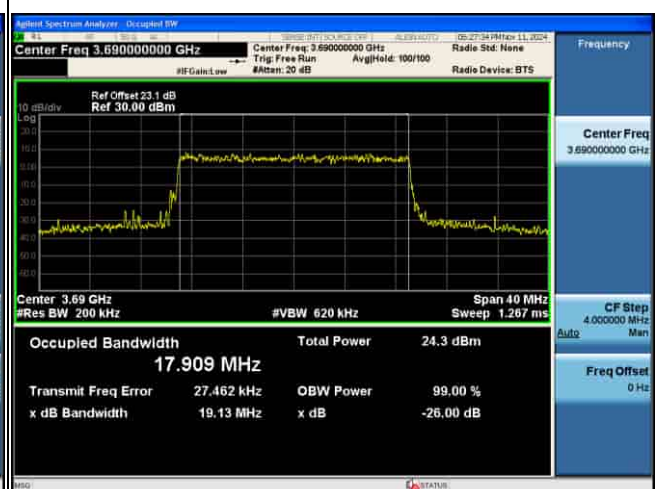
OCC_4G_B48_256QAM_20M CH55340



OCC_4G_B48_256QAM_20M CH55990



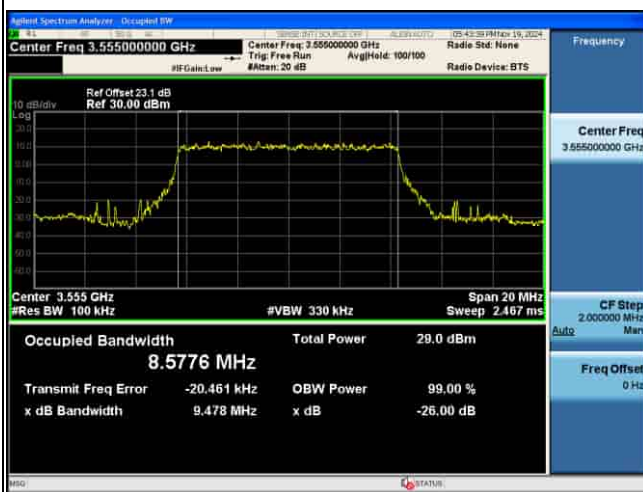
OCC_4G_B48_256QAM_20M CH56640



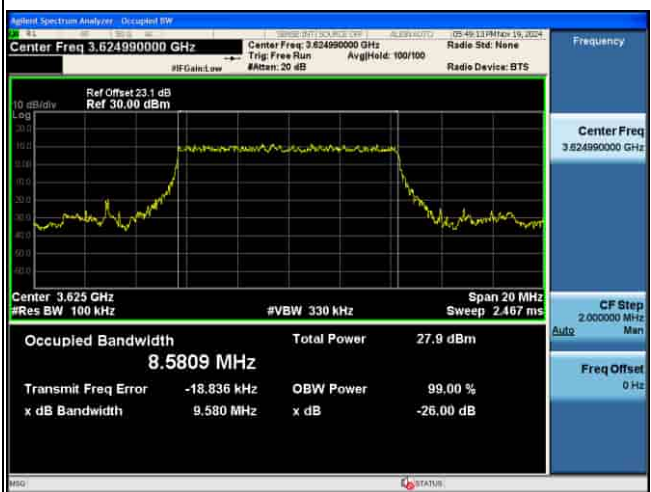
A1.2 NR n48

NR n48												
BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)					26 dB bandwidth (MHz)				
			BPSK	QPSK	16QAM	64QAM	256QAM	BPSK	QPSK	16QAM	64QAM	256QAM
10M	637000	3555	8.5776	8.5810	8.5722	8.5689	8.5744	9.478	9.307	9.547	9.673	9.574
10M	641666	3624.99	8.5809	8.5771	8.6010	8.6012	8.5984	9.580	9.669	9.666	9.505	9.872
10M	646332	3694.98	8.6029	8.5858	8.6013	8.5729	8.5796	9.436	9.495	9.578	9.512	9.673
15M	637168	3557.52	12.850	12.865	12.883	12.868	12.867	13.90	14.11	14.31	14.00	14.28
15M	641666	3624.99	12.899	12.871	12.902	12.867	12.880	14.33	14.03	14.16	14.00	13.83
15M	646166	3692.49	12.864	12.859	12.868	12.854	12.879	14.08	14.29	14.33	13.99	14.08
20M	637334	3560.01	17.888	17.851	17.881	17.855	17.838	19.39	19.21	19.11	19.20	19.06
20M	641666	3624.99	17.843	17.844	17.806	17.888	17.868	19.13	19.25	19.23	19.23	18.86
20M	646000	3690	17.876	17.899	17.847	17.857	17.896	19.15	19.07	19.55	19.21	19.21
30M	637668	3565.02	26.796	26.818	26.824	26.769	26.856	28.38	28.38	28.36	28.45	28.34
30M	641666	3624.99	26.778	26.825	26.760	26.818	26.793	28.24	28.47	28.11	28.24	28.54
30M	645666	3684.99	26.770	26.785	26.741	26.729	26.769	28.35	28.48	28.57	28.41	28.13
40M	638000	3570	35.848	35.810	37.766	35.764	35.700	37.41	37.28	37.56	37.93	37.10
40M	641666	3624.99	35.835	35.711	35.732	35.683	35.697	37.44	37.59	37.65	37.60	37.49
40M	645332	3679.98	35.721	35.670	35.657	35.717	36.821	37.58	37.32	37.29	37.27	37.51

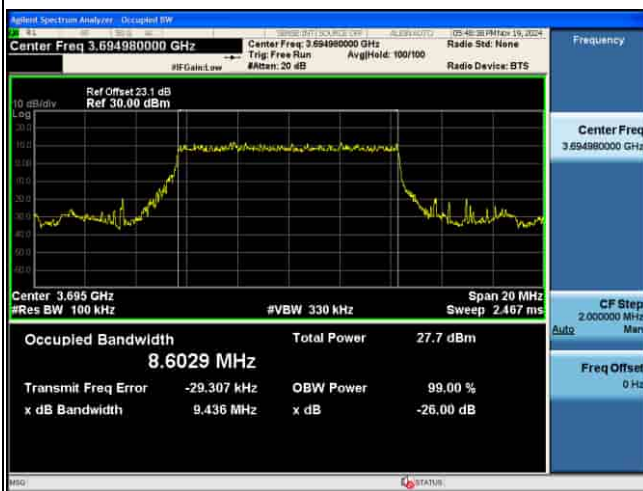
OCC_5G_n48_30KHz_.PI2-BPSK_10M CH637000



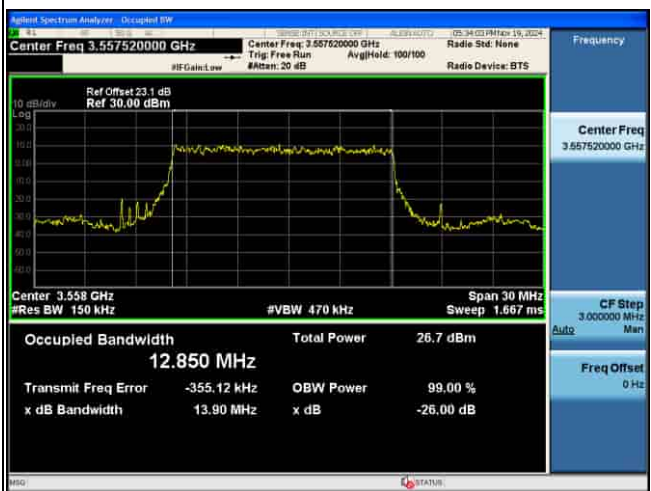
OCC_5G_n48_30KHz_.PI2-BPSK_10M CH641666



OCC_5G_n48_30KHz_.PI2-BPSK_10M CH646332



OCC_5G_n48_30KHz_.PI2-BPSK_15M CH637168



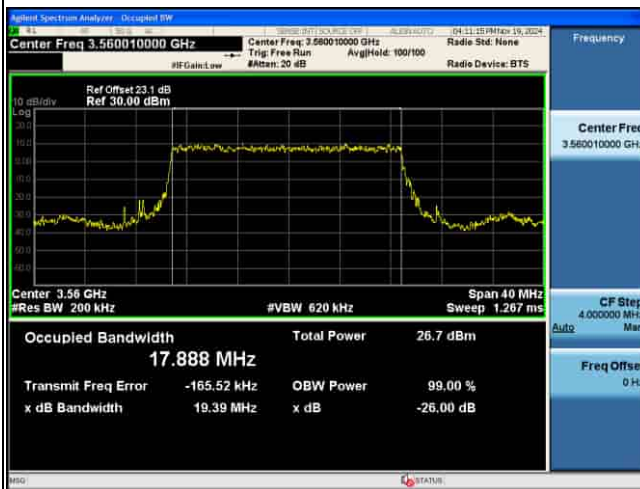
OCC_5G_n48_30KHz_.PI2-BPSK_15M CH641666



OCC_5G_n48_30KHz_.PI2-BPSK_15M CH646166



OCC_5G_n48_30KHz_.PI2-BPSK_20M CH637334



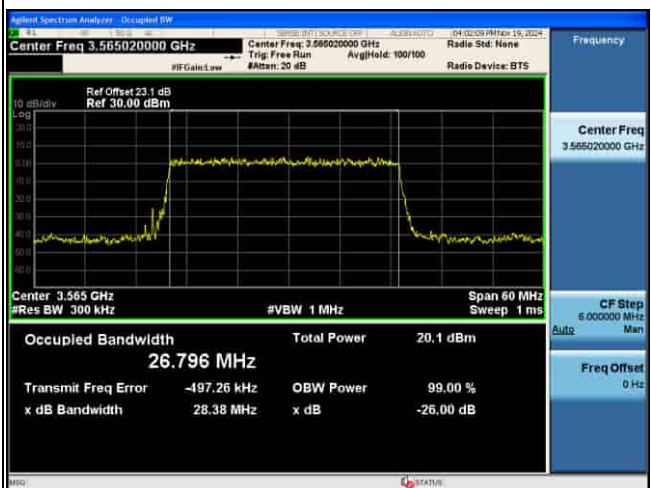
OCC_5G_n48_30KHz_.PI2-BPSK_20M CH641666



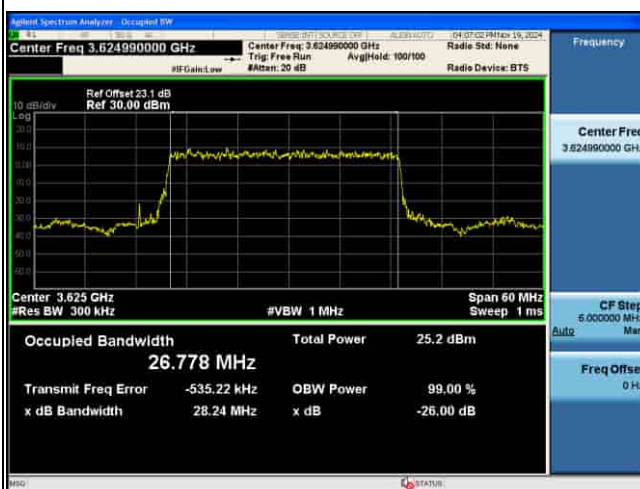
OCC_5G_n48_30KHz_.PI2-BPSK_20M CH646000



OCC_5G_n48_30KHz_.PI2-BPSK_30M CH637668



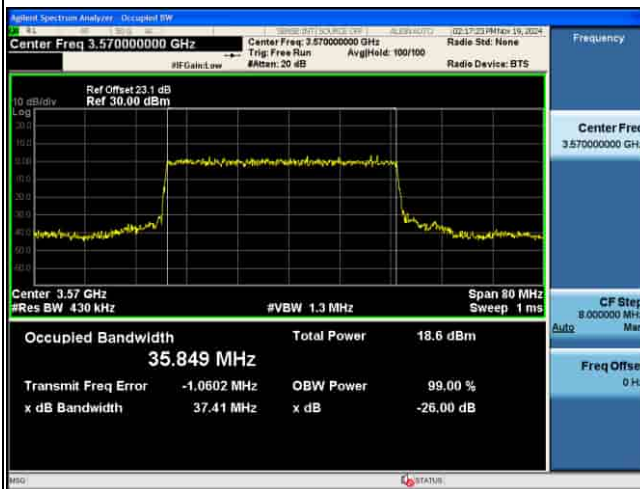
OCC_5G_n48_30KHz_.PI2-BPSK_30M CH641666



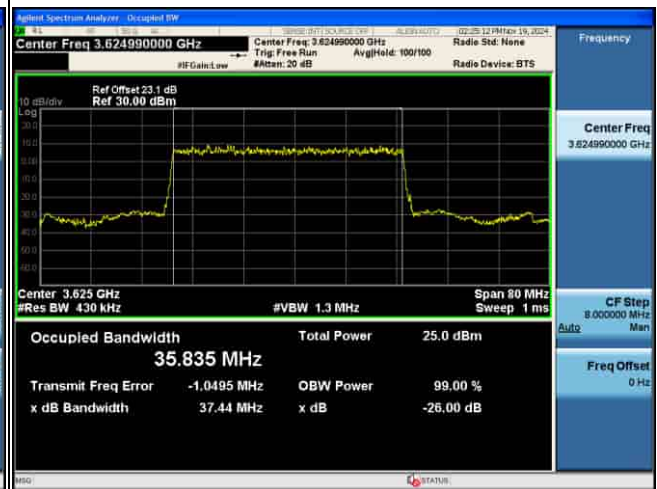
OCC_5G_n48_30KHz_.PI2-BPSK_30M CH645666



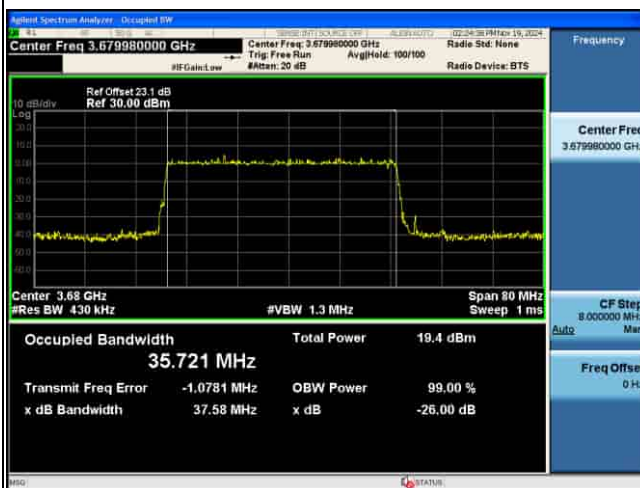
OCC_5G_n48_30KHz_.PI2-BPSK_40M CH638000



OCC_5G_n48_30KHz_.PI2-BPSK_40M CH641666



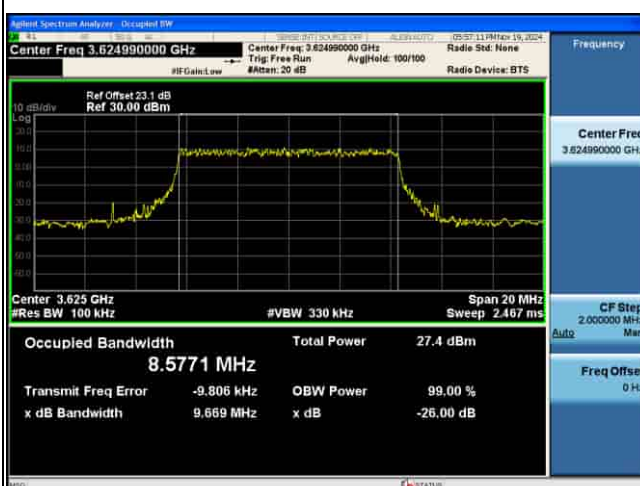
OCC_5G_n48_30KHz_.PI2-BPSK_40M CH645332



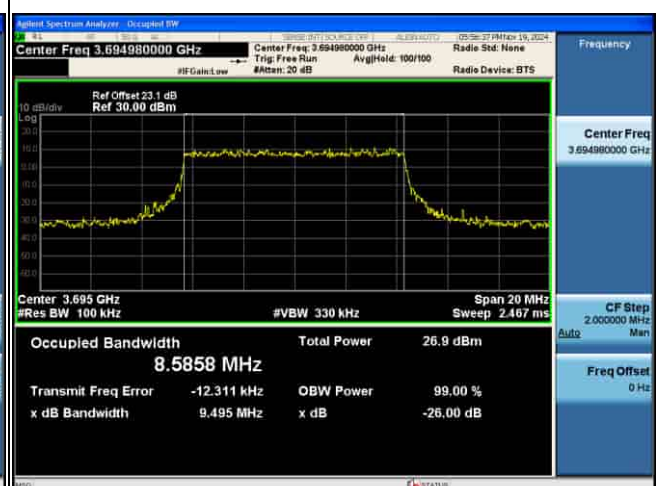
OCC_5G_n48_30KHz_.QPSK_10M CH637000



OCC_5G_n48_30KHz_.QPSK_10M CH641666



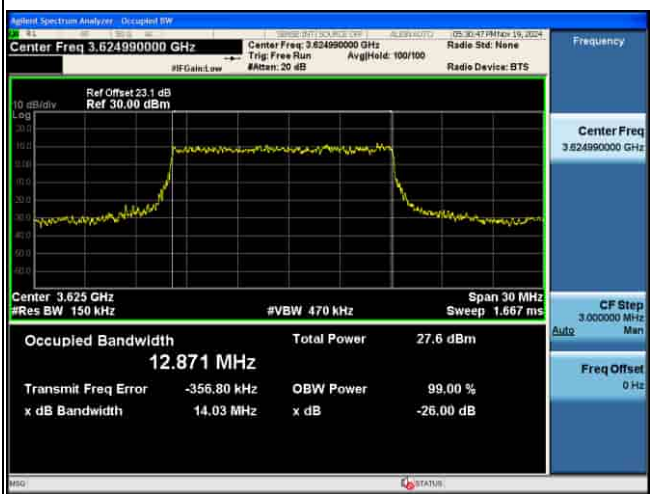
OCC_5G_n48_30KHz_.QPSK_10M CH646332



OCC_5G_n48_30KHz_QPSK_15M CH637168



OCC_5G_n48_30KHz_QPSK_15M CH641666



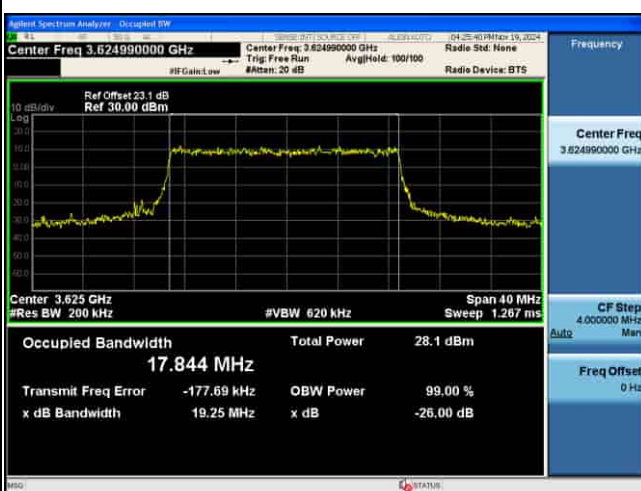
OCC_5G_n48_30KHz_QPSK_15M CH646166



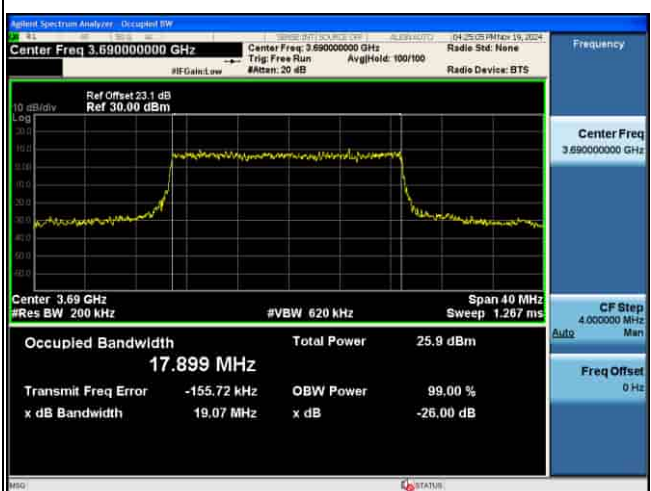
OCC_5G_n48_30KHz_QPSK_20M CH637334



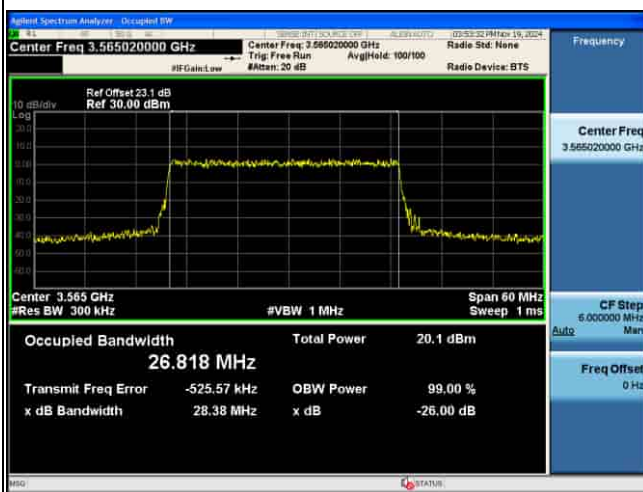
OCC_5G_n48_30KHz_QPSK_20M CH641666



OCC_5G_n48_30KHz_QPSK_20M CH646000



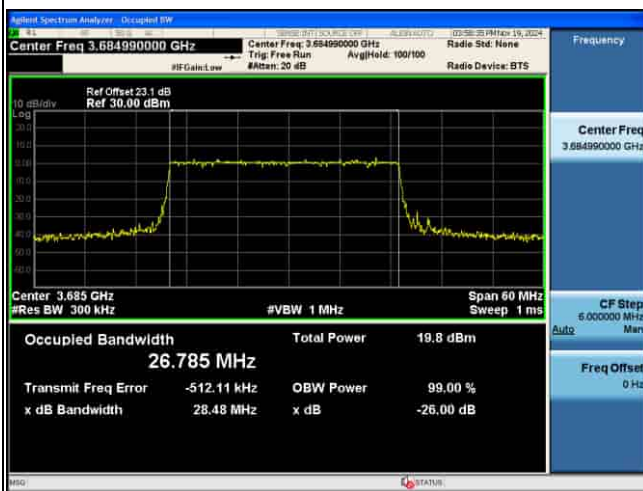
OCC_5G_n48_30KHz_QPSK_30M CH637668



OCC_5G_n48_30KHz_QPSK_30M CH641666



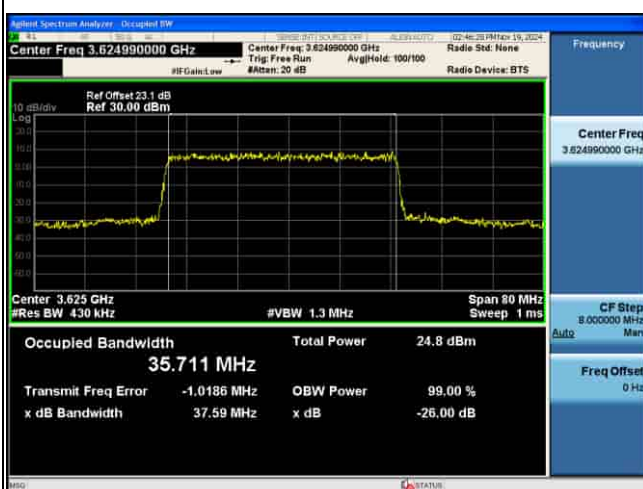
OCC_5G_n48_30KHz_QPSK_30M CH645666



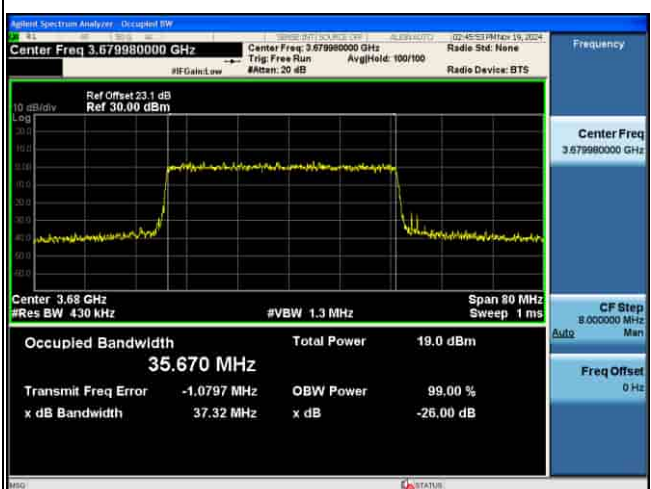
OCC_5G_n48_30KHz_QPSK_40M CH638000



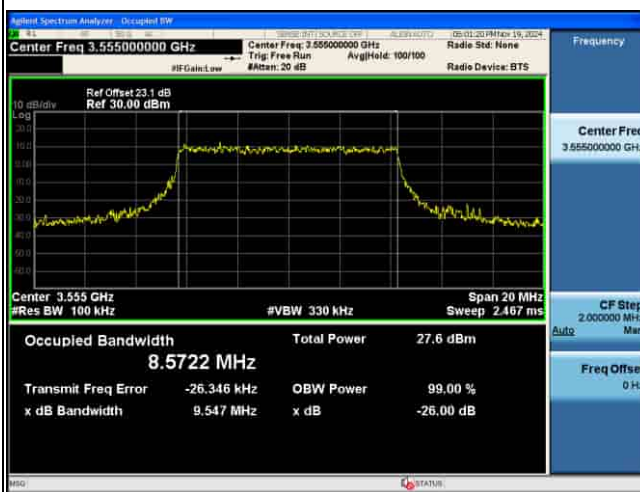
OCC_5G_n48_30KHz_QPSK_40M CH641666



OCC_5G_n48_30KHz_QPSK_40M CH645332



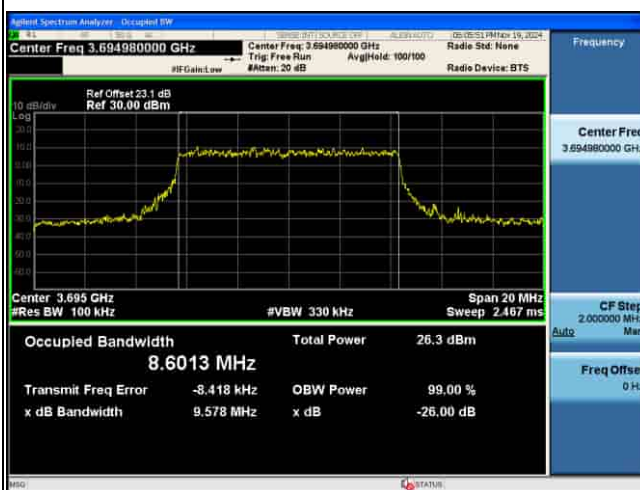
OCC_5G_n48_30KHz_16QAM_10M CH637000



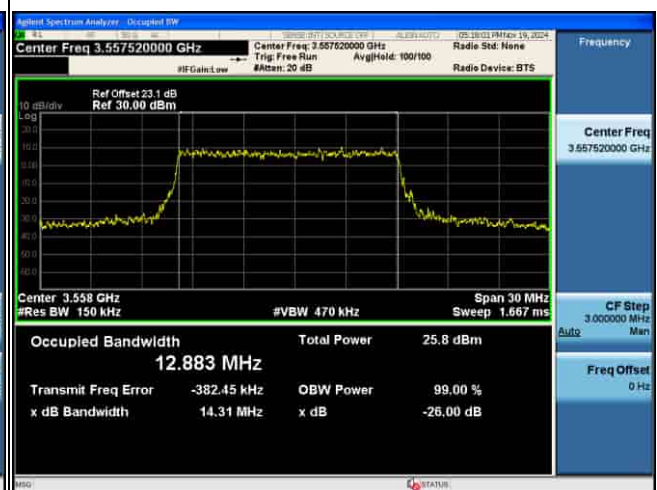
OCC_5G_n48_30KHz_16QAM_10M CH641666



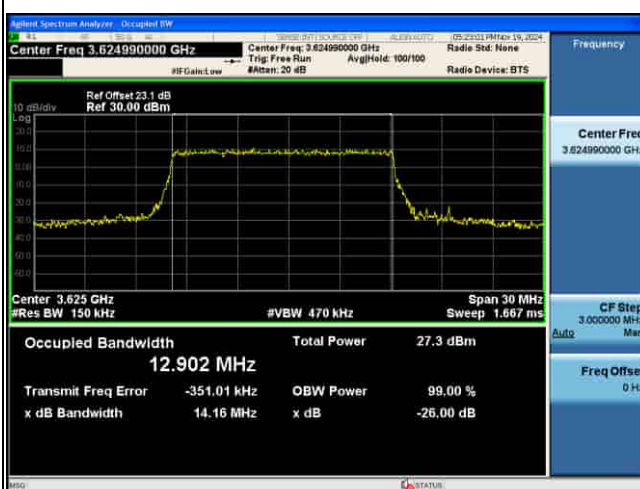
OCC_5G_n48_30KHz_16QAM_10M CH646332



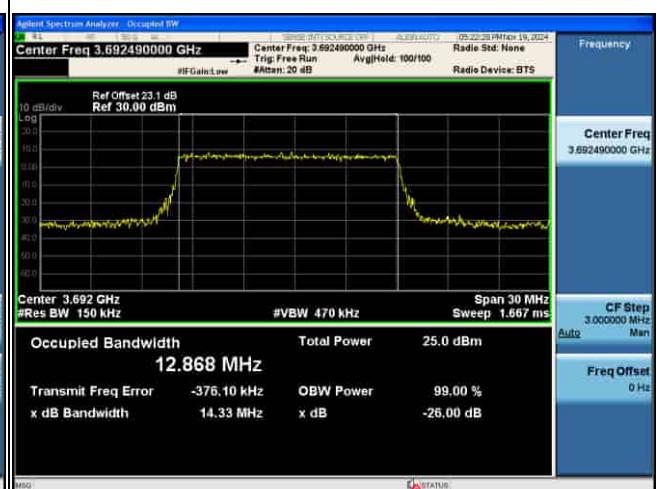
OCC_5G_n48_30KHz_16QAM_15M CH637168



OCC_5G_n48_30KHz_16QAM_15M CH641666



OCC_5G_n48_30KHz_16QAM_15M CH646166



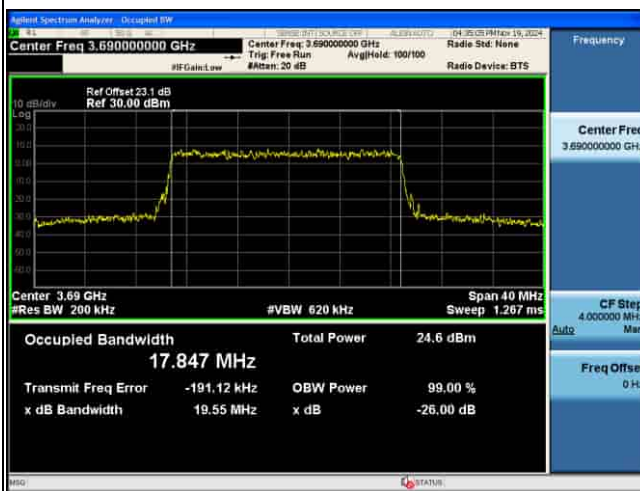
OCC_5G_n48_30KHz_16QAM_20M CH637334



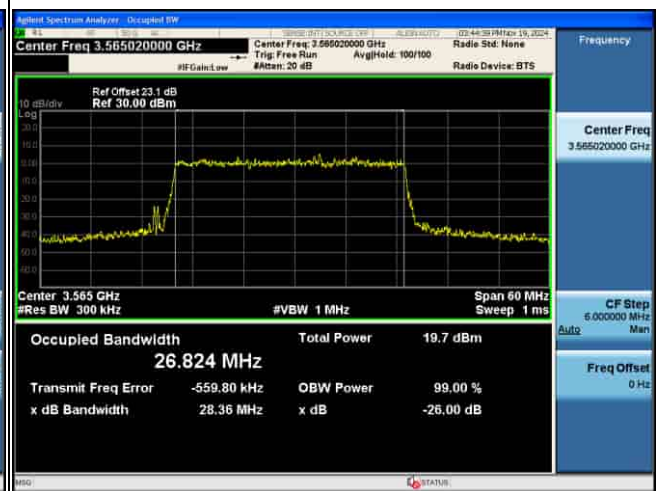
OCC_5G_n48_30KHz_16QAM_20M CH641666



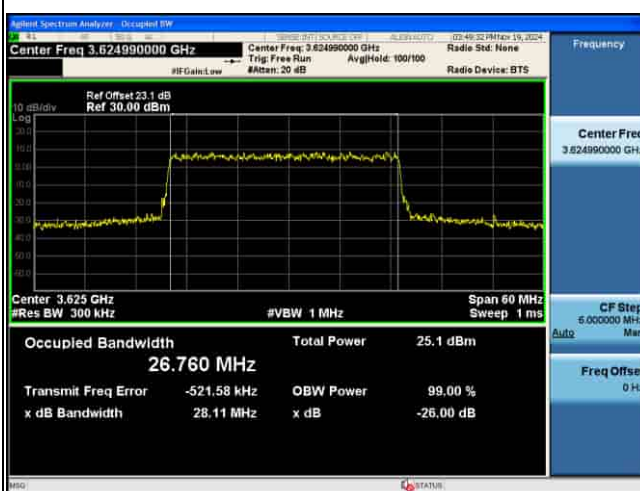
OCC_5G_n48_30KHz_16QAM_20M CH646000



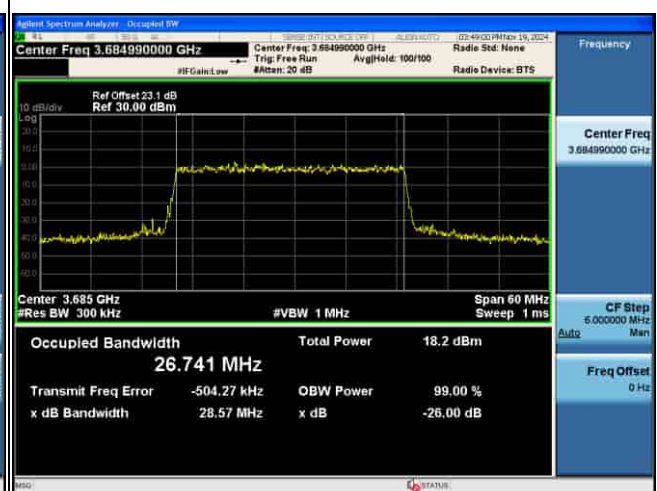
OCC_5G_n48_30KHz_16QAM_30M CH637668



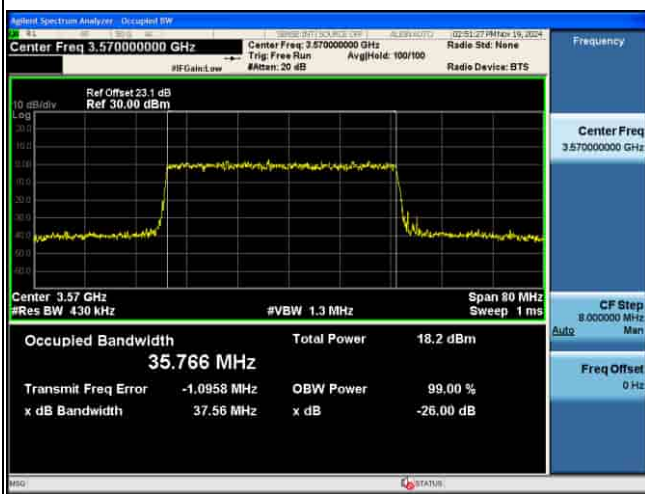
OCC_5G_n48_30KHz_16QAM_30M CH641666



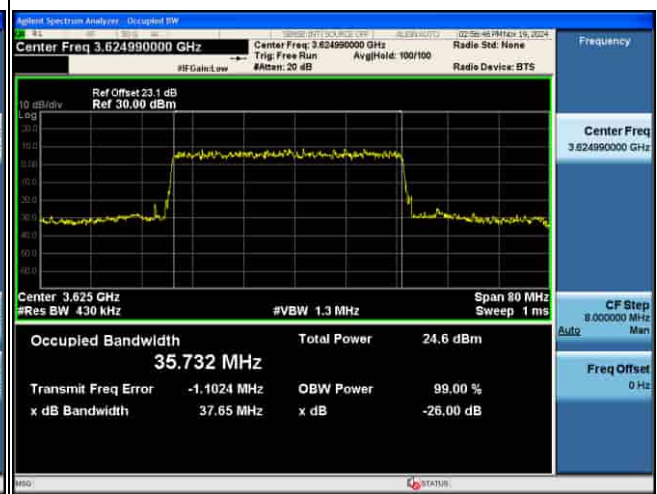
OCC_5G_n48_30KHz_16QAM_30M CH645666



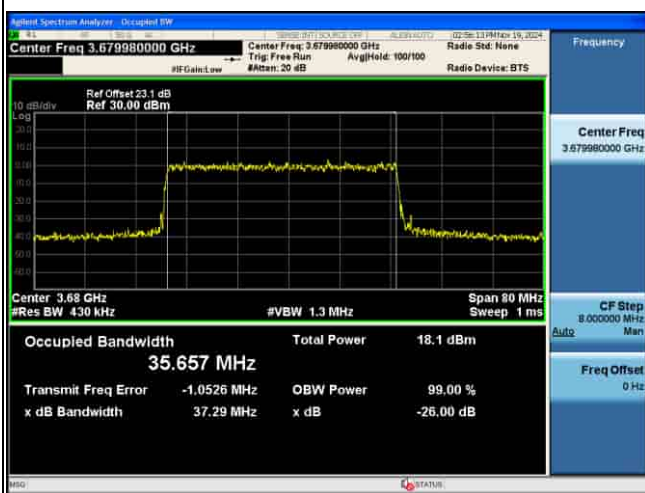
OCC_5G_n48_30KHz_16QAM_40M CH638000



OCC_5G_n48_30KHz_16QAM_40M CH641666



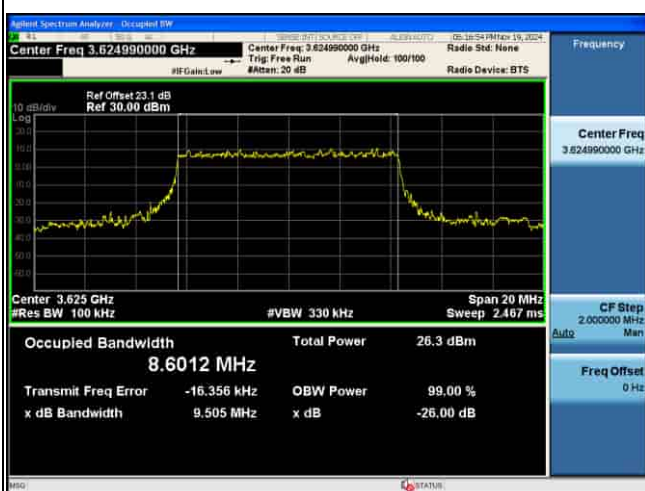
OCC_5G_n48_30KHz_16QAM_40M CH645332



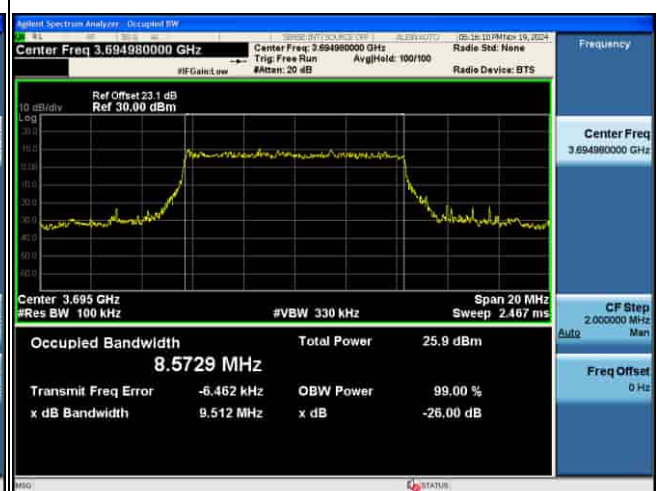
OCC_5G_n48_30KHz_64QAM_10M CH637000



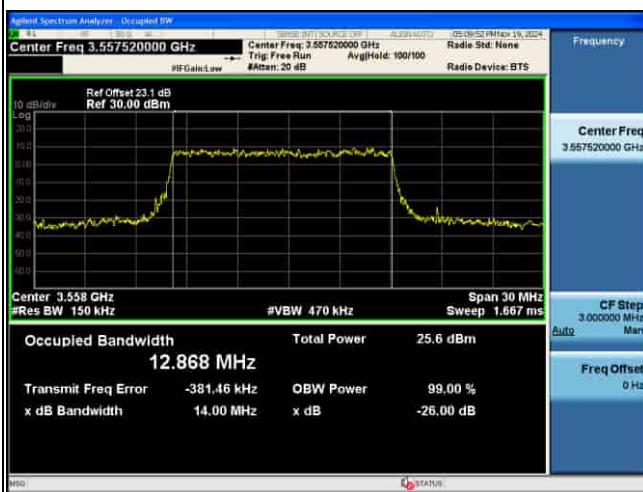
OCC_5G_n48_30KHz_64QAM_10M CH641666



OCC_5G_n48_30KHz_64QAM_10M CH646332



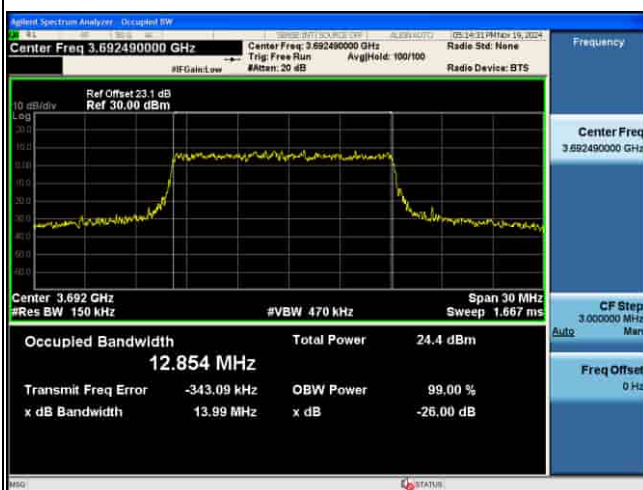
OCC_5G_n48_30KHz_64QAM_15M CH637168



OCC_5G_n48_30KHz_64QAM_15M CH641666



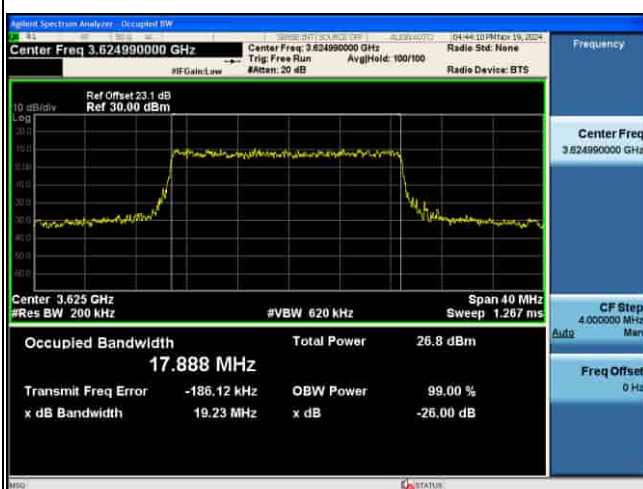
OCC_5G_n48_30KHz_64QAM_15M CH646166



OCC_5G_n48_30KHz_64QAM_20M CH637334



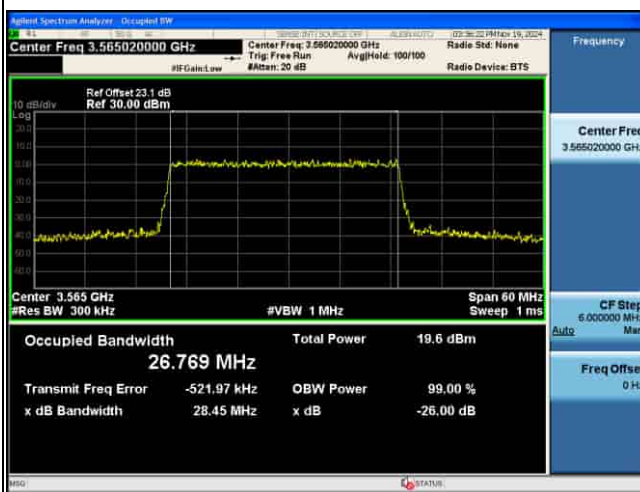
OCC_5G_n48_30KHz_64QAM_20M CH641666



OCC_5G_n48_30KHz_64QAM_20M CH646000



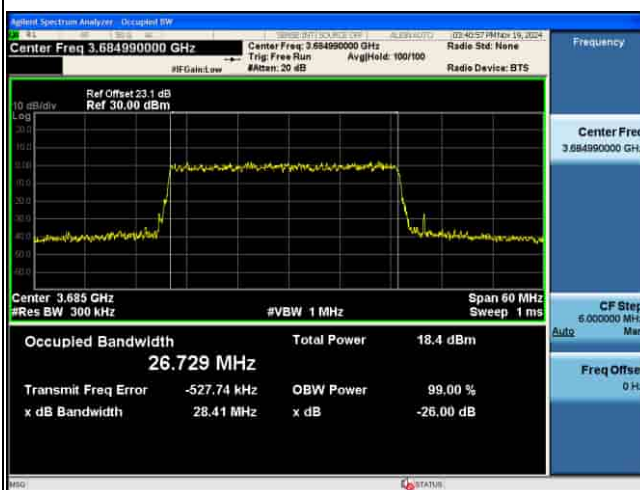
OCC_5G_n48_30KHz_64QAM_30M CH637668



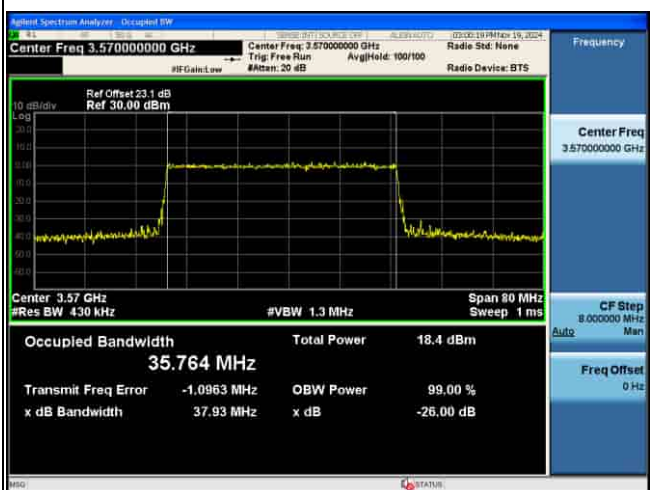
OCC_5G_n48_30KHz_64QAM_30M CH641666



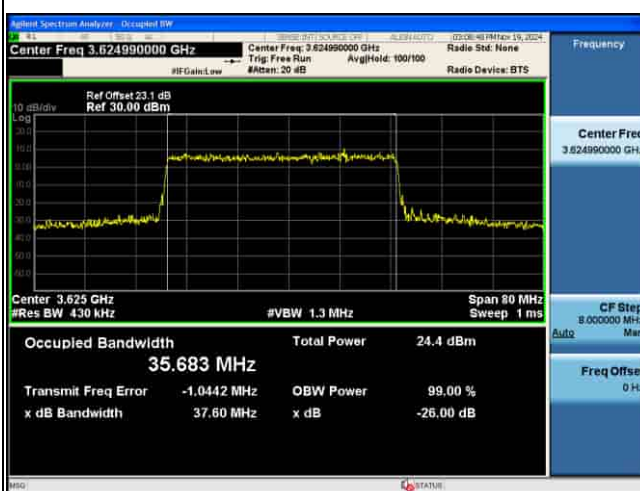
OCC_5G_n48_30KHz_64QAM_30M CH645666



OCC_5G_n48_30KHz_64QAM_40M CH638000



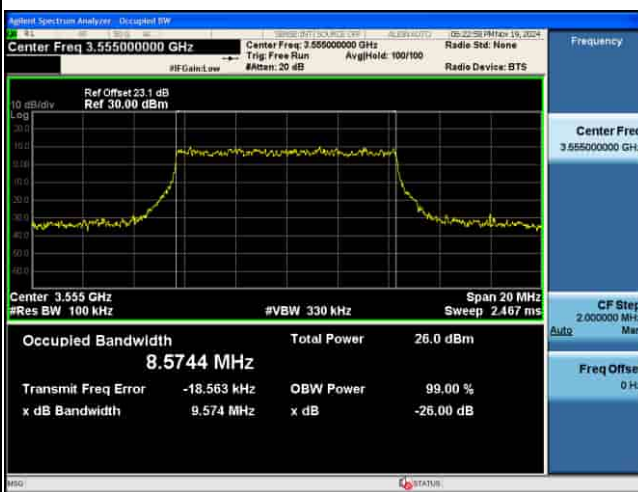
OCC_5G_n48_30KHz_64QAM_40M CH641666



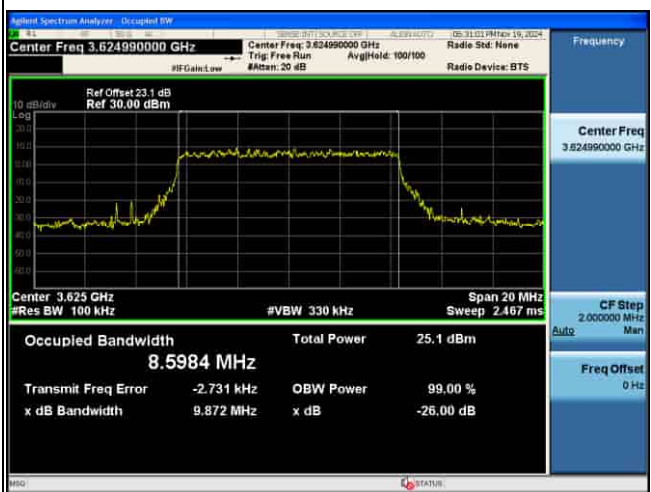
OCC_5G_n48_30KHz_64QAM_40M CH645332



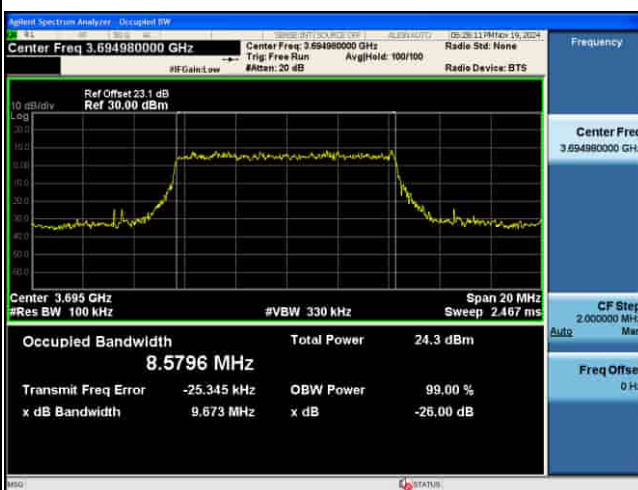
OCC_5G_n48_30KHz_256QAM_10M CH637000



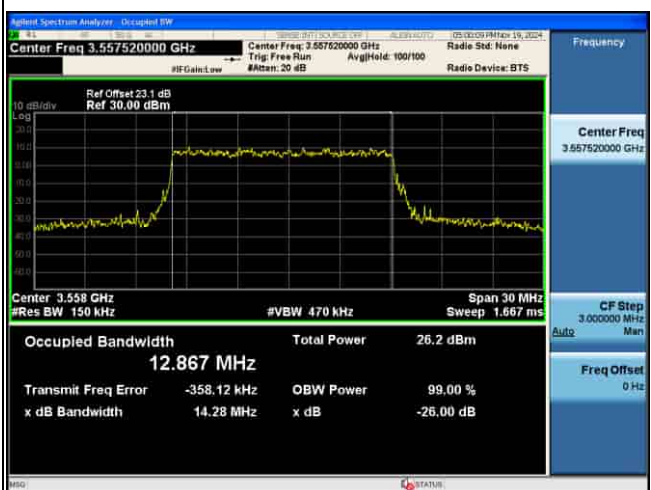
OCC_5G_n48_30KHz_256QAM_10M CH641666



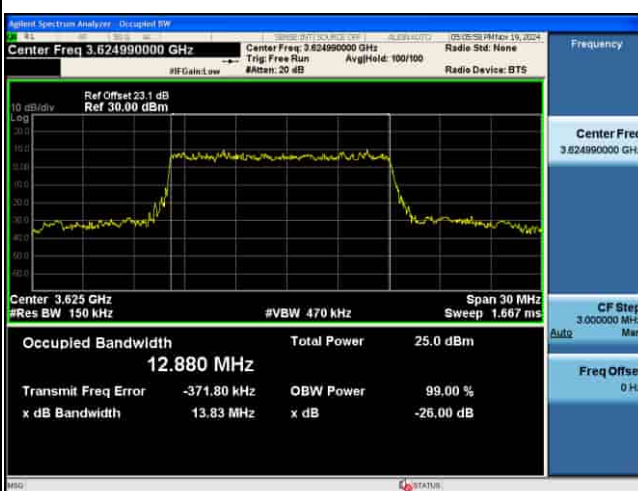
OCC_5G_n48_30KHz_256QAM_10M CH646332



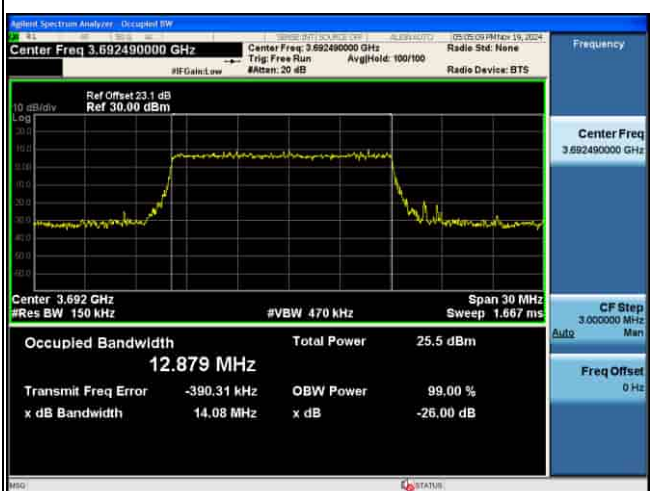
OCC_5G_n48_30KHz_256QAM_15M CH637168



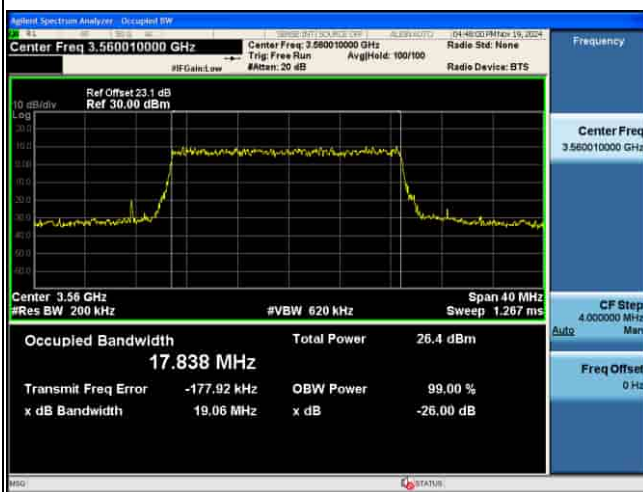
OCC_5G_n48_30KHz_256QAM_15M CH641666



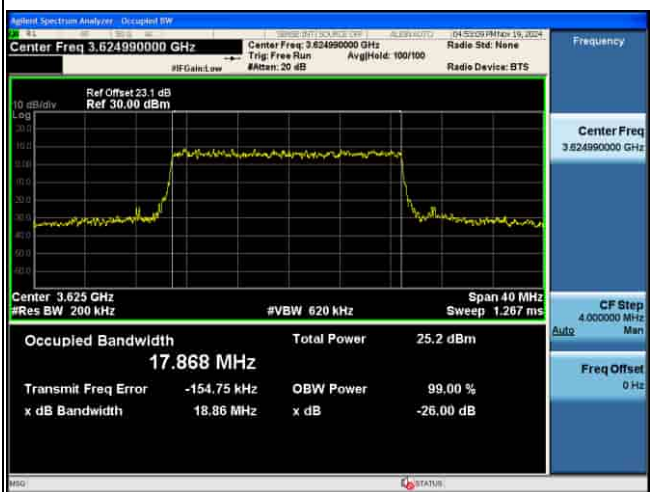
OCC_5G_n48_30KHz_256QAM_15M CH646166



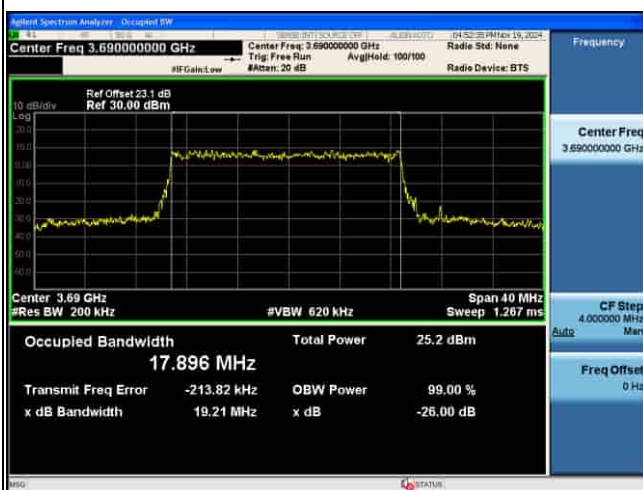
OCC_5G_n48_30KHz_256QAM_20M CH637334



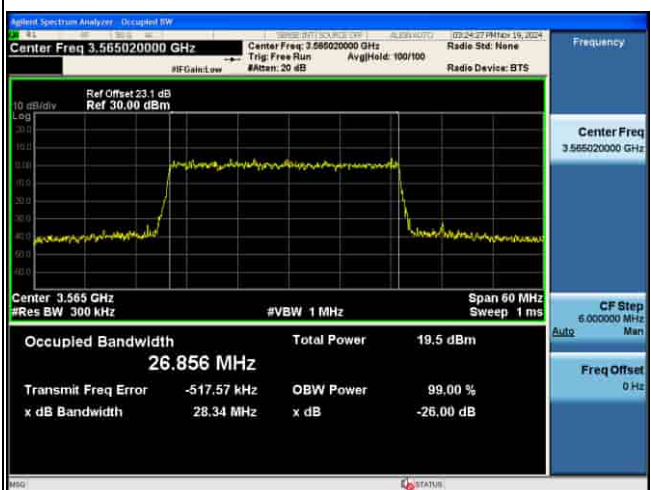
OCC_5G_n48_30KHz_256QAM_20M CH641666



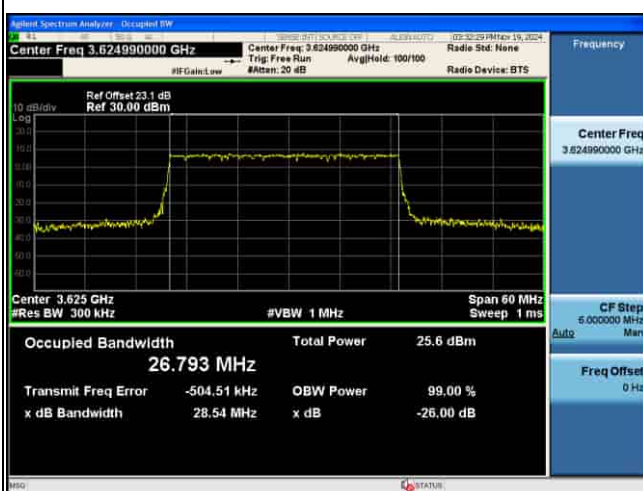
OCC_5G_n48_30KHz_256QAM_20M CH646000



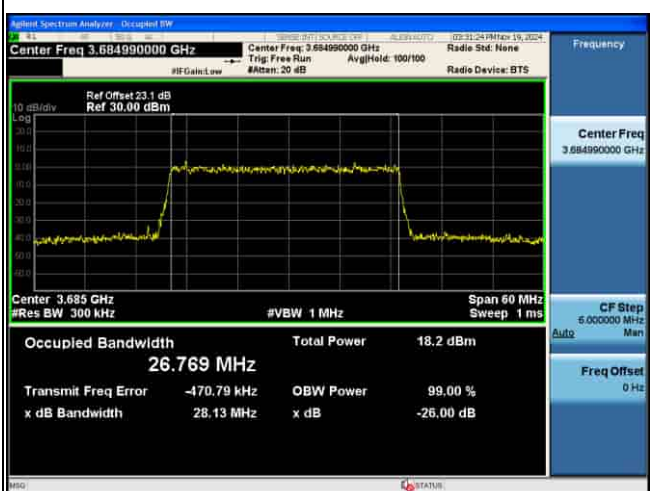
OCC_5G_n48_30KHz_256QAM_30M CH637668



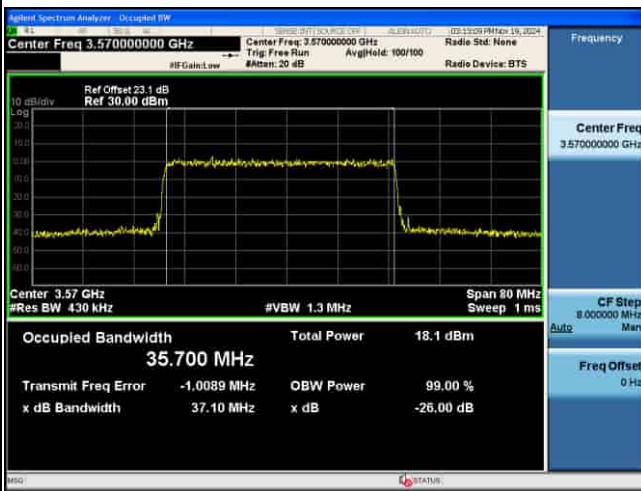
OCC_5G_n48_30KHz_256QAM_30M CH641666



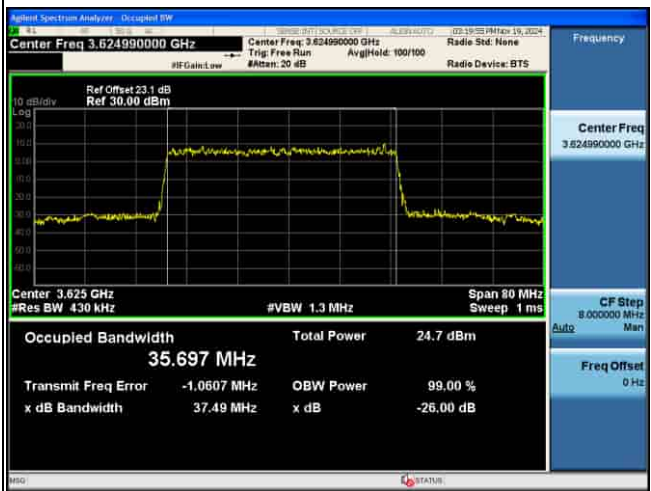
OCC_5G_n48_30KHz_256QAM_30M CH645666



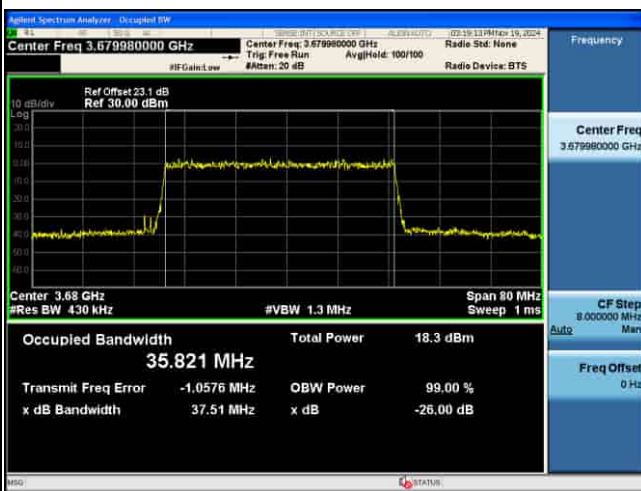
OCC_5G_n48_30KHz_256QAM_40M CH638000



OCC_5G_n48_30KHz_256QAM_40M CH641666



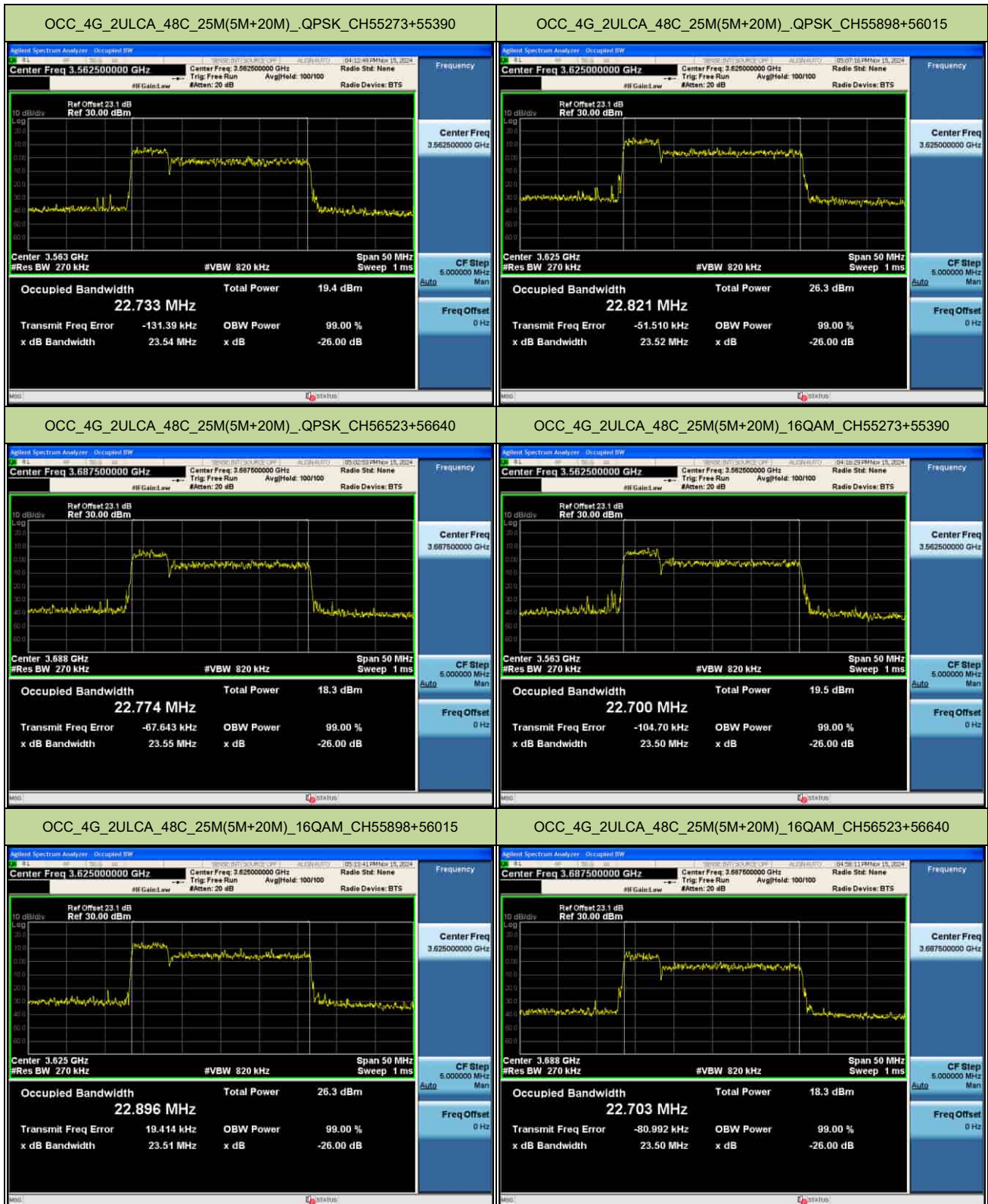
OCC_5G_n48_30KHz_256QAM_40M CH645332

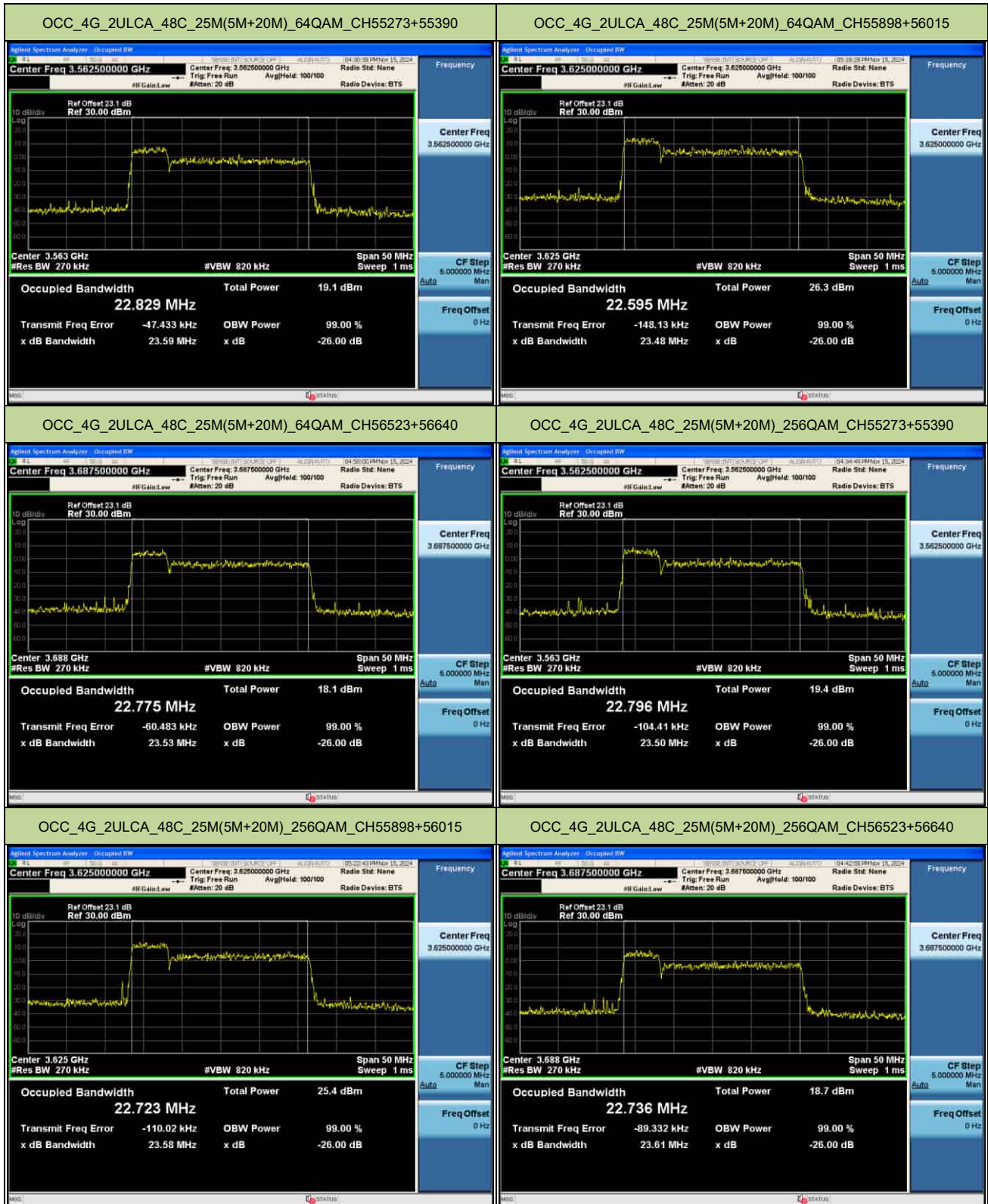


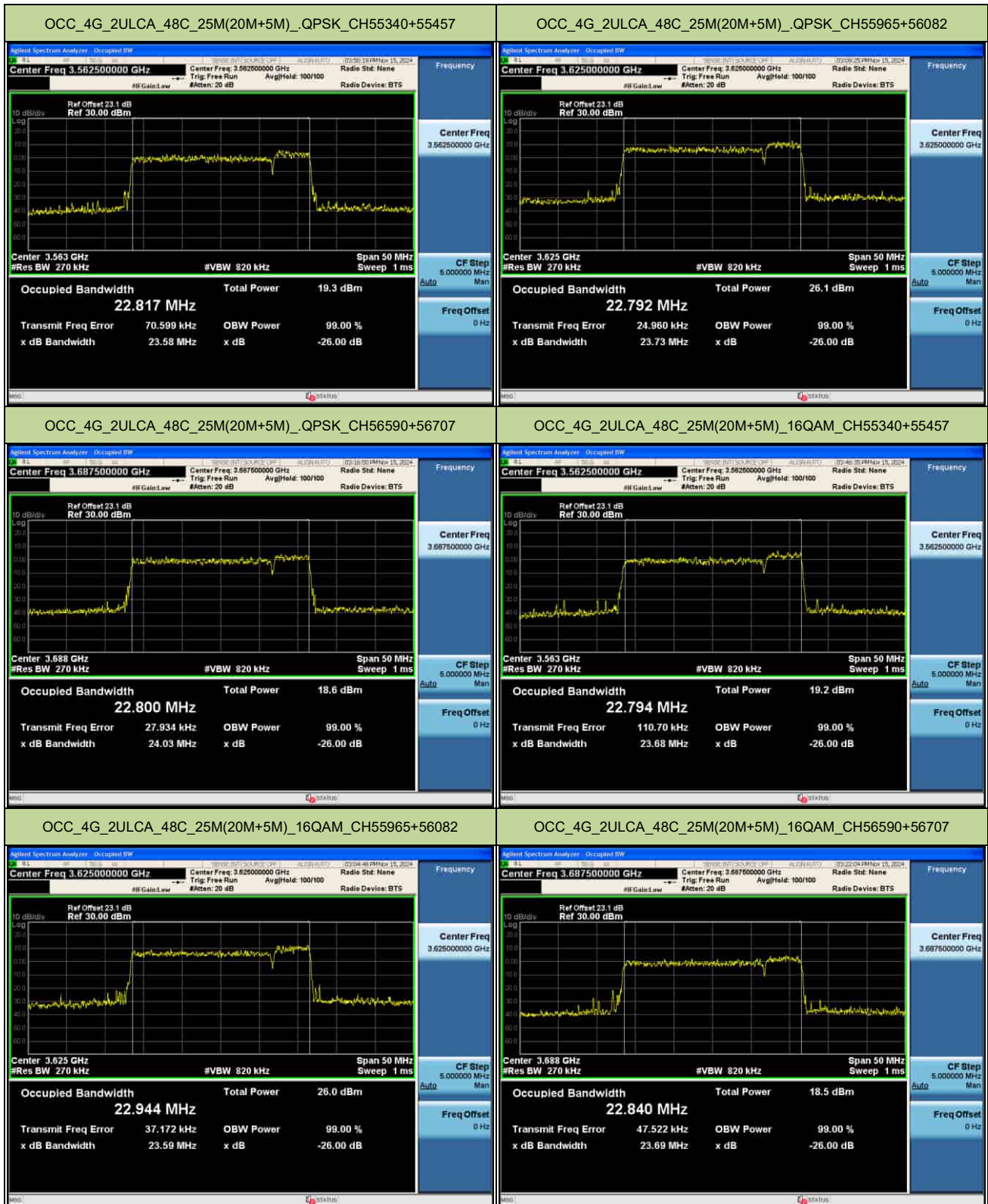
A1.3 LTE 2UL 48C

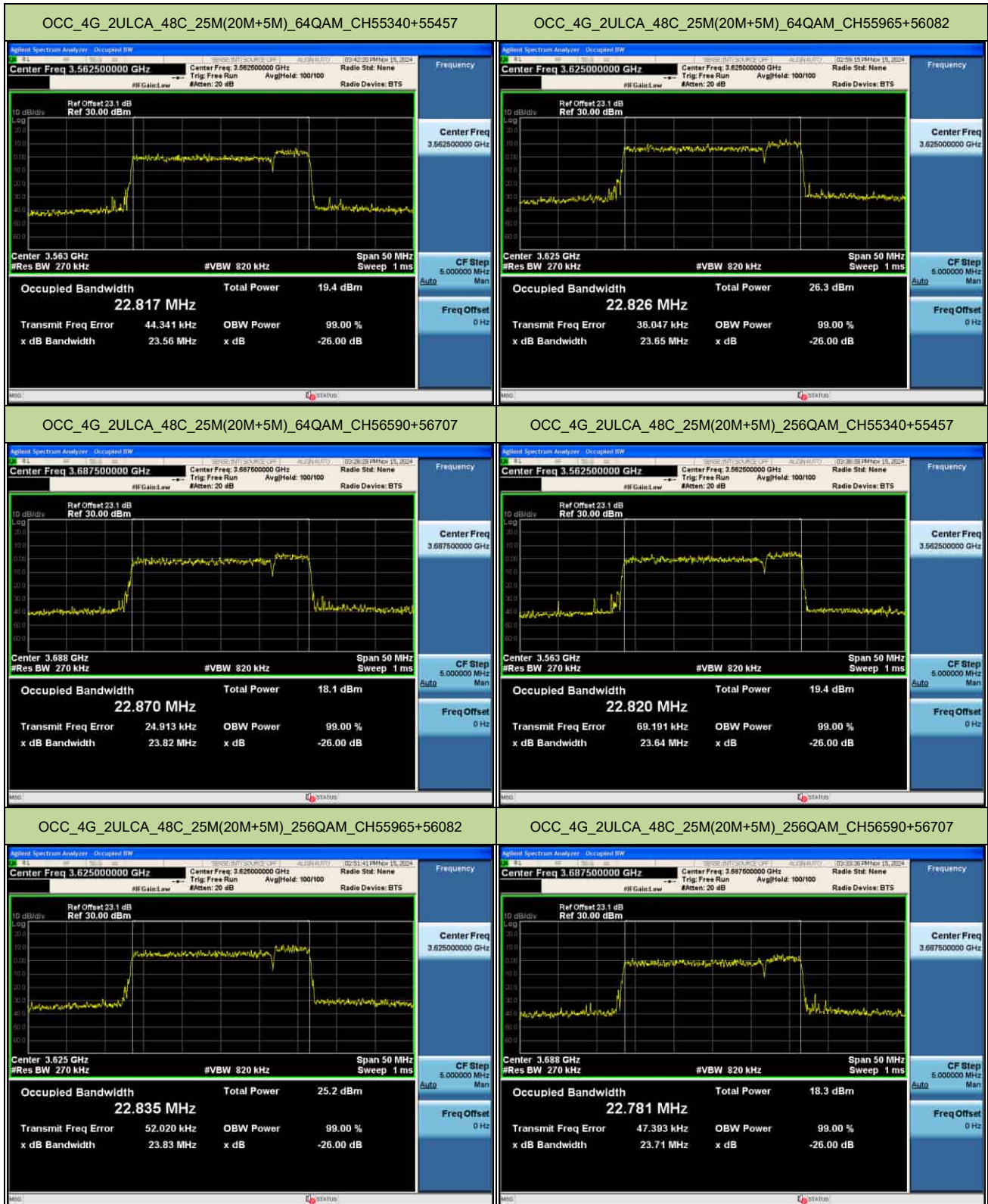
LTE 2UL_CA_48C												
BW	Frequency (MHz)		Channel		99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
	PCC	SCC	PCC	SCC	QPSK	16QA M	64QA M	256QA M	QPS K	16QA M	64QA M	256QA M
25MHz (5+20)	3553.3	3565	5527.3	5539.0	22.733	22.700	22.829	22.796	23.54	23.50	23.59	23.50
	3615.8	3627.5	5589.8	5601.5	22.821	22.896	22.595	22.723	23.52	23.51	23.48	23.58
	3678.3	3690	5652.3	5664.0	22.774	22.703	22.775	22.736	23.55	23.50	23.53	23.61
25MHz (20+5)	3560	3571.7	5534.0	5545.7	22.817	22.794	22.817	22.820	23.58	23.68	23.56	23.64
	3622.5	3634.2	5596.5	5608.2	22.792	22.944	22.826	22.835	23.73	23.59	23.65	23.83
	3685	3696.7	5659.0	5670.7	22.800	22.840	22.870	22.781	24.03	23.69	23.82	23.71
30MHz (10+20)	3555.5	3569.9	5529.5	5543.9	27.665	27.598	27.612	27.697	28.94	28.75	28.71	28.78
	3615.6	3630	5589.6	5604.0	27.696	27.658	27.772	27.659	28.65	28.98	28.63	28.57
	3675.6	3690	5649.6	5664.0	27.631	27.673	27.590	27.591	28.68	28.80	29.47	28.64
30MHz (20+10)	3560	3574.4	5534.0	5548.4	27.742	27.754	27.727	27.720	29.10	29.23	28.90	28.87
	3620.1	3634.5	5594.1	5608.5	27.700	27.652	27.665	27.678	28.97	28.73	28.74	28.67
	3680.1	3694.5	5654.1	5668.5	27.781	27.700	27.694	27.721	29.03	29.14	29.01	28.71
35MHz (15+20)	3557.8	3574.9	5531.8	5548.9	32.660	32.658	32.523	32.490	34.05	33.94	33.90	34.54
	3615.3	3632.4	5589.3	5606.4	32.535	32.527	32.716	32.427	34.07	33.80	33.66	33.62
	3672.9	3690	5646.9	5664.0	32.596	32.532	32.494	32.576	34.01	33.91	33.93	33.73

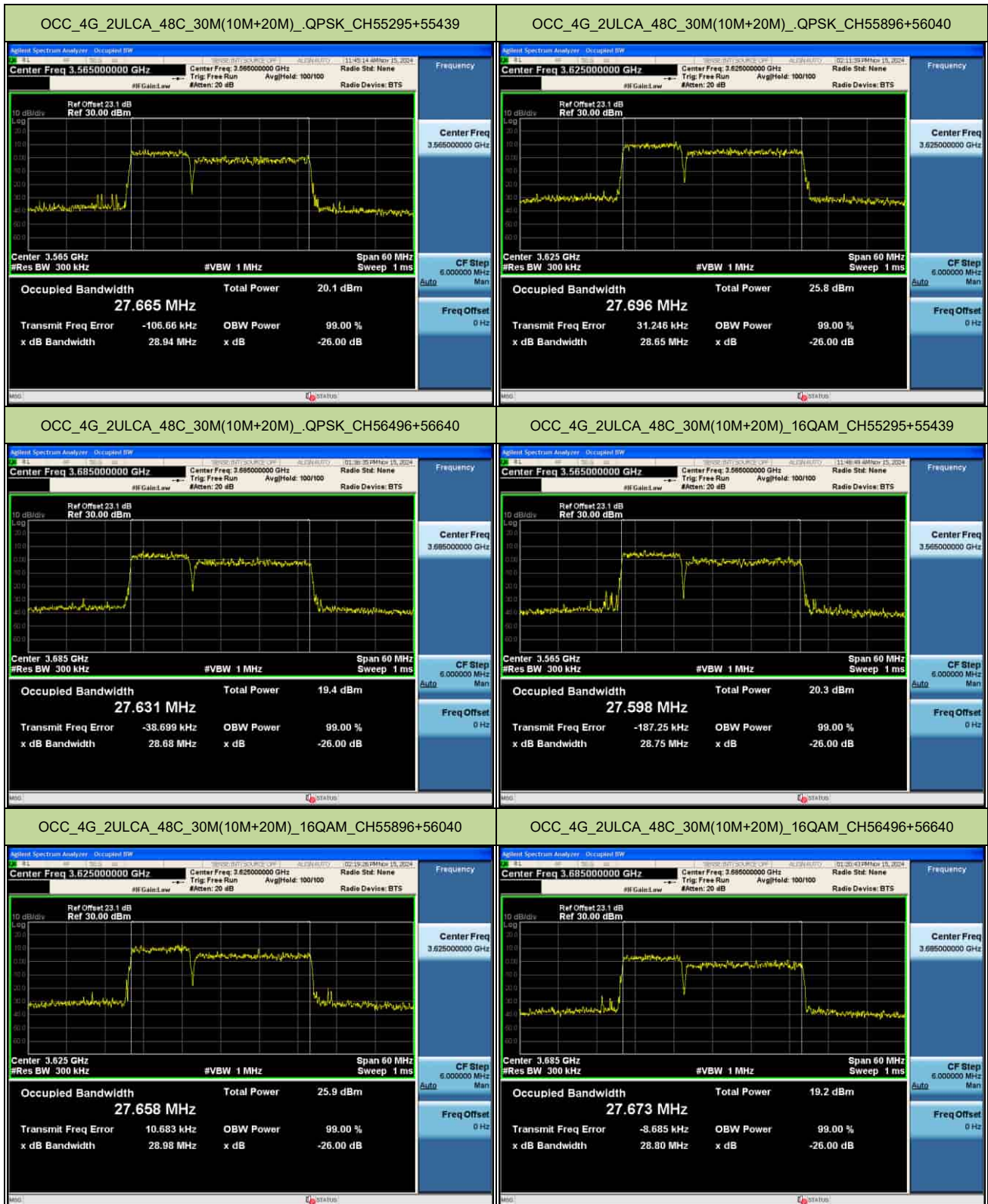
35MHz (20+15)	3560	3577. 1	5534 0	5551 1	32.56 3	32.574	32.511	32.550	33.79	33.89	34.06	34.17
	3617. 6	3634. 7	5591 6	5608 7	32.68 1	32.569	32.563	32.373	34.02	34.05	33.94	33.43
	3675. 1	3692. 2	5649 1	5666 2	32.66 2	32.578	32.660	32.571	33.92	34.04	34.17	33.88
40MHz (20+20)	3560	3579. 8	5534 0	5553 8	37.50 8	37.419	37.652	37.483	39.04	38.66	39.24	38.89
	3615. 1	3634. 9	5589 1	5608 9	37.46 3	37.549	37.550	37.429	38.91	38.88	39.02	38.76
	3670. 2	3690	5644 2	5664 0	37.51 1	37.386	37.501	37.456	38.98	38.87	39.18	38.76

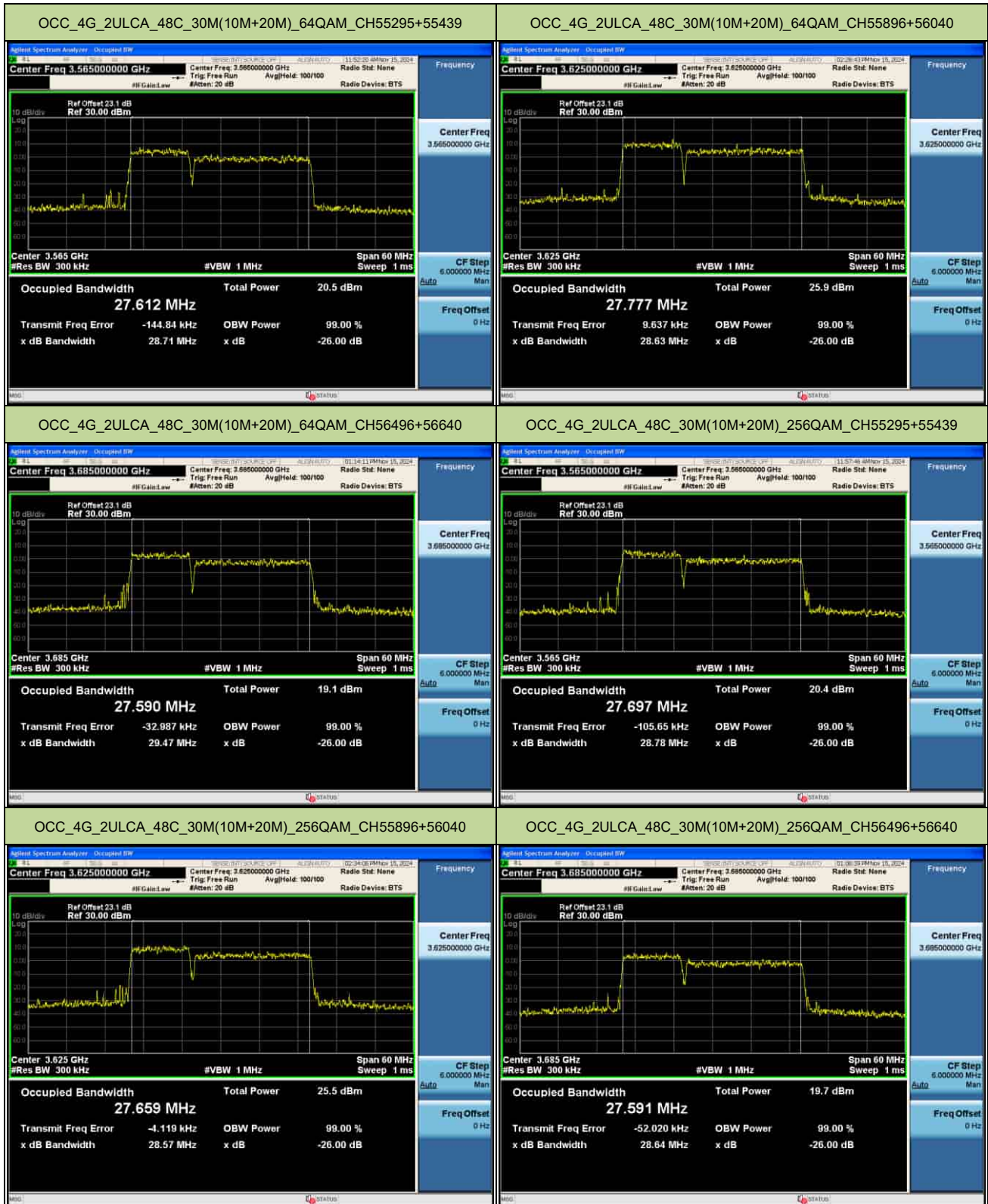


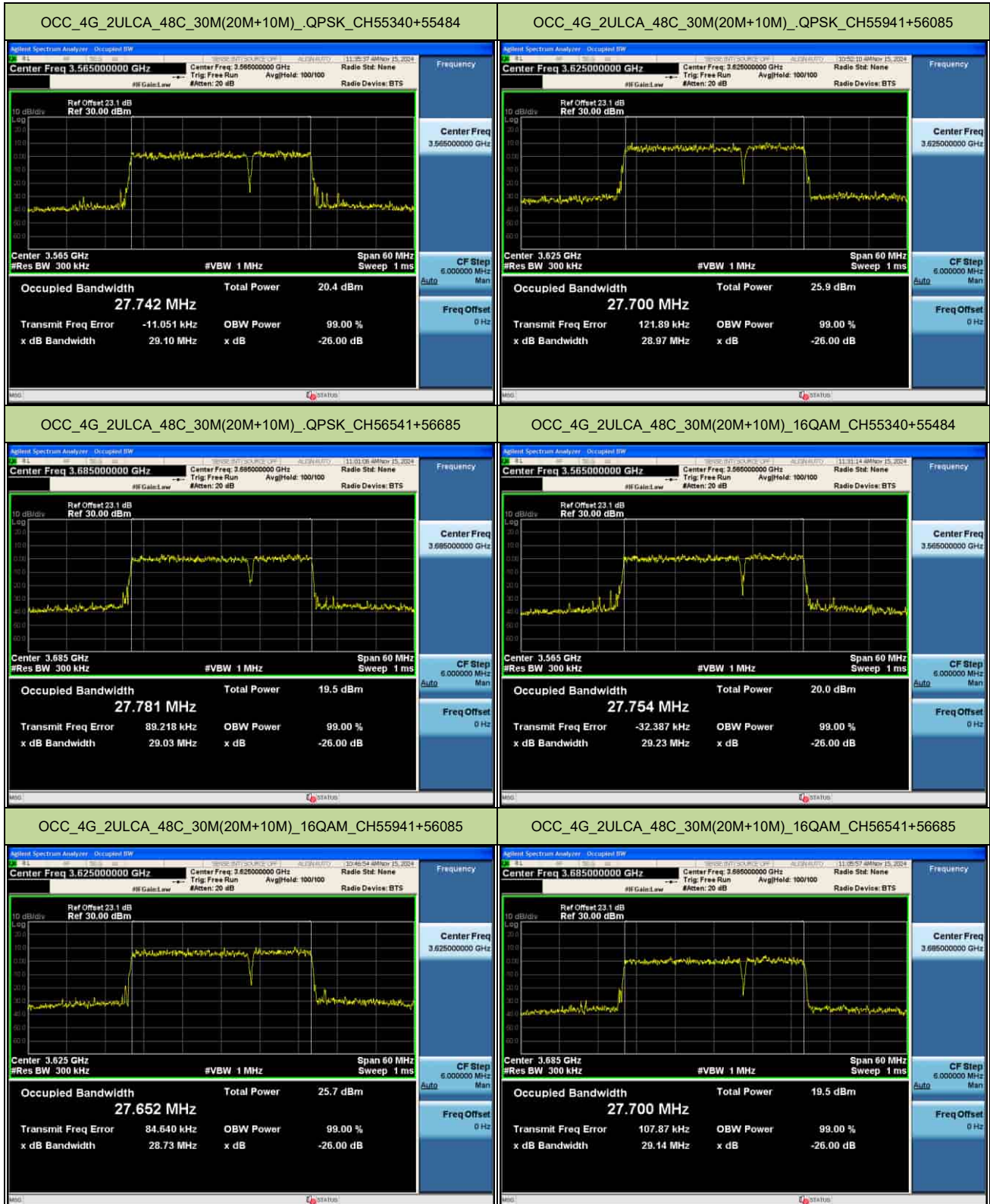


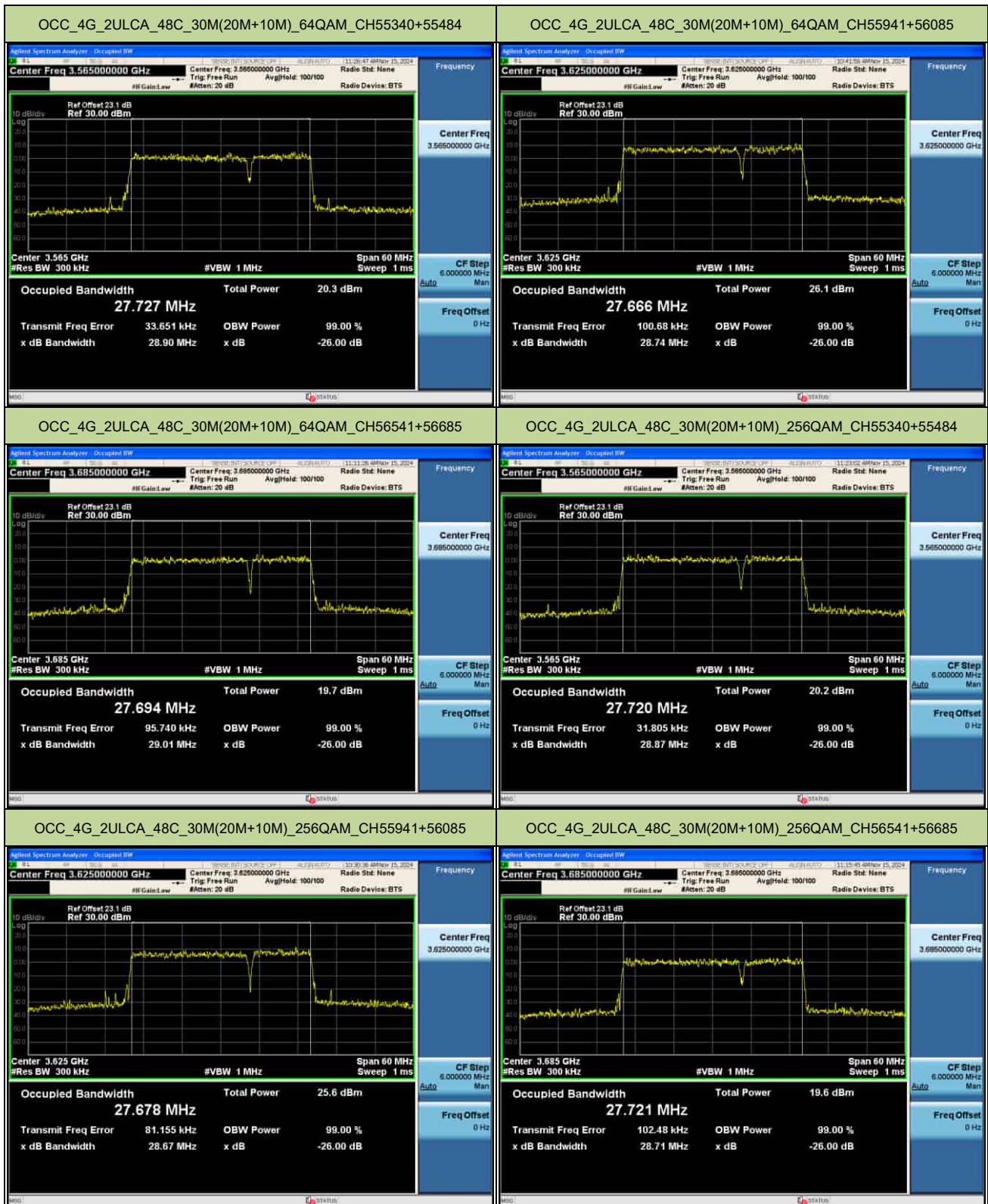


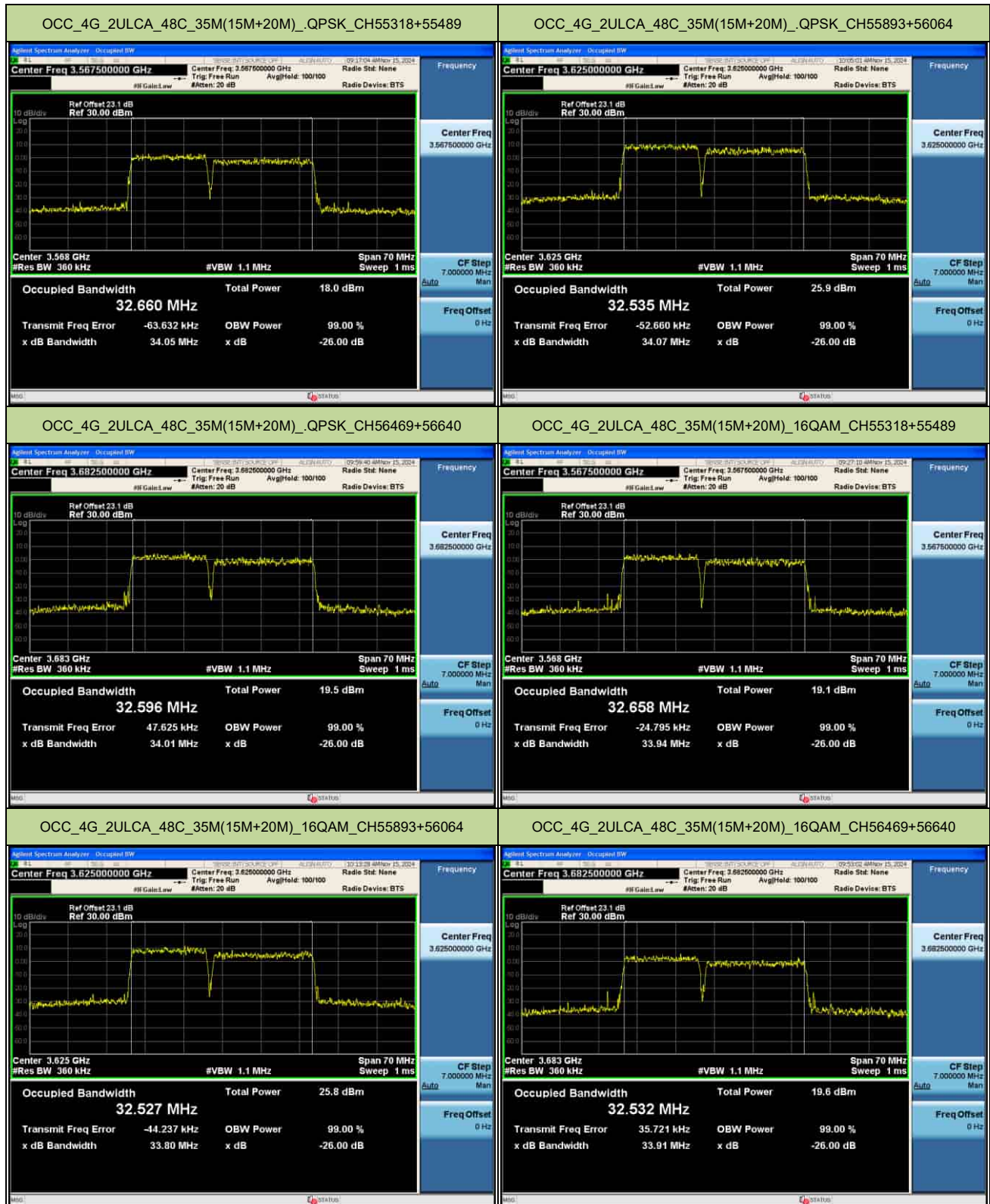




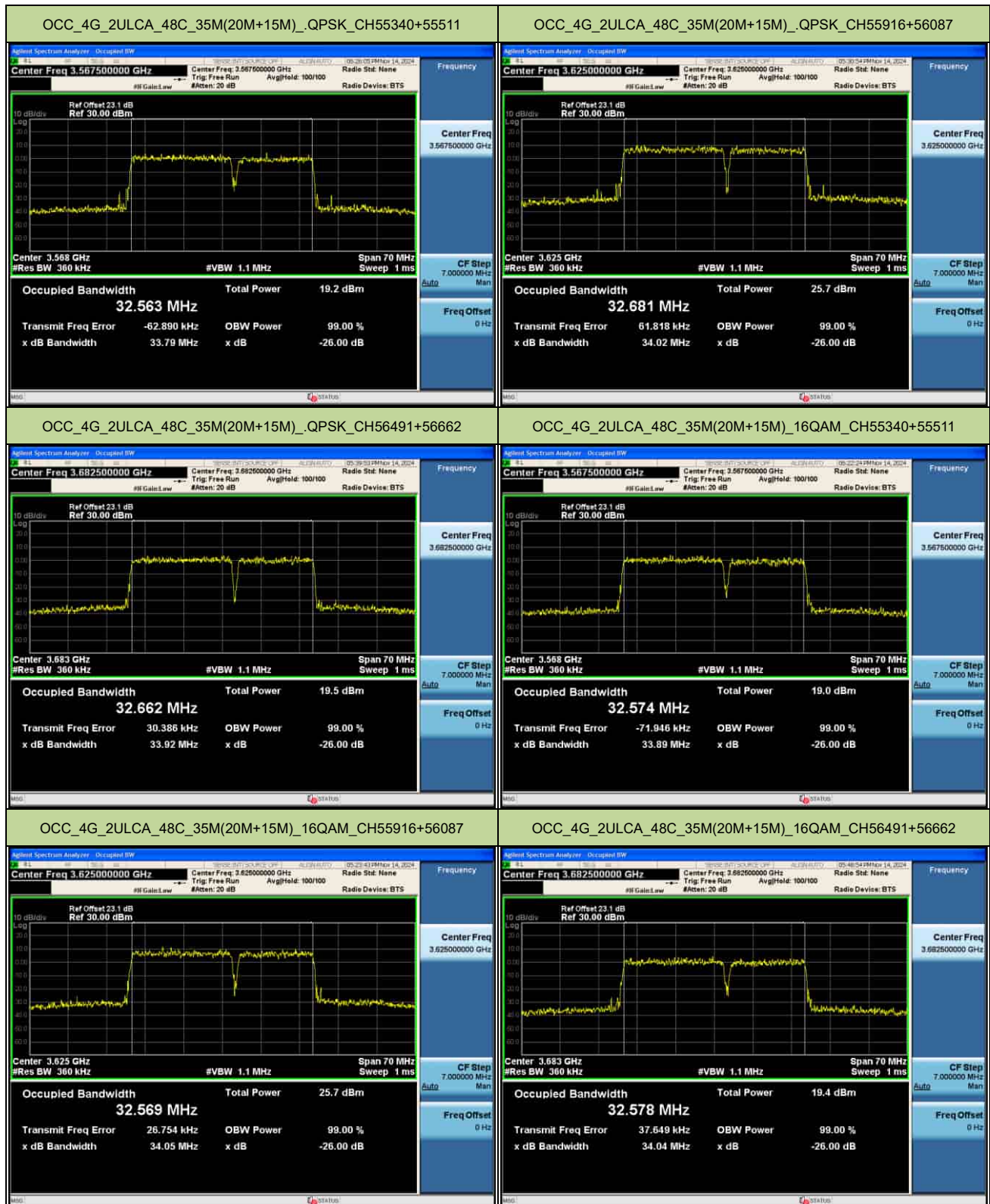


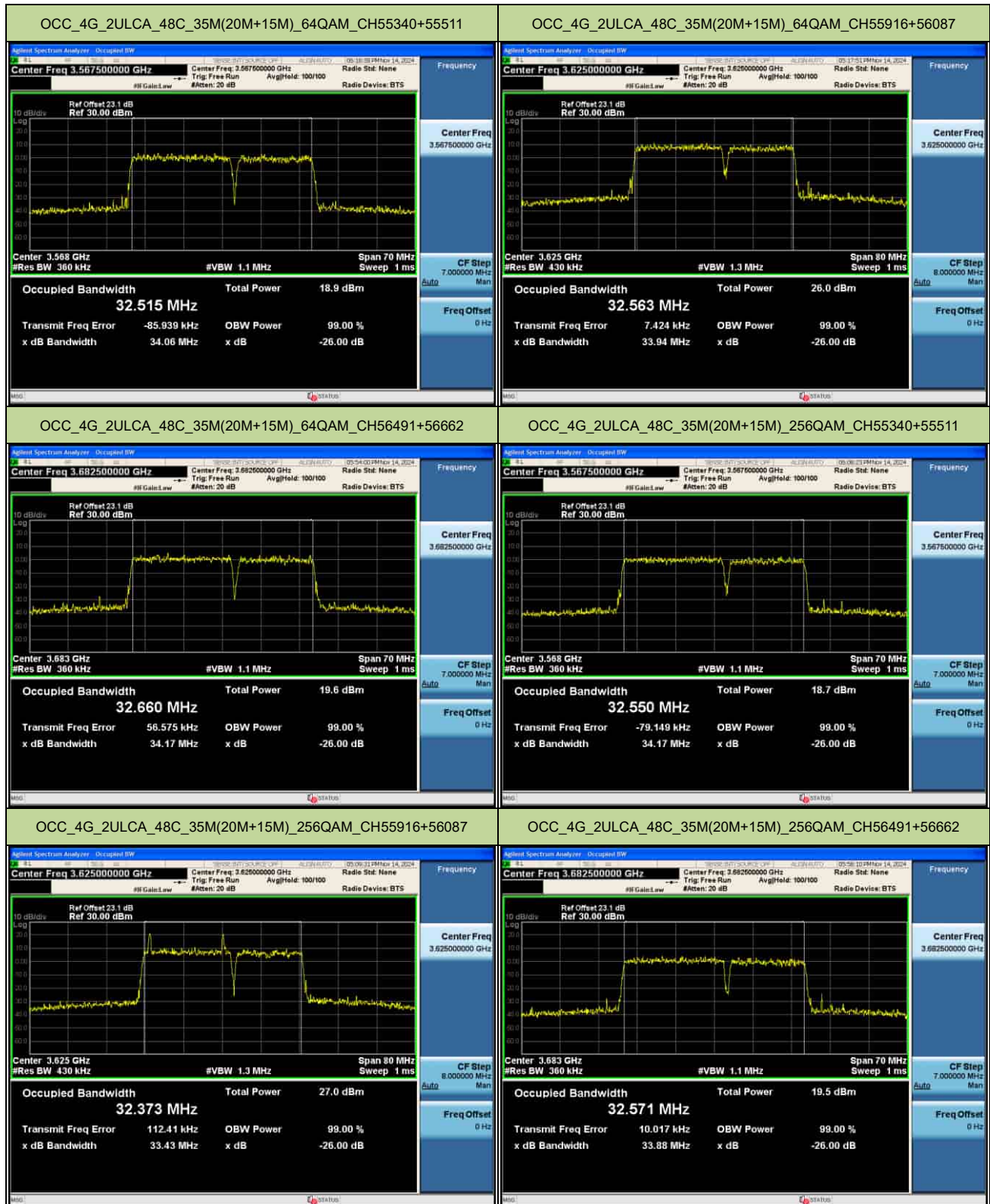


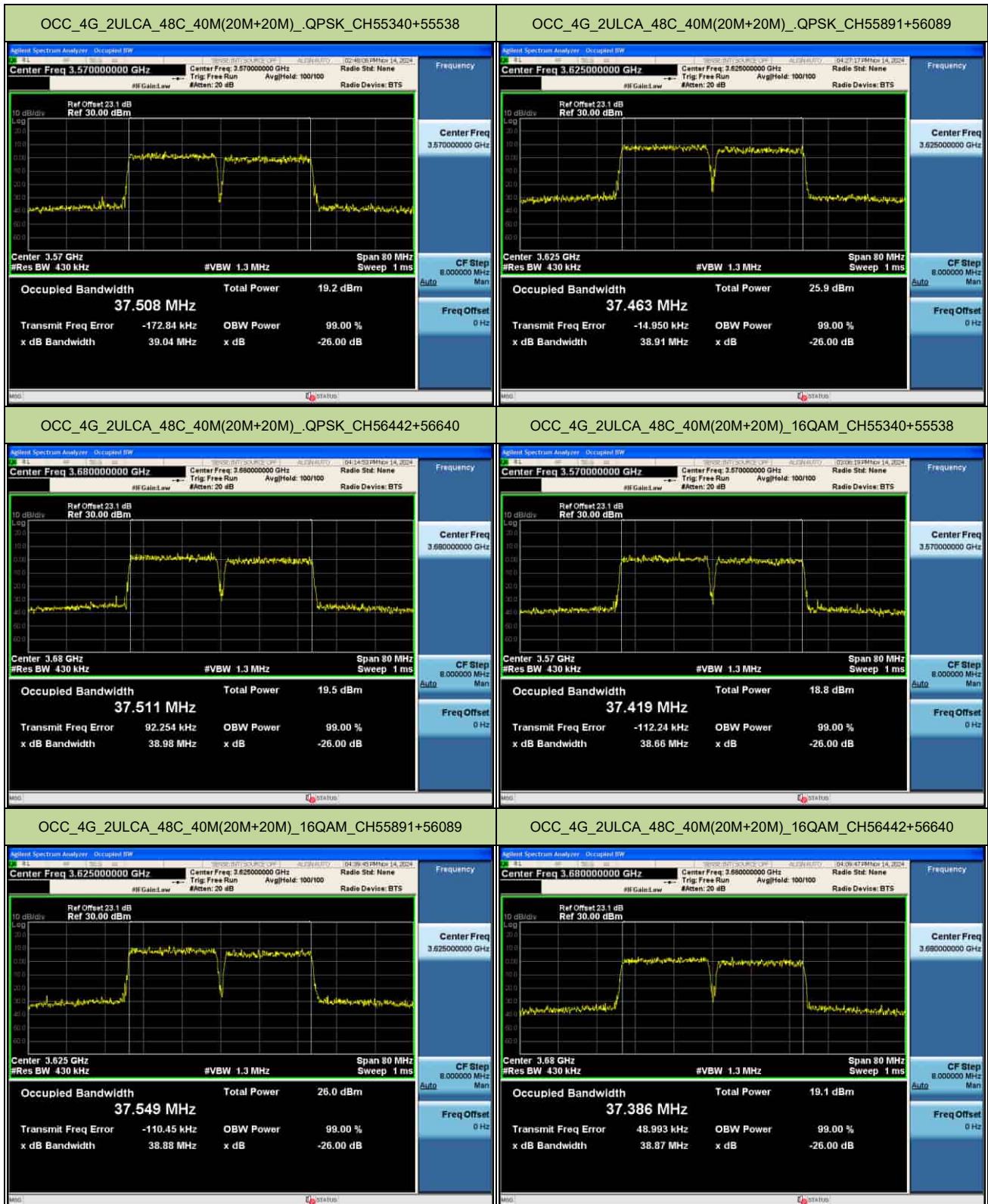


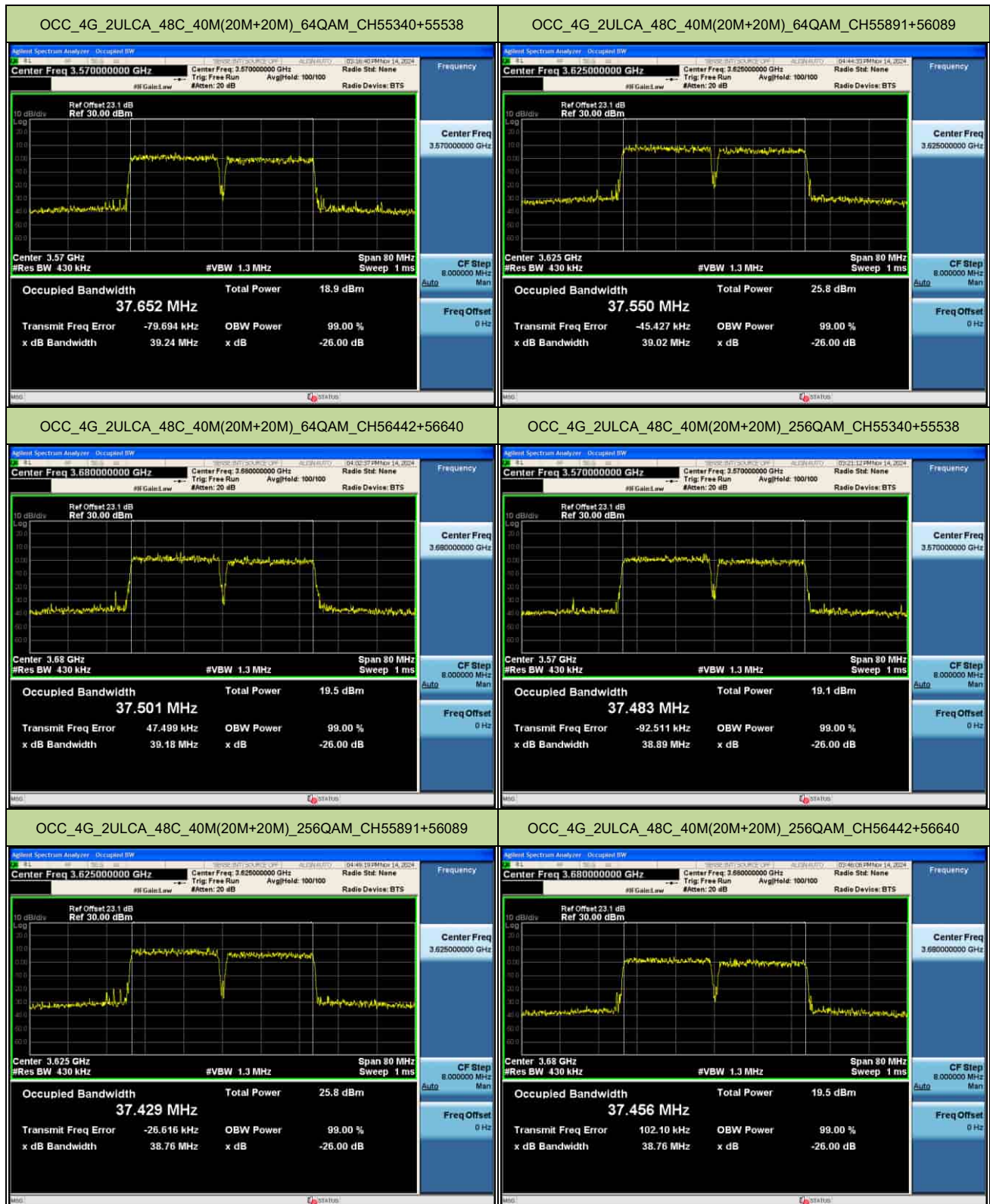












A2. Frequency Stability Test Result

A2.1 LTE Band 48 (Cover Band 43)

Test Site	SR3	Test Engineer	Wen Lee
Test Date	12/25/2024	Test Band	Band 48 (3.55G~3.7G) 20M

Temperature vs. Frequency Stability						
Voltage (%)	Power (VAC)	Temp (°C)	Declared Frequency (MHz)	Measured Frequency (Hz)	Frequency Tolerance (ppm)	Limit (ppm)
100%	DC 3.6V	-30	3625	-1.91	-0.001	±2.5
		-20	3625	-1.35	0.000	±2.5
		-10	3625	-2.32	-0.001	±2.5
		0	3625	-1.30	0.000	±2.5
		10	3625	-2.30	-0.001	±2.5
		+ 20 (Ref)	3625	-2.99	-0.001	±2.5
		30	3625	-3.30	-0.001	±2.5
		40	3625	-5.24	-0.001	±2.5
		50	3625	-3.82	-0.001	±2.5
Voltage vs. Frequency Stability						
Voltage (%)	Power (VAC)	Temp (°C)	Declared Frequency (MHz)	Measured Frequency (Hz)	Frequency Tolerance (ppm)	Limit (ppm)
100%	DC 3.6V	20	3625	-2.99	-0.001	±2.5
115%	DC 4.14V	20	3625	-3.77	-0.001	±2.5
97%	DC 3.49V	20	3625	-1.59	0.000	±2.5

DC Current

DC Current (A)	Link	0.36 A	IDLE	0.14 A
----------------	------	--------	------	--------

A2.2 NR n48

Test Site	SR3	Test Engineer	Wen Lee
Test Date	12/25/2024	Test Band	NR n48 (3.55G~3.7G) 40M

Temperature vs. Frequency Stability						
Voltage	Power	Temp	Declared Frequency	Measured Frequency	Frequency Tolerance	Limit
(%)	(VAC)	(°C)	(MHz)	(Hz)	(ppm)	(ppm)
100%	DC 3.6V	-30	3624.99	-2.98	-0.001	±2.5
		-20	3624.99	-6.87	-0.002	±2.5
		-10	3624.99	-8.31	-0.002	±2.5
		0	3624.99	-8.12	-0.002	±2.5
		10	3624.99	-5.96	-0.002	±2.5
		+ 20 (Ref)	3624.99	-7.11	-0.002	±2.5
		30	3624.99	-7.15	-0.002	±2.5
		40	3624.99	-5.72	-0.002	±2.5
		50	3624.99	-7.70	-0.002	±2.5
Voltage vs. Frequency Stability						
Voltage	Power	Temp	Declared Frequency	Measured Frequency	Frequency Tolerance	Limit
(%)	(VAC)	(°C)	(MHz)	(Hz)	(ppm)	(ppm)
100%	DC 3.6V	20	3624.99	-7.11	-0.002	±2.5
115%	DC 4.14V	20	3624.99	-5.36	-0.001	±2.5
97%	DC 3.49V	20	3624.99	-7.22	-0.002	±2.5

DC Current

DC Current (A)	Link	0.39 A	IDLE	0.13 A
----------------	------	--------	------	--------

A3. Transmitter Output Power Test Result

A3.1 LTE Band 48 (Cover Band 43)

LTE Band48			Maximum Conducted Output Power (Channel / Frequency (MHz))											
Modulation	Bandwidth		5MHz			10MHz			15MHz			20MHz		
	RB	RB	55265	55990	56715	55290	55990	56690	55315	55990	56665	55340	55990	56640
	No.	Offset	3552.5	3625	3697.5	3555	3625	3695	3557.5	3625	3692.5	3560	3625	3690
QPSK	1	#0	24.02	24.17	23.82	23.49	24.11	23.97	23.21	23.57	23.59	23.97	23.75	23.97
	1	#Mid	23.90	23.65	24.01	23.97	24.18	24.33	23.83	23.58	23.89	23.61	23.73	23.89
	1	#High	23.86	23.81	24.20	24.20	23.75	24.25	23.70	24.06	23.73	23.88	23.75	23.94
	50%	#0	23.00	22.67	23.03	22.75	22.81	22.90	22.54	22.58	22.66	22.87	22.69	22.68
	50%	#Mid	22.90	22.79	22.84	22.76	22.80	22.91	22.66	22.56	22.81	22.84	22.73	22.97
	50%	#High	23.00	22.89	22.98	22.79	23.00	23.02	22.58	22.87	22.71	22.68	22.88	22.74
	100%	#0	22.75	22.85	22.97	23.06	22.78	22.96	22.65	22.53	22.64	22.86	22.65	22.90
16QAM	1	#0	23.28	22.98	23.06	22.94	23.37	22.82	22.96	23.54	22.66	22.61	23.01	23.47
	1	#Mid	23.21	22.98	22.89	22.82	22.78	22.93	22.34	23.35	23.50	23.14	22.46	22.73
	1	#High	23.07	23.06	22.88	22.45	22.12	23.20	22.98	23.25	23.25	22.83	22.55	22.78
	50%	#0	22.14	21.89	21.90	21.88	21.66	22.01	21.87	21.90	21.70	21.69	21.61	21.72
	50%	#Mid	21.77	21.74	21.88	22.04	22.04	22.14	21.56	21.88	21.81	22.00	21.65	21.73
	50%	#High	21.74	22.09	21.77	21.81	22.04	22.04	21.66	21.95	21.84	21.95	21.69	21.78
	100%	#0	21.98	21.95	21.98	22.09	21.99	21.82	21.71	21.52	21.72	21.61	21.73	21.77
64QAM	1	#0	21.82	21.95	22.02	21.68	21.52	22.14	21.62	21.68	21.70	21.74	21.43	21.94
	1	#Mid	21.74	21.68	22.39	21.34	21.97	22.22	22.24	21.86	22.33	21.98	22.05	21.96
	1	#High	21.88	22.03	21.66	21.41	21.78	21.81	21.30	21.23	22.02	21.78	21.70	21.71
	50%	#0	20.87	20.59	20.80	20.85	21.01	20.75	20.52	20.59	20.75	20.65	20.76	20.67
	50%	#Mid	20.68	21.06	21.03	20.98	21.02	20.92	20.62	20.72	20.68	20.77	20.80	20.97
	50%	#High	21.01	20.62	21.06	20.88	21.01	20.89	20.66	20.65	20.91	20.89	20.62	20.75
	100%	#0	20.81	20.61	20.94	20.80	20.99	20.84	20.99	20.67	20.83	20.72	20.79	20.89
256QAM	1	#0	19.54	18.35	18.93	19.26	19.45	19.36	19.44	19.21	18.73	19.46	18.41	18.37
	1	#Mid	18.78	19.53	19.22	18.88	18.65	19.07	18.59	18.09	18.99	19.07	19.11	18.73
	1	#High	18.92	18.85	18.97	19.04	19.08	19.51	19.20	18.90	18.43	18.91	18.89	18.59
	50%	#0	19.05	18.94	18.97	18.98	18.92	19.14	18.79	18.75	18.78	18.84	18.84	18.76

	50%	#Mid	18.90	18.90	19.09	19.09	19.04	18.81	18.85	18.84	18.89	18.93	18.87	18.87
	50%	#High	18.94	18.85	19.08	18.94	19.00	19.08	18.92	18.92	18.99	18.96	18.97	18.95
	100 %	#0	19.07	18.81	19.01	18.96	18.81	18.87	18.84	18.79	18.81	18.82	18.81	18.87

A3.2 NR n48

NR N48_MCC 310		Maximum Conducted Output Power (Channel / Frequency (MHz))																	
SCS 30kHz	Modulation	DFT_BPSK			DFT_QPSK			DFT_16QAM			DFT_64QAM			DFT_256QAM			CP_QPSK		
Bandwidth	RB Allocation	637000	641666	646332	637000	641666	646332	637000	641666	646332	637000	641666	646332	637000	641666	646332	637000	641666	646332
	No. @ Offset	3555	3624.99	3694.98	3555	3624.99	3694.98	3555	3624.99	3694.98	3555	3624.99	3694.98	3555	3624.99	3694.98	3555	3624.99	3694.98
10MHz	1@0	23.42	23.63	23.15	23.10	23.67	22.98	21.71	22.39	21.70	21.93	21.36	21.07	19.30	20.03	19.75	21.23	21.45	20.79
	1@1	23.97	24.32	23.72	23.84	24.45	23.74	22.79	23.62	22.69	21.68	20.94	21.06	19.30	20.04	19.73	22.45	23.03	22.01
	1@22	24.06	24.27	23.94	24.13	24.48	23.95	23.11	23.27	22.71	21.82	21.02	21.06	19.66	20.00	19.48	22.32	22.97	22.20
	1@23	23.51	23.94	23.41	23.06	23.26	22.67	21.72	22.23	21.71	22.03	20.92	21.10	19.56	19.94	19.51	21.18	21.41	20.81
	12@6	23.89	24.09	23.76	23.77	24.07	23.75	22.72	23.31	22.68	21.38	21.47	21.36	19.25	19.82	19.56	22.36	22.43	22.41
	24@0	23.40	23.90	23.52	23.12	23.31	22.73	21.82	22.21	21.97	21.30	21.47	21.22	19.27	19.54	19.51	20.78	21.02	20.74
Bandwidth	RB Allocation	637168	641666	646166	637168	641666	646166	637168	641666	646166	637168	641666	646166	637168	641666	646166	637168	641666	646166
	No. @ Offset	3557.52	3624.99	3692.49	3557.52	3624.99	3692.49	3557.52	3624.99	3692.49	3557.52	3624.99	3692.49	3557.52	3624.99	3692.49	3557.52	3624.99	3692.49
15MHz	1@0	20.08	24.06	23.16	20.32	23.41	22.60	19.23	21.98	21.78	19.14	21.12	21.26	19.46	19.23	18.96	18.19	21.79	20.66
	1@1	20.07	24.27	23.70	20.35	23.91	23.67	19.31	23.32	22.65	19.17	21.14	21.25	19.47	19.28	19.06	18.60	23.05	22.56
	1@36	24.10	24.20	19.66	24.09	23.96	19.59	23.00	22.85	18.53	21.78	20.99	18.85	19.84	19.48	19.01	22.69	22.95	17.79
	1@37	23.65	23.75	19.88	23.10	23.30	19.51	22.10	21.83	18.55	21.74	21.18	18.78	19.41	19.14	19.20	21.15	21.13	17.83
	18@9	23.88	24.20	24.14	23.95	24.02	23.86	22.87	23.38	23.19	21.40	22.12	21.50	19.77	19.60	19.25	22.39	22.54	22.36
	36@0	19.99	23.72	19.75	20.26	23.43	19.74	19.18	22.02	18.71	19.18	21.79	18.81	19.36	19.84	19.63	18.16	21.06	17.77
Bandwidth	RB Allocation	637334	641666	646000	637334	641666	646000	637334	641666	646000	637334	641666	646000	637334	641666	646000	637334	641666	646000
	No. @ Offset	3560.01	3624.99	3690	3560.01	3624.99	3690	3560.01	3624.99	3690	3560.01	3624.99	3690	3560.01	3624.99	3690	3560.01	3624.99	3690
20MHz	1@0	20.16	23.87	23.09	19.99	23.12	22.90	18.83	22.11	22.03	19.26	20.97	21.17	19.64	19.61	19.50	17.70	21.45	21.02
	1@1	19.68	24.19	23.60	20.01	24.42	23.83	18.76	23.38	22.93	19.22	21.28	21.27	19.31	19.62	19.28	17.85	22.82	22.47
	1@49	24.01	24.09	20.03	24.09	24.31	19.71	23.35	23.13	19.05	21.90	21.02	18.85	19.80	19.48	19.71	22.60	22.67	17.94
	1@50	23.45	23.56	20.02	23.06	23.35	19.72	22.21	22.28	18.85	22.22	20.94	19.09	19.83	19.79	19.41	21.21	21.31	17.53
	25@12	23.96	24.18	23.72	23.98	24.27	23.81	23.14	23.35	22.77	21.75	21.49	21.34	19.36	19.72	19.18	22.44	22.78	22.52
	50@0	19.95	23.61	19.76	20.25	23.18	19.79	18.82	22.15	18.98	18.88	21.63	18.62	19.62	19.57	19.20	17.86	21.26	17.73

Bandwidth	RB Allocation	637668	641666	645666	637668	641666	645666	637668	641666	645666	637668	641666	645666	637668	641666	645666	637668	641666	645666
	No. @ Offset	3565.02	3624.99	3684.99	3565.02	3624.99	3684.99	3565.02	3624.99	3684.99	3565.02	3624.99	3684.99	3565.02	3624.99	3684.99	3565.02	3624.99	3684.99
30MHz	1@0	13.48	20.64	13.35	13.40	20.49	13.47	12.90	20.24	12.85	13.51	19.73	12.86	12.96	19.94	12.98	12.60	20.71	12.60
	1@1	13.21	20.55	13.31	13.45	20.51	13.31	12.91	20.26	12.70	13.52	19.97	12.86	13.17	19.63	13.02	12.91	20.47	12.22
	1@76	13.47	19.96	13.23	13.68	20.00	13.30	13.17	19.98	12.67	13.62	19.48	12.91	13.15	19.68	12.93	12.98	19.97	12.40
	1@77	13.39	19.91	13.41	13.55	20.33	13.38	13.06	19.93	12.84	13.70	19.66	12.62	13.17	19.56	12.92	13.18	20.09	12.20
	36@18	13.34	24.12	23.78	13.53	24.13	23.77	13.06	23.14	22.73	12.99	21.90	21.22	12.81	19.69	19.31	12.76	22.60	12.40
	75@0	13.57	20.46	13.32	13.52	20.26	13.44	13.17	20.21	12.85	12.96	20.37	12.82	13.00	19.62	12.91	12.82	20.38	12.44
Bandwidth	RB Allocation	638000	641666	645332	638000	641666	645332	638000	641666	645332	638000	641666	645332	638000	641666	645332	638000	641666	645332
	No. @ Offset	3570	3624.99	3679.98	3570	3624.99	3679.98	3570	3624.99	3679.98	3570	3624.99	3679.98	3570	3624.99	3679.98	3570	3624.99	3679.98
40MHz	1@0	13.24	20.66	13.25	13.56	20.33	13.54	12.90	20.55	12.69	13.50	20.16	12.67	13.05	19.68	13.00	12.71	20.36	12.49
	1@1	13.46	20.15	13.32	13.50	20.38	13.43	12.81	20.57	12.60	13.33	19.78	12.69	13.14	19.66	12.98	12.98	20.22	12.60
	1@104	13.93	20.00	13.36	13.89	19.96	13.39	13.23	20.54	12.67	13.73	19.55	12.83	13.37	19.49	13.08	13.34	20.14	12.67
	1@105	13.93	19.92	13.29	14.07	20.39	13.46	13.34	20.43	12.68	13.83	19.65	12.81	13.36	19.27	13.00	13.42	19.84	12.62
	50@25	13.59	24.42	13.29	13.62	24.44	13.33	12.92	23.38	12.78	13.02	21.49	12.80	13.10	19.58	12.86	12.90	22.62	12.46
	100@0	13.51	19.67	13.28	13.53	19.59	13.23	13.05	19.63	12.74	13.14	19.81	12.80	12.97	19.55	12.78	12.74	19.55	12.32

A3.3 NR n48_MIMO

NR_n48_MCC 310		30kHz		Maximum Conducted Output Power (dBm)																	
RB Allocation		No. @ Offset		1@0			1@1			1@22			1@23			12@6			24@0		
Bandwidth	Modulation	Channel	Frequency	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL
10MHz	CP_QPSK	637000	3555	18.45	18.77	21.62	19.70	20.38	23.06	19.82	20.41	23.13	18.24	18.90	21.59	19.96	20.21	23.10	18.40	18.64	21.53
		641666	3624.99	18.31	18.78	21.57	20.04	20.22	23.14	19.92	20.46	23.21	18.29	18.87	21.60	19.98	20.35	23.18	18.38	18.81	21.61
		646332	3694.98	17.99	19.18	21.64	19.29	20.94	23.20	19.52	20.60	23.10	18.05	19.09	21.61	19.86	20.39	23.15	18.36	19.03	21.72
	CP_16QAM	637000	3555	18.43	18.51	21.48	19.21	19.84	22.55	19.36	19.93	22.67	18.29	18.80	21.57	19.59	19.66	22.64	18.41	18.70	21.57
		641666	3624.99	17.94	18.78	21.39	19.11	19.78	22.47	18.97	19.92	22.49	17.94	18.96	21.49	19.58	19.98	22.79	18.45	18.97	21.73
		646332	3694.98	18.40	19.19	21.82	19.14	20.21	22.72	19.33	20.08	22.73	18.41	19.01	21.73	19.17	20.13	22.69	18.21	19.06	21.67
	CP_64QAM	637000	3555	17.87	18.08	20.98	17.65	18.33	21.02	17.71	18.39	21.08	17.72	18.24	21.00	17.87	18.03	20.96	17.92	18.24	21.10
		641666	3624.99	17.80	18.97	21.43	17.95	19.05	21.54	17.82	19.08	21.51	17.80	19.12	21.52	17.83	18.29	21.08	17.99	18.46	21.24
		646332	3694.98	17.53	18.91	21.29	17.25	18.94	21.19	17.45	18.82	21.20	17.57	18.79	21.23	17.56	18.77	21.22	17.72	18.65	21.22
	CP_256QAM	637000	3555	14.84	14.26	17.57	14.69	14.57	17.64	14.84	14.52	17.69	14.74	14.39	17.58	14.80	15.04	17.93	14.95	15.00	17.99
		641666	3624.99	15.39	15.42	18.41	15.52	15.42	18.48	15.37	15.59	18.49	15.39	15.52	18.47	15.04	15.36	18.21	14.96	15.41	18.20
		646332	3694.98	14.77	15.08	17.94	14.47	15.23	17.87	14.78	15.09	17.95	14.78	14.99	17.90	14.91	15.53	18.24	14.87	15.41	18.16
RB Allocation		No. @ Offset		1@0			1@1			1@36			1@37			19@9			38@0		
Bandwidth	Modulation	Channel	Frequency	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL
15MHz	CP_QPSK	637168	3557.52	15.57	15.64	18.62	16.22	16.34	19.29	20.35	20.21	23.29	18.78	18.80	21.80	19.81	20.19	23.01	15.44	15.86	18.67
		641666	3624.99	18.87	18.75	21.82	20.14	20.23	23.19	20.28	20.35	23.33	18.31	18.56	21.45	20.14	20.45	23.31	18.61	19.04	21.84
		646166	3692.49	18.56	19.39	22.00	20.31	21.15	23.76	15.67	16.35	19.03	15.62	16.16	18.90	19.76	20.69	23.26	15.33	16.21	18.80
	CP_16QAM	637168	3557.52	15.23	16.19	18.75	15.61	16.77	19.24	19.21	20.08	22.67	18.14	19.13	21.68	19.40	19.87	22.65	15.40	15.89	18.66
		641666	3624.99	18.39	18.75	21.58	19.20	19.53	22.38	19.16	19.75	22.47	18.02	18.47	21.26	19.47	20.03	22.77	18.62	19.12	21.88
		646166	3692.49	18.42	19.66	22.09	19.51	20.78	23.20	15.43	16.57	19.05	15.31	16.42	18.91	19.19	20.35	22.82	15.39	16.11	18.78
	CP_64QAM	637168	3557.52	15.33	15.37	18.36	15.71	15.94	18.84	17.97	17.93	20.96	17.74	17.91	20.84	18.14	18.28	21.22	15.45	15.73	18.61
		641666	3624.99	18.29	19.10	21.72	18.25	18.98	21.64	18.27	19.10	21.72	17.99	18.75	21.40	18.18	18.39	21.30	18.10	18.71	21.43
		646166	3692.49	17.64	19.38	21.61	17.73	19.51	21.72	15.32	16.91	19.19	15.11	16.54	18.90	17.67	18.74	21.25	15.30	16.08	18.72
	CP_256QAM	637168	3557.52	14.54	15.27	17.93	15.05	15.71	18.40	14.59	15.36	18.00	14.52	15.23	17.90	14.93	15.22	18.09	14.85	15.33	18.11
		641666	3624.99	15.37	15.12	18.26	15.24	15.02	18.14	15.29	15.14	18.23	14.90	14.82	17.87	15.22	15.62	18.43	15.09	15.60	18.36
		646166	3692.49	14.59	15.73	18.21	14.81	15.89	18.39	14.70	15.70	18.24	14.50	15.50	18.04	14.84	15.67	18.29	14.83	15.64	18.27

RB Allocation		No. @ Offset		1@0			1@1			1@49			1@50			25@12			51@0		
Bandwidth	Modulation	Channel	Frequency	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL
20MHz	CP_QPSK	637334	3560.01	15.30	15.77	18.55	15.42	15.55	18.49	19.86	20.33	23.11	18.40	18.89	21.66	19.98	20.25	23.13	15.39	15.80	18.61
		641666	3624.99	18.41	18.80	21.62	20.08	20.33	23.21	19.83	20.47	23.17	18.32	19.04	21.70	19.98	20.38	23.19	18.55	18.94	21.76
		646000	3690	18.17	19.16	21.70	19.83	20.57	23.22	15.31	16.04	18.70	15.23	16.27	18.79	19.79	20.80	23.34	15.35	16.19	18.80
	CP_16QAM	637334	3560.01	15.30	15.75	18.54	15.38	15.63	18.52	19.37	19.86	22.63	18.33	18.91	21.64	19.39	19.79	22.61	15.44	15.80	18.63
		641666	3624.99	18.21	18.69	21.47	19.14	19.69	22.44	19.36	19.84	22.62	18.16	18.91	21.56	19.51	19.97	22.76	18.55	18.87	21.72
		646000	3690	18.15	19.22	21.73	19.23	20.18	22.74	15.27	16.22	18.79	15.17	16.37	18.82	19.34	20.23	22.82	15.40	16.18	18.81
	CP_64QAM	637334	3560.01	15.00	15.71	18.38	15.13	15.65	18.41	17.64	18.37	21.03	17.60	18.41	21.03	17.89	18.43	21.18	15.40	15.79	18.61
		641666	3624.99	17.87	18.73	21.33	17.88	18.75	21.35	17.92	18.92	21.46	17.83	18.98	21.45	18.10	18.56	21.35	17.96	18.42	21.21
		646000	3690	17.69	18.74	21.26	17.72	18.64	21.22	15.32	16.25	18.82	15.25	16.47	18.91	17.78	18.62	21.23	15.23	16.31	18.81
	CP_256QAM	637334	3560.01	14.68	14.97	17.84	14.69	14.80	17.76	14.84	15.04	17.95	14.74	15.13	17.95	14.94	15.36	18.17	14.93	15.24	18.10
		641666	3624.99	15.15	15.28	18.22	15.09	15.30	18.21	15.17	15.47	18.33	15.01	15.54	18.29	15.23	15.39	18.32	15.17	15.44	18.32
		646000	3690	14.77	15.22	18.01	14.82	15.10	17.98	14.87	15.23	18.06	14.78	15.49	18.16	14.67	15.73	18.24	14.78	15.61	18.23
RB Allocation		No. @ Offset		1@0			1@1			1@76			1@77			39@19			78@0		
Bandwidth	Modulation	Channel	Frequency	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL
30MHz	CP_QPSK	637668	3565.02	9.85	10.20	13.04	10.08	10.15	13.13	9.79	10.28	13.05	9.93	10.34	13.15	9.91	10.21	13.07	9.99	10.28	13.15
		641666	3624.99	17.84	18.12	20.99	17.51	17.99	20.77	17.18	18.12	20.68	17.50	18.05	20.79	20.04	20.47	23.27	17.53	18.02	20.79
		645666	3684.99	9.75	10.76	13.30	9.86	10.80	13.37	9.83	10.96	13.44	9.68	10.65	13.20	9.72	10.62	13.20	9.67	10.54	13.14
	CP_16QAM	637668	3565.02	9.94	10.19	13.08	10.05	10.38	13.23	9.83	10.21	13.03	10.09	10.20	13.16	9.97	10.26	13.13	10.04	10.27	13.17
		641666	3624.99	17.54	17.85	20.71	17.30	17.69	20.51	16.99	17.68	20.36	17.30	17.84	20.59	19.44	20.01	22.75	17.52	17.97	20.76
		645666	3684.99	9.71	10.87	13.34	9.68	10.96	13.38	9.74	10.90	13.37	9.74	10.84	13.34	9.68	10.62	13.18	9.71	10.59	13.18
	CP_64QAM	637668	3565.02	9.80	10.24	13.03	9.93	10.41	13.19	9.64	10.15	12.91	9.84	10.37	13.12	10.09	10.16	13.14	10.04	10.24	13.15
		641666	3624.99	17.62	18.46	21.07	17.64	18.39	21.04	17.24	18.43	20.88	17.39	18.45	20.97	18.15	18.35	21.26	17.58	18.06	20.84
		645666	3684.99	9.46	11.02	13.32	9.51	11.04	13.35	9.58	11.12	13.43	9.51	10.99	13.32	9.61	10.62	13.16	9.70	10.73	13.26
	CP_256QAM	637668	3565.02	9.84	9.84	12.85	9.87	9.89	12.89	9.74	9.77	12.76	10.06	9.89	12.99	10.08	10.19	13.15	10.02	10.22	13.13
		641666	3624.99	15.40	15.75	18.59	15.23	15.58	18.42	14.98	15.52	18.27	15.08	15.63	18.37	15.03	15.51	18.29	15.17	15.47	18.33
		645666	3684.99	9.56	10.39	13.01	9.59	10.38	13.02	9.61	10.49	13.08	9.55	10.24	12.92	9.71	10.62	13.20	9.67	10.69	13.22

RB Allocation		No. @ Offset		1@0			1@1			1@104			1@105			53@26			106@0		
Bandwidth	Modulation	Channel	Frequency	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL	ANT6	ANT5	TOTAL
40MHz	CP_QPSK	638000	3570	9.98	10.12	13.06	10.01	10.20	13.12	10.06	10.43	13.26	10.06	10.48	13.28	10.02	10.14	13.09	10.01	10.17	13.10
		641666	3624.99	17.74	17.99	20.88	17.65	18.08	20.88	17.68	18.33	21.02	17.68	18.37	21.05	19.97	20.54	23.28	17.03	17.64	20.35
		645332	3679.98	9.66	10.70	13.22	9.73	10.76	13.29	9.67	10.56	13.15	9.68	10.62	13.18	9.61	10.67	13.18	9.76	10.71	13.27
	CP_16QAM	638000	3570	10.15	10.18	13.18	10.02	10.11	13.07	10.14	10.28	13.22	10.18	10.29	13.24	9.98	10.26	13.13	9.94	10.20	13.08
		641666	3624.99	17.37	17.55	20.47	17.36	17.69	20.54	17.19	17.92	20.58	17.28	17.93	20.63	19.61	20.01	22.82	17.08	17.52	20.31
		645332	3679.98	9.85	11.15	13.56	9.80	11.17	13.55	9.83	11.08	13.51	9.86	11.05	13.50	9.61	10.50	13.09	9.71	10.66	13.22
	CP_64QAM	638000	3570	9.75	10.42	13.11	9.76	10.45	13.13	9.79	10.49	13.16	9.96	10.70	13.35	9.96	10.14	13.06	10.00	10.11	13.07
		641666	3624.99	17.45	18.21	20.86	17.45	18.26	20.88	17.41	18.54	21.02	17.39	18.48	20.98	18.11	18.59	21.36	17.09	17.53	20.33
		645332	3679.98	9.57	11.24	13.50	9.52	11.20	13.45	9.56	11.08	13.40	9.56	11.18	13.45	9.66	10.59	13.16	9.75	10.58	13.19
	CP_256QAM	638000	3570	9.86	9.88	12.88	9.85	9.87	12.87	9.94	9.92	12.94	9.98	10.06	13.03	10.06	10.31	13.19	10.00	10.26	13.15
		641666	3624.99	15.24	15.24	18.25	15.24	15.29	18.27	15.05	15.66	18.38	15.06	15.55	18.32	15.23	15.58	18.42	15.04	15.61	18.34
		645332	3679.98	9.50	10.56	13.07	9.42	10.56	13.04	9.44	10.49	13.01	9.44	10.49	13.01	9.79	10.71	13.29	9.67	10.69	13.22

A3.4 LTE 2UL 48C

2ULCA_48C_MCC 310			Maximum Conducted Output Power (dBm)							
Bandwidth	Frequency (MHz)		Channel		RB Allocation		Modulation			
(MHz)	PCC	SCC	PCC	SCC	PCC	SCC	QPSK	16QAM	64QAM	256QAM
25MHz (5+20)	3553.3	3565	55273	55390	1#0	1#99	5.88	6.00	6.10	6.08
					1#24	1#0	19.36	19.48	19.64	19.45
					25#0	100#0	12.53	12.63	12.48	12.58
	3615.8	3627.5	55898	56015	1#0	1#99	11.72	11.63	11.70	11.92
					1#24	1#0	22.27	22.28	22.51	19.40
					25#0	100#0	19.97	19.96	19.96	19.10
	3678.3	3690	56523	56640	1#0	1#99	5.17	5.02	5.24	5.33
					1#24	1#0	18.71	18.64	18.68	18.94
					25#0	100#0	11.90	11.90	11.86	11.84
25MHz (20+5)	3560	3571.7	55340	55457	1#0	1#24	5.62	5.59	5.74	5.78
					1#99	1#0	20.82	20.81	20.82	20.76
					100#0	25#0	12.55	12.57	12.53	12.59
	3622.5	3634.2	55965	56082	1#0	1#24	11.52	11.48	11.32	11.45
					1#99	1#0	22.97	23.03	22.90	20.01
					100#0	25#0	19.85	19.82	19.90	18.96
	3685	3696.7	56590	56707	1#0	1#24	4.87	4.74	4.79	5.07
					1#99	1#0	19.74	19.73	19.97	19.97
					100#0	25#0	11.71	11.71	11.59	11.67
30MHz (10+20)	3555.5	3569.9	55295	55439	1#0	1#99	4.99	5.31	5.19	5.16
					1#49	1#0	16.99	17.00	16.94	17.09
					50#0	100#0	13.58	13.53	13.56	13.72
	3615.6	3630	55896	56040	1#0	1#99	11.22	11.26	11.37	11.38
					1#49	1#0	21.02	21.42	20.57	17.68
					50#0	100#0	19.31	19.30	19.41	19.05
	3675.6	3690	56496	56640	1#0	1#99	4.50	4.57	4.55	4.65
					1#49	1#0	16.76	16.76	16.33	16.58
					50#0	100#0	12.73	12.62	12.58	12.63

2ULCA_48C_MCC 310			Maximum Conducted Output Power (dBm)							
Bandwidth	Frequency (MHz)		Channel		RB Allocation		Modulation			
(MHz)	PCC	SCC	PCC	SCC	PCC	SCC	QPSK	16QAM	64QAM	256QAM
30MHz (20+10)	3560	3574.4	55340	55484	1#0	1#49	4.91	5.05	4.99	5.03
					1#99	1#0	17.34	17.20	17.49	17.43
					100#0	50#0	13.58	13.49	13.49	13.57
	3620.1	3634.5	55941	56085	1#0	1#49	11.16	11.02	11.20	11.30
					1#99	1#0	21.45	21.31	21.03	18.14
					100#0	50#0	19.23	19.20	19.14	18.74
	3680.1	3694.5	56541	56685	1#0	1#49	4.52	4.55	4.87	4.80
					1#99	1#0	16.86	16.79	17.18	17.03
					100#0	50#0	12.69	12.66	12.66	12.71
35MHz (15+20)	3557.8	3574.9	55318	55489	1#0	1#99	5.33	5.35	5.43	5.53
					1#74	1#0	18.31	18.41	18.58	18.56
					75#0	100#0	13.47	13.42	13.41	13.55
	3615.3	3632.4	55893	56064	1#0	1#99	11.17	11.22	11.27	10.88
					1#74	1#0	22.58	22.50	21.99	18.62
					75#0	100#0	19.15	19.23	19.26	18.83
	3672.9	3690	56469	56640	1#0	1#99	4.69	4.88	4.83	4.58
					1#74	1#0	17.44	17.61	17.77	17.68
					75#0	100#0	12.59	12.56	12.54	12.60
35MHz (20+15)	3560	3577.1	55340	55511	1#0	1#74	5.35	5.32	5.75	5.24
					1#99	1#0	18.79	18.83	18.90	18.99
					100#0	75#0	13.58	13.46	13.44	13.50
	3617.6	3634.7	55916	56087	1#0	1#74	11.19	11.30	11.56	11.29
					1#99	1#0	23.40	23.34	22.20	19.47
					100#0	75#0	19.29	19.29	19.32	18.94
	3675.1	3692.2	56491	56662	1#0	1#74	4.79	4.80	5.03	5.16
					1#99	1#0	18.32	18.33	18.18	18.33
					100#0	75#0	12.70	12.73	12.73	12.84

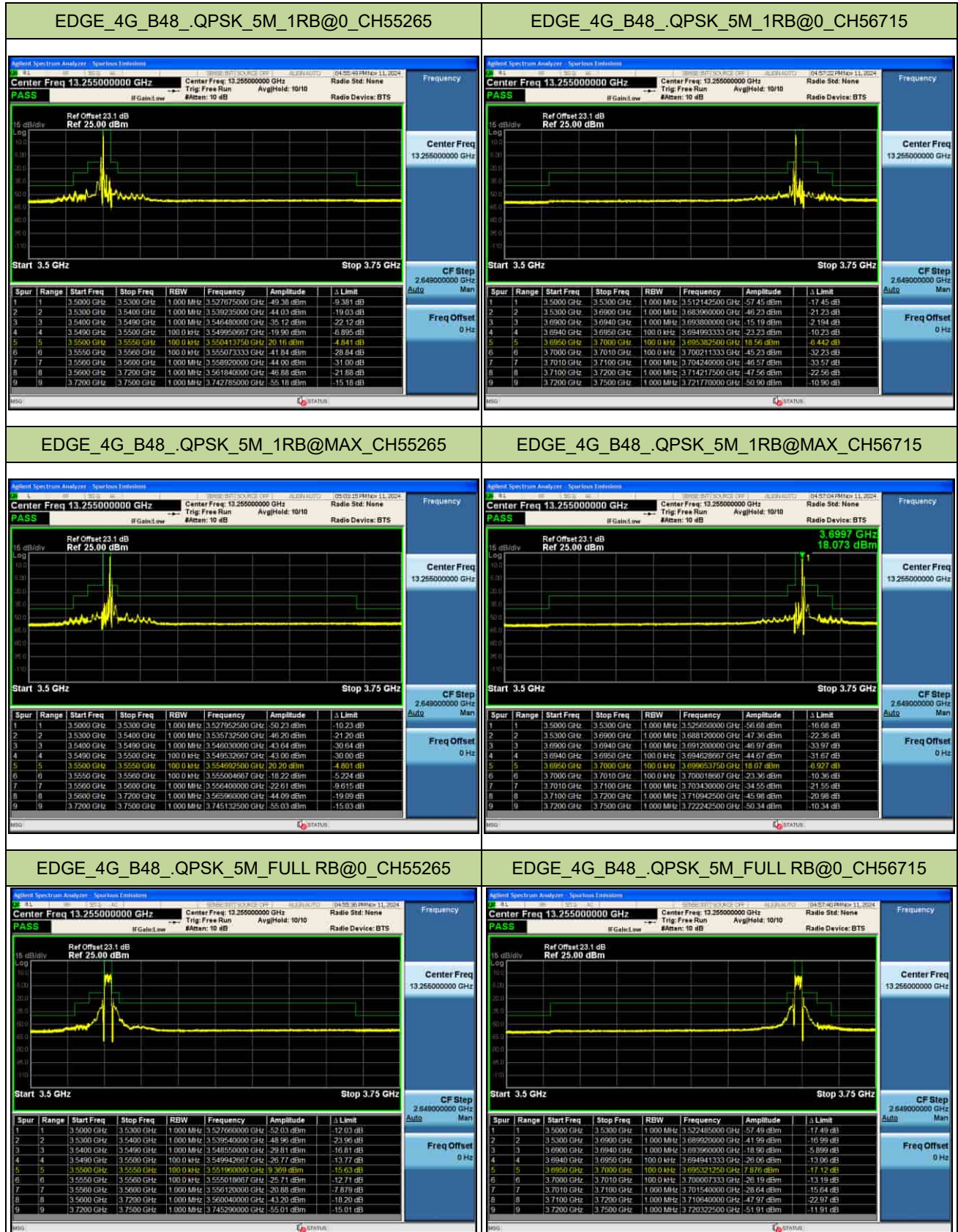
2ULCA_48C_MCC 310			Maximum Conducted Output Power (dBm)							
Bandwidth	Frequency (MHz)		Channel		RB Allocation		Modulation			
(MHz)	PCC	SCC	PCC	SCC	PCC	SCC	QPSK	16QAM	64QAM	256QAM
40MHz (20+20)	3560	3579.8	55340	55538	1#0	1#99	6.07	6.14	6.38	6.06
					1#99	1#0	19.99	19.98	20.23	19.52
					100#0	100#0	13.52	13.54	13.53	13.62
	3615.1	3634.9	55891	56089	1#0	1#99	5.29	11.83	12.00	11.93
					1#99	1#0	22.75	22.74	21.89	18.78
					100#0	100#0	19.36	19.37	19.39	19.01
	3670.2	3690	56442	56640	1#0	1#99	5.31	5.23	5.60	5.55
					1#99	1#0	19.14	19.00	19.50	18.71
					100#0	100#0	12.70	12.79	12.79	12.87

A3.5 LTE Band 48

Band 48 (Ant5)			Maximum Conducted Output Power (Channel / Frequency (MHz))											
Modulation	Bandwidth		5MHz			10MHz			15MHz			20MHz		
	RB	RB	55265	55990	56715	55290	55990	56690	55315	55990	56665	55340	55990	56640
	No.	Offset	3552.5	3625	3697.5	3555	3625	3695	3557.5	3625	3692.5	3560	3625	3690
QPSK	1	#0	22.07	21.61	21.96	22.00	21.98	21.90	21.71	21.54	21.79	21.71	21.63	21.64
	1	#High	21.93	21.70	21.98	21.91	21.83	21.97	21.88	21.59	21.87	21.78	21.58	21.69
	100 %	#0	21.31	21.19	21.39	21.45	21.18	21.47	21.37	21.06	21.40	21.37	21.08	21.34
16QAM	1	#0	21.39	21.26	21.46	21.28	21.28	21.31	21.15	21.15	21.33	21.28	21.04	21.13
	1	#High	21.37	21.15	21.37	21.51	21.13	21.40	21.08	20.94	21.48	21.26	20.93	21.10
	100 %	#0	20.33	20.18	20.36	20.44	20.19	20.46	20.38	20.08	20.35	20.34	20.04	20.37
64QAM	1	#0	20.56	20.27	20.34	20.53	20.21	20.45	20.18	20.06	20.35	20.29	20.27	20.31
	1	#High	20.54	20.21	20.71	20.50	20.34	20.36	20.23	20.03	20.37	20.40	20.13	20.26
	100 %	#0	19.39	19.20	19.44	19.47	19.21	19.47	19.38	19.10	19.40	19.33	19.07	19.30
256QAM	1	#0	17.46	17.28	17.55	17.43	17.22	17.19	17.19	17.09	17.36	17.33	17.13	17.25
	1	#High	17.47	17.18	17.48	17.39	17.17	17.36	17.29	17.19	17.37	17.46	17.10	17.35
	100 %	#0	17.34	17.18	17.39	17.40	17.15	17.41	17.41	17.16	17.35	17.35	17.06	17.30

A4. Transmitter unwanted emissions (band-edge) Test Result

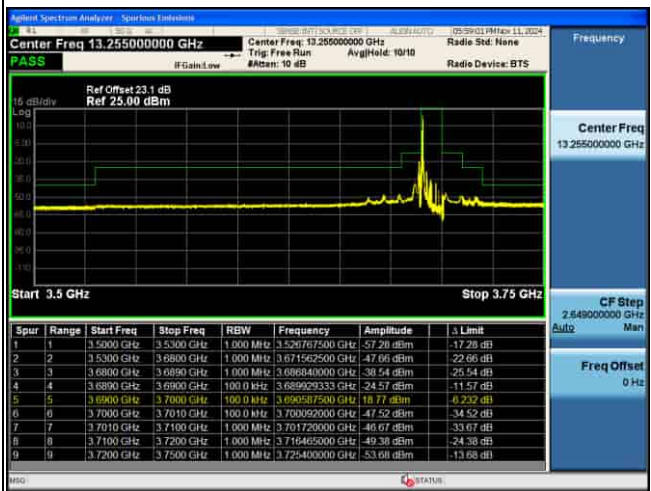
A4.1 LTE Band 48 (Cover Band 43)



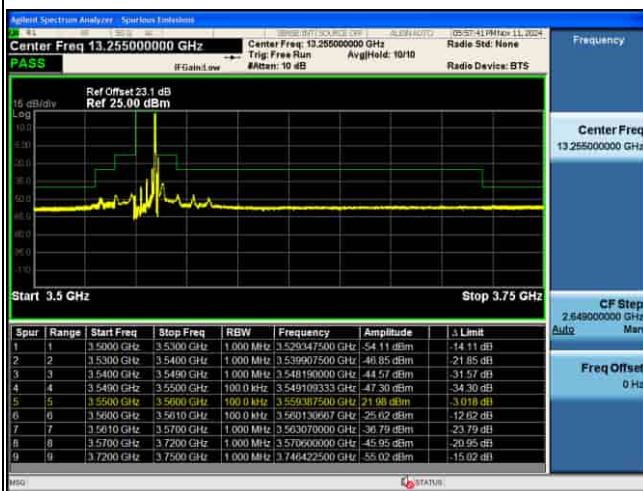
EDGE_4G_B48_.QPSK_10M_1RB@0_CH55290



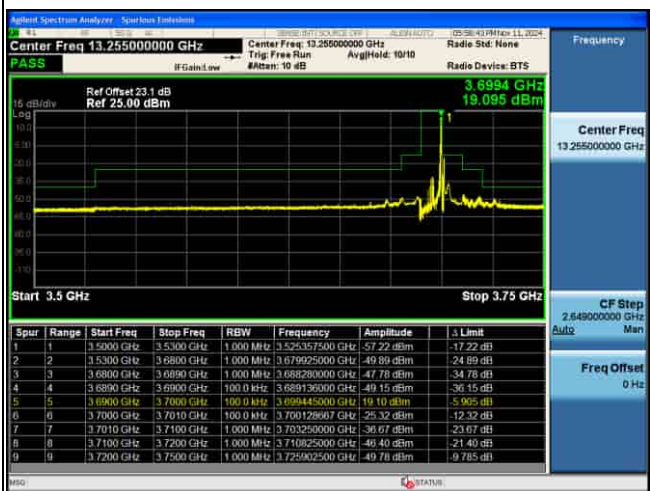
EDGE_4G_B48_.QPSK_10M_1RB@0_CH56690



EDGE_4G_B48_.QPSK_10M_1RB@MAX_CH55290



EDGE_4G_B48_.QPSK_10M_1RB@MAX_CH56690



EDGE_4G_B48_.QPSK_10M_FULL RB@0_CH55290



EDGE_4G_B48_.QPSK_10M_FULL RB@0_CH56690

