



**CONTENTION BASED PROTOCOL PORTION of FCC 47 CFR PART 15 SUBPART E,  
KDB 987594**

**TEST REPORT**

**FOR**

**LTE/5G Portable Data Transmitter with BT, DTS/UNII a/b/g/n/ac/ax and GPS**

**FCC ID: PY7-46195Y**

**REPORT NUMBER: R15103618-C1**

**ISSUE DATE: 2024-03-12**

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2024-02-29	Initial Issue	Samuel Bryson
V2	2024-03-01	Corrected build number Section 7.2.5	John E. Manser III
V3	2024-03-04	Clarified test setup Section 7.2.1; Corrected antenna gain Sections 7.2.5 & 8.1; Added statement about puncturing and bandwidth reduction Sections 3 & 7.2.5; Added statement about AWGN signal level Section 8.1	Samuel Bryson
V4	2024-03-12	Antenna gain statement corrected in section 7.2.5	John E. Manser III

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Sony Corporation  
1-7-1 Konan Minato-ku  
Tokyo, 108-0075, Japan

**EUT DESCRIPTION:** LTE/5G Portable Data Transmitter with BT, DTS/UNII  
a/b/g/n/ac/ax and GPS

**SERIAL NUMBER:** QV7700J6JP

**DATE TESTED:** 2024-01-31 to 2024-02-28

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
Contention Based Protocol Portion of 47 CFR Part 15 Subpart E, KDB 987594	Complies

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

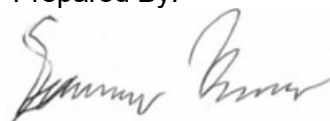
This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released For  
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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the Contention Based Protocol portion of

- FCC 47 CFR Part 15 Subpart E
- FCC KDB 987594 D01 U-NII 6GHz General Requirements v02r02
- FCC KDB 987594 D02 U-NII 6GHz EMC Measurement v02r01

## 3. SUMMARY OF TEST RESULTS

Requirement Description	Result	Remarks
Contention Based Protocol Portion of FCC 47 CFR PART 15 SUBPART E, KDB 987594	Complies	

Channel puncturing and channel bandwidth reduction: Not supported, please refer to section 7.2.5 in the report confirming this.

## 4. REFERENCE DOCUMENTS

Measurements of transmitter parameters as referenced in this report and all other manufacturer's declarations relevant to the RF test requirements are documented in UL LLC report number R15103618-E7.

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for correctly integrating customer-provided data with measurements performed by UL LLC.

## 5. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input type="checkbox"/>	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
<input checked="" type="checkbox"/>	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

## 6. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 6.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

### 6.2. 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).

### 6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	$U_{Lab}$
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Power Spectral Density	2.47 dB
RF Power Measurement Direct Method Using Power Meter	1.3 dB (PK) / 0.45 dB (AV)
Unwanted Emissions, Conducted	1.94 dB
Worst Case Conducted Disturbance, 9kHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9kHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB
Time Domain Measurements	0.02%
Temperature	0.57°C
Humidity	3.39%
DC Supply Voltages	0.57%

Uncertainty figures are valid to a confidence level of 95%.

## 7. CONTENTION BASED PROTOCOL

### 7.1. OVERVIEW

#### 7.1.1. LIMITS

**FCC**

FCC Part 15 Subpart E, FCC KDB 987594 “U-NII 6 GHz devices operating in the 5.925-7.125 GHz band”; Section I.

#### 7.1.2. FREQUENCY BANDS AND GOVERNING RULES

**FCC**

Band	Frequency (GHz)	Rules	Notes	KDB/Publication
U-NII 5	5.925-6.425	15.407(a)(4) – (8)	Low Power Indoor AP, Subordinates, Indoor Clients Standard Power AP, Fixed , Standard Clients & Dual Client	789033 (U-NII) 987594 (6 GHz Band)
U-NII 6	6.425-6.525	15.407(a)(5), (6), (8)	Low Power Indoor AP, Subordinates, Indoor Clients & Dual Client	
U-NII 7	6.525-6.875	15.407(a)(4) – (8)	Low Power Indoor AP, Subordinates, Indoor Clients Standard Power AP, Fixed & Standard Clients & Dual Client	
U-NII 8	6.875 -7.125	15.407(a)(5), (6), (8)	Low Power Indoor AP, Subordinates, Indoor Clients & Dual Client	
* Transition period ended March 2, 2020 for marketing DTS in the 5 GHz Band, as stated in 15.408(b)(4)(ii)				

**Table 1: Overview of U-NII Rules**



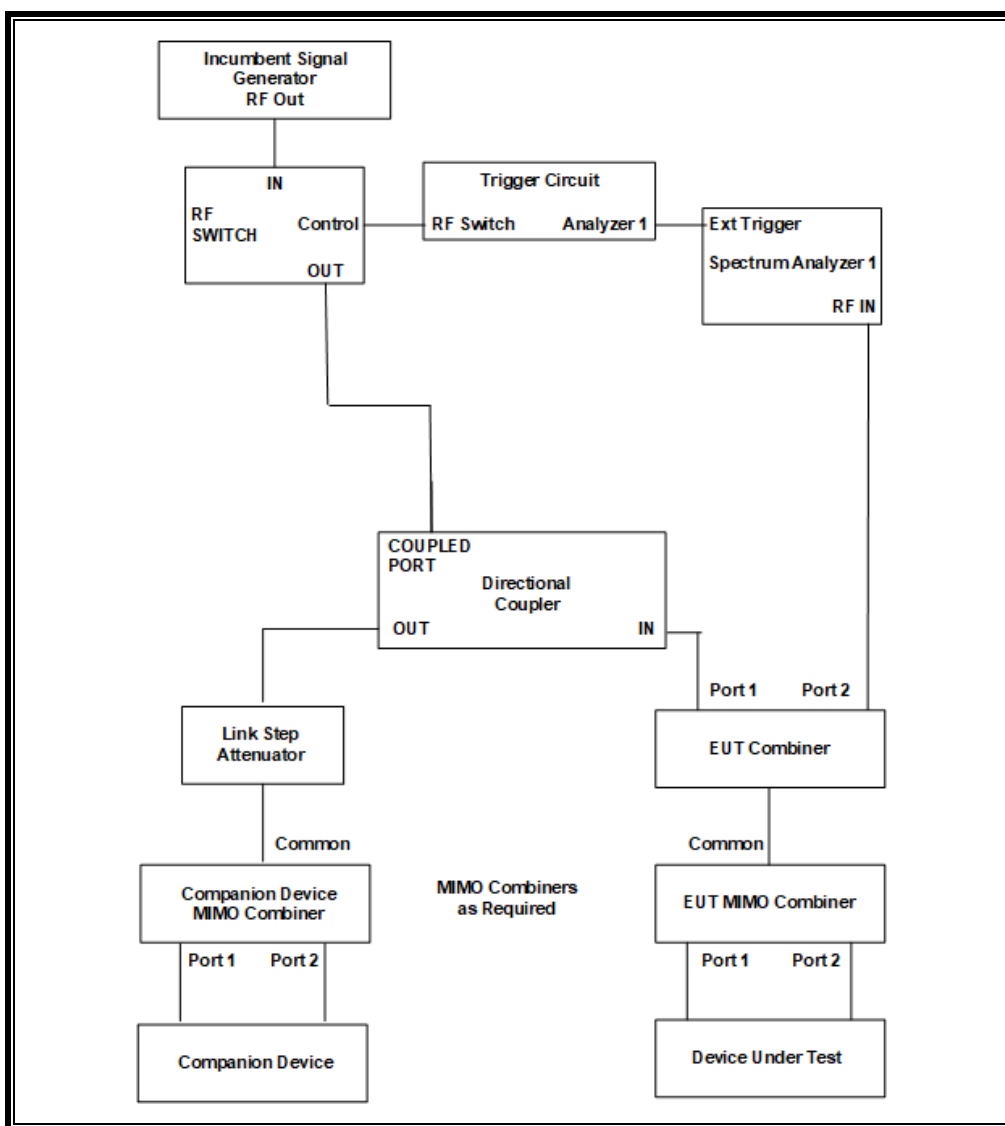
## 7.2. DESCRIPTION OF TEST SETUP

### 7.2.1. TEST AND MEASUREMENT SYSTEM

These tests were performed using a Conducted instrument configuration.

#### CONDUCTED TEST CONFIGURATION

**NOTE:** This is a comprehensive setup diagram of the receiver performance test and measurement system. Not all of the devices shown below are used for every applicable receiver test. Also, coupler port designations “IN” and “OUT” refer to labeling on the coupler, not the RF signal flow.



**SYSTEM OVERVIEW**

Should multiple RF ports be utilized for the EUT and/or Companion devices (for example, for diversity or MIMO implementations), combiner/dividers are inserted between the EUT MIMO Combiner/Divider and the attenuator connected to the EUT (and/or between the Companion MIMO Combiner/Divider and the attenuator connected to the Companion Device). Additional attenuators may be utilized such that there is one attenuator at each RF port on each device. This testing was performed in a MIMO configuration with two transmit/receive chains on the EUT.

**SYSTEM CALIBRATION**

The monitoring cable is disconnected from the spectrum analyzer and a 50-ohm load is connected to the end of the monitoring cable in place of the spectrum analyzer. The cable connected to one of the ports on the EUT is then attached to the spectrum analyzer in place of the monitoring cable. The cable connected to the other EUT port is terminated. A signal generator is then set to produce a modulated AWGN Incumbent Signal that has a 99% occupied power bandwidth of 10 MHz. The output amplitude of the signal generator is adjusted to yield the allowable maximum AWGN Incumbent Signal level as measured on the spectrum analyzer. The EUT and monitoring cables are then returned to their original configurations to perform the test.

**TEST AND MEASUREMENT EQUIPMENT**

The following test and measurement RF equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	ID No.	Cal Due
Spectrum Analyzer, PXA, 3Hz to 8.4GHz	Keysight	N9030A	89232	2024-08-02
Signal Generator, MXG X-Series RF Vector*	Keysight	N5182B	215042	2024-01-31
Frequency Extender*	Keysight	N5182BX	215272	2024-01-31
Signal Generator, MXG X-Series RF Vector*	Keysight	N5182B	215042	2025-02-06
Frequency Extender*	Keysight	N5182BX	215272	2025-02-06

**Notes:**

- 1) An MXG series Signal Generator and separate external Frequency Extender module are shown in the preceding test system block diagram as a stand-alone Incumbent Signal Generator.
- 2) The test equipment with asterisk above was calibrated at all times during testing.

## 7.2.2. TEST AND MEASUREMENT SOFTWARE

The following test and measurement software was utilized for the tests documented in this report:

TEST SOFTWARE LIST		
Name	Version	Test / Function
PXA Read	3.1	Signal Generator Screen Capture

## 7.2.3. TEST ROOM ENVIRONMENT

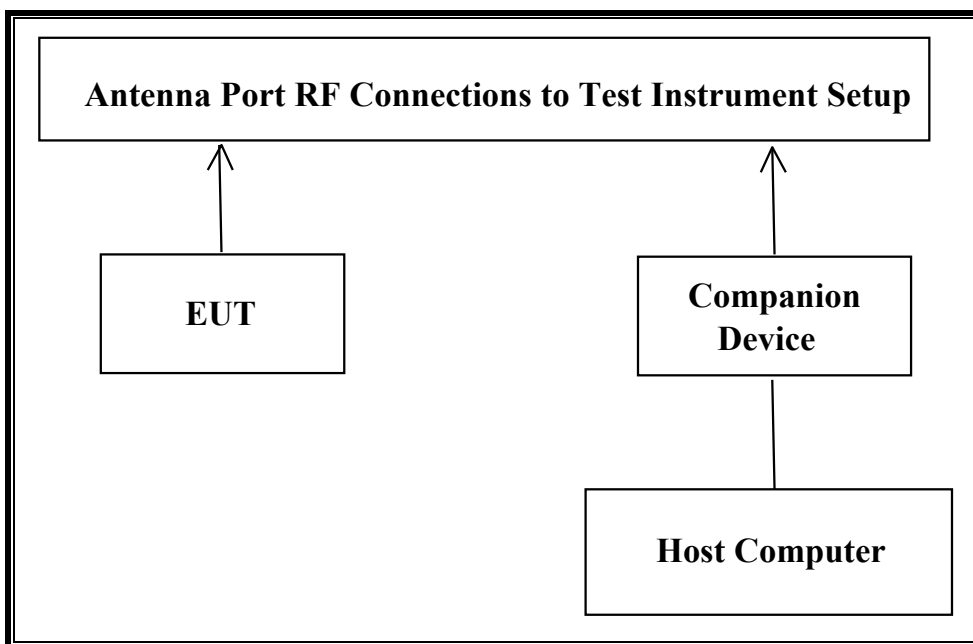
The test room temperature and humidity shall be maintained within normal temperature of 15~35 °C and normal humidity 20~75% (relative humidity).

### ENVIRONMENT CONDITION

Parameter	Value
Temperature	21.5 – 23.8 °C
Humidity	26 – 31 %

### 7.2.4. SETUP OF EUT

#### CONDUCTED METHOD EUT TEST SETUP



#### SUPPORT EQUIPMENT

The following support equipment was utilized for the tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Access Point	ASUS	RT-BE96U	R8IG6G200663DZ3	MSQ-RTBE6G00
AP Power Supply	Ac Bel	ADDD011 LPS	ADD01117AG2207065 64A	N/A
Control Laptop	HP	14-dk1003dx	5CGO16B3DL	TX2-RTL8821CE
Laptop Power Supply	HP	HSTNN-CA40	N/A	N/A
RF Shielded Chamber	OctoScope	OB-26	OB2650224-01	N/A

### **7.2.5. DESCRIPTION OF EUT**

The EUT operates in the following bands: U-NII 5 (5925 MHz-6425 MHz), U-NII 6 (6425 MHz-6525 MHz), U-NII 7 (6525 MHz-6875 MHz) and U-NII 8 (6875 MHz-7125 MHz).

The EUT is classified as a 6 GHz Low Power Indoor Client Device.

There are two antennas, but each has been measured and the values listed (tested) are for the antenna assembly with the lowest gain utilized within the EUT, which has a gain of -2.34 dBi in the U-NII 5 band, -1.78 dBi in the U-NII 6 band, -1.84 dBi in the U-NII 7 band and -2.89 dBi in the U-NII 8 band.

The calibrated conducted AWGN Incumbent Detection Threshold level is set to -62 dBm. The tested level is lower than the maximum allowable level hence it provides a margin to the limit.

Two antennas are utilized to meet the diversity and MIMO operational requirements.

The EUT uses two transmitter/receiver chains, each connected to a 50-ohm coaxial antenna port. All antenna ports are connected to the test system via a power divider to perform conducted tests.

Channel puncturing is not supported.

Channel bandwidth reduction is not supported.

WLAN traffic was generated by transferring a data stream from the EUT to the Companion Device using iPerf version 3.0.10 software package.

The EUT utilizes the 802.11ax architecture. Four nominal channel bandwidths are implemented: 20 MHz, 40 MHz, 80 MHz and 160 MHz.

The software installed in the EUT is:  
Build Number 0.95  
Magic iPerf 3.1

The software installed in the Companion Device is 3.0.0.6.102\_32882.

### **TEST SETUP**

The EUT is linked to a companion 802.11 wireless radio device. A commercial traffic generation program (iPERF) was utilized to generate traffic from the EUT to the companion radio device.

## 8. CONTENTION BASED PROTOCOL

### 8.1. LIMITS AND PROCEDURES

#### LIMITS

FCC Part 15 Subpart E, FCC KDB 987594 “U-NII 6 GHz devices operating in the 5.925-7.125 GHz band”; Section I.

#### AWGN INCUMBENT SIGNAL DETECTION THRESHOLD

FCC Part 15 Subpart E, FCC KDB 987594 “U-NII 6 GHz devices operating in the 5.925-7.125 GHz band”; Section I, Clause (c), Step 6.

For an EUT with a non-zero dBi antenna gain the maximum detection threshold level,  $T_L$ , of the 10 MHz wide AWGN Incumbent Signal at the port of the radio module in a conducted test setup shall be no greater than -62 dBm/MHz. It shall be adjusted by the gain of the bypassed antenna as shown in the table below:

Band	Frequency Range (MHz)	Antenna Gain (dBi)	$T_L$ at Radio Port (dBm/MHz)
U-NII 5	5925 to 6425	-2.34	-64.34
U-NII 6	6425 to 6525	-1.78	-63.78
U-NII 7	6525 to 6875	-1.84	-63.84
U-NII 8	6875 to 7125	-2.89	-64.89

#### TEST PROCEDURE

FCC Part 15 Subpart E, FCC KDB 987594 “U-NII 6 GHz devices operating in the 5.925-7.125 GHz band”; Section I, Clause (c).

Testing is performed by starting at a level much lower than required detection level and then the level is increased.

## 8.2. U-NII 5 BAND TEST CONDITION 1 RESULTS

### TEST CONDITION 1 CRITERIA

$$99\% BW_{EUT} \leq 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.3. U-NII 5 BAND TEST CONDITION 2 RESULTS

### TEST CONDITION 2 CRITERIA

$$99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$$

### 8.3.1. TEST CHANNEL

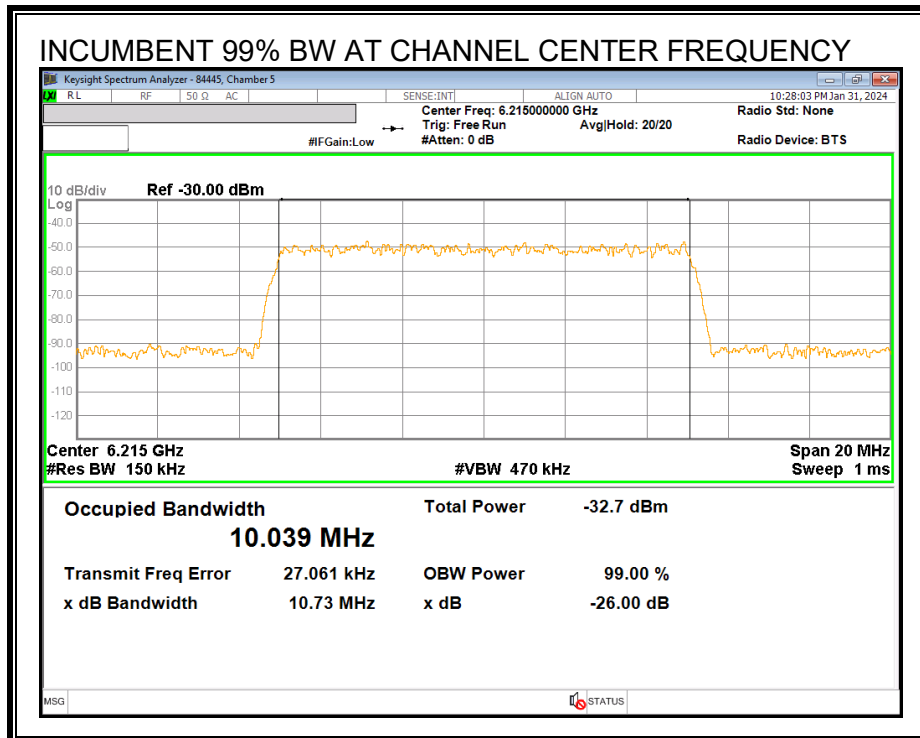
All tests were performed with the EUT set to a channel center frequency of 6215 MHz and a nominal channel bandwidth of 20 MHz.

Only the lowest and highest supported channel bandwidths are required to be tested.

### 8.3.2. INCUMBENT SIGNAL PLOTS

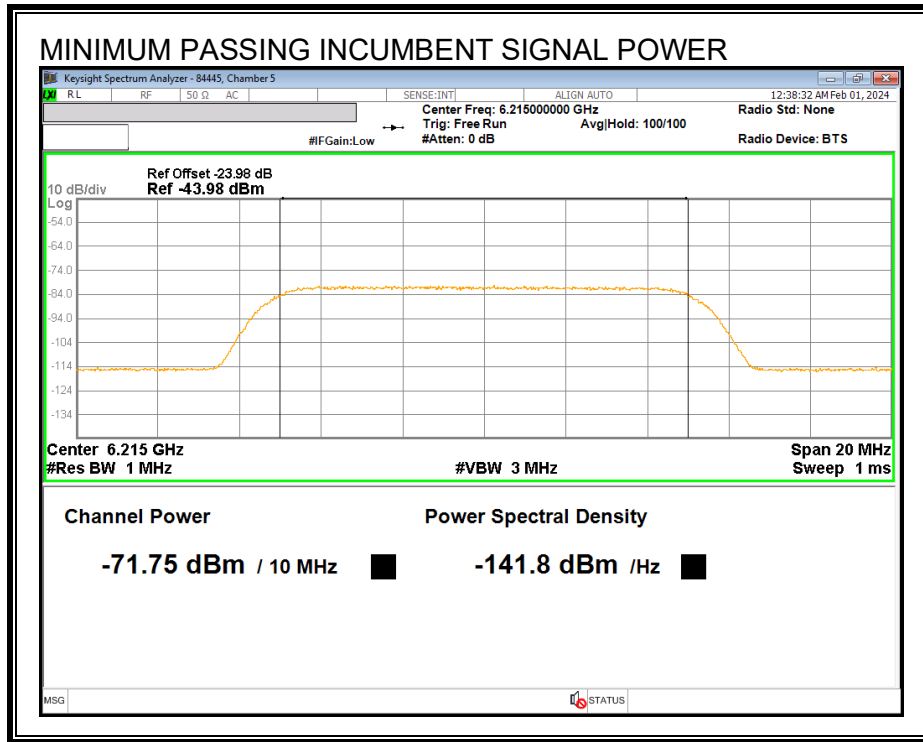
All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH



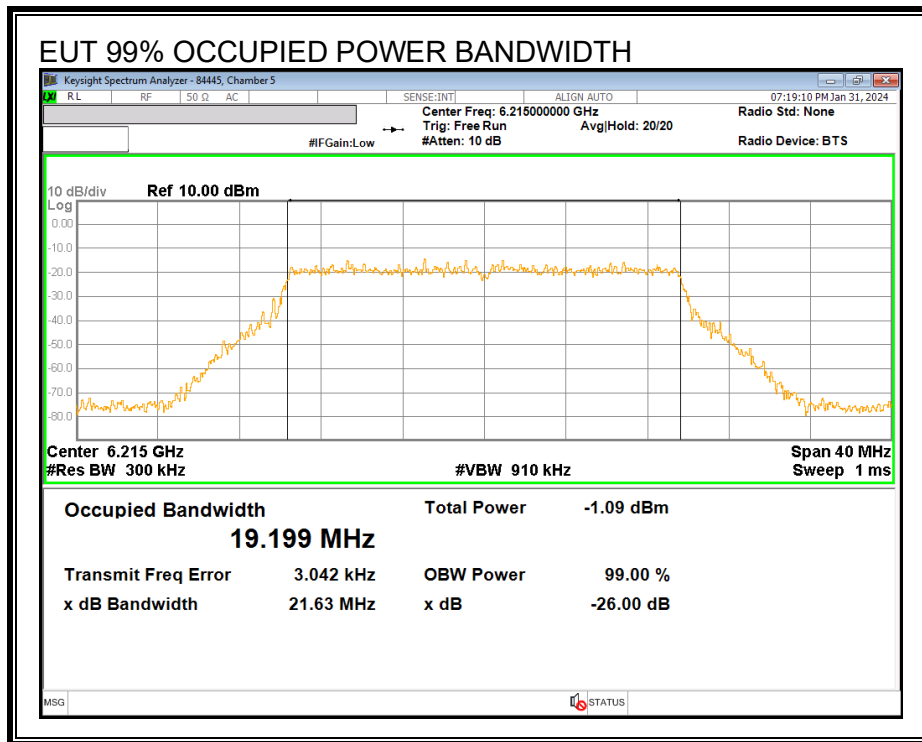


**MINIMUM PASSING INCUMBENT SIGNAL POWER**



### 8.3.3. EUT TRANSMISSION PLOTS

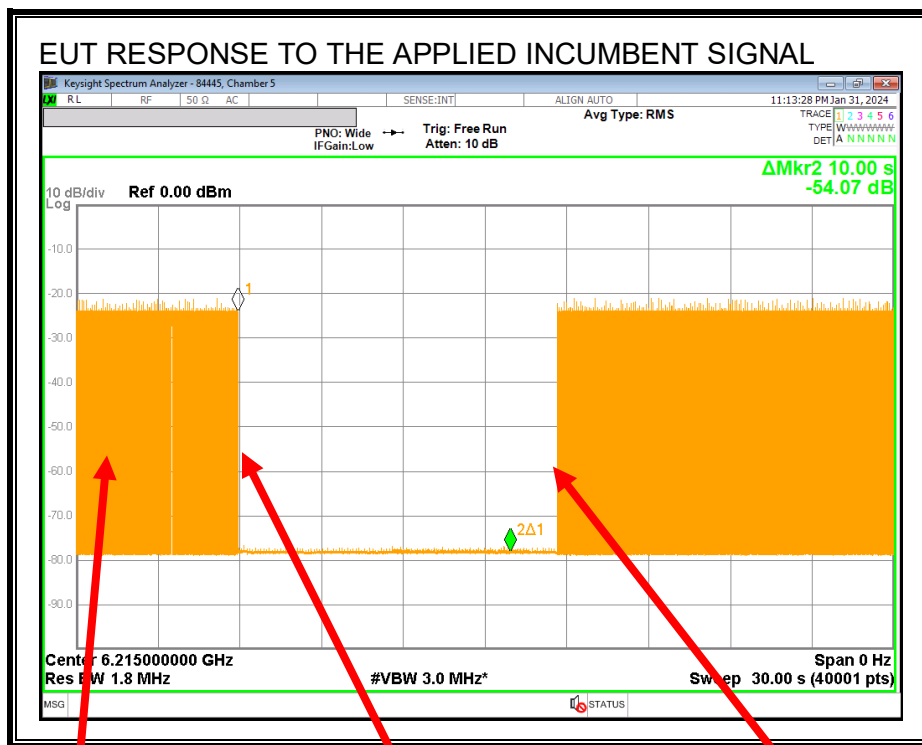
#### EUT 99% OCCUPIED POWER BANDWIDTH





### EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### 8.3.4. TABULATED TEST RESULTS

#### INCUMBENT SIGNAL DETECTION RESULTS

EUT Channel Center Frequency, $f_{c1}$ (MHz)	6215
EUT Nominal Channel Bandwidth (MHz)	20
99% Occupied Bandwidth of the EUT (MHz)	19.199
EUT 99% OBW Lower Edge, $F_L$ (MHz)	6205.40
EUT 99% OBW Upper Edge, $F_H$ (MHz)	6224.60
Test Frequency of Incumbent Signal (MHz)	<b>6215</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-2.34
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-64.3
Lowest Passing Measured Incumbent Signal Amplitude (dBm)	-71.8
Margin (dBm)	-7.41
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

	AWGN Detected (Yes / No)
Trial	Incumbent AWGN at $f_{c1}$
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	No
7	Yes
8	Yes
9	Yes
10	Yes
<b>Test Result</b>	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.

### 8.3.5. Tx OPERATIONAL STATUS TEST RESULTS

**Test Condition 2:  $99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$**

**Incumbent AWGN at  $f_{c1}$ :**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-71.75	-2.34	0	-69.41	-62	Ceased
-75.2	-2.34	0	-72.86	-62	Minimal
-77.7	-2.34	0	-75.36	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

## 8.4. U-NII 5 BAND TEST CONDITION 3 RESULTS

### TEST CONDITION 3 CRITERIA

$$2 \times 99\% BW_{INC} < 99\% BW_{EUT} \leq 4 \times 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.5. U-NII 5 BAND TEST CONDITION 4 RESULTS

### TEST CONDITION 4 CRITERIA

$$99\% BW_{EUT} > 4 \times 99\% BW_{INC}$$

### 8.5.1. TEST CHANNEL

All tests were performed with the EUT set to a channel center frequency of 6185 MHz and a nominal channel bandwidth of 160 MHz.

Only the lowest and highest supported channel bandwidths are required to be tested.

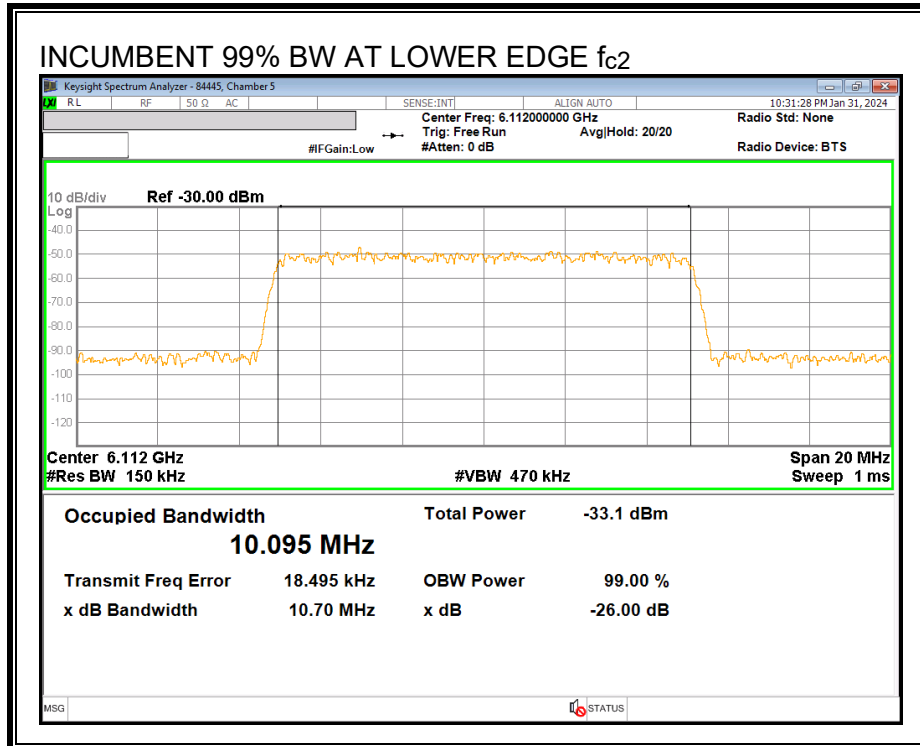


### 8.5.2. INCUMBENT SIGNAL PLOTS

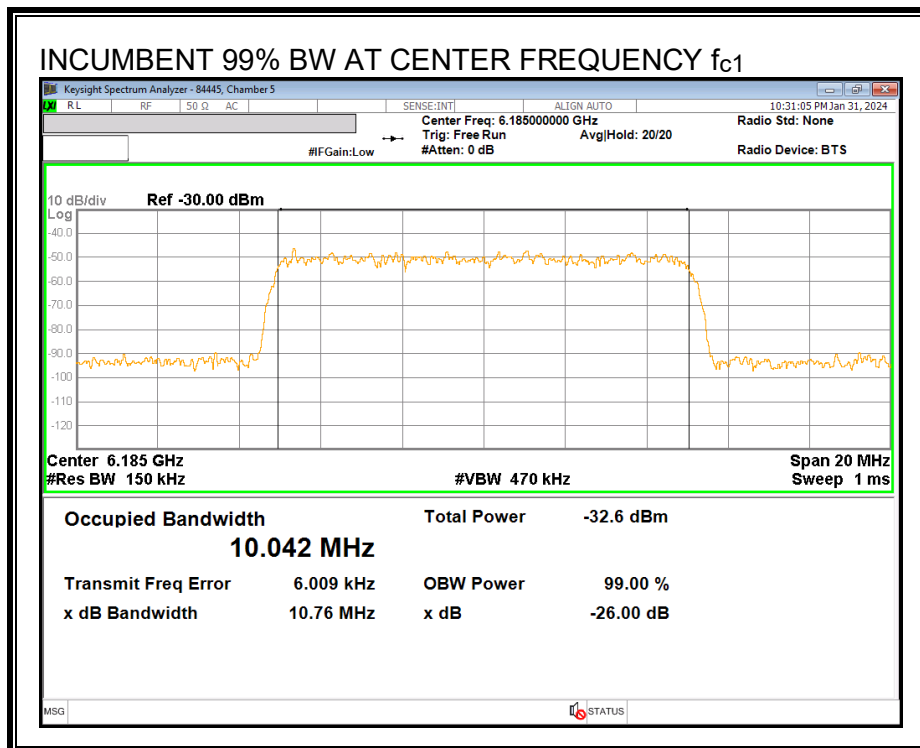
All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH

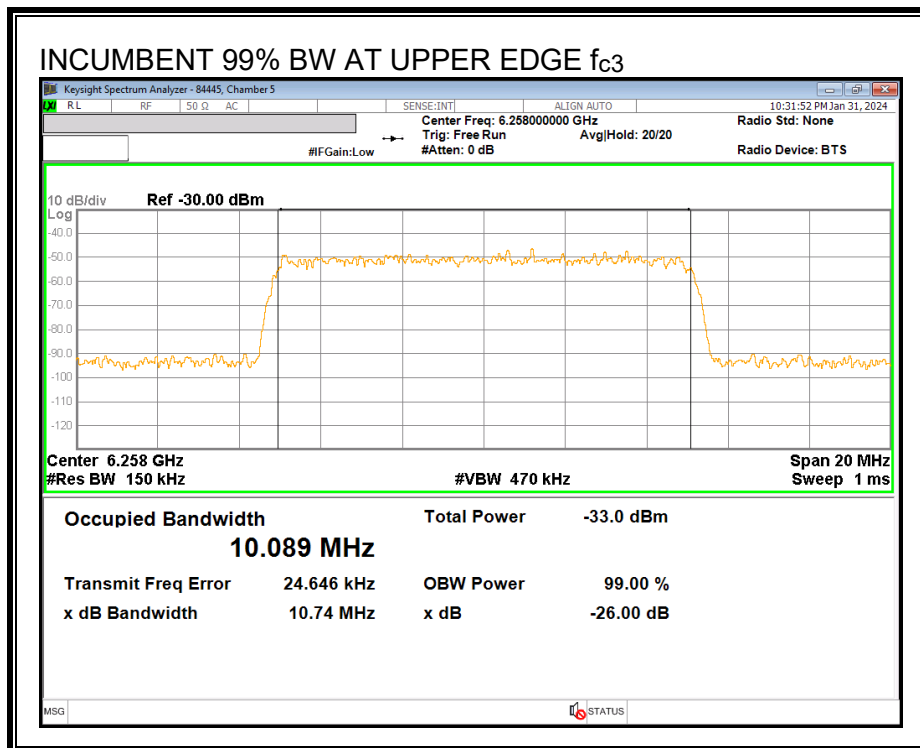
Lower Edge Incumbent Signal  $f_{c2}$ :



**Center Frequency Incumbent Signal  $f_{c1}$ :**

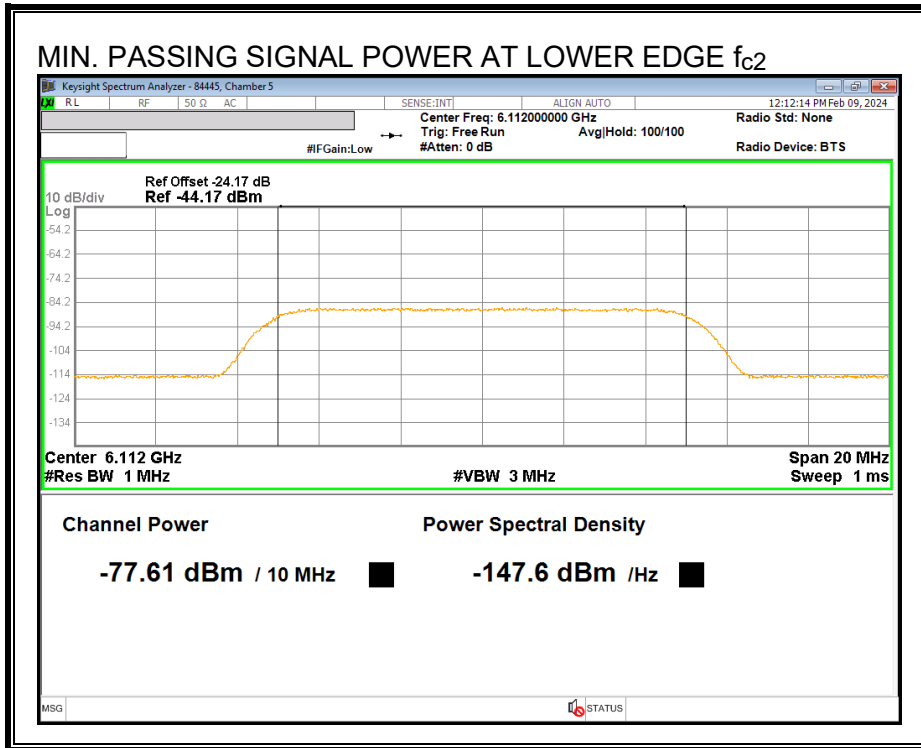


Upper Edge Incumbent Signal  $f_{c3}$ :

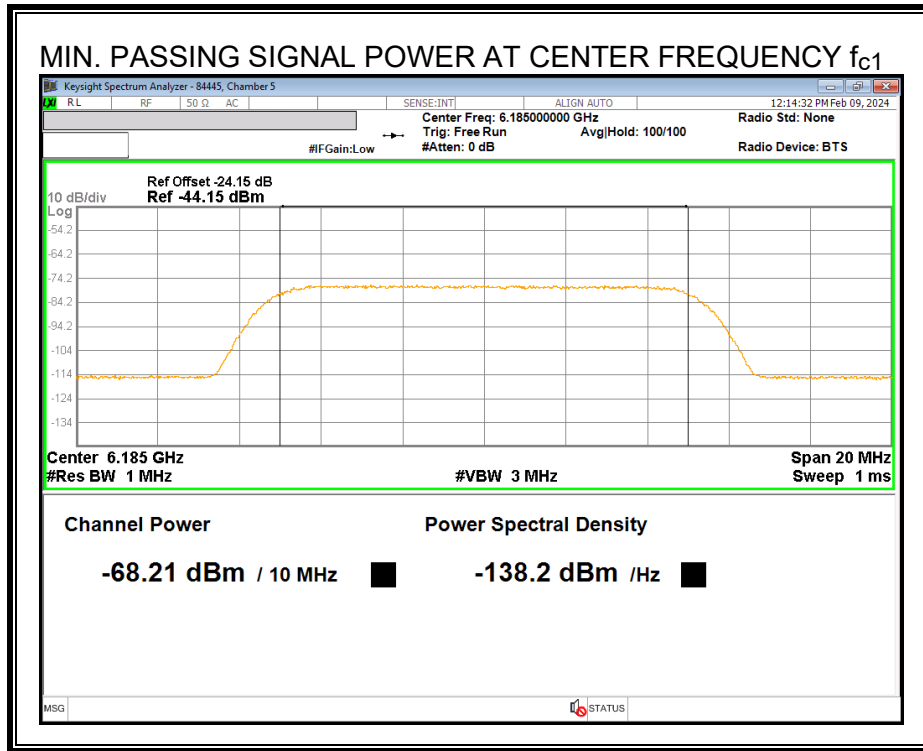


**MINIMUM PASSING INCUMBENT SIGNAL POWER**

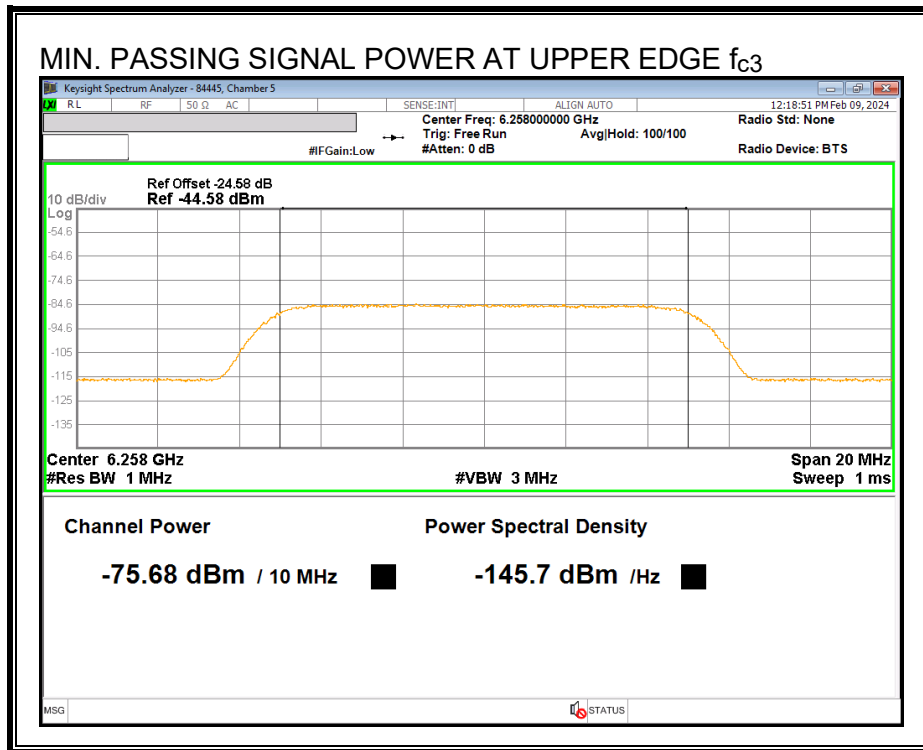
**Lower Edge Incumbent Signal  $f_{c2}$ :**



**Center Frequency Incumbent Signal  $f_{c1}$ :**

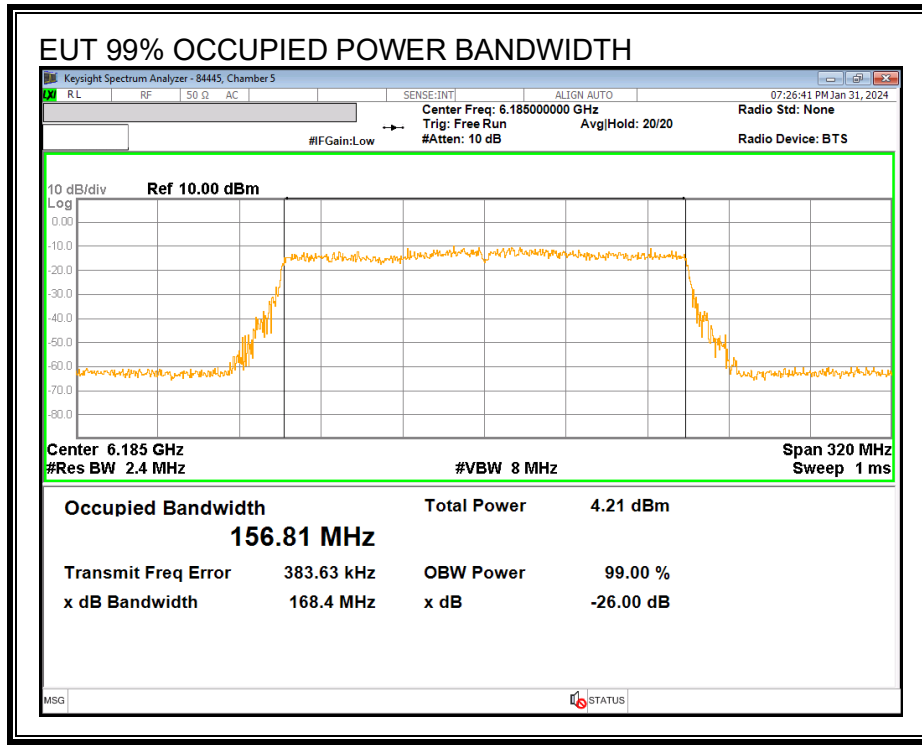


Upper Edge Incumbent Signal  $f_{c3}$ :



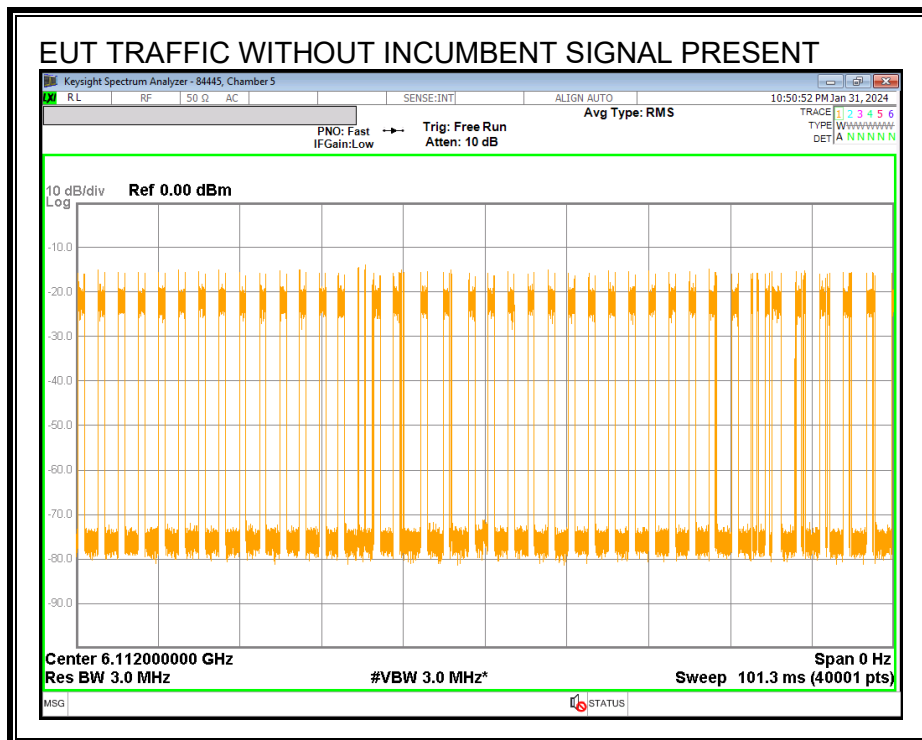
### 8.5.3. EUT TRANSMISSION PLOTS

#### EUT 99% OCCUPIED POWER BANDWIDTH



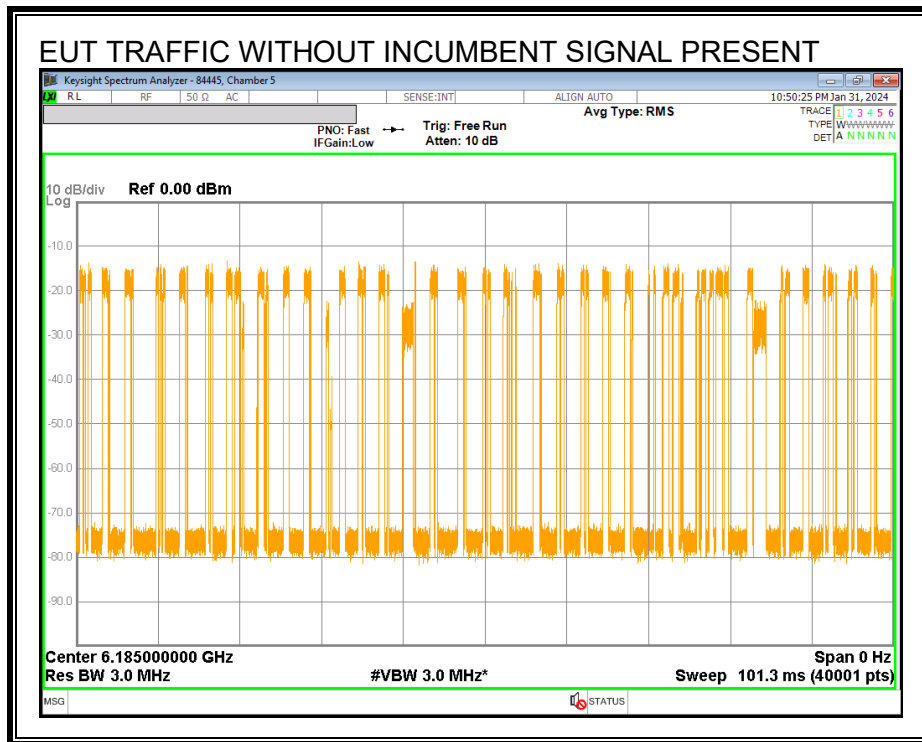
**TRAFFIC WITHOUT THE INCUMBENT SIGNAL PRESENT**

**Lower Edge  $f_{c2}$ :**

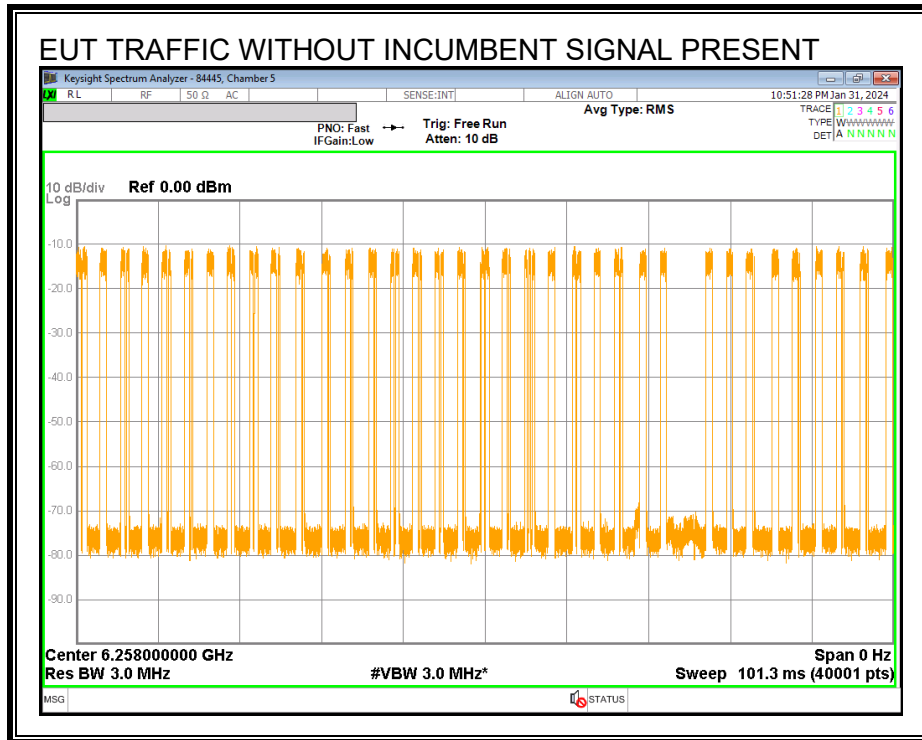




Center Frequency  $f_{c1}$ :



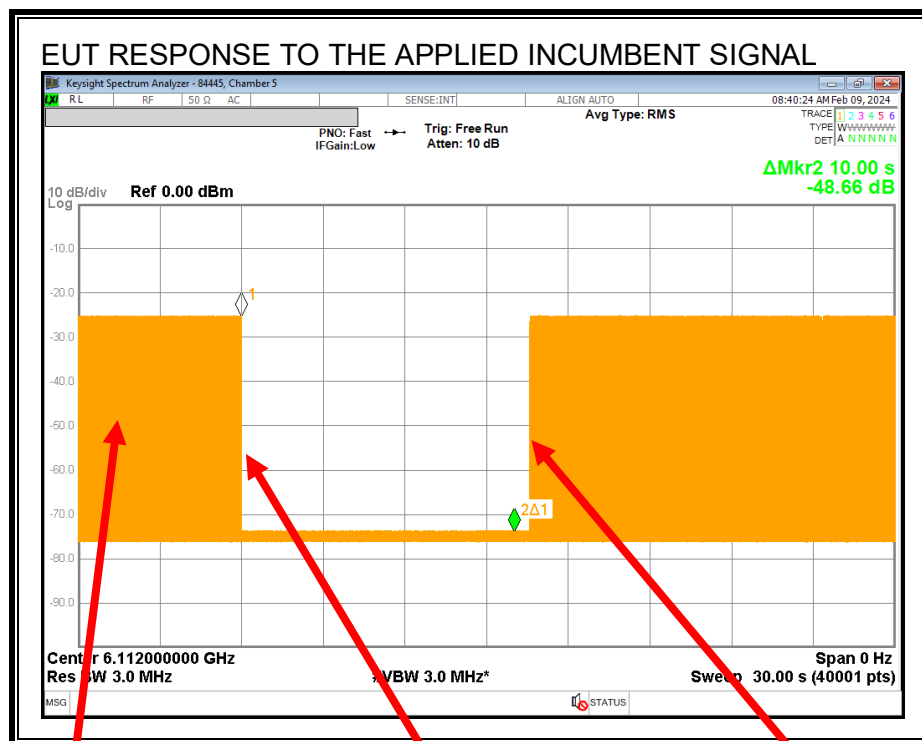
Upper Edge  $f_{c3}$ :



### EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.

#### Lower Edge Incumbent Signal $f_{c2}$ :



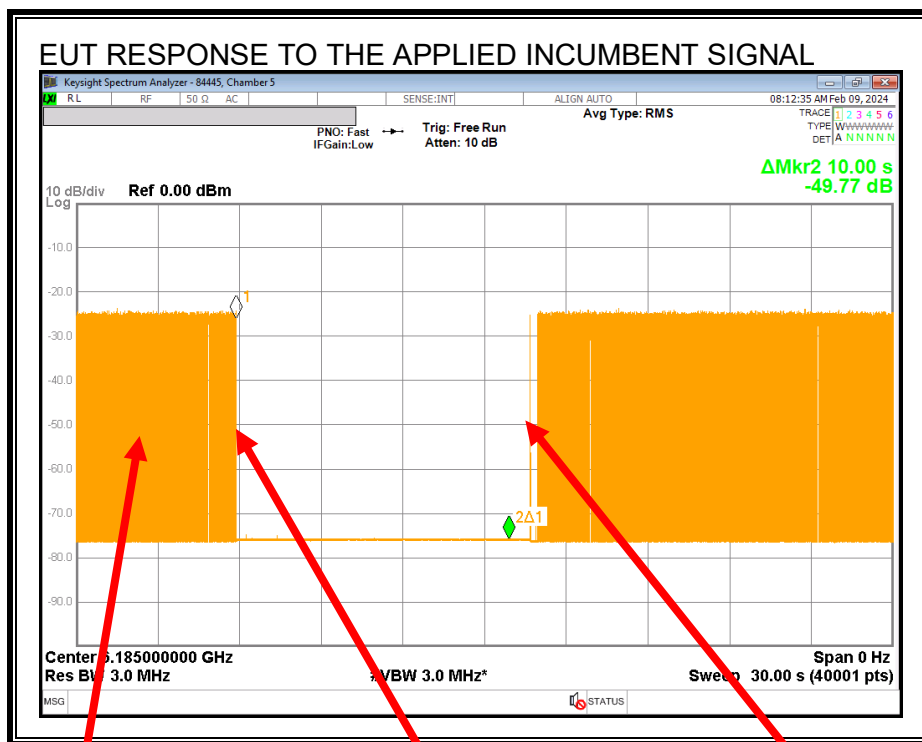
Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### Center Frequency Incumbent Signal $f_{c1}$ :



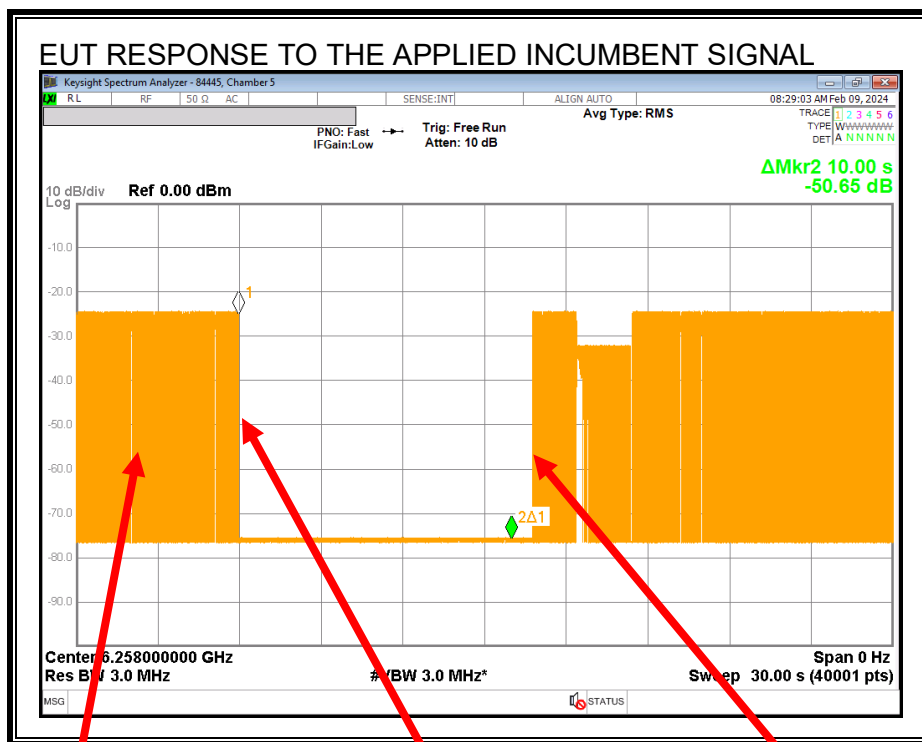
Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### Upper Edge Incumbent Signal $f_{c3}$ :



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### 8.5.4. TABULATED TEST RESULTS

#### INCUMBENT SIGNAL DETECTION RESULTS

EUT Channel Center Frequency, $f_{c1}$ (MHz)	6185
EUT Nominal Channel Bandwidth (MHz)	160
99% Occupied Bandwidth of the EUT (MHz)	156.81
EUT 99% OBW Lower Edge, $F_L$ (MHz)	6106.60
EUT 99% OBW Upper Edge, $F_H$ (MHz)	6263.41
99% Occupied Bandwidth of the Incumbent Signal (MHz)	10.042
Test Frequency of Incumbent Signal ( $f_{c2}$ ) Near EUT $F_L$ (MHz)	<b>6112</b>
Test Frequency of Incumbent Signal at $f_{c1}$ (MHz)	<b>6185</b>
Test Frequency of Incumbent Signal ( $f_{c3}$ ) Near EUT $F_H$ (MHz)	<b>6258</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-2.34
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-64.3
<b>Test Results at <math>f_{c2}</math></b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c2}$ (dBm)	-77.61
Margin (dBm)	-13.27
Result (PASS / FAIL)	<b>PASS</b>
<b>Test Results at <math>f_{c1}</math></b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c1}$ (dBm)	-68.21
Margin (dBm)	-3.87
Result (PASS / FAIL)	<b>PASS</b>
<b>Test Results at <math>f_{c3}</math></b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c3}$ (dBm)	-75.68
Margin (dBm)	-11.34
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**

**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

Trial	AWGN Detected (Yes / No)		
	Incumbent AWGN at $f_{c2}$	Incumbent AWGN at $f_{c1}$	Incumbent AWGN at $f_{c3}$
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	Yes	Yes	Yes
8	Yes	Yes	Yes
9	Yes	No	No
10	No	Yes	Yes
<b>Test Result</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.

### 8.5.5. Tx OPERATIONAL STATUS TEST RESULTS

**Test Condition 4: 99% BW<sub>EUT</sub> > 4 x 99% BW<sub>INC</sub>**

**Incumbent AWGN at f<sub>c2</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-77.61	-2.34	0	-75.27	-62	Ceased
-79.56	-2.34	0	-77.22	-62	Minimal
-85.57	-2.34	0	-83.23	-62	Normal

**Incumbent AWGN at f<sub>c1</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-68.21	-2.34	0	-65.87	-62	Ceased
-73.17	-2.34	0	-70.83	-62	Minimal
-77.16	-2.34	0	-74.82	-62	Normal

**Incumbent AWGN at f<sub>c3</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-75.68	-2.34	0	-73.34	-62	Ceased
-78.69	-2.34	0	-76.35	-62	Minimal
-83.67	-2.34	0	-81.33	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

Test Date: 2024-02-09

Tested by: 84445

Test location: Chamber 5



## 8.6. U-NII 6 BAND TEST CONDITION 1 RESULTS

### TEST CONDITION 1 CRITERIA

$$99\% BW_{EUT} \leq 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.7. U-NII 6 BAND TEST CONDITION 2 RESULTS

### TEST CONDITION 2 CRITERIA

$$99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$$

#### 8.7.1. TEST CHANNEL

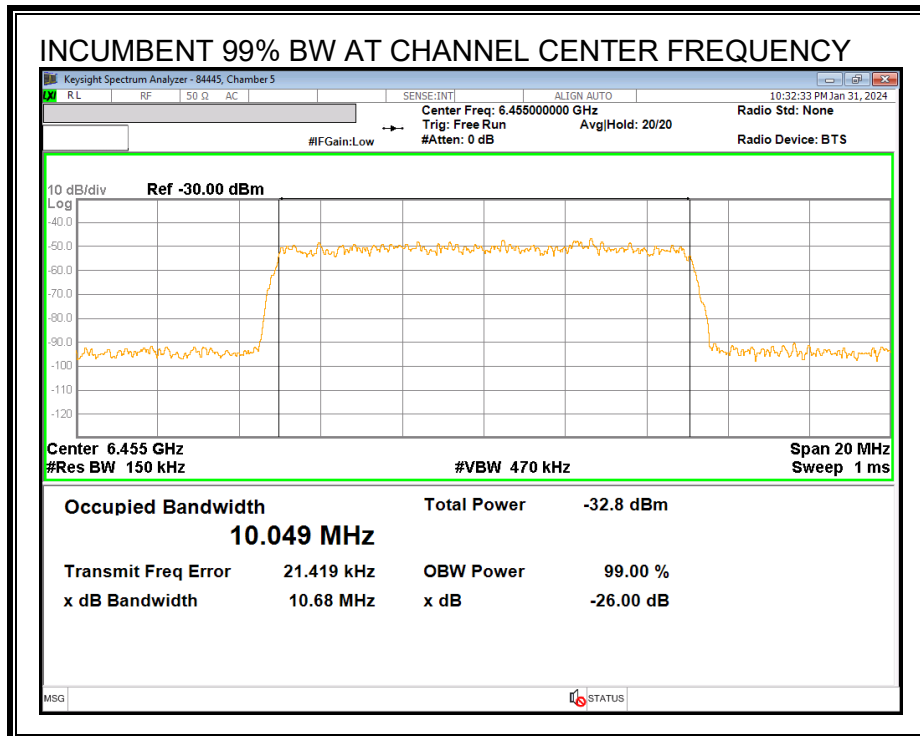
All tests were performed with the EUT set to a channel center frequency of 6455 MHz and a nominal channel bandwidth of 20 MHz.

Only the lowest and highest supported channel bandwidths are required to be tested.

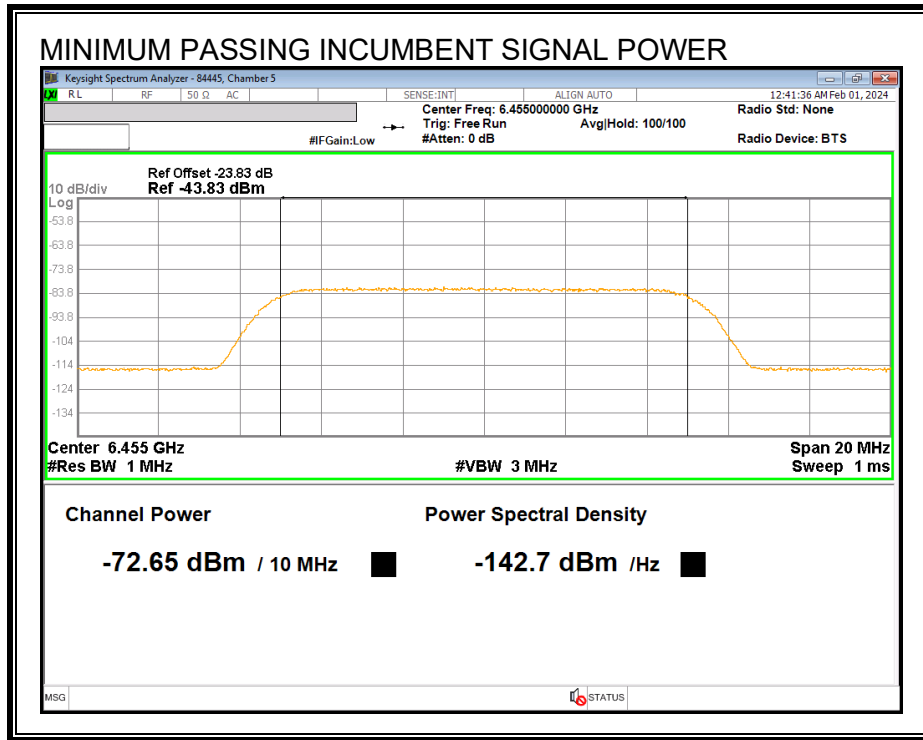
### 8.7.2. INCUMBENT SIGNAL PLOTS

All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH

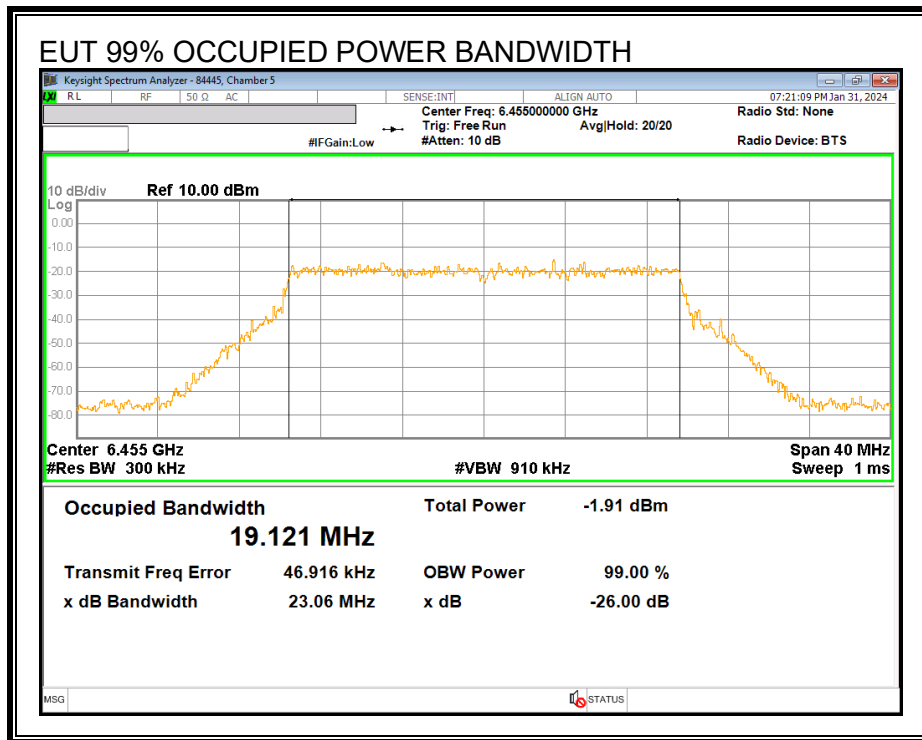


**MINIMUM PASSING INCUMBENT SIGNAL POWER**

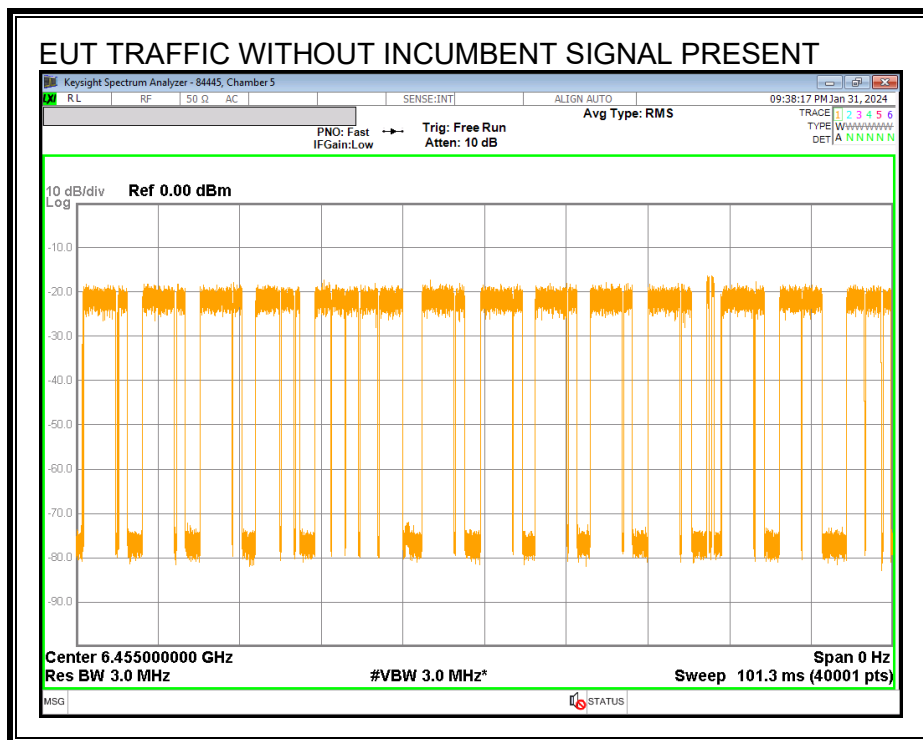


### 8.7.3. EUT TRANSMISSION PLOTS

#### EUT 99% OCCUPIED POWER BANDWIDTH

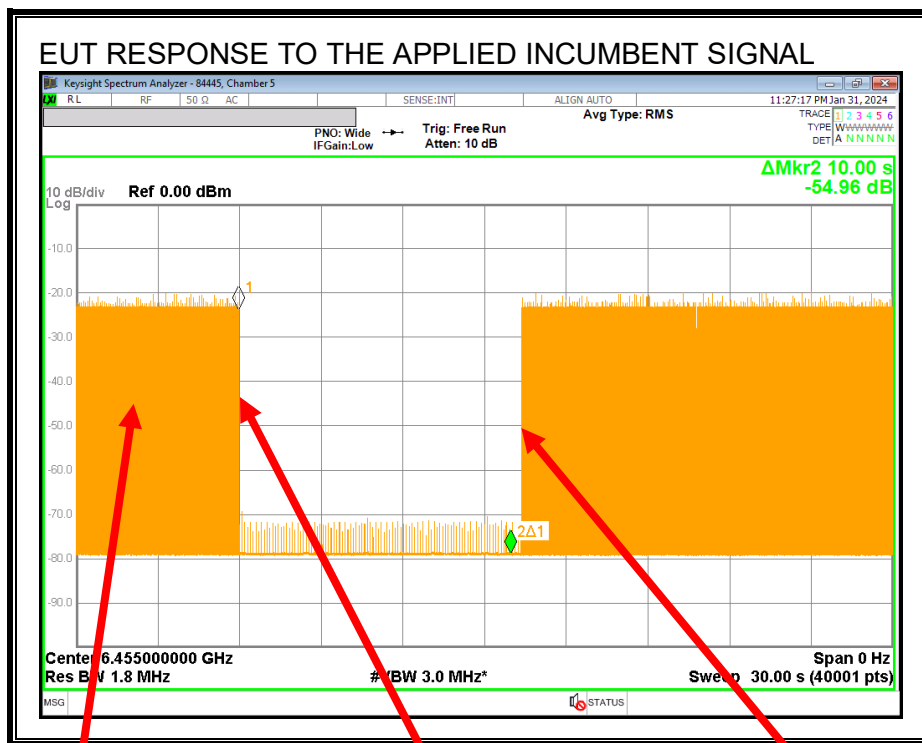


**TRAFFIC WITHOUT THE INCUMBENT SIGNAL PRESENT**



### EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### 8.7.4. TABULATED TEST RESULTS

#### INCUMBENT SIGNAL DETECTION RESULTS

EUT Channel Center Frequency, $f_{c1}$ (MHz)	6455
EUT Nominal Channel Bandwidth (MHz)	20
99% Occupied Bandwidth of the EUT (MHz)	19.121
EUT 99% OBW Lower Edge, $F_L$ (MHz)	6445.44
EUT 99% OBW Upper Edge, $F_H$ (MHz)	6464.56
Test Frequency of Incumbent Signal (MHz)	<b>6455</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-1.78
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-63.8
Lowest Passing Measured Incumbent Signal Amplitude (dBm)	-72.65
Margin (dBm)	-8.87
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

	AWGN Detected (Yes / No)
Trial	Incumbent AWGN at $f_{c1}$
1	Yes
2	Yes
3	Yes
4	No
5	Yes
6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
<b>Test Result</b>	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.



### 8.7.5. Tx OPERATIONAL STATUS TEST RESULTS

**Test Condition 2:  $99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$**

**Incumbent AWGN at  $f_{c1}$ :**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-72.65	-1.78	0	-70.87	-62	Ceased
-76.66	-1.78	0	-74.88	-62	Minimal
-80.65	-1.78	0	-78.87	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

## 8.8. U-NII 6 BAND TEST CONDITION 3 RESULTS

### TEST CONDITION 3 CRITERIA

$$2 \times 99\% BW_{INC} < 99\% BW_{EUT} \leq 4 \times 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.9. U-NII 6 BAND TEST CONDITION 4 RESULTS

### TEST CONDITION 4 CRITERIA

$$99\% BW_{EUT} > 4 \times 99\% BW_{INC}$$

### 8.9.1. TEST CHANNEL

All tests were performed with the EUT set to a channel center frequency of 6505 MHz and a nominal channel bandwidth of 160 MHz.

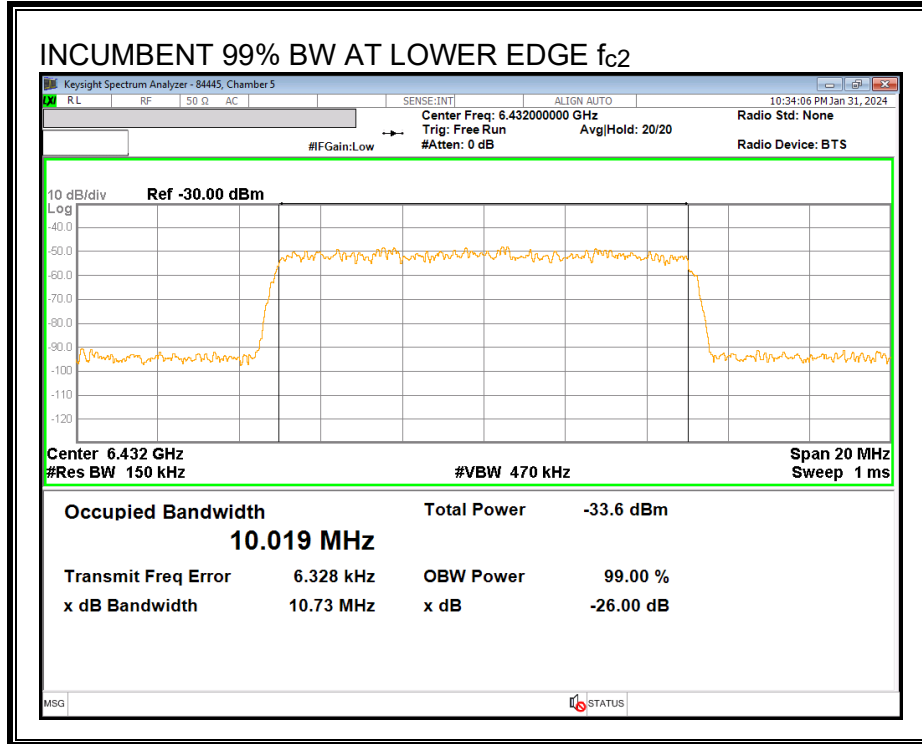
Only the lowest and highest supported channel bandwidths are required to be tested.

### 8.9.2. INCUMBENT SIGNAL PLOTS

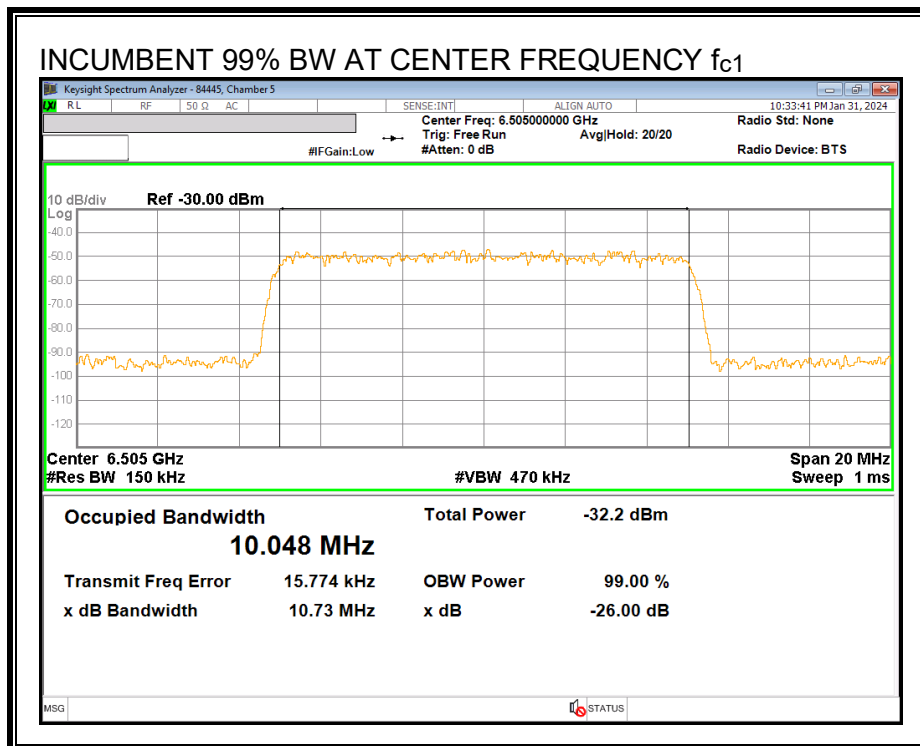
All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH

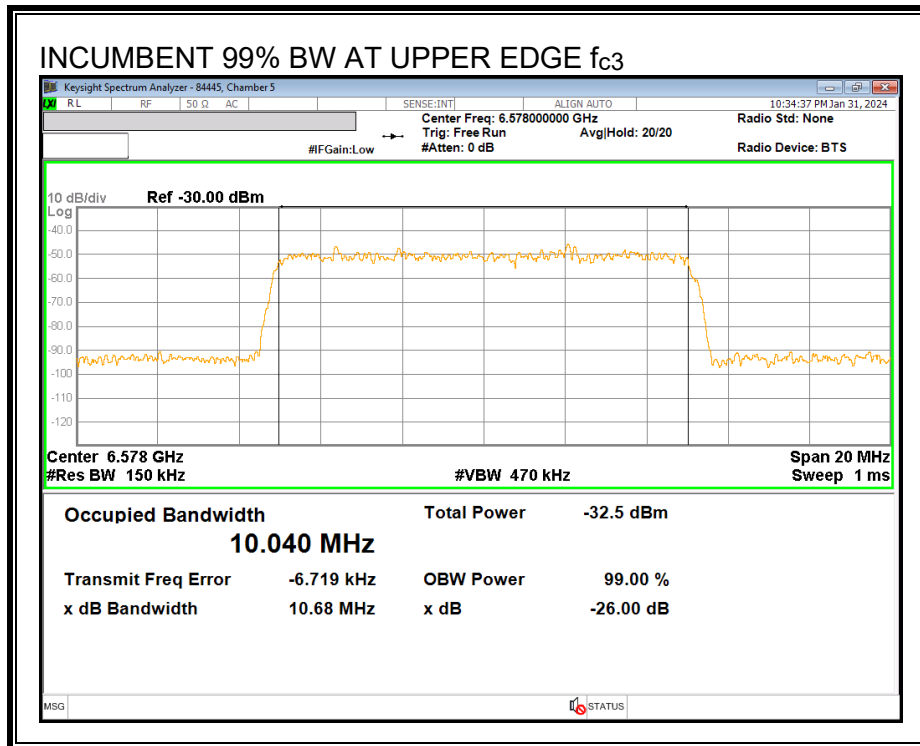
Lower Edge Incumbent Signal  $f_{c2}$ :



Center Frequency Incumbent Signal  $f_{c1}$ :

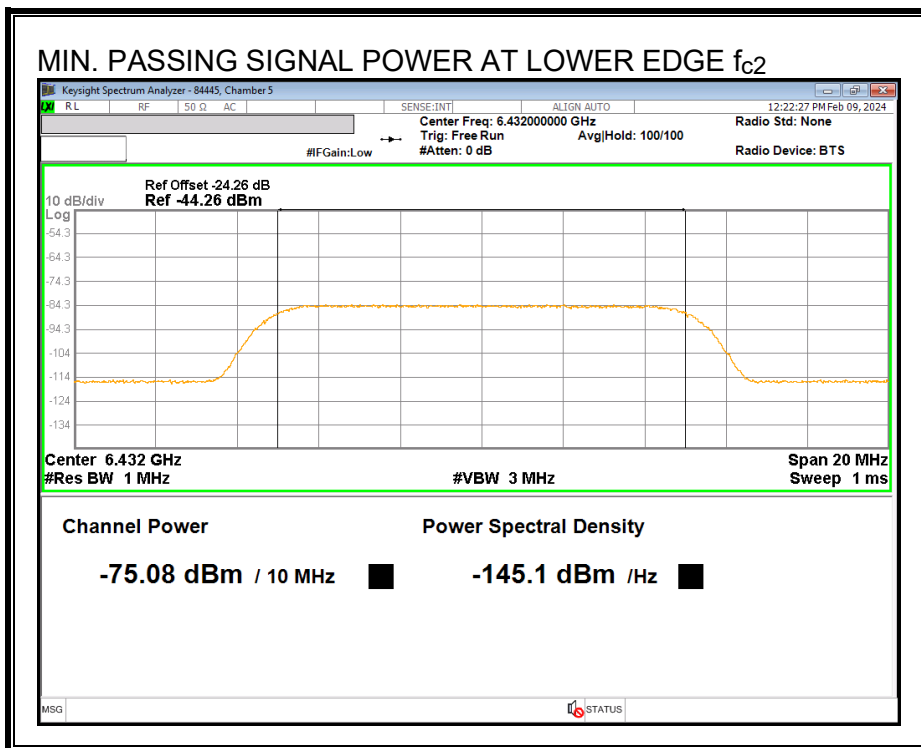


Upper Edge Incumbent Signal  $f_{c3}$ :

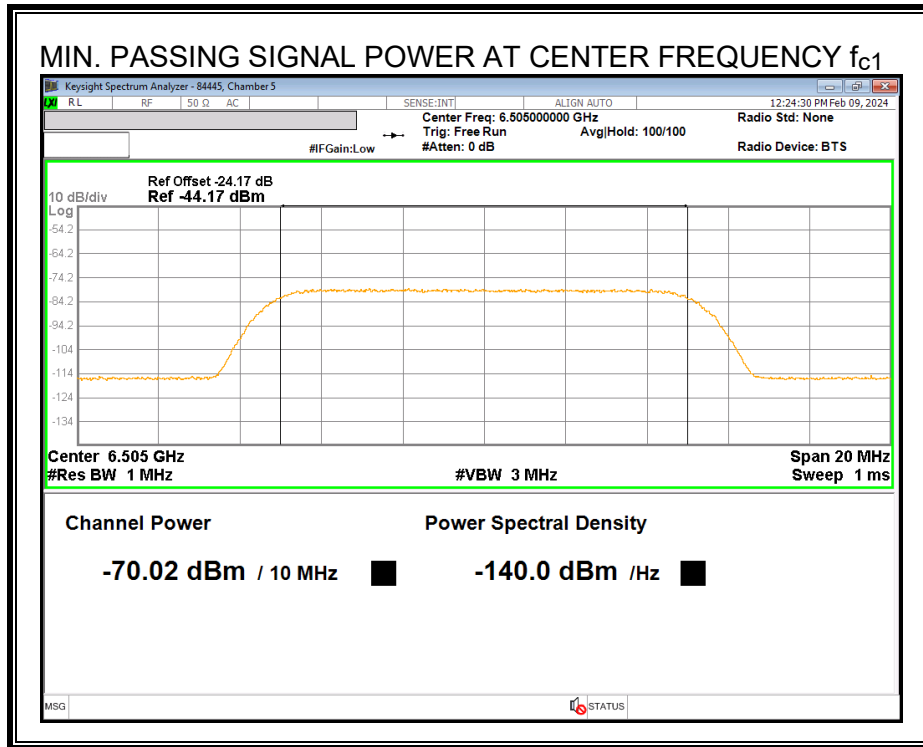


**MINIMUM PASSING INCUMBENT SIGNAL POWER**

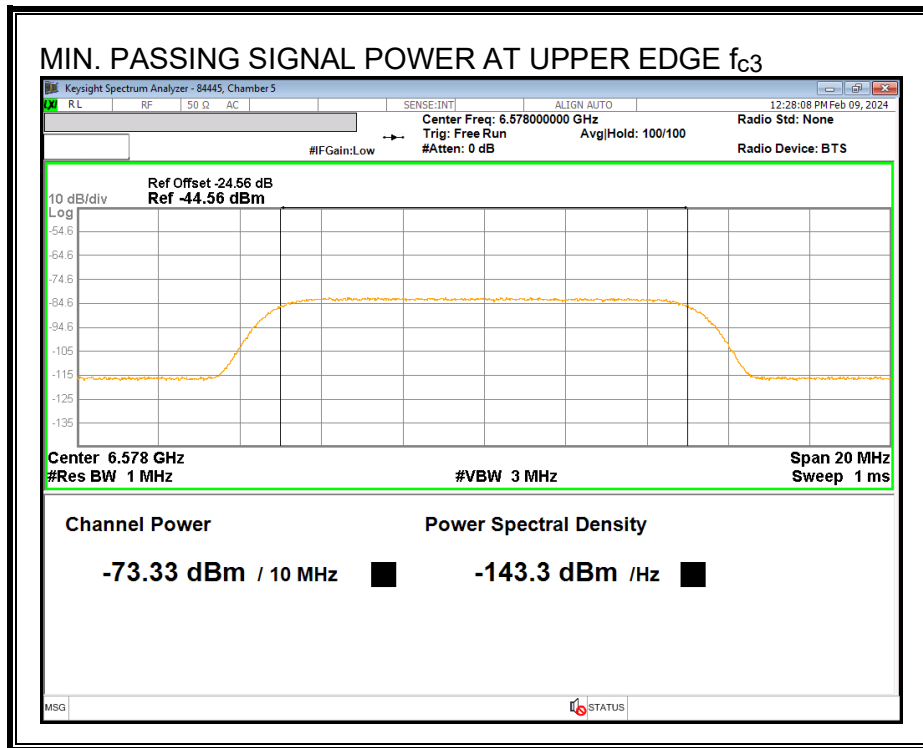
**Lower Edge Incumbent Signal  $f_{c2}$ :**



**Center Frequency Incumbent Signal  $f_{c1}$ :**



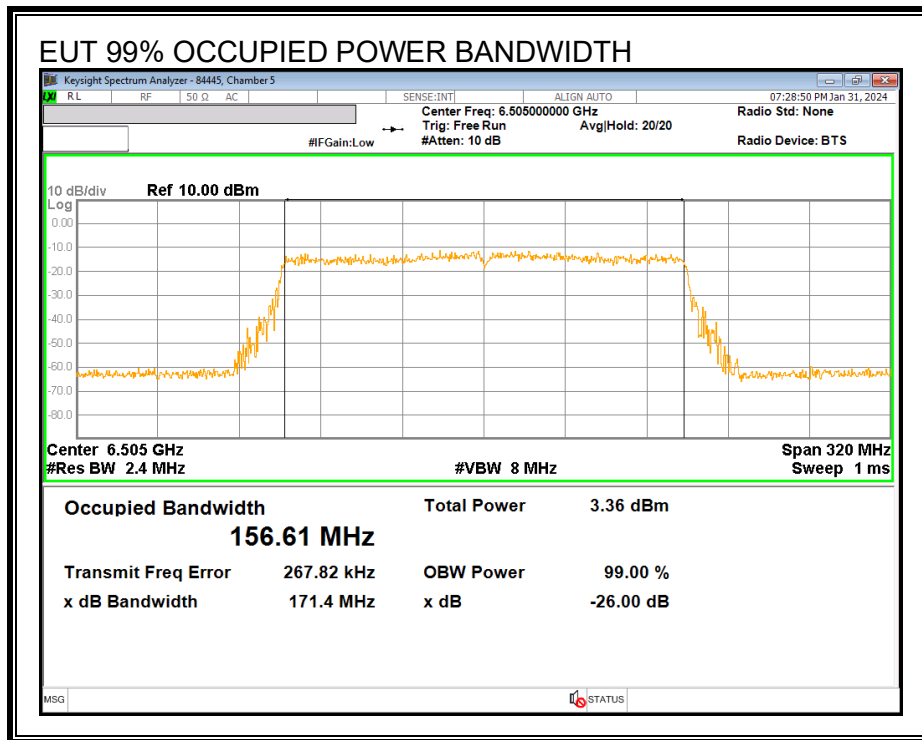
Upper Edge Incumbent Signal  $f_{c3}$ :





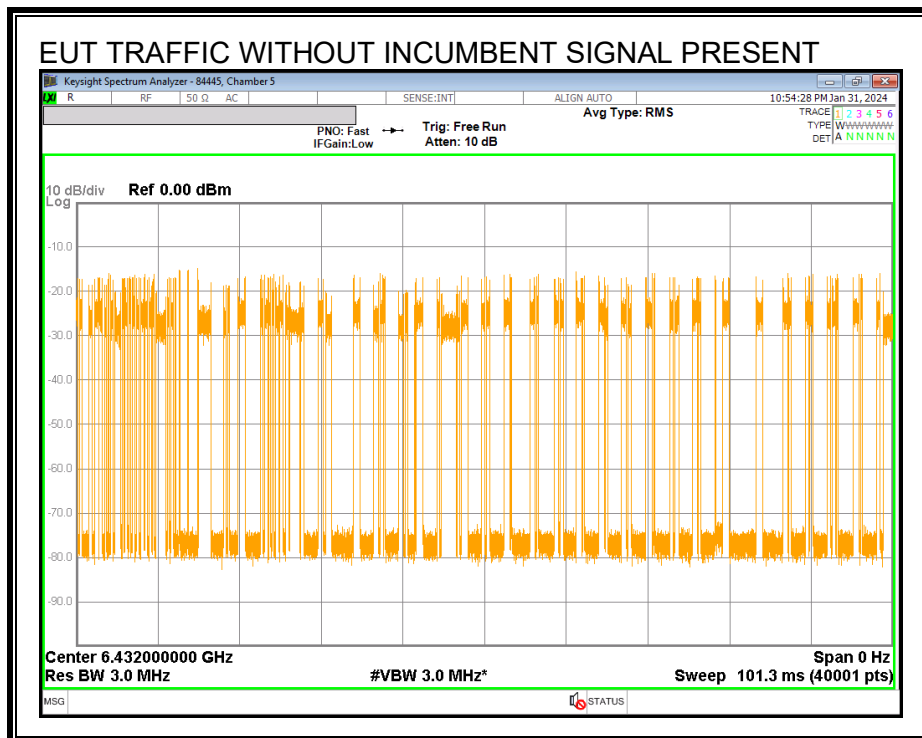
### 8.9.3. EUT TRANSMISSION PLOTS

#### EUT 99% OCCUPIED POWER BANDWIDTH

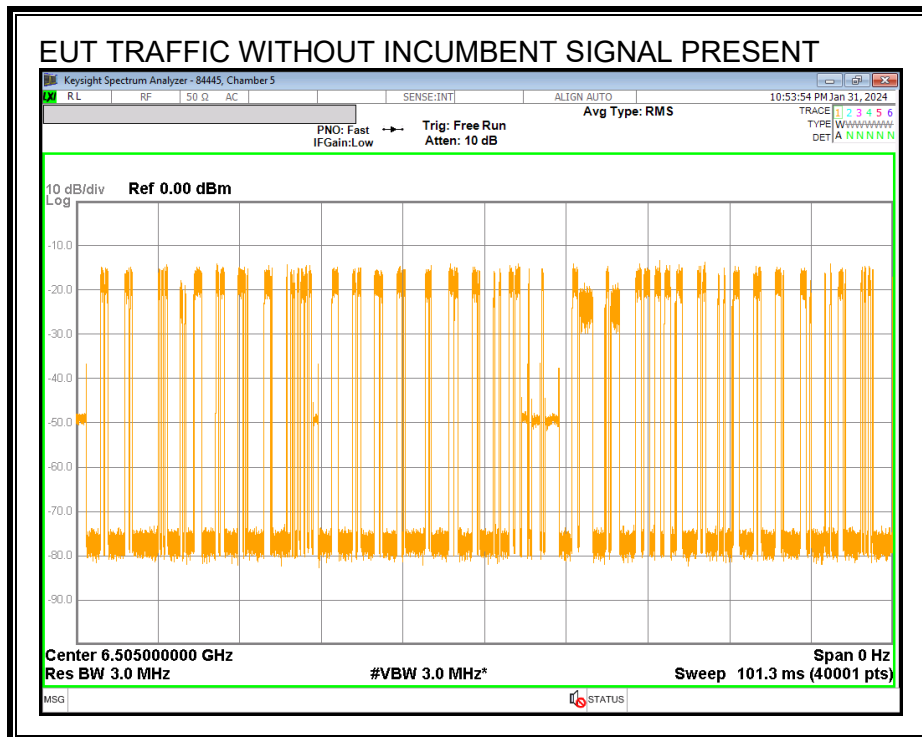


**TRAFFIC WITHOUT THE INCUMBENT SIGNAL PRESENT**

**Lower Edge  $f_{c2}$ :**



Center Frequency  $f_{c1}$ :

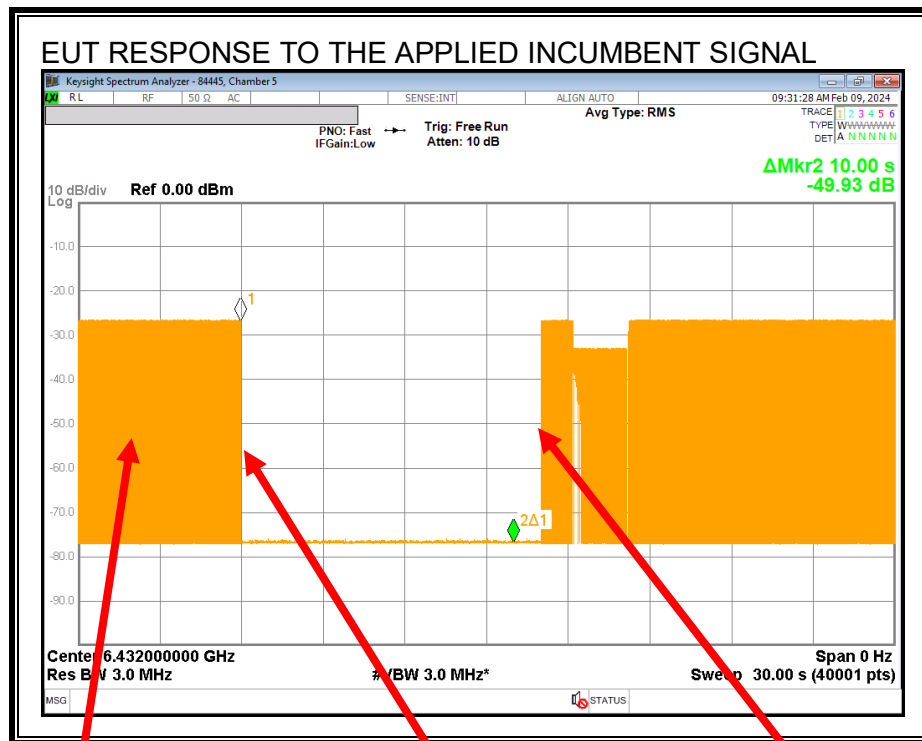




**EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL**

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.

**Lower Edge Incumbent Signal  $f_{c2}$ :**



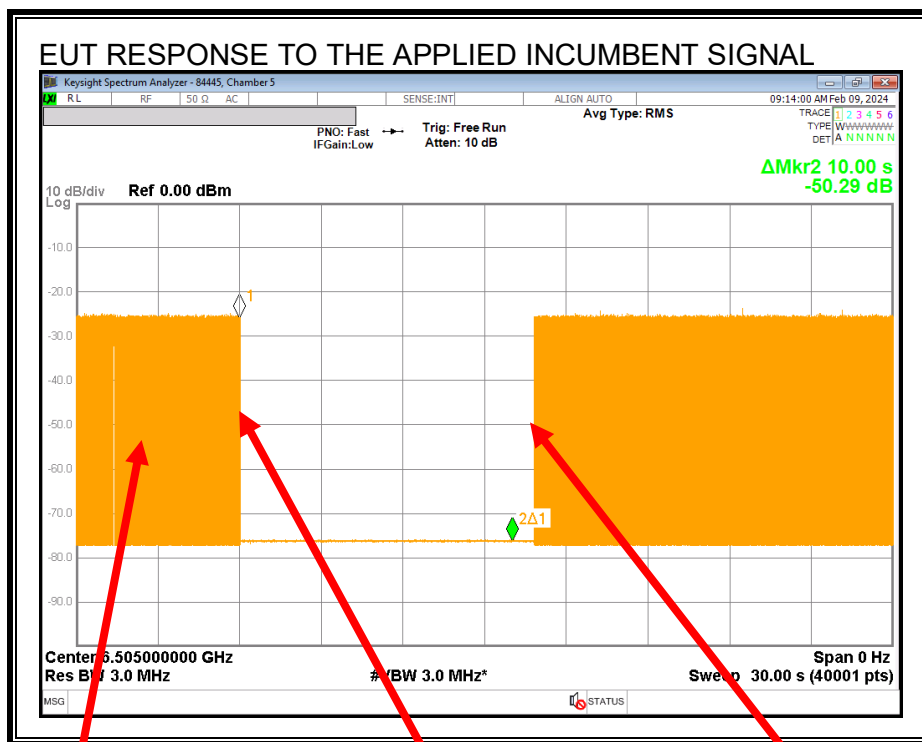
Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### Center Frequency Incumbent Signal $f_{c1}$ :



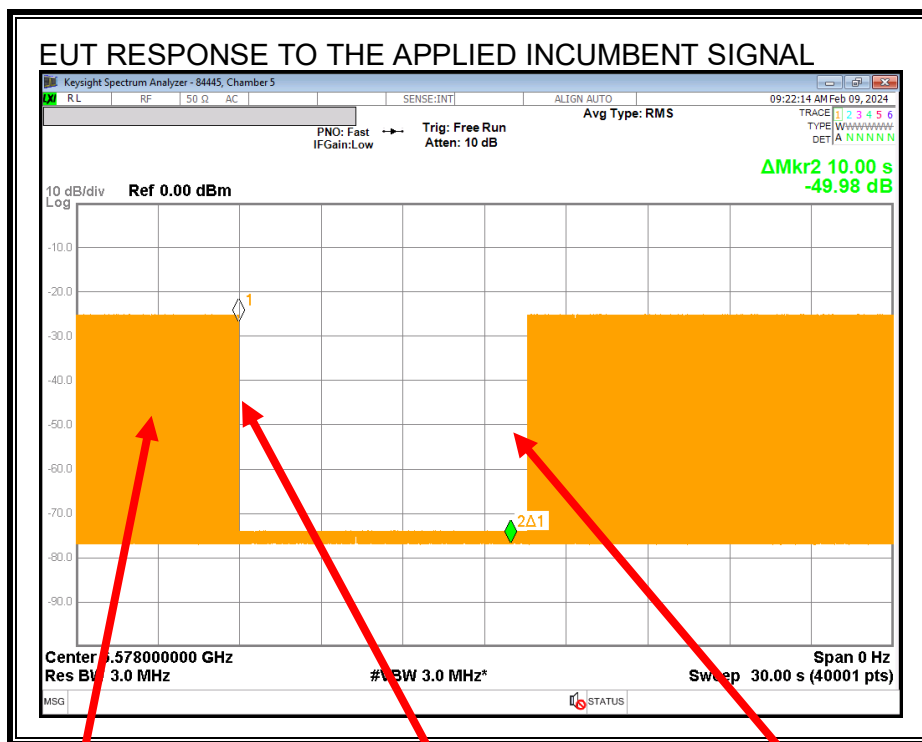
Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### Upper Edge Incumbent Signal $f_{c3}$ :



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### 8.9.4. TABULATED TEST RESULTS

#### INCUMBENT SIGNAL DETECTION RESULTS

EUT Channel Center Frequency, $f_{c1}$ (MHz)	6505
EUT Nominal Channel Bandwidth (MHz)	160
99% Occupied Bandwidth of the EUT (MHz)	156.61
EUT 99% OBW Lower Edge, $F_L$ (MHz)	6426.70
EUT 99% OBW Upper Edge, $F_H$ (MHz)	6583.31
99% Occupied Bandwidth of the Incumbent Signal (MHz)	10.048
Test Frequency of Incumbent Signal ( $f_{c2}$ ) Near EUT $F_L$ (MHz)	<b>6432</b>
Test Frequency of Incumbent Signal at $f_{c1}$ (MHz)	<b>6505</b>
Test Frequency of Incumbent Signal ( $f_{c3}$ ) Near EUT $F_H$ (MHz)	<b>6578</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-1.78
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-63.8
<b>Test 1</b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c2}$ (dBm)	-75.08
Margin (dBm)	-11.30
Result (PASS / FAIL)	<b>PASS</b>
<b>Test 2</b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c1}$ (dBm)	-70.02
Margin (dBm)	-6.24
Result (PASS / FAIL)	<b>PASS</b>
<b>Test 3</b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c3}$ (dBm)	-73.33
Margin (dBm)	-9.55
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**



**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

Trial	AWGN Detected (Yes / No)		
	Incumbent AWGN at $f_{c2}$	Incumbent AWGN at $f_{c1}$	Incumbent AWGN at $f_{c3}$
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	No	Yes	Yes
8	Yes	Yes	Yes
9	Yes	Yes	Yes
10	Yes	Yes	Yes
<b>Test Result</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.

### 8.9.5. Tx OPERATIONAL STATUS TEST RESULTS

**Test Condition 4: 99% BW<sub>EUT</sub> > 4 x 99% BW<sub>INC</sub>**

**Incumbent AWGN at f<sub>c2</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-75.08	-1.78	0	-73.3	-62	Ceased
-79.07	-1.78	0	-77.29	-62	Minimal
-82.05	-1.78	0	-80.27	-62	Normal

**Incumbent AWGN at f<sub>c1</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-70.02	-1.78	0	-68.24	-62	Ceased
-73.98	-1.78	0	-72.2	-62	Minimal
-77.99	-1.78	0	-76.21	-62	Normal

**Incumbent AWGN at f<sub>c3</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-73.33	-1.78	0	-71.55	-62	Ceased
-77.33	-1.78	0	-75.55	-62	Minimal
-82.29	-1.78	0	-80.51	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

Test Date: 2024-02-09

Tested by: 84445

Test location: Chamber 5

## 8.10. U-NII 7 BAND TEST CONDITION 1 RESULTS

### TEST CONDITION 1 CRITERIA

$$99\% BW_{EUT} \leq 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.11. U-NII 7 BAND TEST CONDITION 2 RESULTS

### TEST CONDITION 2 CRITERIA

$$99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$$

### 8.11.1. TEST CHANNEL

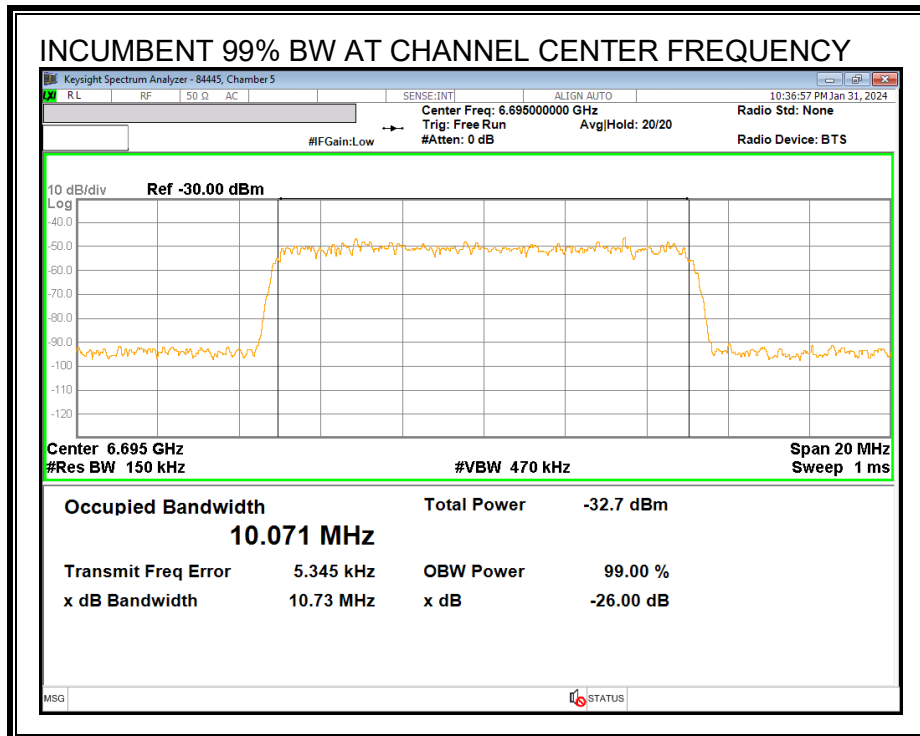
All tests were performed with the EUT set to a channel center frequency of 6695 MHz and a nominal channel bandwidth of 20 MHz.

Only the lowest and highest supported channel bandwidths are required to be tested.

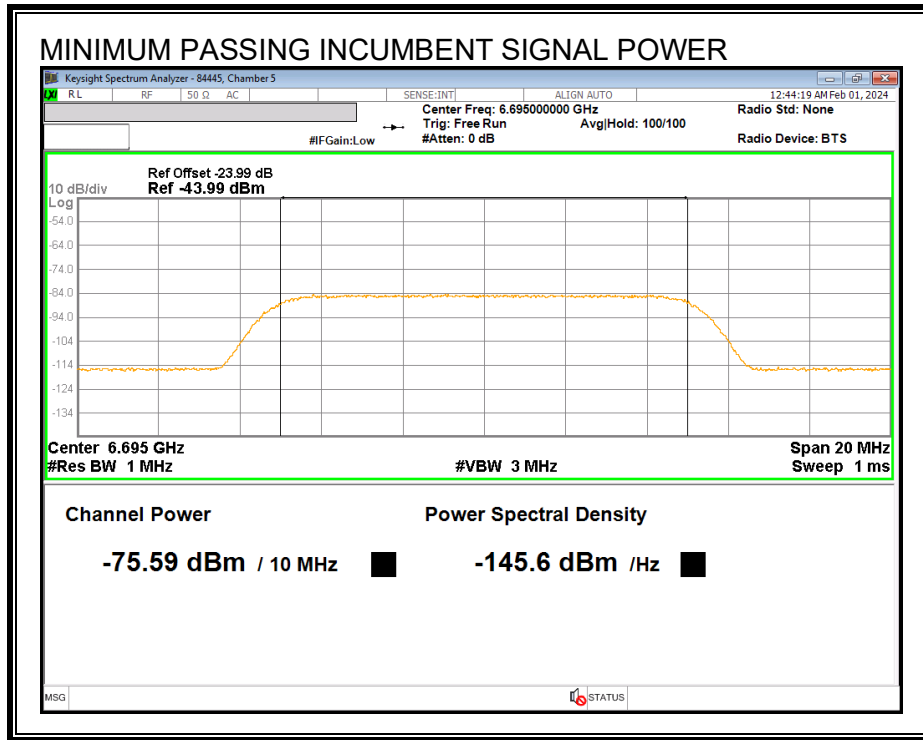
### 8.11.2. INCUMBENT SIGNAL PLOTS

All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH

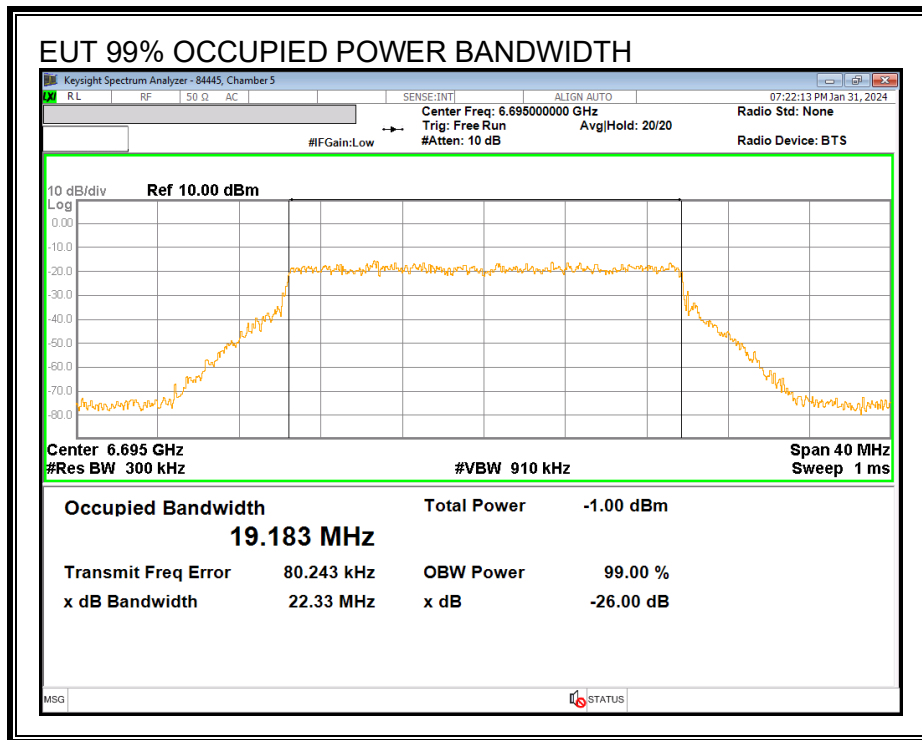


**MINIMUM PASSING INCUMBENT SIGNAL POWER**

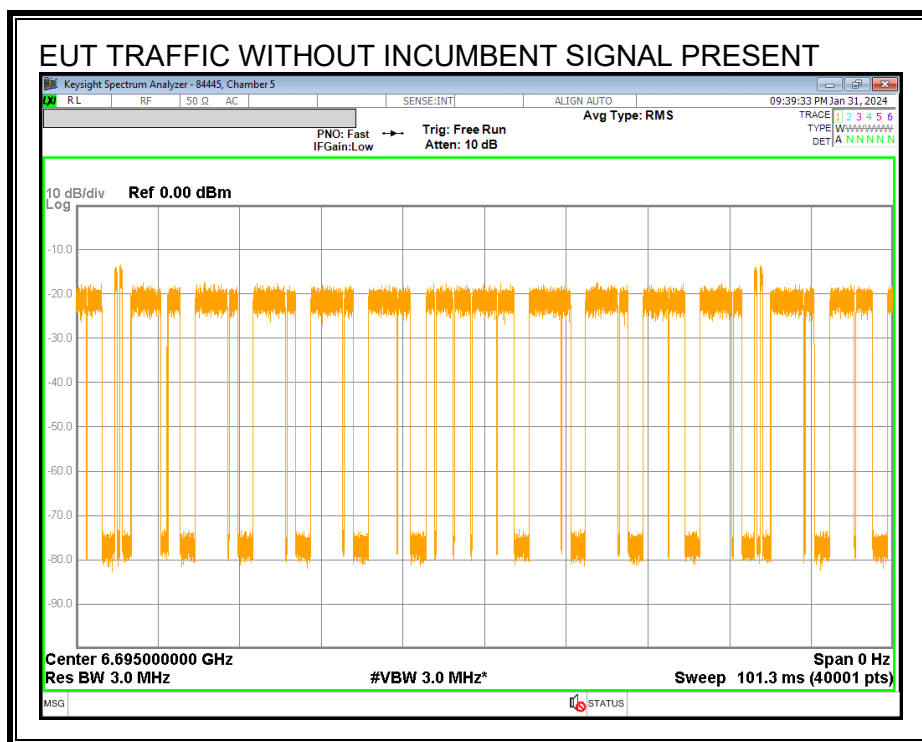


### 8.11.3. EUT TRANSMISSION PLOTS

#### EUT 99% OCCUPIED POWER BANDWIDTH

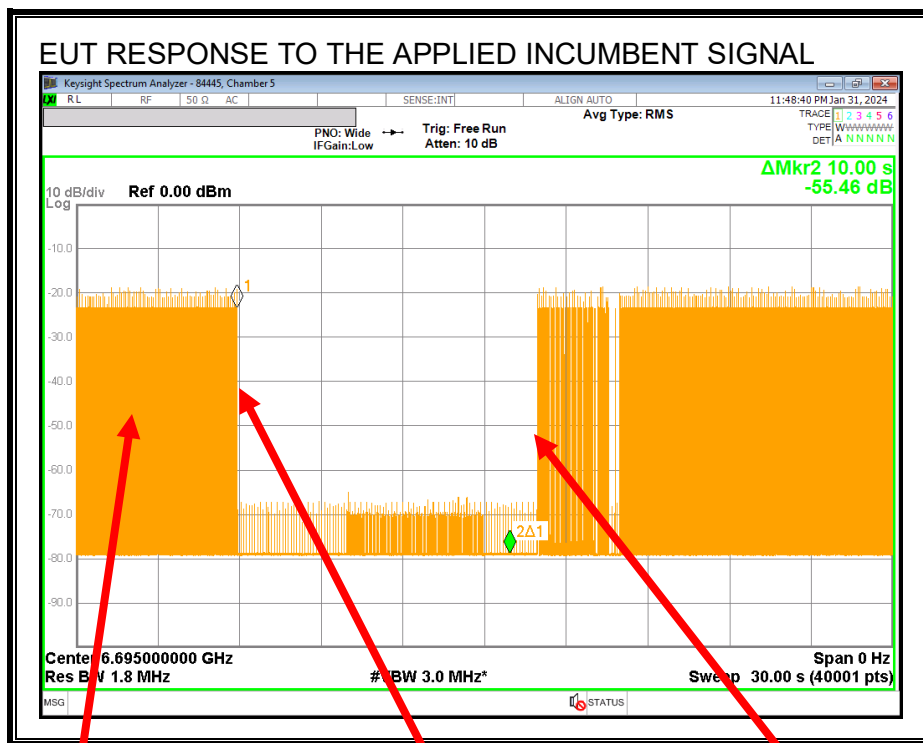


**TRAFFIC WITHOUT THE INCUMBENT SIGNAL PRESENT**



**EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL**

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.



### 8.11.4. TABULATED TEST RESULTS

#### INCUMBENT SIGNAL DETECTION RESULTS

EUT Channel Center Frequency, $f_{c1}$ (MHz)	6695
EUT Nominal Channel Bandwidth (MHz)	20
99% Occupied Bandwidth of the EUT (MHz)	19.183
EUT 99% OBW Lower Edge, $F_L$ (MHz)	6685.41
EUT 99% OBW Upper Edge, $F_H$ (MHz)	6704.59
Test Frequency of Incumbent Signal (MHz)	<b>6695</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-1.84
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-63.8
Lowest Passing Measured Incumbent Signal Amplitude (dBm)	-75.59
Margin (dBm)	-11.75
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

	AWGN Detected (Yes / No)
Trial	Incumbent AWGN at $f_{c1}$
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
<b>Test Result</b>	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.

**8.11.5. Tx OPERATIONAL STATUS TEST RESULTS**

**Test Condition 2:  $99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$**

Incumbent AWGN at  $f_{c1}$ :

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-75.59	-1.84	0	-73.75	-62	Ceased
-79.6	-1.84	0	-77.76	-62	Minimal
-83.55	-1.84	0	-81.71	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

## 8.12. U-NII 7 BAND TEST CONDITION 3 RESULTS

### TEST CONDITION 3 CRITERIA

$$2 \times 99\% BW_{INC} < 99\% BW_{EUT} \leq 4 \times 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.13. U-NII 7 BAND TEST CONDITION 4 RESULTS

### TEST CONDITION 4 CRITERIA

$$99\% BW_{EUT} > 4 \times 99\% BW_{INC}$$

### 8.13.1. TEST CHANNEL

All tests were performed with the EUT set to a channel center frequency of 6665 MHz and a nominal channel bandwidth of 160 MHz.

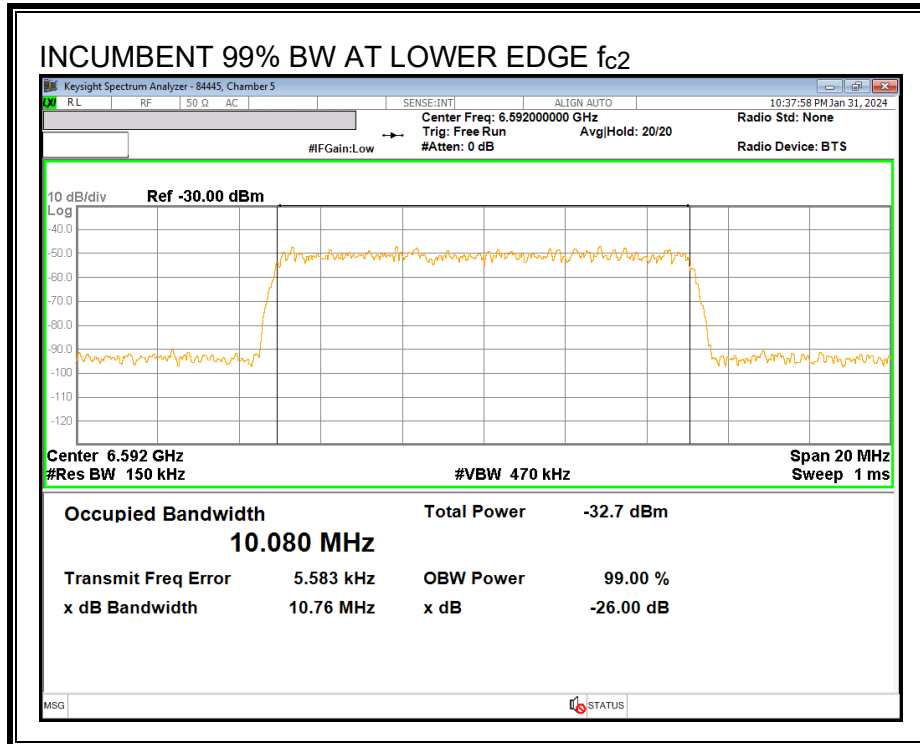
Only the lowest and highest supported channel bandwidths are required to be tested.

### 8.13.2. INCUMBENT SIGNAL PLOTS

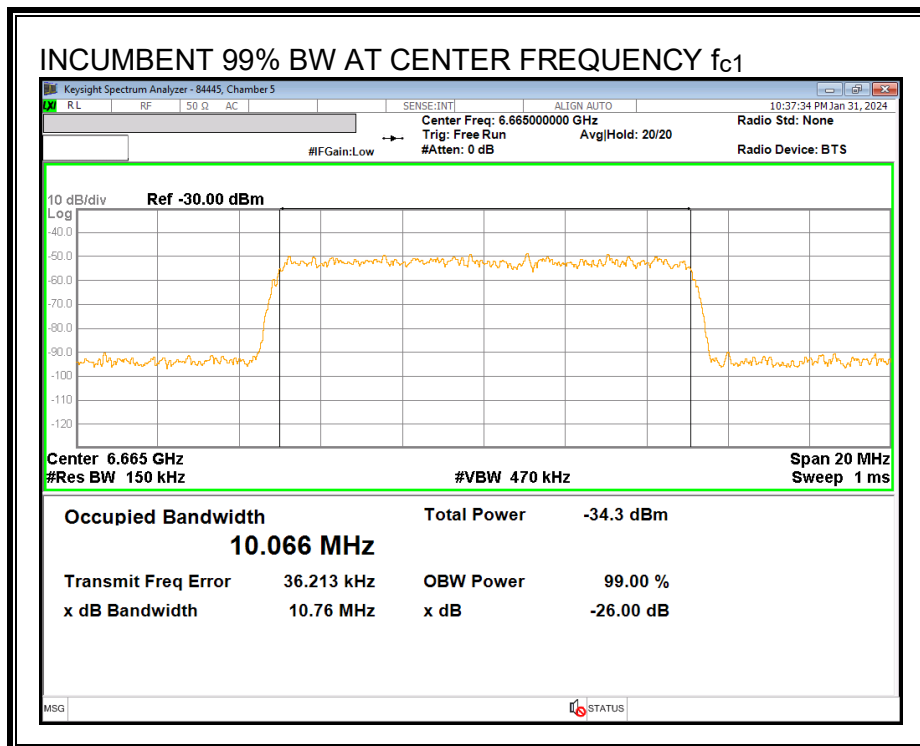
All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH

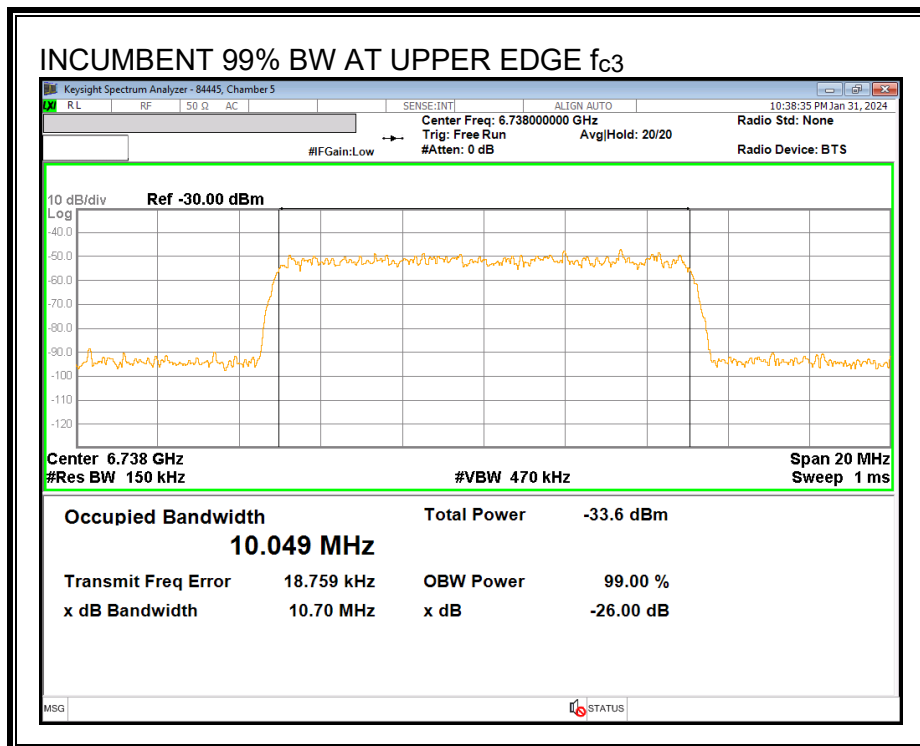
Lower Edge Incumbent Signal  $f_{c2}$ :



Center Frequency Incumbent Signal  $f_{c1}$ :

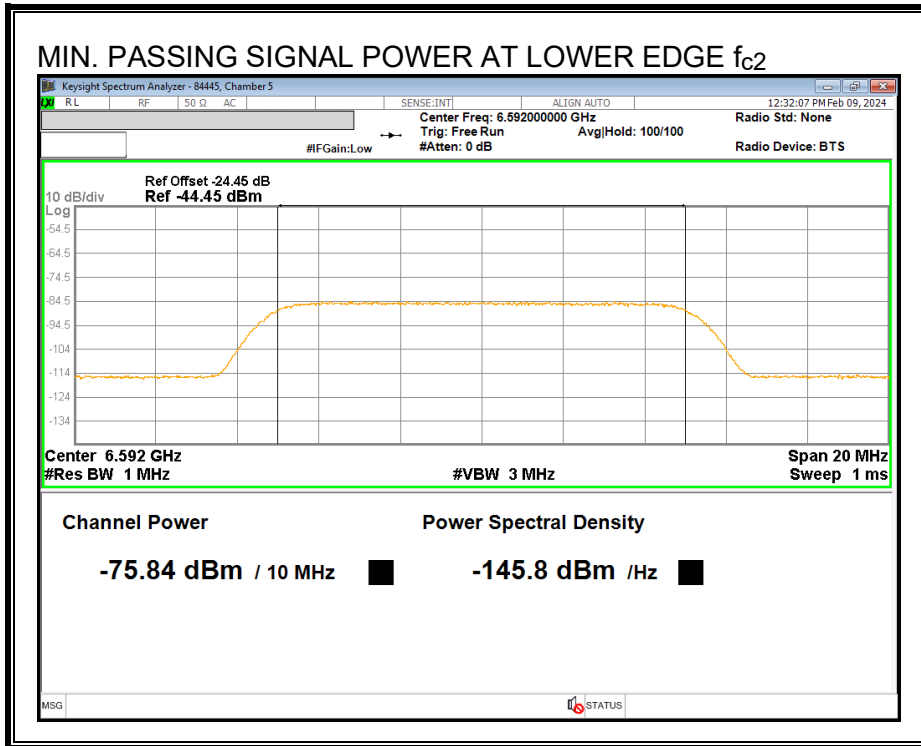


Upper Edge Incumbent Signal  $f_{c3}$ :



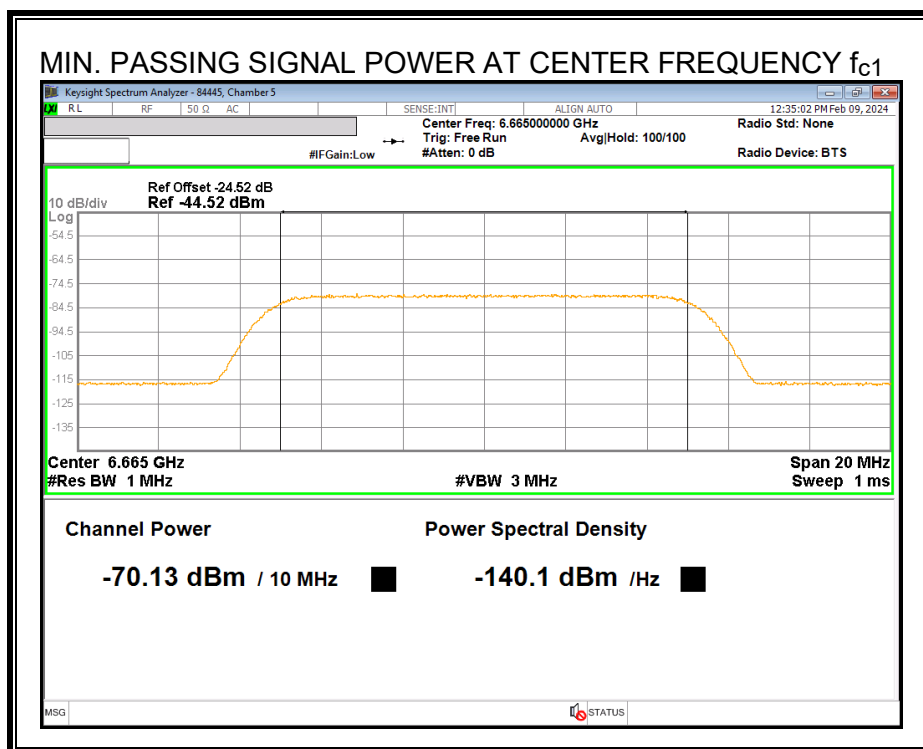
**MINIMUM PASSING INCUMBENT SIGNAL POWER**

**Lower Edge Incumbent Signal  $f_{c2}$ :**

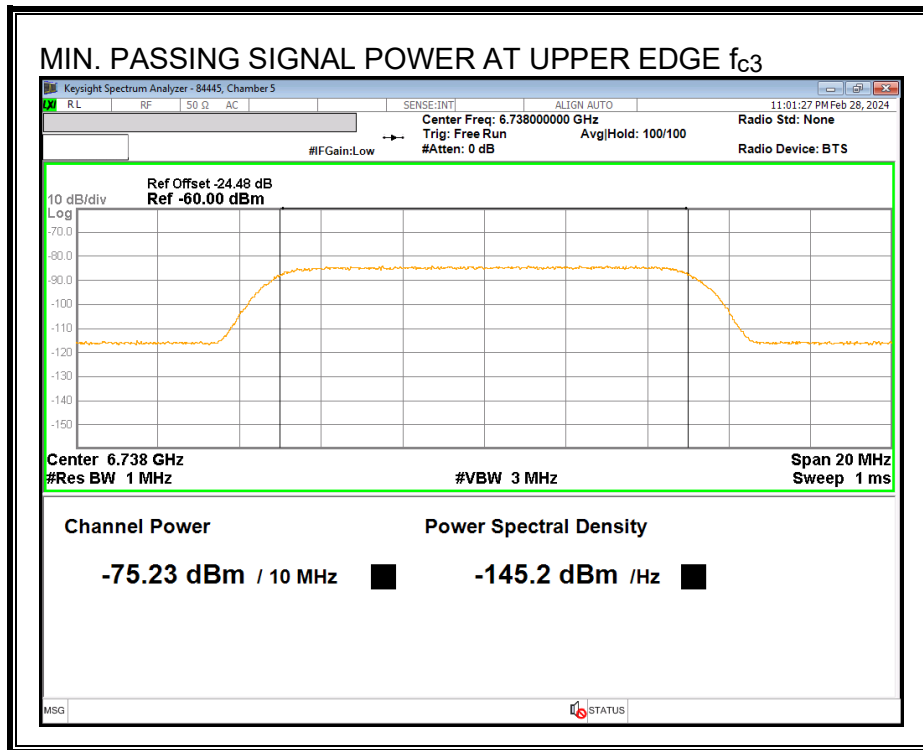




**Center Frequency Incumbent Signal  $f_{c1}$ :**

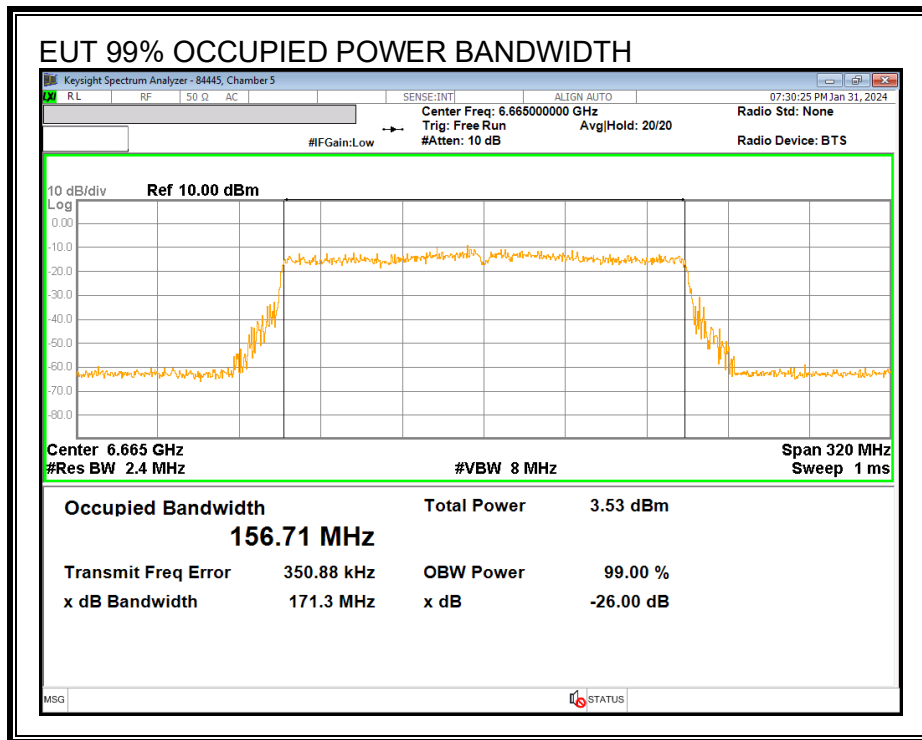


Upper Edge Incumbent Signal  $f_{c3}$ :



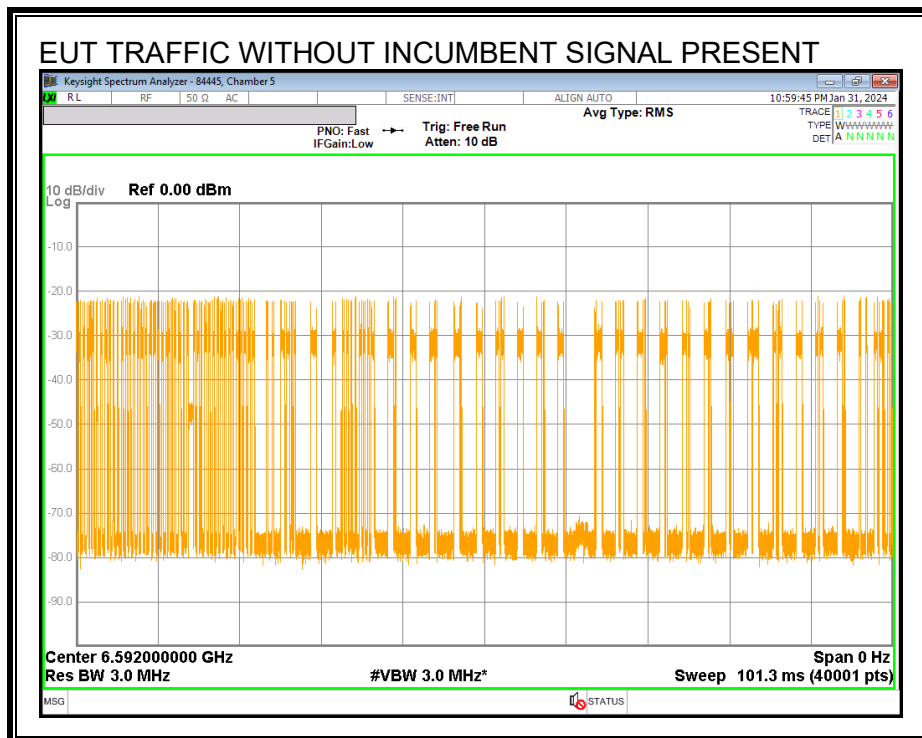
### 8.13.3. EUT TRANSMISSION PLOTS

#### EUT 99% OCCUPIED POWER BANDWIDTH

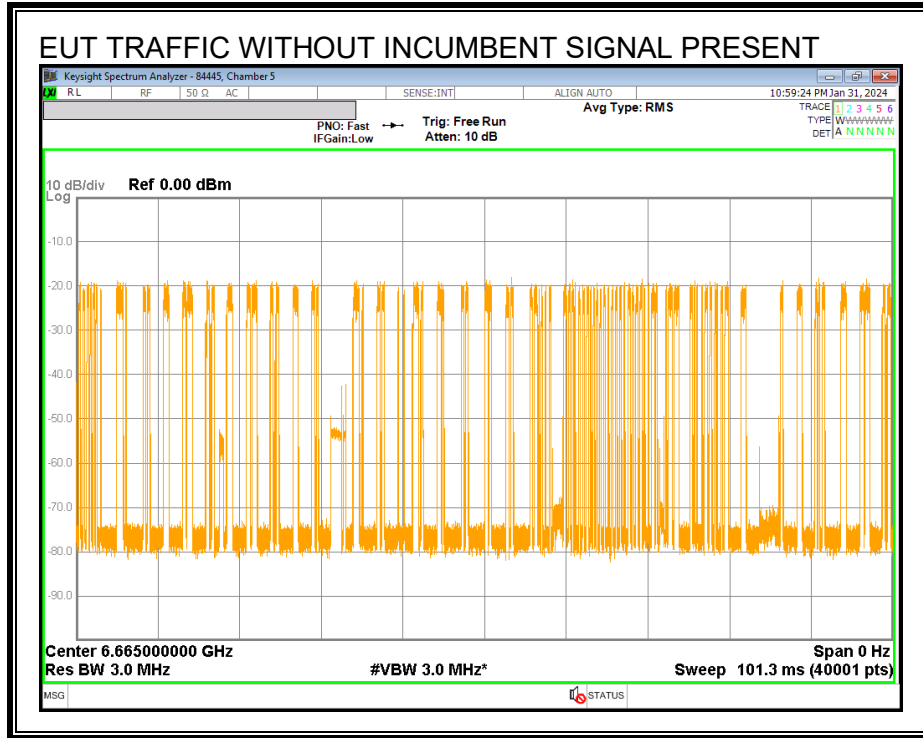


**TRAFFIC WITHOUT THE INCUMBENT SIGNAL PRESENT**

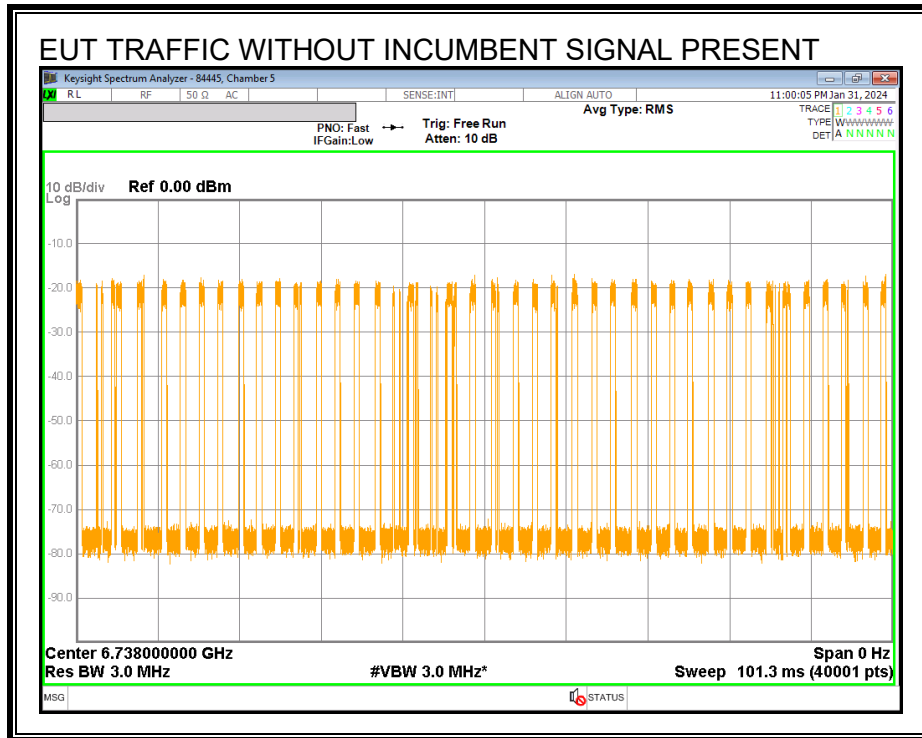
**Lower Edge  $f_{c2}$ :**



Center Frequency  $f_{c1}$ :



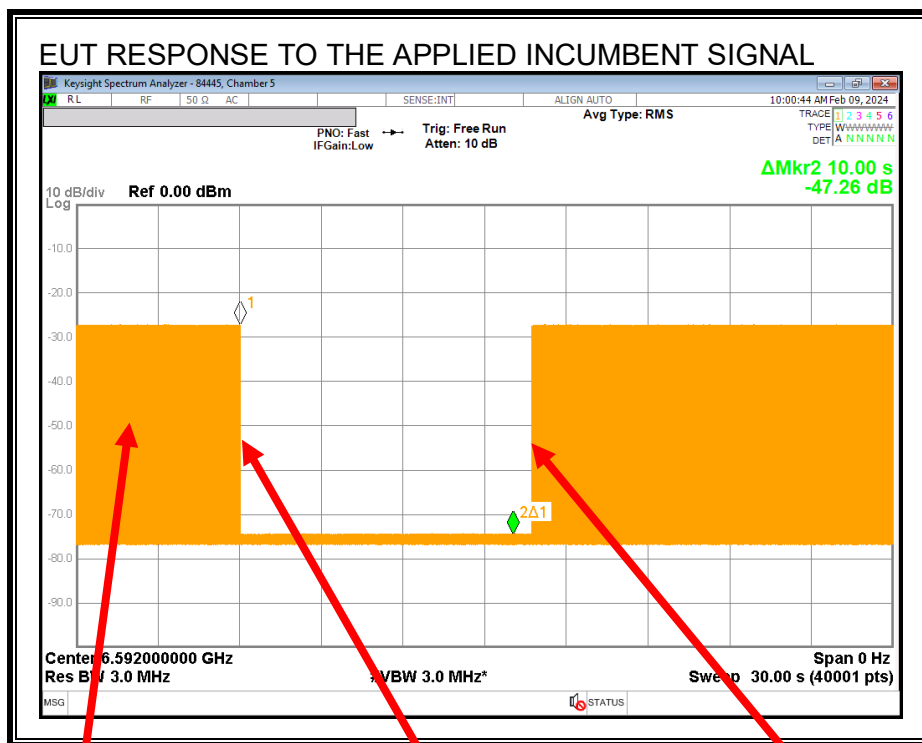
Upper Edge  $f_{c3}$ :



### EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.

#### Lower Edge Incumbent Signal $f_{c2}$ :



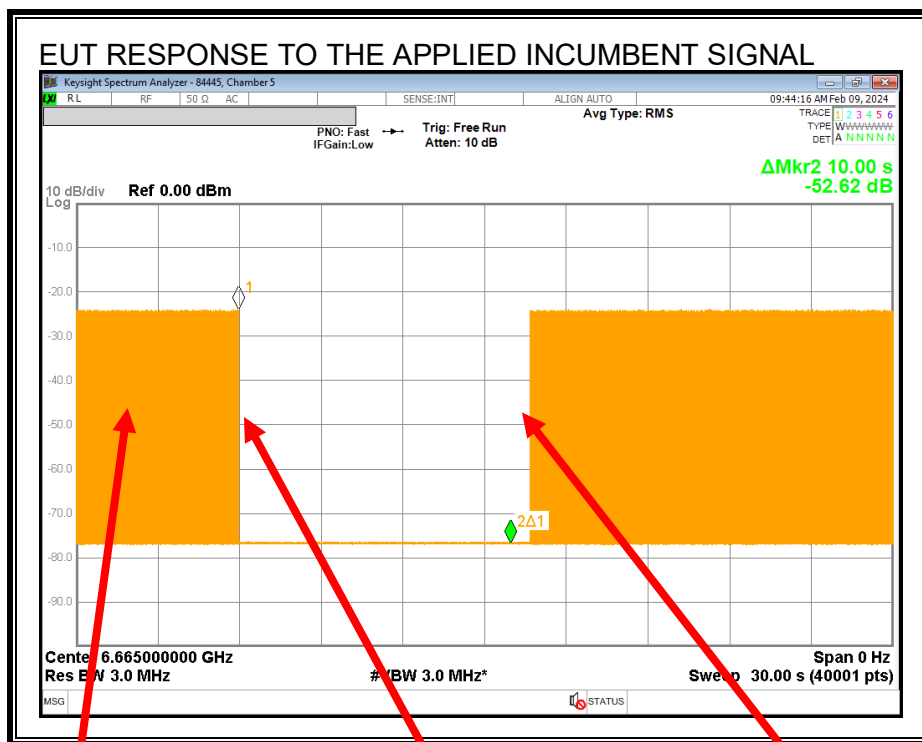
Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### Center Frequency Incumbent Signal $f_{c1}$ :



Normal Traffic

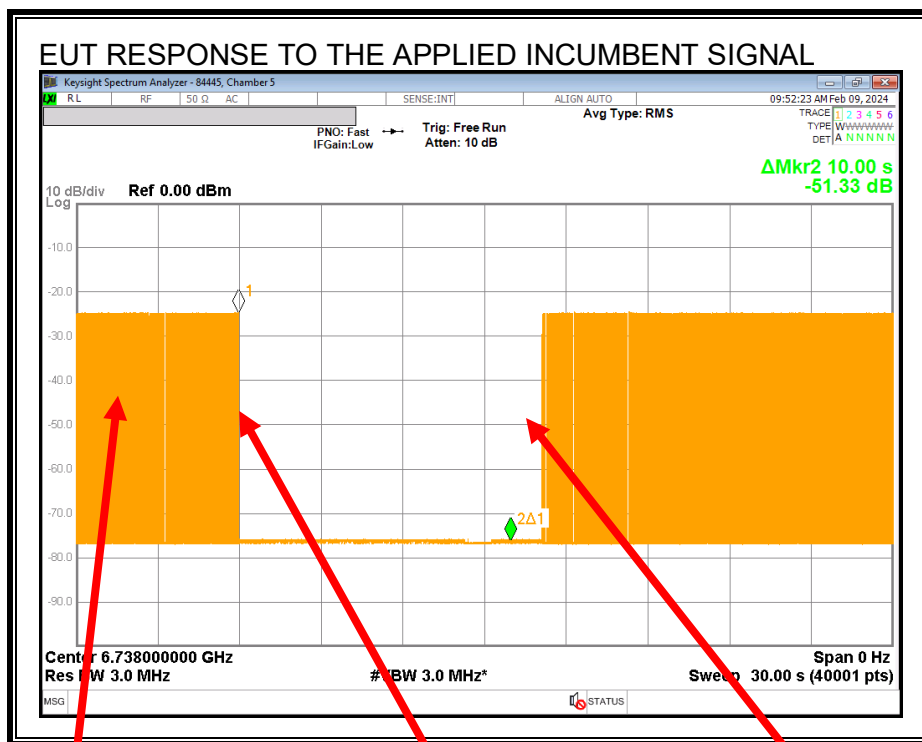
Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.



### Upper Edge Incumbent Signal $f_{c3}$ :



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

**8.13.4. TABULATED TEST RESULTS**

**INCUMBENT SIGNAL DETECTION RESULTS**

EUT Channel Center Frequency, $f_{c1}$ (MHz)	6665
EUT Nominal Channel Bandwidth (MHz)	160
99% Occupied Bandwidth of the EUT (MHz)	156.71
EUT 99% OBW Lower Edge, $F_L$ (MHz)	6586.65
EUT 99% OBW Upper Edge, $F_H$ (MHz)	6743.36
99% Occupied Bandwidth of the Incumbent Signal (MHz)	10.066
Test Frequency of Incumbent Signal ( $f_{c2}$ ) Near EUT $F_L$ (MHz)	<b>6592</b>
Test Frequency of Incumbent Signal at $f_{c1}$ (MHz)	<b>6665</b>
Test Frequency of Incumbent Signal ( $f_{c3}$ ) Near EUT $F_H$ (MHz)	<b>6738</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-1.84
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-63.8
<b>Test 1</b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c2}$ (dBm)	-75.84
Margin (dBm)	-12.00
Result (PASS / FAIL)	<b>PASS</b>
<b>Test 2</b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c1}$ (dBm)	-70.13
Margin (dBm)	-6.29
Result (PASS / FAIL)	<b>PASS</b>
<b>Test 3</b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c3}$ (dBm)	-75.23
Margin (dBm)	-11.39
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**

**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

Trial	AWGN Detected (Yes / No)		
	Incumbent AWGN at $f_{c2}$	Incumbent AWGN at $f_{c1}$	Incumbent AWGN at $f_{c3}$
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	Yes	Yes	Yes
8	Yes	Yes	Yes
9	Yes	Yes	No
10	Yes	Yes	Yes
<b>Test Result</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.

### 8.13.5. Tx OPERATIONAL STATUS TEST RESULTS

**Test Condition 4: 99% BW<sub>EUT</sub> > 4 x 99% BW<sub>INC</sub>**

Incumbent AWGN at f<sub>c2</sub>:

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-75.84	-1.84	0	-74	-62	Ceased
-78.82	-1.84	0	-76.98	-62	Minimal
-83.82	-1.84	0	-81.98	-62	Normal

Incumbent AWGN at f<sub>c1</sub>:

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-70.13	-1.84	0	-68.29	-62	Ceased
-75.12	-1.84	0	-73.28	-62	Minimal
-78.14	-1.84	0	-76.3	-62	Normal

Incumbent AWGN at f<sub>c3</sub>:

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-75.23	-1.84	0	-73.39	-62	Ceased
-79.21	-1.84	0	-77.37	-62	Minimal
-82.20	-1.84	0	-80.36	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

Test Date: 2024-02-09

Tested by: 84445

Test location: Chamber 5

## 8.14. U-NII 8 BAND TEST CONDITION 1 RESULTS

### TEST CONDITION 1 CRITERIA

$$99\% BW_{EUT} \leq 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.15. U-NII 8 BAND TEST CONDITION 2 RESULTS

### TEST CONDITION 2 CRITERIA

$$99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$$

### 8.15.1. TEST CHANNEL

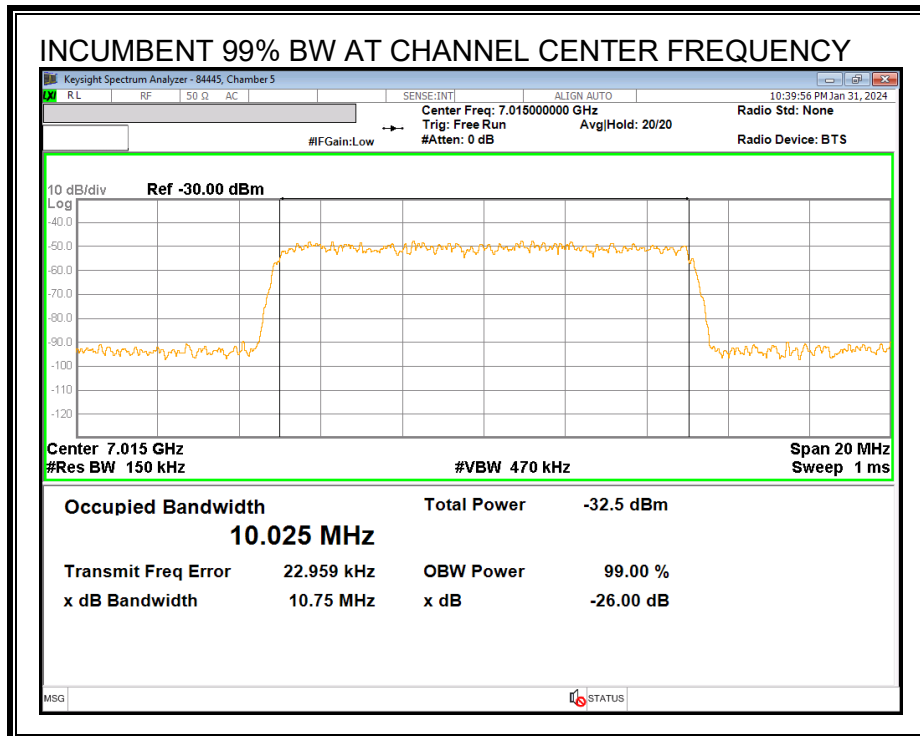
All tests were performed with the EUT set to a channel center frequency of 7015 MHz and a nominal channel bandwidth of 20 MHz.

Only the lowest and highest supported channel bandwidths are required to be tested.

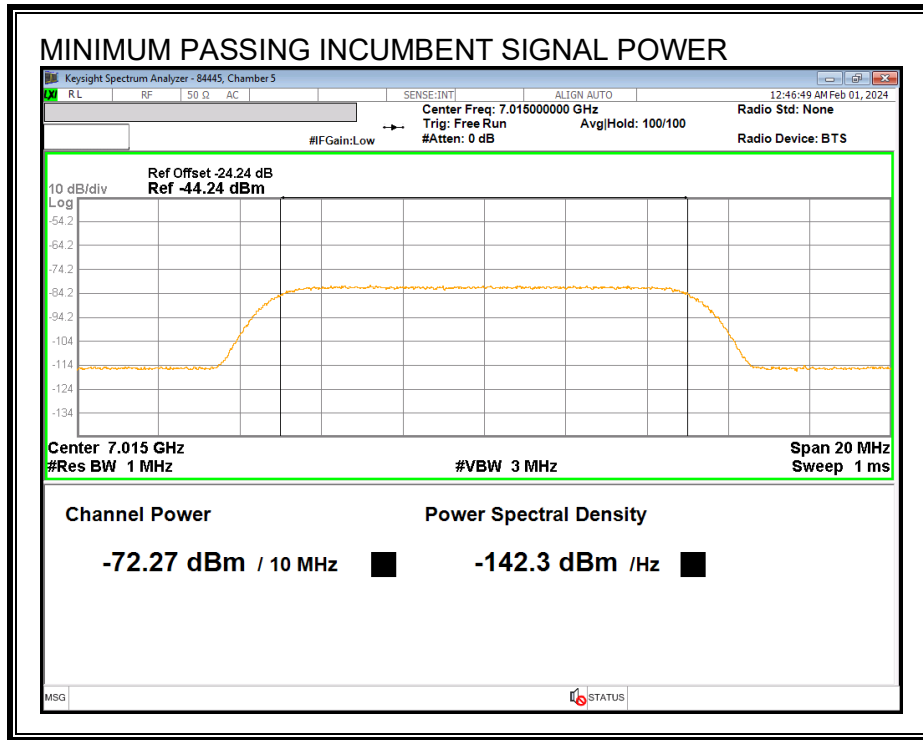
### 8.15.2. INCUMBENT SIGNAL PLOTS

All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH

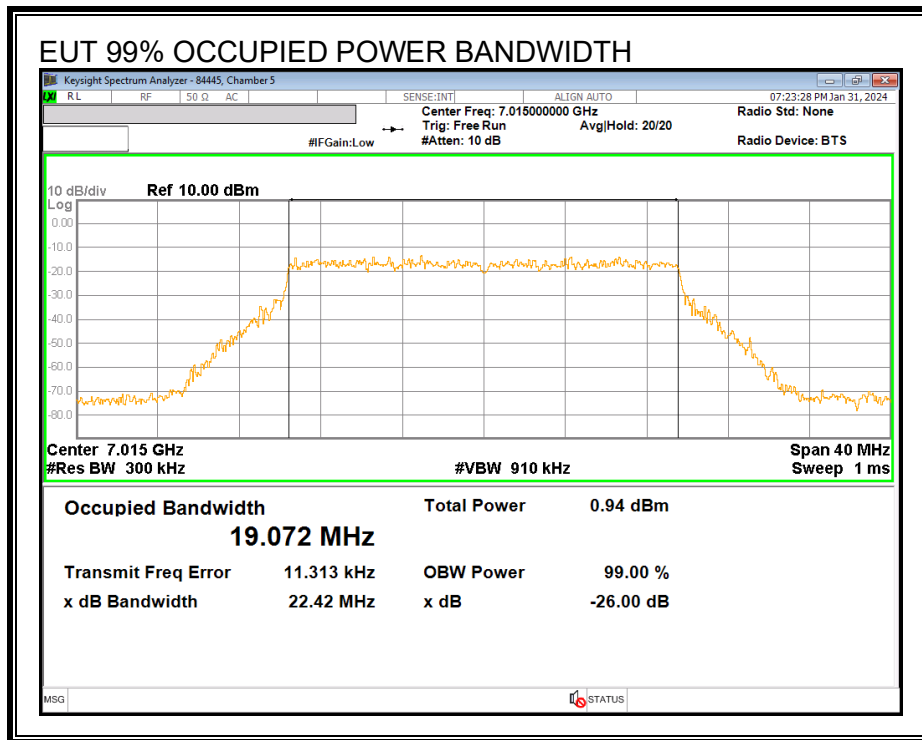


**MINIMUM PASSING INCUMBENT SIGNAL POWER**



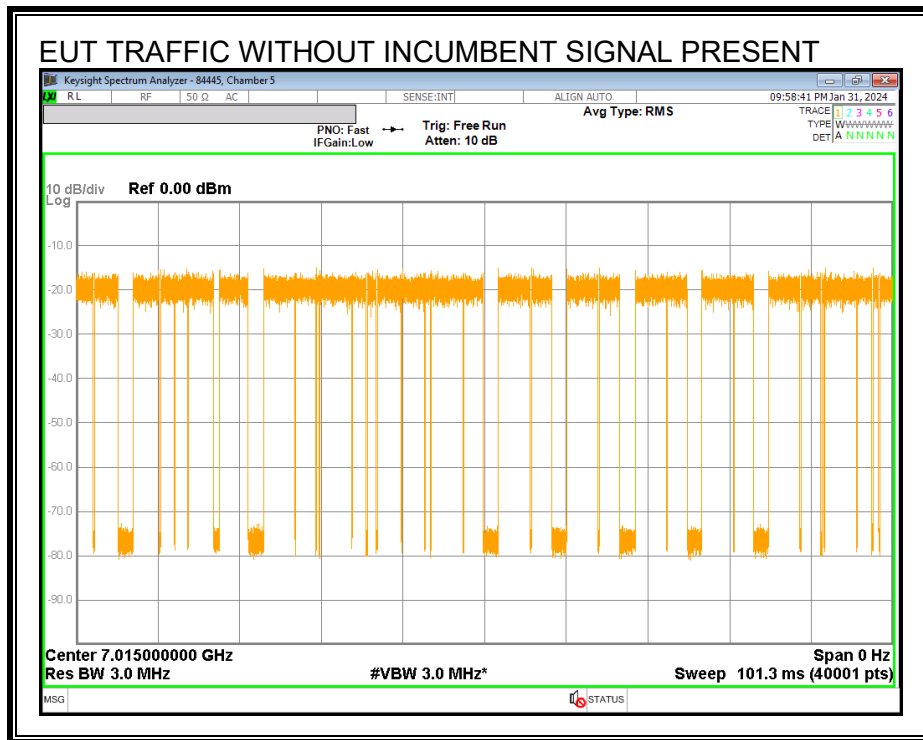
### 8.15.3. EUT TRANSMISSION PLOTS

#### EUT 99% OCCUPIED POWER BANDWIDTH



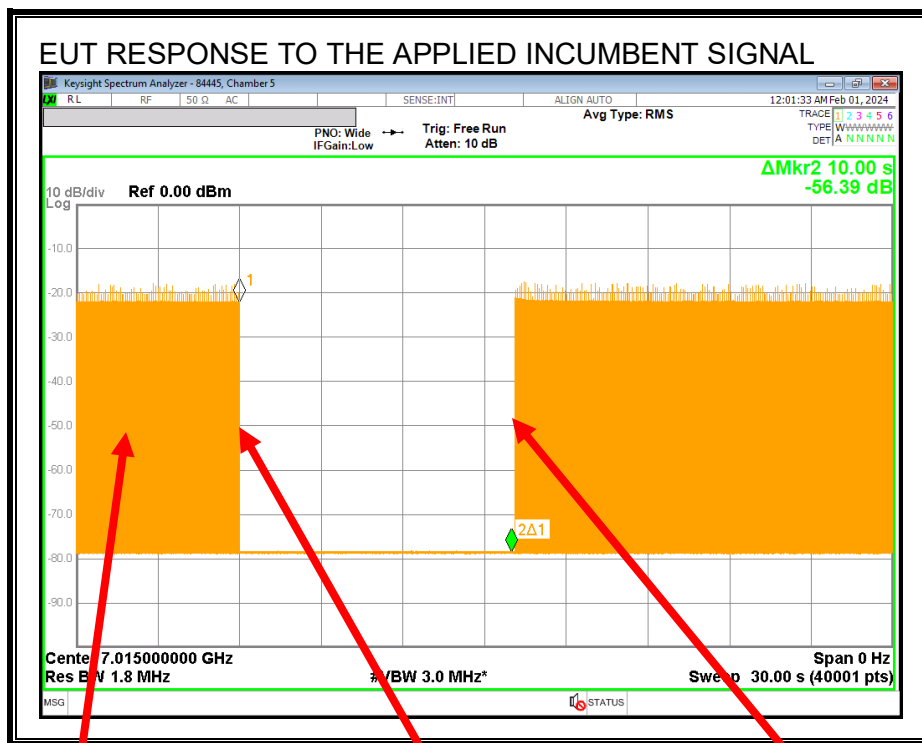


**TRAFFIC WITHOUT THE INCUMBENT SIGNAL PRESENT**



### EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### 8.15.4. TABULATED TEST RESULTS

#### INCUMBENT SIGNAL DETECTION RESULTS

EUT Channel Center Frequency, $f_{c1}$ (MHz)	7015
EUT Nominal Channel Bandwidth (MHz)	20
99% Occupied Bandwidth of the EUT (MHz)	19.072
EUT 99% OBW Lower Edge, $F_L$ (MHz)	7005.46
EUT 99% OBW Upper Edge, $F_H$ (MHz)	7024.54
Test Frequency of Incumbent Signal (MHz)	<b>7015</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-2.89
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-64.9
Lowest Passing Measured Incumbent Signal Amplitude (dBm)	-72.27
Margin (dBm)	-7.38
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

	AWGN Detected (Yes / No)
Trial	Incumbent AWGN at $f_{c1}$
1	Yes
2	Yes
3	No
4	Yes
5	Yes
6	Yes
7	Yes
8	Yes
9	Yes
10	Yes
<b>Test Result</b>	<b>PASS</b>

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.

**8.15.5. Tx OPERATIONAL STATUS TEST RESULTS**

**Test Condition 2:  $99\% BW_{INC} < 99\% BW_{EUT} \leq 2 \times 99\% BW_{INC}$**

Incumbent AWGN at  $f_{c1}$ :

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-72.27	-2.89	0	-69.38	-62	Ceased
-76.28	-2.89	0	-73.39	-62	Minimal
-81.29	-2.89	0	-78.4	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

**Test Date: 2024-01-31**

**Tested by: 84445**

**Test location: Chamber 5**

## 8.16. U-NII 8 BAND TEST CONDITION 3 RESULTS

### TEST CONDITION 3 CRITERIA

$$2 \times 99\% BW_{INC} < 99\% BW_{EUT} \leq 4 \times 99\% BW_{INC}$$

The lowest and highest supported channel bandwidths do not meet the criteria for this test condition therefore this test was not performed.

## 8.17. U-NII 8 BAND TEST CONDITION 4 RESULTS

### TEST CONDITION 4 CRITERIA

$$99\% BW_{EUT} > 4 \times 99\% BW_{INC}$$

### 8.17.1. TEST CHANNEL

All tests were performed with the EUT set to a channel center frequency of 6985 MHz and a nominal channel bandwidth of 160 MHz.

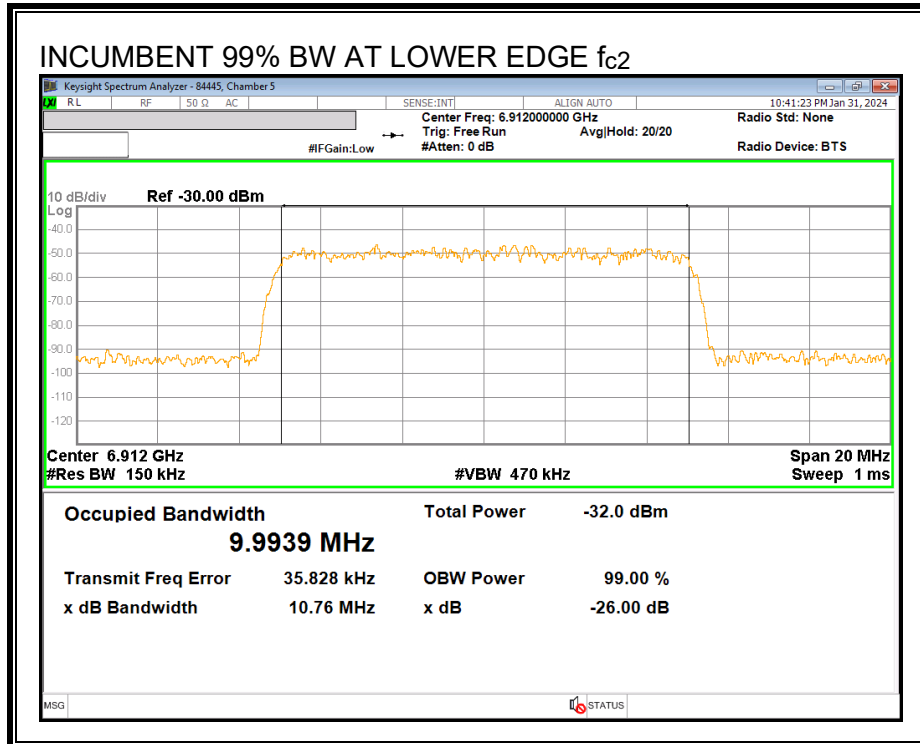
Only the lowest and highest supported channel bandwidths are required to be tested.

### 8.17.2. INCUMBENT SIGNAL PLOTS

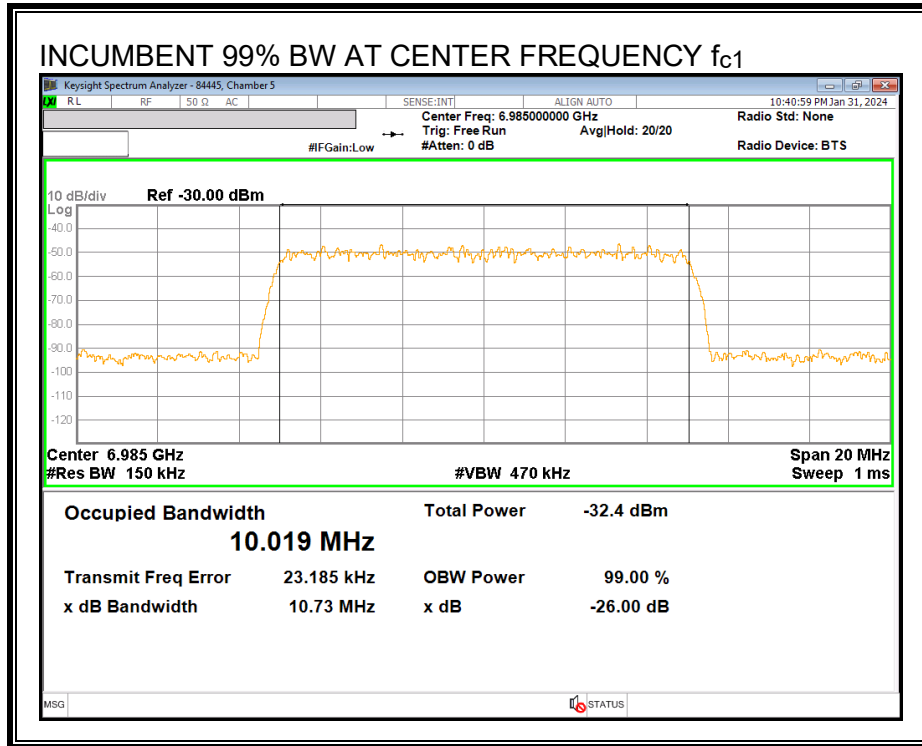
All tests were performed with the Incumbent Signal frequency set to the test channel center frequency and a nominal 99% Occupied Power Bandwidth of 10 MHz.

#### INCUMBENT SIGNAL 99% OCCUPIED POWER BANDWIDTH

Lower Edge Incumbent Signal  $f_{c2}$ :

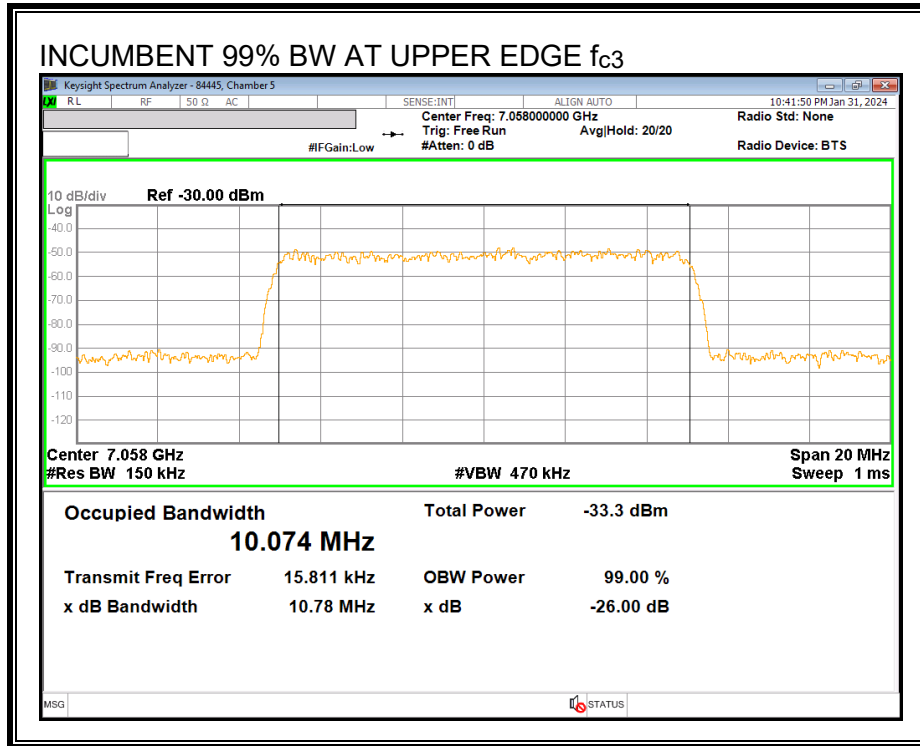


Center Frequency Incumbent Signal  $f_{c1}$ :



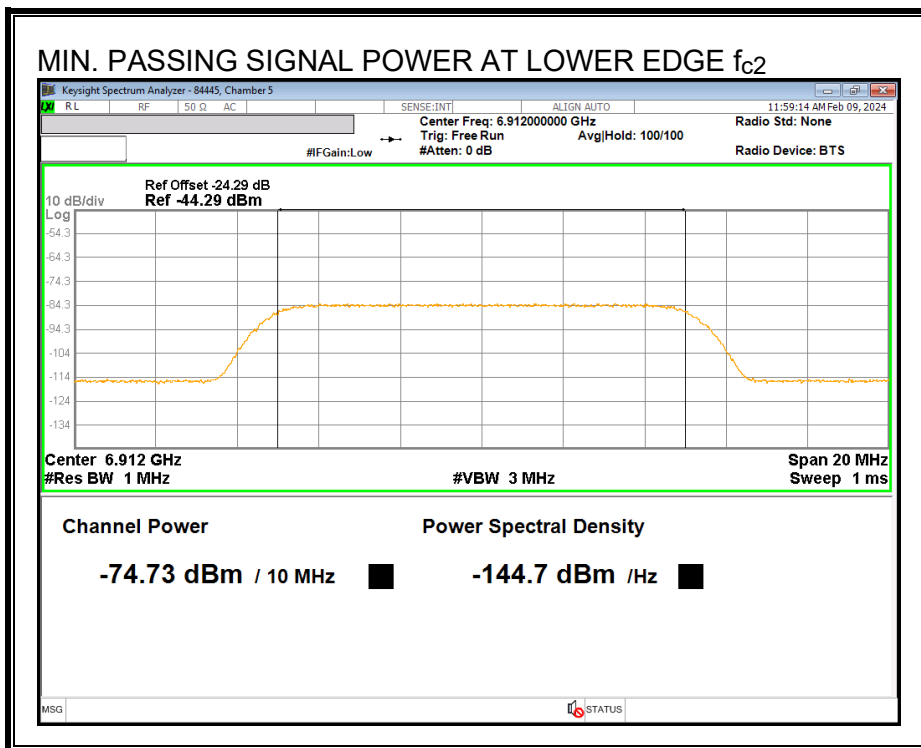


Upper Edge Incumbent Signal  $f_{c3}$ :

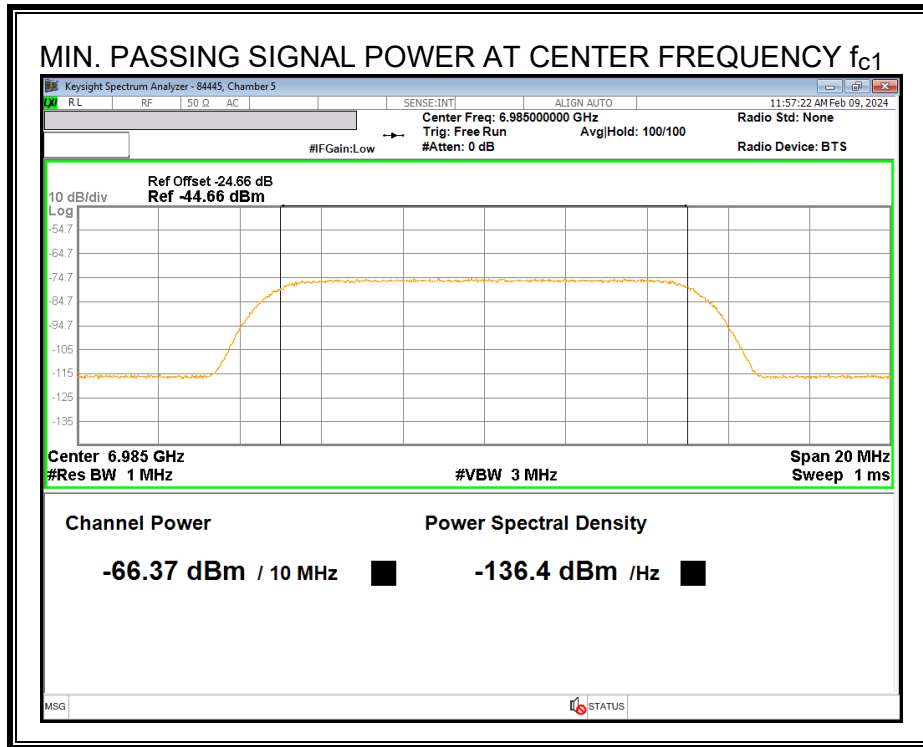


**MINIMUM PASSING INCUMBENT SIGNAL POWER**

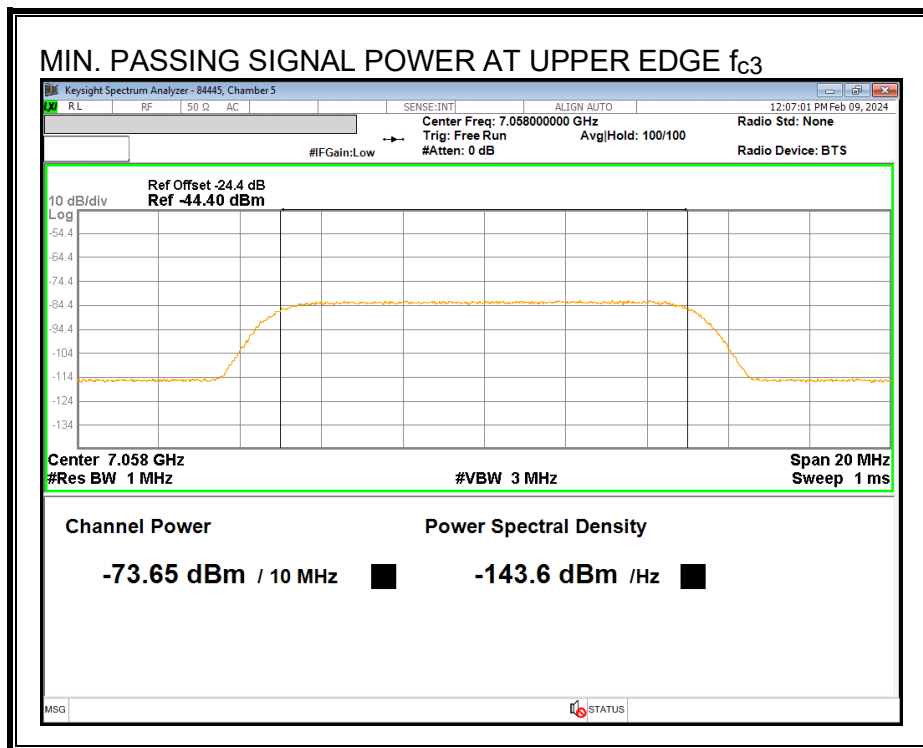
**Lower Edge Incumbent Signal  $f_{c2}$ :**



**Center Frequency Incumbent Signal  $f_{c1}$ :**

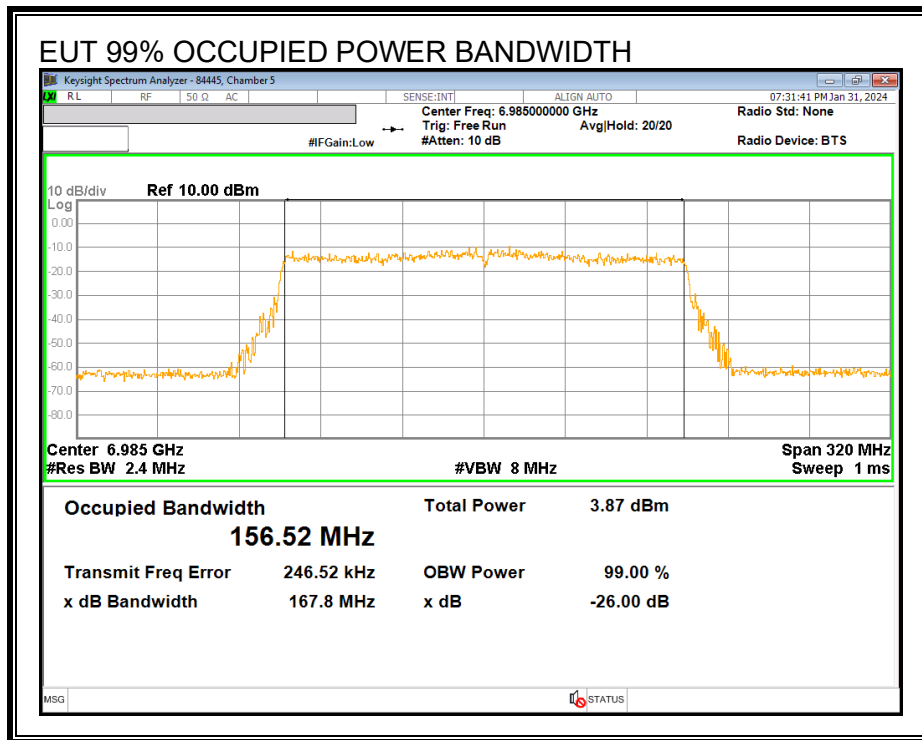


Upper Edge Incumbent Signal  $f_{c3}$ :



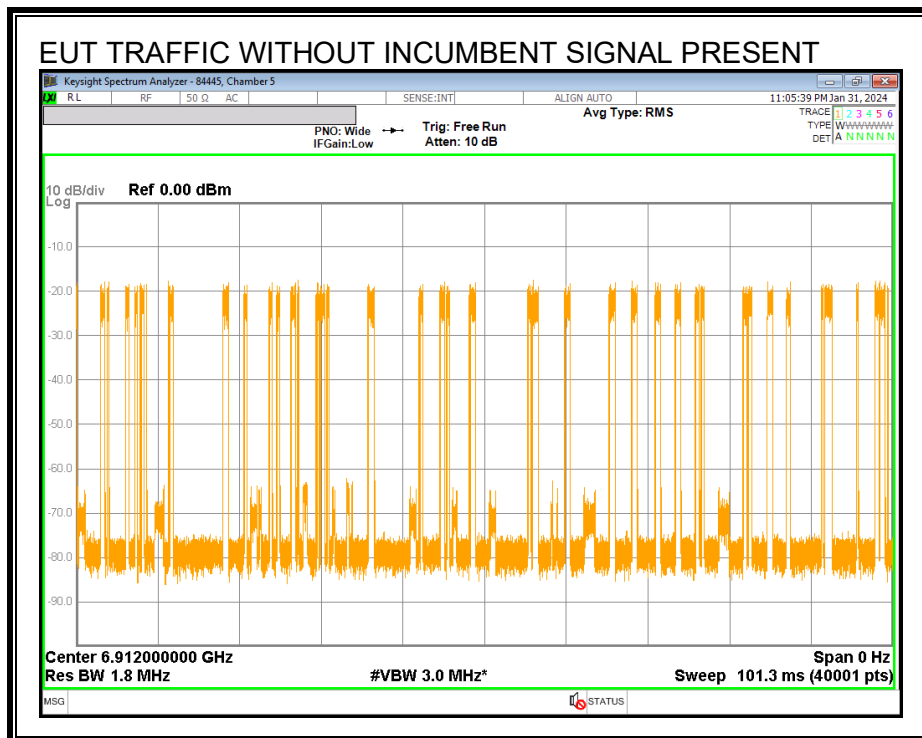
### 8.17.3. EUT TRANSMISSION PLOTS

#### EUT 99% OCCUPIED POWER BANDWIDTH

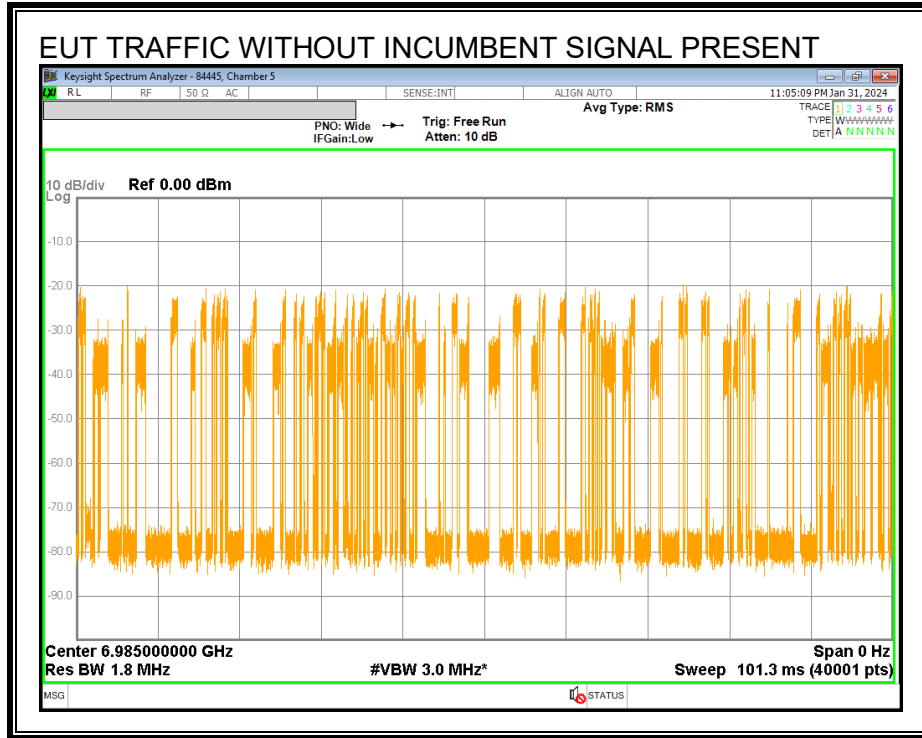


**TRAFFIC WITHOUT THE INCUMBENT SIGNAL PRESENT**

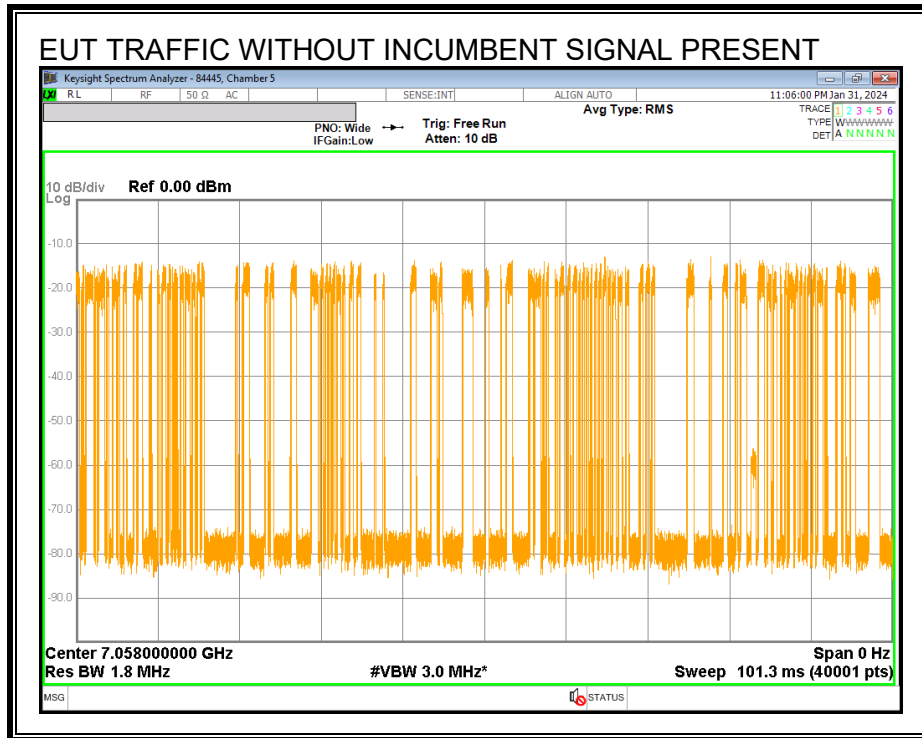
**Lower Edge  $f_{c2}$ :**



Center Frequency  $f_{c1}$ :



Upper Edge  $f_{c3}$ :

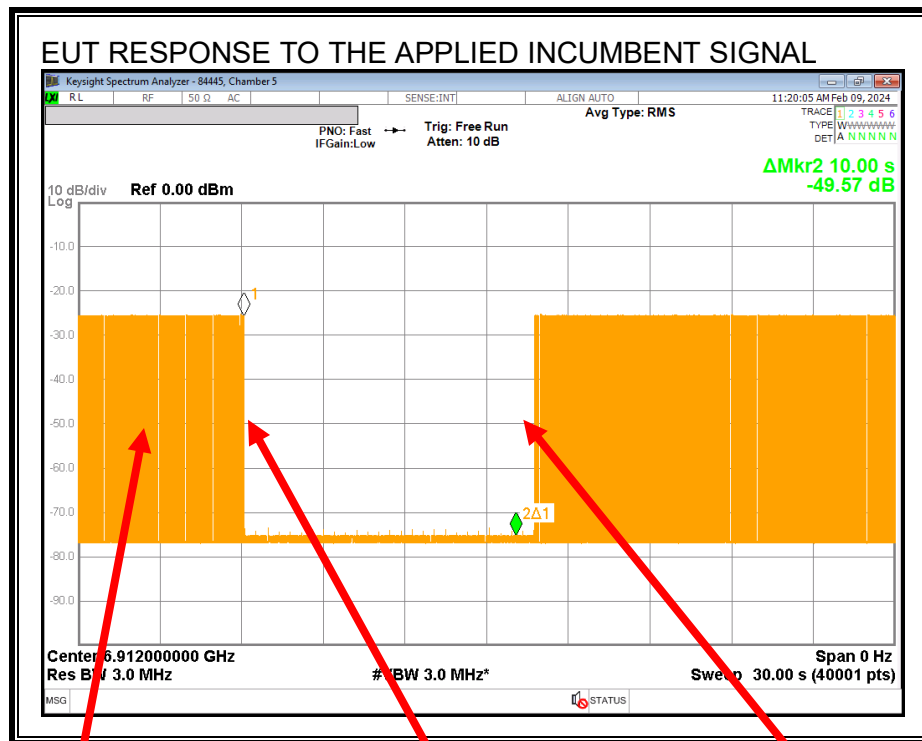




**EUT RESPONSE TO THE APPLIED INCUMBENT SIGNAL**

A link between the EUT and the Companion Device was established on the test channel. Traffic flowing from the EUT to the Companion Device was then initiated. A sweep was started, and the incumbent signal was continuously applied at approximately 6 seconds after the start of the sweep for a duration of 10 seconds and removed after the end of the observation period. Markers are placed at the beginning and end of the observation period.

**Lower Edge Incumbent Signal  $f_{c2}$ :**



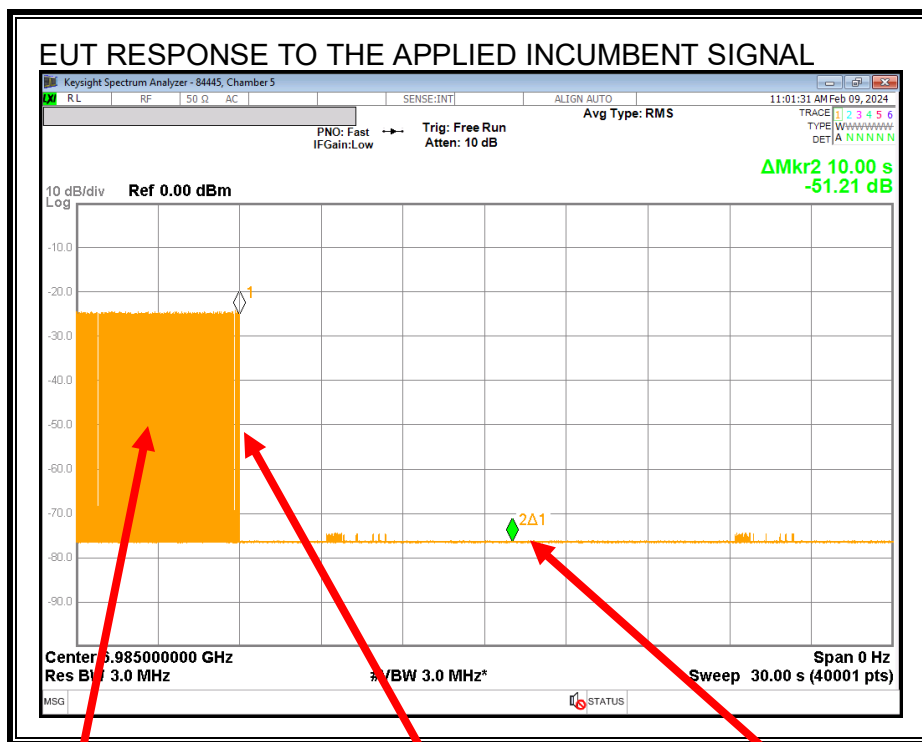
Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

### Center Frequency Incumbent Signal $f_{c1}$ :



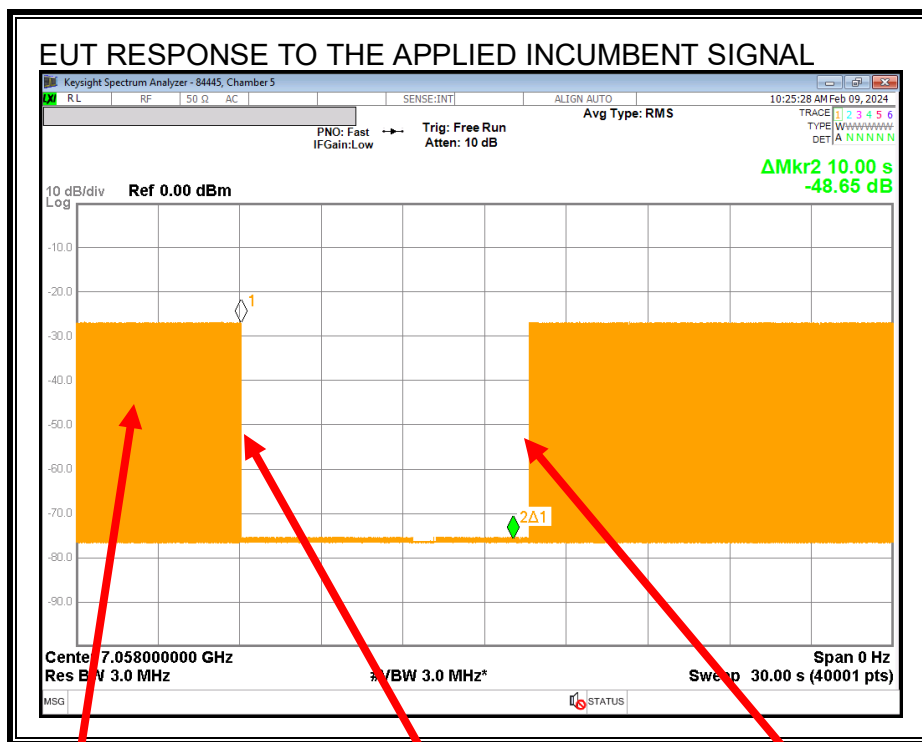
Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Association to Companion Lost

Transmissions cease while the Incumbent AWGN Signal is present and does not resume after it is removed due to the loss of the association to the Companion Device.

### Upper Edge Incumbent Signal $f_{c3}$ :



Normal Traffic

Application of Incumbent  
Transmissions Ceased

Incumbent Removed  
Transmissions Resume

Transmissions cease while the Incumbent AWGN Signal is present and resume after it is removed.

**8.17.4. TABULATED TEST RESULTS**

**INCUMBENT SIGNAL DETECTION RESULTS**

EUT Channel Center Frequency, $f_{c1}$ (MHz)	6985
EUT Nominal Channel Bandwidth (MHz)	160
99% Occupied Bandwidth of the EUT (MHz)	156.52
EUT 99% OBW Lower Edge, $F_L$ (MHz)	6906.74
EUT 99% OBW Upper Edge, $F_H$ (MHz)	7063.26
99% Occupied Bandwidth of the Incumbent Signal (MHz)	10.019
Test Frequency of Incumbent Signal ( $f_{c2}$ ) Near EUT $F_L$ (MHz)	<b>6912</b>
Test Frequency of Incumbent Signal at $f_{c1}$ (MHz)	<b>6985</b>
Test Frequency of Incumbent Signal ( $f_{c3}$ ) Near EUT $F_H$ (MHz)	<b>7058</b>
Maximum Allowed Incumbent Amplitude at Antenna (dBm)	-62
Minimum Antenna Gain (dBi)	-2.89
Maximum Allowed Incumbent Amplitude at Radio Port (dBm)	-64.9
<b>Test Results at <math>f_{c2}</math></b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c2}$ (dBm)	-74.73
Margin (dBm)	-9.84
Result (PASS / FAIL)	<b>PASS</b>
<b>Test Results at <math>f_{c1}</math></b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c1}$ (dBm)	-66.37
Margin (dBm)	-1.48
Result (PASS / FAIL)	<b>PASS</b>
<b>Test Results at <math>f_{c3}</math></b>	
Lowest Passing Measured Incumbent Signal Amplitude at $f_{c3}$ (dBm)	-73.65
Margin (dBm)	-8.76
Result (PASS / FAIL)	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**

**INCUMBENT SIGNAL DETECTION CERTAINTY RATE**

Trial	AWGN Detected (Yes / No)		
	Incumbent AWGN at $f_{c2}$	Incumbent AWGN at $f_{c1}$	Incumbent AWGN at $f_{c3}$
1	Yes	Yes	Yes
2	Yes	Yes	<b>No</b>
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	<b>No</b>	Yes
7	Yes	Yes	Yes
8	<b>No</b>	Yes	Yes
9	Yes	Yes	Yes
10	Yes	Yes	Yes
<b>Test Result</b>	<b>PASS</b>	<b>PASS</b>	<b>PASS</b>

**Test Date: 2024-02-09**

**Tested by: 84445**

**Test location: Chamber 5**

A minimum detection rate of 90% is required for the EUT to be compliant.

**8.17.5. Tx OPERATIONAL STATUS TEST RESULTS**

**Test Condition 4: 99% BW<sub>EUT</sub> > 4 x 99% BW<sub>INC</sub>**

**Incumbent AWGN at f<sub>c2</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-74.73	-2.89	0	-71.84	-62	Ceased
-78.73	-2.89	0	-75.84	-62	Minimal
-81.76	-2.89	0	-78.87	-62	Normal

**Incumbent AWGN at f<sub>c1</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-66.37	-2.89	0	-63.48	-62	Ceased
-70.38	-2.89	0	-67.49	-62	Minimal
-75.34	-2.89	0	-72.45	-62	Normal

**Incumbent AWGN at f<sub>c3</sub>:**

Measured Incumbent Power at the EUT Radio Port (dBm)	Antenna Gain (dBi)	Antenna Cable Path Loss (dB)	Adjusted Incumbent Power at the Antenna (dBm)	Detection Limit (dBm)	EUT Tx Status
-73.65	-2.89	0	-70.76	-62	Ceased
-76.68	-2.89	0	-73.79	-62	Minimal
-80.66	-2.89	0	-77.77	-62	Normal

The pathloss from the antenna to the radio is incorporated into a system pathloss correction.

Test Date: 2024-02-09

Tested by: 84445

Test location: Chamber 5

## **9. SETUP PHOTOS**

### **CONTENTION PROTOCOL MEASUREMENT SETUP**

Please refer to report R15103618-EP3 for setup photos.

**END OF TEST REPORT**