

RF TEST REPORT

Applicant	Smawave Technology Co. ,Ltd
FCC ID	2AU8HSC421
Product	Cat12 Indoor CPE
Brand	Smawave
Model	SC421
Report No.	EFTA25030078-IE-01-R2
Issue Date	April 9, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2/ FCC CFR 47 Part 96E**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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TABLE OF CONTENT

1. Test Laboratory	4
1.1. Notes of the Test Report	4
1.2. Test Facility	4
1.3. Testing Location	4
2. General Description of Equipment Under Test	5
2.1. Applicant and Manufacturer Information	5
2.2. General Information	5
3. Applied Standards	6
4. Test Configuration	7
5. Test Case	8
5.1. Maximum Effective Isotropic Radiated Power and Maximum Power Spectral Density	8
5.2. Occupied Bandwidth	9
5.3. Band Edge Compliance	11
5.4. Peak-to-Average Power Ratio (PAPR)	12
5.5. Frequency Stability	13
5.6. Spurious Emissions at Antenna Terminals	15
5.7. Radiated Spurious Emission	17
6. Test Result	19
6.1. Maximum Effective Isotropic Radiated Power and Maximum Power Spectral Density	19
6.2. Occupied Bandwidth	25
6.3. Band Edge Compliance	44
6.4. Peak-to-Average Power Ratio (PAPR)	68
6.5. Frequency Stability	87
6.6. Spurious Emissions at Antenna Terminals	91
6.7. Radiated Spurious Emission	97
7. Main Test Instruments	98
ANNEX A: The EUT Appearance	99
ANNEX B: Test Setup Photos	100

Summary of Measurement Results

No.	Test Type	Clause in FCC rules	Verdict
1	Maximum Effective Isotropic Radiated Power and Maximum Power Spectral Density	96.41	PASS
2	Occupied Bandwidth	2.1049/ 96.41	PASS
3	Band Edge Compliance	2.1051/ 96.41	PASS
4	Peak-to-Average Power Ratio	96.41	PASS
5	Frequency Stability	2.1055	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 96.41	PASS
7	Radiated Spurious Emission	2.1051 / 96.41	PASS
8	End User Device Additional Requirements (CBSD Protocol)	Refer to the Module report (Report No.: SZ23060216W01 FCC ID: ZMOFG101NA, Grant date: 07/26/2023)	
Date of Testing: March 18, 2025 ~ March 31, 2025			
Date of Sample Received: March 10, 2025			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
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2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	Shanghai Smawave Technology Co. ,Ltd
Applicant address	3/F, Building 8, 1001 North Qinzhou Road, Xuhui District, Shanghai, China
Manufacturer	Shanghai Smawave Technology Co. ,Ltd
Manufacturer address	3/F, Building 8, 1001 North Qinzhou Road, Xuhui District, Shanghai, China

2.2. General Information

EUT Description				
Model	SC421			
Lab internal SN	EFTA25030078-IE-01/S01			
Hardware Version	/			
Software Version	/			
Power Supply	AC adapter			
Antenna Type	External Antenna			
Test Mode(s)	LTE Band 48			
Rated Power Supply Voltage	12VDC			
Operating Voltage	Minimum: 9.6VDC Maximum: 14.4VDC			
Operating Temperature	Lowest: -30°C Highest: +50°C			
Testing Temperature	Lowest: -30°C Highest: +50°C			
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)	Gain (dBi)
	LTE Band 48	3550 ~ 3700	3550 ~ 3700	3.69
Test Modulation	(LTE) QPSK, 16QAM, 64QAM			
Maximum EIRP (dBm/10MHz)	LTE Band 48		22.22 dBm	
EUT Accessory				
Adapter	Manufacturer: SHENZHEN TOPOW Model: TPA259-18120-US			
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.				

3. Applied Standards

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

Test standards:

FCC 47 CFR Part 96E (2024)

FCC CFR47 Part 2 (2024)

Reference standard:

ANSI C63.26-2015

FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

FCC KDB 940660 D01 Part 96 CBRS Eqpt v03

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (vertical), lie-down position (horizontal). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (LTE: vertical, vertical polarization; NR: horizontal, vertical polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated. Subsequently, only the worst case emissions are reported.

The following testing in different Bandwidth is set to detail in the following table:

Test modes are chosen to be reported as the worst case configuration below for LTE Band 48:

Test items	Bandwidth (MHz)				Modulation		RB			Test Channel		
	5	10	15	20	QPSK	16QAM/ 64QAM	1	50%	100%	L	M	H
Maximum Effective Isotropic Radiated Power and Maximum Power Spectral Density	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	-	-	O	-	O	-
Band Edge Compliance	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	O	O	O	O	O	O	O
Spurious Emissions at Antenna Terminals	O	O	O	O	O	-	O	-	-	O	O	O
Radiated Spurious Emission	O	-	-	O	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.											

5. Test Case

5.1. Maximum Effective Isotropic Radiated Power and Maximum Power Spectral Density

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

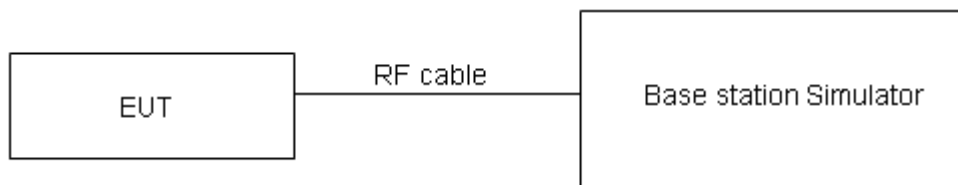
Methods of Measurement

The testing follows procedure in Section 5.2 of ANSI C63.26 and KDB 940660 D01 Section 3.2(b)(2). Determine the EIRP by adding the effective antenna gain to the measured average conducted power level.

The EIRP of mobile transmitters must not exceed 23 dBm /10 megahertz for Band 48.

The testing follows ANSI C63.26 Section 5.2.5.5

Test Setup



A transmitter port of EUT is connected to the input of a signal analyzer. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Limits

EIRP and PSD limits for CBRS equipment as below table:

Device	Maximum EIRP (dBm/10MHz)	Maximum PSD (dBm/MHz)
End User Device	23	N/A

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 1.19$ dB

Test Results

Refer to the section 6.1 of this report for test data.

5.2. Occupied Bandwidth

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

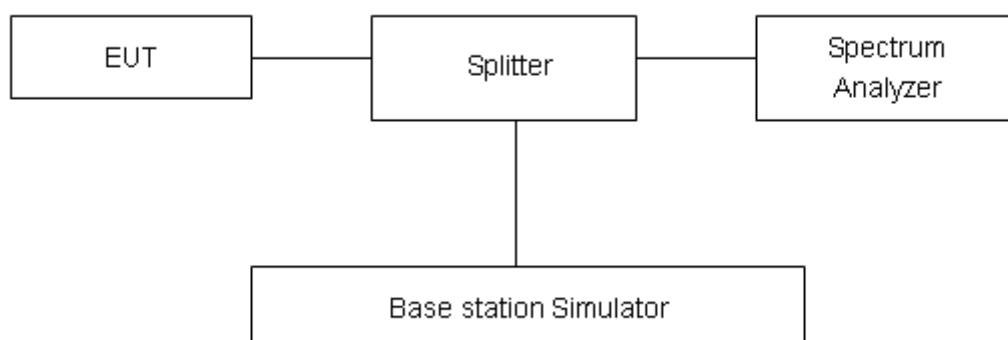
Method of Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The testing follows FCC KDB 971168 D01 v03r01 Section 4.2

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
3. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
4. Set the detection mode to peak, and the trace mode to max hold.
5. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
6. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
7. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

Test Setup



Limits

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 624\text{Hz}$.

Test Results

Refer to the section 6.2 of this report for test data.

5.3. Band Edge Compliance

Ambient Condition

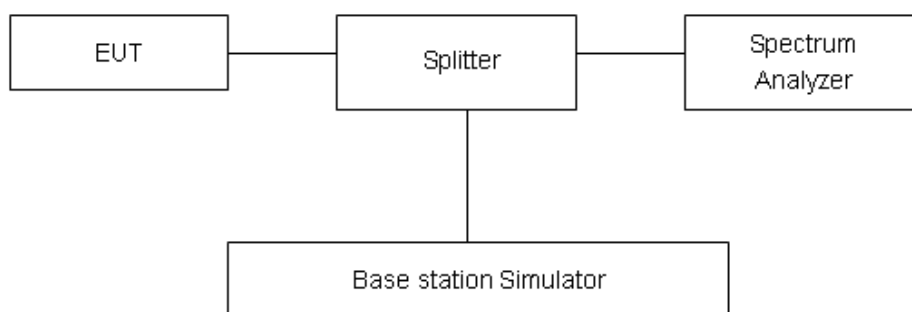
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The testing follows FCC KDB 971168 D01 v03r01 Section 6.0.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW \geq 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used
5. Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

Test Setup



Limits

Rule Part 96.41(e) (1) (i) specifies that “Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed –13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed –25 dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.”

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.

Test Results

Refer to the section 6.3 of this report for test data.

5.4. Peak-to-Average Power Ratio (PAPR)

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

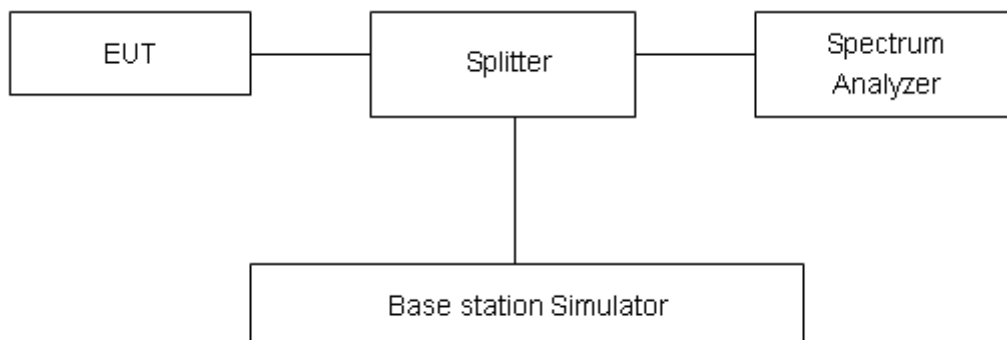
Methods of Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth.

The testing follows FCC KDB 971168 D01 v03r01 Section 5.7.1

1. The EUT was connected to spectrum and system simulator via a power divider.
2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
4. Record the deviation as Peak to Average Ratio

Test Setup



Limits

Rule Part 96.41(g), The peak-to-average power ratio (PAPR) of any CBSD transmitter output power must not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

Test Results

Refer to the section 6.4 of this report for test data.

5.5. Frequency Stability

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

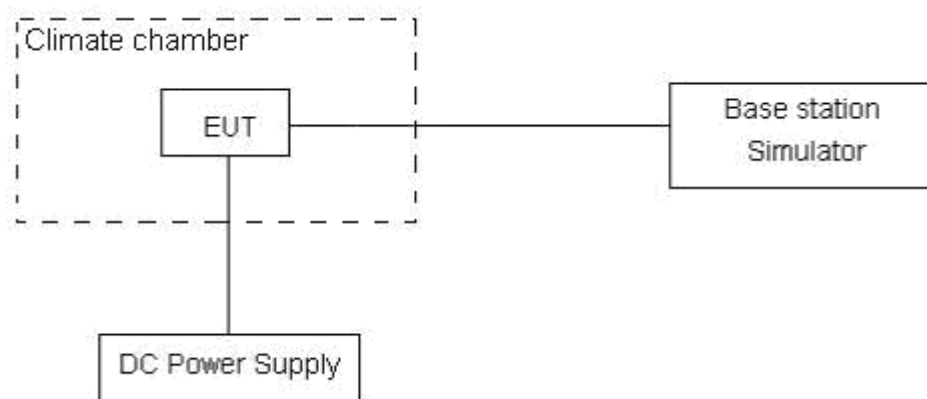
1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

Test Setup



Limits

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

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3$, $U = 0.01\text{ppm}$.

Test Results

Refer to the section 6.5 of this report for test data.

5.6. Spurious Emissions at Antenna Terminals

Ambient Condition

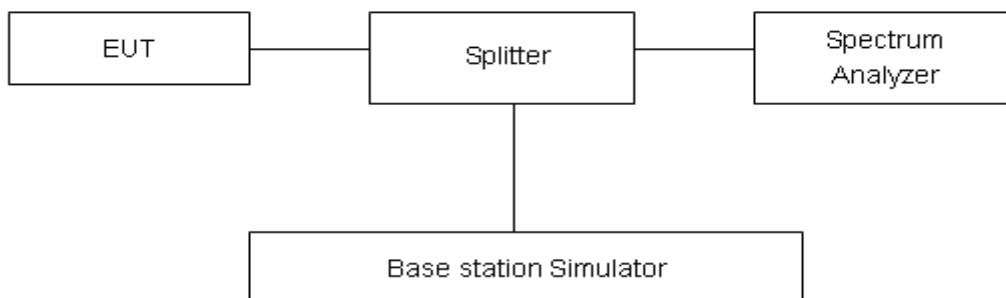
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The testing follows FCC KDB 971168 D01 v03r01 Section 6.0.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
6. Set spectrum analyzer with RMS detector.
7. Taking the record of maximum spurious emission.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. The limit line is -40dBm/MHz.

Test Setup



Limits

Rule Part 96.41(e) (2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-18GHz	1.407 dB
18GHz-40GHz	1.515 dB

Test Results

Refer to the section 6.6 of this report for test data.

5.7. Radiated Spurious Emission

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

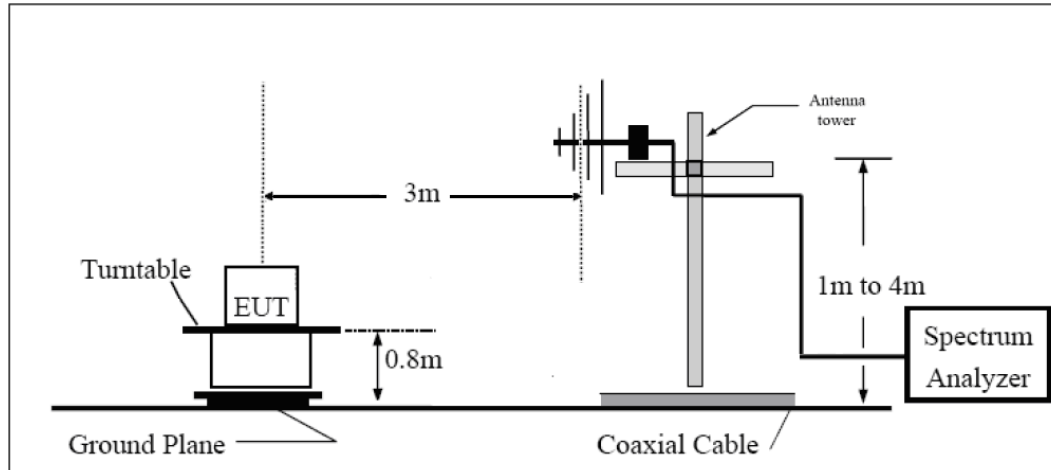
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$

The measurement results are amend as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dBi}$.

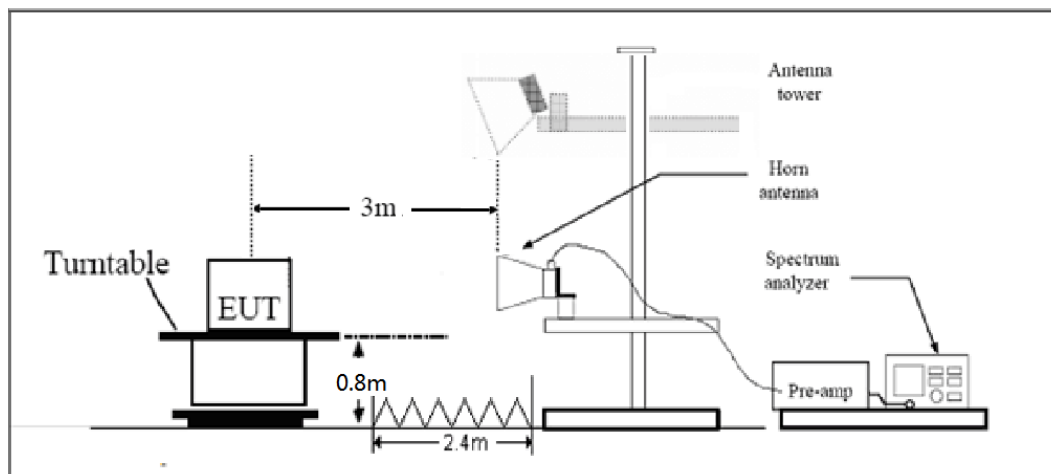
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test Setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

Rule Part 96.41(e) (2) specifies that “*Additional protection levels.* Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.”

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ dB.

Test Results

Refer to the section 6.7 of this report for test data.

6. Test Result

6.1. Maximum Effective Isotropic Radiated Power and Maximum Power Spectral Density

The measurement is performed for both of horizontal and vertical antenna Polarization, and only the data of worst mode is recorded in this report.

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Result (dBm/10 MHz)	EIRP (dBm/10MHz)
Band48	5	55265	1	#0	QPSK	18.44	22.13
Band48	5	55265	1	#Mid	QPSK	18.53	22.22
Band48	5	55265	1	#Max	QPSK	18.43	22.12
Band48	5	55265	12	#0	QPSK	17.38	21.07
Band48	5	55265	12	#Max	QPSK	17.41	21.10
Band48	5	55265	25	#0	QPSK	17.18	20.87
Band48	5	55265	1	#0	16QAM	17.76	21.45
Band48	5	55265	1	#Mid	16QAM	18.06	21.75
Band48	5	55265	1	#Max	16QAM	18.04	21.73
Band48	5	55265	12	#0	16QAM	16.47	20.16
Band48	5	55265	12	#Max	16QAM	16.48	20.17
Band48	5	55265	25	#0	16QAM	16.34	20.03
Band48	5	55265	1	#0	64QAM	17.20	20.89
Band48	5	55265	1	#Mid	64QAM	17.28	20.97
Band48	5	55265	1	#Max	64QAM	17.13	20.82
Band48	5	55265	12	#0	64QAM	15.55	19.24
Band48	5	55265	12	#Max	64QAM	15.53	19.22
Band48	5	55265	25	#0	64QAM	15.25	18.94
Band48	5	55990	1	#0	QPSK	18.30	21.99
Band48	5	55990	1	#Mid	QPSK	18.27	21.96
Band48	5	55990	1	#Max	QPSK	18.32	22.01
Band48	5	55990	12	#0	QPSK	17.17	20.86
Band48	5	55990	12	#Max	QPSK	17.21	20.90
Band48	5	55990	25	#0	QPSK	16.99	20.68
Band48	5	55990	1	#0	16QAM	17.78	21.47
Band48	5	55990	1	#Mid	16QAM	17.89	21.58
Band48	5	55990	1	#Max	16QAM	17.82	21.51
Band48	5	55990	12	#0	16QAM	16.29	19.98
Band48	5	55990	12	#Max	16QAM	16.33	20.02
Band48	5	55990	25	#0	16QAM	16.12	19.81
Band48	5	55990	1	#0	64QAM	16.79	20.48
Band48	5	55990	1	#Mid	64QAM	16.82	20.51

Band48	5	55990	1	#Max	64QAM	16.83	20.52
Band48	5	55990	12	#0	64QAM	15.28	18.97
Band48	5	55990	12	#Max	64QAM	15.25	18.94
Band48	5	55990	25	#0	64QAM	15.05	18.74
Band48	5	56715	1	#0	QPSK	17.46	21.15
Band48	5	56715	1	#Mid	QPSK	17.49	21.18
Band48	5	56715	1	#Max	QPSK	17.47	21.16
Band48	5	56715	12	#0	QPSK	16.32	20.01
Band48	5	56715	12	#Max	QPSK	16.40	20.09
Band48	5	56715	25	#0	QPSK	16.20	19.89
Band48	5	56715	1	#0	16QAM	16.97	20.66
Band48	5	56715	1	#Mid	16QAM	17.01	20.70
Band48	5	56715	1	#Max	16QAM	16.99	20.68
Band48	5	56715	12	#0	16QAM	15.47	19.16
Band48	5	56715	12	#Max	16QAM	15.45	19.14
Band48	5	56715	25	#0	16QAM	15.30	18.99
Band48	5	56715	1	#0	64QAM	15.94	19.63
Band48	5	56715	1	#Mid	64QAM	15.97	19.66
Band48	5	56715	1	#Max	64QAM	15.93	19.62
Band48	5	56715	12	#0	64QAM	14.50	18.19
Band48	5	56715	12	#Max	64QAM	14.49	18.18
Band48	5	56715	25	#0	64QAM	14.25	17.94
Band48	10	55290	1	#0	QPSK	18.34	22.03
Band48	10	55290	1	#Mid	QPSK	18.41	22.10
Band48	10	55290	1	#Max	QPSK	18.44	22.13
Band48	10	55290	25	#0	QPSK	17.11	20.80
Band48	10	55290	25	#Max	QPSK	17.12	20.81
Band48	10	55290	50	#0	QPSK	16.59	20.28
Band48	10	55290	1	#0	16QAM	17.88	21.57
Band48	10	55290	1	#Mid	16QAM	17.94	21.63
Band48	10	55290	1	#Max	16QAM	17.97	21.66
Band48	10	55290	25	#0	16QAM	16.23	19.92
Band48	10	55290	25	#Max	16QAM	16.23	19.92
Band48	10	55290	50	#0	16QAM	15.60	19.29
Band48	10	55290	1	#0	64QAM	16.87	20.56
Band48	10	55290	1	#Mid	64QAM	16.83	20.52
Band48	10	55290	1	#Max	64QAM	16.80	20.49
Band48	10	55290	25	#0	64QAM	15.16	18.85
Band48	10	55290	25	#Max	64QAM	15.17	18.86
Band48	10	55290	50	#0	64QAM	14.62	18.31
Band48	10	55990	1	#0	QPSK	18.13	21.82
Band48	10	55990	1	#Mid	QPSK	18.20	21.89
Band48	10	55990	1	#Max	QPSK	18.17	21.86

Band48	10	55990	25	#0	QPSK	16.90	20.59
Band48	10	55990	25	#Max	QPSK	16.92	20.61
Band48	10	55990	50	#0	QPSK	16.36	20.05
Band48	10	55990	1	#0	16QAM	17.68	21.37
Band48	10	55990	1	#Mid	16QAM	17.54	21.23
Band48	10	55990	1	#Max	16QAM	17.70	21.39
Band48	10	55990	25	#0	16QAM	16.02	19.71
Band48	10	55990	25	#Max	16QAM	15.99	19.68
Band48	10	55990	50	#0	16QAM	15.38	19.07
Band48	10	55990	1	#0	64QAM	16.61	20.30
Band48	10	55990	1	#Mid	64QAM	16.60	20.29
Band48	10	55990	1	#Max	64QAM	16.71	20.40
Band48	10	55990	25	#0	64QAM	14.95	18.64
Band48	10	55990	25	#Max	64QAM	14.94	18.63
Band48	10	55990	50	#0	64QAM	14.39	18.08
Band48	10	56690	1	#0	QPSK	17.33	21.02
Band48	10	56690	1	#Mid	QPSK	17.39	21.08
Band48	10	56690	1	#Max	QPSK	17.38	21.07
Band48	10	56690	25	#0	QPSK	16.07	19.76
Band48	10	56690	25	#Max	QPSK	16.13	19.82
Band48	10	56690	50	#0	QPSK	15.57	19.26
Band48	10	56690	1	#0	16QAM	16.65	20.34
Band48	10	56690	1	#Mid	16QAM	16.91	20.60
Band48	10	56690	1	#Max	16QAM	16.89	20.58
Band48	10	56690	25	#0	16QAM	15.18	18.87
Band48	10	56690	25	#Max	16QAM	15.25	18.94
Band48	10	56690	50	#0	16QAM	14.58	18.27
Band48	10	56690	1	#0	64QAM	15.78	19.47
Band48	10	56690	1	#Mid	64QAM	15.81	19.50
Band48	10	56690	1	#Max	64QAM	15.88	19.57
Band48	10	56690	25	#0	64QAM	14.14	17.83
Band48	10	56690	25	#Max	64QAM	14.20	17.89
Band48	10	56690	50	#0	64QAM	13.56	17.25
Band48	15	55315	1	#0	QPSK	18.29	21.98
Band48	15	55315	1	#Mid	QPSK	18.37	22.06
Band48	15	55315	1	#Max	QPSK	18.41	22.10
Band48	15	55315	36	#0	QPSK	16.84	20.53
Band48	15	55315	36	#Max	QPSK	16.90	20.59
Band48	15	55315	75	#0	QPSK	15.75	19.44
Band48	15	55315	1	#0	16QAM	17.77	21.46
Band48	15	55315	1	#Mid	16QAM	17.89	21.58
Band48	15	55315	1	#Max	16QAM	17.92	21.61
Band48	15	55315	36	#0	16QAM	15.90	19.59

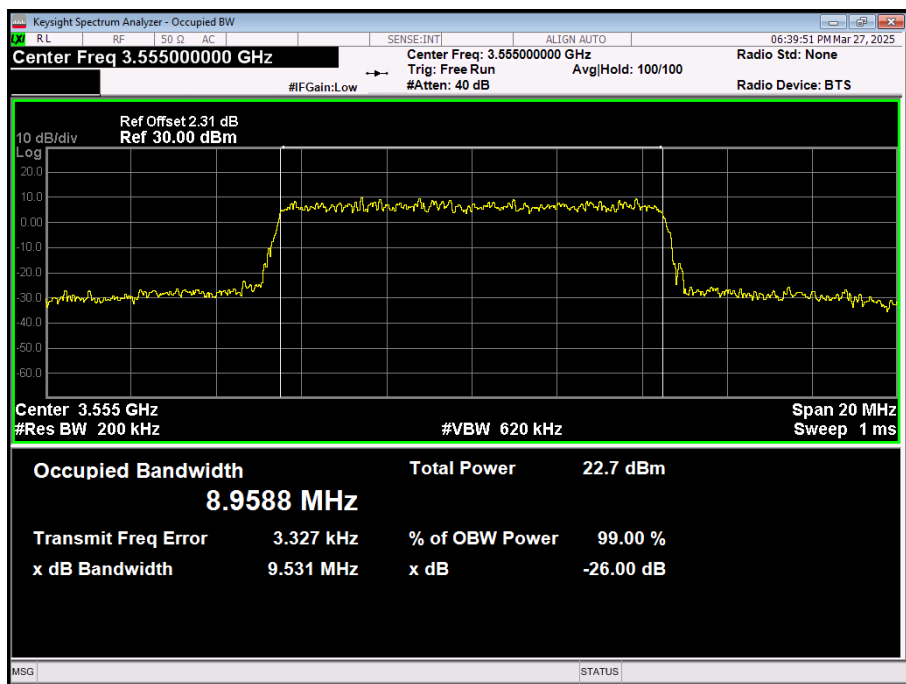
Band48	15	55315	36	#Max	16QAM	15.96	19.65
Band48	15	55315	75	#0	16QAM	14.81	18.50
Band48	15	55315	1	#0	64QAM	16.74	20.43
Band48	15	55315	1	#Mid	64QAM	16.82	20.51
Band48	15	55315	1	#Max	64QAM	16.87	20.56
Band48	15	55315	36	#0	64QAM	14.90	18.59
Band48	15	55315	36	#Max	64QAM	14.97	18.66
Band48	15	55315	75	#0	64QAM	13.77	17.46
Band48	15	55990	1	#0	QPSK	18.14	21.83
Band48	15	55990	1	#Mid	QPSK	18.12	21.81
Band48	15	55990	1	#Max	QPSK	18.21	21.90
Band48	15	55990	36	#0	QPSK	16.61	20.30
Band48	15	55990	36	#Max	QPSK	16.74	20.43
Band48	15	55990	75	#0	QPSK	15.58	19.27
Band48	15	55990	1	#0	16QAM	17.57	21.26
Band48	15	55990	1	#Mid	16QAM	17.64	21.33
Band48	15	55990	1	#Max	16QAM	17.72	21.41
Band48	15	55990	36	#0	16QAM	15.67	19.36
Band48	15	55990	36	#Max	16QAM	15.70	19.39
Band48	15	55990	75	#0	16QAM	14.56	18.25
Band48	15	55990	1	#0	64QAM	16.50	20.19
Band48	15	55990	1	#Mid	64QAM	16.51	20.20
Band48	15	55990	1	#Max	64QAM	16.59	20.28
Band48	15	55990	36	#0	64QAM	14.65	18.34
Band48	15	55990	36	#Max	64QAM	14.70	18.39
Band48	15	55990	75	#0	64QAM	13.53	17.22
Band48	15	56665	1	#0	QPSK	17.41	21.10
Band48	15	56665	1	#Mid	QPSK	17.32	21.01
Band48	15	56665	1	#Max	QPSK	17.45	21.14
Band48	15	56665	36	#0	QPSK	15.95	19.64
Band48	15	56665	36	#Max	QPSK	15.92	19.61
Band48	15	56665	75	#0	QPSK	14.88	18.57
Band48	15	56665	1	#0	16QAM	16.91	20.60
Band48	15	56665	1	#Mid	16QAM	16.80	20.49
Band48	15	56665	1	#Max	16QAM	16.76	20.45
Band48	15	56665	36	#0	16QAM	14.99	18.68
Band48	15	56665	36	#Max	16QAM	14.96	18.65
Band48	15	56665	75	#0	16QAM	13.92	17.61
Band48	15	56665	1	#0	64QAM	15.87	19.56
Band48	15	56665	1	#Mid	64QAM	15.75	19.44
Band48	15	56665	1	#Max	64QAM	15.84	19.53
Band48	15	56665	36	#0	64QAM	14.03	17.72
Band48	15	56665	36	#Max	64QAM	13.95	17.64

Band48	15	56665	75	#0	64QAM	12.94	16.63
Band48	20	55340	1	#0	QPSK	18.21	21.90
Band48	20	55340	1	#Mid	QPSK	18.29	21.98
Band48	20	55340	1	#Max	QPSK	18.40	22.09
Band48	20	55340	50	#0	QPSK	16.47	20.16
Band48	20	55340	50	#Max	QPSK	16.51	20.20
Band48	20	55340	100	#0	QPSK	14.92	18.61
Band48	20	55340	1	#0	16QAM	17.73	21.42
Band48	20	55340	1	#Mid	16QAM	17.76	21.45
Band48	20	55340	1	#Max	16QAM	17.88	21.57
Band48	20	55340	50	#0	16QAM	15.50	19.19
Band48	20	55340	50	#Max	16QAM	15.58	19.27
Band48	20	55340	100	#0	16QAM	13.94	17.63
Band48	20	55340	1	#0	64QAM	16.68	20.37
Band48	20	55340	1	#Mid	64QAM	16.75	20.44
Band48	20	55340	1	#Max	64QAM	16.86	20.55
Band48	20	55340	50	#0	64QAM	14.49	18.18
Band48	20	55340	50	#Max	64QAM	14.58	18.27
Band48	20	55340	100	#0	64QAM	12.87	16.56
Band48	20	55990	1	#0	QPSK	18.02	21.71
Band48	20	55990	1	#Mid	QPSK	18.13	21.82
Band48	20	55990	1	#Max	QPSK	18.08	21.77
Band48	20	55990	50	#0	QPSK	16.24	19.93
Band48	20	55990	50	#Max	QPSK	16.33	20.02
Band48	20	55990	100	#0	QPSK	14.68	18.37
Band48	20	55990	1	#0	16QAM	17.46	21.15
Band48	20	55990	1	#Mid	16QAM	17.60	21.29
Band48	20	55990	1	#Max	16QAM	17.38	21.07
Band48	20	55990	50	#0	16QAM	15.31	19.00
Band48	20	55990	50	#Max	16QAM	15.39	19.08
Band48	20	55990	100	#0	16QAM	13.70	17.39
Band48	20	55990	1	#0	64QAM	16.44	20.13
Band48	20	55990	1	#Mid	64QAM	16.51	20.20
Band48	20	55990	1	#Max	64QAM	16.54	20.23
Band48	20	55990	50	#0	64QAM	14.31	18.00
Band48	20	55990	50	#Max	64QAM	14.38	18.07
Band48	20	55990	100	#0	64QAM	12.70	16.39
Band48	20	56640	1	#0	QPSK	17.43	21.12
Band48	20	56640	1	#Mid	QPSK	17.30	20.99
Band48	20	56640	1	#Max	QPSK	17.39	21.08
Band48	20	56640	50	#0	QPSK	15.65	19.34
Band48	20	56640	50	#Max	QPSK	15.61	19.30
Band48	20	56640	100	#0	QPSK	14.01	17.70

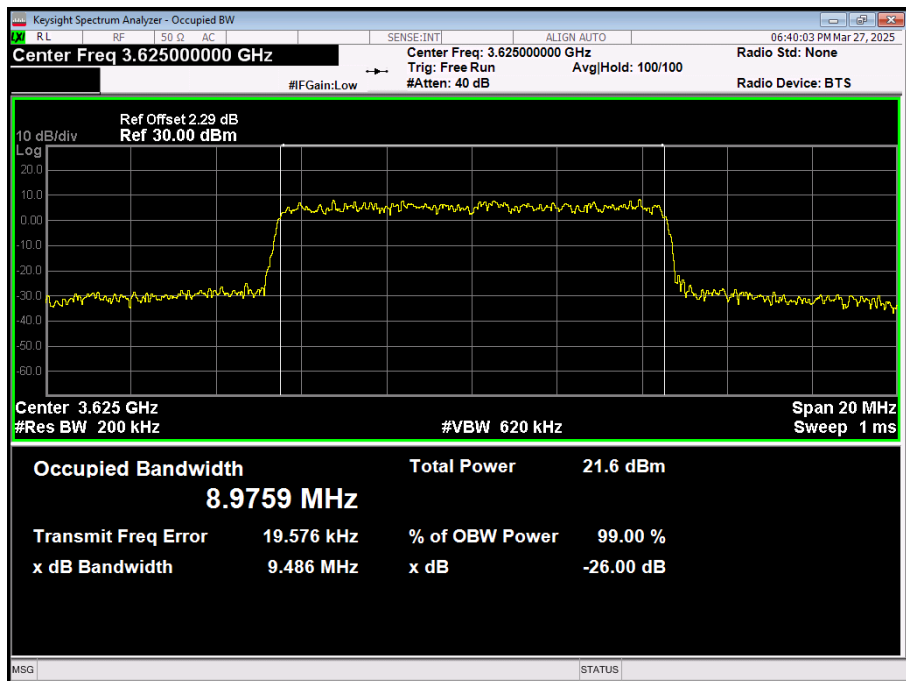
Band48	20	56640	1	#0	16QAM	16.92	20.61
Band48	20	56640	1	#Mid	16QAM	16.81	20.50
Band48	20	56640	1	#Max	16QAM	16.93	20.62
Band48	20	56640	50	#0	16QAM	14.69	18.38
Band48	20	56640	50	#Max	16QAM	14.66	18.35
Band48	20	56640	100	#0	16QAM	13.05	16.74
Band48	20	56640	1	#0	64QAM	15.87	19.56
Band48	20	56640	1	#Mid	64QAM	15.76	19.45
Band48	20	56640	1	#Max	64QAM	15.87	19.56
Band48	20	56640	50	#0	64QAM	13.62	17.31
Band48	20	56640	50	#Max	64QAM	13.61	17.30
Band48	20	56640	100	#0	64QAM	12.04	15.73

6.2. Occupied Bandwidth

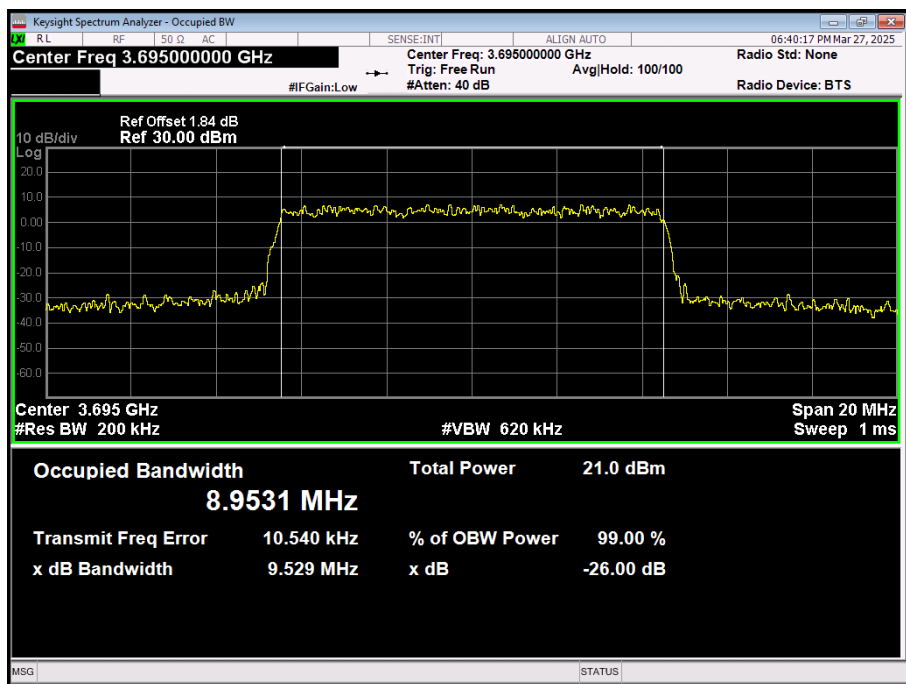
Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)
Band48	5	55265	25	#0	QPSK	4.517	5.088
Band48	5	55265	25	#0	16QAM	4.515	4.916
Band48	5	55265	25	#0	64QAM	4.515	4.834
Band48	5	55990	25	#0	QPSK	4.525	4.894
Band48	5	55990	25	#0	16QAM	4.510	4.892
Band48	5	55990	25	#0	64QAM	4.528	4.802
Band48	5	56715	25	#0	QPSK	4.498	4.978
Band48	5	56715	25	#0	16QAM	4.513	4.882
Band48	5	56715	25	#0	64QAM	4.500	4.933
Band48	10	55290	50	#0	QPSK	8.953	9.661
Band48	10	55290	50	#0	16QAM	8.959	9.531
Band48	10	55290	50	#0	64QAM	8.961	9.653
Band48	10	55990	50	#0	QPSK	8.980	9.661
Band48	10	55990	50	#0	16QAM	8.976	9.486
Band48	10	55990	50	#0	64QAM	8.982	9.659
Band48	10	56690	50	#0	QPSK	8.986	9.591
Band48	10	56690	50	#0	16QAM	8.953	9.529
Band48	10	56690	50	#0	64QAM	8.975	9.710
Band48	15	55315	75	#0	QPSK	13.434	14.662
Band48	15	55315	75	#0	16QAM	13.432	14.380
Band48	15	55315	75	#0	64QAM	13.429	14.517
Band48	15	55990	75	#0	QPSK	13.469	14.439
Band48	15	55990	75	#0	16QAM	13.426	14.224
Band48	15	55990	75	#0	64QAM	13.415	14.617
Band48	15	56665	75	#0	QPSK	13.472	14.479
Band48	15	56665	75	#0	16QAM	13.477	14.336
Band48	15	56665	75	#0	64QAM	13.420	14.396
Band48	20	55340	100	#0	QPSK	17.908	19.205
Band48	20	55340	100	#0	16QAM	17.889	19.066
Band48	20	55340	100	#0	64QAM	17.923	19.317
Band48	20	55990	100	#0	QPSK	17.918	18.956
Band48	20	55990	100	#0	16QAM	17.880	19.125
Band48	20	55990	100	#0	64QAM	17.906	19.440
Band48	20	56640	100	#0	QPSK	17.906	19.237
Band48	20	56640	100	#0	16QAM	17.921	19.084
Band48	20	56640	100	#0	64QAM	17.952	19.358



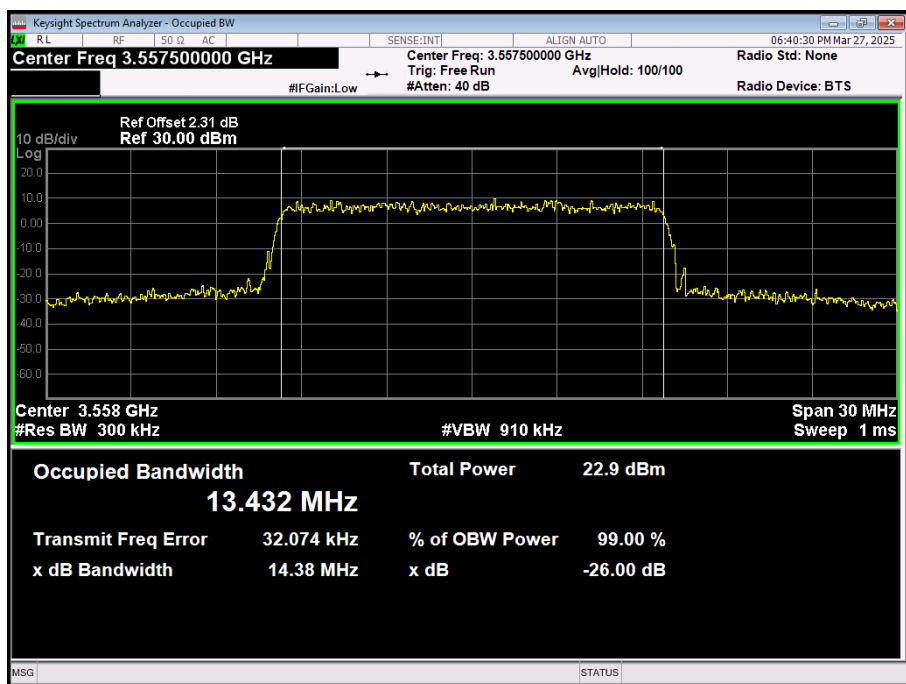
Band48 16QAM BW=10MHz Channel=55290 RB Size=50 Position=#0



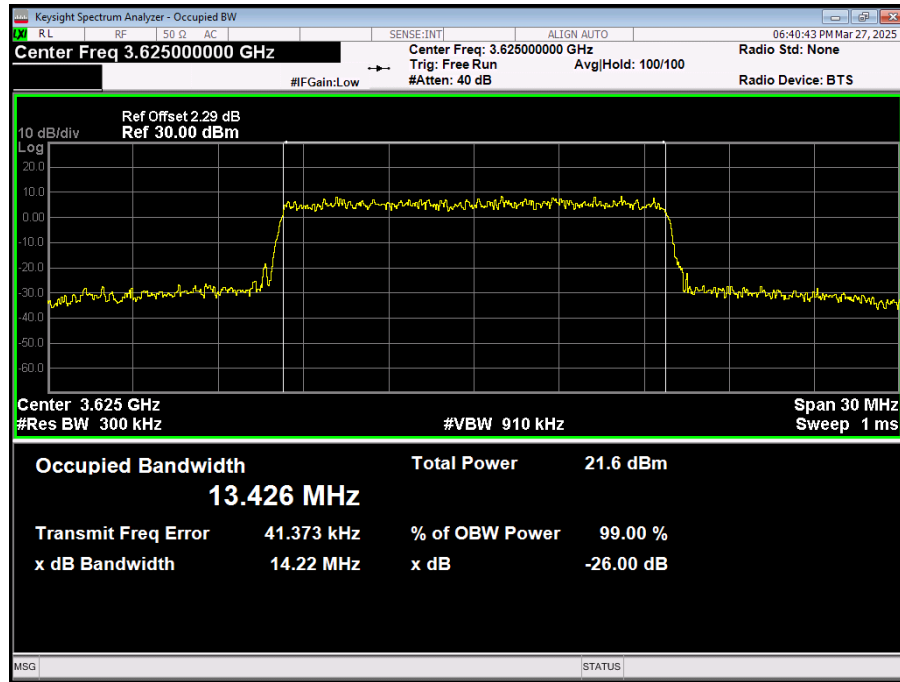
Band48 16QAM BW=10MHz Channel=55990 RB Size=50 Position=#0



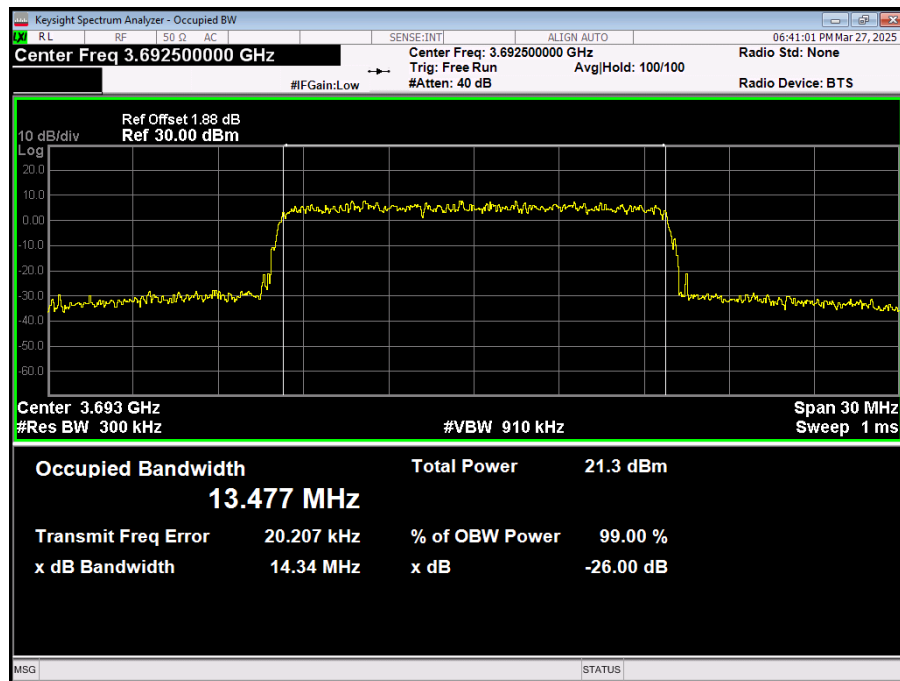
Band48 16QAM BW=10MHz Channel=56690 RB Size=50 Position=#0



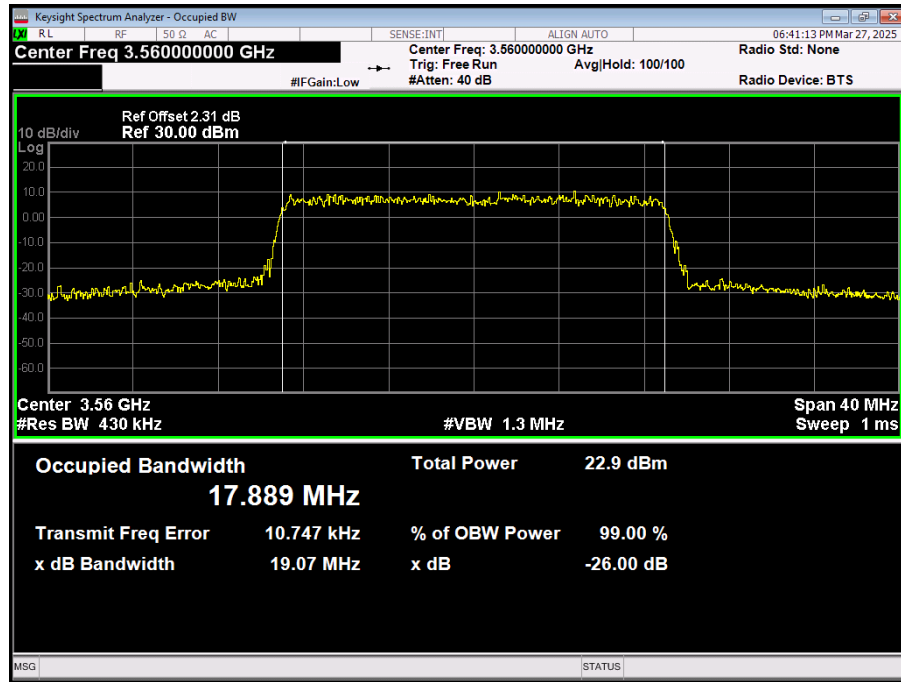
Band48 16QAM BW=15MHz Channel=55315 RB Size=75 Position=#0



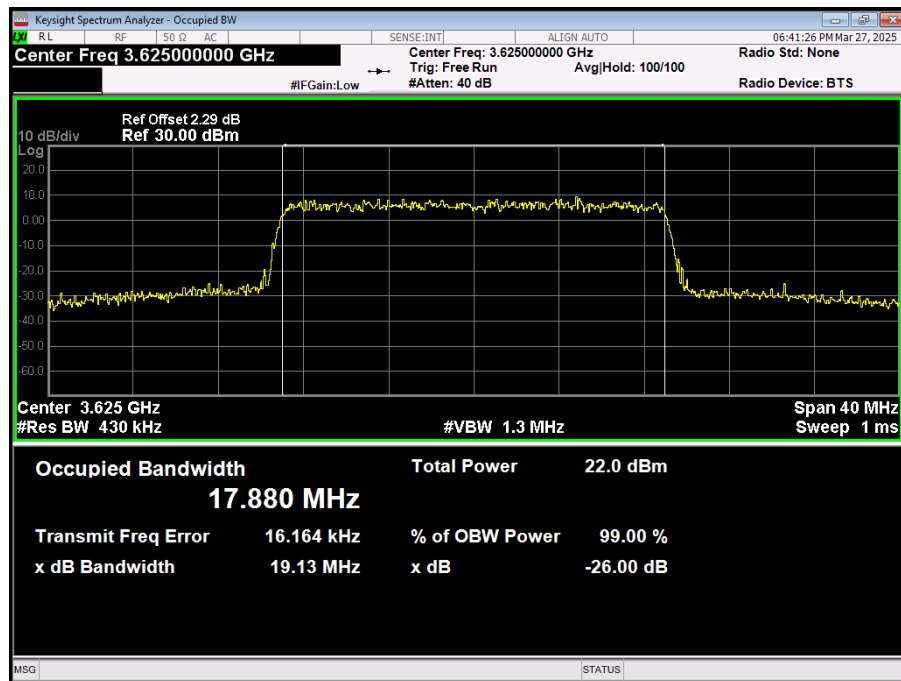
Band48 16QAM BW=15MHz Channel=55990 RB Size=75 Position=#0



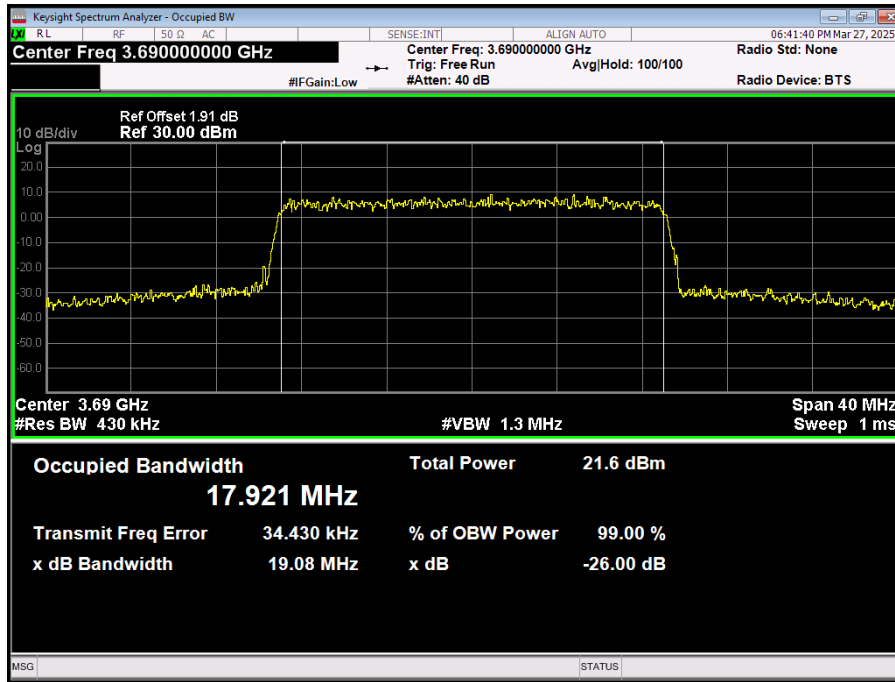
Band48 16QAM BW=15MHz Channel=56665 RB Size=75 Position=#0



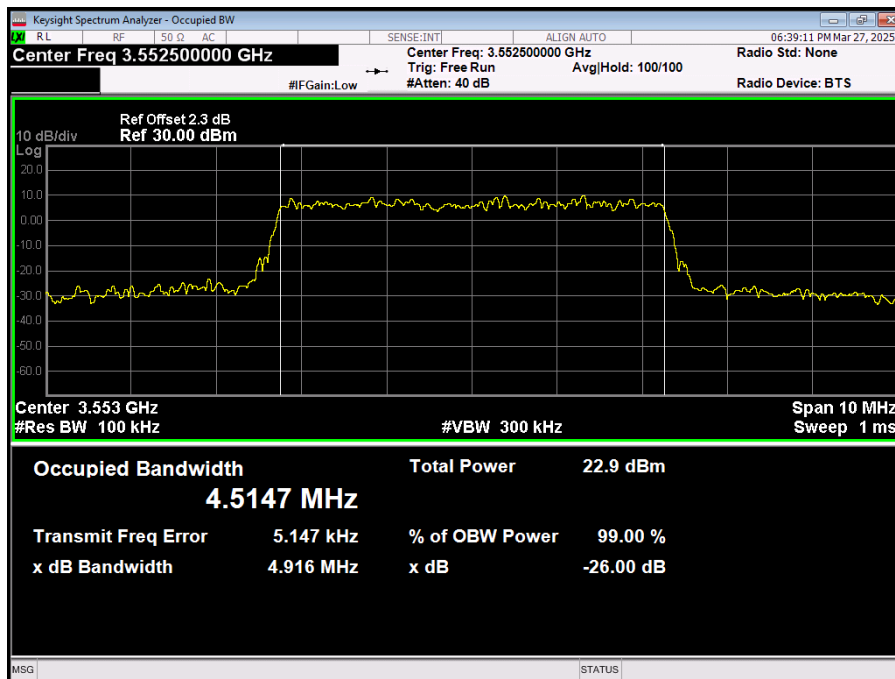
Band48 16QAM BW=20MHz Channel=55340 RB Size=100 Position=#0



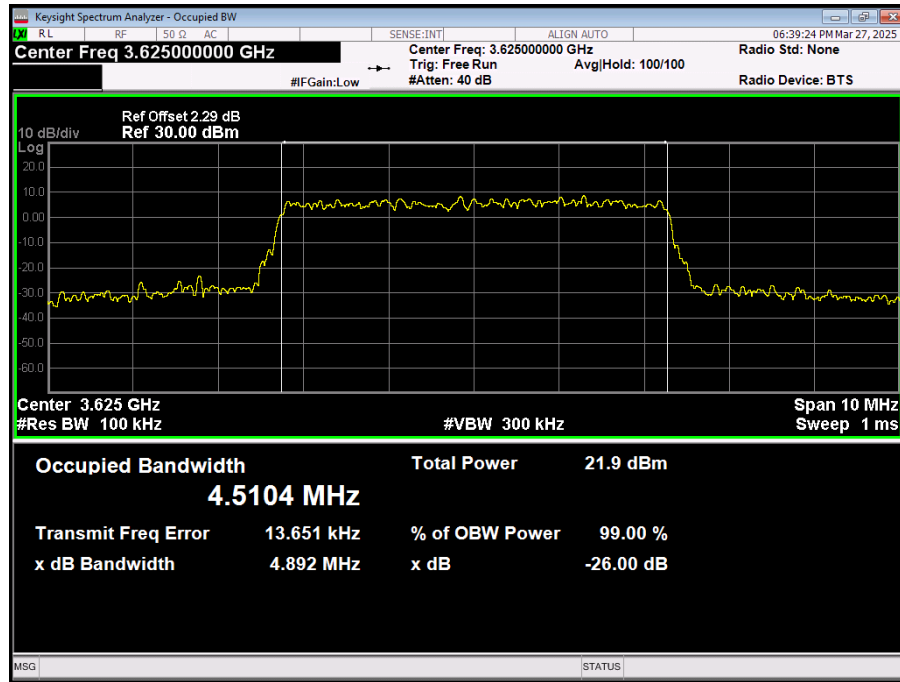
Band48 16QAM BW=20MHz Channel=55990 RB Size=100 Position=#0



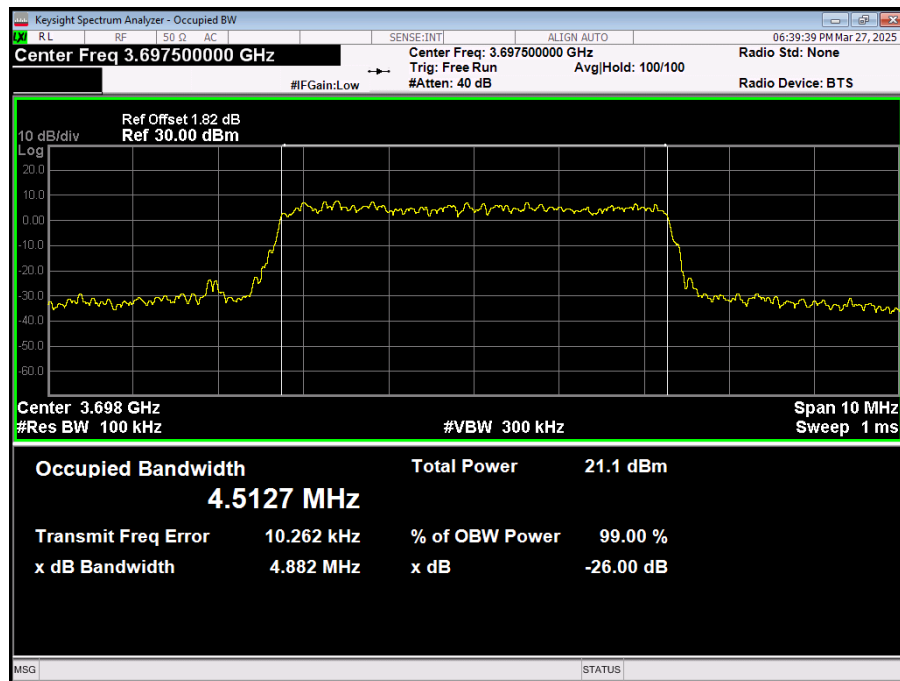
Band48 16QAM BW=20MHz Channel=56640 RB Size=100 Position=#0



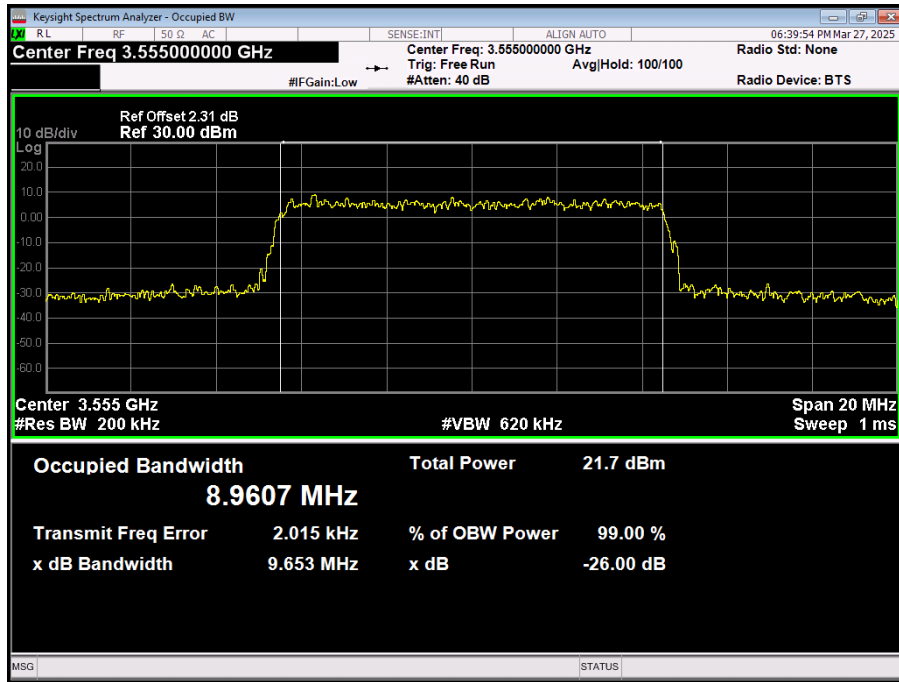
Band48 16QAM BW=5MHz Channel=55265 RB Size=25 Position=#0



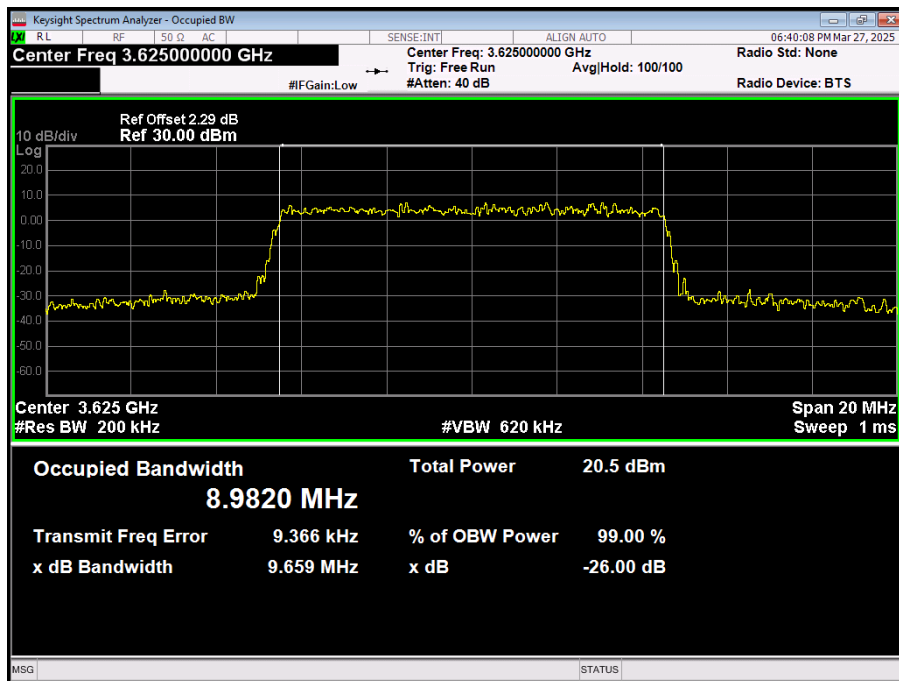
Band48 16QAM BW=5MHz Channel=55990 RB Size=25 Position=#0



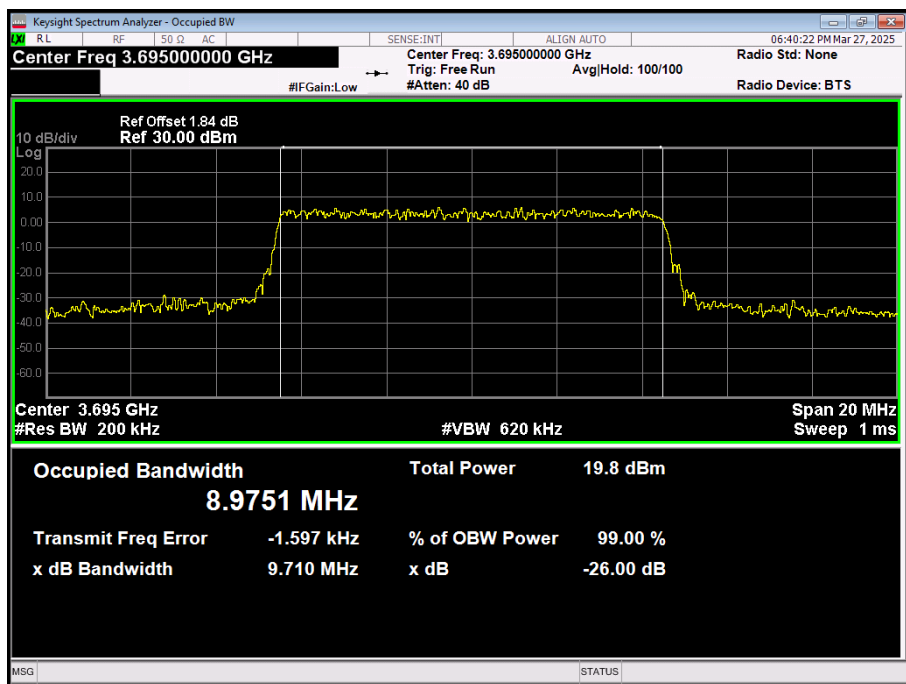
Band48 16QAM BW=5MHz Channel=56715 RB Size=25 Position=#0



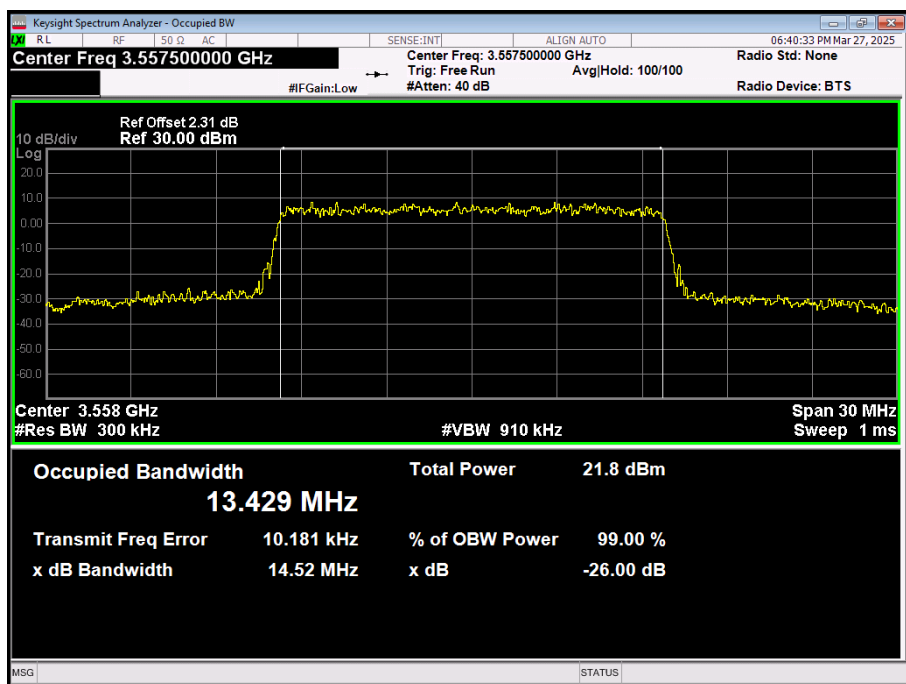
Band48 64QAM BW=10MHz Channel=55290 RB Size=50 Position=#0



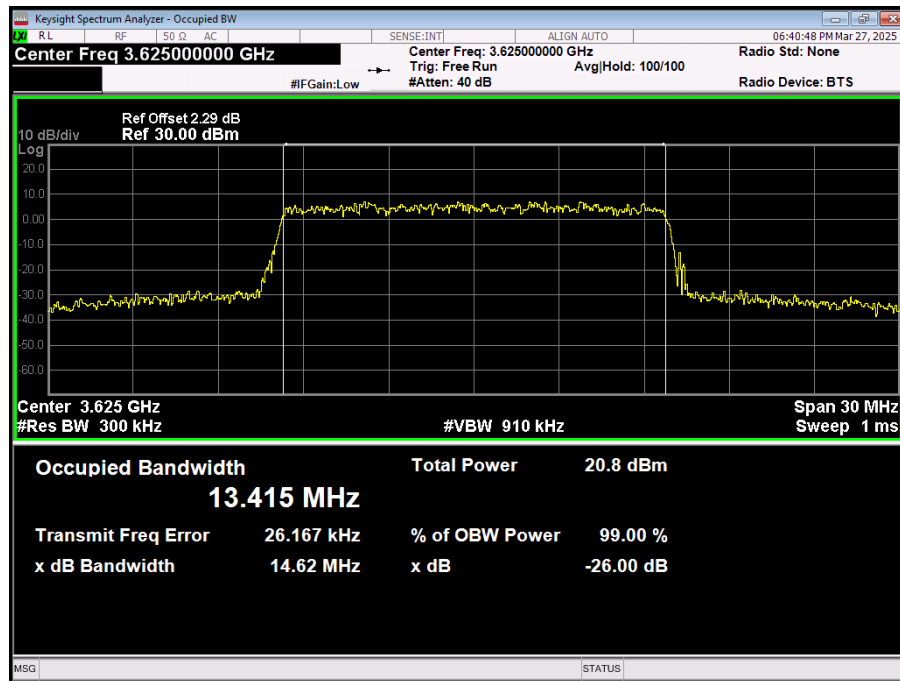
Band48 64QAM BW=10MHz Channel=55990 RB Size=50 Position=#0



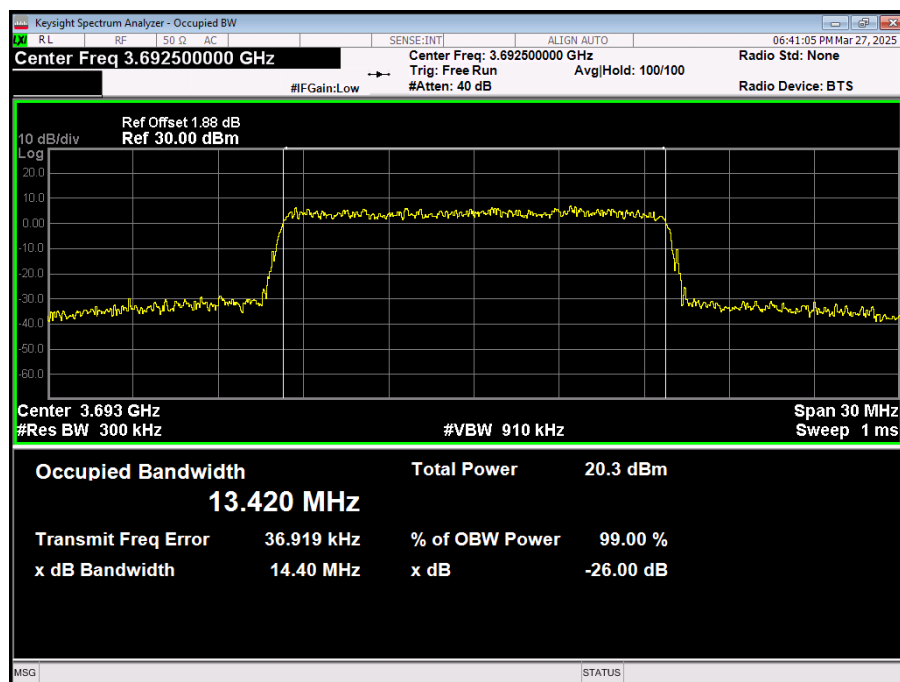
Band48 64QAM BW=10MHz Channel=56690 RB Size=50 Position=#0



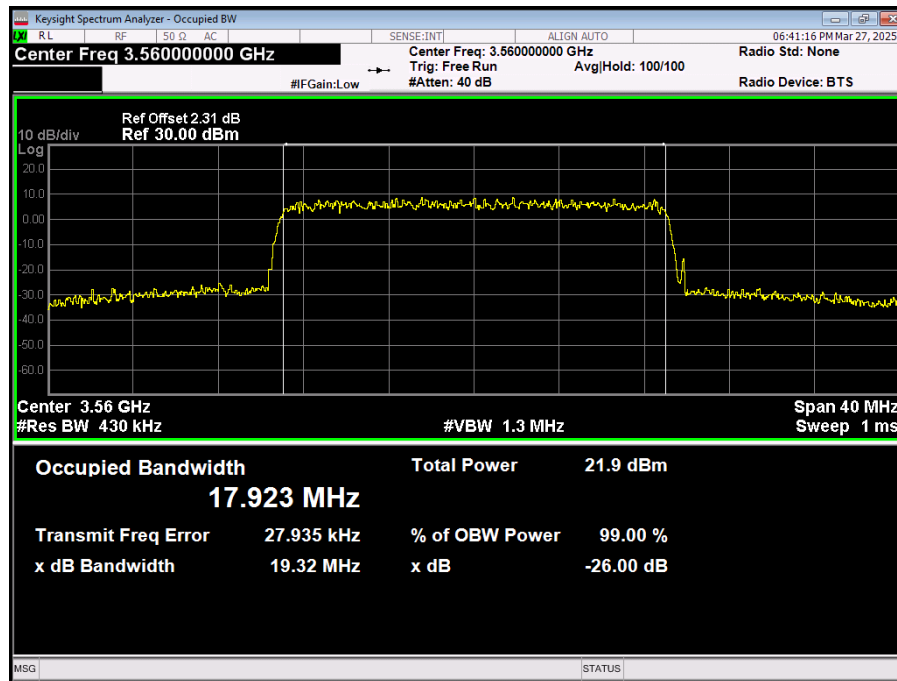
Band48 64QAM BW=15MHz Channel=55315 RB Size=75 Position=#0



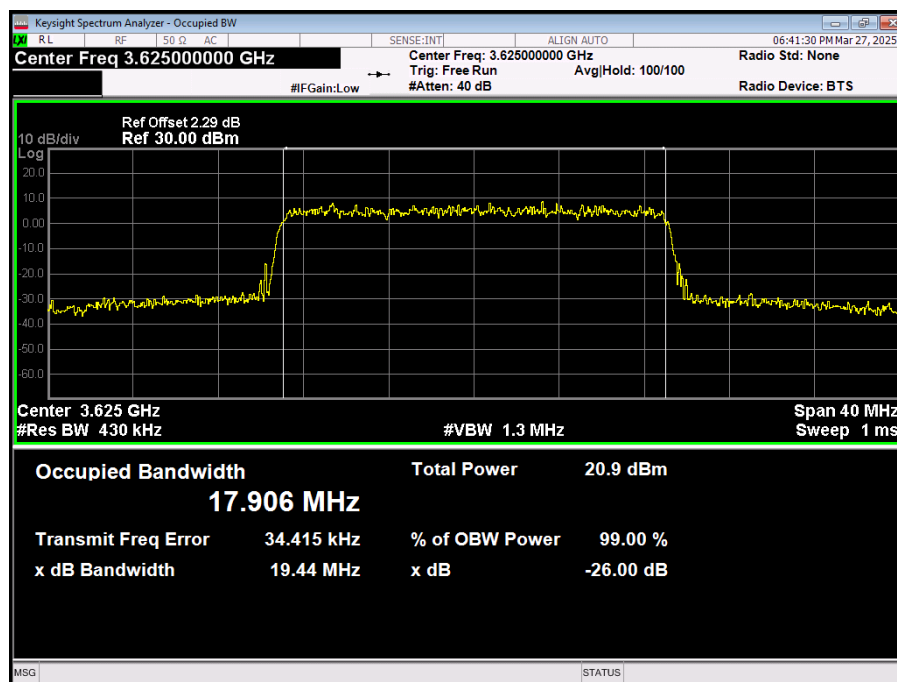
Band48 64QAM BW=15MHz Channel=55990 RB Size=75 Position=#0



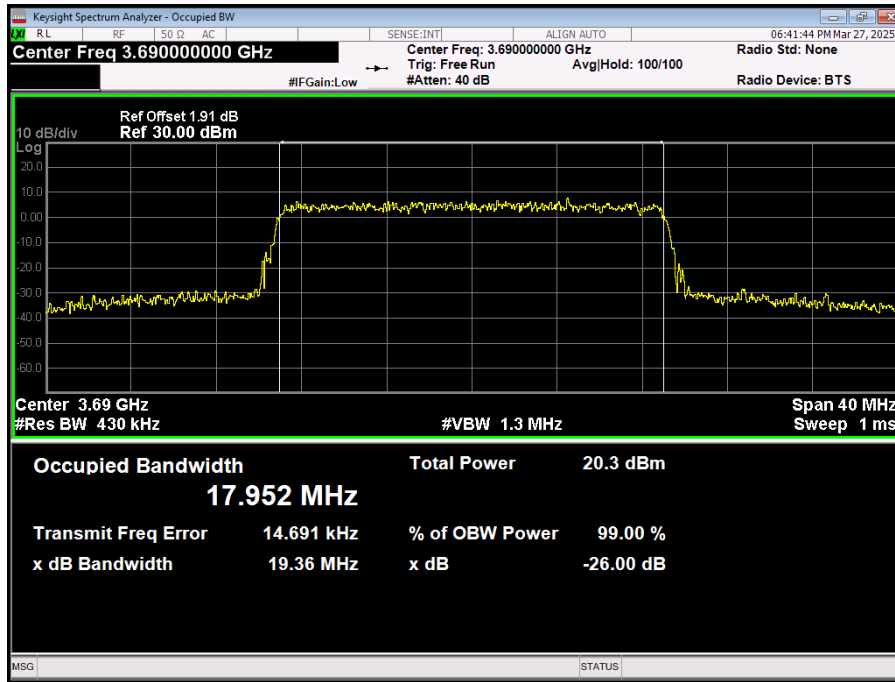
Band48 64QAM BW=15MHz Channel=56665 RB Size=75 Position=#0



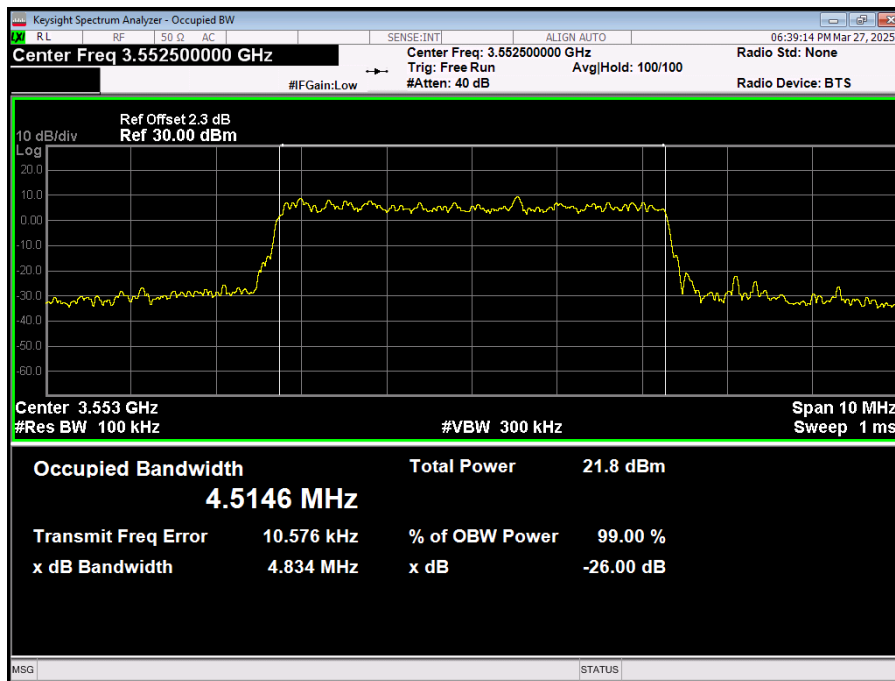
Band48 64QAM BW=20MHz Channel=55340 RB Size=100 Position=#0



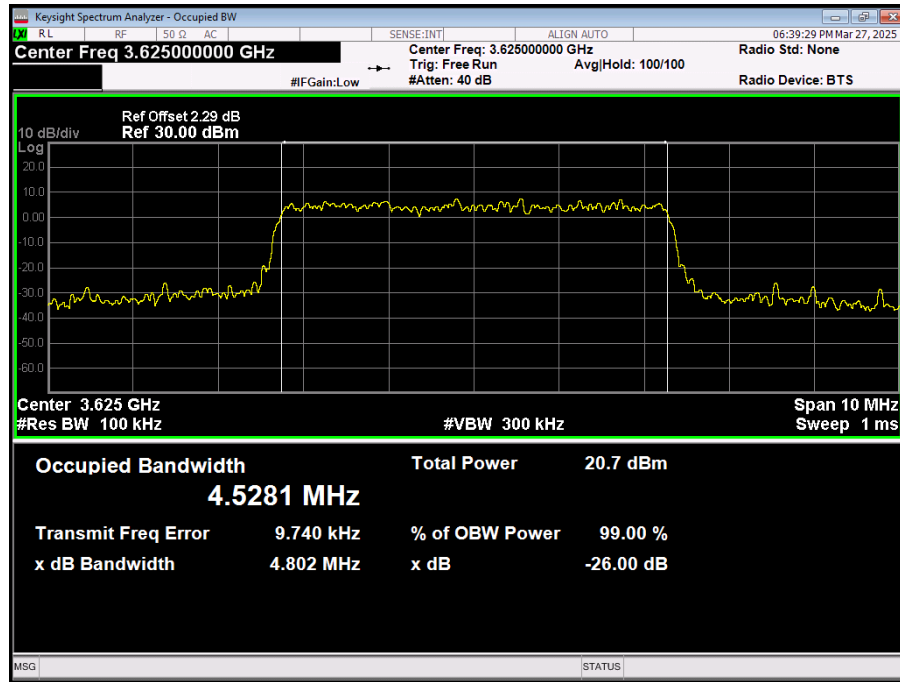
Band48 64QAM BW=20MHz Channel=55990 RB Size=100 Position=#0



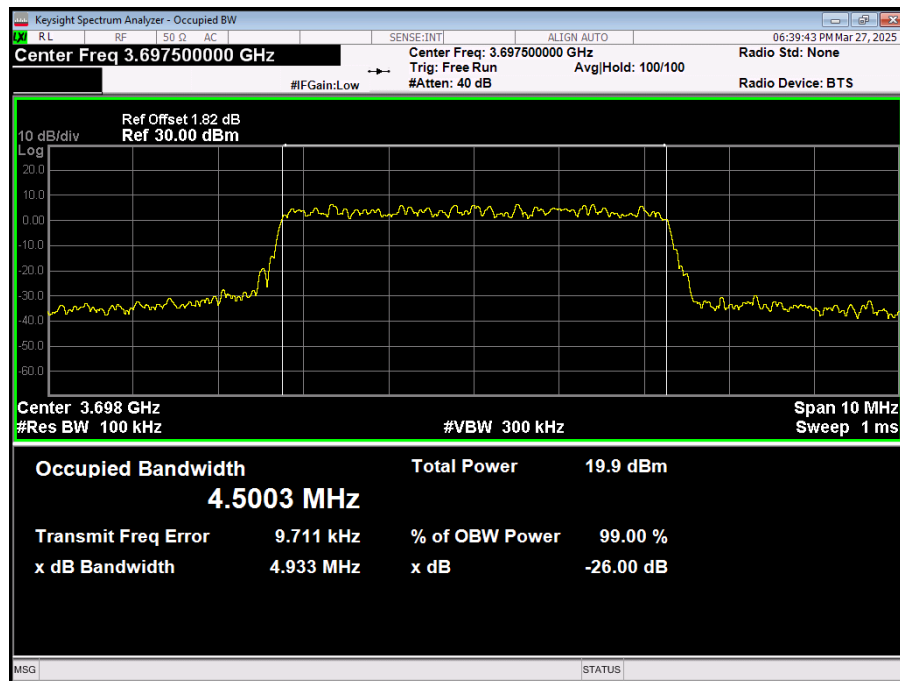
Band48 64QAM BW=20MHz Channel=56640 RB Size=100 Position=#0



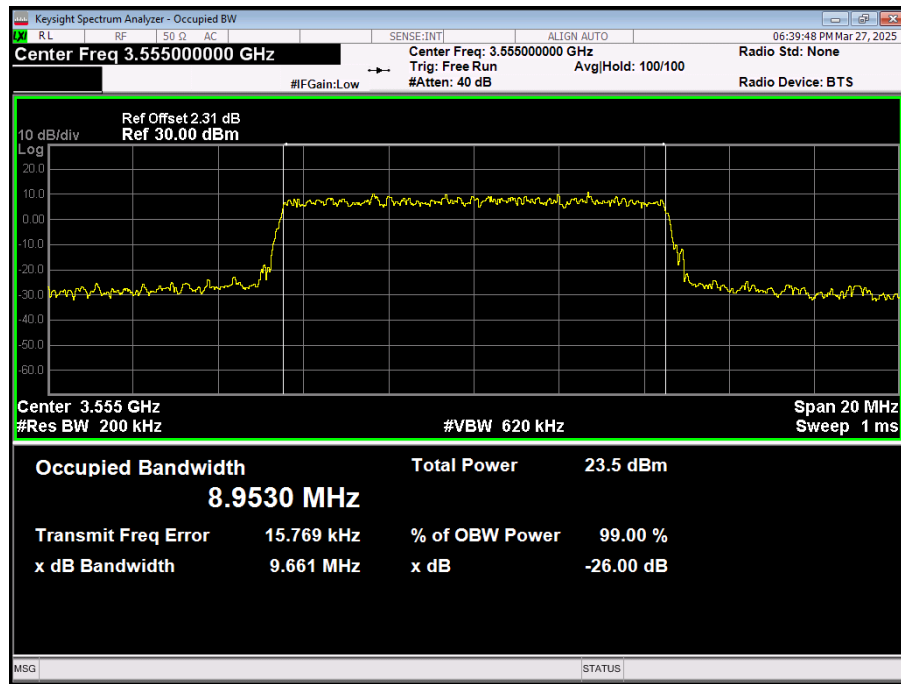
Band48 64QAM BW=5MHz Channel=55265 RB Size=25 Position=#0



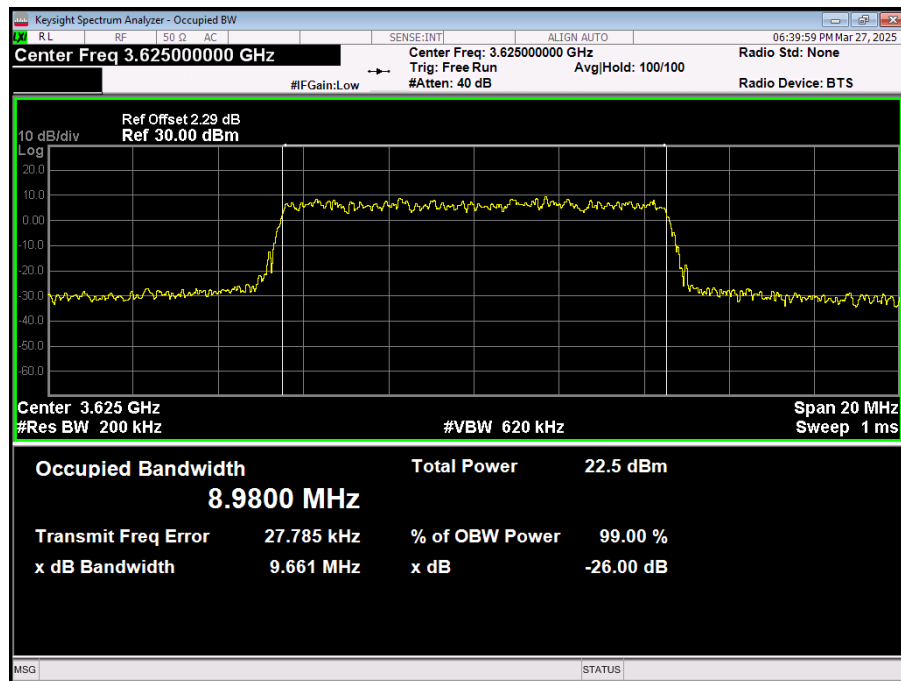
Band48 64QAM BW=5MHz Channel=55990 RB Size=25 Position=#0



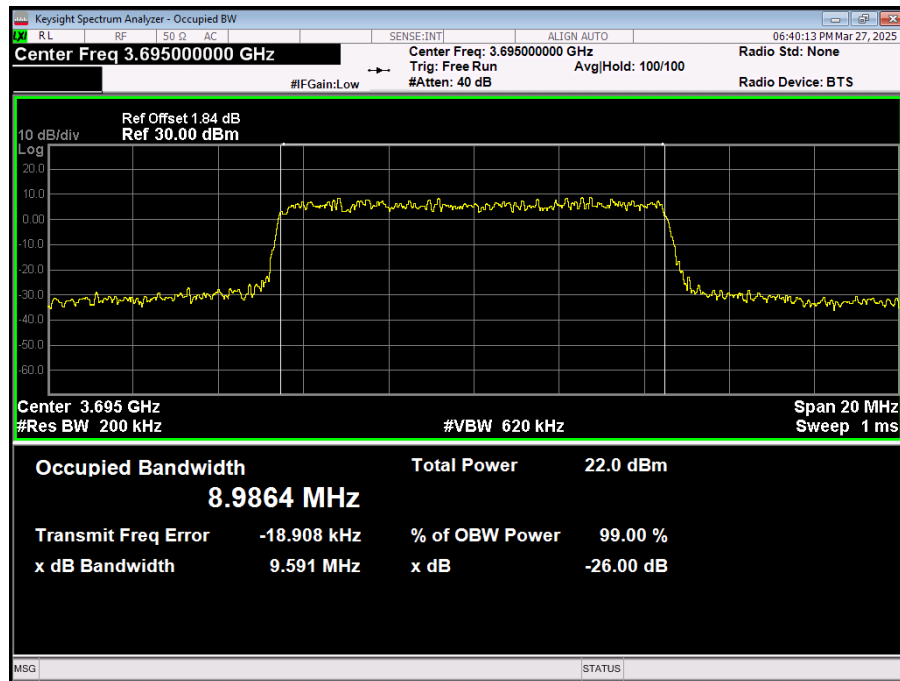
Band48 64QAM BW=5MHz Channel=56715 RB Size=25 Position=#0



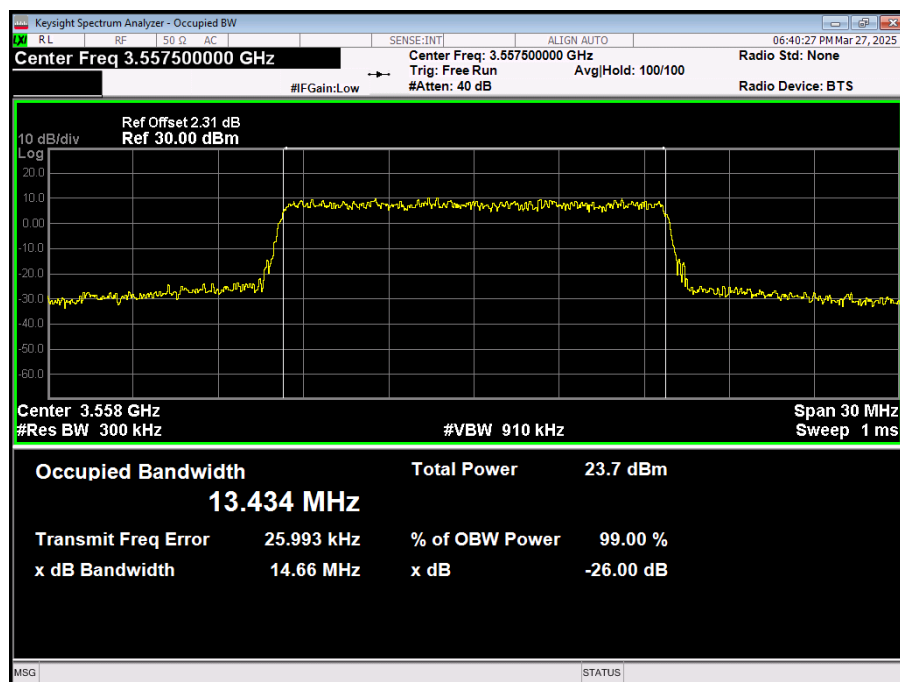
Band48 QPSK BW=10MHz Channel=55290 RB Size=50 Position=#0



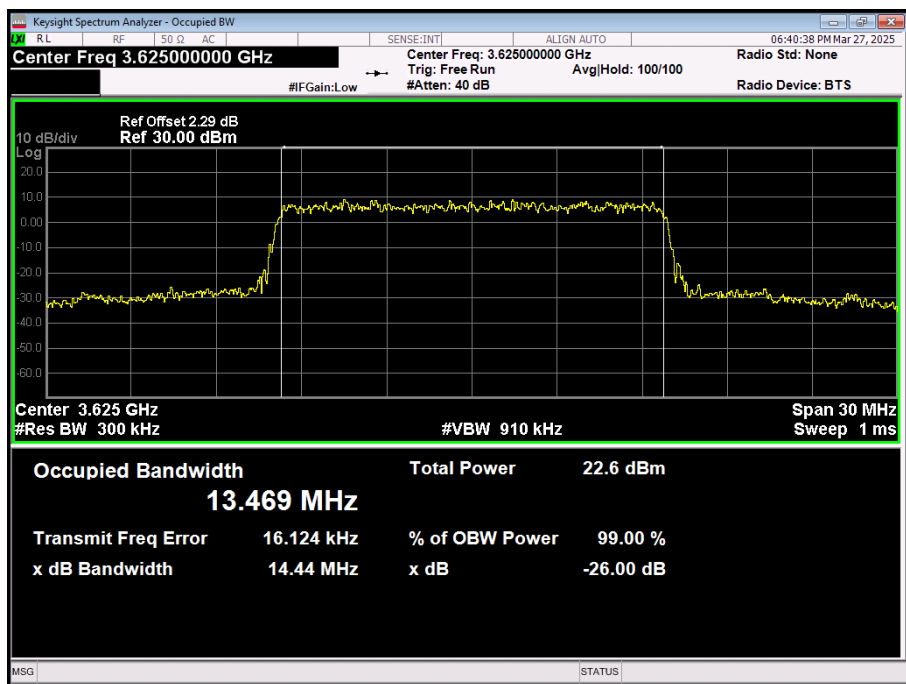
Band48 QPSK BW=10MHz Channel=55990 RB Size=50 Position=#0



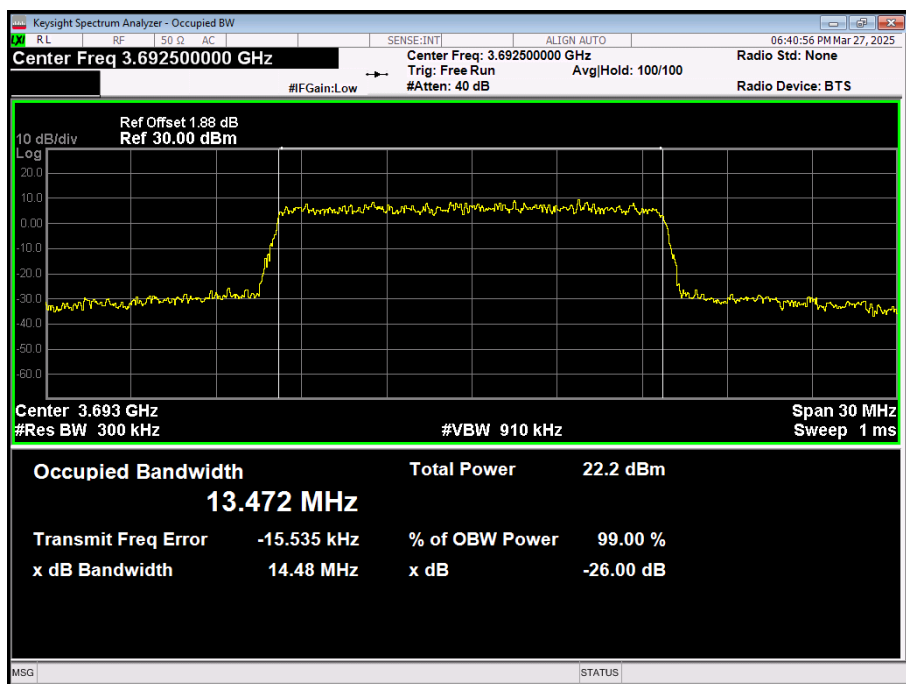
Band48 QPSK BW=10MHz Channel=56690 RB Size=50 Position=#0



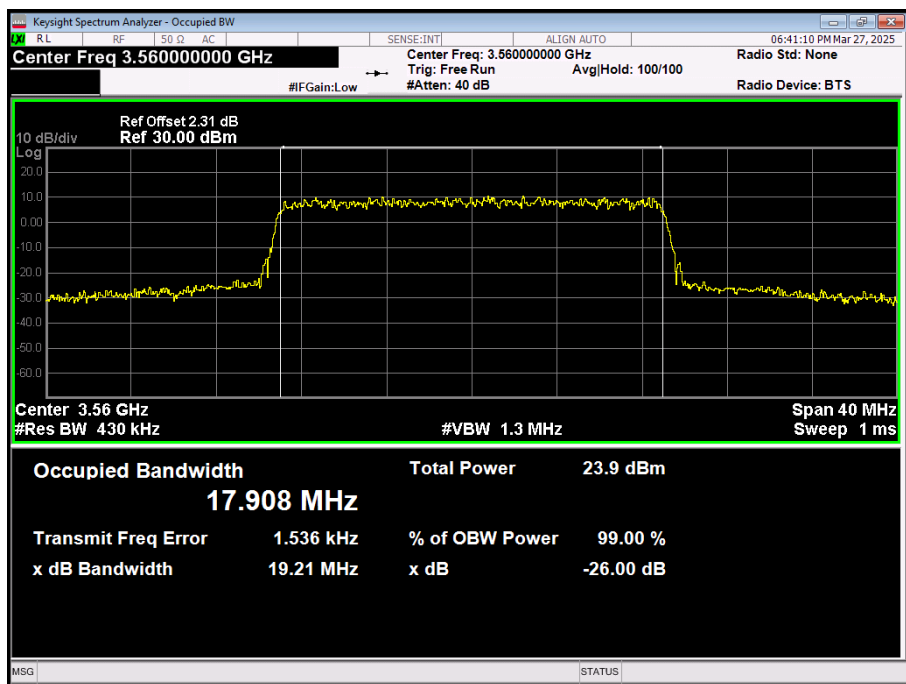
Band48 QPSK BW=15MHz Channel=55315 RB Size=75 Position=#0



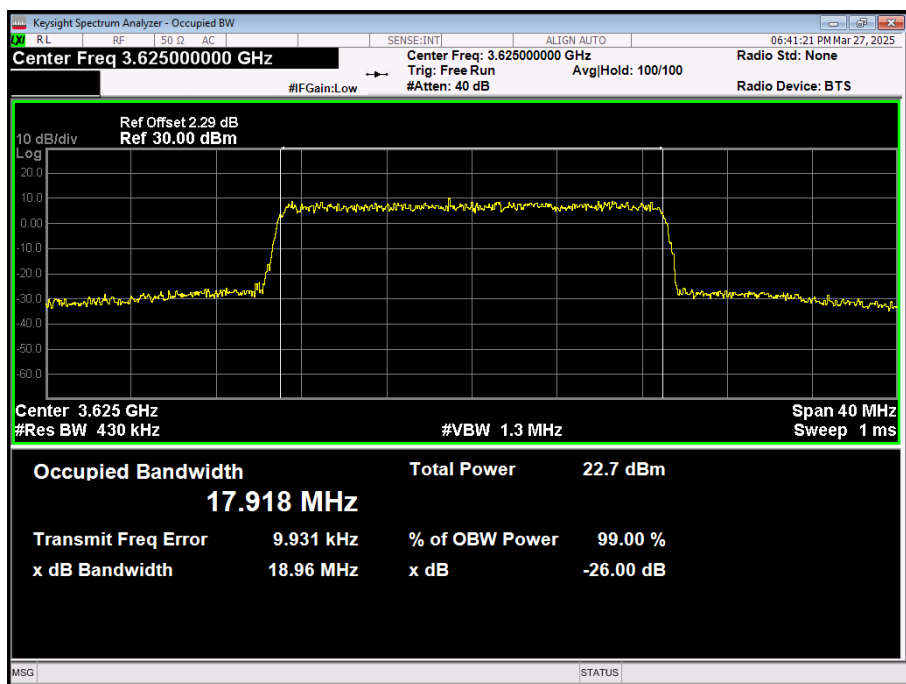
Band48 QPSK BW=15MHz Channel=55990 RB Size=75 Position=#0



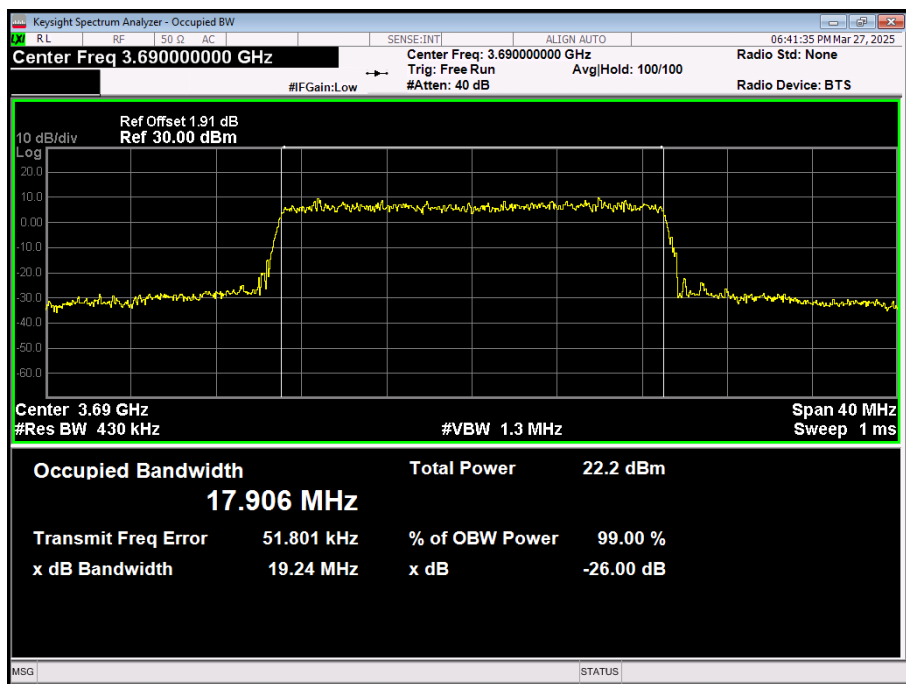
Band48 QPSK BW=15MHz Channel=56665 RB Size=75 Position=#0



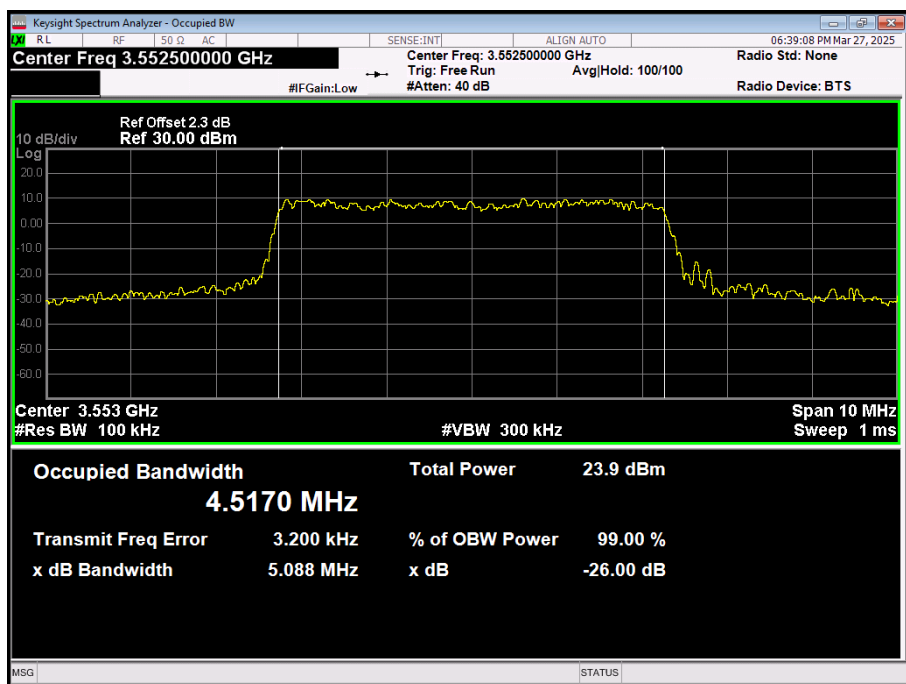
Band48 QPSK BW=20MHz Channel=55340 RB Size=100 Position=#0



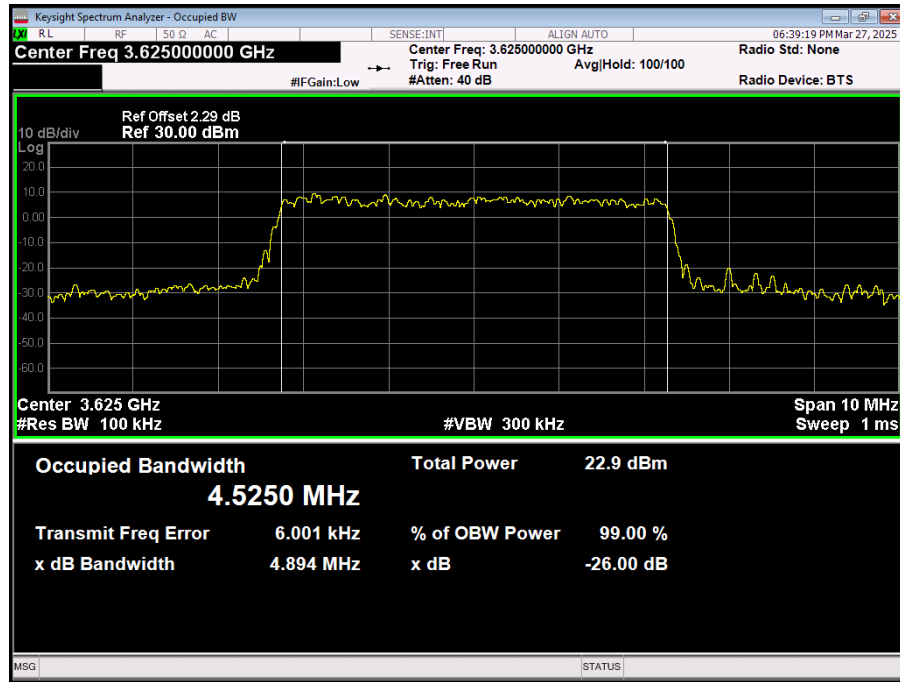
Band48 QPSK BW=20MHz Channel=55990 RB Size=100 Position=#0



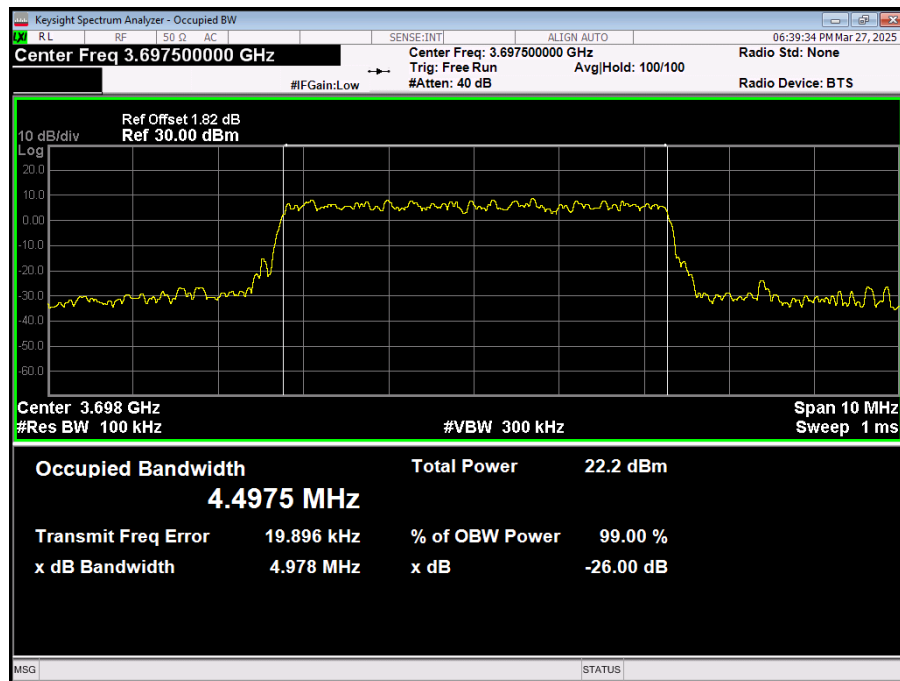
Band48 QPSK BW=20MHz Channel=56640 RB Size=100 Position=#0



Band48 QPSK BW=5MHz Channel=55265 RB Size=25 Position=#0

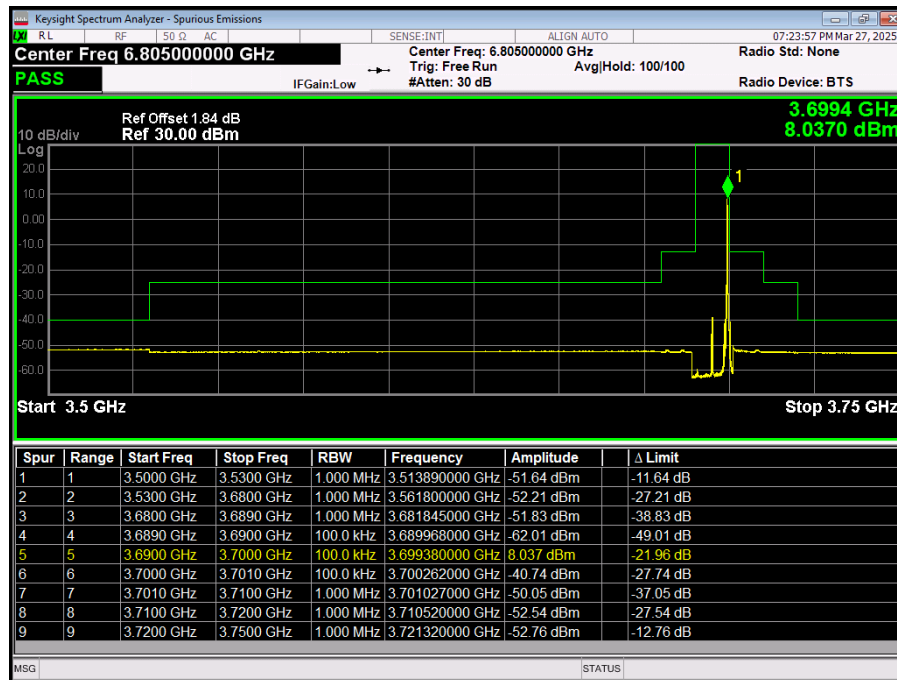


Band48 QPSK BW=5MHz Channel=55990 RB Size=25 Position=#0

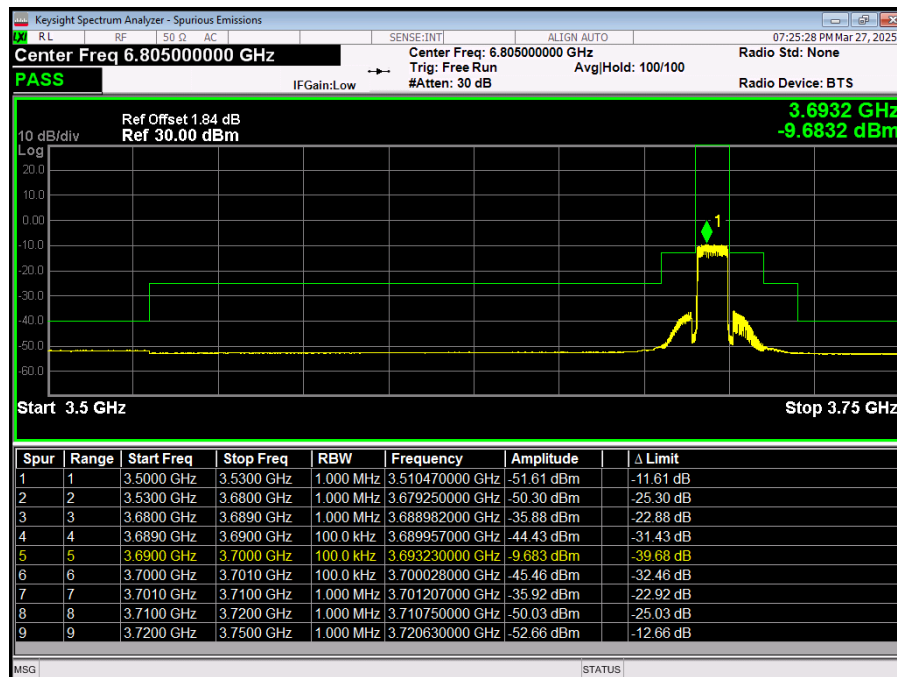


Band48 QPSK BW=5MHz Channel=56715 RB Size=25 Position=#0

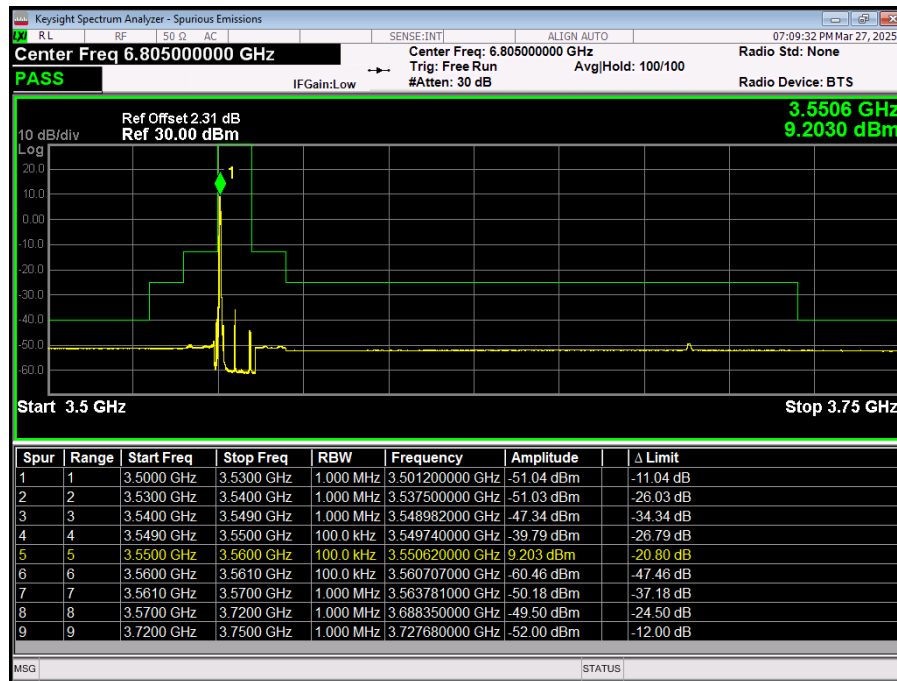
6.3. Band Edge Compliance



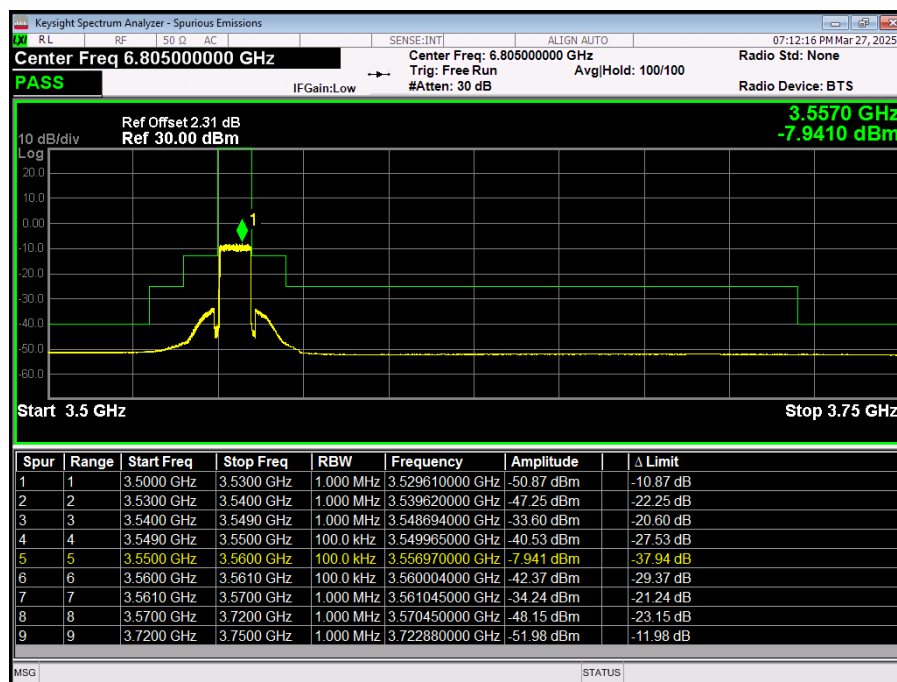
Band48 16QAM BW=10MHz High Channel=56690 RB Size=1 Position=#Max



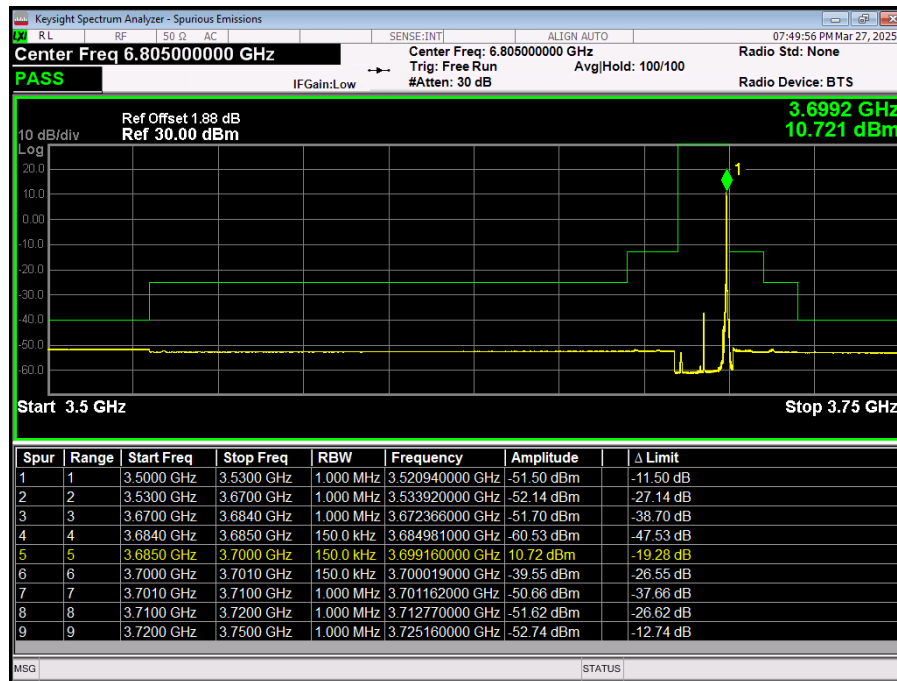
Band48 16QAM BW=10MHz High Channel=56690 RB Size=50 Position=#0



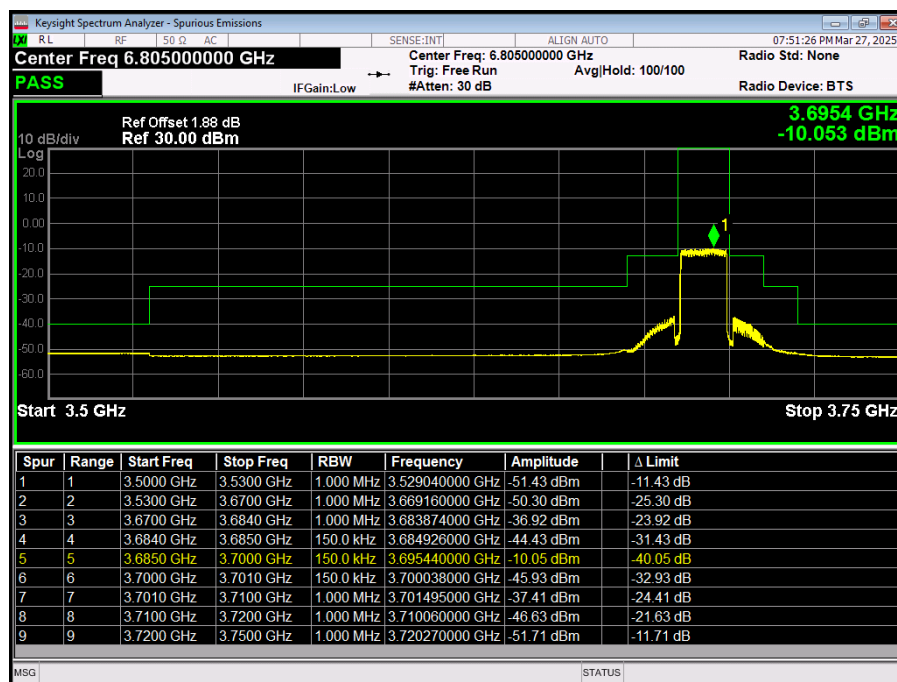
Band48 16QAM BW=10MHz Low Channel=55290 RB Size=1 Position=#0



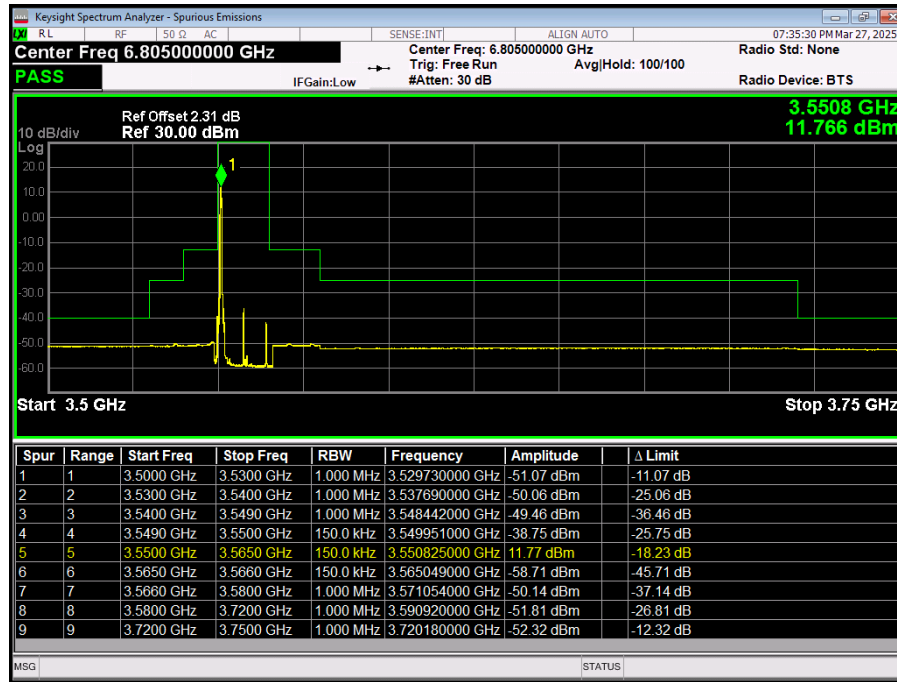
Band48 16QAM BW=10MHz Low Channel=55290 RB Size=50 Position=#0



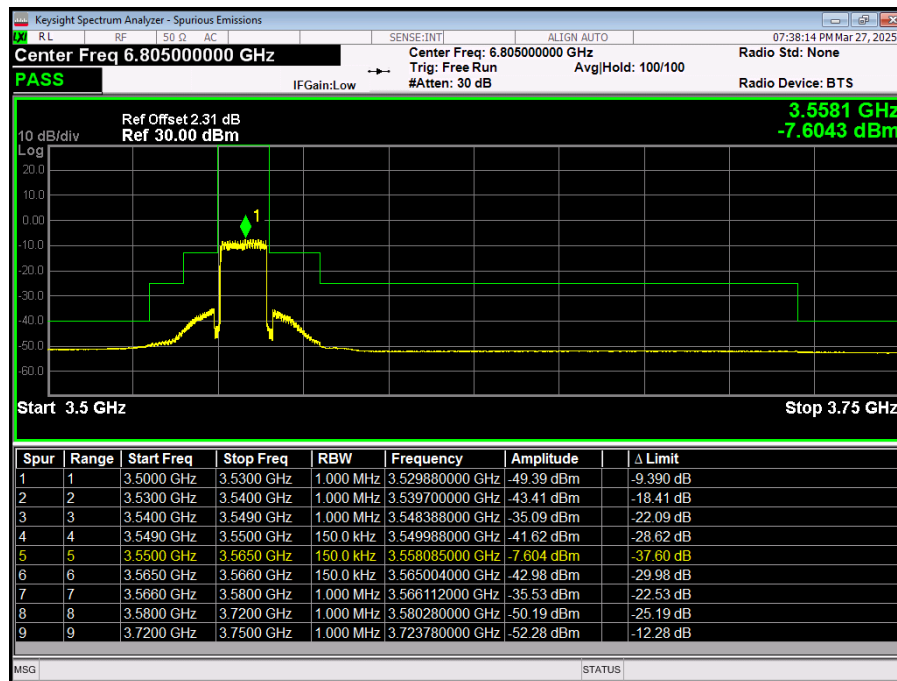
Band48 16QAM BW=15MHz High Channel=56665 RB Size=1 Position=#Max



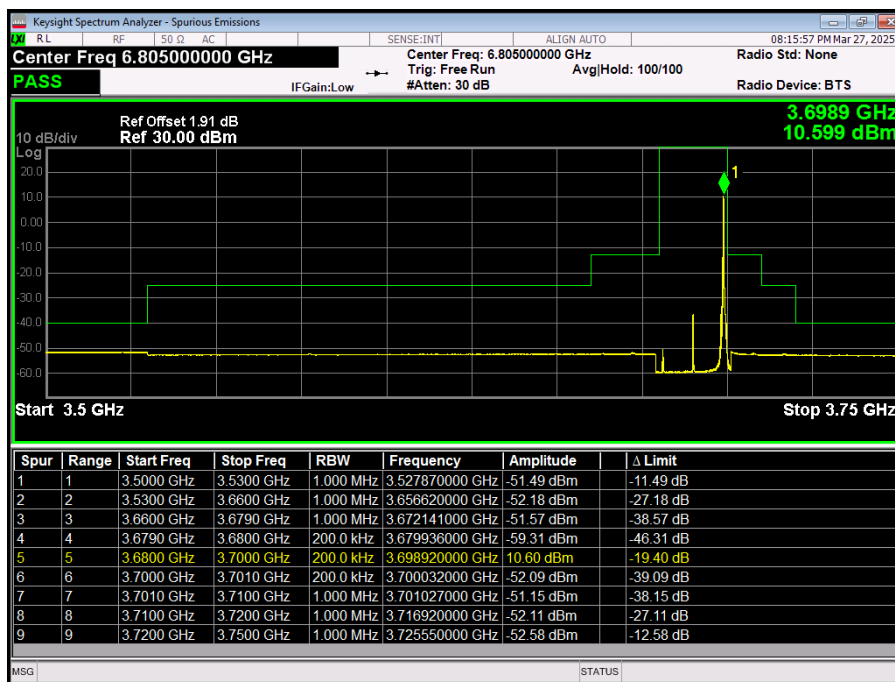
Band48 16QAM BW=15MHz High Channel=56665 RB Size=75 Position=#0



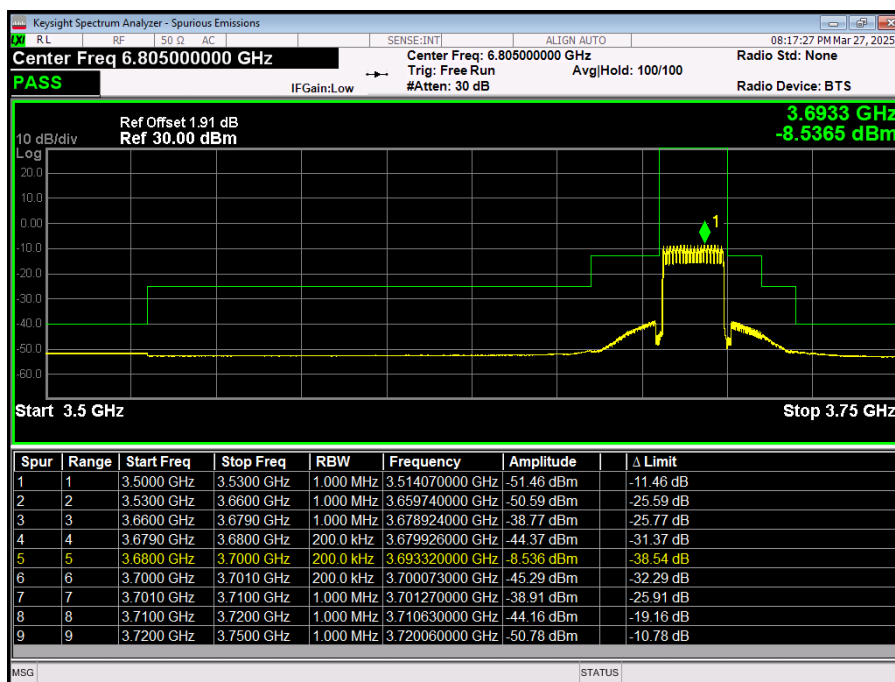
Band48 16QAM BW=15MHz Low Channel=55315 RB Size=1 Position=#0



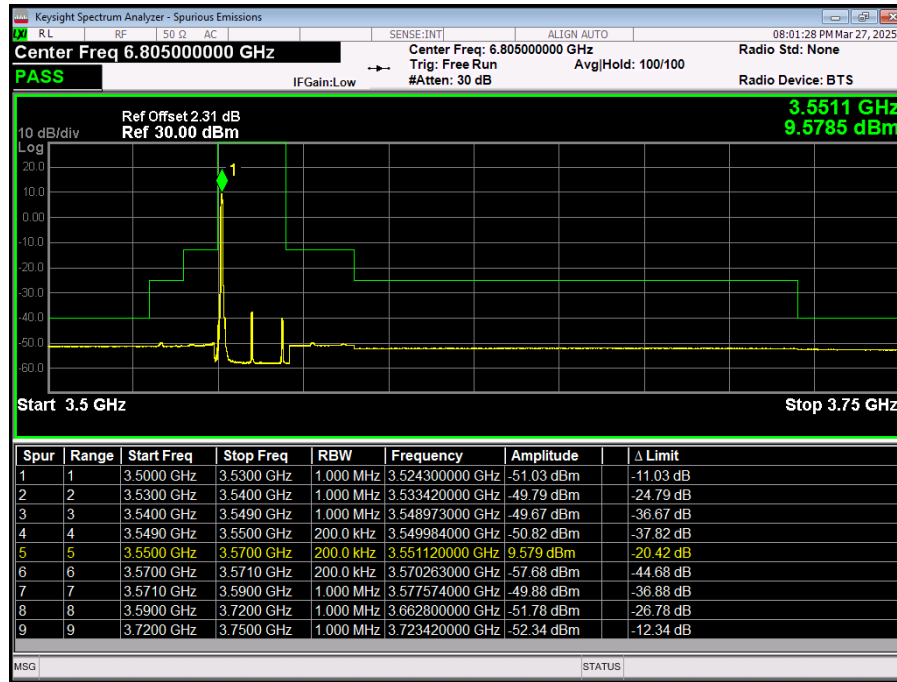
Band48 16QAM BW=15MHz Low Channel=55315 RB Size=75 Position=#0



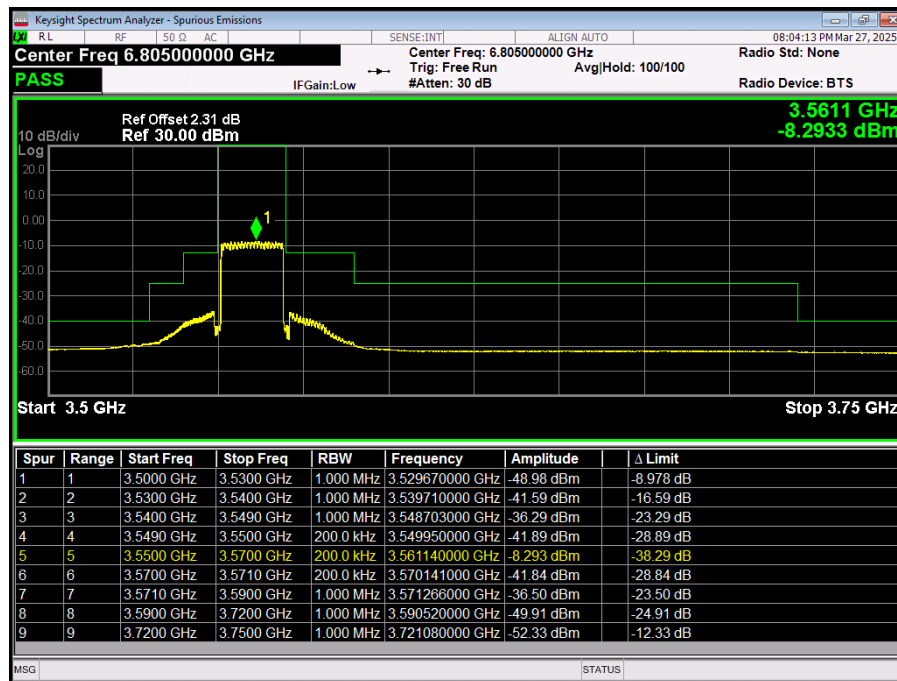
Band48 16QAM BW=20MHz High Channel=56640 RB Size=1 Position=#Max



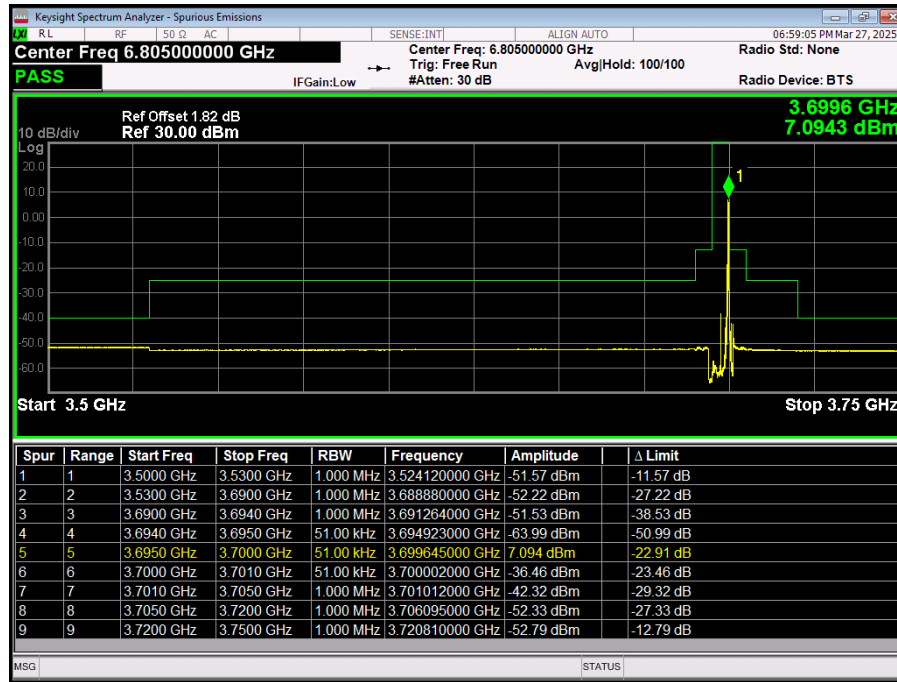
Band48 16QAM BW=20MHz High Channel=56640 RB Size=100 Position=#0



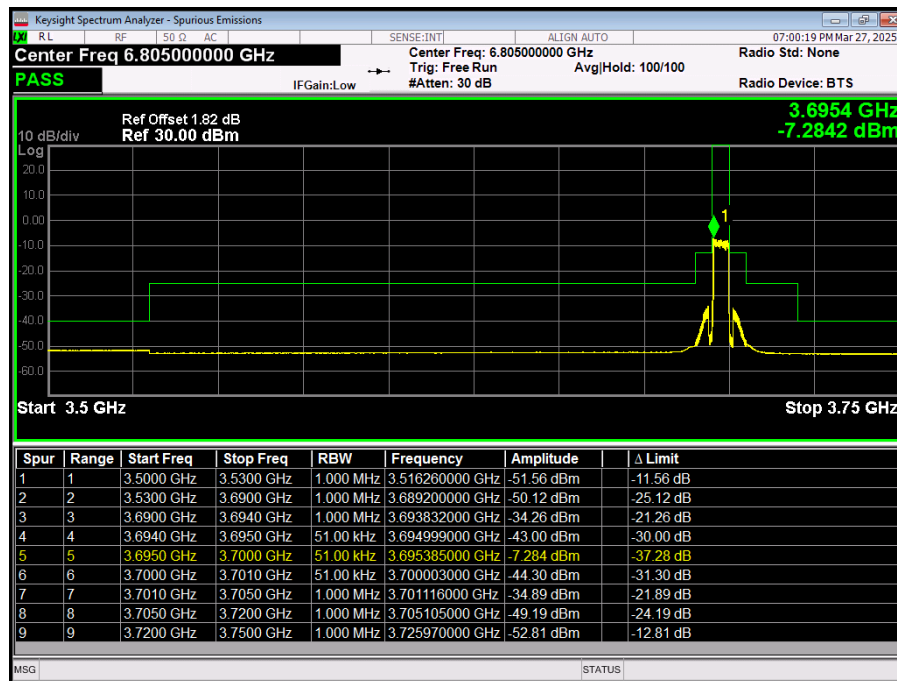
Band48 16QAM BW=20MHz Low Channel=55340 RB Size=1 Position=#0



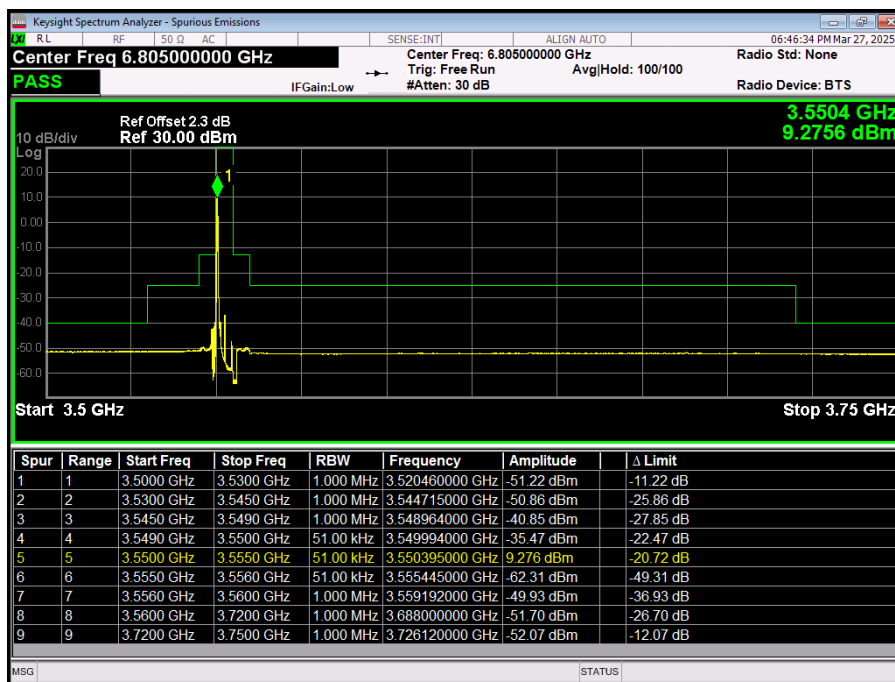
Band48 16QAM BW=20MHz Low Channel=55340 RB Size=100 Position=#0



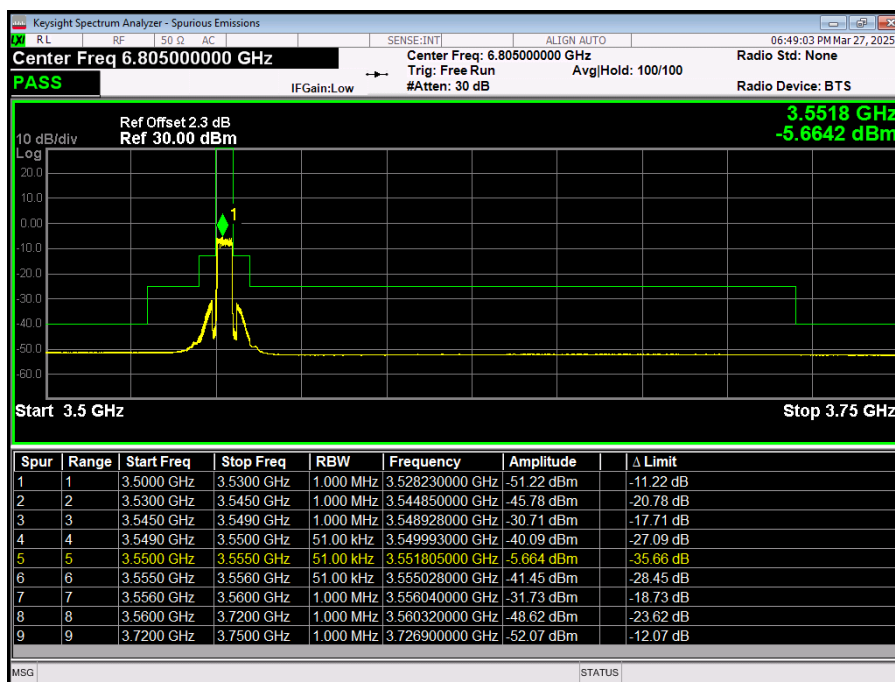
Band48 16QAM BW=5MHz High Channel=56715 RB Size=1 Position=#Max



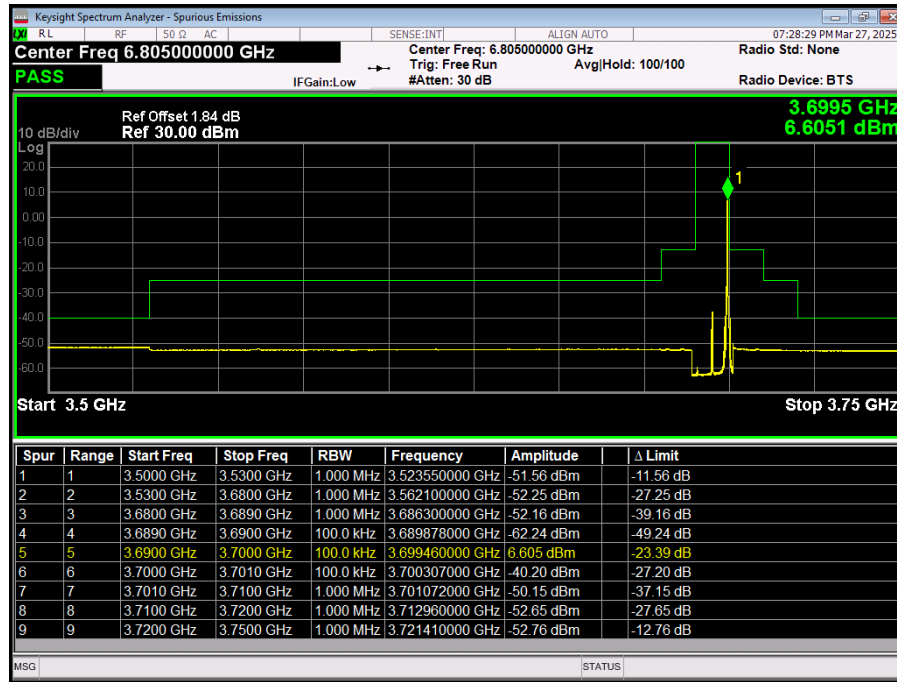
Band48 16QAM BW=5MHz High Channel=56715 RB Size=25 Position=#0



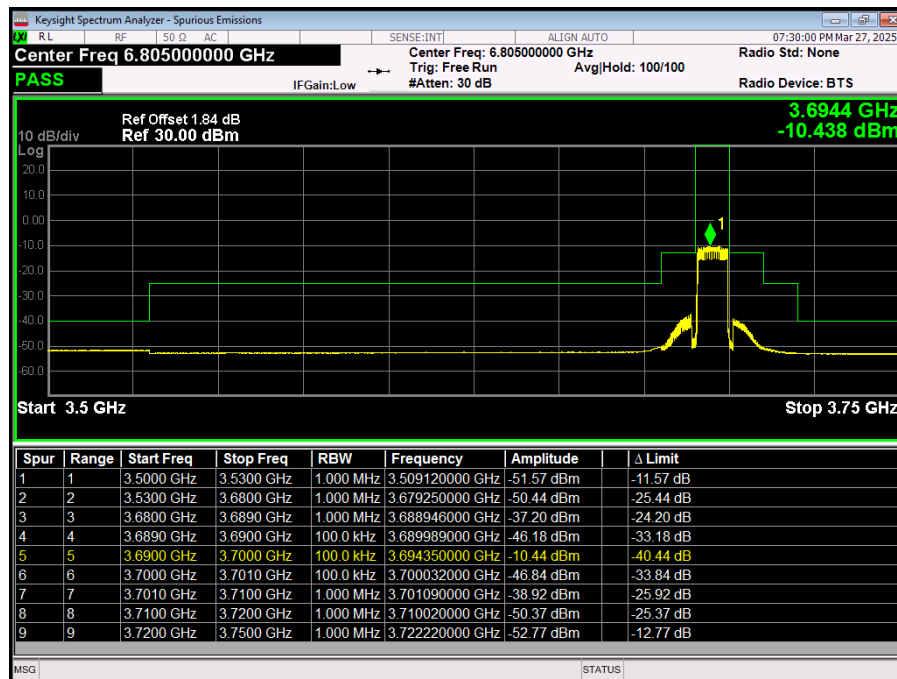
Band48 16QAM BW=5MHz Low Channel=55265 RB Size=1 Position=#0



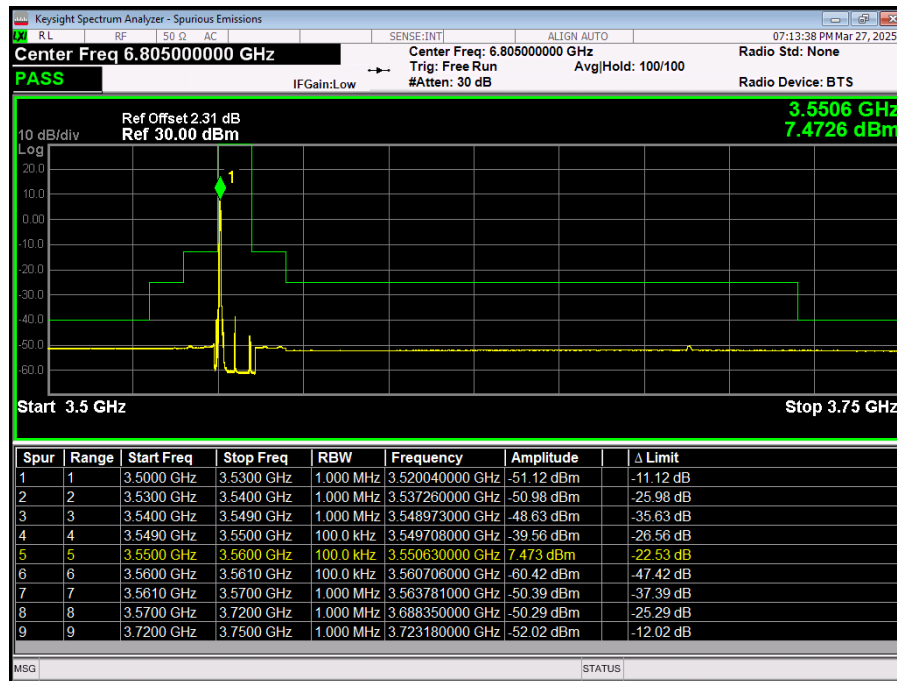
Band48 16QAM BW=5MHz Low Channel=55265 RB Size=25 Position=#0



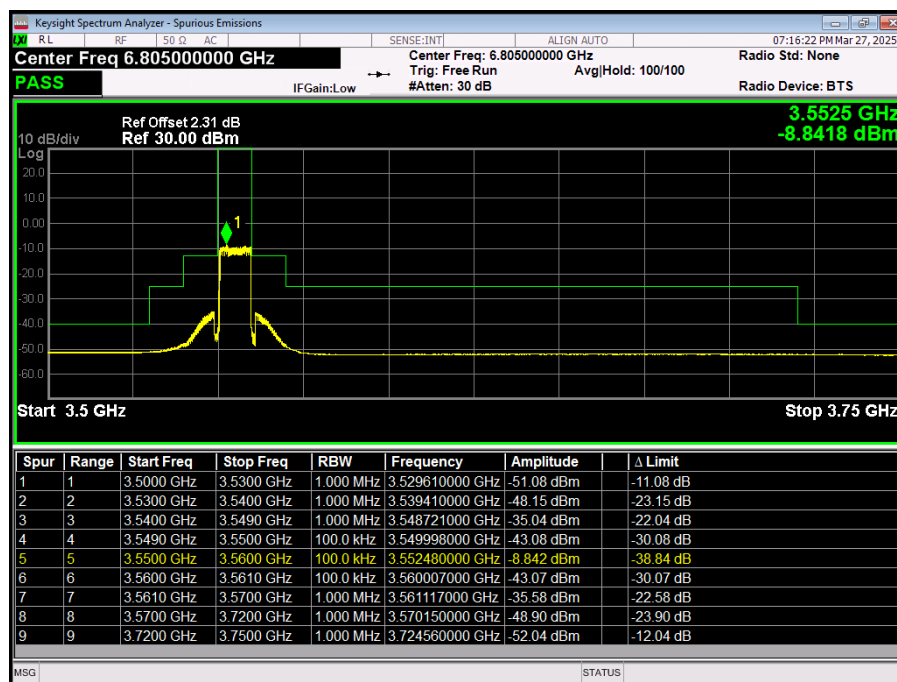
Band48 64QAM BW=10MHz High Channel=56690 RB Size=1 Position=#Max



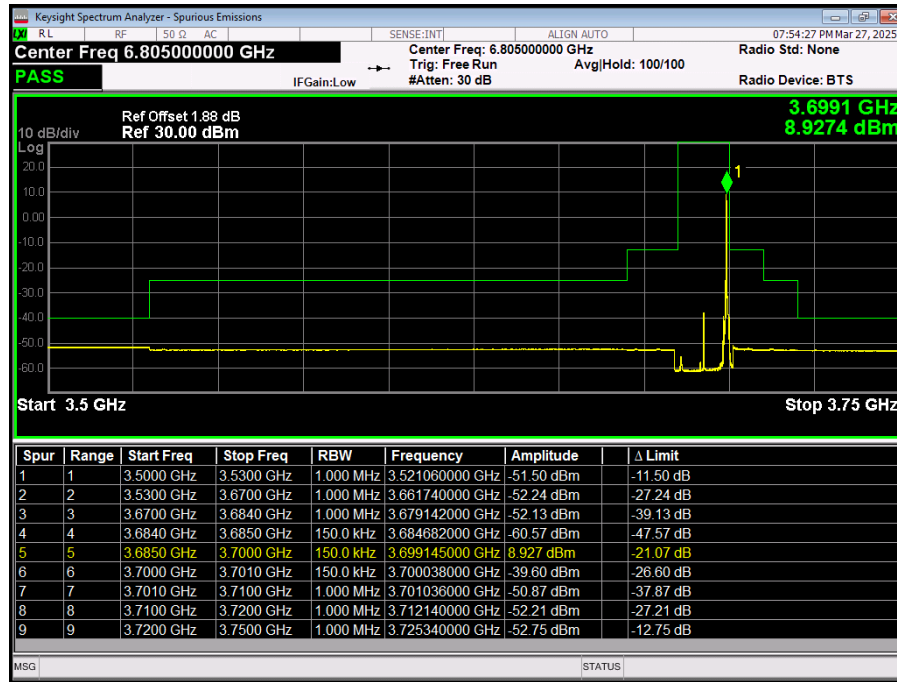
Band48 64QAM BW=10MHz High Channel=56690 RB Size=50 Position=#0



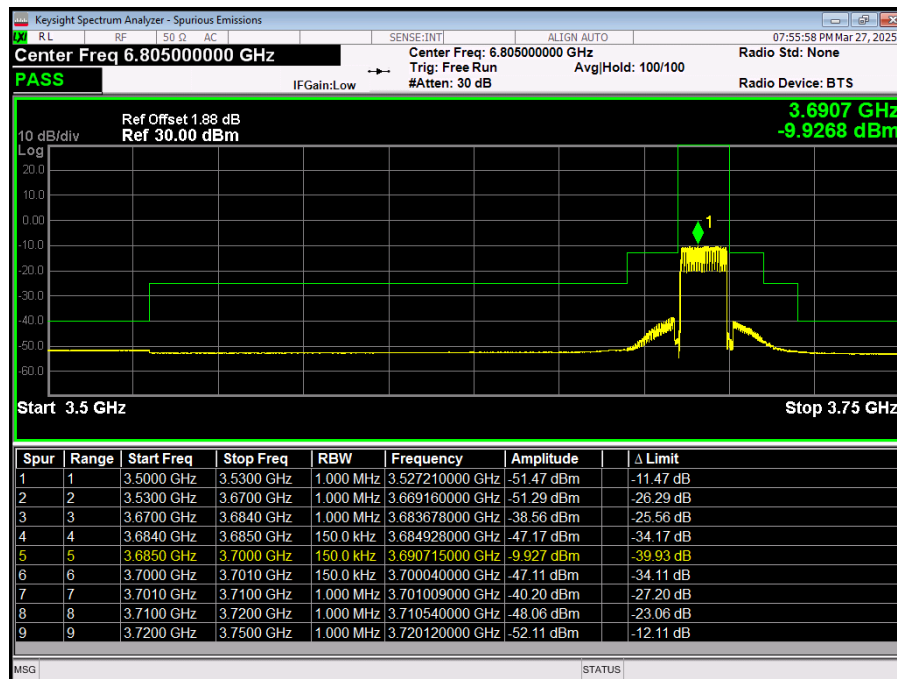
Band48 64QAM BW=10MHz Low Channel=55290 RB Size=1 Position=#0



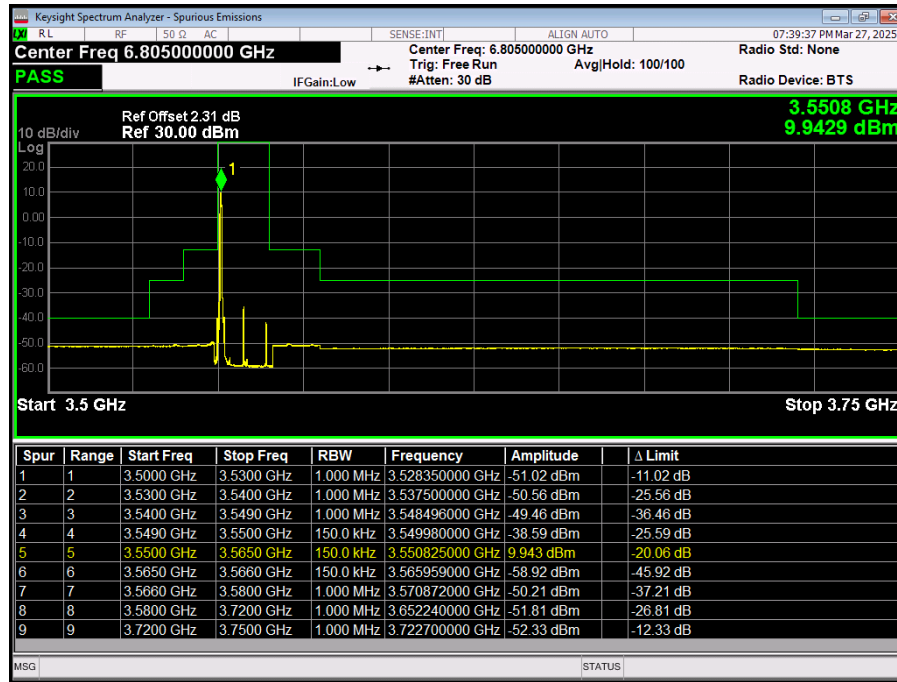
Band48 64QAM BW=10MHz Low Channel=55290 RB Size=50 Position=#0



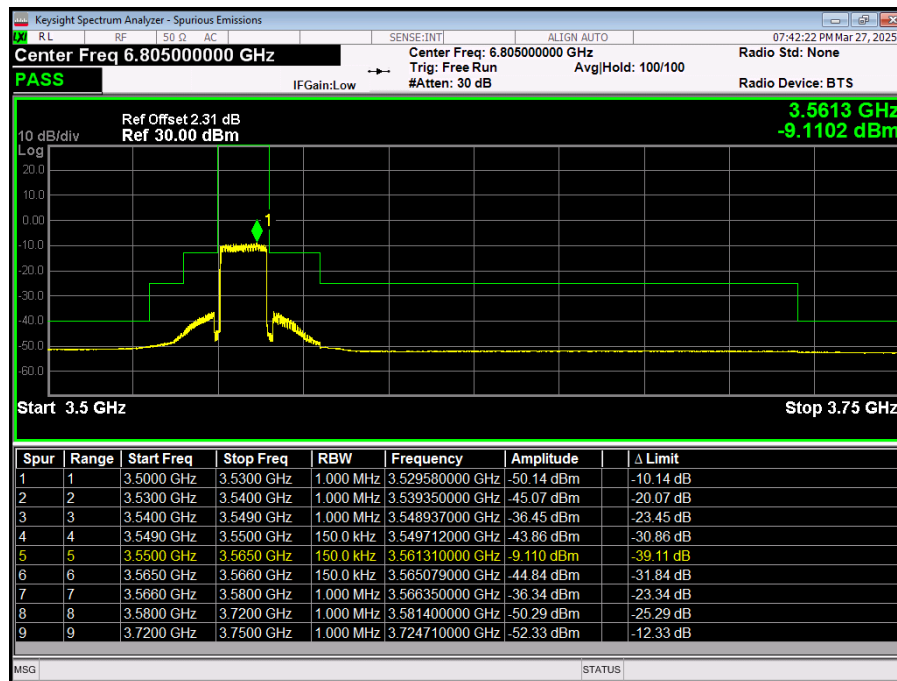
Band48 64QAM BW=15MHz High Channel=56665 RB Size=1 Position=#Max



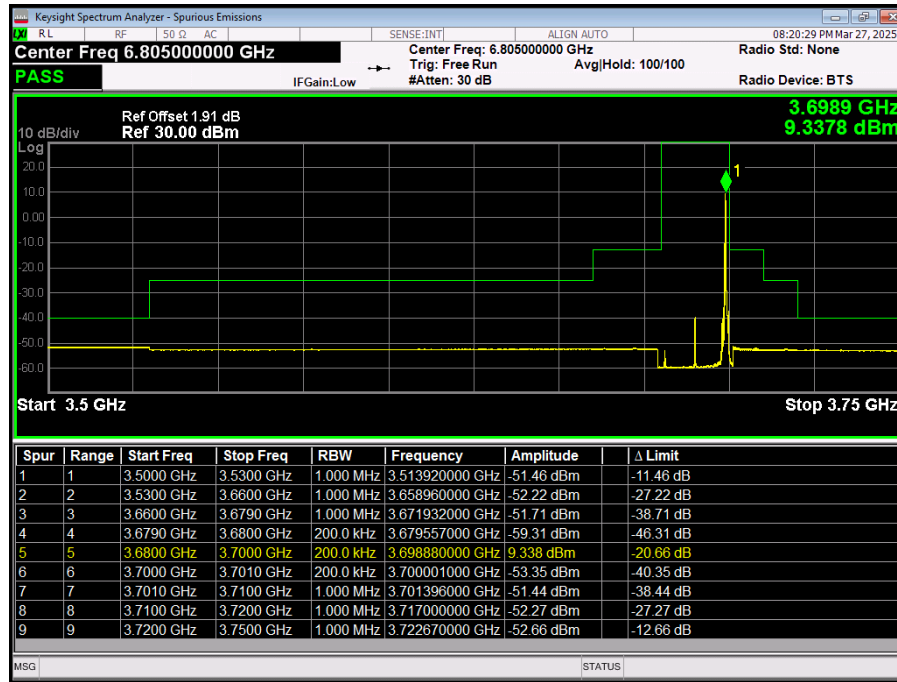
Band48 64QAM BW=15MHz High Channel=56665 RB Size=75 Position=#0



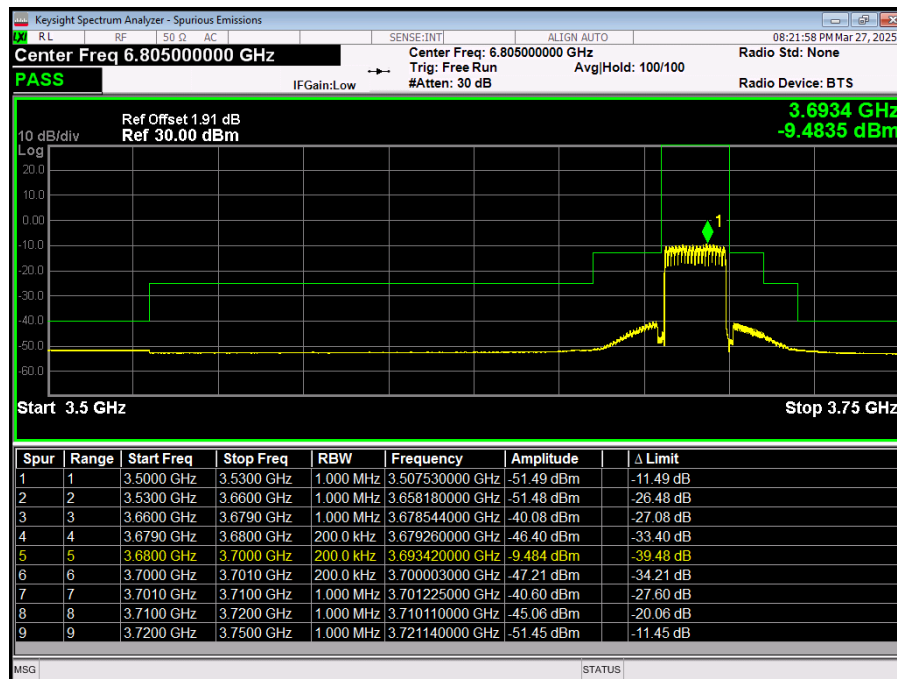
Band48 64QAM BW=15MHz Low Channel=55315 RB Size=1 Position=#0



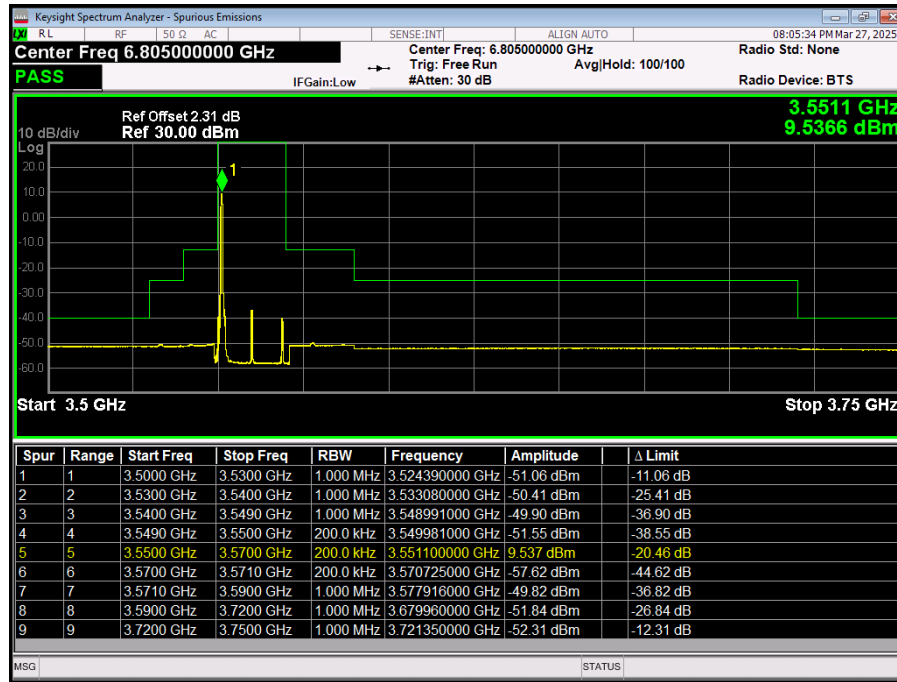
Band48 64QAM BW=15MHz Low Channel=55315 RB Size=75 Position=#0



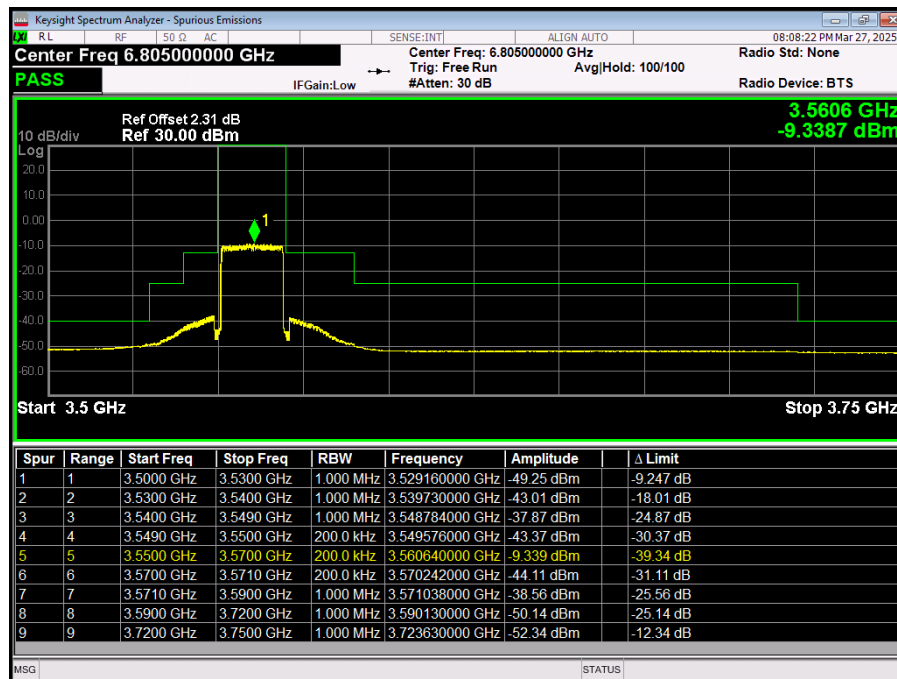
Band48 64QAM BW=20MHz High Channel=56640 RB Size=1 Position=#Max



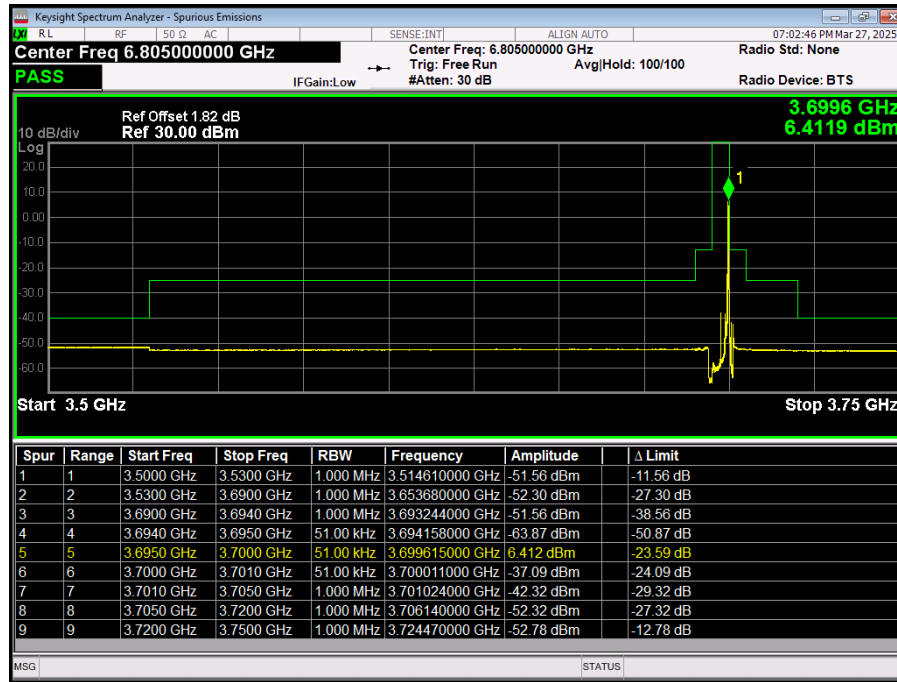
Band48 64QAM BW=20MHz High Channel=56640 RB Size=100 Position=#0



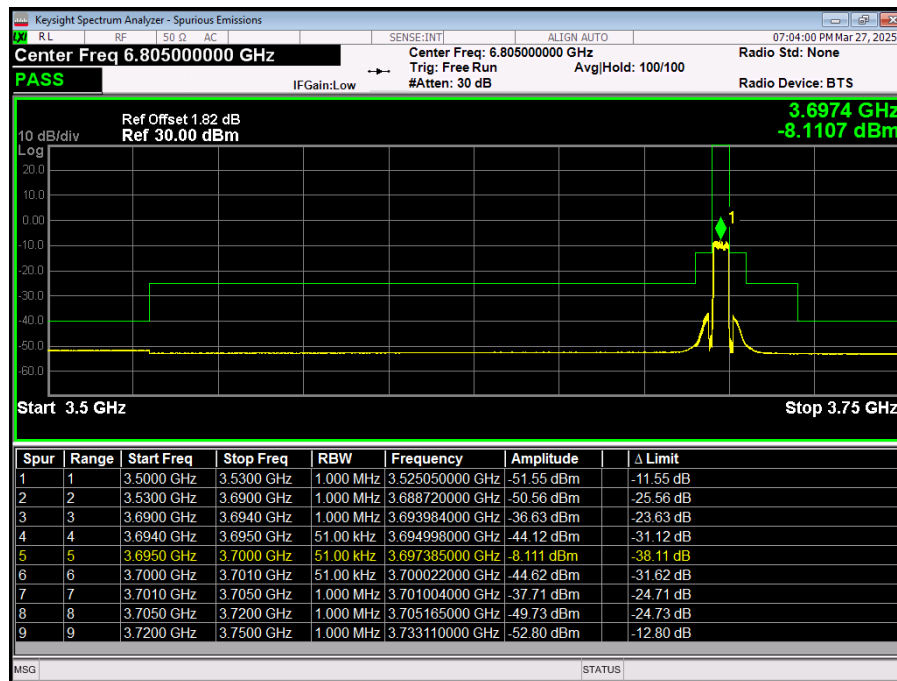
Band48 64QAM BW=20MHz Low Channel=55340 RB Size=1 Position=#0



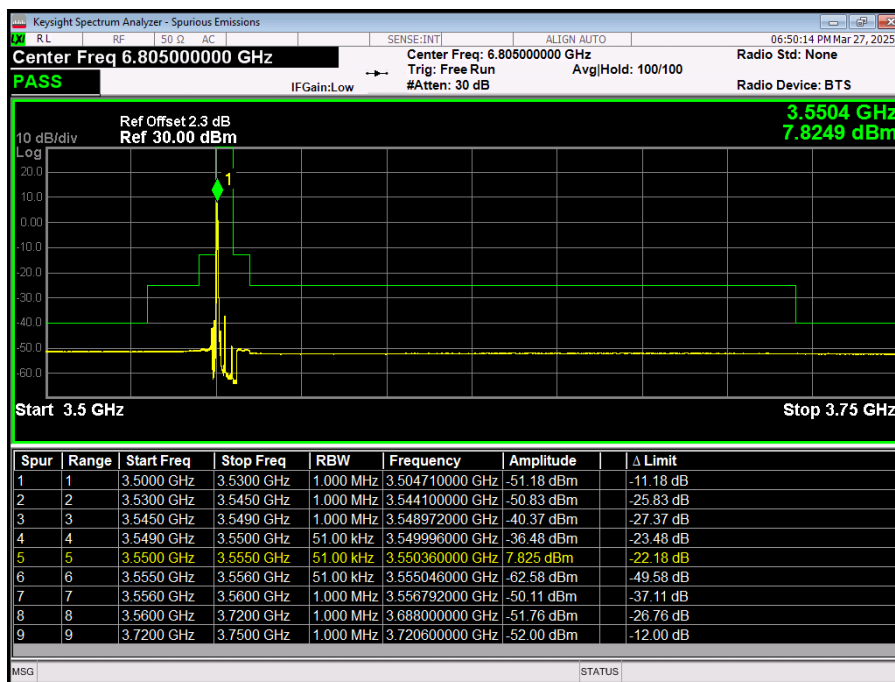
Band48 64QAM BW=20MHz Low Channel=55340 RB Size=100 Position=#0



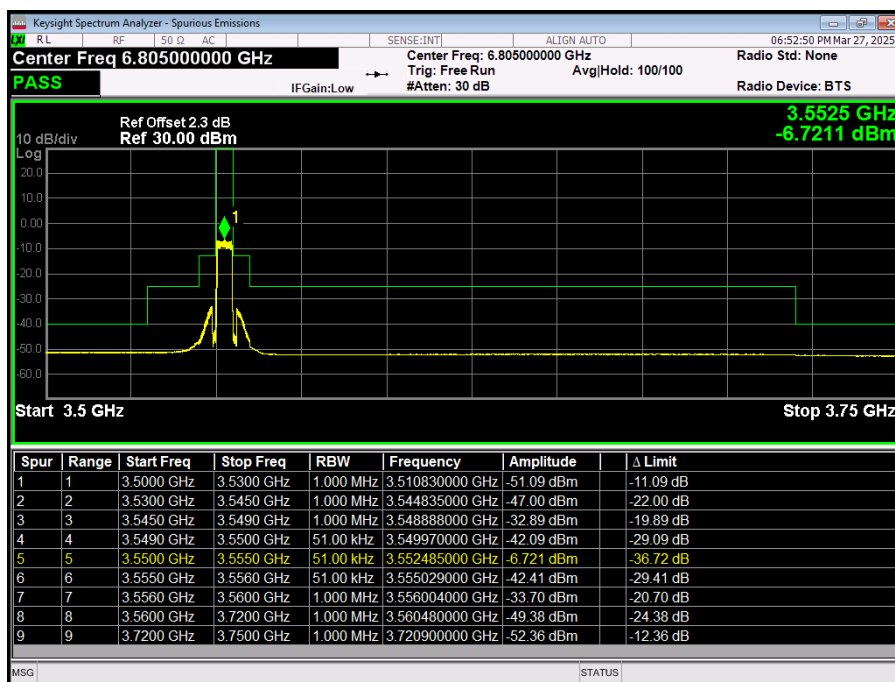
Band48 64QAM BW=5MHz High Channel=56715 RB Size=1 Position=#Max



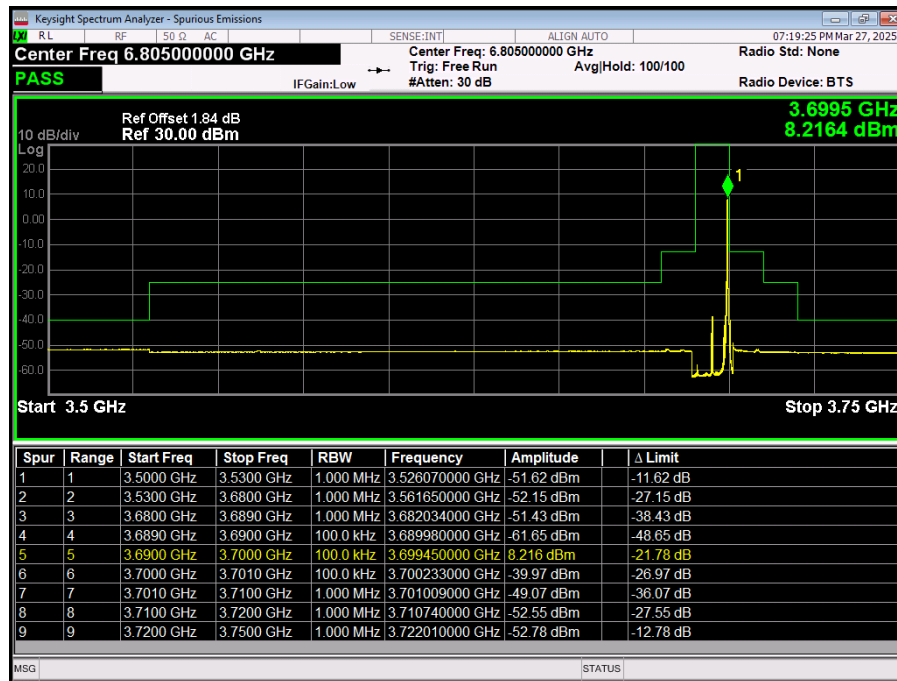
Band48 64QAM BW=5MHz High Channel=56715 RB Size=25 Position=#0



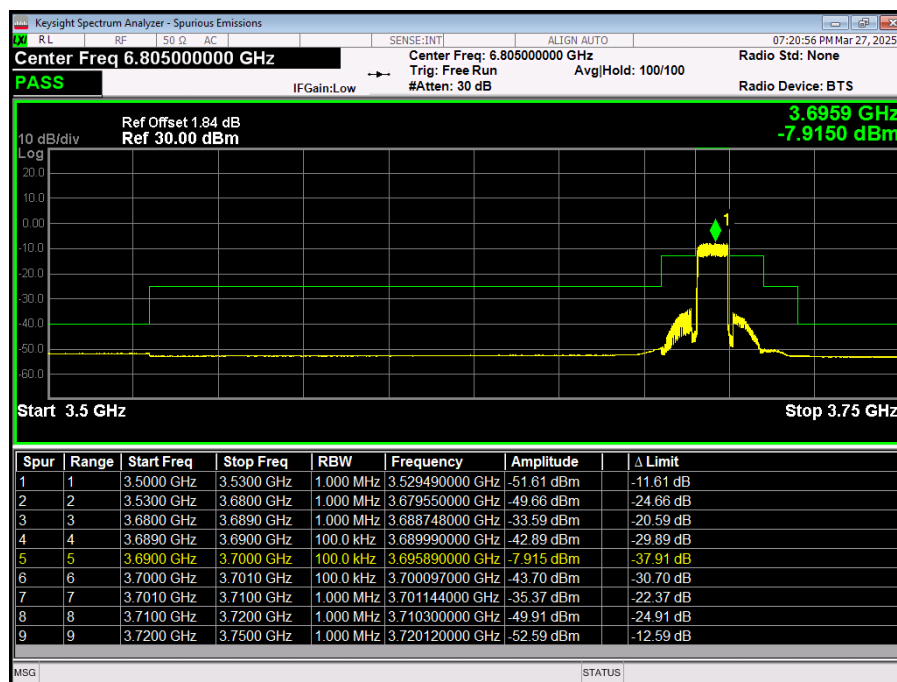
Band48 64QAM BW=5MHz Low Channel=55265 RB Size=1 Position=#0



Band48 64QAM BW=5MHz Low Channel=55265 RB Size=25 Position=#0



Band48 QPSK BW=10MHz High Channel=56690 RB Size=1 Position=#Max



Band48 QPSK BW=10MHz High Channel=56690 RB Size=50 Position=#0