



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, Part27
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-U13	1.0	Original Report	2025-01-16	

CONTENTS

Description	Page
1. INTRODUCTION	7
1.1. Scope	7
1.2. MRT Test Location	7
1.3. Product Information	8
1.4. Radio Specification under Testing	9
1.5. Description of Available Antennas	10
1.6. Test Methodology	10
2. DESCRIPTION OF TEST	11
2.1. Summary	11
2.2. Occupied Bandwidth	13
2.3. Frequency Stability / Temperature Variation	13
2.4. Conducted Output Power Measurement	14
2.5. Peak-Average Ratio	14
2.6. Spurious and Harmonic Emissions at Antenna Terminal	15
2.7. Conducted and Radiated Spurious Emissions	16
3. TEST EQUIPMENT CALIBRATION DATE	17
4. Decision Rules and Measurement Uncertainty	18
4.1. Decision Rules	18
4.2. Measurement Uncertainty	18
5. TEST RESULT	19
5.1. Summary	19
5.2. Occupied Bandwidth	31
5.3. Frequency Stability Under Temperature & Voltage Variations	32
5.4. Transmitter Output Power Measurement	33
5.5. Peak-Average Ratio	34
5.6. Transmitter unwanted emissions (band-edge) Measurement	35
5.7. Transmitter unwanted emissions (spurious) Measurement	37
5.8. Radiated Spurious Emissions Measurement	39
Appendix A : TEST RESULT DATA	41
A1. Occupied Bandwidth Test Result	41
A1.1 LTE Band 42	41
A1.2 LTE Band 43	50
A1.3 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)	59

A1.4 NR n77_3700-3980MHz (Cover n78_3700-3800MHz)	87
A2. Frequency Stability Test Result	117
A2.1 LTE Band 42	117
A2.2 LTE Band 43	118
A2.3 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)	119
A2.4 NR n77_3700-3980MHz (Cover n78_3700-3800MHz)	120
A3. Transmitter Output Power Test Result	121
A3.1 LTE Band 42	121
A3.2 LTE Band 43	122
A3.5 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)	123
A3.6 NR n77_3700-3980MHz (Cover n78_3700-3800MHz)	127
A3.8 NR n77_MIMO_3450-3550MHz (Cover n78_3450-3550MHz)	131
A3.9 NR n77_MIMO_3700-3980MHz (Cover n78_3700-3800MHz)	137
A4. Peak to Average Ratio Test Result	143
A4.1 LTE Band42	143
A4.2 LTE Band43	146
A4.3 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)	149
A4.4 NR n77_3700-3980MHz (Cover n78_3700-3800MHz)	160
A5. Transmitter unwanted emissions (band-edge) Test Result	171
A5.1 LTE Band42	171
A5.2 LTE Band43	175
A5.3 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)	179
A5.4 NR n77_3700-3980MHz (Cover n78_3700-3800MHz)	193
A5.5 NR n77_MIMO_3450-3550MHz (Cover n78_3450-3550MHz)	207
A5.6 NR n77_MIMO_3700-3980MHz (Cover n78_3700-3800MHz)	218
A6. Transmitter unwanted emissions (spurious) Test Result	229
A6.1 LTE Band42	229
A6.2 LTE Band43	245
A6.3 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)	261
A6.4 NR n77_3700-3980MHz (Cover n78_3700-3800MHz)	313
A6.5 NR n77_MIMO_3450-3550MHz (Cover n78_3450-3550MHz)	368
A6.6 NR n77_MIMO_3700-3980MHz (Cover n78_3700-3800MHz)	410
A7. Radiated Spurious Emissions Test Result	454
A7.1 LTE Band 42	454
A7.2 LTE Band 43	455
A7.3 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)	456
A7.4 NR n77_3700-3980MHz (Cover n78_3700-3800MHz)	457
A7.5 NR n77_MIMO_3450-3550MHz (Cover n78_3450-3550MHz)	458
A7.6 NR n77_MIMO_3700-3980MHz (Cover n78_3700-3800MHz)	459

A7.7 Cover Band Information	460
Appendix B : Test Photograph.....	461
Appendix C : External Photograph.....	461
Appendix D : Internal Photograph.....	461

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.

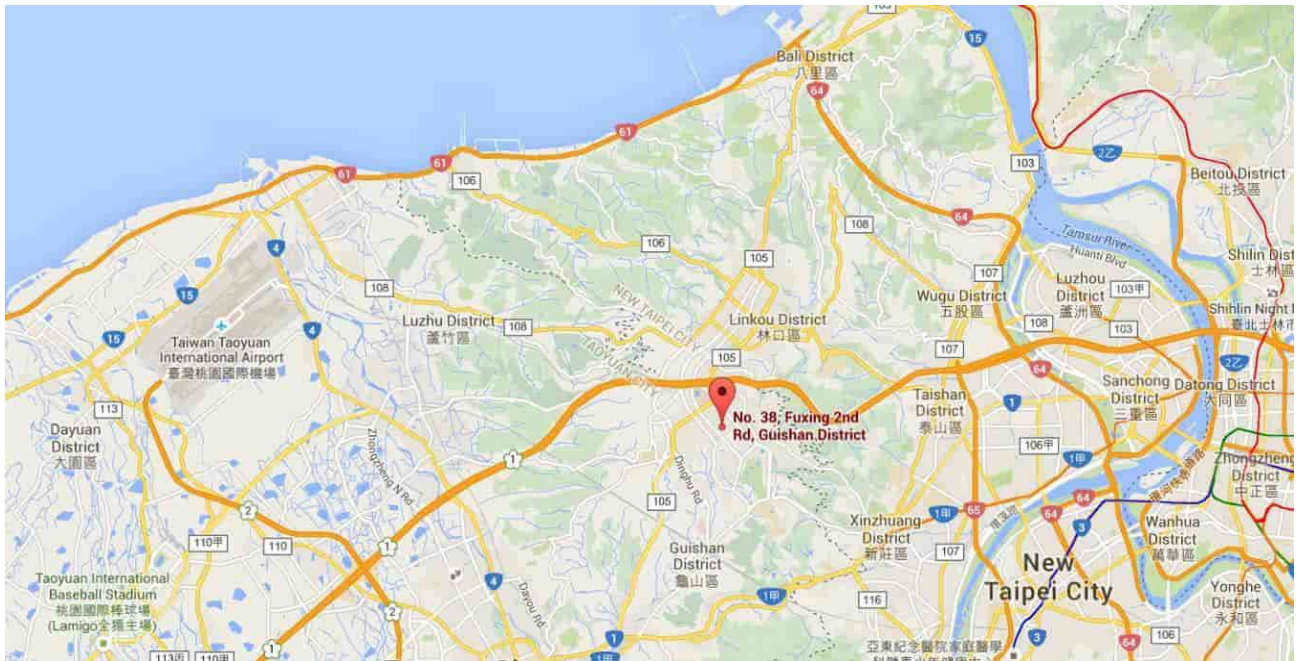
1. INTRODUCTION

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 42 (Part 27): 3450 ~ 3550 MHz; LTE Band 43 (Part 27): 3700 ~ 3800 MHz; NR n77 (Part 27): 3450 ~ 3550 MHz; NR n77 (Part 27): 3700 ~ 3980 MHz; NR n78 (Part 27): 3450 ~ 3550 MHz; NR n78 (Part 27): 3700 ~ 3800 MHz;
HUPE Band (Power Class 2)	LTE Band 42; NR n77; NR n78
Support Bandwidth	LTE Band 42, 43: 5MHz, 10MHz, 15MHz, 20MHz NR n77, n78: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz
Type of Modulation	UL up to 256QAM, DL up to 256QAM

3.5G Support Band	Part27 (3450-3550MHz)	Part27 (3700-3980MHz)
LTE Band 42	PC2	N/A
LTE Band 43	N/A	PC3
NR n77	PC2	PC2
NR n78	PC2	PC2

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 42	3450 ~ 3550		--	--	-1.50	-1.51
LTE Band 43	3700 ~ 3800		--	--	-1.50	-1.51
NR n77	3450 ~ 3550		-1.53	-1.54	-1.50	-1.51
NR n77	3700 ~ 3980		-1.53	-1.54	-1.50	-1.51
NR n78	3450 ~ 3550		-1.53	-1.54	-1.50	-1.51
NR n78	3700 ~ 3800		-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 n77, n78 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 n77, n78 MIMO.
7. Ant5+ANT6 support TX functions for n77, n78 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 27
- 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, 27.54	Frequency Stability		Pass
2.1046, 27.50 (k) (3) (j) (3)	Transmitter Output Power		Pass
27.50 (k) (4) (j) (4)	Peak to Average Ratio		Pass
2.1051, 27.53(i) (n)	Transmitter unwanted emissions (band-edge)		Pass
2.1051, 27.53(i) (n)	Transmitter unwanted emissions (spurious)		
2.1053, 27.53(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) NR n77 (3450 ~ 3550 MHz) overlaps the entire frequency range of NR n78 (3450 ~ 3550 MHz). Therefore, test data provided in this report covers NR n78 as well as NR n77.
- 5) NR n77 (3700 ~ 3980 MHz) overlaps the entire frequency range of NR n78 (3700 ~ 3800 MHz). Therefore, test data provided in this report covers NR n78 as well as NR n77.

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, 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 $\pm 0.00025\%$ (± 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.

2.4. Conducted Output Power Measurement

According to FCC Part 2.1046, 27.50

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.

Technology	EIRP Power Limit
LTE Band 42	1W (30dBm)
LTE Band 43	1W (30dBm)
NR n77	1W (30dBm)
NR n78	1W (30dBm)

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

2.5. Peak-Average Ratio

According to FCC Part 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, 27.53

For 27.53(n)(2)

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)

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 (i)(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, 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 27.53(n)(2)

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.

For 27.53(i)(2)

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.

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		B42 (3.45G~3.55G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
5MHz	QPSK	26.86	0.485	0.343	1
	16QAM	25.79	0.379	0.268	1
	64QAM	25.14	0.327	0.231	1
	256QAM	22.10	0.162	0.115	1
10MHz	QPSK	26.82	0.481	0.340	1
	16QAM	25.77	0.378	0.267	1
	64QAM	25.03	0.318	0.225	1
	256QAM	22.29	0.169	0.120	1
15MHz	QPSK	26.54	0.451	0.318	1
	16QAM	25.37	0.344	0.243	1
	64QAM	24.83	0.304	0.215	1
	256QAM	21.98	0.158	0.111	1
20MHz	QPSK	26.55	0.452	0.319	1
	16QAM	25.81	0.381	0.269	1
	64QAM	24.66	0.292	0.207	1
	256QAM	21.69	0.148	0.104	1

LTE Band		B43 (3.7G~3.8G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
5MHz	QPSK	23.82	0.241	0.170	1
	16QAM	23.25	0.211	0.149	1
	64QAM	22.19	0.166	0.117	1
	256QAM	18.76	0.075	0.053	1
10MHz	QPSK	23.99	0.251	0.177	1
	16QAM	22.89	0.195	0.137	1
	64QAM	21.76	0.150	0.106	1
	256QAM	18.66	0.073	0.052	1
15MHz	QPSK	23.47	0.222	0.157	1
	16QAM	22.43	0.175	0.124	1
	64QAM	21.77	0.150	0.106	1
	256QAM	18.86	0.077	0.054	1
20MHz	QPSK	23.54	0.226	0.160	1
	16QAM	22.66	0.185	0.130	1
	64QAM	21.63	0.146	0.103	1
	256QAM	19.28	0.085	0.060	1

NR Band		N77 (3.45G~3.55G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
10MHz	DFT_BPSK	27.10	0.513	0.362	1
	DFT_QPSK	27.15	0.519	0.366	1
	DFT_16QAM	26.12	0.409	0.289	1
	DFT_64QAM	24.80	0.302	0.213	1
	DFT_256QAM	22.83	0.192	0.136	1
15MHz	DFT_BPSK	27.22	0.527	0.372	1
	DFT_QPSK	27.22	0.527	0.372	1
	DFT_16QAM	26.40	0.437	0.308	1
	DFT_64QAM	24.95	0.313	0.221	1
	DFT_256QAM	22.79	0.190	0.134	1
20MHz	DFT_BPSK	27.16	0.520	0.367	1
	DFT_QPSK	27.16	0.520	0.367	1
	DFT_16QAM	26.28	0.425	0.300	1
	DFT_64QAM	24.97	0.314	0.222	1
	DFT_256QAM	22.91	0.195	0.138	1
30MHz	DFT_BPSK	27.11	0.514	0.363	1
	DFT_QPSK	27.23	0.528	0.373	1
	DFT_16QAM	26.25	0.422	0.298	1
	DFT_64QAM	24.87	0.307	0.217	1
	DFT_256QAM	22.85	0.193	0.136	1
40MHz	DFT_BPSK	27.25	0.531	0.375	1
	DFT_QPSK	27.25	0.531	0.375	1
	DFT_16QAM	26.27	0.424	0.299	1
	DFT_64QAM	24.92	0.310	0.219	1
	DFT_256QAM	22.88	0.194	0.137	1
50MHz	DFT_BPSK	27.02	0.504	0.356	1
	DFT_QPSK	26.99	0.500	0.353	1
	DFT_16QAM	26.12	0.409	0.289	1
	DFT_64QAM	24.60	0.288	0.204	1
	DFT_256QAM	22.64	0.184	0.130	1

NR Band		N77 (3.45G~3.55G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
60MHz	DFT_BPSK	27.07	0.509	0.360	1
	DFT_QPSK	27.06	0.508	0.359	1
	DFT_16QAM	26.16	0.413	0.292	1
	DFT_64QAM	24.74	0.298	0.210	1
	DFT_256QAM	22.65	0.184	0.130	1
70MHz	DFT_BPSK	26.81	0.480	0.339	1
	DFT_QPSK	26.95	0.495	0.350	1
	DFT_16QAM	26.15	0.412	0.291	1
	DFT_64QAM	24.68	0.294	0.207	1
	DFT_256QAM	22.53	0.179	0.126	1
80MHz	DFT_BPSK	26.94	0.494	0.349	1
	DFT_QPSK	26.99	0.500	0.353	1
	DFT_16QAM	26.04	0.402	0.284	1
	DFT_64QAM	24.71	0.296	0.209	1
	DFT_256QAM	22.69	0.186	0.131	1
90MHz	DFT_BPSK	27.05	0.507	0.358	1
	DFT_QPSK	27.08	0.511	0.361	1
	DFT_16QAM	26.19	0.416	0.294	1
	DFT_64QAM	24.55	0.285	0.201	1
	DFT_256QAM	22.54	0.179	0.127	1
100MHz	DFT_BPSK	26.99	0.500	0.353	1
	DFT_QPSK	27.01	0.502	0.355	1
	DFT_16QAM	26.09	0.406	0.287	1
	DFT_64QAM	24.65	0.292	0.206	1
	DFT_256QAM	22.52	0.179	0.126	1

NR Band		N77 (3.7G~3.98G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
10MHz	DFT_BPSK	27.00	0.501	0.354	1
	DFT_QPSK	27.02	0.504	0.356	1
	DFT_16QAM	26.06	0.404	0.285	1
	DFT_64QAM	24.58	0.287	0.203	1
	DFT_256QAM	22.59	0.182	0.128	1
15MHz	DFT_BPSK	27.16	0.520	0.367	1
	DFT_QPSK	27.08	0.511	0.361	1
	DFT_16QAM	26.19	0.416	0.294	1
	DFT_64QAM	24.72	0.296	0.209	1
	DFT_256QAM	22.59	0.182	0.128	1
20MHz	DFT_BPSK	27.20	0.525	0.371	1
	DFT_QPSK	27.01	0.502	0.355	1
	DFT_16QAM	26.20	0.417	0.294	1
	DFT_64QAM	24.61	0.289	0.204	1
	DFT_256QAM	22.52	0.179	0.126	1
30MHz	DFT_BPSK	27.19	0.524	0.370	1
	DFT_QPSK	27.08	0.511	0.361	1
	DFT_16QAM	26.06	0.404	0.285	1
	DFT_64QAM	24.75	0.299	0.211	1
	DFT_256QAM	22.71	0.187	0.132	1
40MHz	DFT_BPSK	27.14	0.518	0.366	1
	DFT_QPSK	27.17	0.521	0.368	1
	DFT_16QAM	26.26	0.423	0.299	1
	DFT_64QAM	24.69	0.294	0.208	1
	DFT_256QAM	22.73	0.187	0.132	1
50MHz	DFT_BPSK	26.94	0.494	0.349	1
	DFT_QPSK	26.98	0.499	0.352	1
	DFT_16QAM	25.88	0.387	0.274	1
	DFT_64QAM	24.52	0.283	0.200	1
	DFT_256QAM	22.55	0.180	0.127	1

NR Band		N77 (3.7G~3.98G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
60MHz	DFT_BPSK	26.91	0.491	0.347	1
	DFT_QPSK	26.92	0.492	0.348	1
	DFT_16QAM	25.98	0.396	0.280	1
	DFT_64QAM	24.49	0.281	0.199	1
	DFT_256QAM	22.50	0.178	0.126	1
70MHz	DFT_BPSK	26.92	0.492	0.348	1
	DFT_QPSK	26.97	0.498	0.352	1
	DFT_16QAM	26.05	0.403	0.284	1
	DFT_64QAM	24.74	0.298	0.210	1
	DFT_256QAM	22.54	0.179	0.127	1
80MHz	DFT_BPSK	26.97	0.498	0.352	1
	DFT_QPSK	26.96	0.497	0.351	1
	DFT_16QAM	26.13	0.410	0.290	1
	DFT_64QAM	24.66	0.292	0.207	1
	DFT_256QAM	22.49	0.177	0.125	1
90MHz	DFT_BPSK	27.01	0.502	0.355	1
	DFT_QPSK	26.99	0.500	0.353	1
	DFT_16QAM	26.18	0.415	0.293	1
	DFT_64QAM	24.66	0.292	0.207	1
	DFT_256QAM	22.55	0.180	0.127	1
100MHz	DFT_BPSK	26.97	0.498	0.352	1
	DFT_QPSK	26.96	0.497	0.351	1
	DFT_16QAM	26.01	0.399	0.282	1
	DFT_64QAM	24.63	0.290	0.205	1
	DFT_256QAM	22.47	0.177	0.125	1

NR Band MIMO (Ant6+Ant5)		N77 (3.45G~3.55G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
10MHz	CP_QPSK	25.81	0.381	0.269	1
	CP_16QAM	25.15	0.327	0.231	1
	CP_64QAM	23.86	0.243	0.172	1
	CP_256QAM	20.73	0.118	0.084	1
15MHz	CP_QPSK	25.91	0.390	0.275	1
	CP_16QAM	25.43	0.349	0.247	1
	CP_64QAM	23.93	0.247	0.175	1
	CP_256QAM	21.19	0.132	0.093	1
20MHz	CP_QPSK	25.52	0.356	0.252	1
	CP_16QAM	25.08	0.322	0.228	1
	CP_64QAM	23.68	0.233	0.165	1
	CP_256QAM	20.75	0.119	0.084	1
30MHz	CP_QPSK	25.58	0.361	0.255	1
	CP_16QAM	25.13	0.326	0.230	1
	CP_64QAM	23.65	0.232	0.164	1
	CP_256QAM	20.70	0.117	0.083	1
40MHz	CP_QPSK	25.67	0.369	0.261	1
	CP_16QAM	25.20	0.331	0.234	1
	CP_64QAM	23.85	0.243	0.171	1
	CP_256QAM	20.90	0.123	0.087	1
50MHz	CP_QPSK	25.38	0.345	0.244	1
	CP_16QAM	24.86	0.306	0.216	1
	CP_64QAM	23.74	0.237	0.167	1
	CP_256QAM	20.52	0.113	0.080	1
60MHz	CP_QPSK	25.39	0.346	0.244	1
	CP_16QAM	24.88	0.308	0.217	1
	CP_64QAM	23.57	0.228	0.161	1
	CP_256QAM	20.46	0.111	0.079	1

NR Band MIMO (Ant6+Ant5)		N77 (3.45G~3.55G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
70MHz	CP_QPSK	25.29	0.338	0.239	1
	CP_16QAM	24.90	0.309	0.218	1
	CP_64QAM	23.48	0.223	0.157	1
	CP_256QAM	20.37	0.109	0.077	1
80MHz	CP_QPSK	25.32	0.340	0.240	1
	CP_16QAM	24.87	0.307	0.217	1
	CP_64QAM	23.62	0.230	0.163	1
	CP_256QAM	20.41	0.110	0.078	1
90MHz	CP_QPSK	25.28	0.337	0.238	1
	CP_16QAM	24.75	0.299	0.211	1
	CP_64QAM	23.45	0.221	0.156	1
	CP_256QAM	20.35	0.108	0.077	1
100MHz	CP_QPSK	25.23	0.333	0.236	1
	CP_16QAM	24.81	0.303	0.214	1
	CP_64QAM	23.29	0.213	0.151	1
	CP_256QAM	20.29	0.107	0.076	1

NR Band MIMO (Ant6+Ant5)		N77 (3.7G~3.98G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
10MHz	CP_QPSK	25.68	0.370	0.261	1
	CP_16QAM	25.19	0.330	0.233	1
	CP_64QAM	23.81	0.240	0.170	1
	CP_256QAM	20.67	0.117	0.082	1
15MHz	CP_QPSK	25.87	0.386	0.273	1
	CP_16QAM	25.59	0.362	0.256	1
	CP_64QAM	24.02	0.252	0.178	1
	CP_256QAM	21.23	0.133	0.094	1
20MHz	CP_QPSK	25.76	0.377	0.266	1
	CP_16QAM	25.24	0.334	0.236	1
	CP_64QAM	23.76	0.238	0.168	1
	CP_256QAM	20.94	0.124	0.088	1
30MHz	CP_QPSK	25.85	0.385	0.272	1
	CP_16QAM	25.41	0.348	0.245	1
	CP_64QAM	23.78	0.239	0.169	1
	CP_256QAM	20.93	0.124	0.087	1
40MHz	CP_QPSK	25.79	0.379	0.268	1
	CP_16QAM	25.33	0.341	0.241	1
	CP_64QAM	23.73	0.236	0.167	1
	CP_256QAM	20.85	0.122	0.086	1
50MHz	CP_QPSK	25.62	0.365	0.258	1
	CP_16QAM	25.06	0.321	0.226	1
	CP_64QAM	23.49	0.223	0.158	1
	CP_256QAM	20.69	0.117	0.083	1
60MHz	CP_QPSK	25.53	0.357	0.252	1
	CP_16QAM	25.03	0.318	0.225	1
	CP_64QAM	23.59	0.229	0.161	1
	CP_256QAM	20.67	0.117	0.082	1

NR Band MIMO (Ant6+Ant5)		N77 (3.7G~3.98G)	Antenna Gain (dBi)		-1.51
BW	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (W)	Maximum EIRP (W)	EIRP Limit (W)
70MHz	CP_QPSK	25.57	0.361	0.255	1
	CP_16QAM	25.04	0.319	0.225	1
	CP_64QAM	23.63	0.231	0.163	1
	CP_256QAM	20.56	0.114	0.080	1
80MHz	CP_QPSK	25.54	0.358	0.253	1
	CP_16QAM	25.00	0.316	0.223	1
	CP_64QAM	23.71	0.235	0.166	1
	CP_256QAM	20.53	0.113	0.080	1
90MHz	CP_QPSK	25.56	0.360	0.254	1
	CP_16QAM	25.05	0.320	0.226	1
	CP_64QAM	23.71	0.235	0.166	1
	CP_256QAM	20.50	0.112	0.079	1
100MHz	CP_QPSK	25.49	0.354	0.250	1
	CP_16QAM	25.07	0.321	0.227	1
	CP_64QAM	23.70	0.234	0.166	1
	CP_256QAM	20.52	0.113	0.080	1

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
Band 42 (3.45G~3.55G)	5MHz	4M46G7D	4M46W7D	4M46W7D	4M47W7D
	10MHz	8M98G7D	8M97W7D	8M97W7D	8M94W7D
	15MHz	13M5G7D	13M4W7D	13M4W7D	13M4W7D
	20MHz	17M9G7D	17M9W7D	17M9W7D	17M9W7D

LTE Band	BandWidth	Maximum 99% Occupied Bandwidth Designator			
		QPSK	16QAM	64QAM	256QAM
Band 43 (3.7G~3.8G)	5MHz	4M47G7D	4M47W7D	4M47W7D	4M47W7D
	10MHz	8M95G7D	8M94W7D	8M94W7D	8M95W7D
	15MHz	13M4G7D	13M4W7D	13M4W7D	13M5W7D
	20MHz	17M9G7D	17M9W7D	17M9W7D	17M9W7D

NR	BandWidth	Maximum 99% Occupied Bandwidth Designator				
		BPSK	QPSK	16QAM	64QAM	256QAM
n77 (3.45G~3.55G)	10MHz	8M59G7D	8M61G7D	8M63W7D	8M61W7D	8M6W7D
	15MHz	12M9G7D	12M9G7D	12M9W7D	12M9W7D	12M9W7D
	20MHz	17M9G7D	17M9G7D	17M9W7D	17M9W7D	17M9W7D
	30MHz	26M8G7D	26M8G7D	26M9W7D	26M8W7D	26M8W7D
	40MHz	35M8G7D	35M8G7D	35M8W7D	35M8W7D	35M8W7D
	50MHz	45M7G7D	45M9G7D	45M8W7D	45M7W7D	45M9W7D
	60MHz	57M9G7D	57M9G7D	57M9W7D	57M9W7D	57M9W7D
	70MHz	64M3G7D	64M4G7D	64M3W7D	64M3W7D	64M6W7D
	80MHz	77M2G7D	77M3G7D	77M1W7D	77M3W7D	77M3W7D
	90MHz	87M0G7D	86M8G7D	86M9W7D	86M9W7D	86M9W7D
	100MHz	96M5G7D	96M5G7D	96M2W7D	96M6W7D	96M4W7D

NR	BandWidth	Maximum 99% Occupied Bandwidth Designator				
		BPSK	QPSK	16QAM	64QAM	256QAM
n77 (3.7G ~ 3.98G)	10MHz	8M59G7D	8M62G7D	8M61W7D	8M58W7D	8M59W7D
	15MHz	12M9G7D	12M9G7D	12M9W7D	12M9W7D	12M9W7D
	20MHz	17M9G7D	17M9G7D	17M8W7D	17M9W7D	17M9W7D
	30MHz	26M9G7D	26M8G7D	26M8W7D	26M9W7D	26M8W7D
	40MHz	35M8G7D	35M8G7D	35M8W7D	35M8W7D	35M8W7D
	50MHz	45M8G7D	45M7G7D	45M8W7D	45M8W7D	45M9W7D
	60MHz	57M9G7D	57M9G7D	57M9W7D	57M9W7D	57M9W7D
	70MHz	64M4G7D	64M4G7D	64M3W7D	64M5W7D	64M3W7D
	80MHz	77M2G7D	77M2G7D	77M2W7D	77M3W7D	77M2W7D
	90MHz	86M9G7D	87M0G7D	86M8W7D	86M9W7D	86M9W7D
	100MHz	96M8G7D	96M5G7D	96M5W7D	96M4W7D	96M7W7D

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.

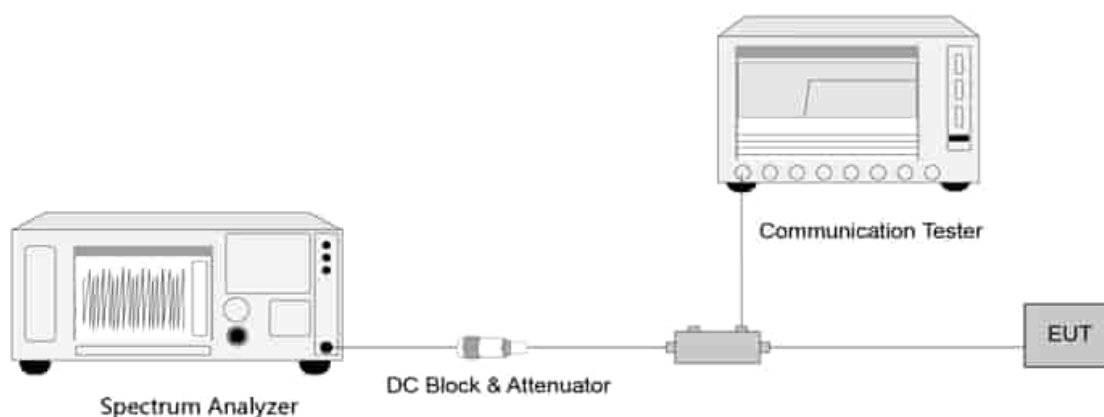
5.2.2 Test Procedure used

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

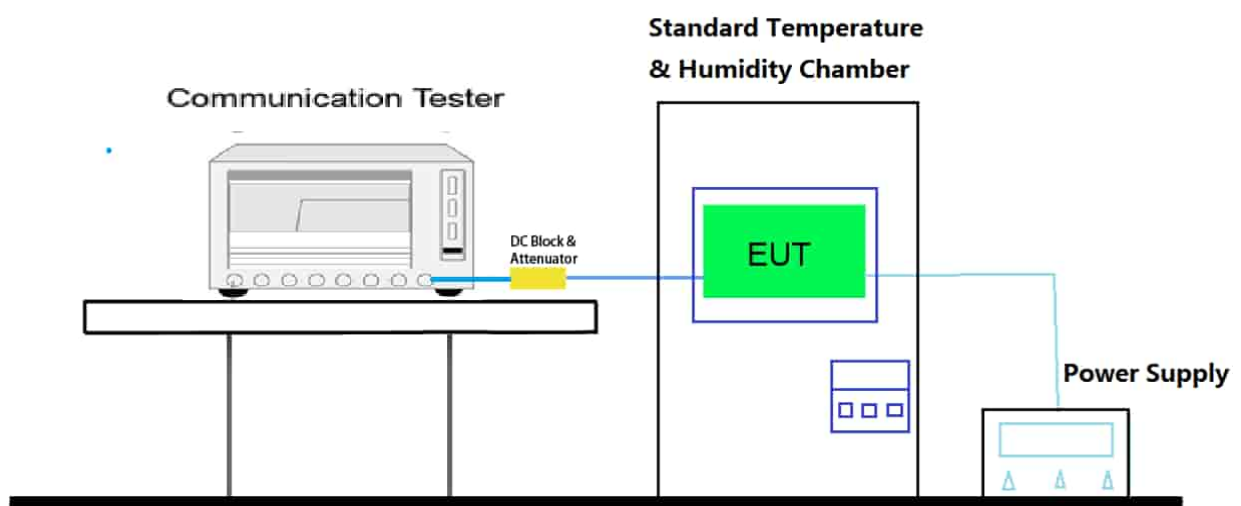
ANSI C63.26-2015 - Section 5.6

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

Technology	EIRP Power Limit
LTE Band 42	1W (30dBm)
LTE Band 43	1W (30dBm)
NR n77	1W (30dBm)
NR n78	1W (30dBm)

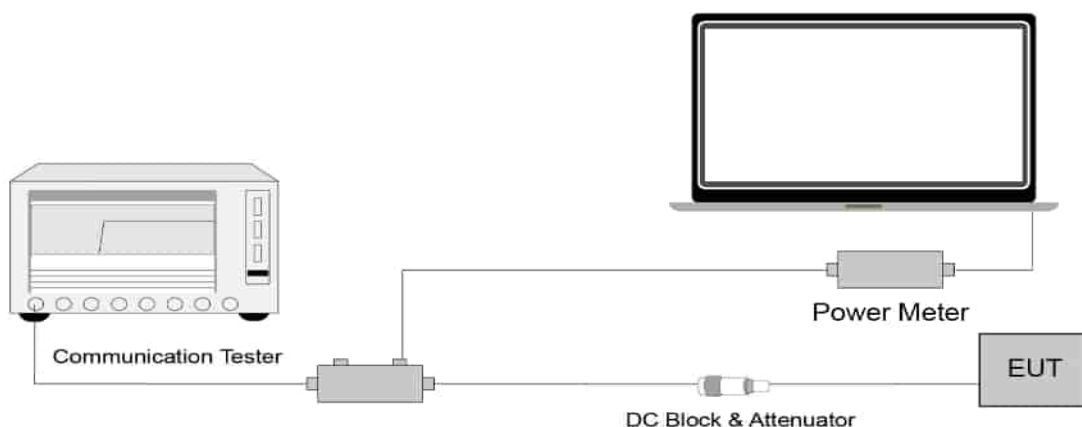
5.4.2 Test Procedure

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.3

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.

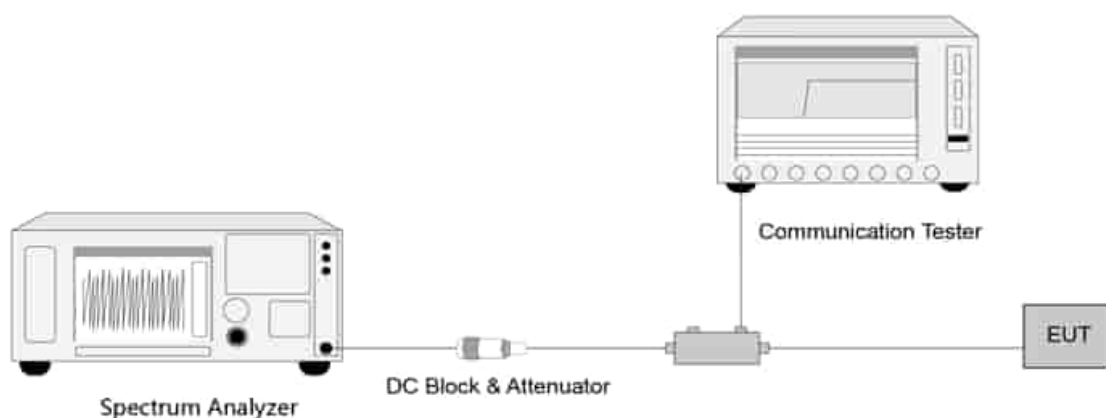
5.5.2 Test Procedure

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

5.5.3 Test Setting

1. Set the resolution / measurement bandwidth $\geq$ 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

Refer to Appendix A.4

5.6. Transmitter unwanted emissions (band-edge) Measurement

5.6.1 Test Limit

For 27.53(n)(2)

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.

For 27.53(i)(2)

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 (i)(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.

5.6.2 Test Procedure

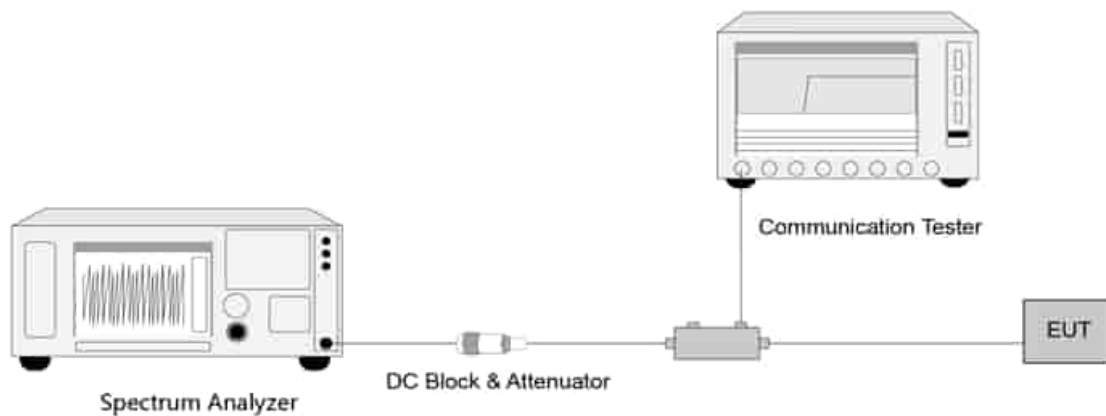
ANSI C63.26-2015 - Section 5.7.

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.5

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.

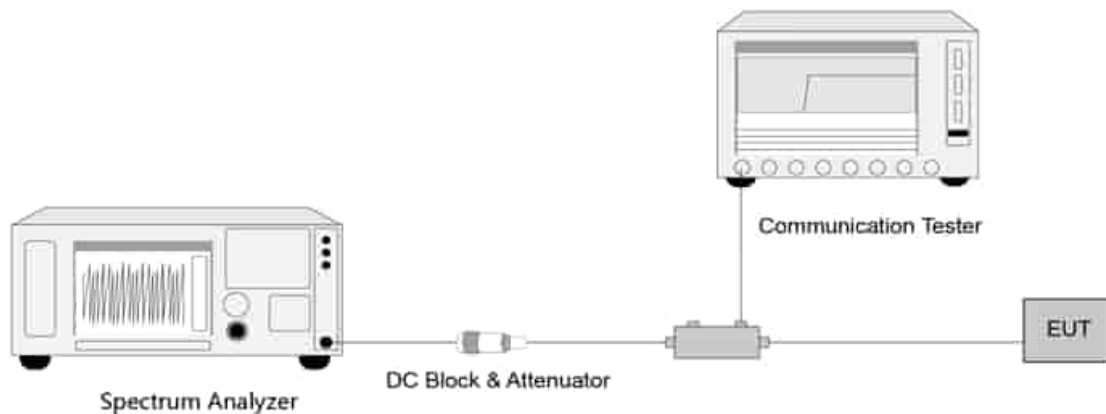
5.7.2 Test Procedure

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.6

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.

5.8.2 Test Procedure

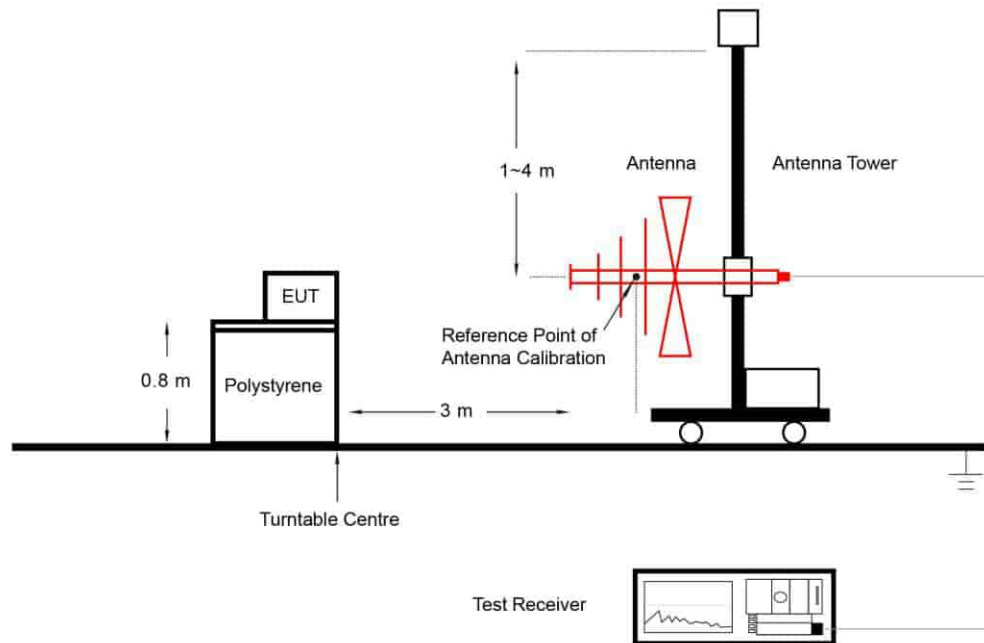
ANSI C63.26-2015 - Section 5.7

5.8.3 Test Setting

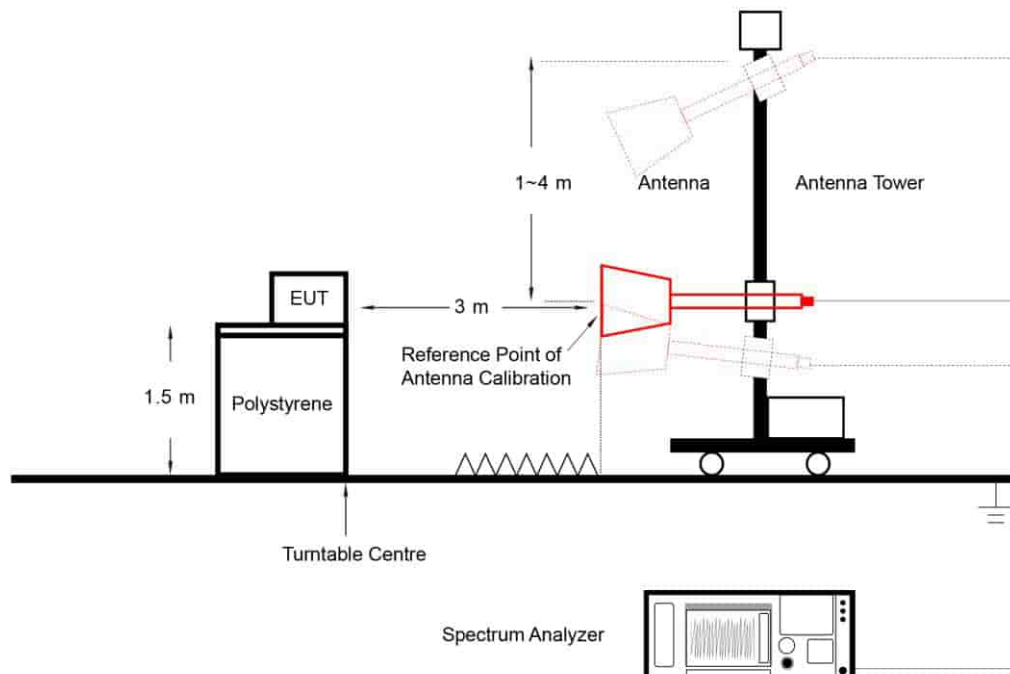
1. RBW = 120kHz or 1MHz
2. VBW $\geq 3 \times$ RBW
3. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
4. Detector = CISPR quasi-peak / average detector (Below 1 GHz, compliance with the limits shall be demonstrated using a CISPR quasi-peak detector and the 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.7.

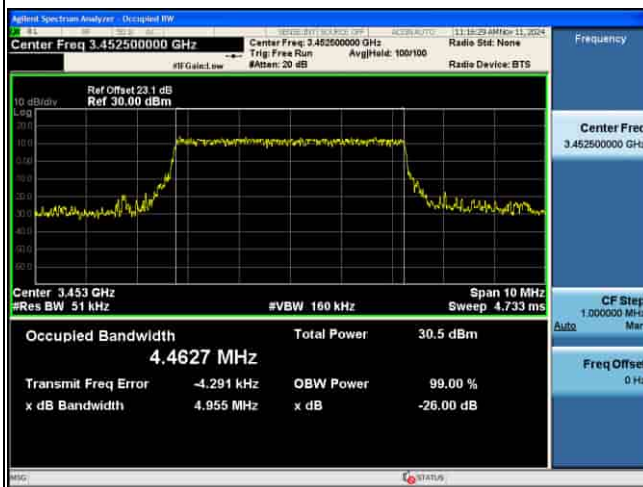
Appendix A : TEST RESULT DATA

A1. Occupied Bandwidth Test Result

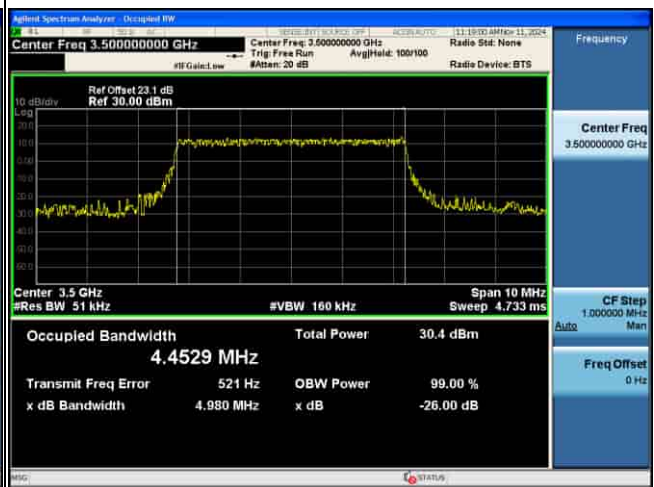
A1.1 LTE Band 42

LTE Band 42 (3.45G~3.55G)										
BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5M	42115	3452.5	4.4627	4.4405	4.4558	4.4685	4.955	4.623	4.908	4.982
5M	42590	3500	4.4529	4.4563	4.4641	4.4592	4.980	4.889	4.999	4.972
5M	43065	3547.5	4.4544	4.4635	4.4618	4.4691	5.011	4.996	4.917	4.970
10M	42140	3455	8.8956	8.9740	8.9501	8.9213	9.725	9.768	9.713	9.634
10M	42590	3500	8.9761	8.9486	8.9329	8.9321	9.699	9.709	9.61	9.726
10M	43040	3545	8.9394	8.9562	8.9668	8.9407	9.530	9.819	9.794	9.726
15M	42165	3457.5	13.423	13.411	13.447	13.425	14.38	14.35	14.54	14.26
15M	42590	3500	13.455	13.389	13.435	13.394	14.46	14.34	14.15	14.50
15M	43015	3542.5	13.425	13.432	13.417	13.437	14.78	14.31	15.24	14.42
20M	42190	3460	17.854	17.858	17.857	17.896	19.19	19.03	19.06	19.26
20M	42590	3500	17.913	17.899	17.867	17.876	19.16	19.02	19.04	19.20
20M	42990	3540	17.903	17.882	17.853	17.913	18.75	19.12	18.90	19.25

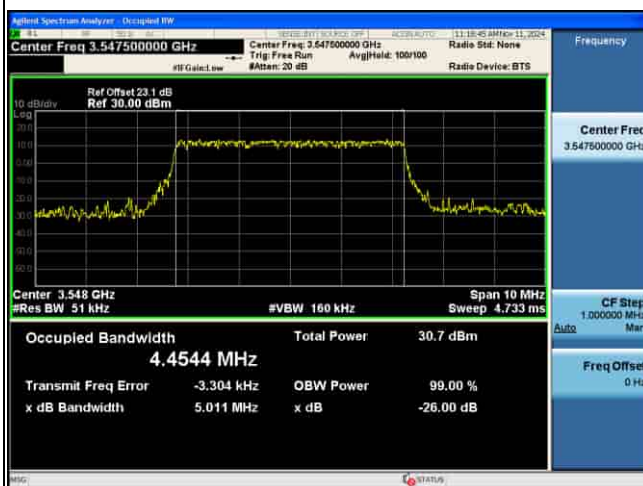
OCC_4G_B42_.QPSK_5M CH42115



OCC_4G_B42_.QPSK_5M CH42590



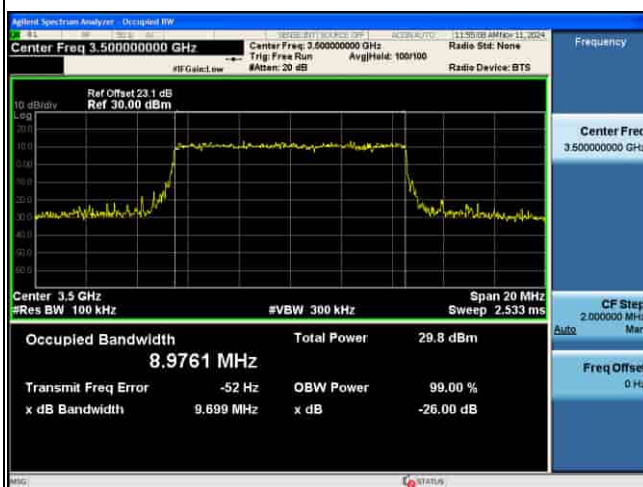
OCC_4G_B42_.QPSK_5M CH43065



OCC_4G_B42_.QPSK_10M CH42140



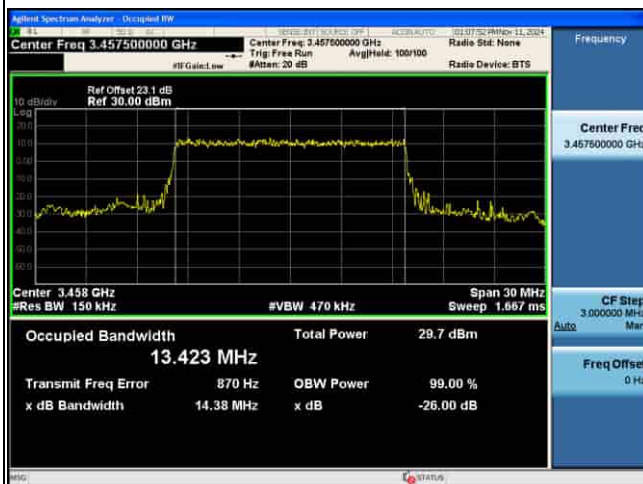
OCC_4G_B42_.QPSK_10M CH42590



OCC_4G_B42_.QPSK_10M CH43040



OCC_4G_B42_.QPSK_15M CH42165



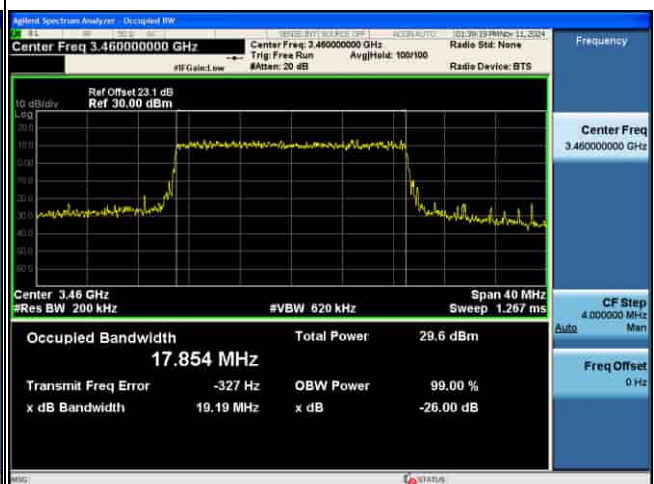
OCC_4G_B42_.QPSK_15M CH42590



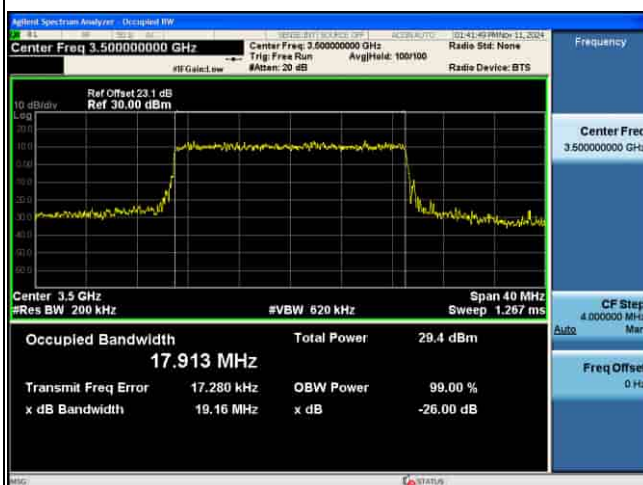
OCC_4G_B42_.QPSK_15M CH43015



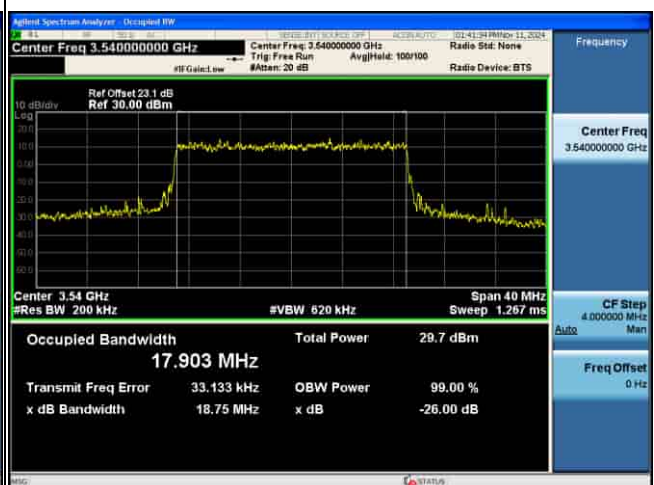
OCC_4G_B42_.QPSK_20M CH42190



OCC_4G_B42_.QPSK_20M CH42590



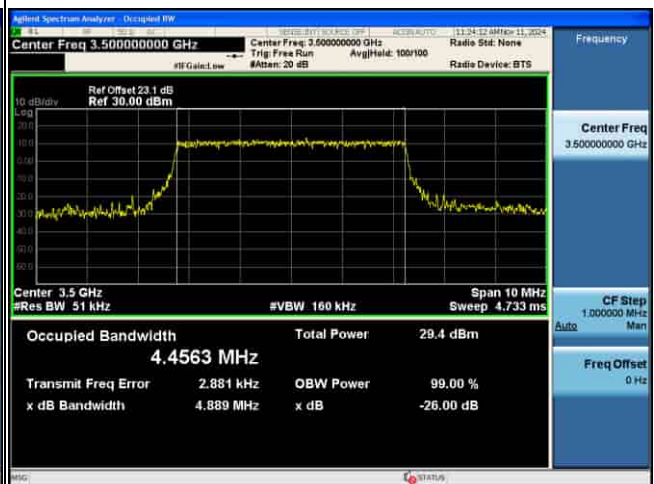
OCC_4G_B42_.QPSK_20M CH42990



OCC_4G_B42_16QAM_5M CH42115



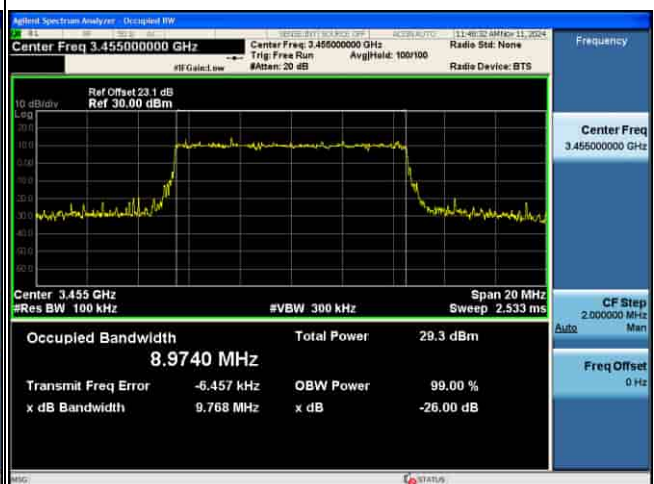
OCC_4G_B42_16QAM_5M CH42590



OCC_4G_B42_16QAM_5M CH43065



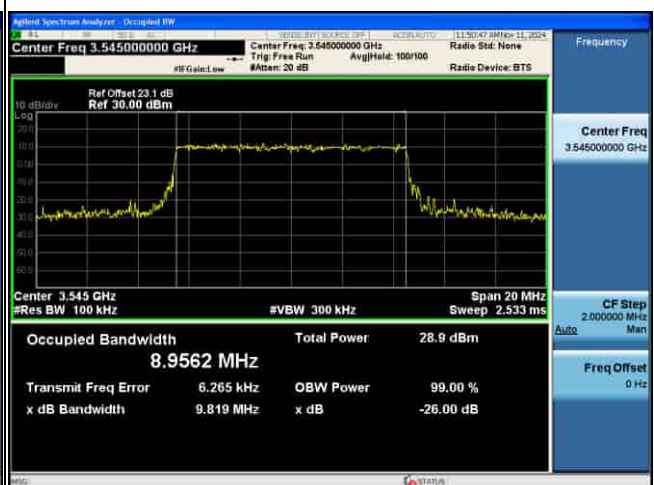
OCC_4G_B42_16QAM_10M CH42140



OCC_4G_B42_16QAM_10M CH42590



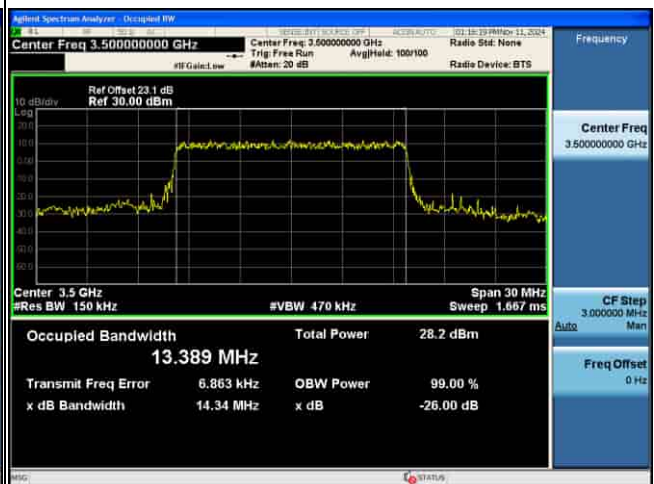
OCC_4G_B42_16QAM_10M CH43040



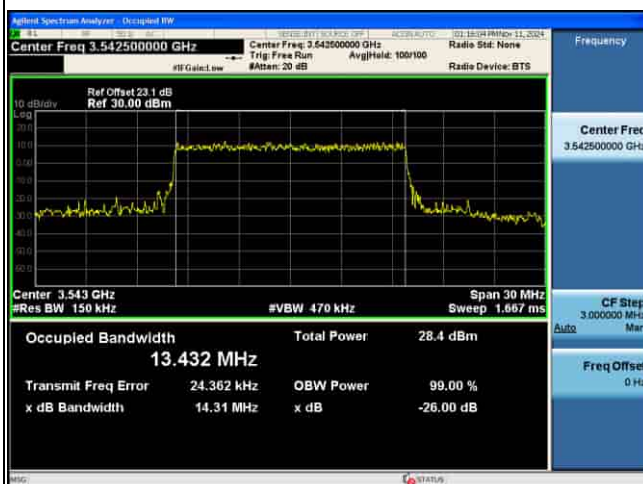
OCC_4G_B42_16QAM_15M CH42165



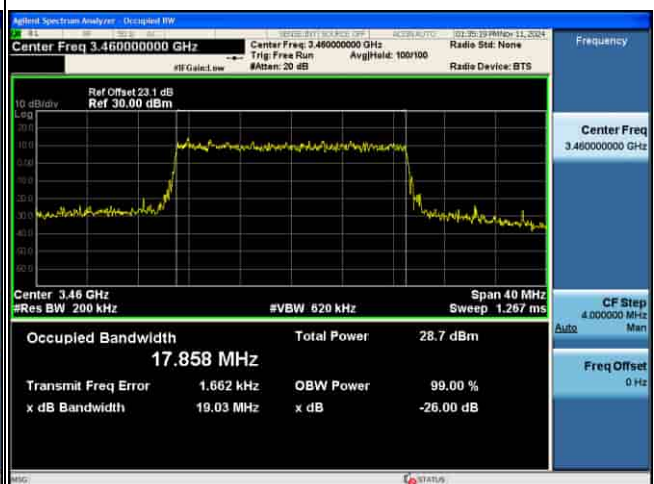
OCC_4G_B42_16QAM_15M CH42590



OCC_4G_B42_16QAM_15M CH43015



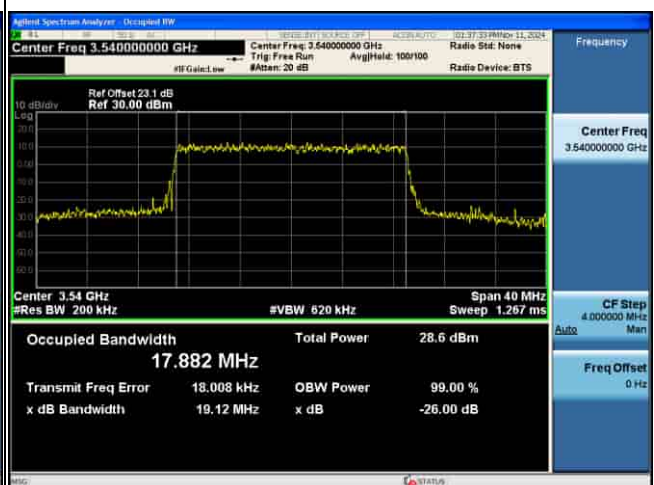
OCC_4G_B42_16QAM_20M CH42190



OCC_4G_B42_16QAM_20M CH42590



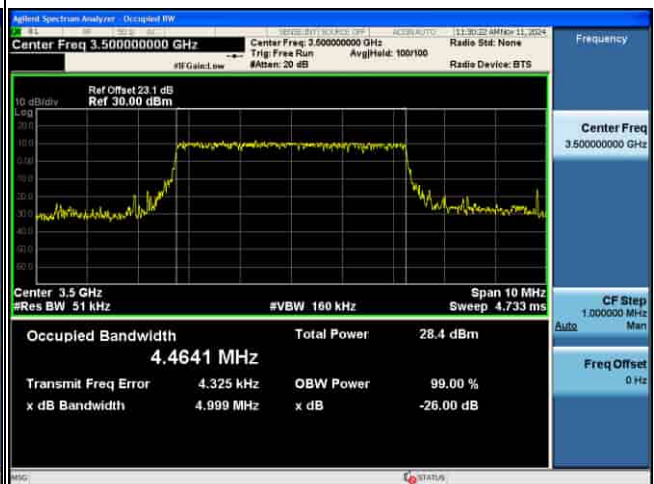
OCC_4G_B42_16QAM_20M CH42990



OCC_4G_B42_64QAM_5M CH42115



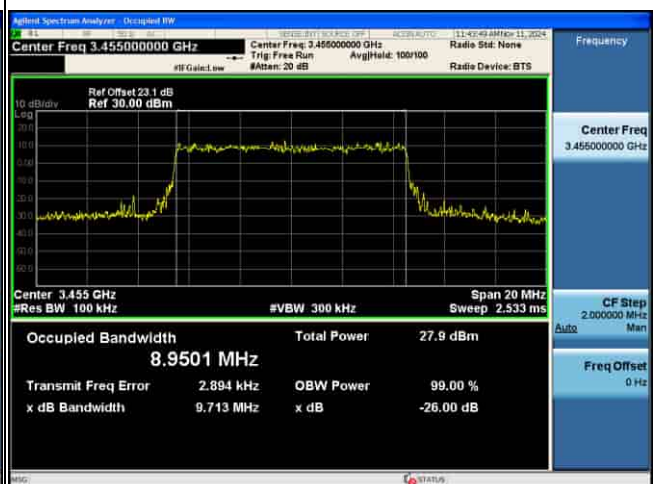
OCC_4G_B42_64QAM_5M CH42590



OCC_4G_B42_64QAM_5M CH43065



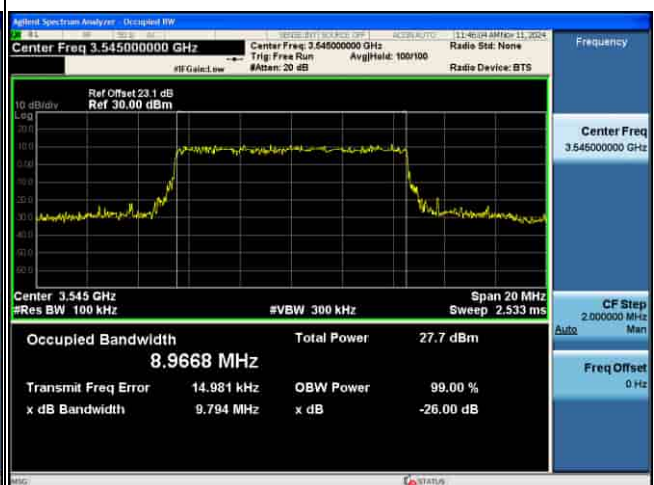
OCC_4G_B42_64QAM_10M CH42140



OCC_4G_B42_64QAM_10M CH42590



OCC_4G_B42_64QAM_10M CH43040



OCC_4G_B42_64QAM_15M CH42165



OCC_4G_B42_64QAM_15M CH42590



OCC_4G_B42_64QAM_15M CH43015



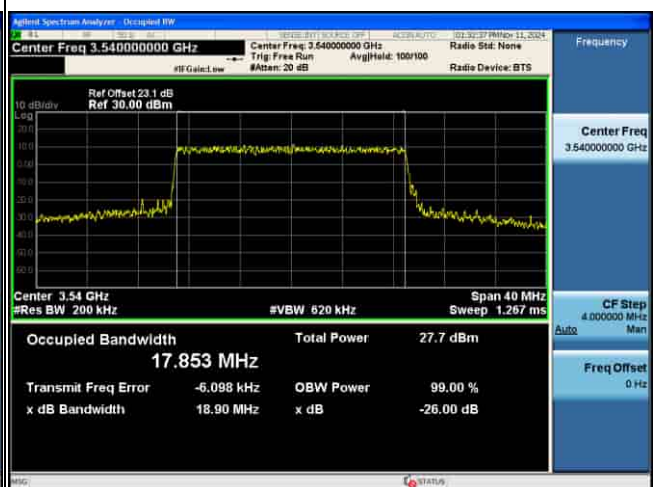
OCC_4G_B42_64QAM_20M CH42190



OCC_4G_B42_64QAM_20M CH42590



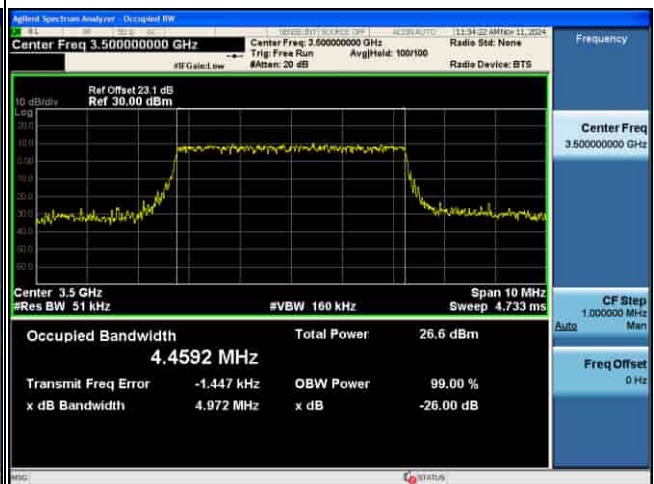
OCC_4G_B42_64QAM_20M CH42990



OCC_4G_B42_256QAM_5M CH42115



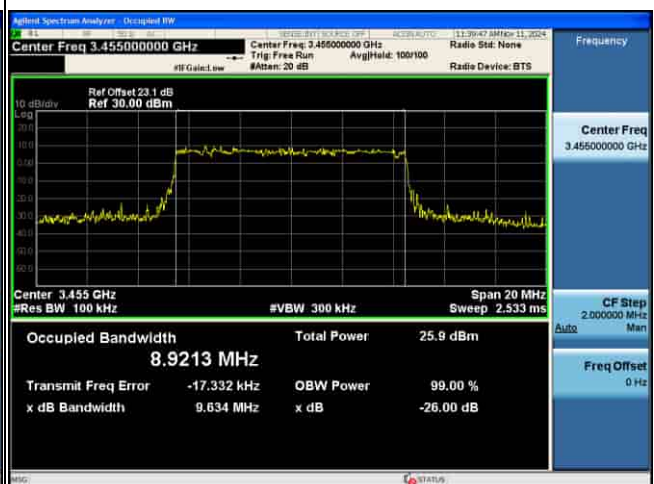
OCC_4G_B42_256QAM_5M CH42590



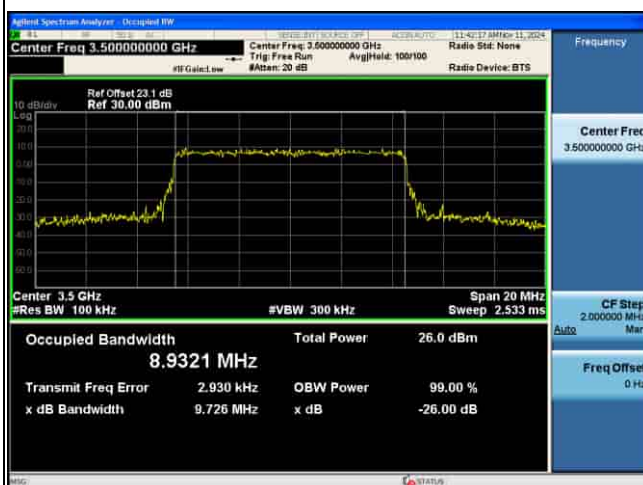
OCC_4G_B42_256QAM_5M CH43065



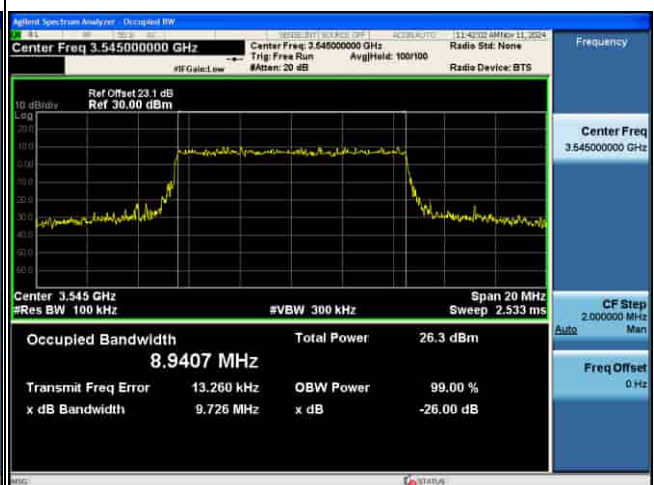
OCC_4G_B42_256QAM_10M CH42140



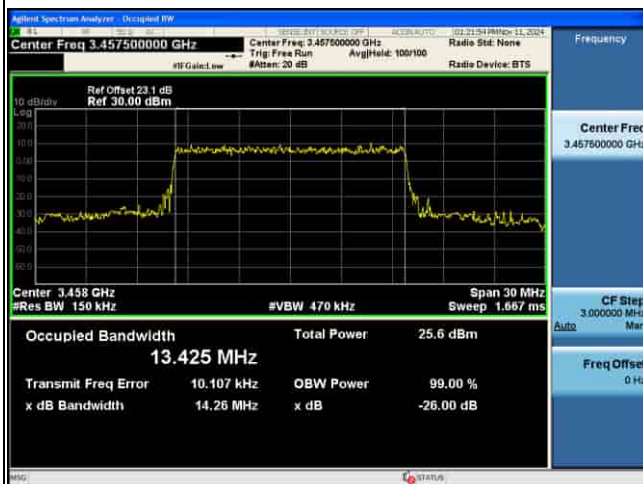
OCC_4G_B42_256QAM_10M CH42590



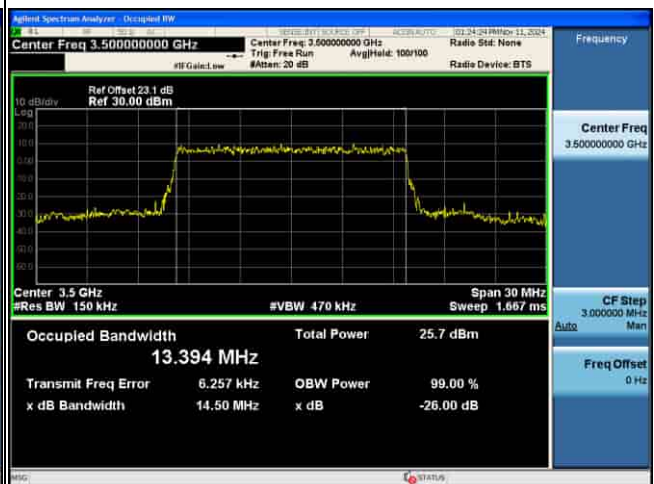
OCC_4G_B42_256QAM_10M CH43040



OCC_4G_B42_256QAM_15M CH42165



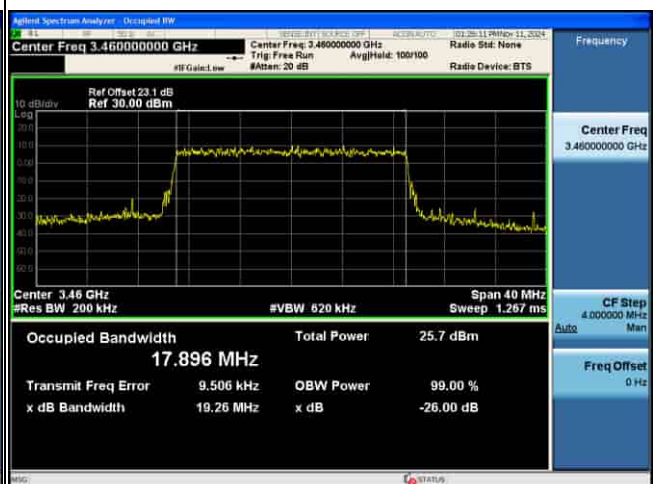
OCC_4G_B42_256QAM_15M CH42590



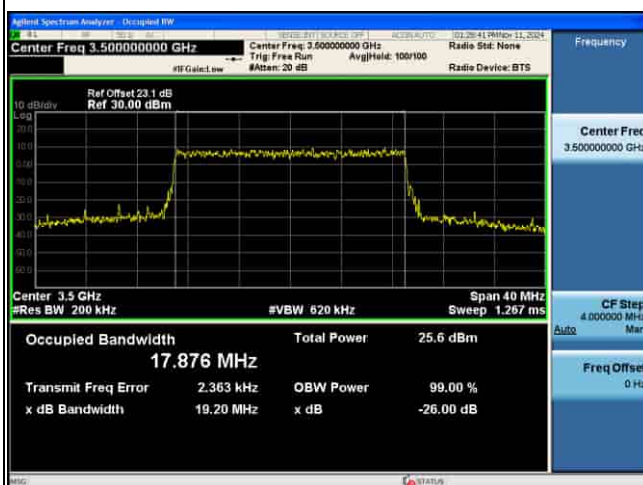
OCC_4G_B42_256QAM_15M CH43015



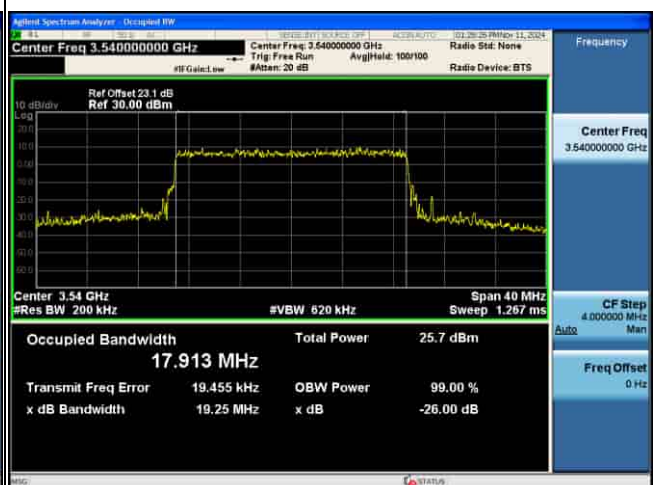
OCC_4G_B42_256QAM_20M CH42190



OCC_4G_B42_256QAM_20M CH42590



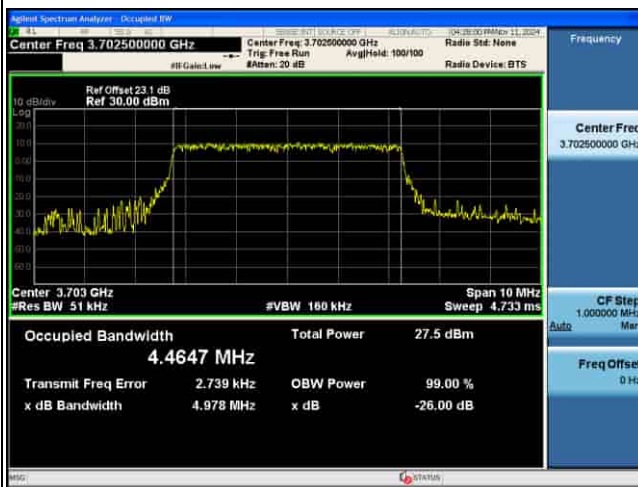
OCC_4G_B42_256QAM_20M CH42990



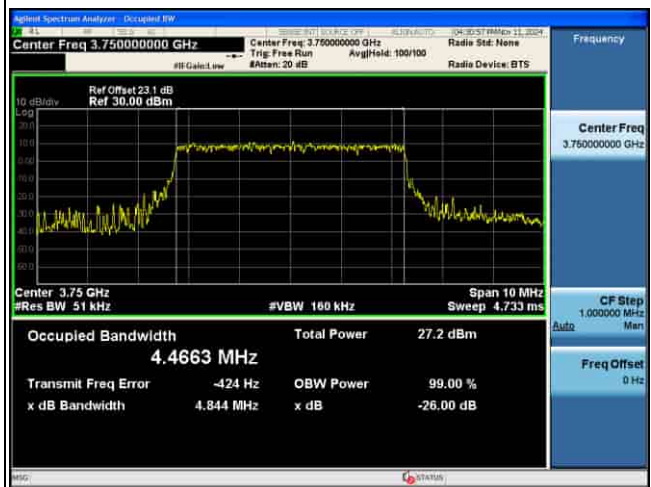
A1.2 LTE Band 43

LTE Band 43 (3.7G~3.8G)										
BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)				26 dB bandwidth (MHz)			
			QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
5M	44615	3702.5	4.4647	4.4665	4.4615	4.4627	4.978	4.922	5.008	4.879
5M	45090	3750	4.4663	4.4574	4.4629	4.4492	4.844	4.984	4.896	5.038
5M	45565	3797.5	4.4683	4.4640	4.4744	4.4677	4.983	5.035	4.885	4.958
10M	44640	3705	8.9516	8.9407	8.9367	8.9409	9.907	9.770	9.599	9.701
10M	45090	3750	8.9301	8.9275	8.9416	8.9259	9.694	9.656	9.612	9.729
10M	45540	3795	8.9550	8.9415	8.9297	8.9468	9.719	9.706	9.603	9.480
15M	44665	3707.5	13.349	13.438	13.430	13.424	14.50	14.37	14.33	14.52
15M	45090	3750	13.388	13.386	13.416	13.433	14.21	14.31	14.47	14.32
15M	45515	3792.5	13.405	13.385	13.381	13.451	14.23	14.41	14.56	14.41
20M	44690	3710	17.914	17.911	17.948	17.870	18.99	19.19	19.20	19.15
20M	45090	3750	17.886	17.841	17.892	17.883	18.94	18.99	18.95	18.74
20M	45490	3790	17.856	17.834	17.890	17.904	18.91	19.20	18.88	19.13

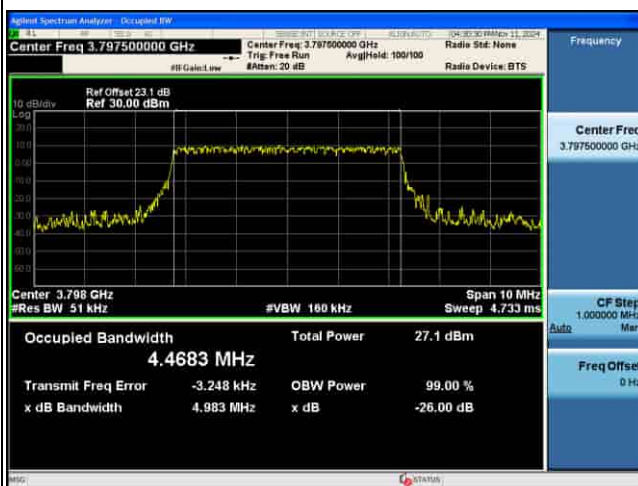
OCC_4G_B43_.QPSK_5M CH44615



OCC_4G_B43_.QPSK_5M CH45090



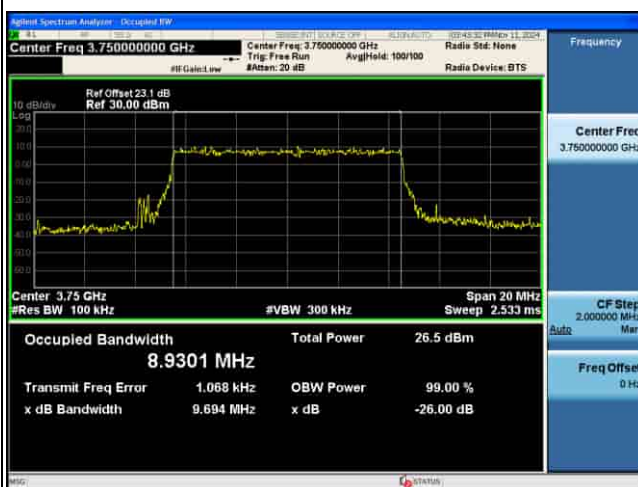
OCC_4G_B43_.QPSK_5M CH45565



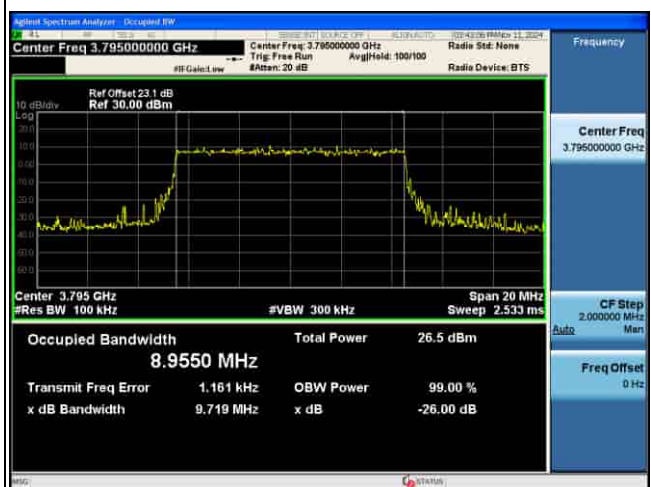
OCC_4G_B43_.QPSK_10M CH44640



OCC_4G_B43_.QPSK_10M CH45090



OCC_4G_B43_.QPSK_10M CH45540



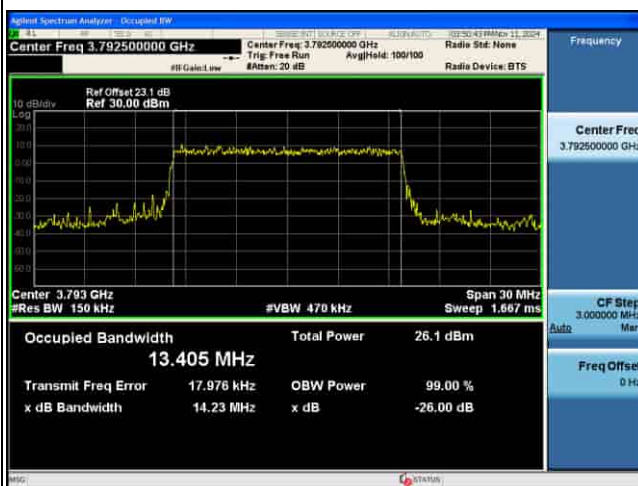
OCC_4G_B43_.QPSK_15M CH44665



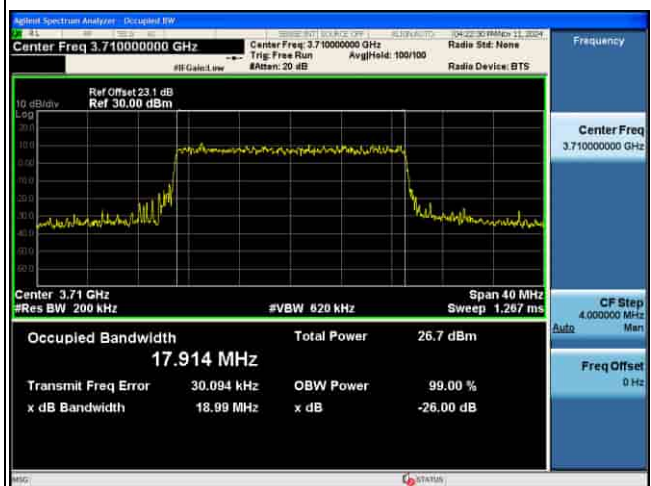
OCC_4G_B43_.QPSK_15M CH45090



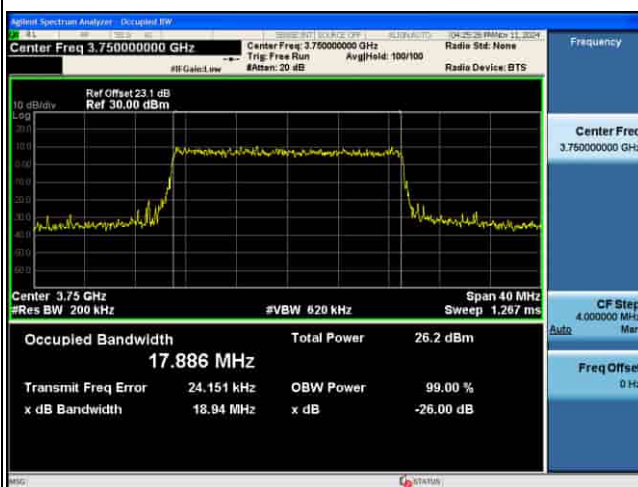
OCC_4G_B43_.QPSK_15M CH45515



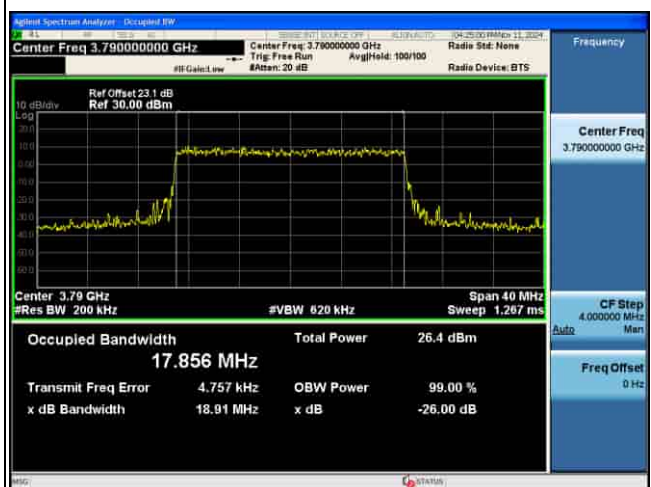
OCC_4G_B43_.QPSK_20M CH44690



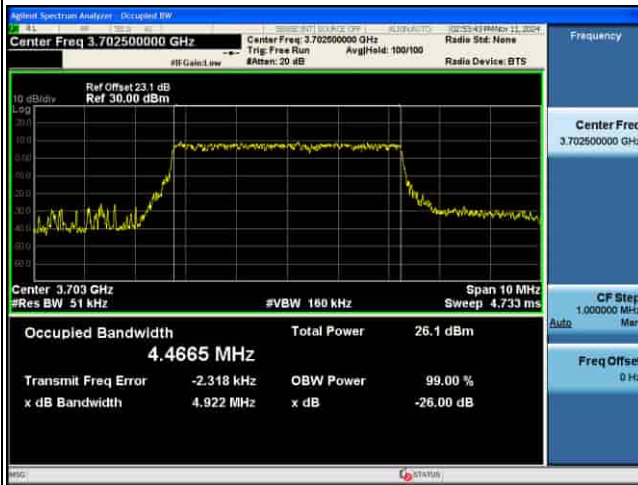
OCC_4G_B43_.QPSK_20M CH45090



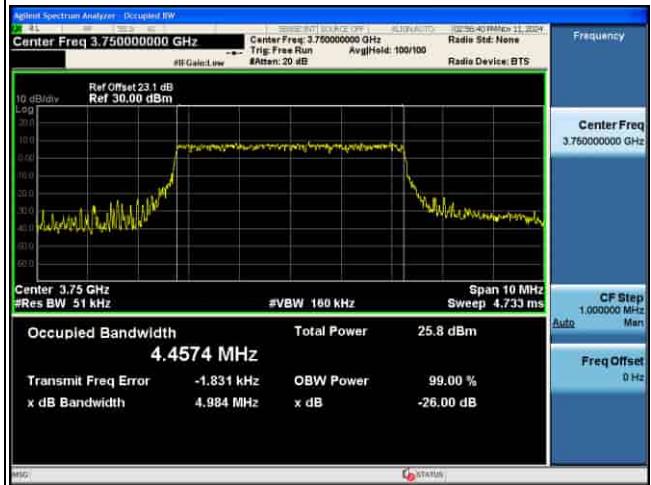
OCC_4G_B43_.QPSK_20M CH45490



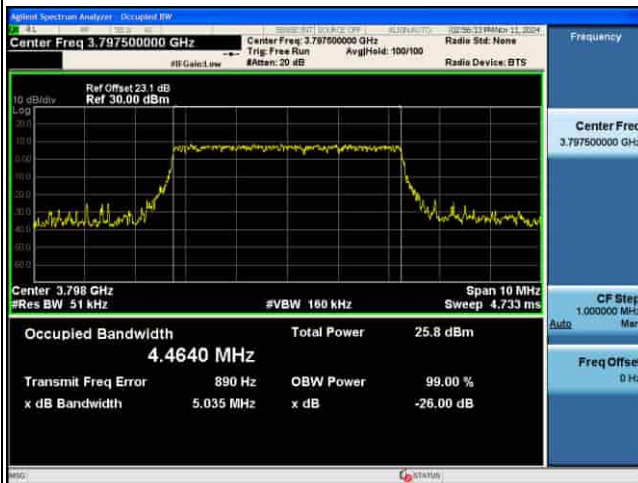
OCC_4G_B43_16QAM_5M CH44615



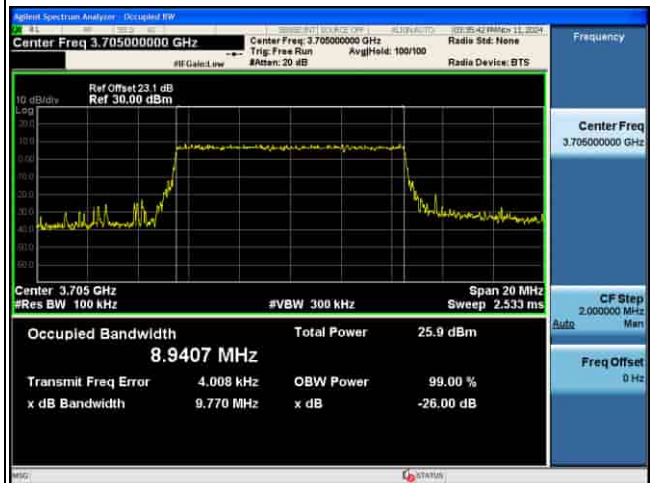
OCC_4G_B43_16QAM_5M CH45090



OCC_4G_B43_16QAM_5M CH45565



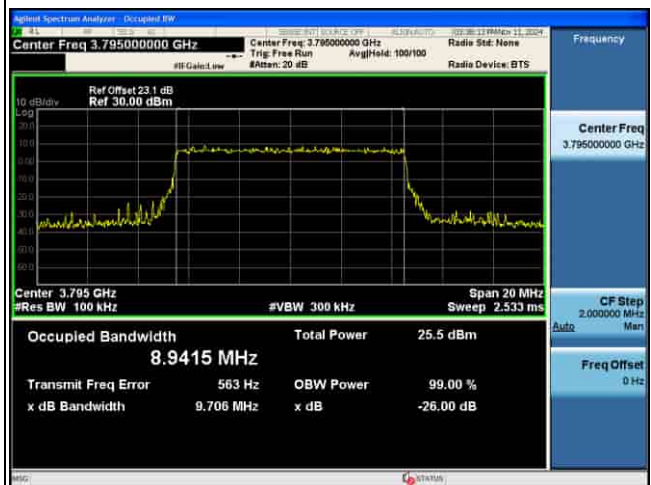
OCC_4G_B43_16QAM_10M CH44640



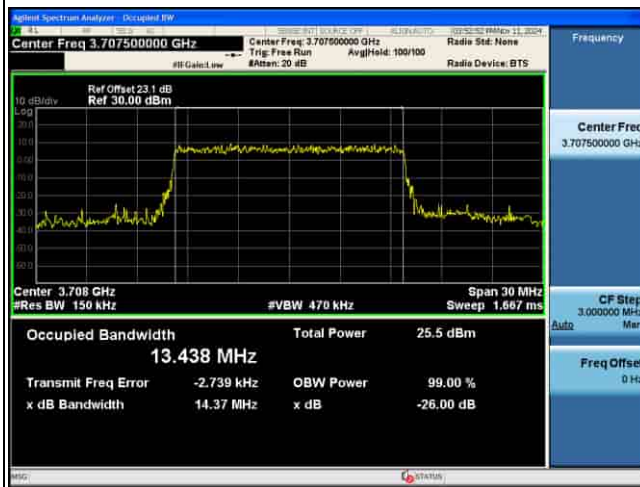
OCC_4G_B43_16QAM_10M CH45090



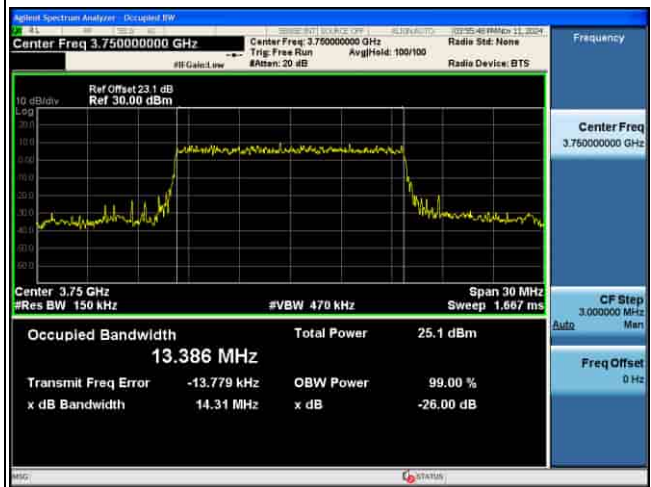
OCC_4G_B43_16QAM_10M CH45540



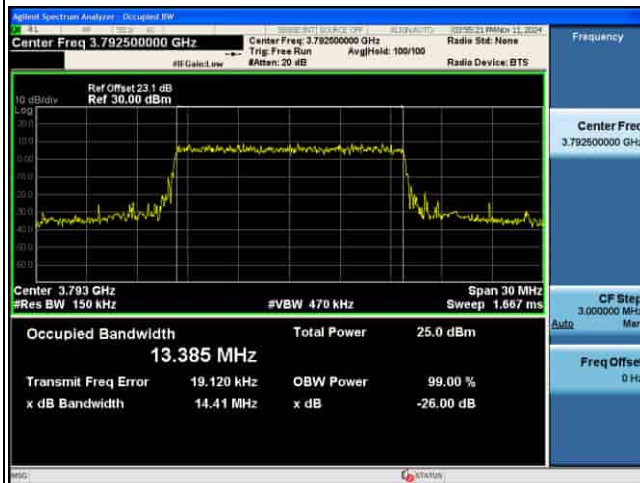
OCC_4G_B43_16QAM_15M CH44665



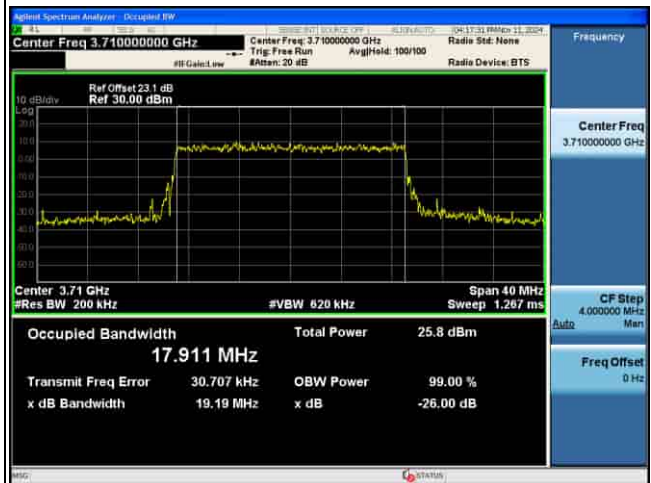
OCC_4G_B43_16QAM_15M CH45090



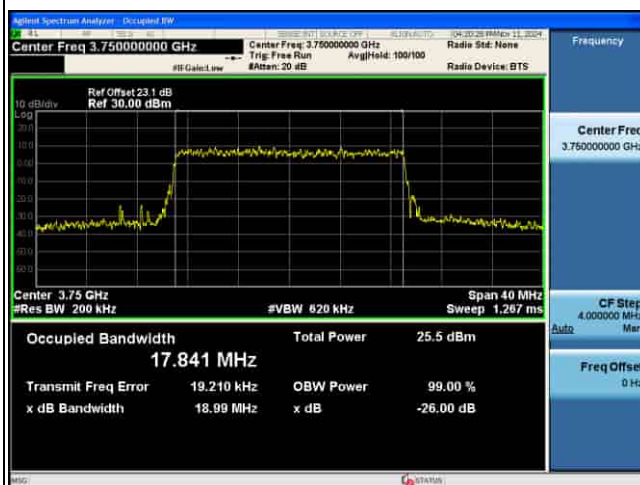
OCC_4G_B43_16QAM_15M CH45515



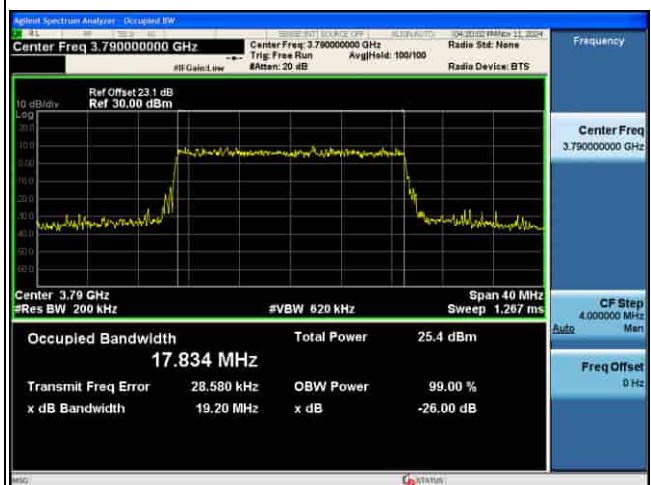
OCC_4G_B43_16QAM_20M CH44690



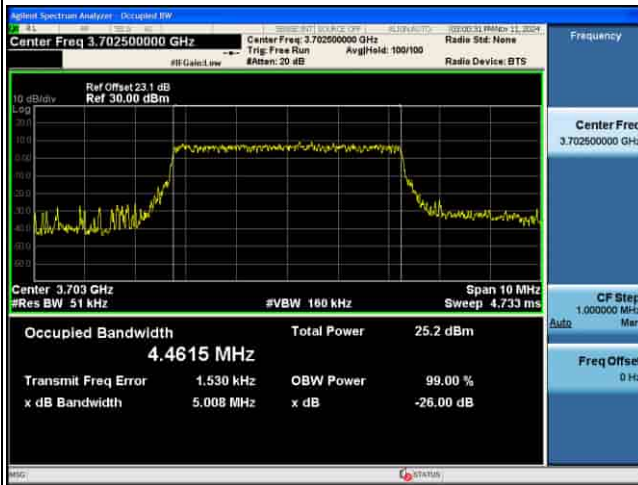
OCC_4G_B43_16QAM_20M CH45090



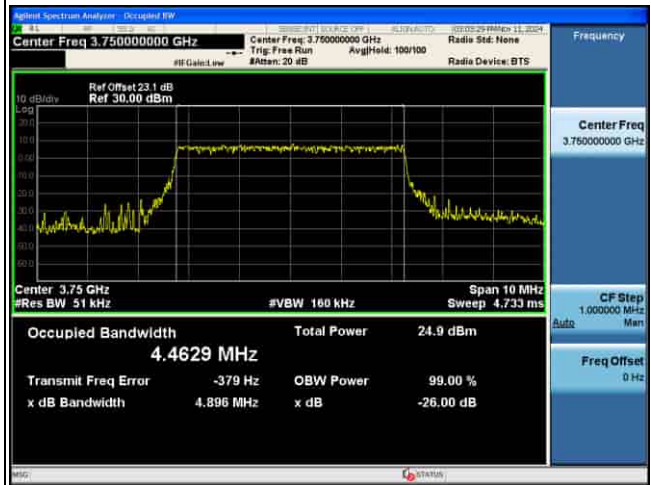
OCC_4G_B43_16QAM_20M CH45490



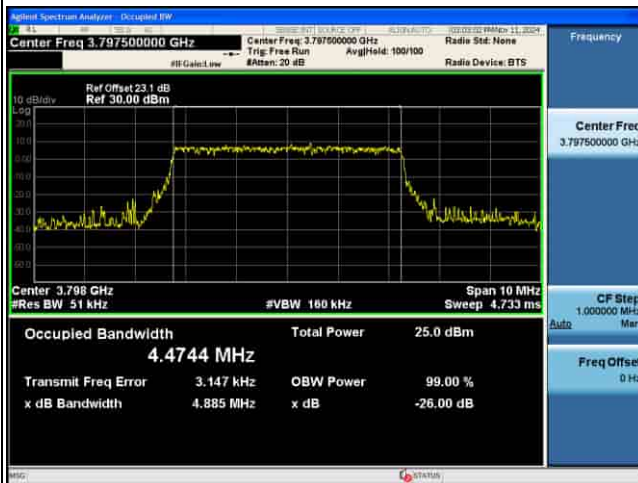
OCC_4G_B43_64QAM_5M CH44615



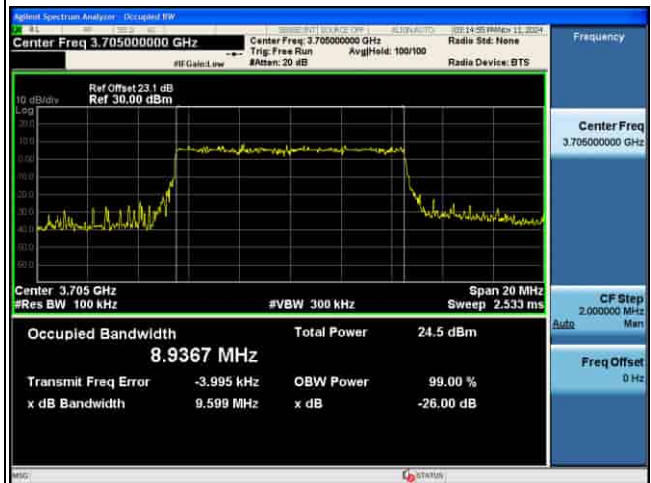
OCC_4G_B43_64QAM_5M CH45090



OCC_4G_B43_64QAM_5M CH45565



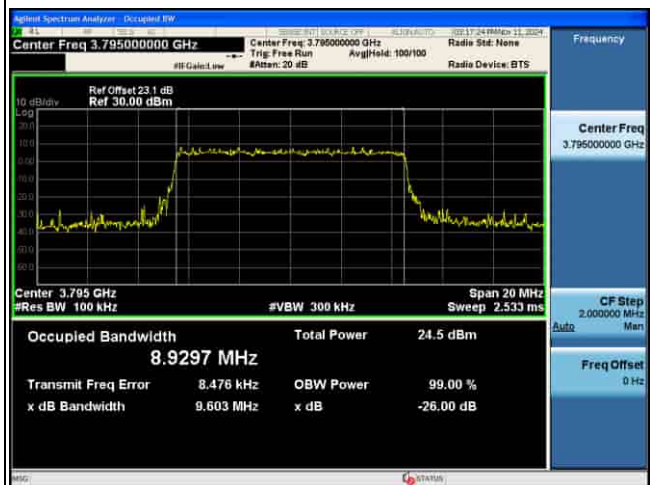
OCC_4G_B43_64QAM_10M CH44640



OCC_4G_B43_64QAM_10M CH45090



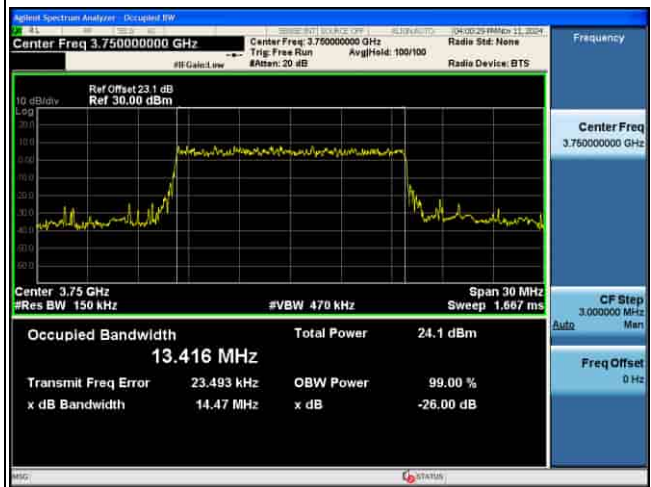
OCC_4G_B43_64QAM_10M CH45540



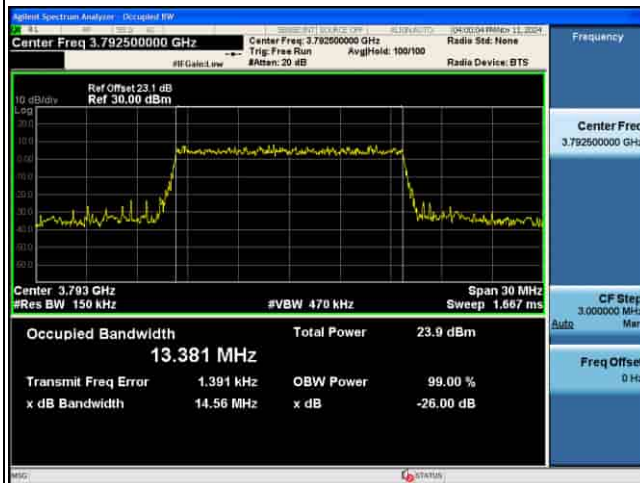
OCC_4G_B43_64QAM_15M CH44665



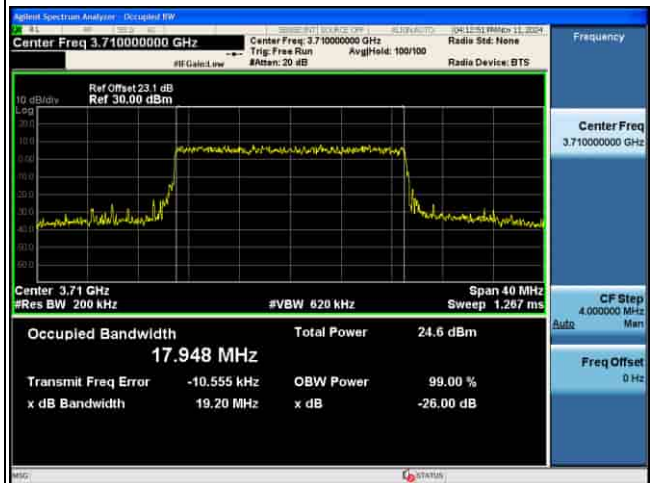
OCC_4G_B43_64QAM_15M CH45090



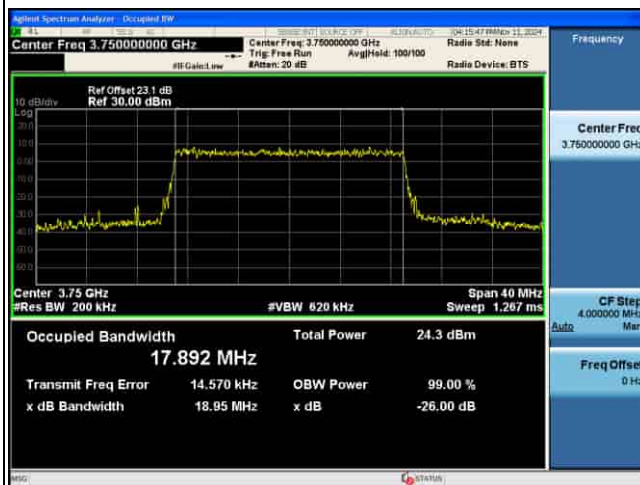
OCC_4G_B43_64QAM_15M CH45515



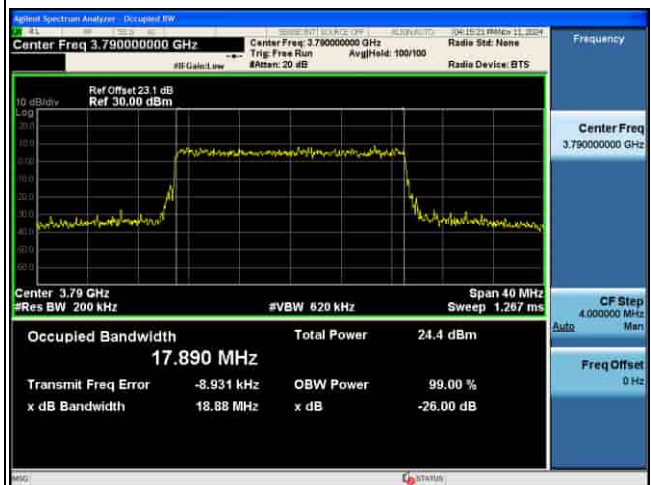
OCC_4G_B43_64QAM_20M CH44690



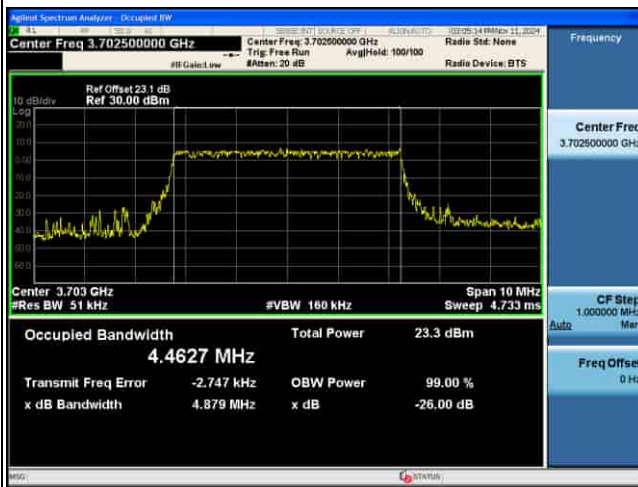
OCC_4G_B43_64QAM_20M CH45090



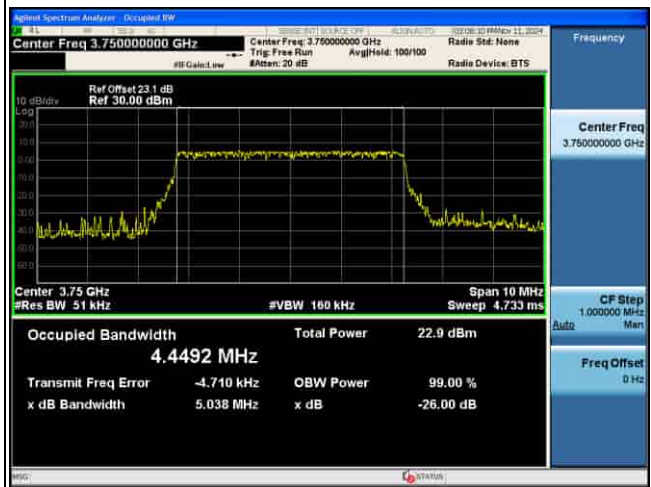
OCC_4G_B43_64QAM_20M CH45490



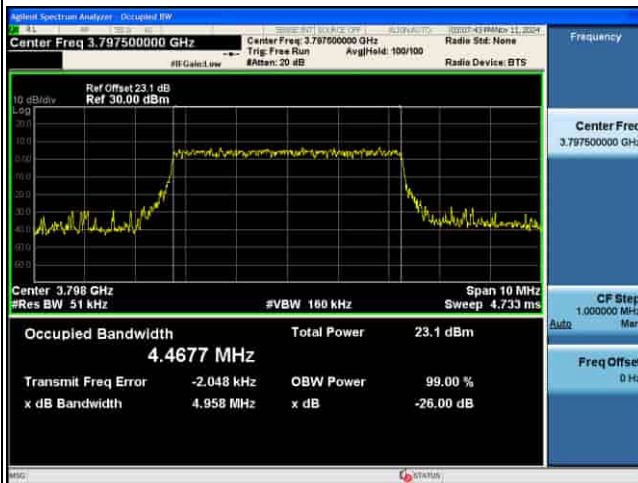
OCC_4G_B43_256QAM_5M CH44615



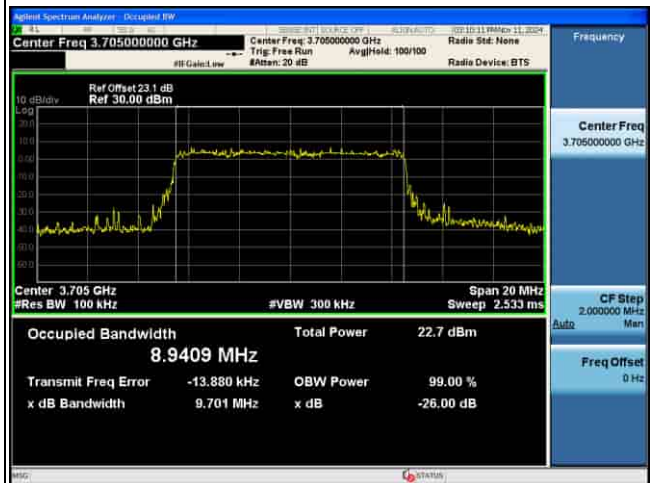
OCC_4G_B43_256QAM_5M CH45090



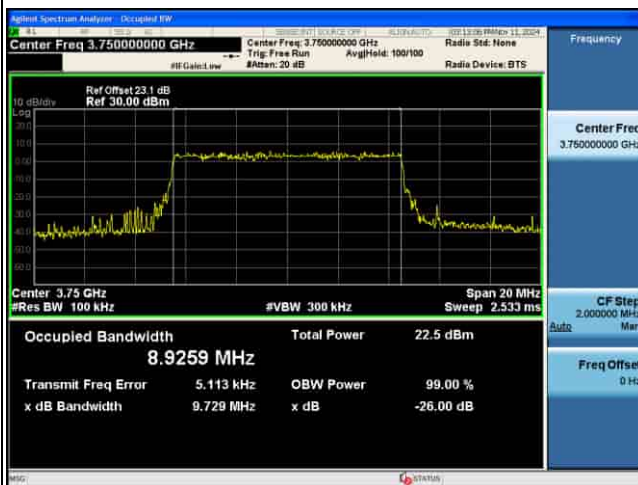
OCC_4G_B43_256QAM_5M CH45565



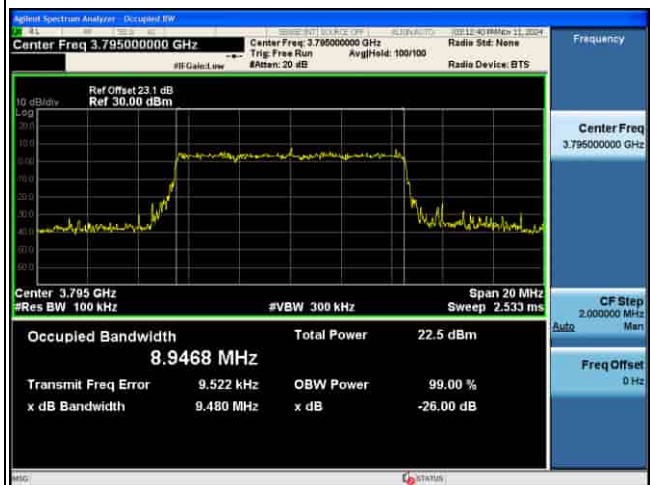
OCC_4G_B43_256QAM_10M CH44640



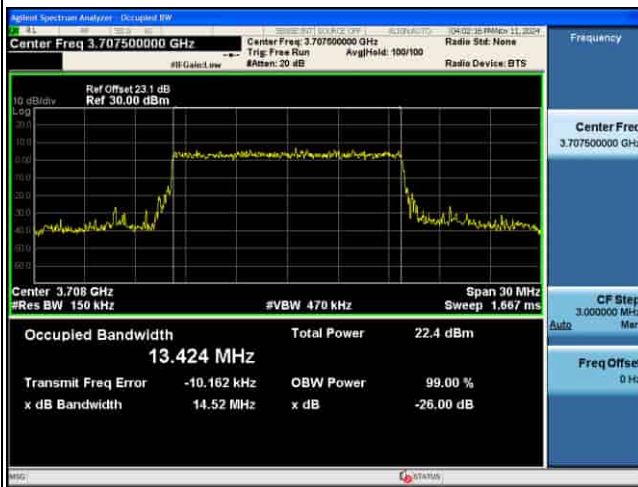
OCC_4G_B43_256QAM_10M CH45090



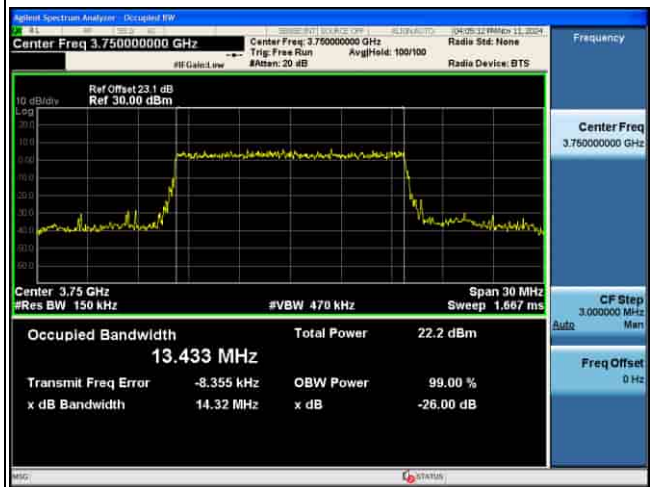
OCC_4G_B43_256QAM_10M CH45540



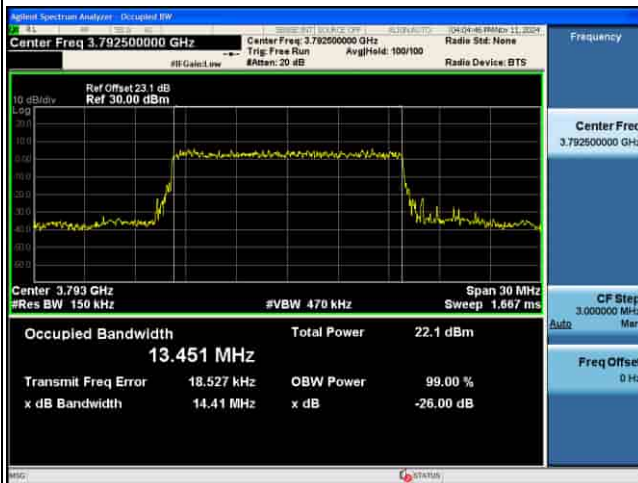
OCC_4G_B43_256QAM_15M CH44665



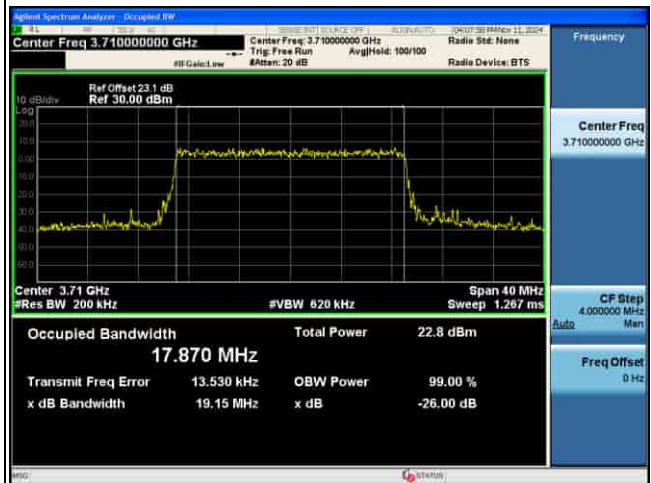
OCC_4G_B43_256QAM_15M CH45090



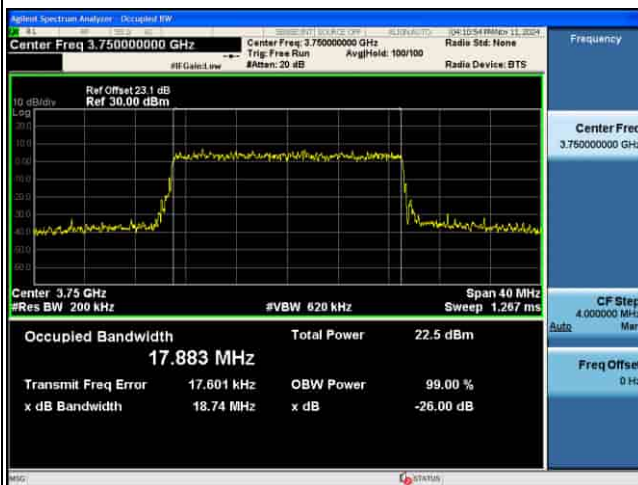
OCC_4G_B43_256QAM_15M CH45515



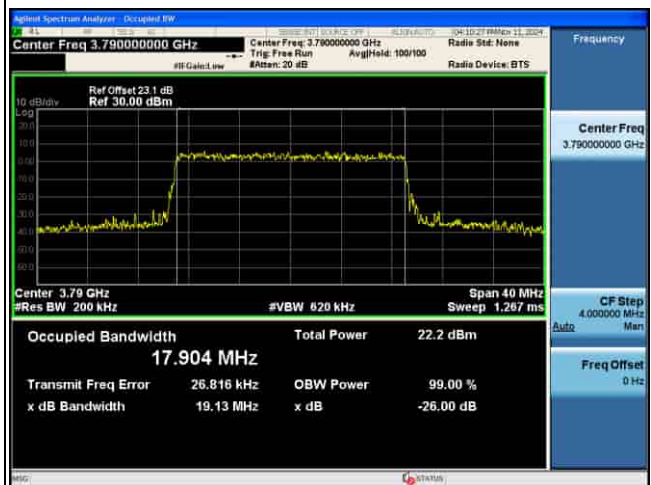
OCC_4G_B43_256QAM_20M CH44690



OCC_4G_B43_256QAM_20M CH45090



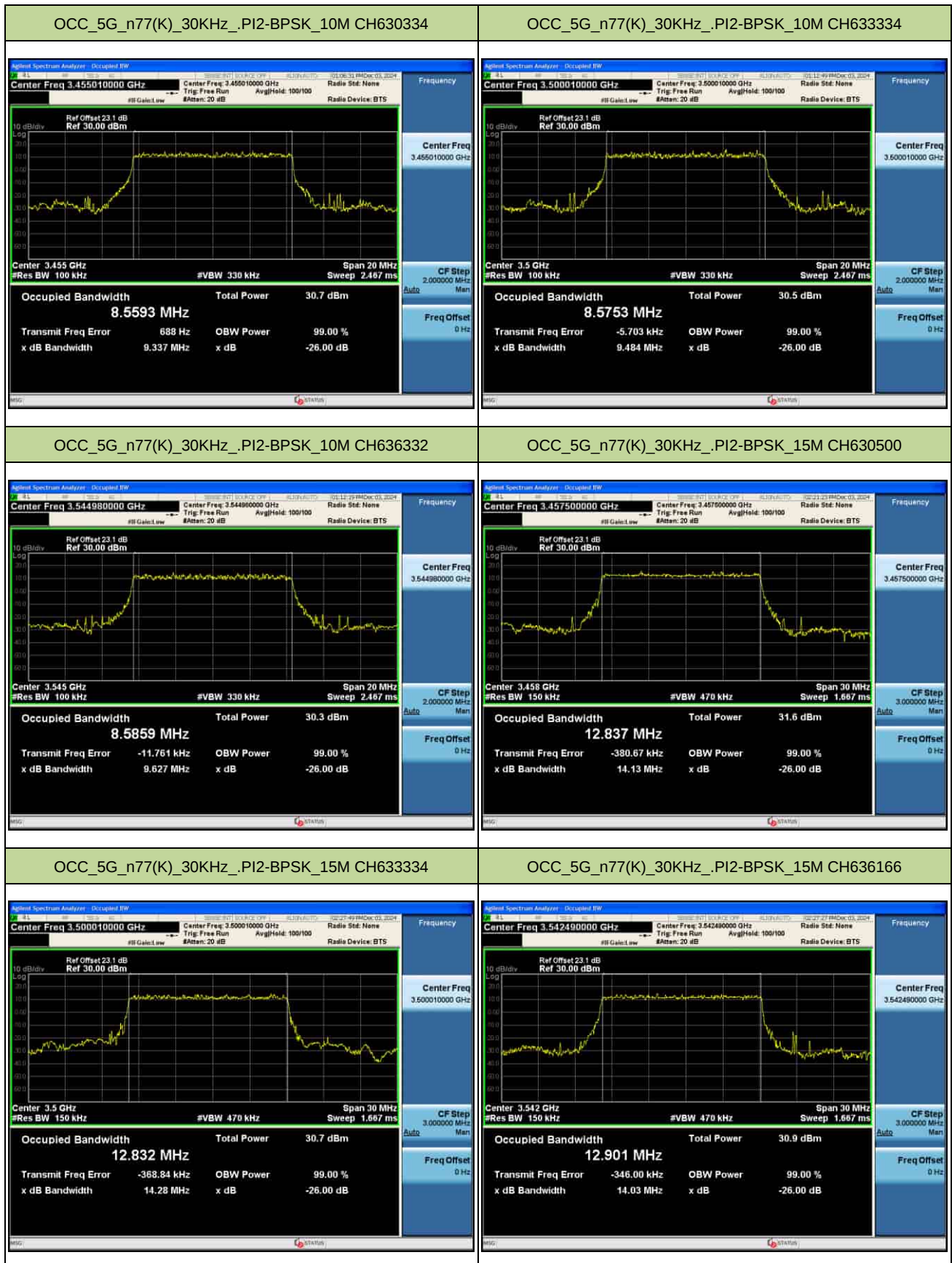
OCC_4G_B43_256QAM_20M CH45490



A1.3 NR n77_3450-3550MHz (Cover n78_3450-3550MHz)

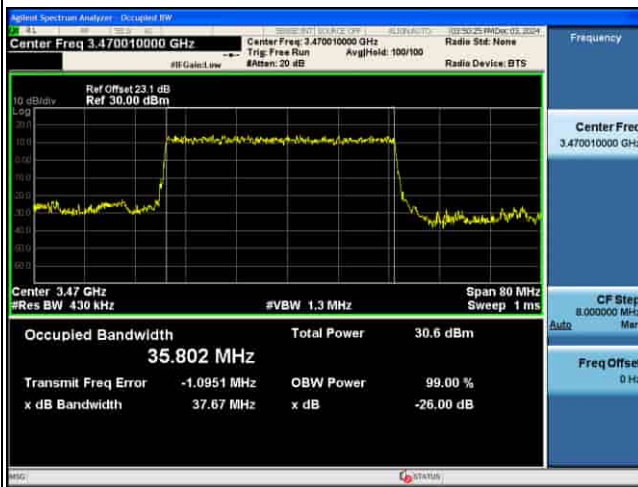
n77 (3.45G ~ 3.55G)												
BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)					26 dB bandwidth (MHz)				
			BPSK	QPSK	16QAM	64QAM	256QAM	BPSK	QPSK	16QAM	64QAM	256QAM
10M	630334	3455.01	8.5593	8.5995	8.6104	8.5983	8.6004	9.337	9.722	9.473	9.599	9.532
10M	633334	3500.01	8.5753	8.6130	8.6278	8.6087	8.5604	9.484	9.690	9.593	9.517	9.677
10M	636332	3544.98	8.5859	8.5930	8.5936	8.5866	8.6000	9.627	9.547	9.708	9.606	9.671
15M	630500	3457.5	12.837	12.871	12.902	12.872	12.857	14.13	13.94	14.22	13.98	14.03
15M	633334	3500.01	12.832	12.884	12.937	12.860	12.849	14.28	14.11	14.27	13.88	14.05
15M	636166	3542.49	12.901	12.910	12.860	12.836	12.891	14.03	14.25	13.94	13.99	14.01
20M	630668	3460.02	17.877	17.943	17.873	17.872	17.835	19.07	19.38	19.02	19.27	19.51
20M	633334	3500.01	17.894	17.860	17.879	17.866	17.834	19.20	19.00	19.55	19.07	18.93
20M	636000	3540	17.855	17.837	17.867	17.852	17.939	19.25	19.31	19.05	19.28	19.22
30M	631000	3465	26.706	26.817	26.893	26.762	26.834	28.19	28.28	28.35	28.51	28.49
30M	633334	3500.01	26.788	26.786	26.832	26.796	26.834	28.28	28.46	28.34	28.29	28.00
30M	635666	3534.99	26.798	26.825	26.701	26.720	26.756	28.37	28.32	28.07	28.23	28.28
40M	631334	3470.01	35.802	35.783	35.687	35.657	35.756	37.67	37.79	37.35	37.66	37.66
40M	633334	3500.01	35.707	35.793	35.783	35.772	35.787	37.53	37.52	37.55	37.59	37.32
40M	635332	3529.98	35.756	35.777	35.815	35.809	35.809	37.34	37.76	37.30	37.55	37.35
50M	631668	3475.02	45.647	45.874	45.765	45.699	45.692	47.97	47.43	47.66	47.60	49.42
50M	633334	3500.01	45.709	45.727	45.739	45.686	45.854	47.59	47.66	47.67	47.59	47.61
50M	635000	3525	45.632	45.718	45.770	45.681	45.807	47.63	47.54	47.84	47.56	47.78
60M	632000	3480	57.853	57.974	57.940	57.913	57.952	60.72	60.07	59.86	59.92	59.99
60M	633334	3500.01	57.990	57.826	57.797	57.890	57.928	60.16	60.00	59.83	59.87	60.11
60M	634666	3519.99	57.811	57.819	57.825	57.936	57.941	60.03	60.45	59.86	60.13	60.08
70M	632334	3485.01	64.344	64.433	64.286	64.215	64.619	66.65	66.76	68.12	66.80	66.89
70M	633334	3500.01	64.195	64.362	64.283	64.319	64.467	66.54	66.71	66.90	66.60	66.78
70M	634332	3514.98	64.321	64.369	64.343	64.240	64.334	66.64	66.70	67.41	66.88	66.58
80M	632668	3490.02	77.235	77.337	77.118	77.229	77.260	79.72	79.83	79.66	79.81	79.60
80M	633334	3500.01	77.131	77.134	77.021	77.135	77.161	79.87	79.57	79.77	79.67	79.76
80M	634000	3510	77.217	77.200	77.090	77.303	77.320	79.77	79.73	79.87	79.65	79.69
90M	633000	3495	87.009	86.791	86.864	86.617	86.898	91.09	89.60	89.66	90.01	89.99
90M	633334	3500.01	86.755	86.841	86.902	86.928	86.851	89.60	89.61	89.59	90.38	89.55
90M	633666	3504.99	86.694	86.834	86.837	86.750	86.806	89.52	89.82	89.66	89.91	89.79

n77 (3.45G ~ 3.55G)												
BW	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)					26 dB bandwidth (MHz)				
			BPSK	QPSK	16QAM	64QAM	256QAM	BPSK	QPSK	16QAM	64QAM	256QAM
100M	--	--	--	--	--	--	--	--	--	--	--	--
100M	633334	3500.01	96.498	96.492	96.241	96.576	96.425	99.63	99.52	99.66	99.43	99.50
100M	--	--	--	--	--	--	--	--	--	--	--	--





OCC_5G_n77(K)_30KHz_P12-BPSK_40M CH631334



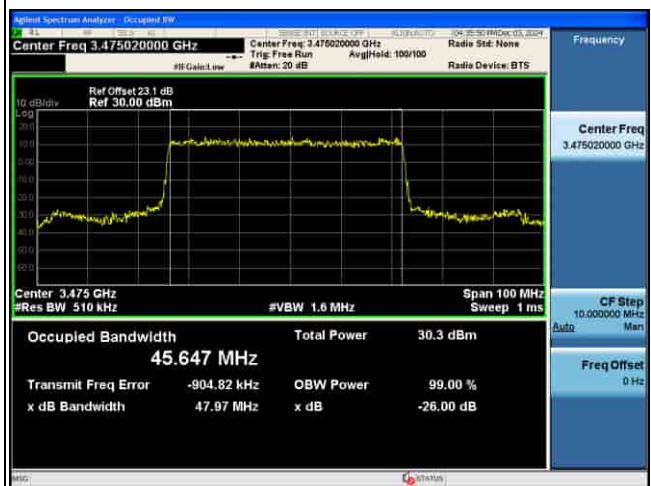
OCC_5G_n77(K)_30KHz_P12-BPSK_40M CH633334



OCC_5G_n77(K)_30KHz_P12-BPSK_40M CH635332



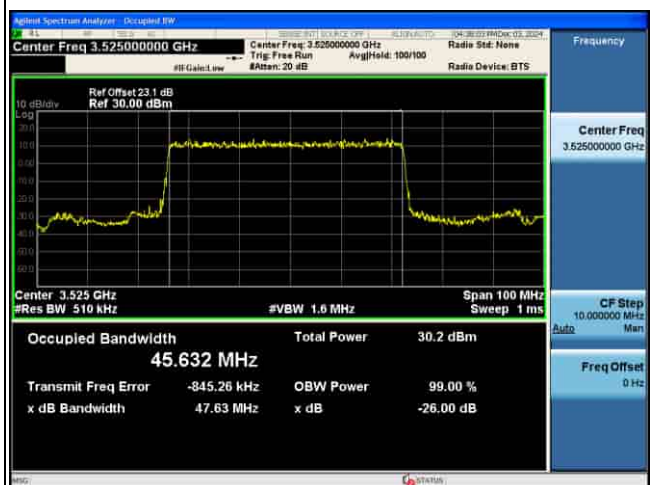
OCC_5G_n77(K)_30KHz_P12-BPSK_50M CH631668



OCC_5G_n77(K)_30KHz_P12-BPSK_50M CH633334

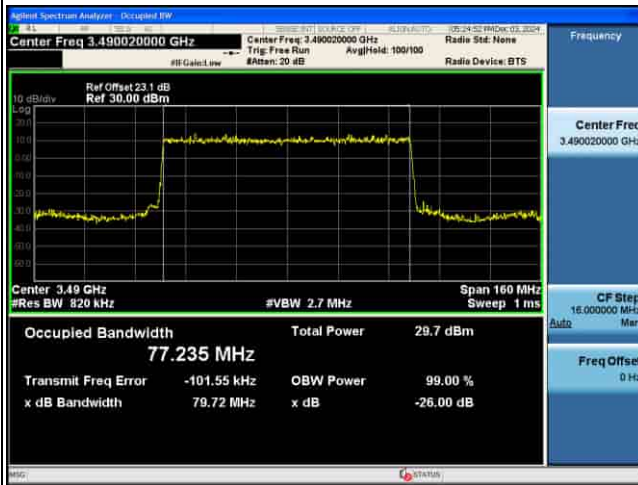


OCC_5G_n77(K)_30KHz_P12-BPSK_50M CH635000





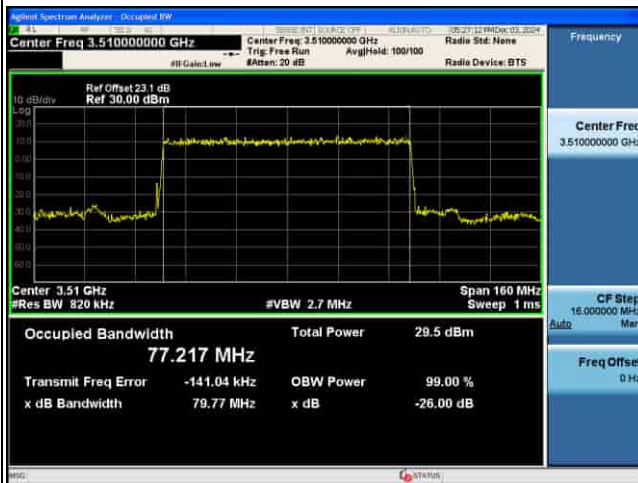
OCC_5G_n77(K)_30KHz_P12-BPSK_80M CH632668



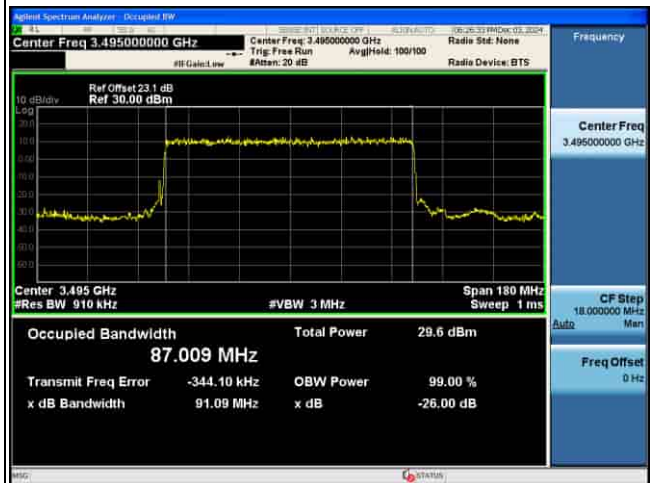
OCC_5G_n77(K)_30KHz_P12-BPSK_80M CH633334



OCC_5G_n77(K)_30KHz_P12-BPSK_80M CH634000



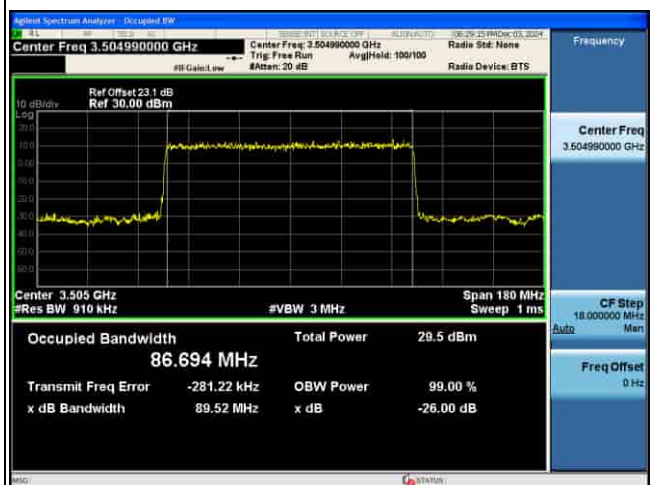
OCC_5G_n77(K)_30KHz_P12-BPSK_90M CH633000

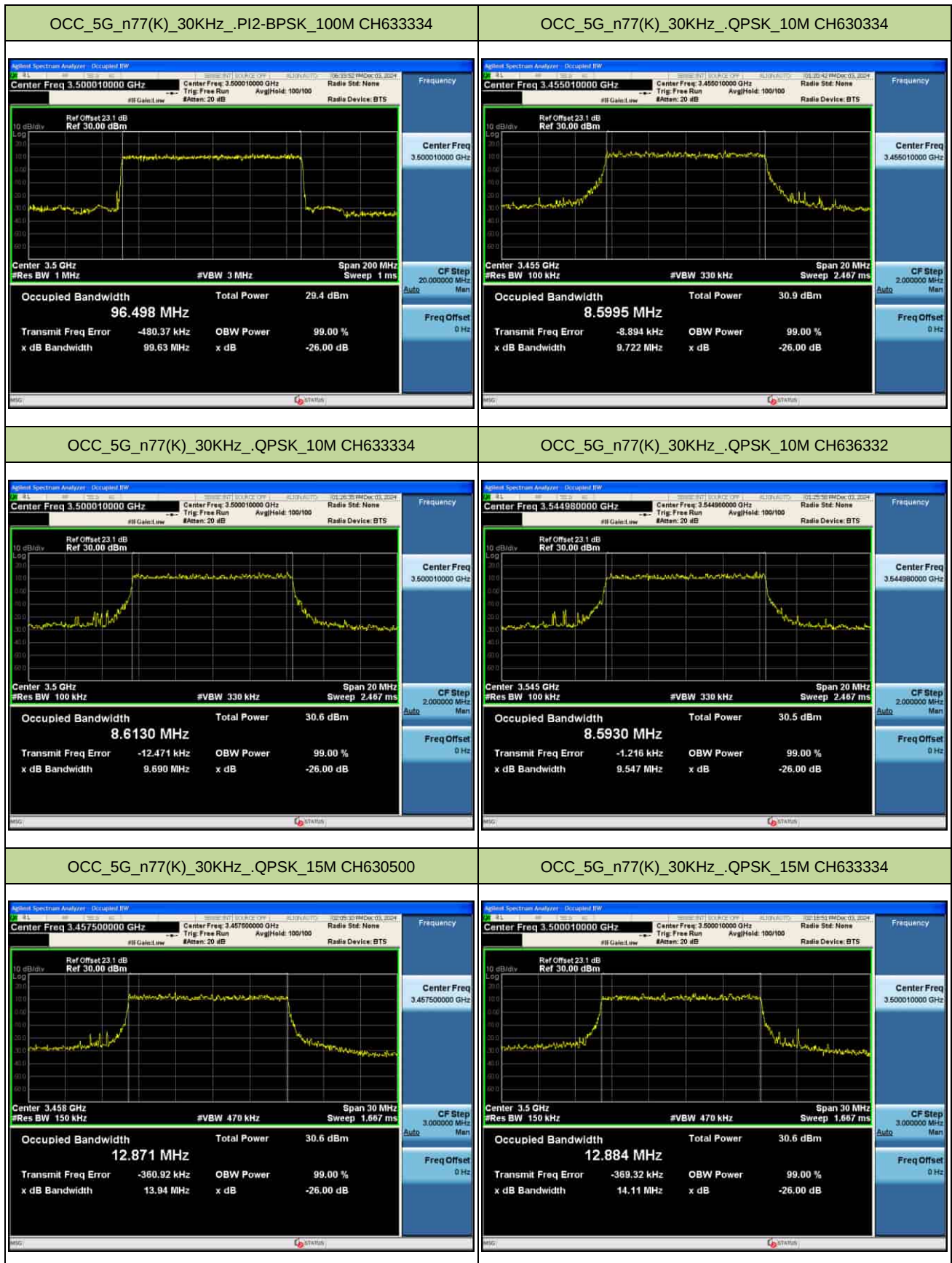


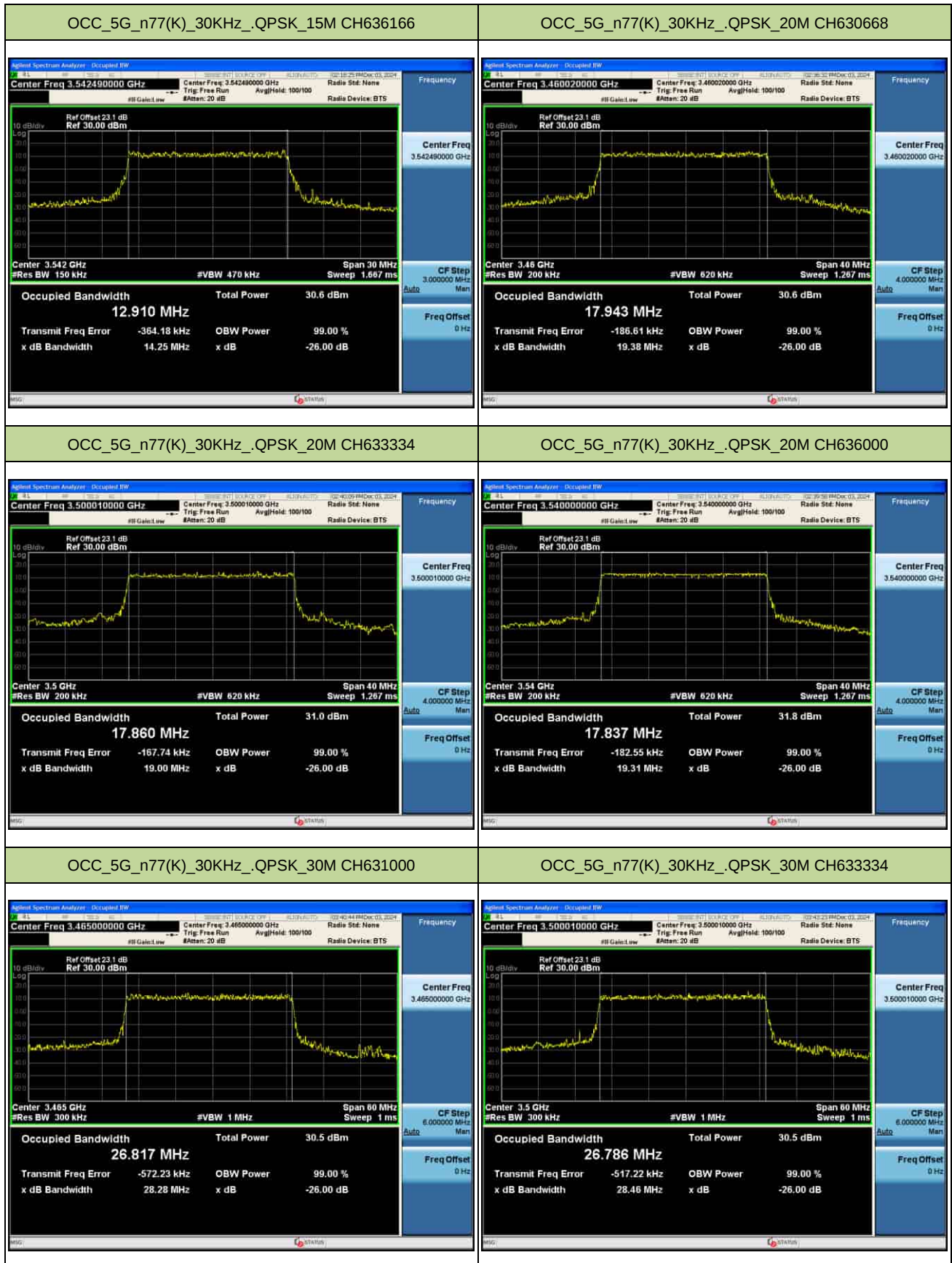
OCC_5G_n77(K)_30KHz_P12-BPSK_90M CH633334



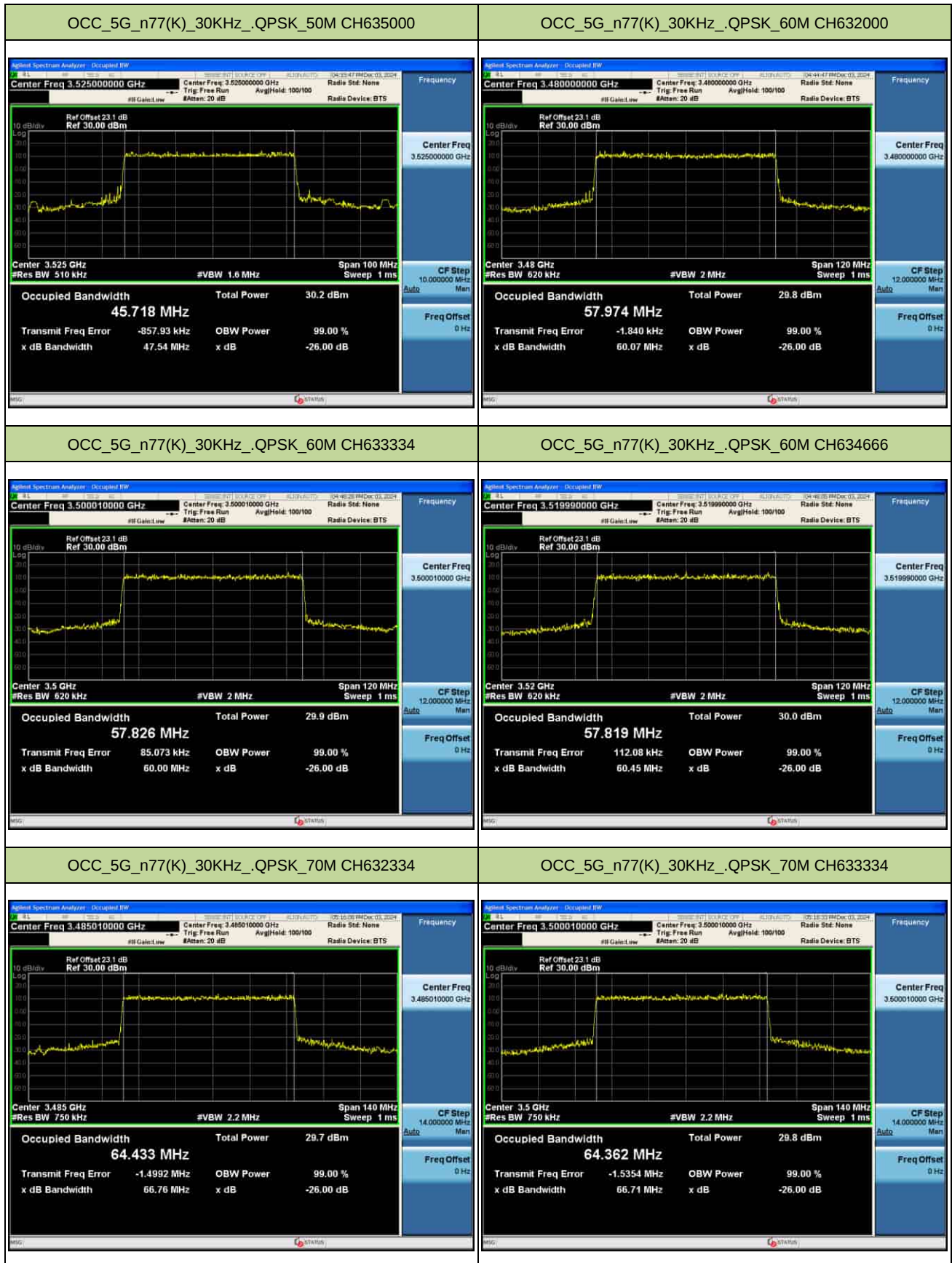
OCC_5G_n77(K)_30KHz_P12-BPSK_90M CH633666



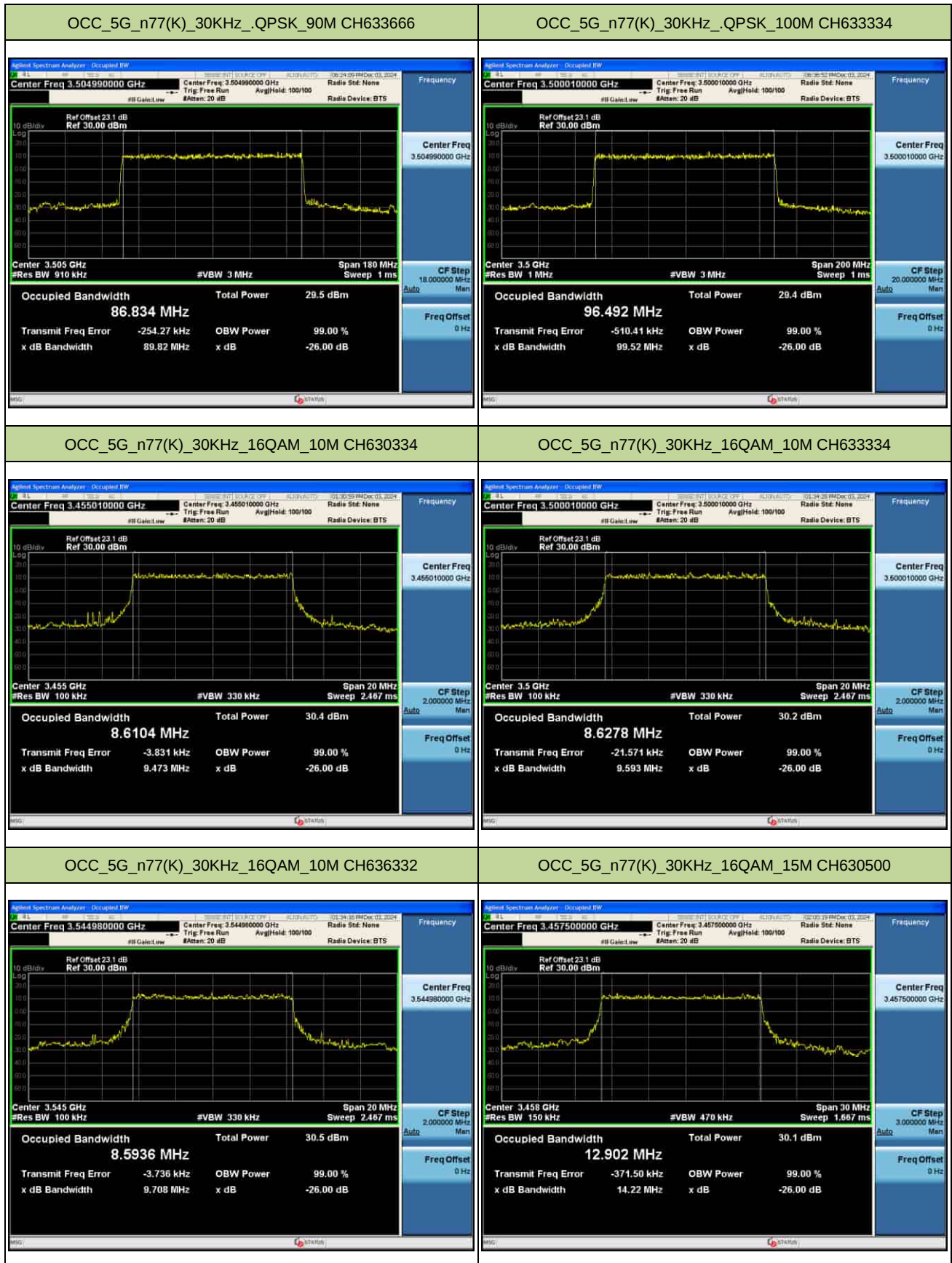


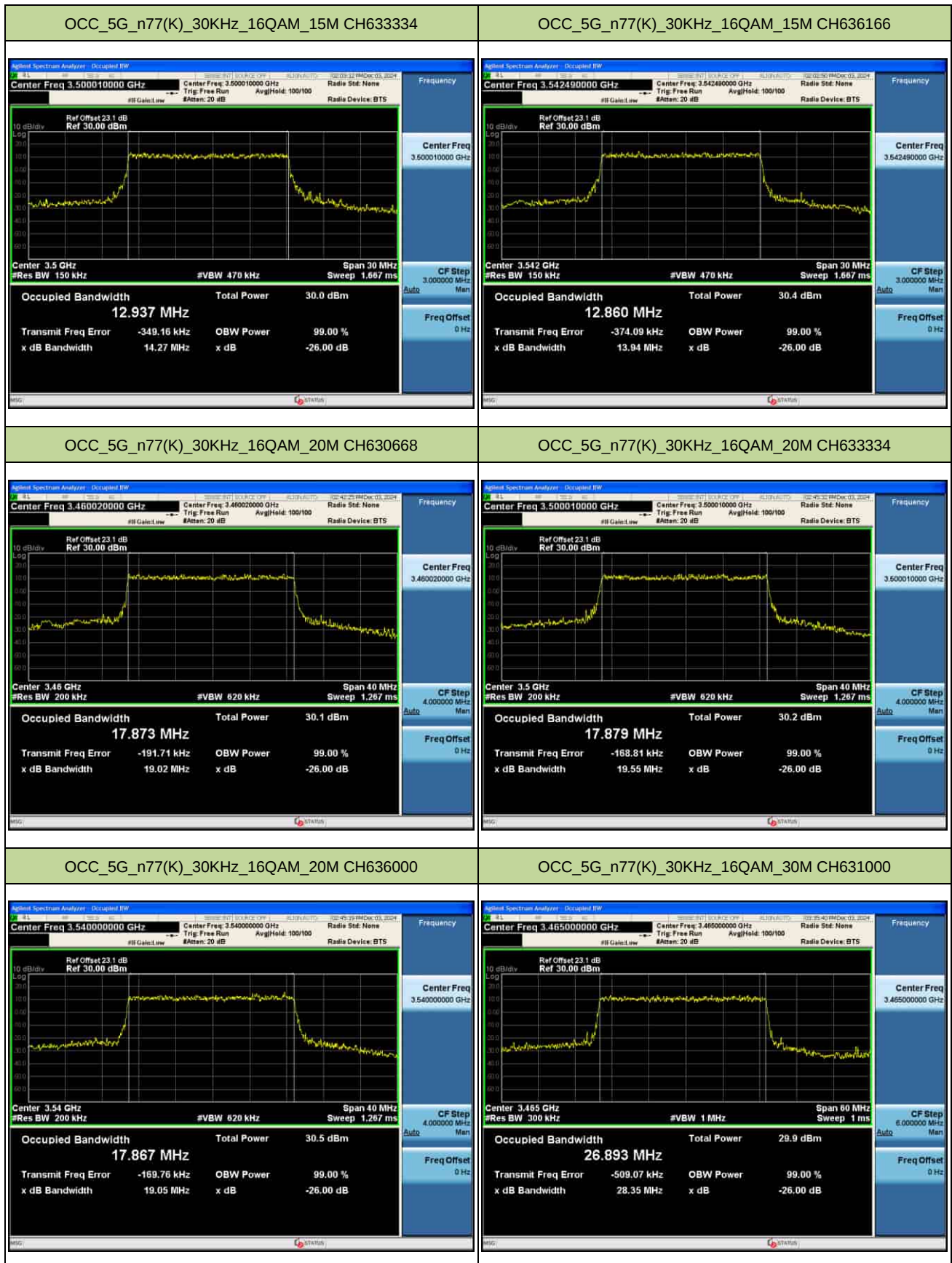


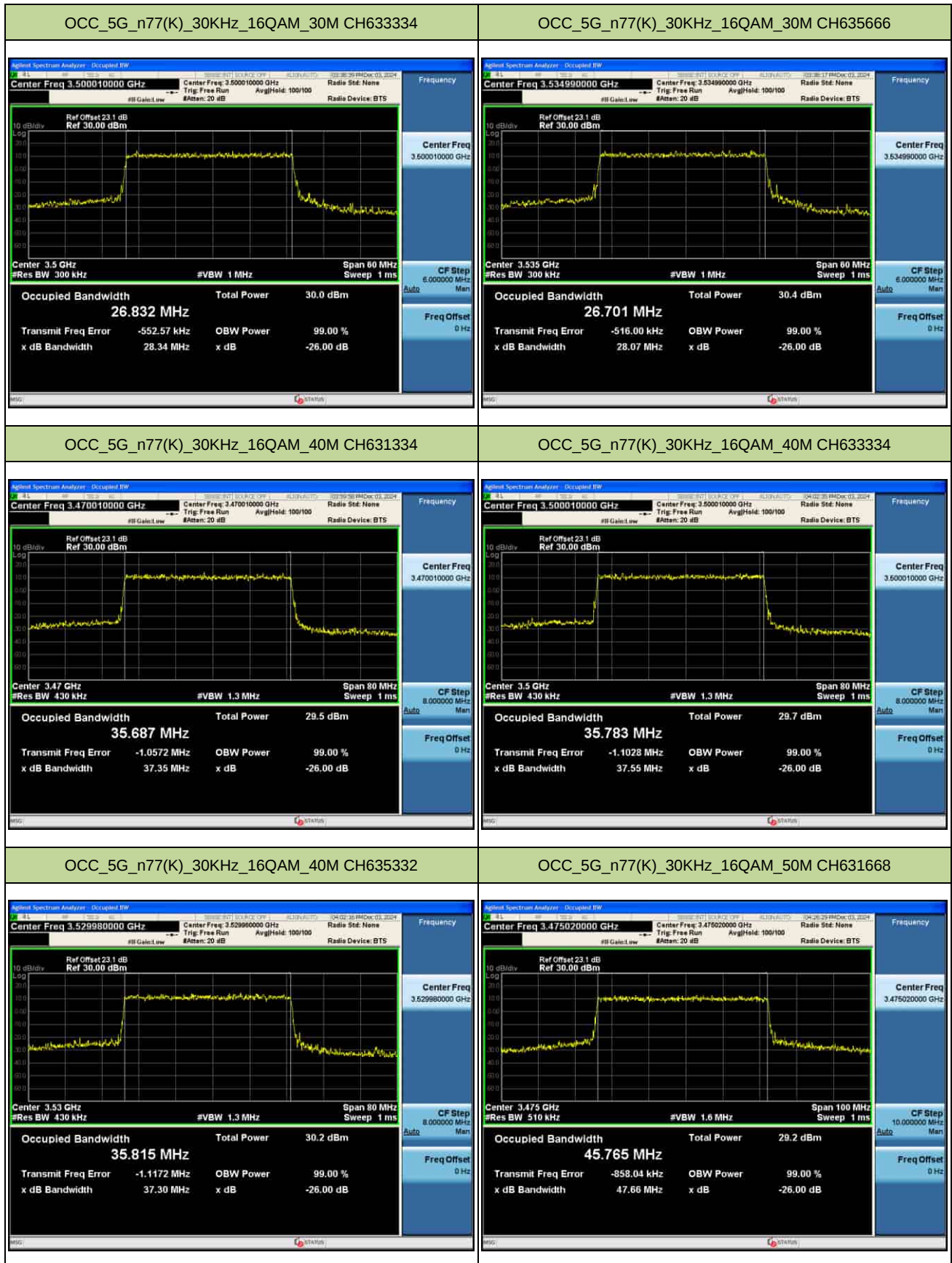








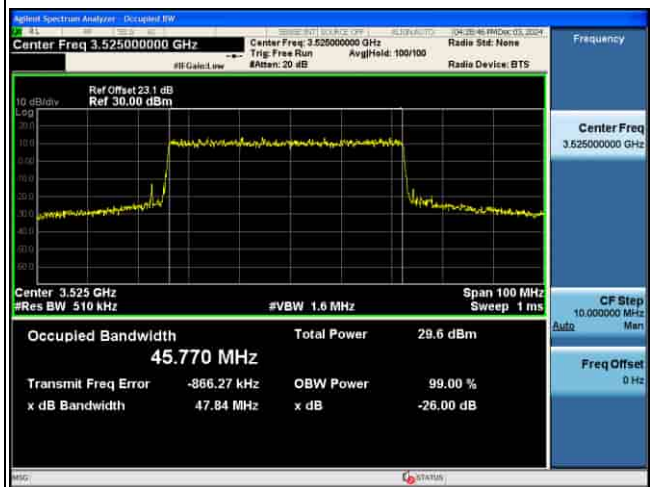




OCC_5G_n77(K)_30KHz_16QAM_50M CH633334



OCC_5G_n77(K)_30KHz_16QAM_50M CH635000



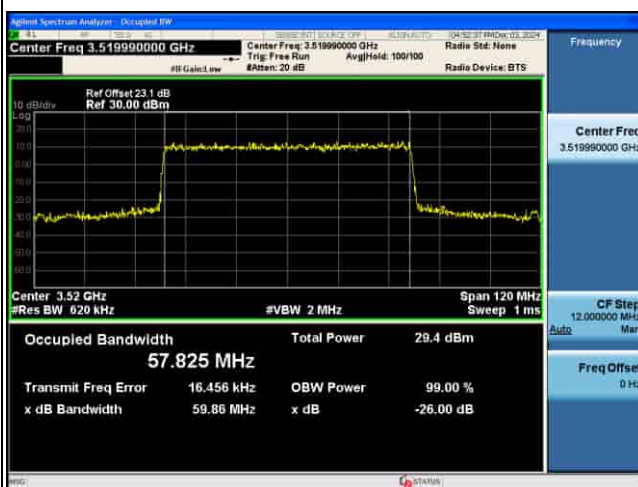
OCC_5G_n77(K)_30KHz_16QAM_60M CH632000



OCC_5G_n77(K)_30KHz_16QAM_60M CH633334



OCC_5G_n77(K)_30KHz_16QAM_60M CH634666



OCC_5G_n77(K)_30KHz_16QAM_70M CH632334





OCC_5G_n77(K)_30KHz_16QAM_90M CH633334



OCC_5G_n77(K)_30KHz_16QAM_90M CH633666



OCC_5G_n77(K)_30KHz_16QAM_100M CH633334



OCC_5G_n77(K)_30KHz_64QAM_10M CH630334

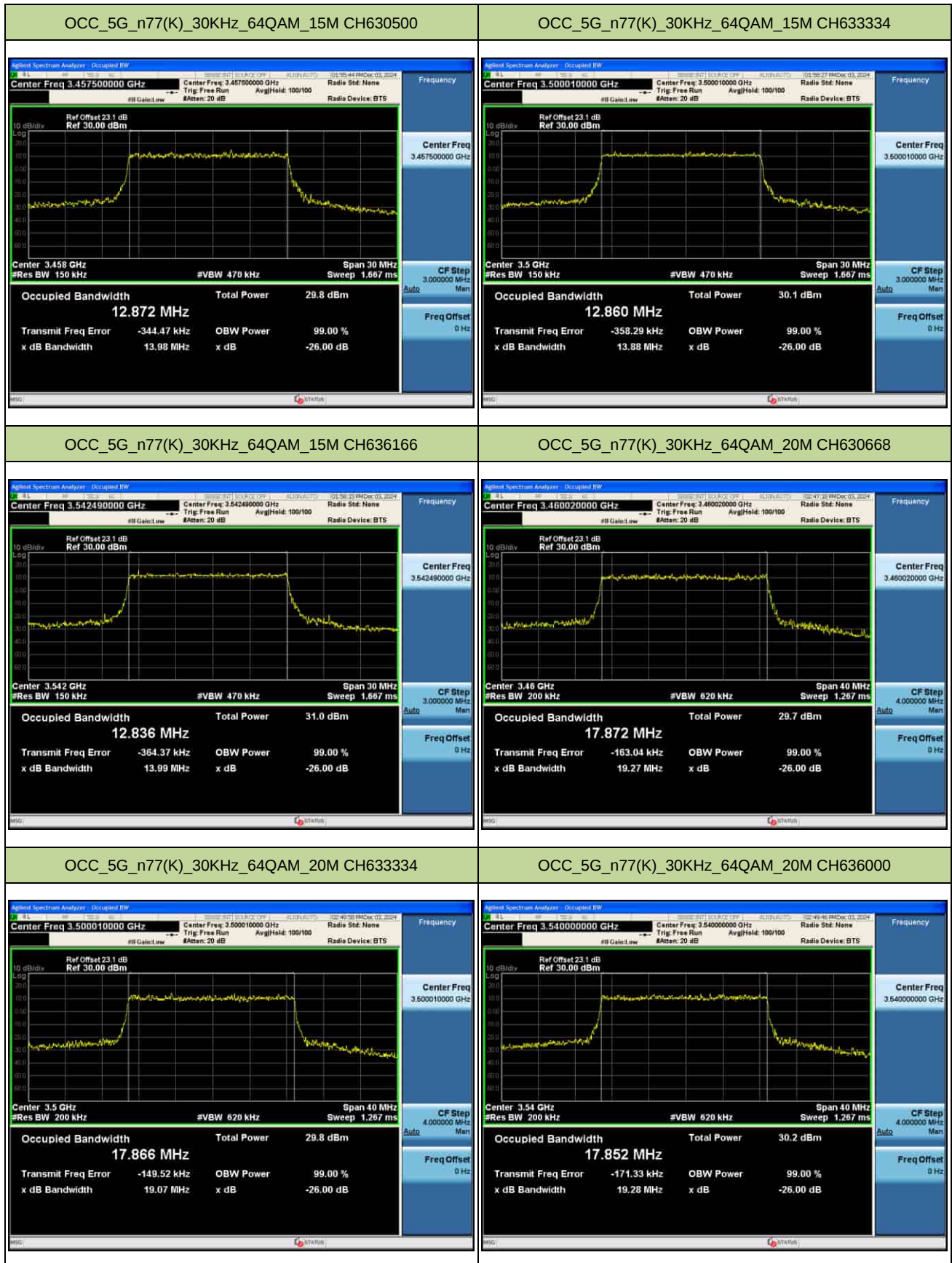


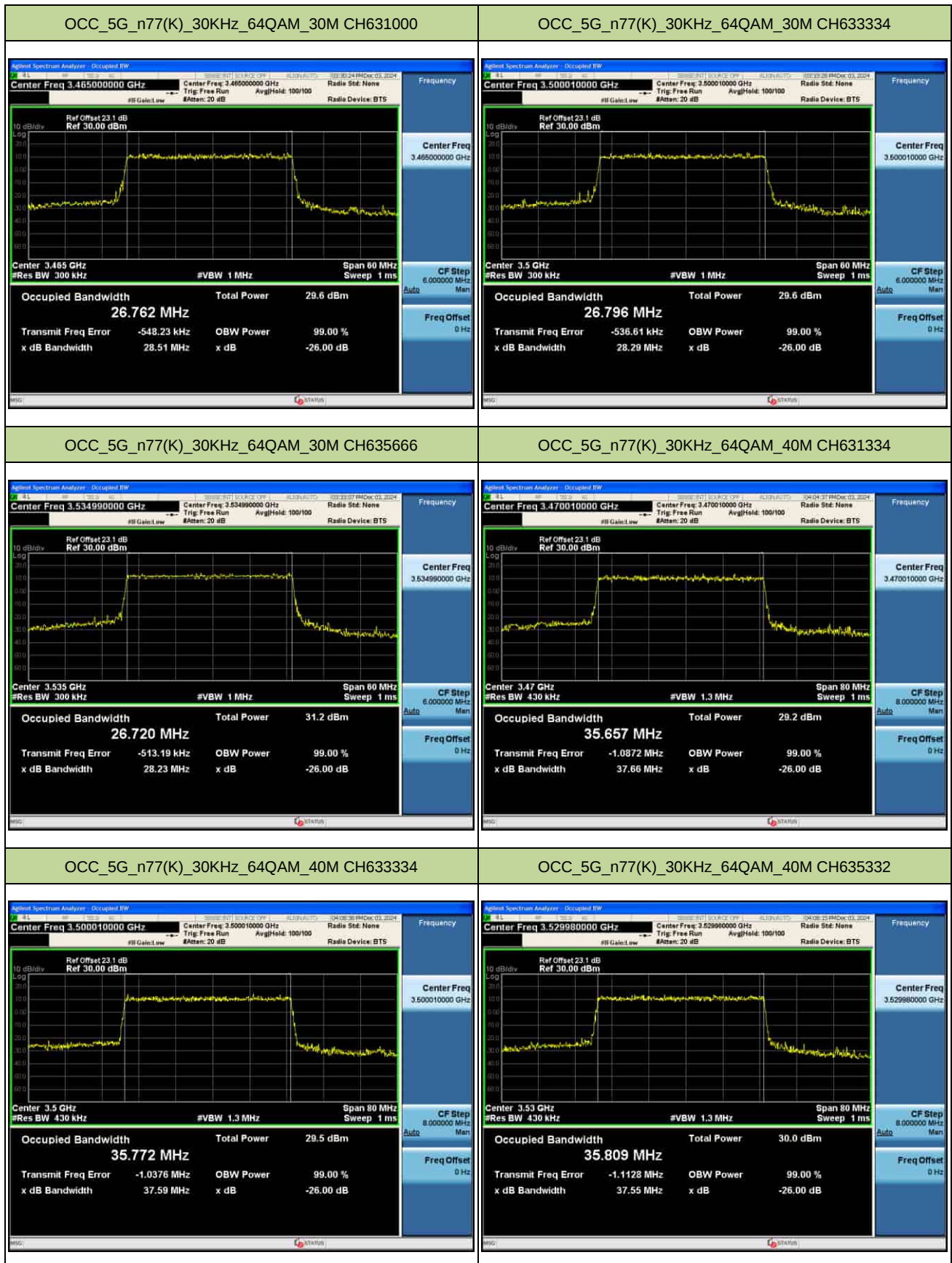
OCC_5G_n77(K)_30KHz_64QAM_10M CH633334



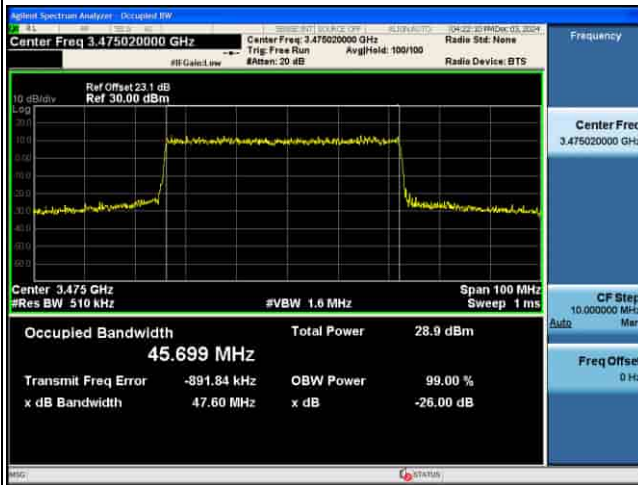
OCC_5G_n77(K)_30KHz_64QAM_10M CH636332







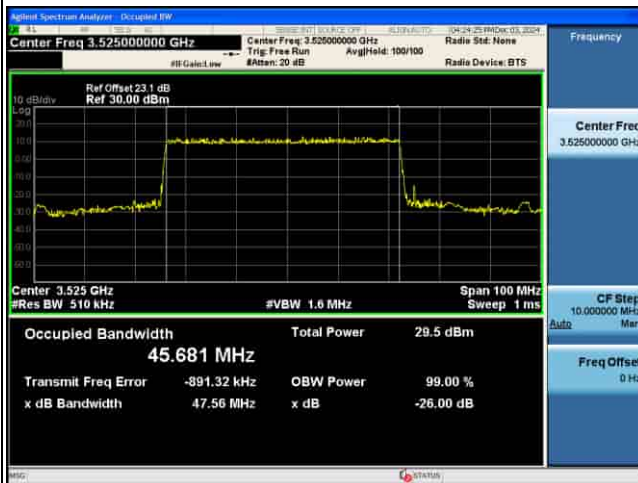
OCC_5G_n77(K)_30KHz_64QAM_50M CH631668



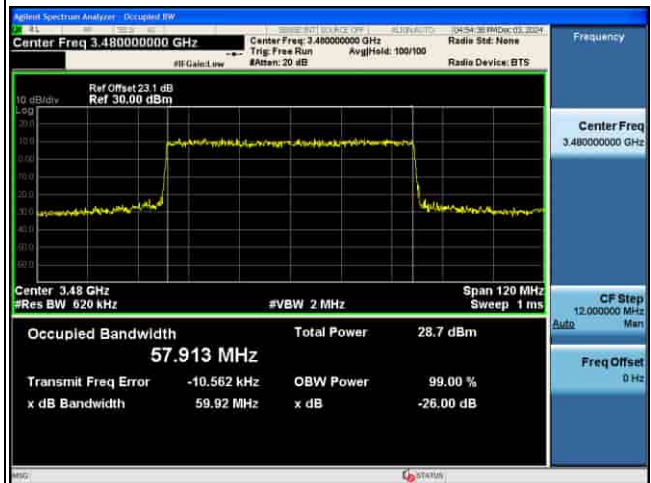
OCC_5G_n77(K)_30KHz_64QAM_50M CH633334



OCC_5G_n77(K)_30KHz_64QAM_50M CH635000



OCC_5G_n77(K)_30KHz_64QAM_60M CH632000



OCC_5G_n77(K)_30KHz_64QAM_60M CH633334



OCC_5G_n77(K)_30KHz_64QAM_60M CH634666

