RF TEST REPORT

Applicant	Kiwibit Inc.
FCC ID	2BHUL-BC211
Product	Smart Wired Camera
Brand	Kiwibit
Model	BC211
Report No.	EFTA25060380-IE-02-R1
Issue Date	August 8, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2024)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Xu Ying   *Approved by: Xu Kai*

Eurofins TA Technology (Shanghai) Co., Ltd.

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TABLE OF CONTENT

Summary of Measurement Results

Number	Test Case	Clause in FCC rules	Verdict
1	Maximum output power	15.247(b)(3)	PASS
2	99% Bandwidth and 6dB Bandwidth	15.247(a)(2) C63.10 6.9	PASS
3	Power spectral density	15.247(e)	PASS
4	Band Edge	15.247(d)	PASS
5	Spurious RF Conducted Emissions	15.247(d)	PASS
6	Unwanted Emissions	15.247(d), 15.205, 15.209	PASS
7	Conducted Emissions	15.207	PASS
Date of Testing: July 2, 2025 ~ July 11, 2025 Date of Sample Received: June 24, 2025			
Note: 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.			

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1. Test Laboratory

1.1. Notes of the Test Report

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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 measurements.

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company:	Eurofins TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
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Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	https://www.eurofins.com/electrical-and-electronics
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2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	Kiwibit Inc.
Applicant address	17880 Skypark Circle, Suite 260, Irvine, CA 92614
Manufacturer	Kiwibit Inc.
Manufacturer address	17880 Skypark Circle, Suite 260, Irvine, CA 92614

2.2. General Information

EUT Description	
Model	BC211
Lab internal SN	EFTA25060380-IE-02/S01
Hardware Version	KK127_C02_V3
Software Version	1.13.10
Power Supply	AC adapter
Antenna Type	Wi-Fi 2.4GHz: Steel plate antenna Bluetooth LE: PCB Antenna
Antenna Connector	A permanently attached antenna (meet with the standard FCC Part 15.203 requirement)
Antenna Gain	Wi-Fi 2.4GHz: 2.12 dBi Bluetooth LE: -1.76 dBi
Operating Frequency Range(s)	802.11b/g/n(HT20): 2412 ~ 2462 MHz Bluetooth LE V5.2: 2402 ~2480 MHz
Modulation Type	802.11b: DSSS 802.11g/n: OFDM Bluetooth LE: GFSK
Max. Output Power	Wi-Fi 2.4GHz: 18.77 dBm Bluetooth LE: 1.98 dBm
Operating voltage range	4.75 Vdc to 5.25 Vdc
State voltage	5.0 Vdc
EUT Accessory	
Adapter 1	Manufacturer: Bazhong Chuanyuan Technology Co., Ltd Model: CY-01050100UU
Adapter 2	Manufacturer: SHENZHEN TIANYIN ELECTRONICS CO.,LTD. Model: TPA-418G050100UU01
Auxiliary Test Equipment	
PC	Manufacturer: Dell Model: Latitude 3301 (SN: 1Q6DJW2)
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 CFR47 Part 15C (2024) Radio Frequency Devices

ANSI C63.10-2013

Reference standard:

KDB 558074 D01 15.247 Meas Guidance v05r02

4. Test Configuration

Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate
Bluetooth(Low Energy)	1Mbps
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0

5. Test Case Results

5.1. Maximum output power

Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Methods of Measurement

During the process of the testing, The EUT was connected to Power meter with a known loss. The EUT is max power transmission with proper modulation.

Test Setup
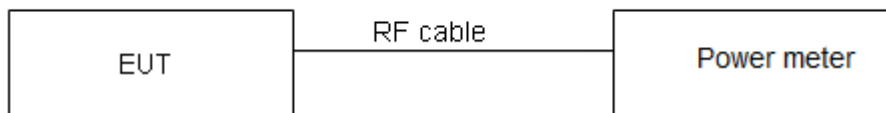
Limits

Rule Part 15.247 (b) (3) specifies that " For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz: 1 Watt."

Average Output Power	≤ 1W (30dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.44 dB.
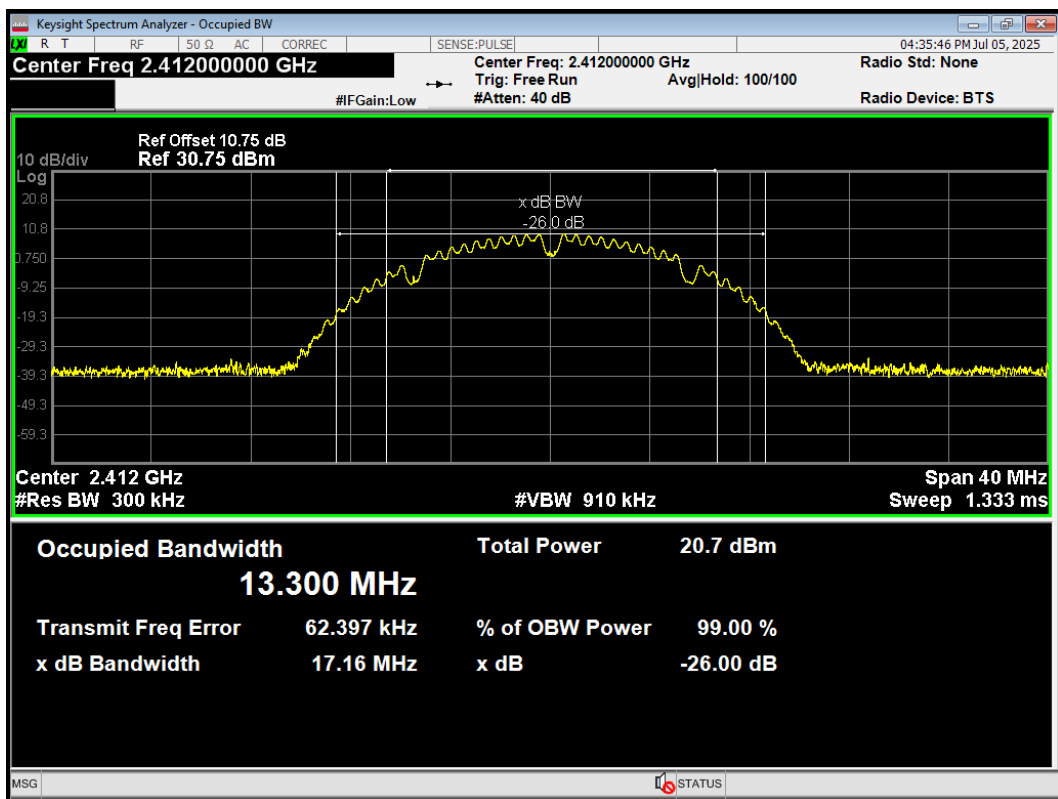
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Test Results

Test Mode	Duty cycle	Duty cycle correction Factor (dB)
802.11b	0.990	0.000
802.11g	0.939	0.270
802.11n HT20	0.964	0.160
Bluetooth (Low Energy)	0.859	0.660
Note: when Duty cycle≥0.98, Duty cycle correction Factor not required.		

Test Mode	Carrier frequency (MHz)/ Channel	Power Index	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11b	2412/CH1	45	18.77	18.77	30	PASS
	2437/CH6	45	18.77	18.77	30	PASS
	2462/CH11	45	18.08	18.08	30	PASS
802.11g	2412/CH1	51	16.63	16.90	30	PASS
	2417/CH2	52	17.13	17.40	30	PASS
	2422/CH3	53	17.59	17.86	30	PASS
	2437/CH6	53	17.60	17.87	30	PASS
	2447/CH8	53	17.02	17.29	30	PASS
	2452/CH9	55	17.46	17.73	30	PASS
	2457/CH10	55	17.43	17.70	30	PASS
	2462/CH11	55	17.30	17.57	30	PASS
802.11n HT20	2412/CH1	51	16.59	16.75	30	PASS
	2417/CH2	52	17.30	17.46	30	PASS
	2422/CH3	53	17.39	17.55	30	PASS
	2437/CH6	53	17.40	17.56	30	PASS
	2452/CH9	53	17.05	17.21	30	PASS
	2457/CH10	55	17.32	17.48	30	PASS
	2462/CH11	55	17.16	17.32	30	PASS
Bluetooth (Low Energy)	2402/CH0	7	-0.36	0.30	30	PASS
	2440/CH19	7	0.88	1.54	30	PASS
	2480/CH39	7	1.32	1.98	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor						

5.2. 99% Bandwidth and 6dB Bandwidth

Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. RBW is set to 100 kHz; VBW is set to 300 kHz on spectrum analyzer. Dector=Peak, Trace mode=max hold.

The EUT was connected to the spectrum analyzer through a known loss cable. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value.

Test Setup
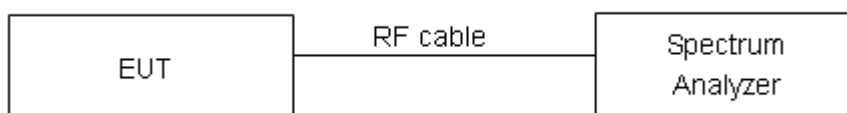
Limits

Rule Part 15.247 (a) (2) specifies that "Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz."

minimum 6 dB bandwidth	≥ 500 kHz

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 936 Hz.

Test Results:

Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11b	2412	13.300	8.542	500	Pass
802.11b	2437	13.292	8.118	500	Pass
802.11b	2462	13.377	9.013	500	Pass
802.11g	2412	16.782	16.351	500	Pass
802.11g	2417	16.948	16.345	500	Pass
802.11g	2422	16.943	16.323	500	Pass
802.11g	2437	16.858	16.362	500	Pass
802.11g	2447	16.813	16.321	500	Pass
802.11g	2452	16.887	16.331	500	Pass
802.11g	2457	16.794	16.336	500	Pass
802.11g	2462	16.796	16.317	500	Pass
802.11n(HT20)	2412	17.893	17.564	500	Pass
802.11n(HT20)	2417	17.943	17.565	500	Pass
802.11n(HT20)	2422	17.869	17.312	500	Pass
802.11n(HT20)	2437	17.911	16.941	500	Pass
802.11n(HT20)	2452	17.882	17.288	500	Pass
802.11n(HT20)	2457	17.802	17.310	500	Pass
802.11n(HT20)	2462	17.820	16.923	500	Pass

Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
BLE	2402	0.943	0.541	500	Pass
BLE	2440	0.953	0.552	500	Pass
BLE	2480	0.954	0.555	500	Pass

99%bandwidth

OBW 802.11b 2412MHz

OBW 802.11b 2437MHz
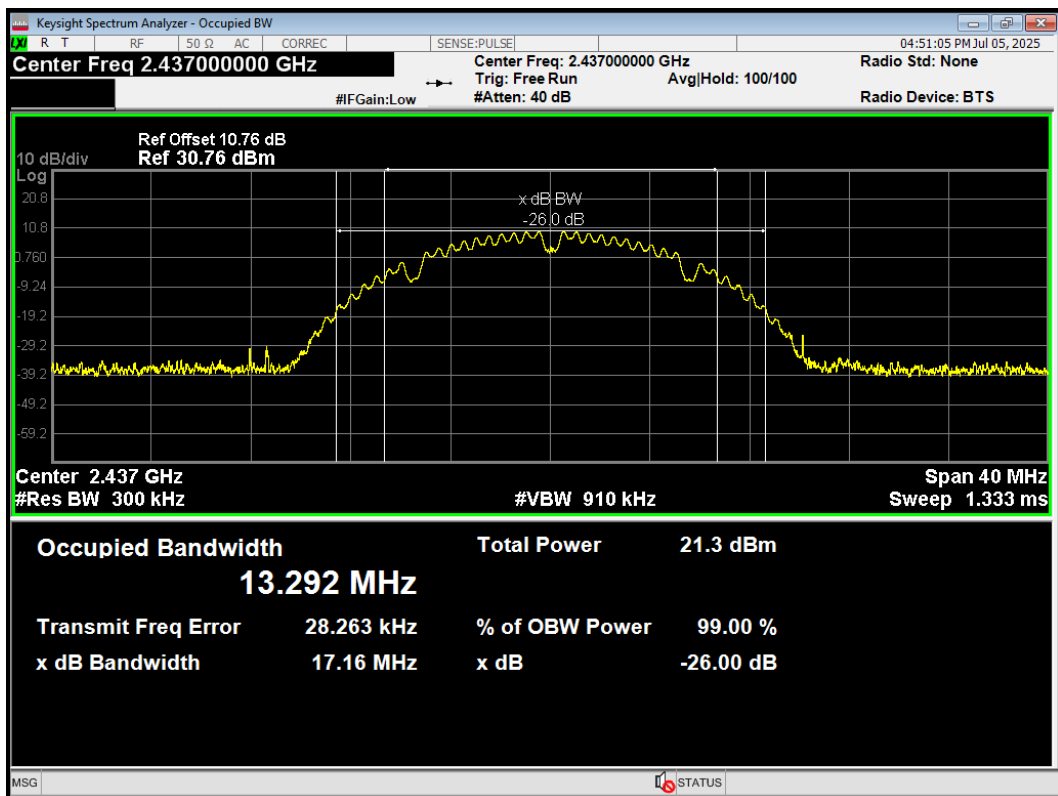
OBW 802.11b 2462MHz

OBW 802.11g 2412MHz

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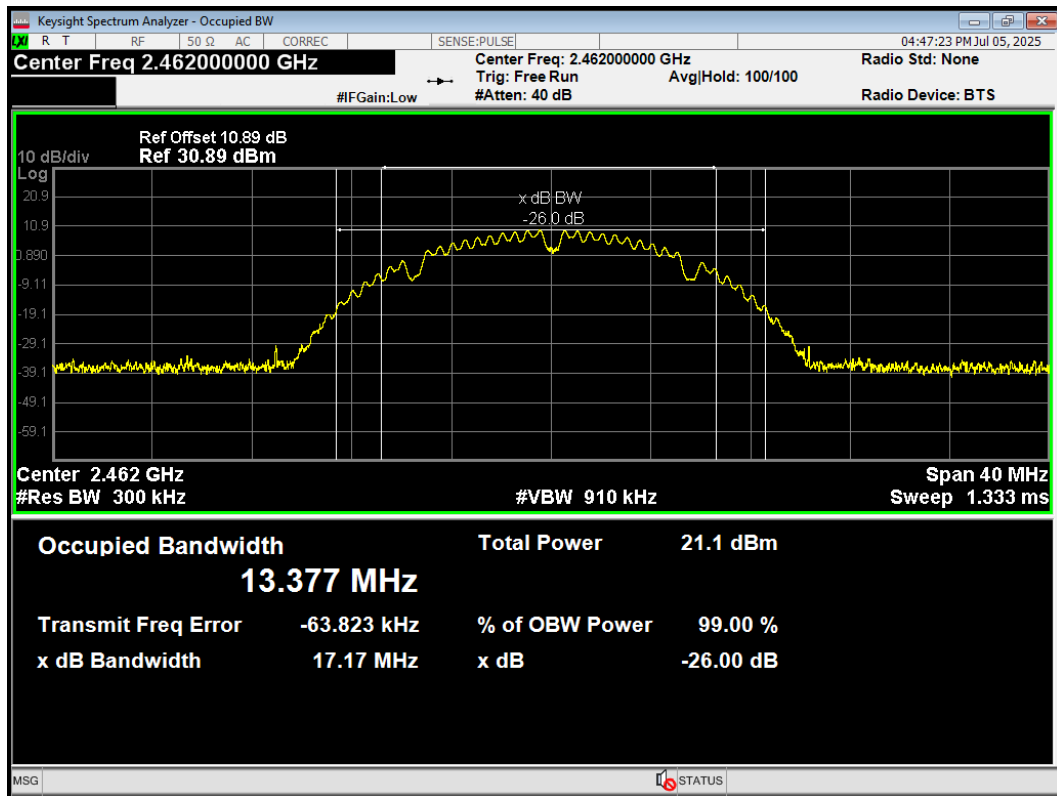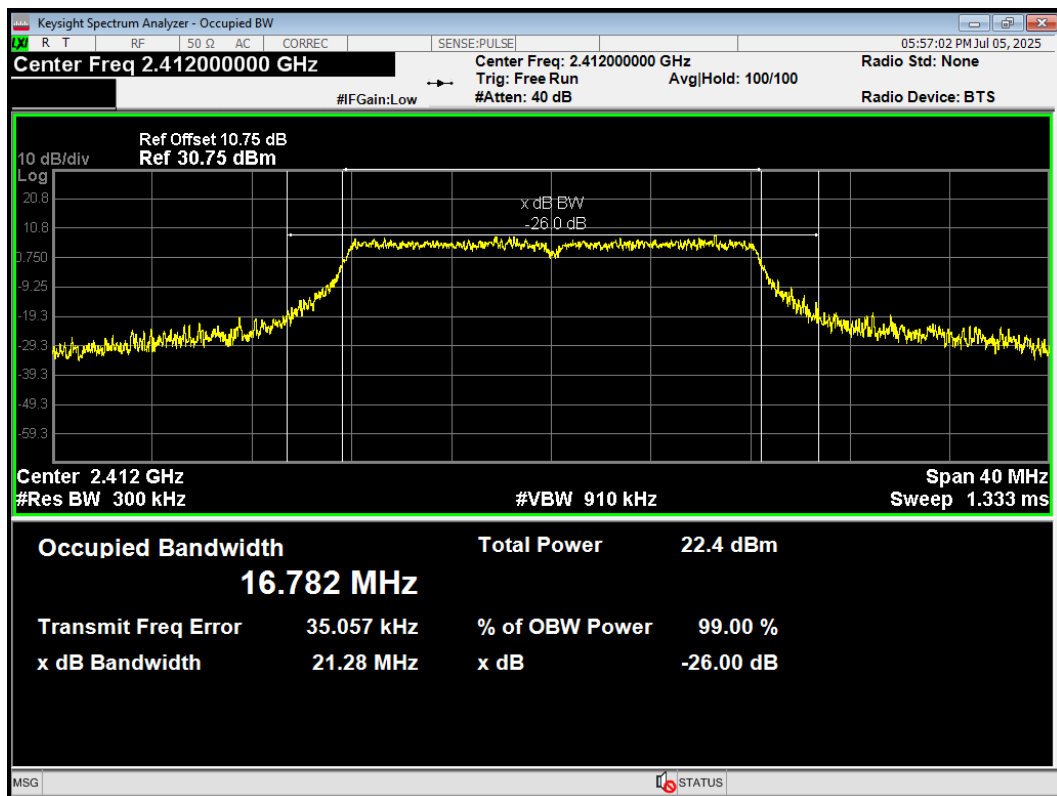
OBW 802.11g 2417MHz

OBW 802.11g 2422MHz

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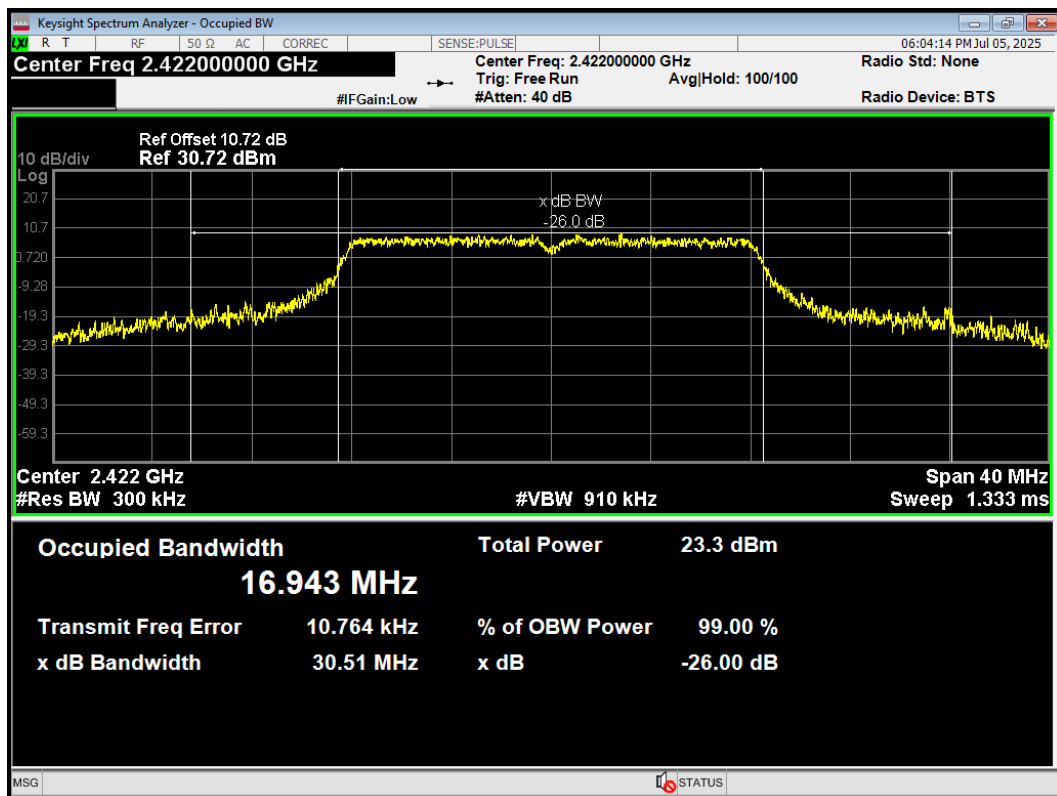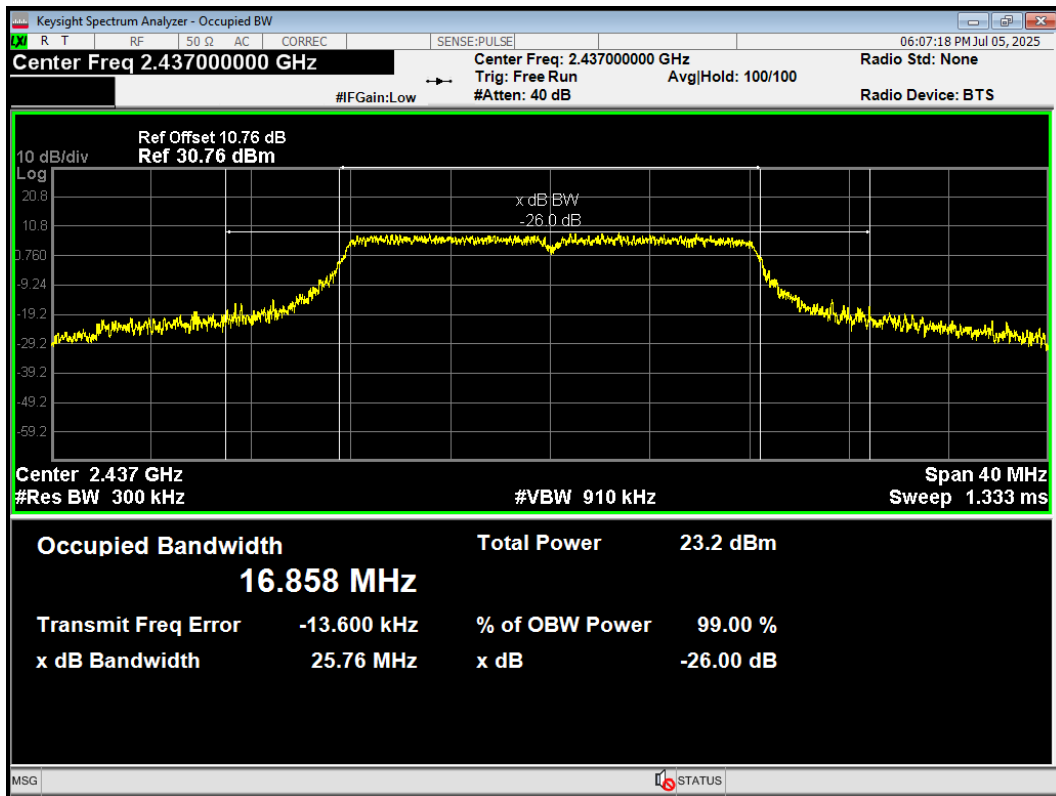
OBW 802.11g 2437MHz

OBW 802.11g 2447MHz
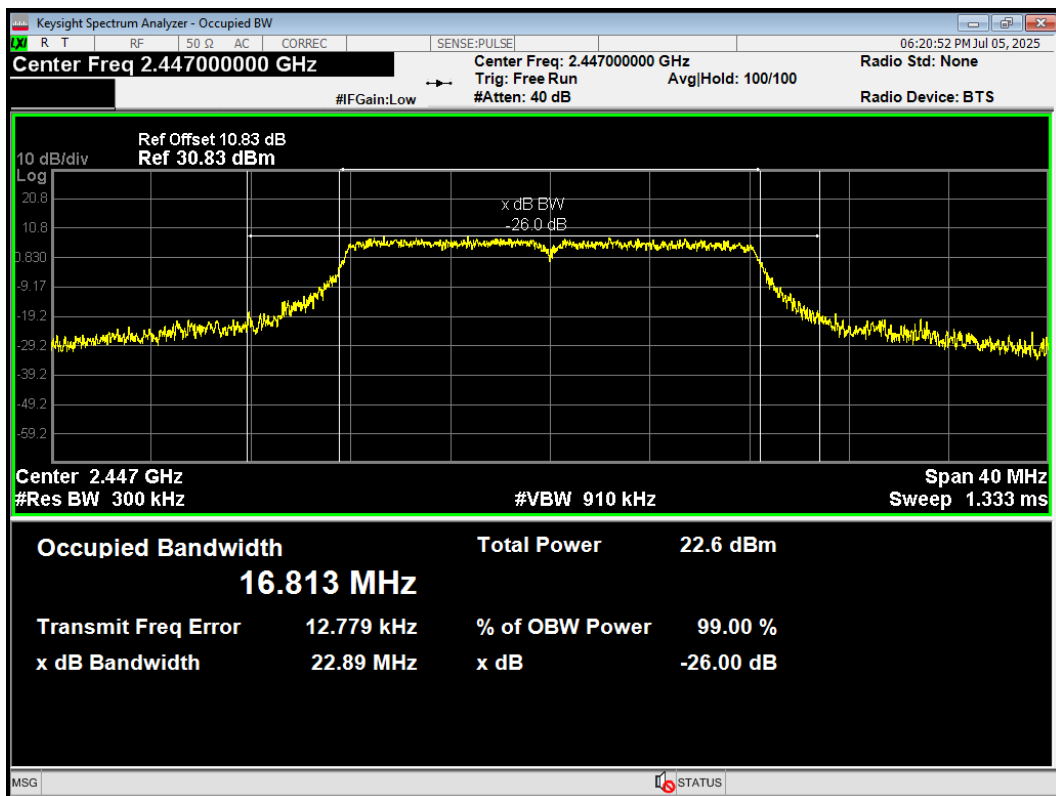
OBW 802.11g 2452MHz

OBW 802.11g 2457MHz

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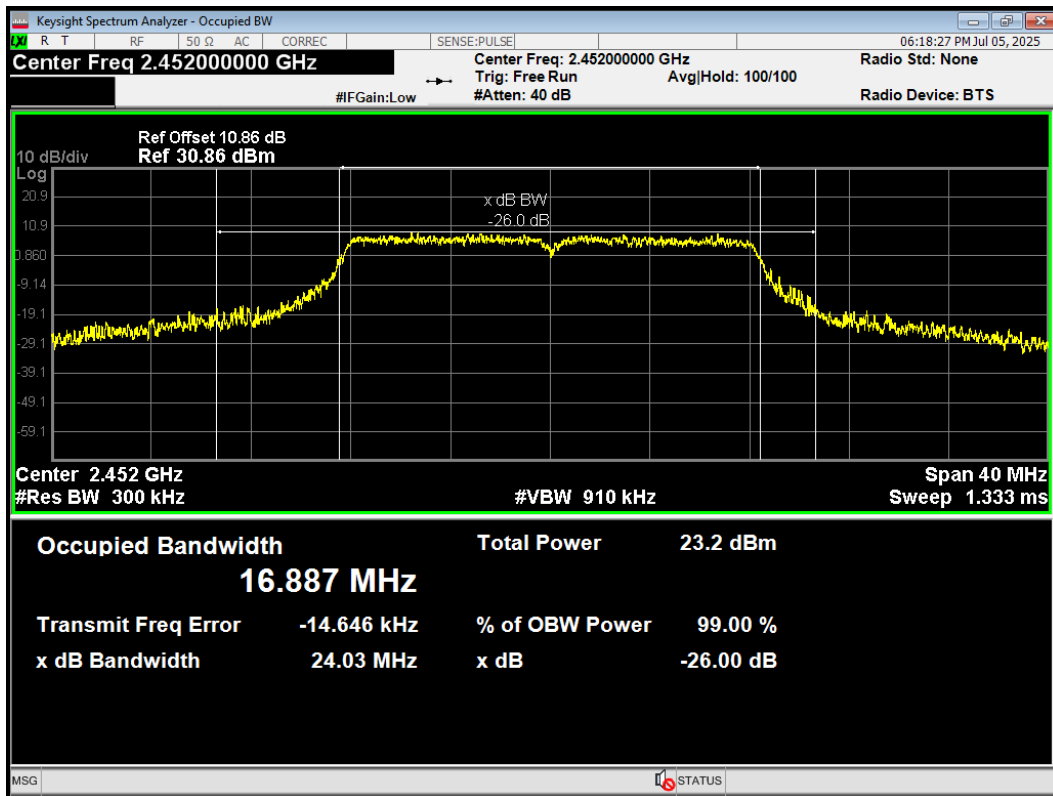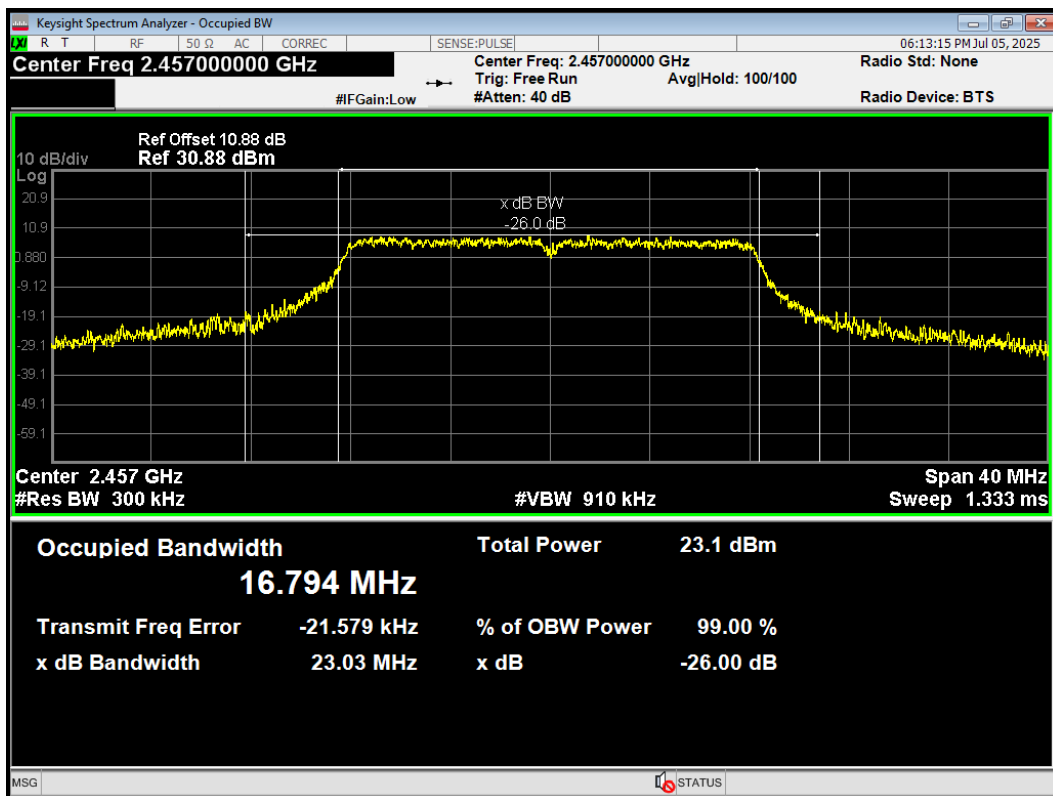
OBW 802.11g 2462MHz

OBW 802.11n(HT20) 2412MHz

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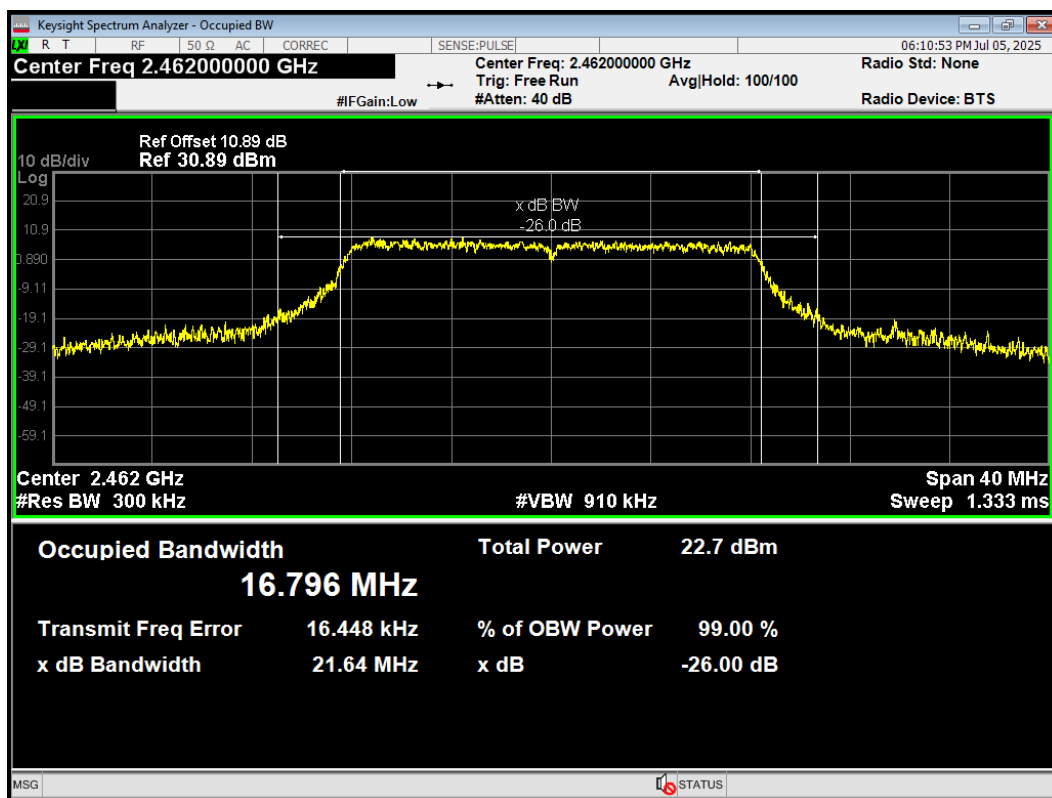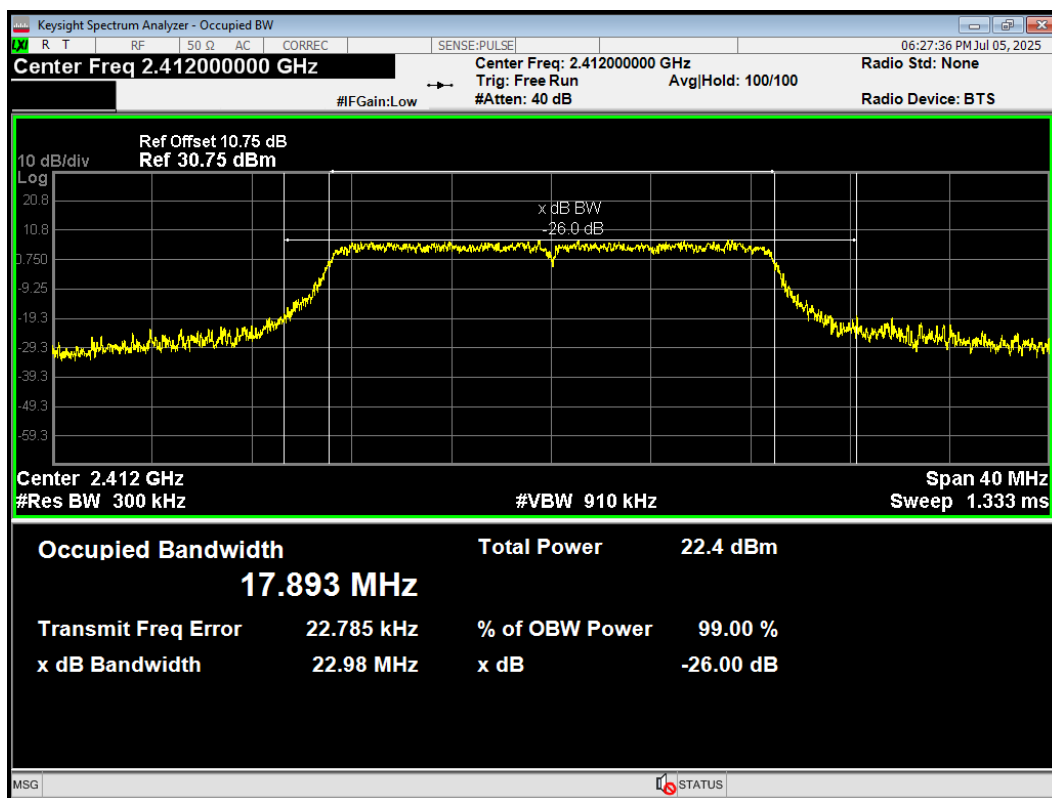
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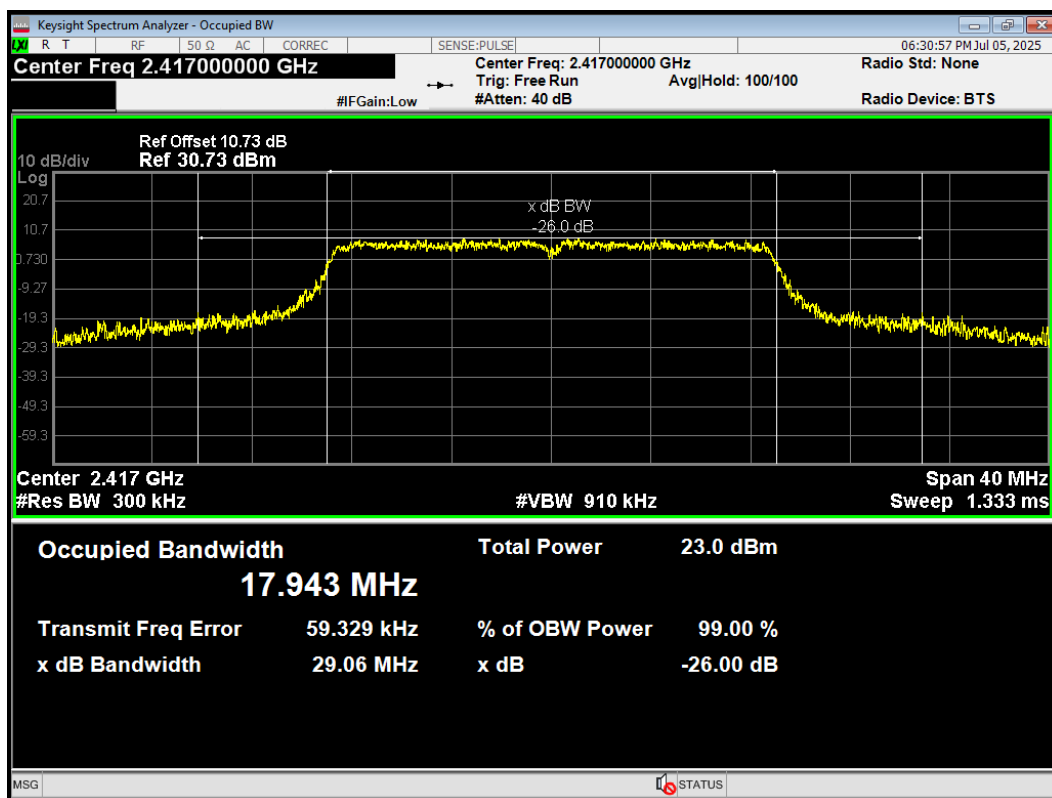
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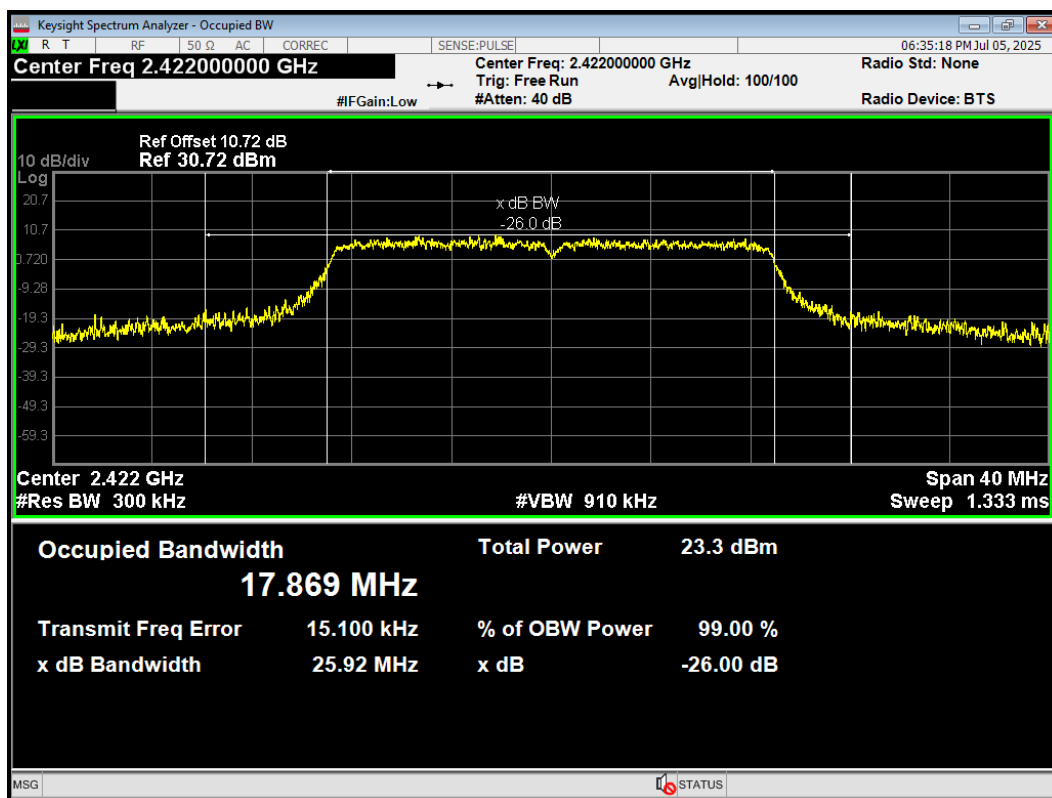
OBW 802.11n(HT20) 2437MHz

OBW 802.11n(HT20) 2452MHz

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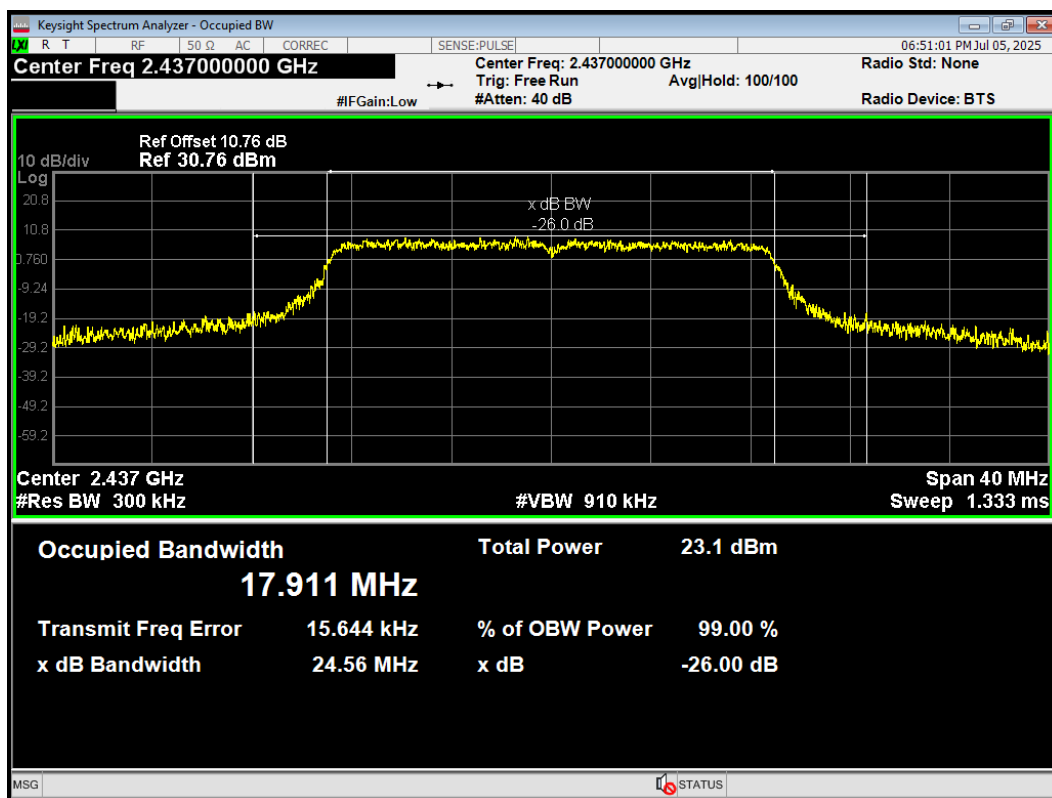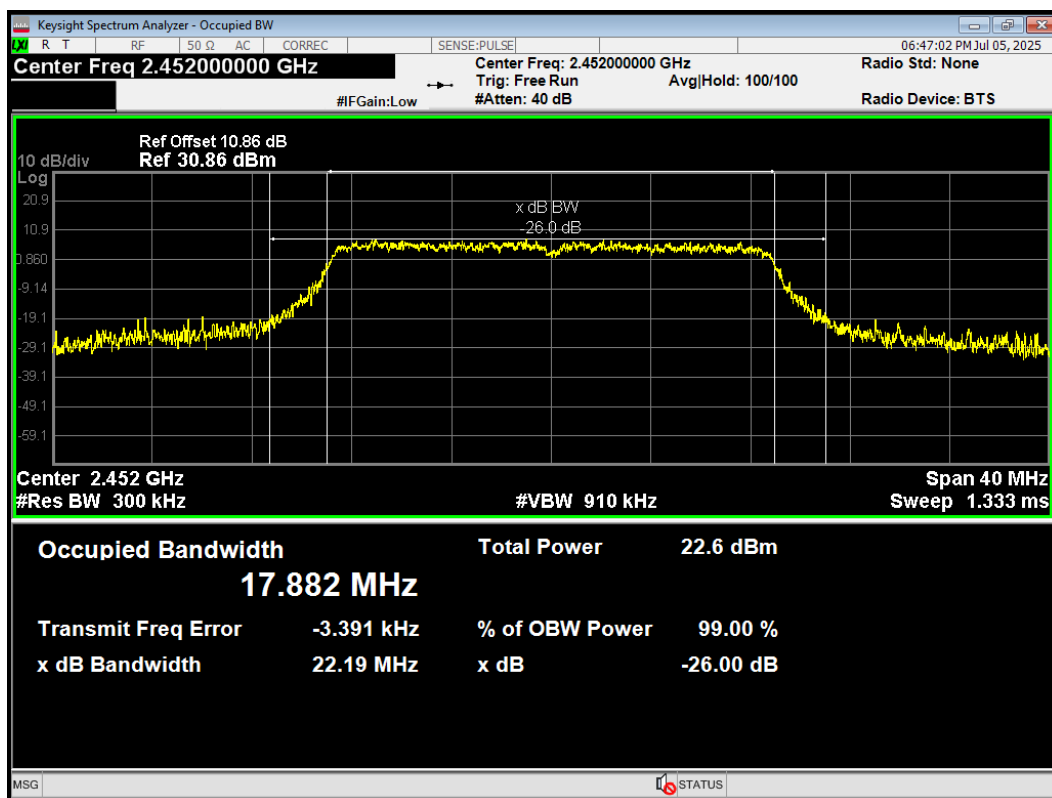
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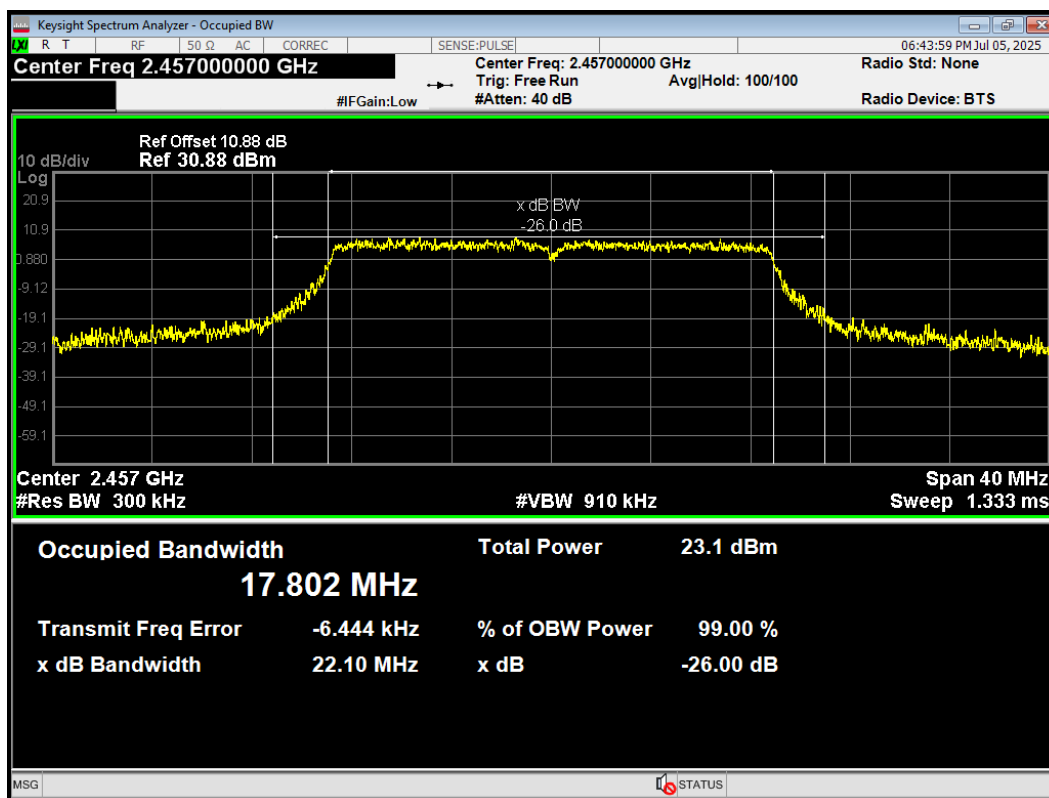
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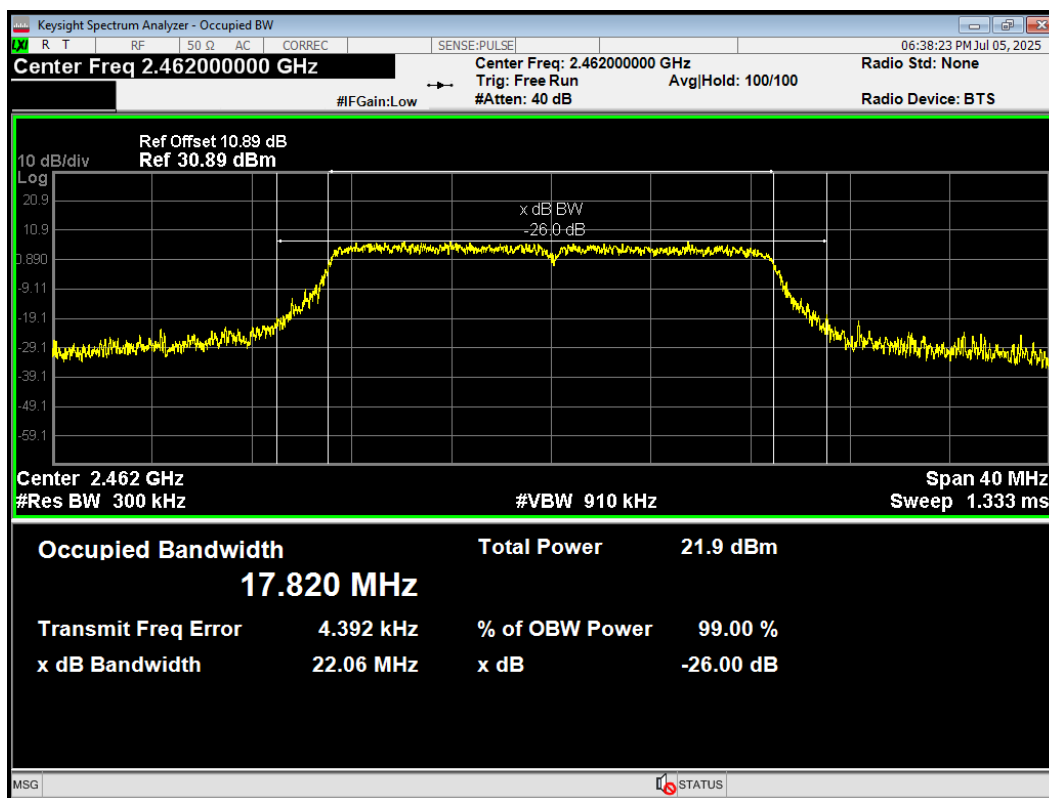
OBW BLE 2402MHz

OBW BLE 2440MHz

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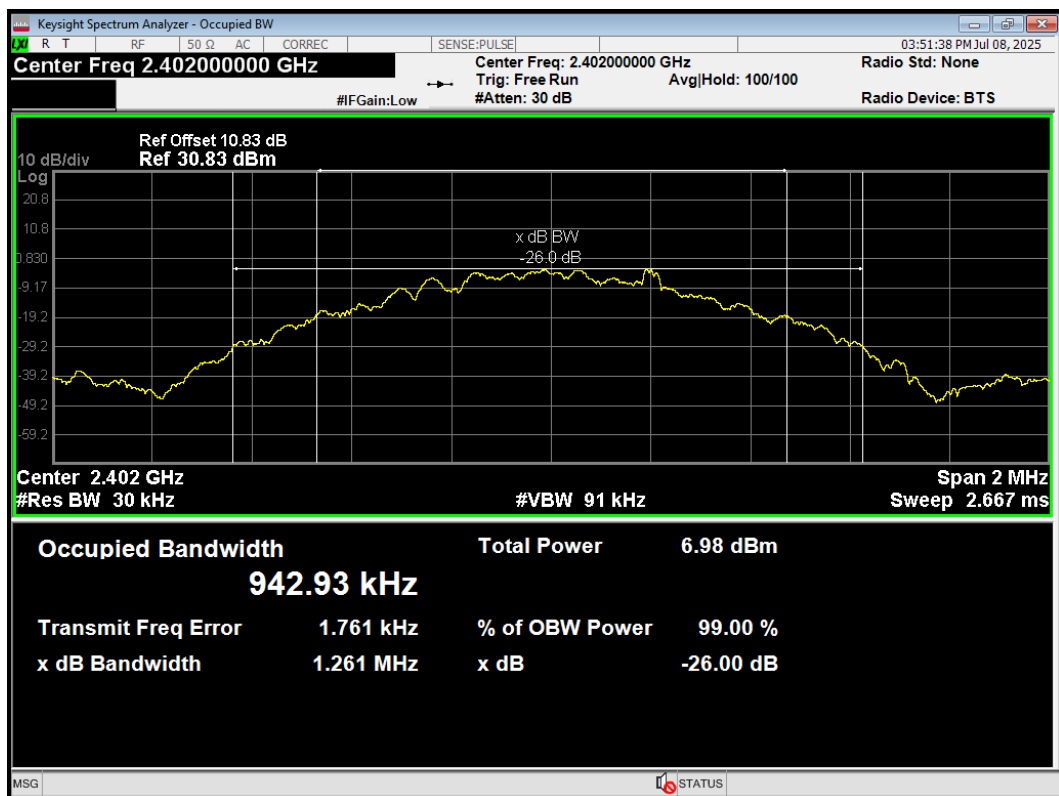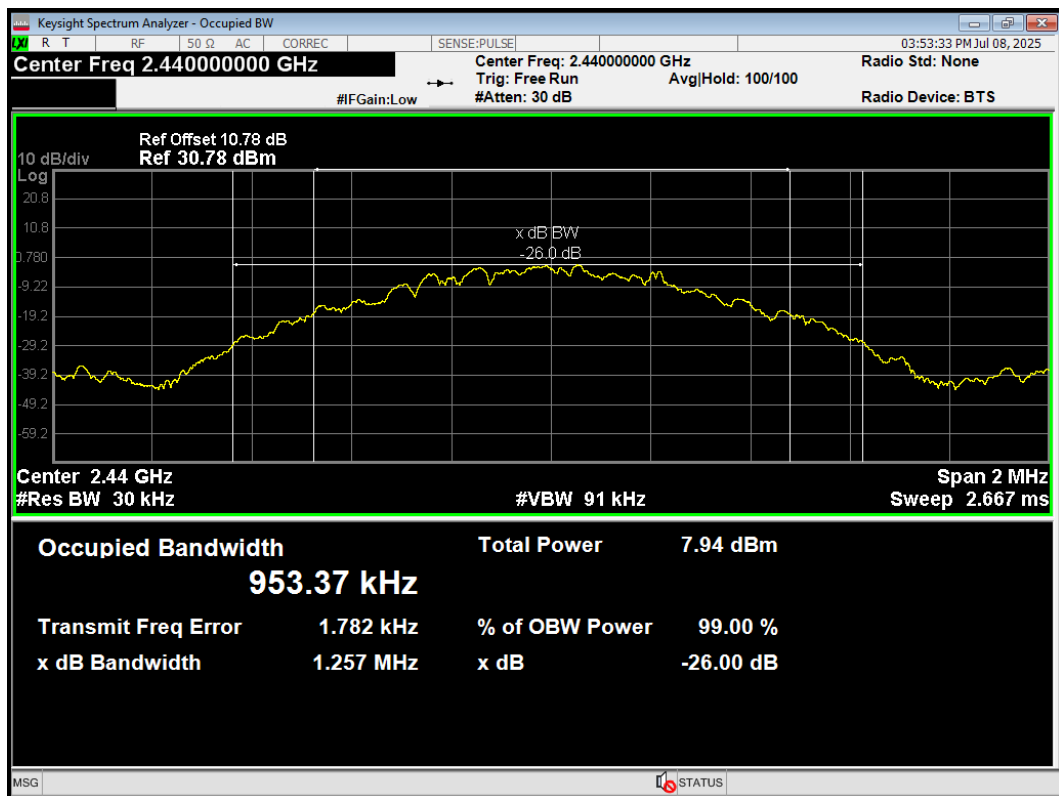
OBW BLE 2480MHz
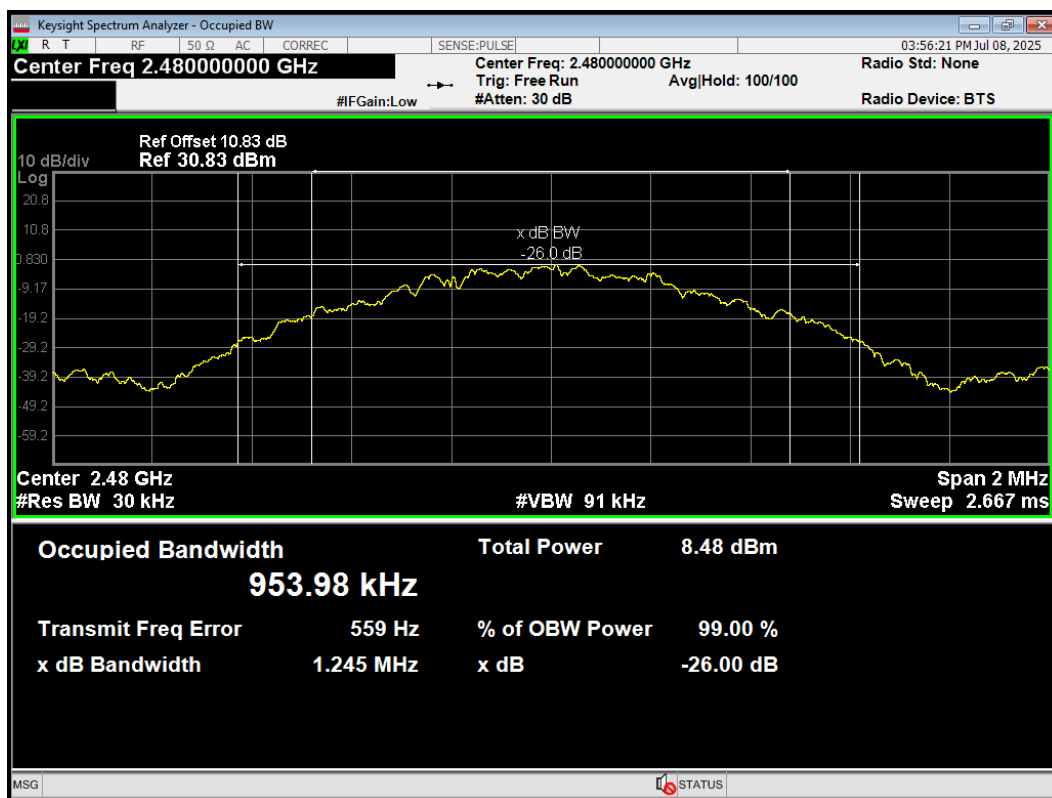
6 dB bandwidth

-6dB Bandwidth 802.11b 2412MHz

-6dB Bandwidth 802.11b 2437MHz

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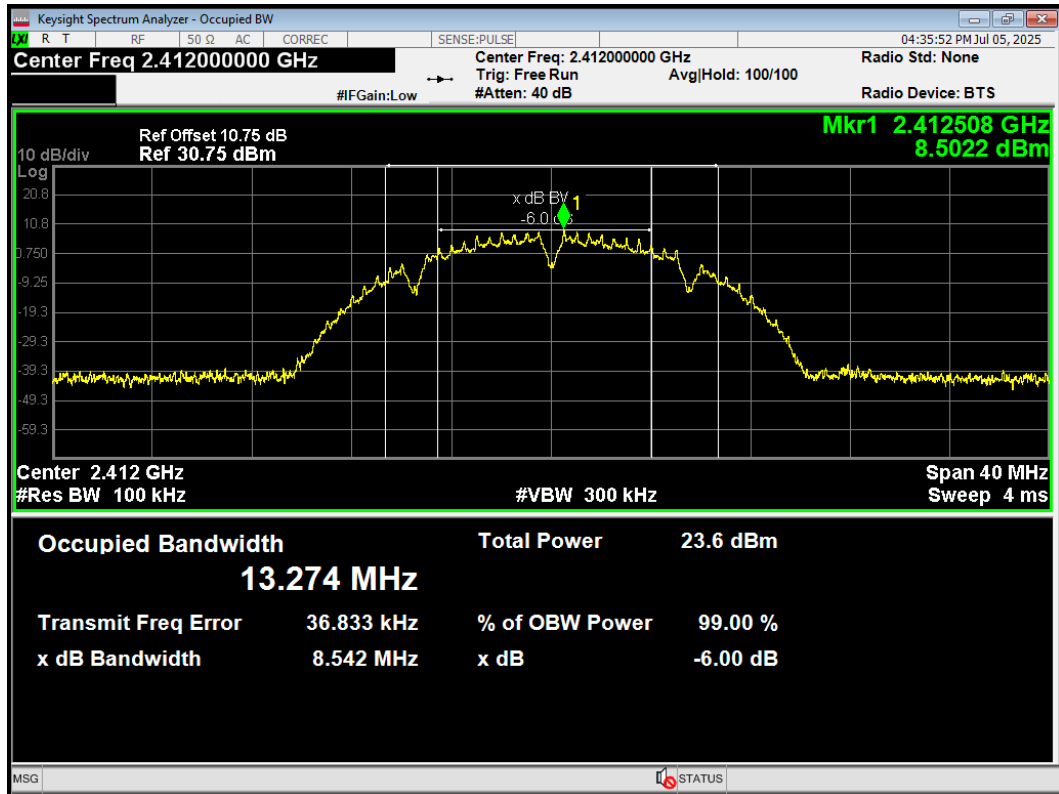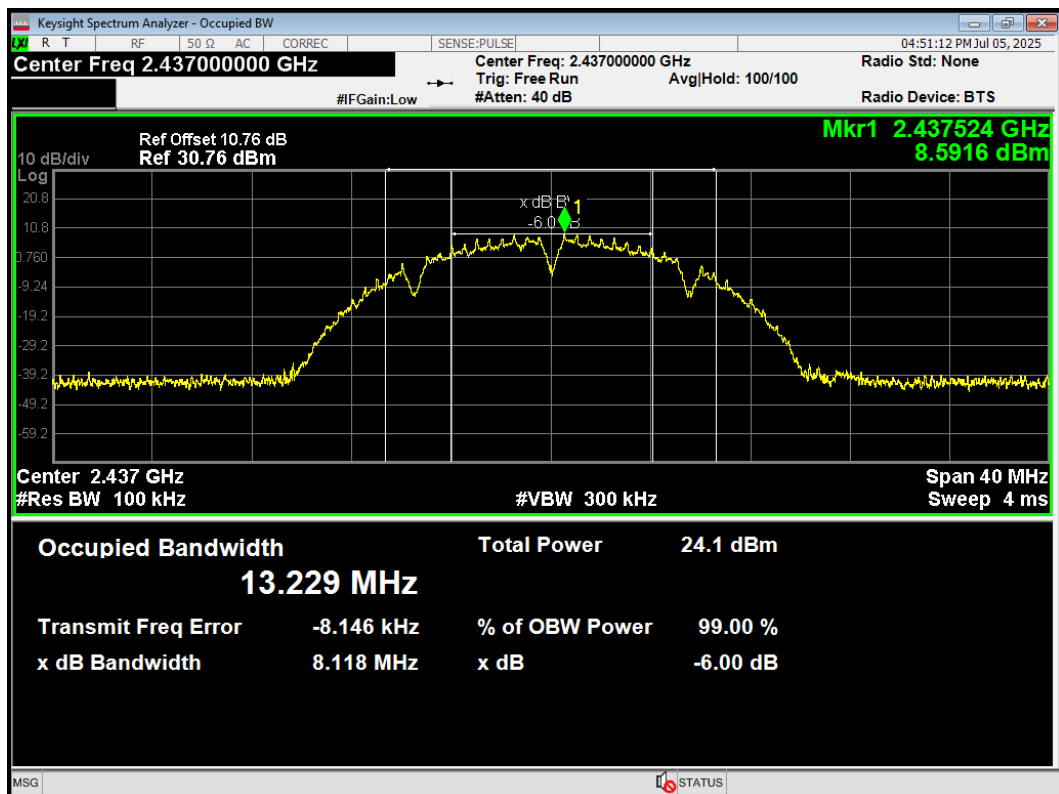
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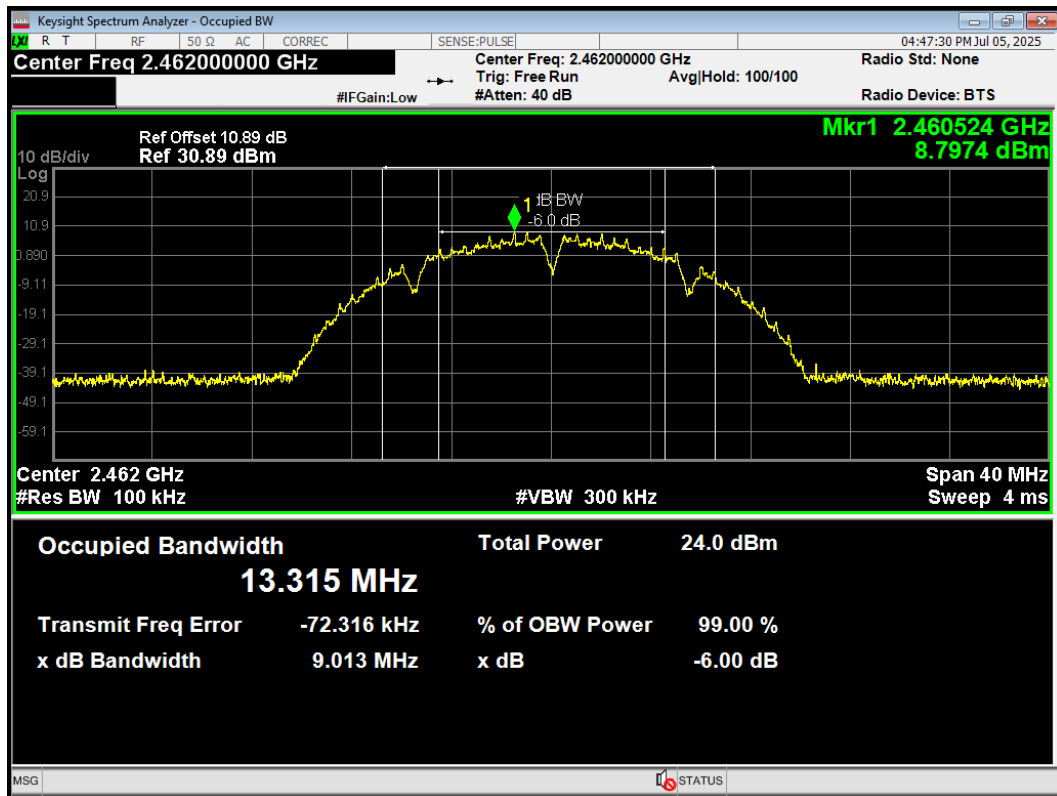
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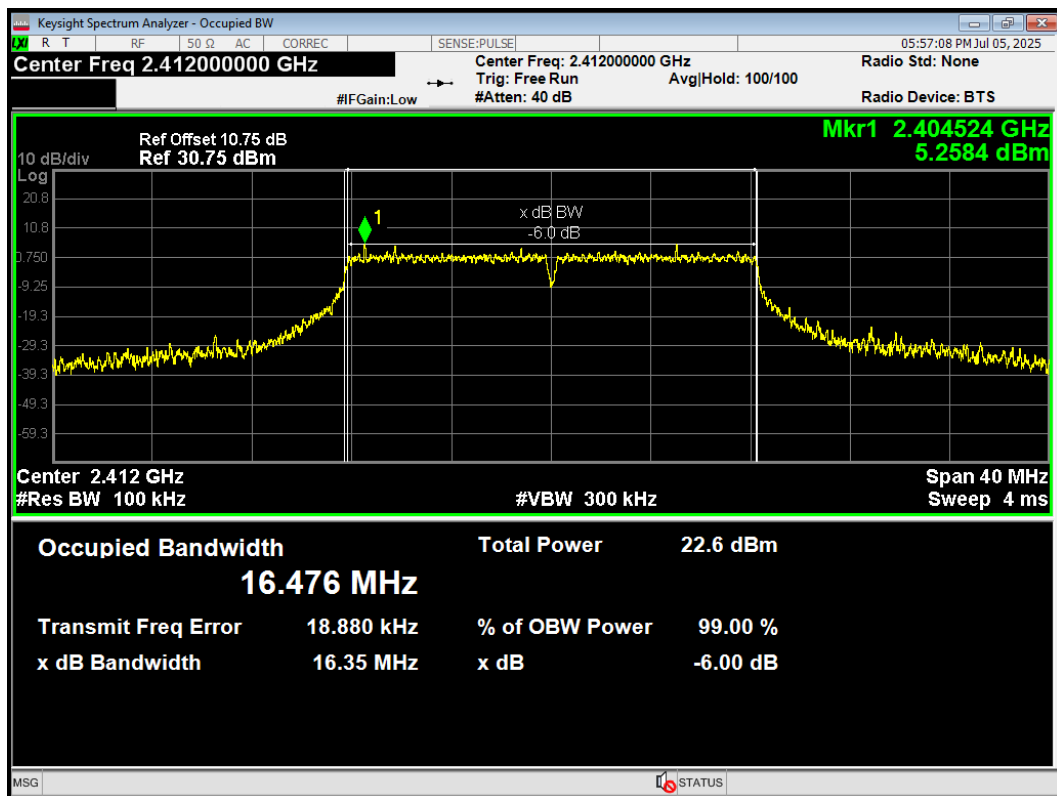
-6dB Bandwidth 802.11g 2417MHz

-6dB Bandwidth 802.11g 2422MHz

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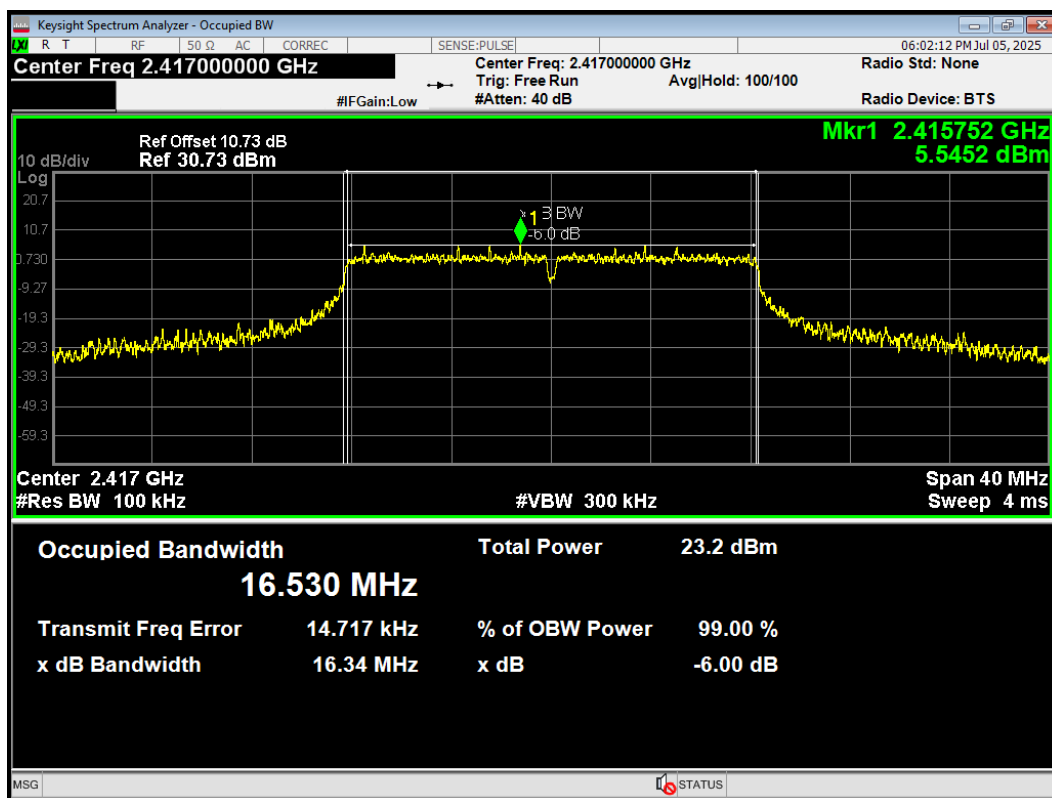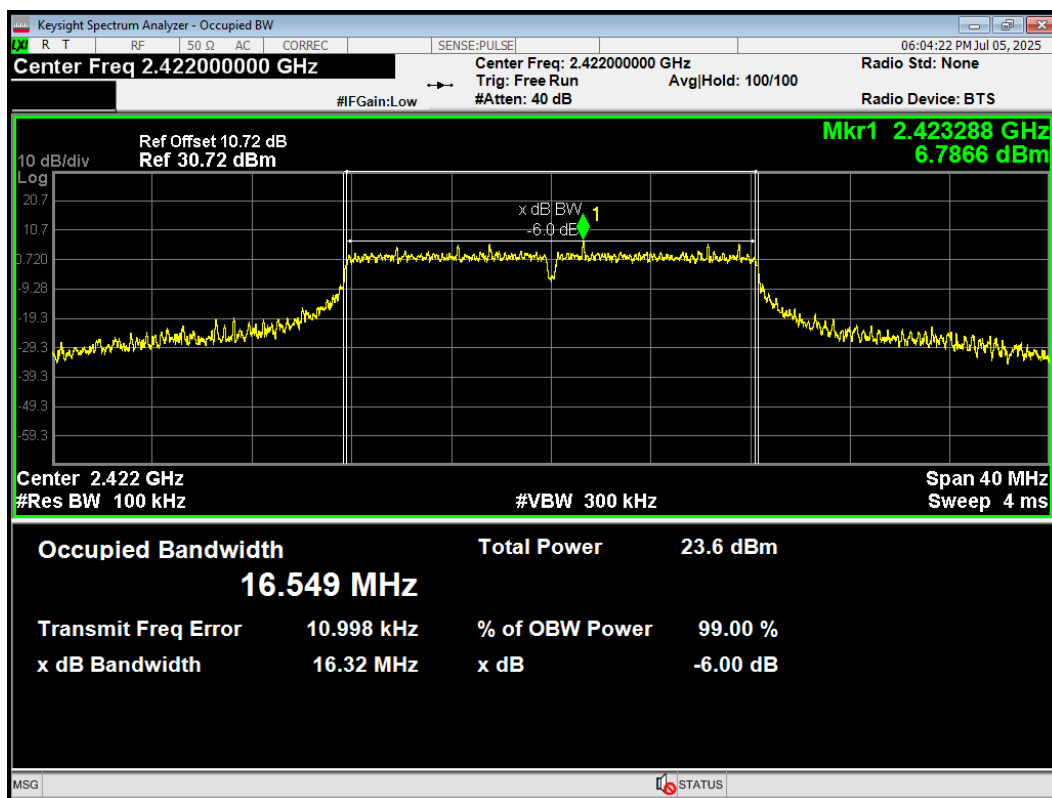
-6dB Bandwidth 802.11g 2437MHz
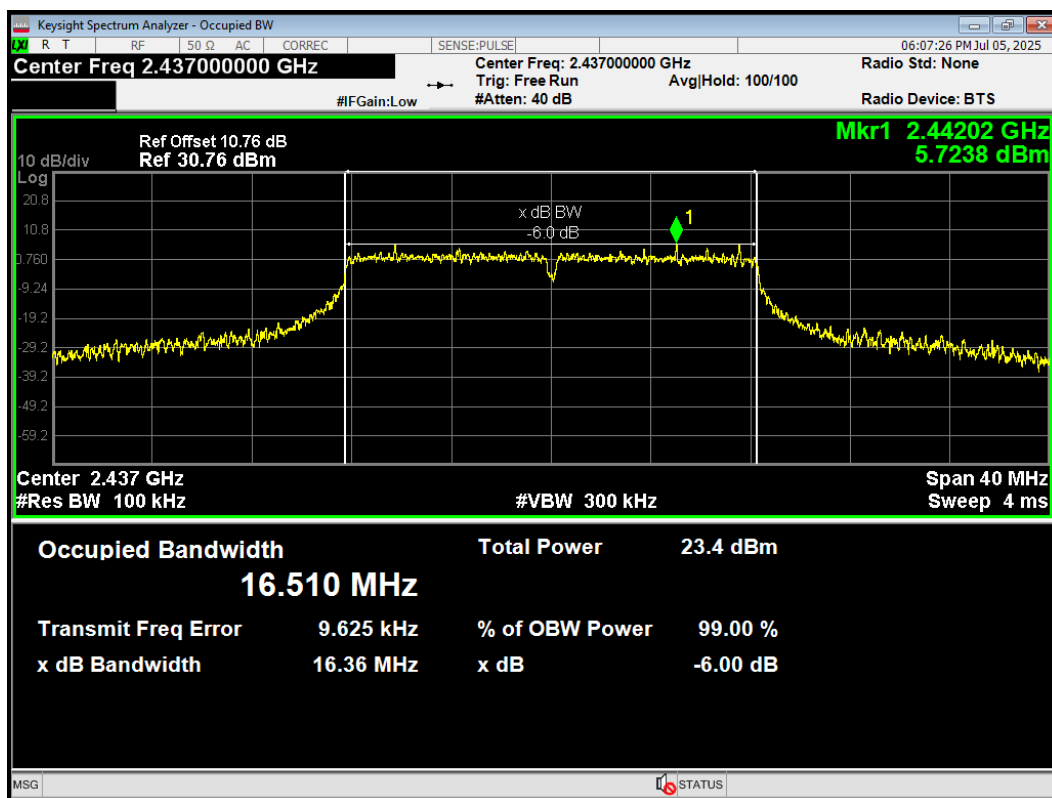
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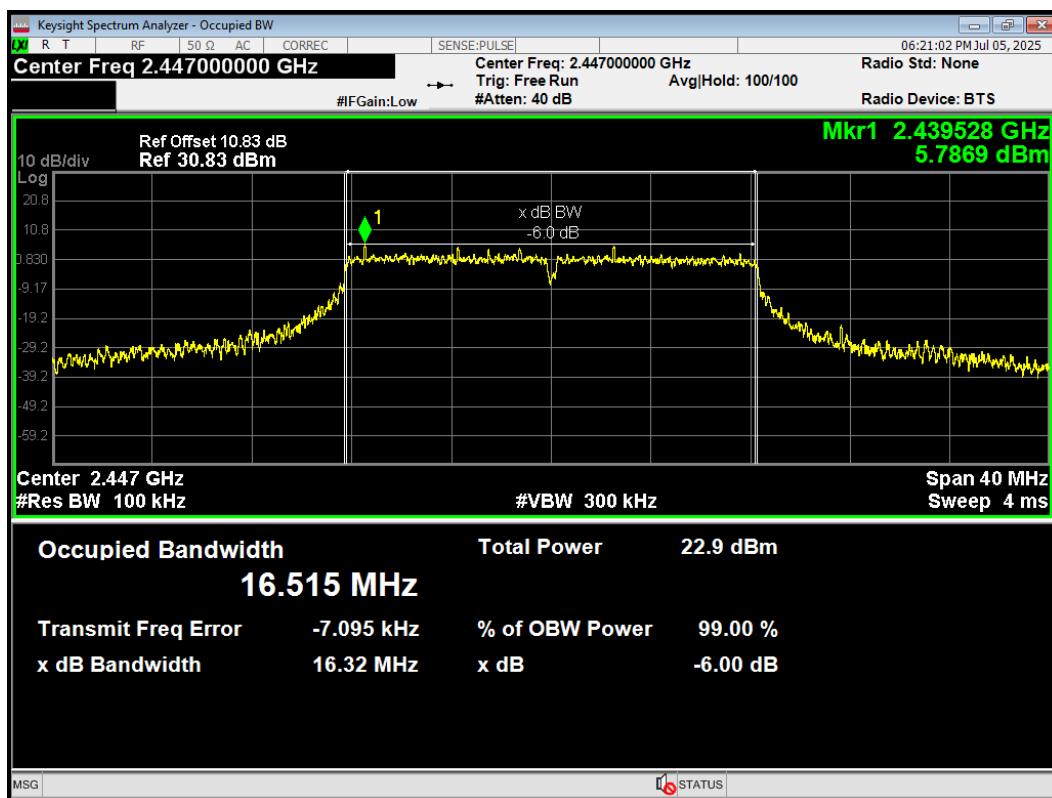
-6dB Bandwidth 802.11g 2452MHz

-6dB Bandwidth 802.11g 2457MHz

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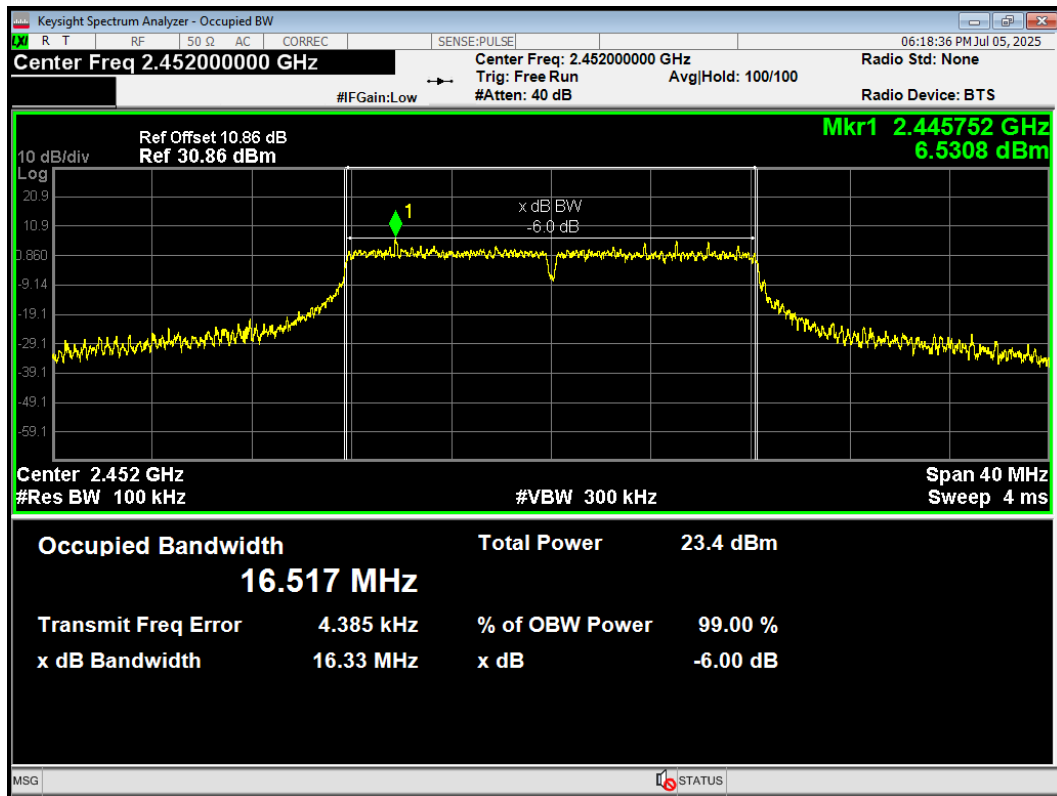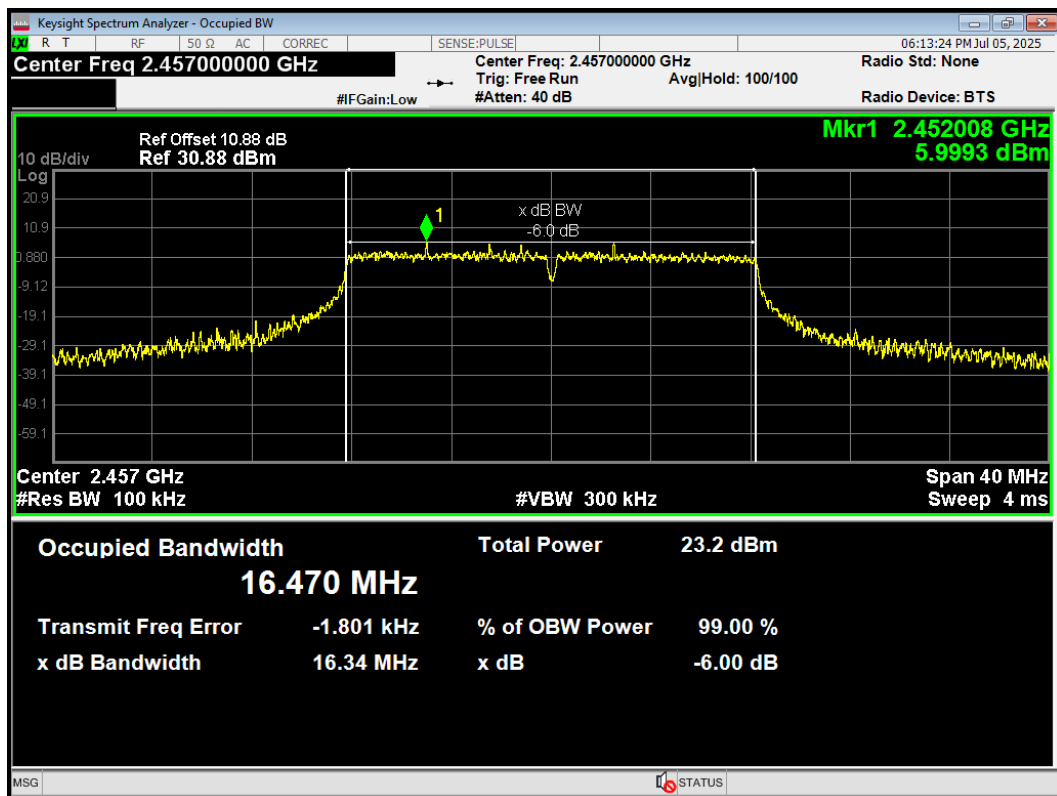
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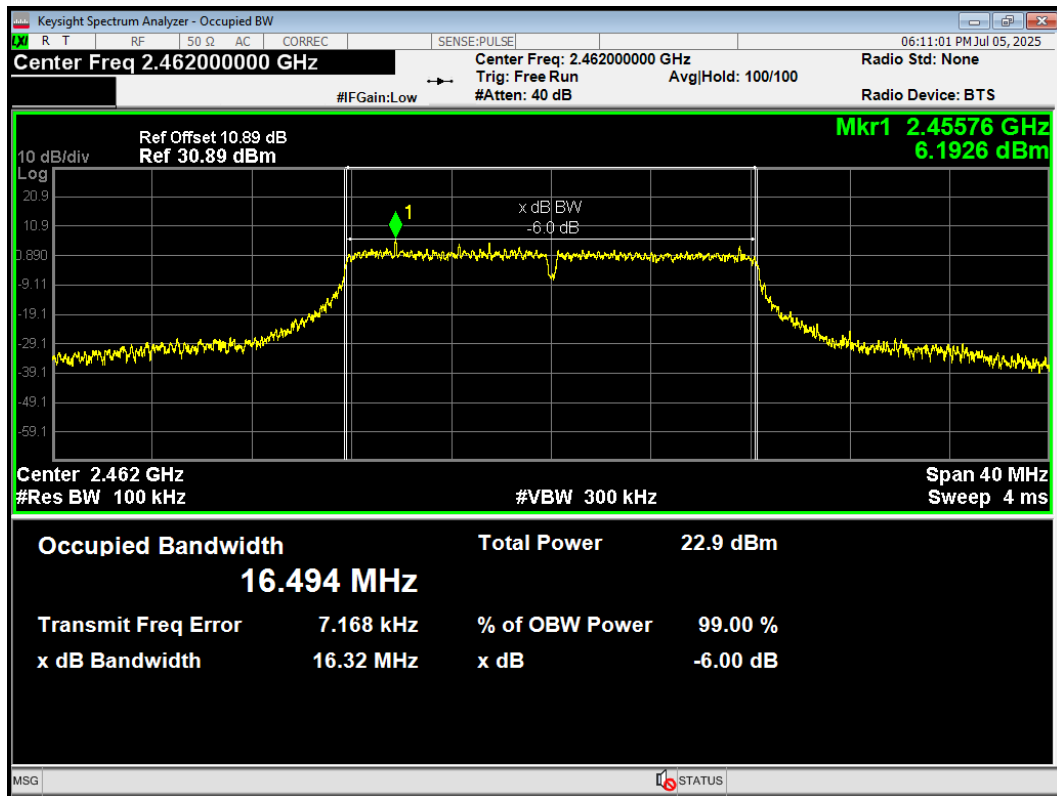
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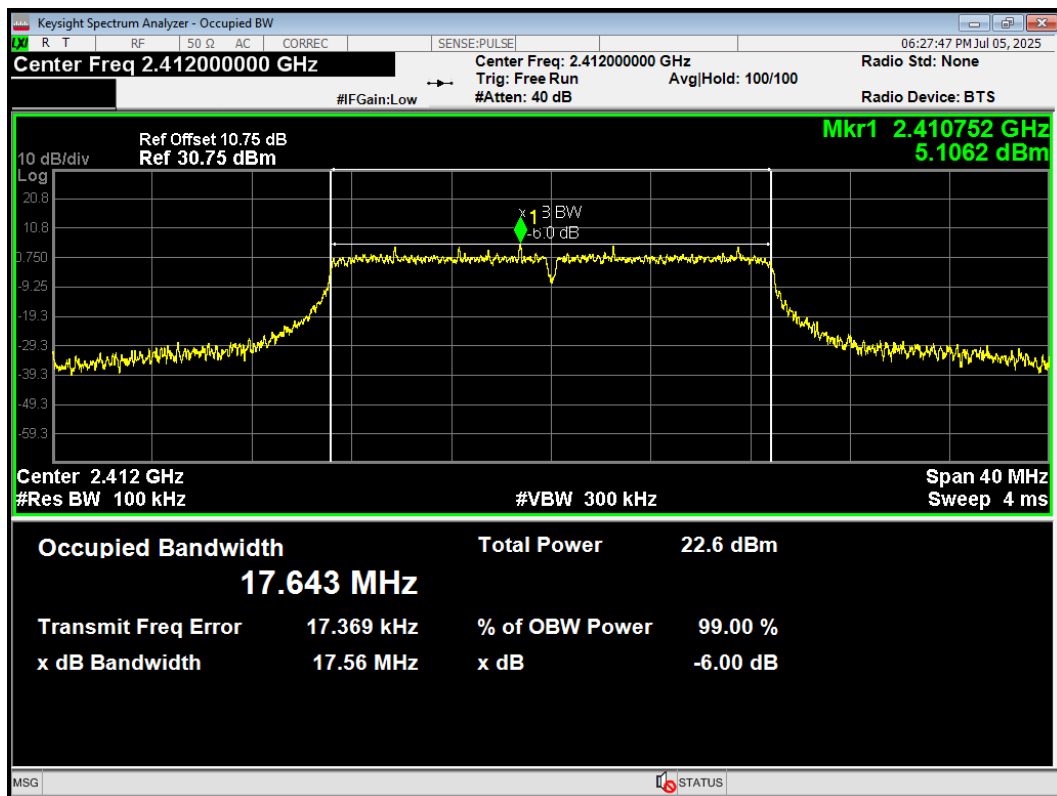
-6dB Bandwidth 802.11n(HT20) 2417MHz

-6dB Bandwidth 802.11n(HT20) 2422MHz

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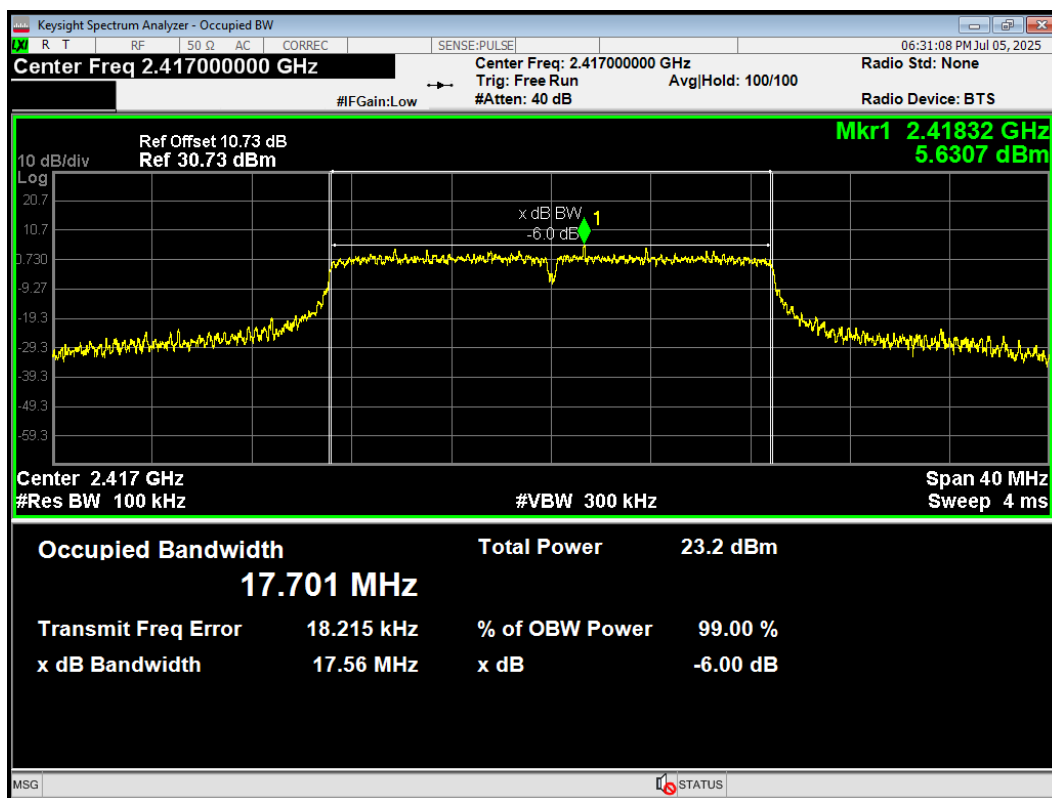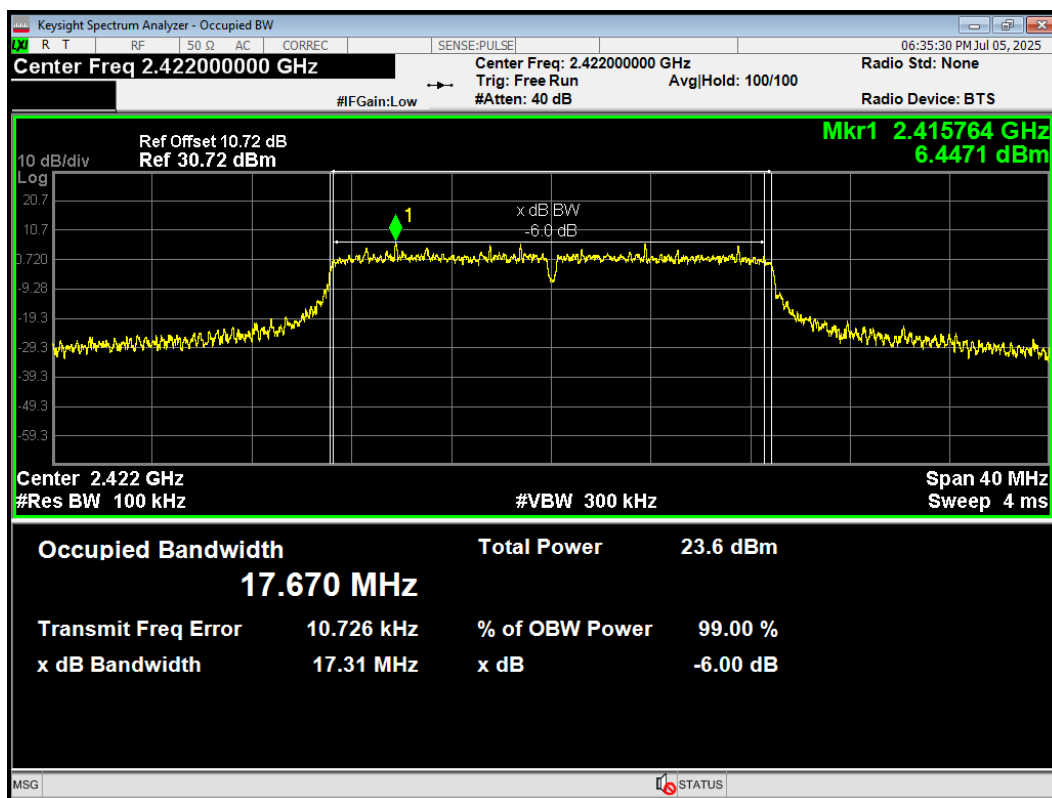
-6dB Bandwidth 802.11n(HT20) 2437MHz

-6dB Bandwidth 802.11n(HT20) 2452MHz

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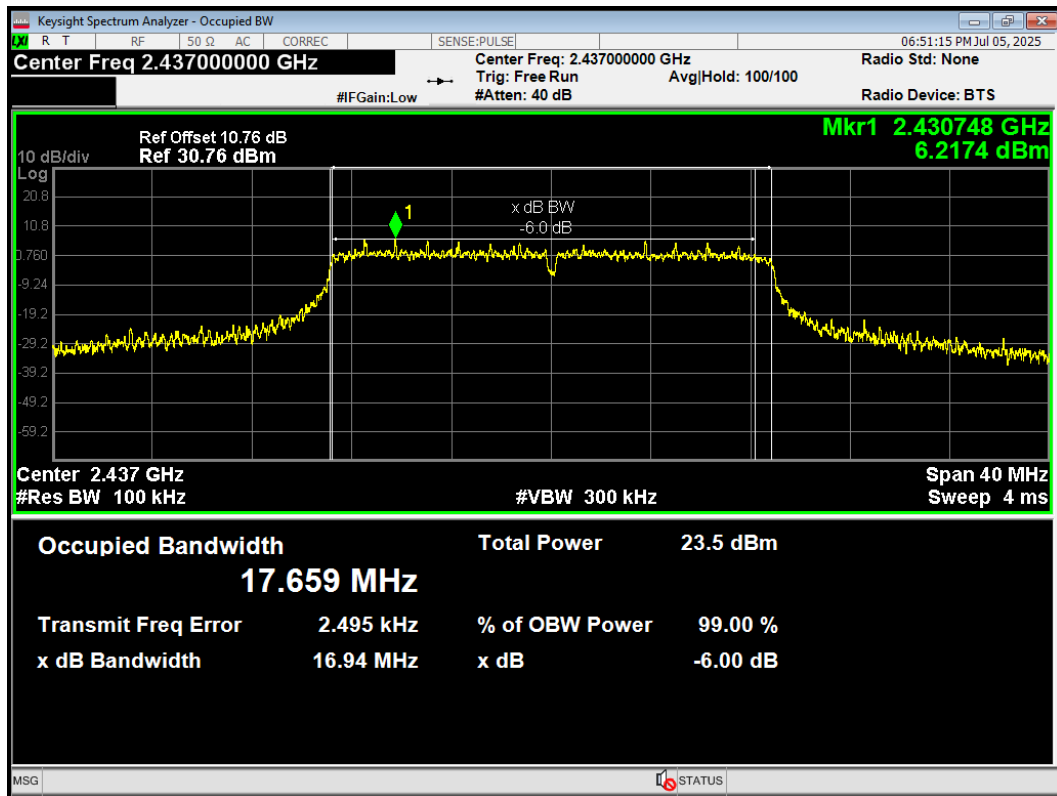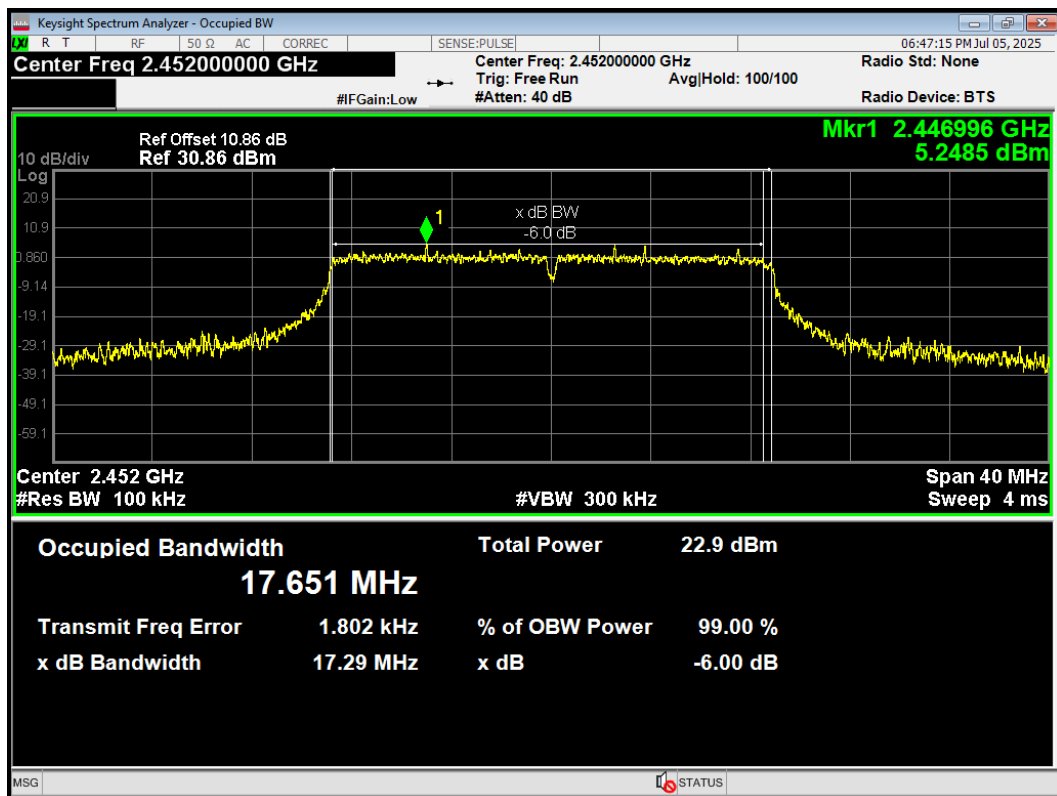
-6dB Bandwidth 802.11n(HT20) 2457MHz

-6dB Bandwidth 802.11n(HT20) 2462MHz

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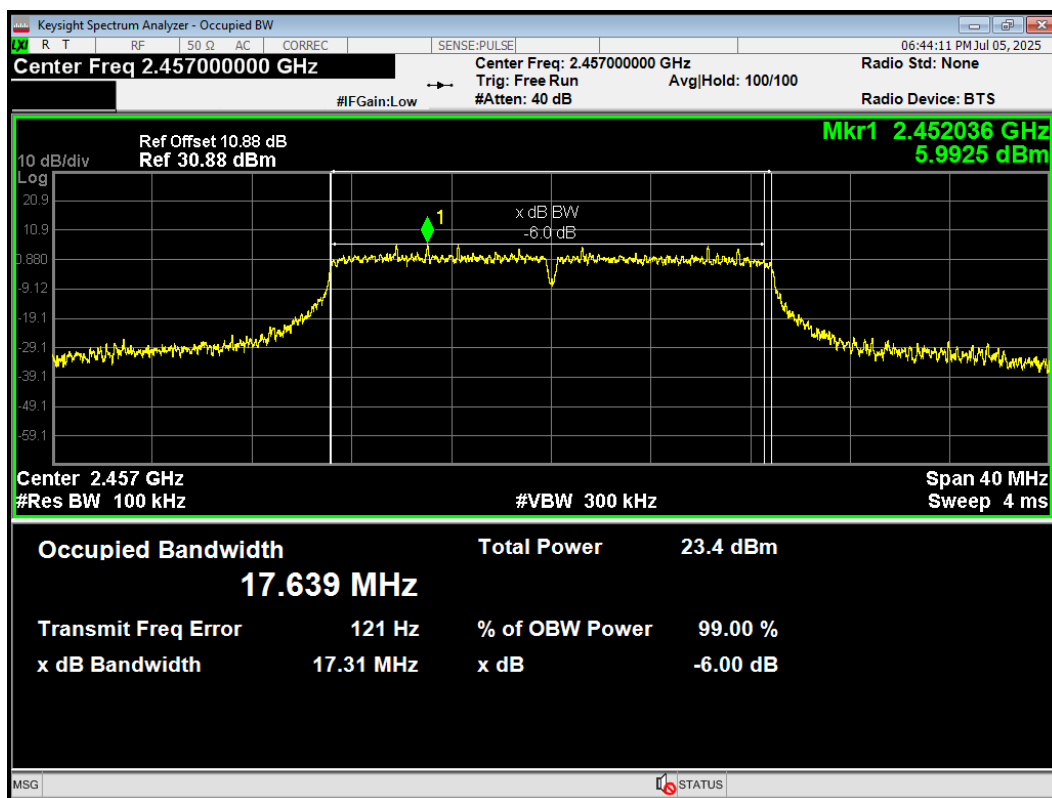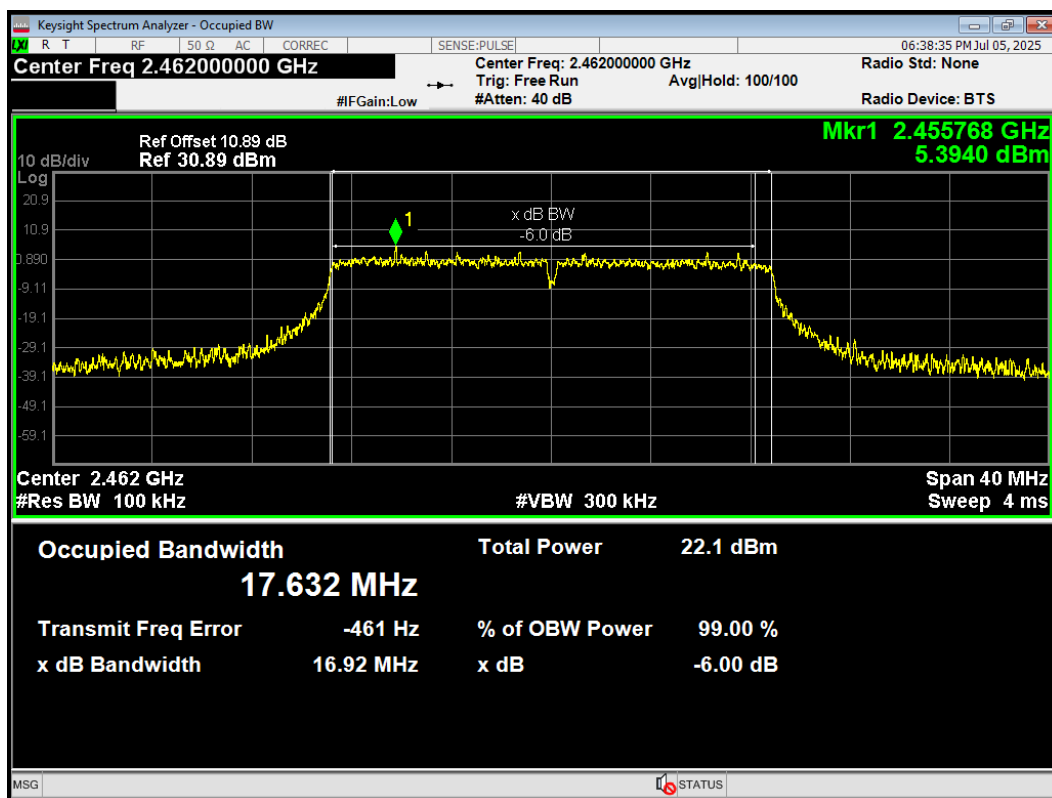
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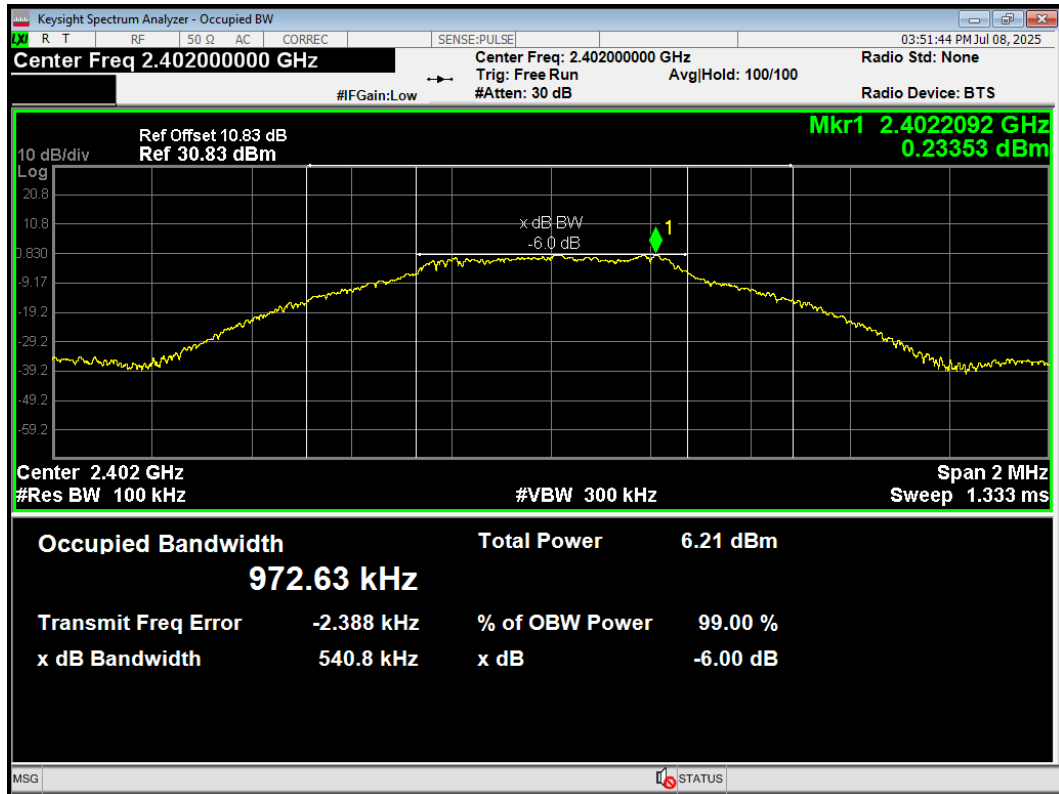
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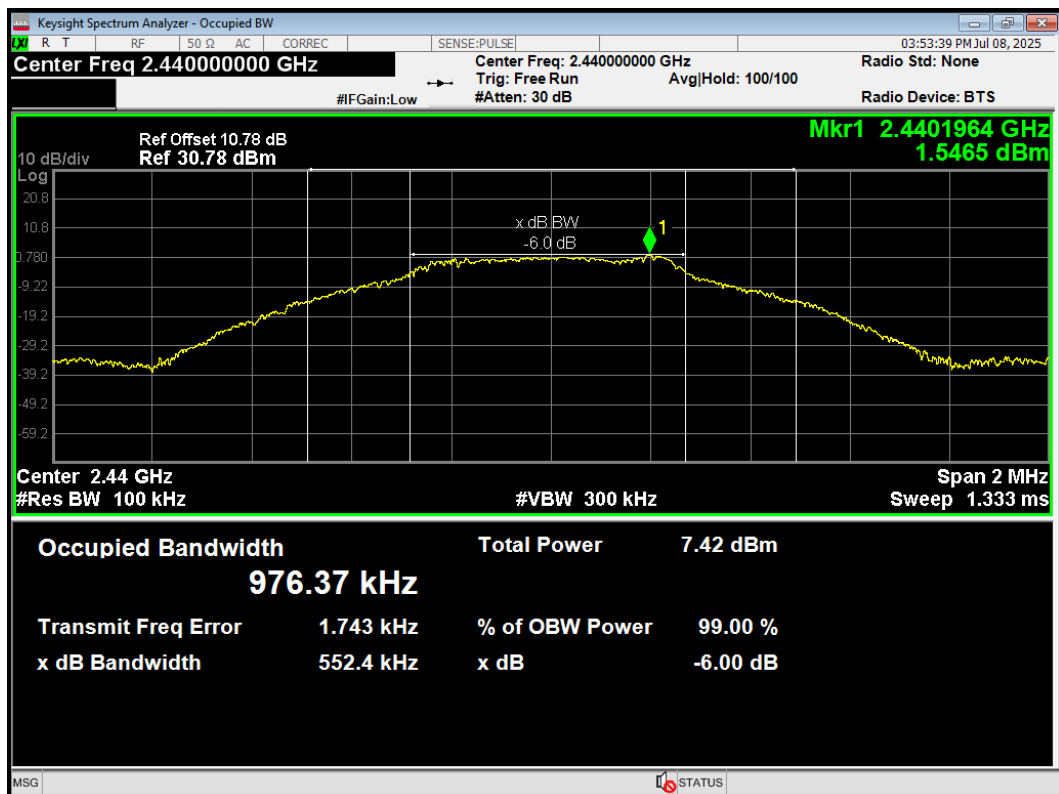
-6dB Bandwidth BLE 2480MHz
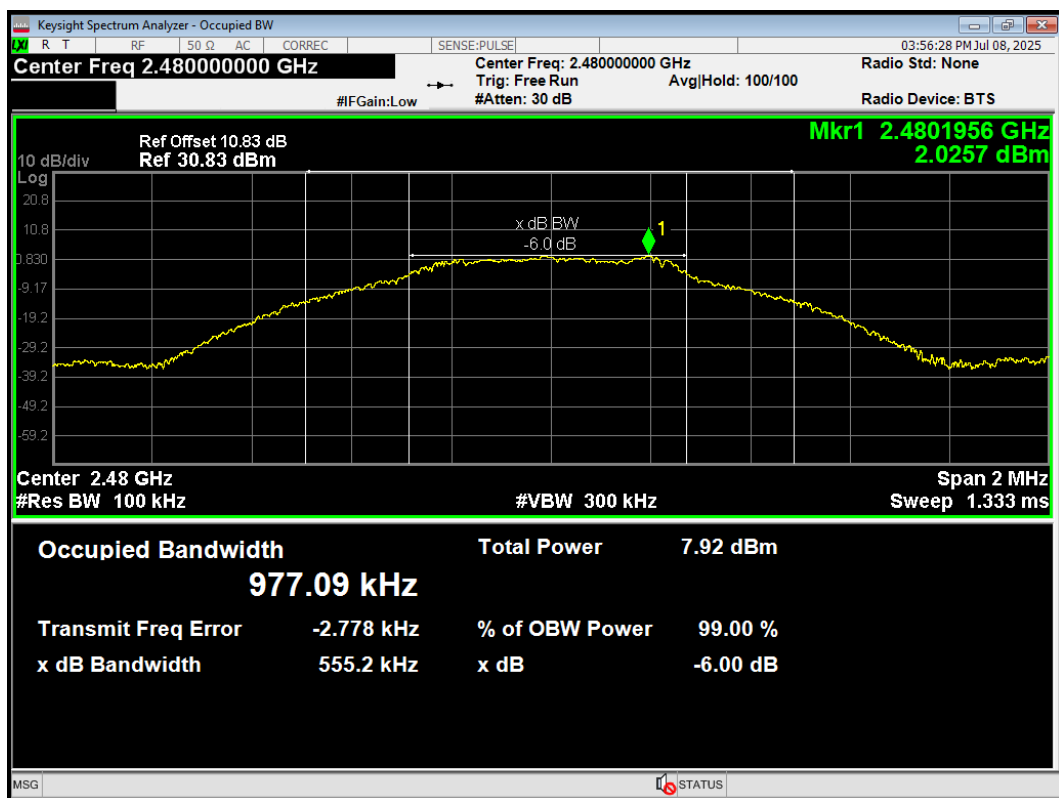
5.3. Band Edge

Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable the band edge of the lowest and highest channels were measured. The peak detector is used and RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages.

Test Setup
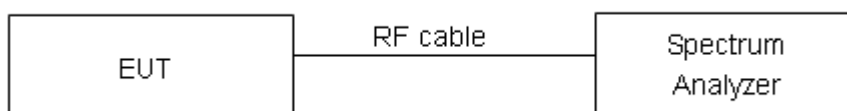
Limits

Rule Part 15.247(d) specifies that "In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits." If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB."

Measurement Uncertainty

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

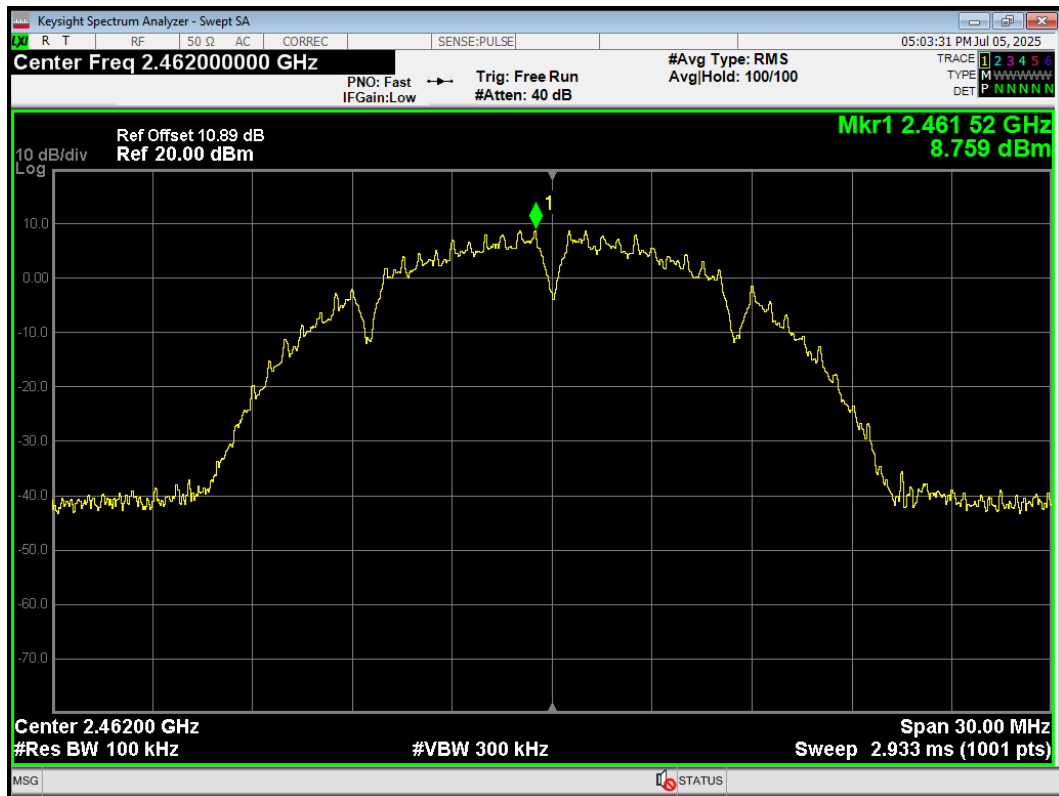| Frequency	Uncertainty
2GHz-3GHz	1.407 dB

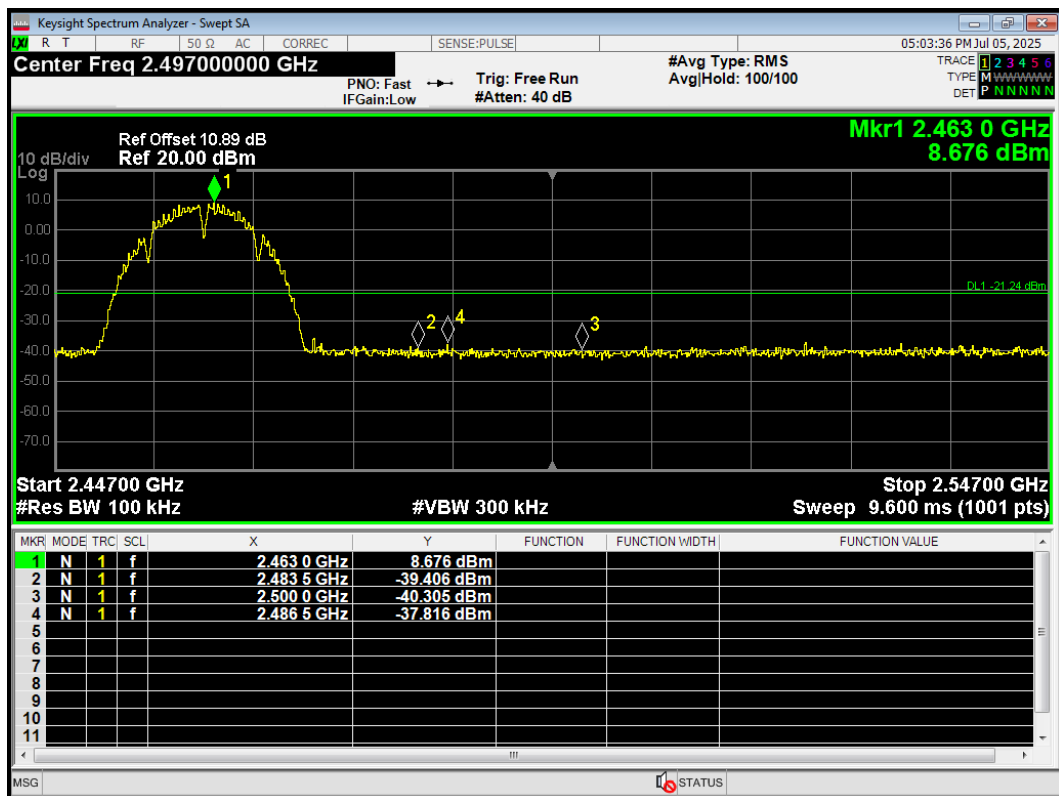**Test Results: PASS**

Band Edge 802.11b 2412MHz   Ref
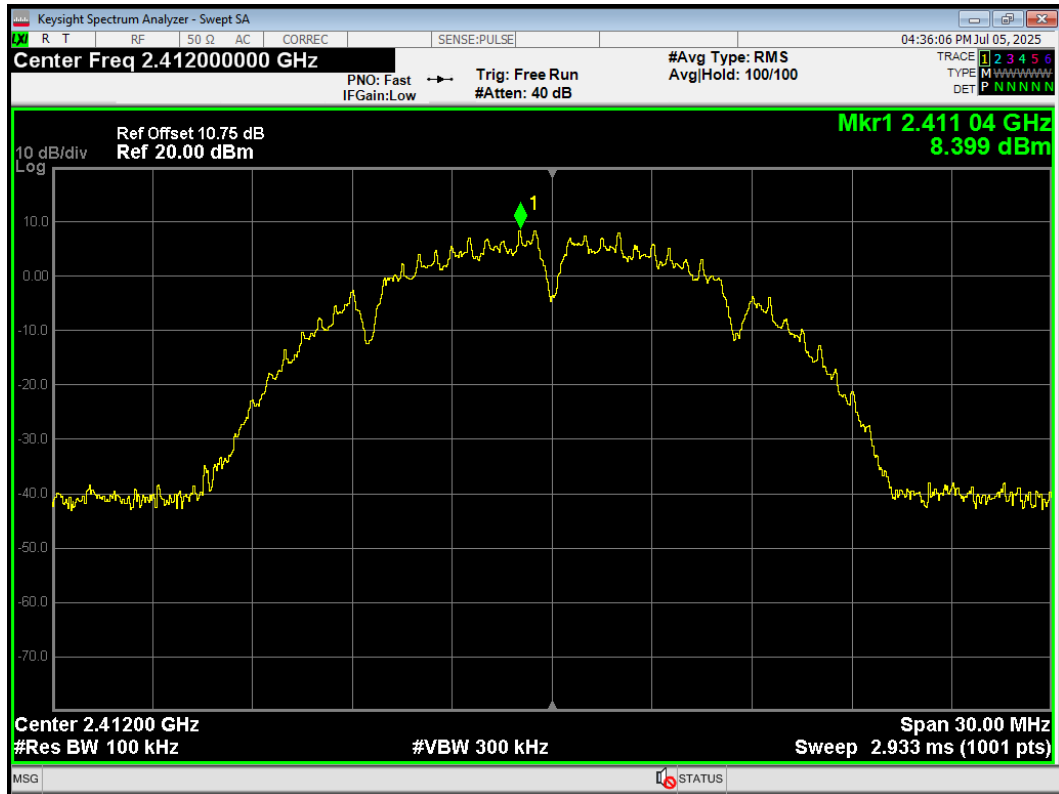
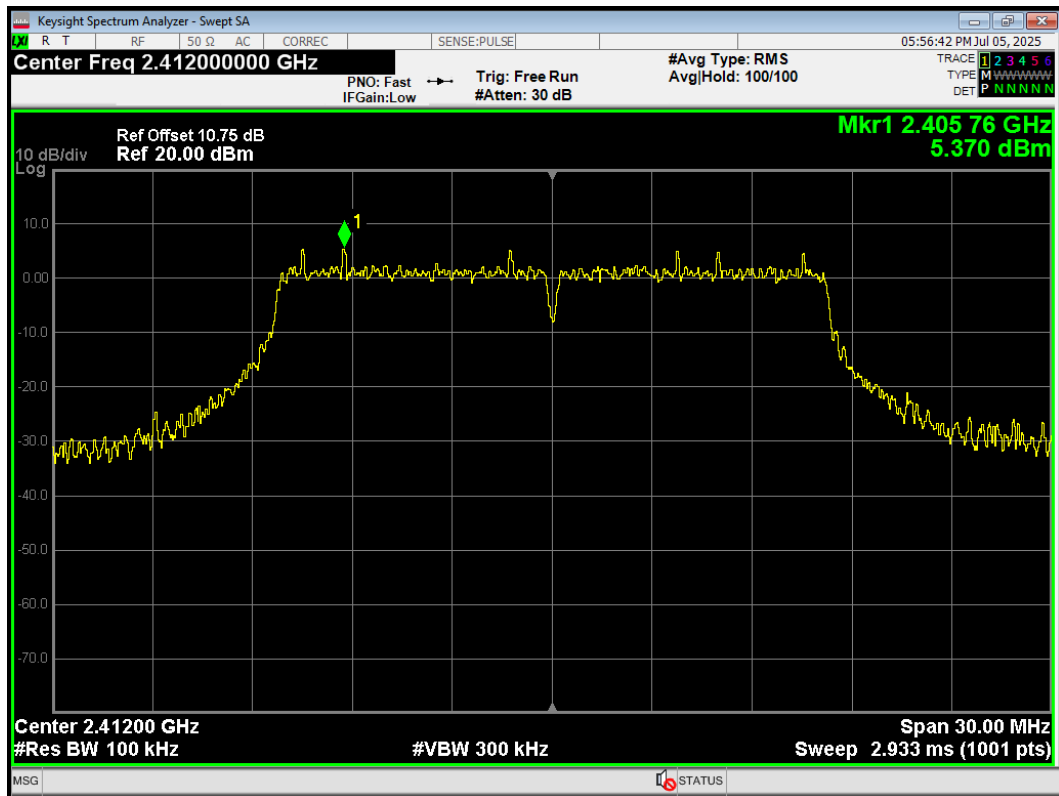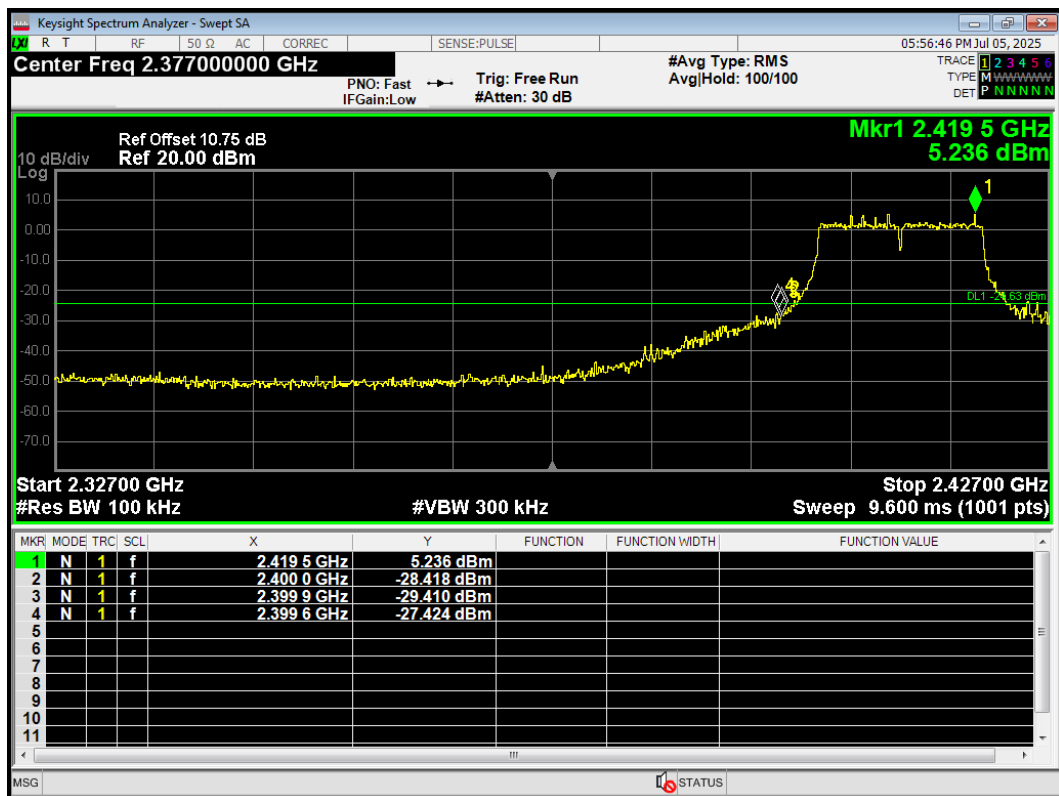Band Edge 802.11b 2412MHz   Emission
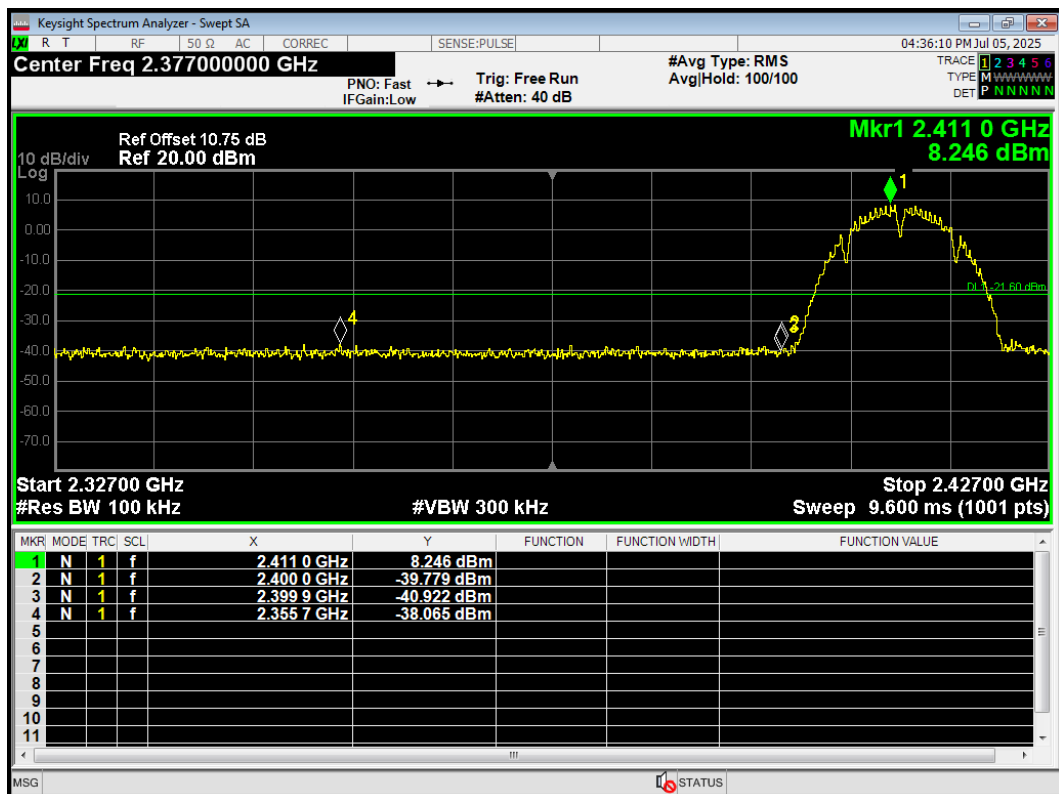
Band Edge 802.11b 2462MHz   Ref
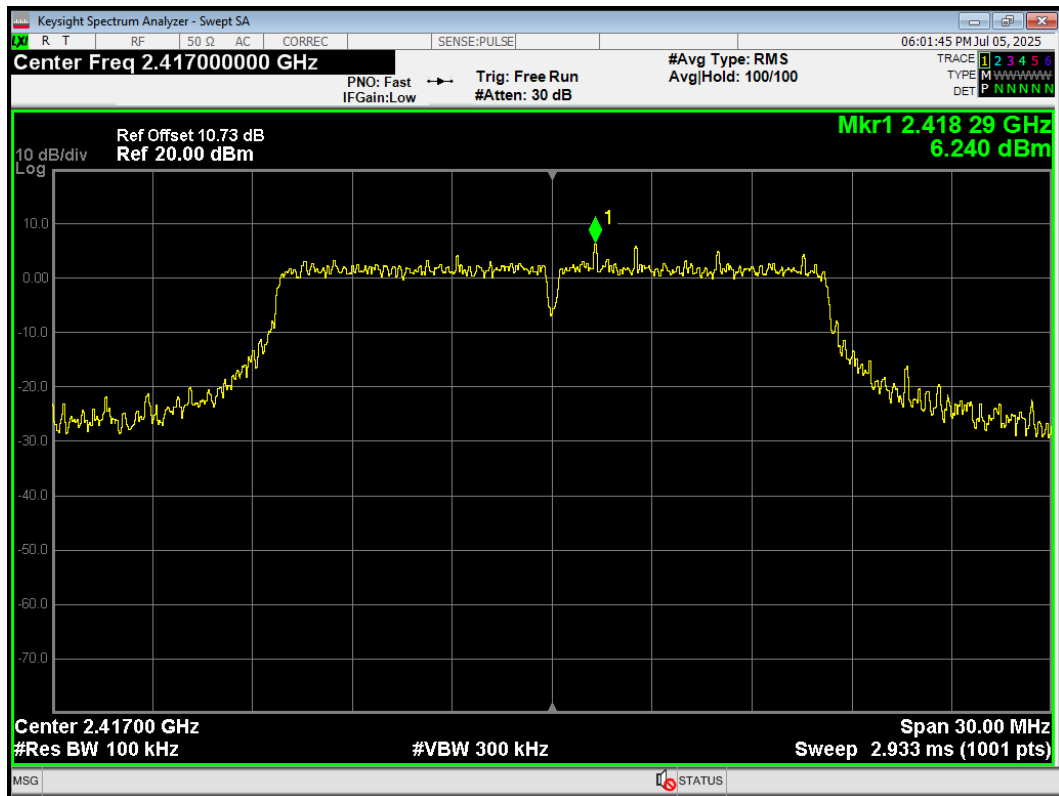

Band Edge 802.11b 2462MHz   Emission
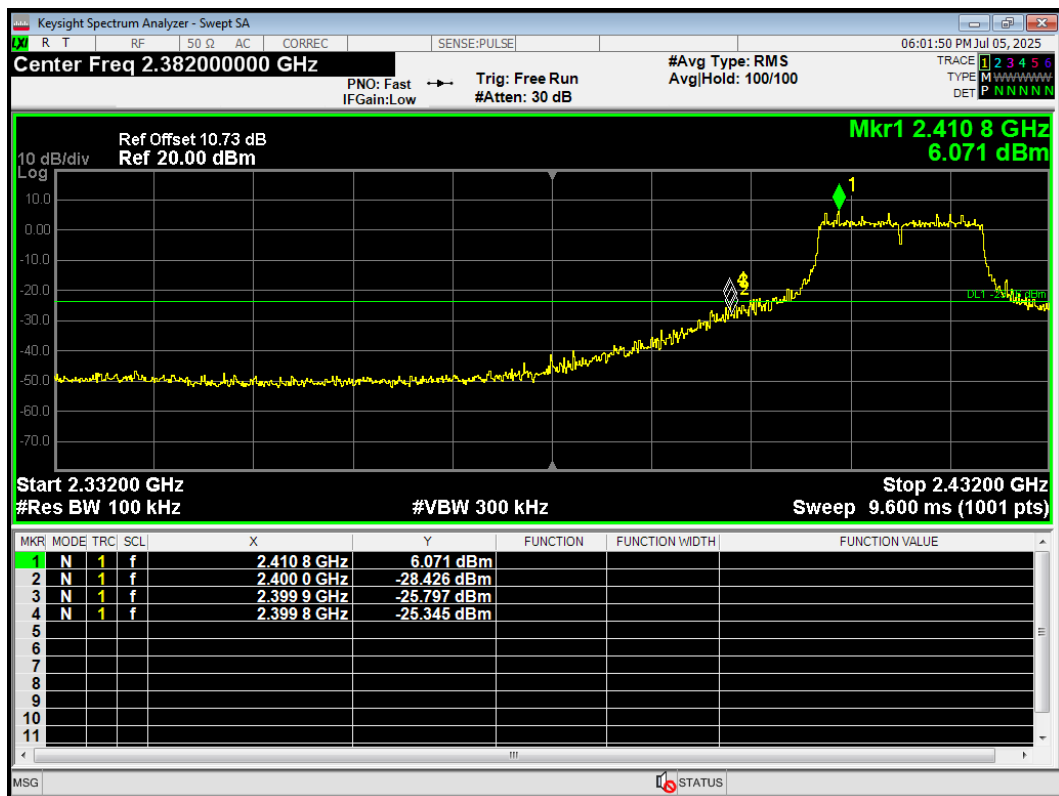
Band Edge 802.11g 2412MHz   Ref

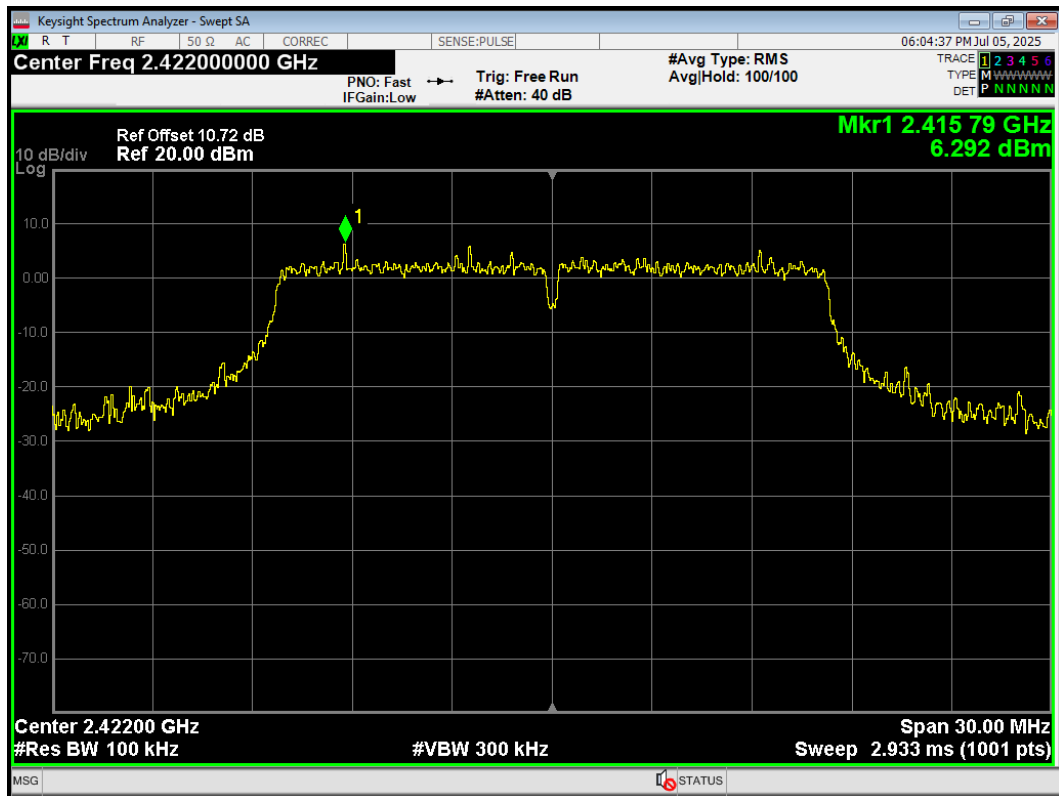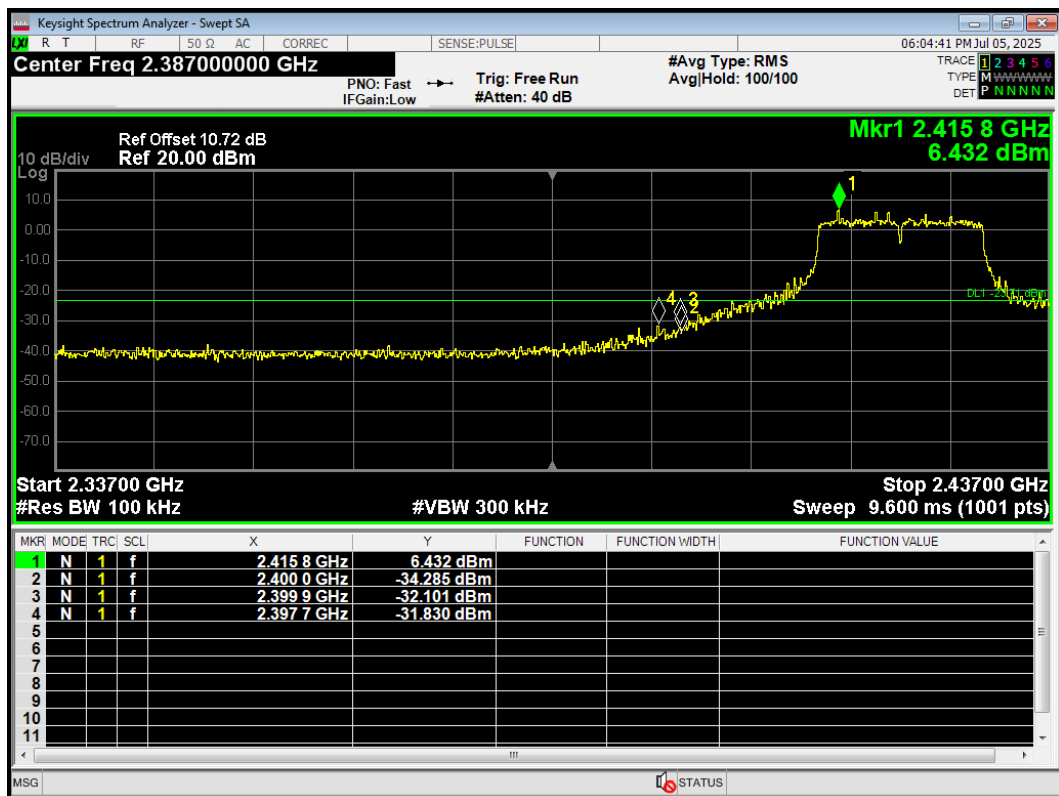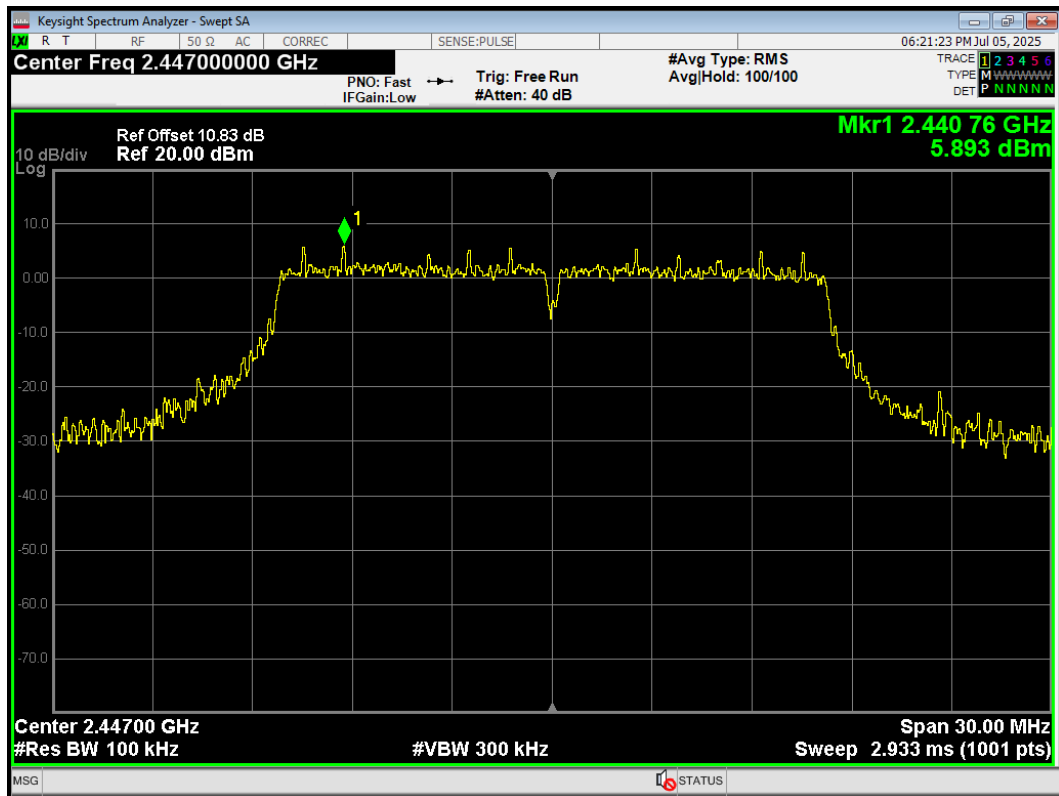Band Edge 802.11g 2412MHz   Emission

Band Edge 802.11g 2417MHz　Ref

Band Edge 802.11g 2417MHz　Emission

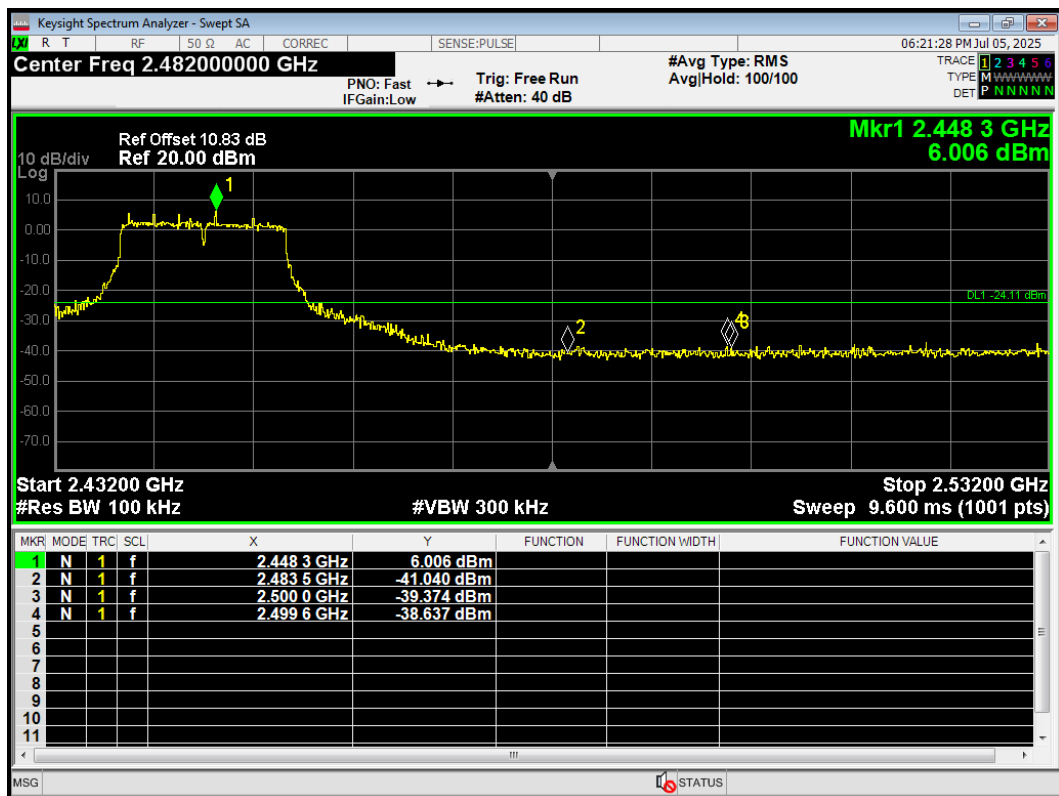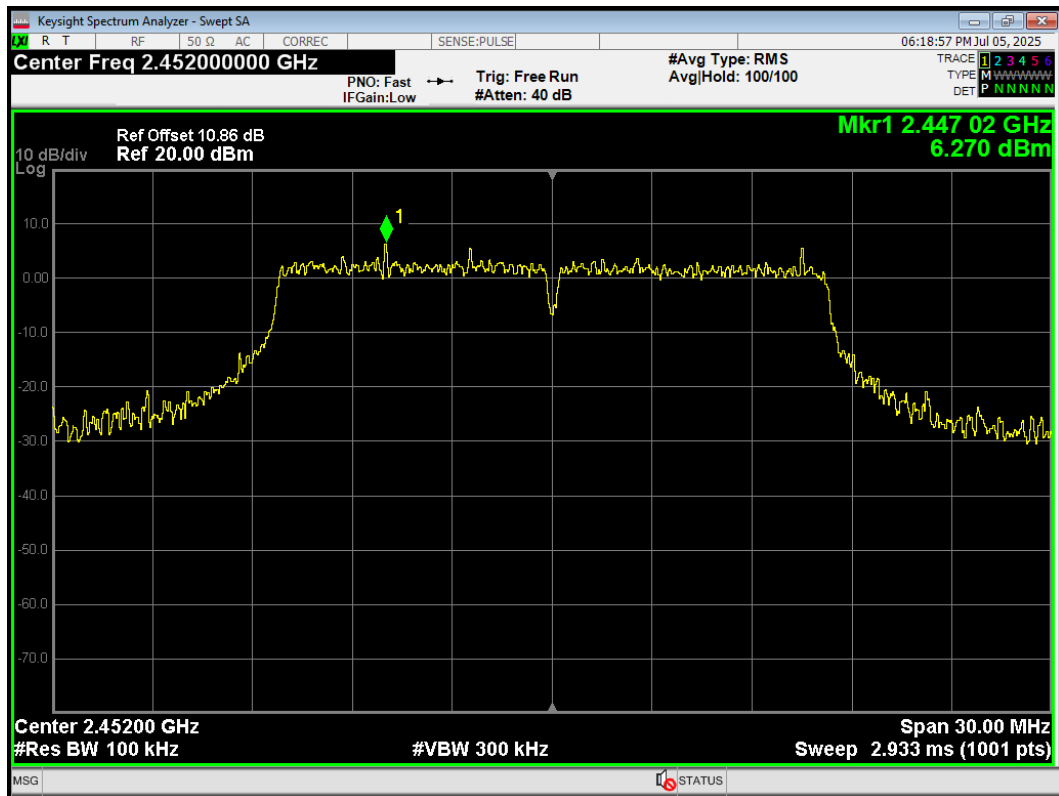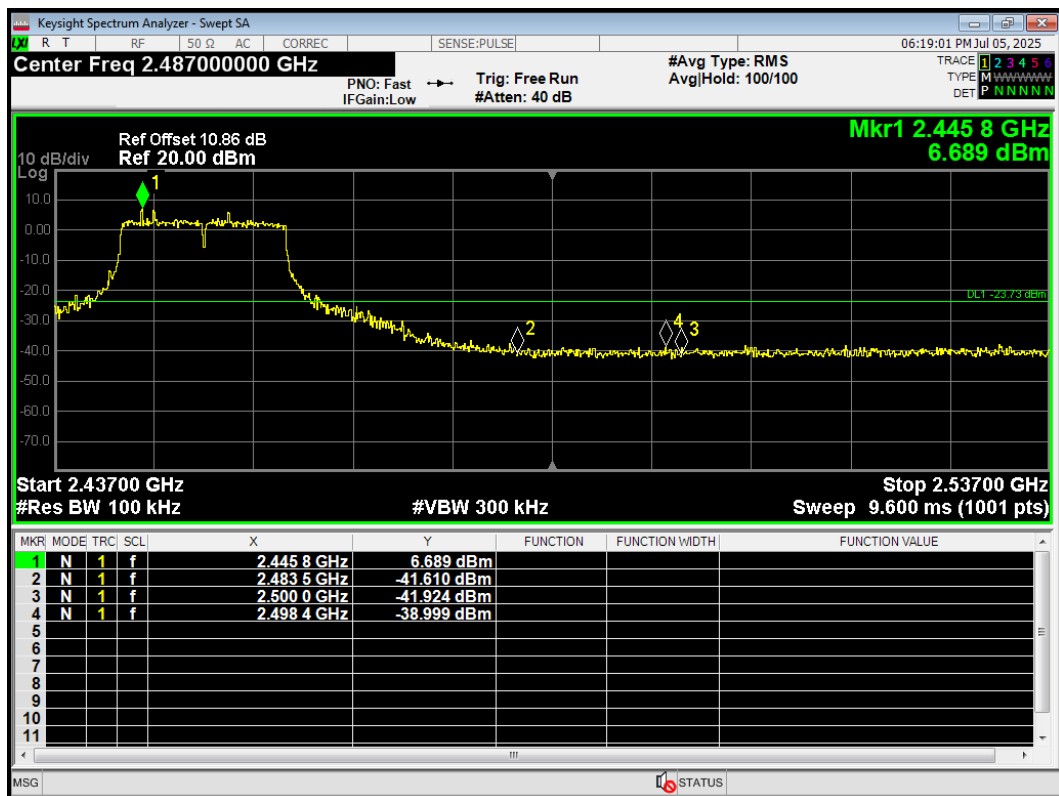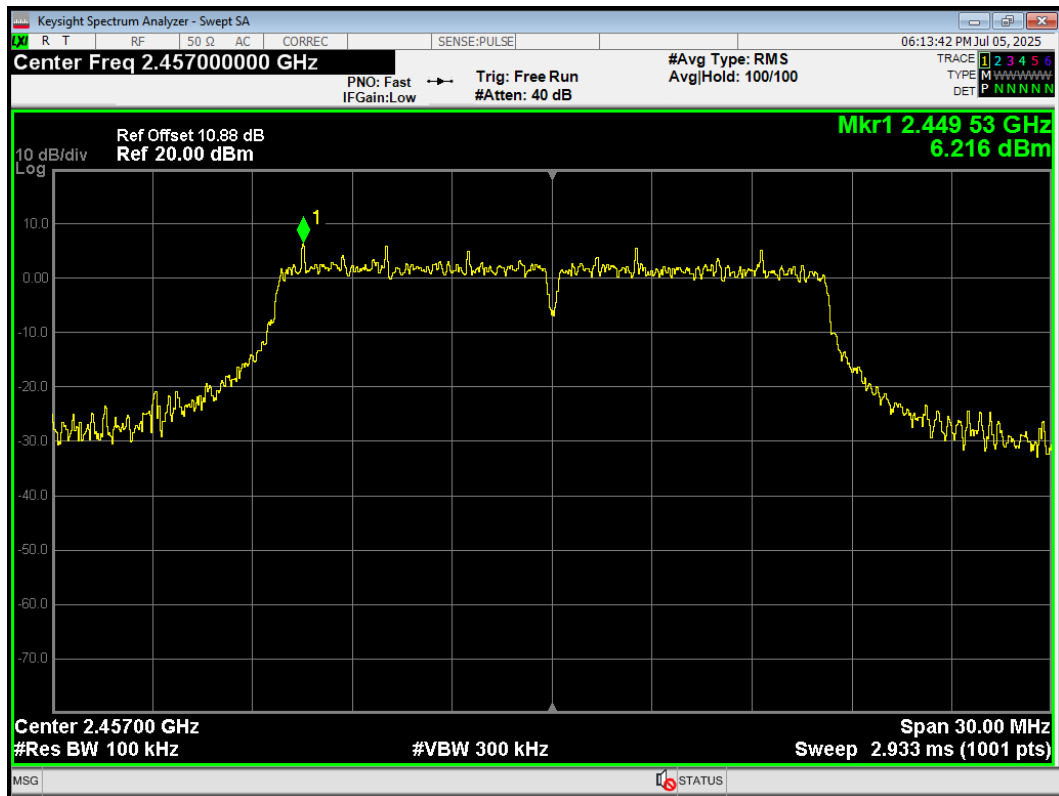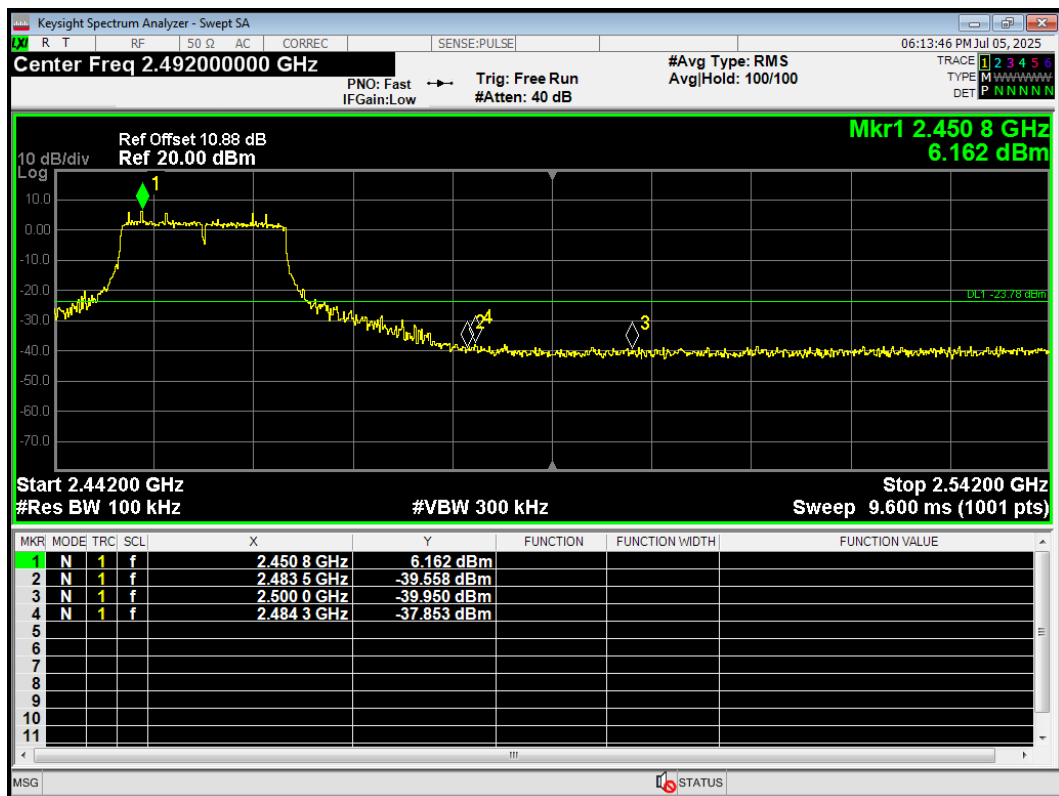Band Edge 802.11g 2422MHz Ref

Band Edge 802.11g 2422MHz Emission

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Band Edge 802.11g 2447MHz　Ref

Band Edge 802.11g 2447MHz　Emission

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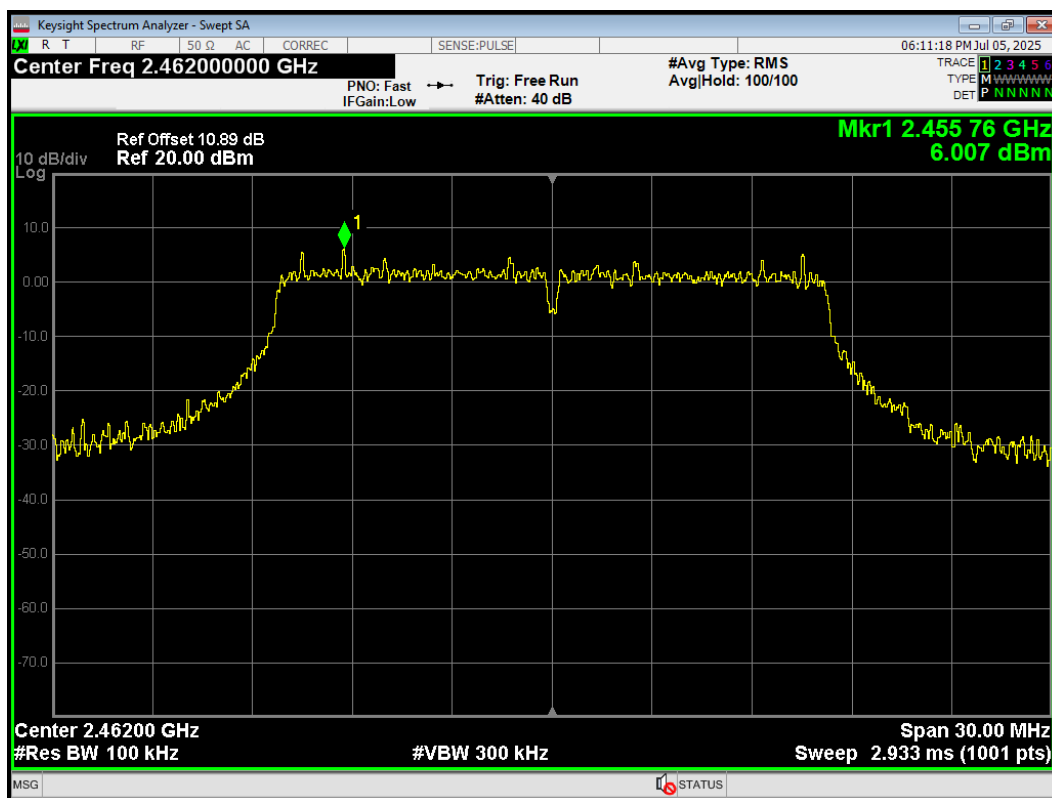
Band Edge 802.11g 2452MHz　Ref

Band Edge 802.11g 2452MHz　Emission
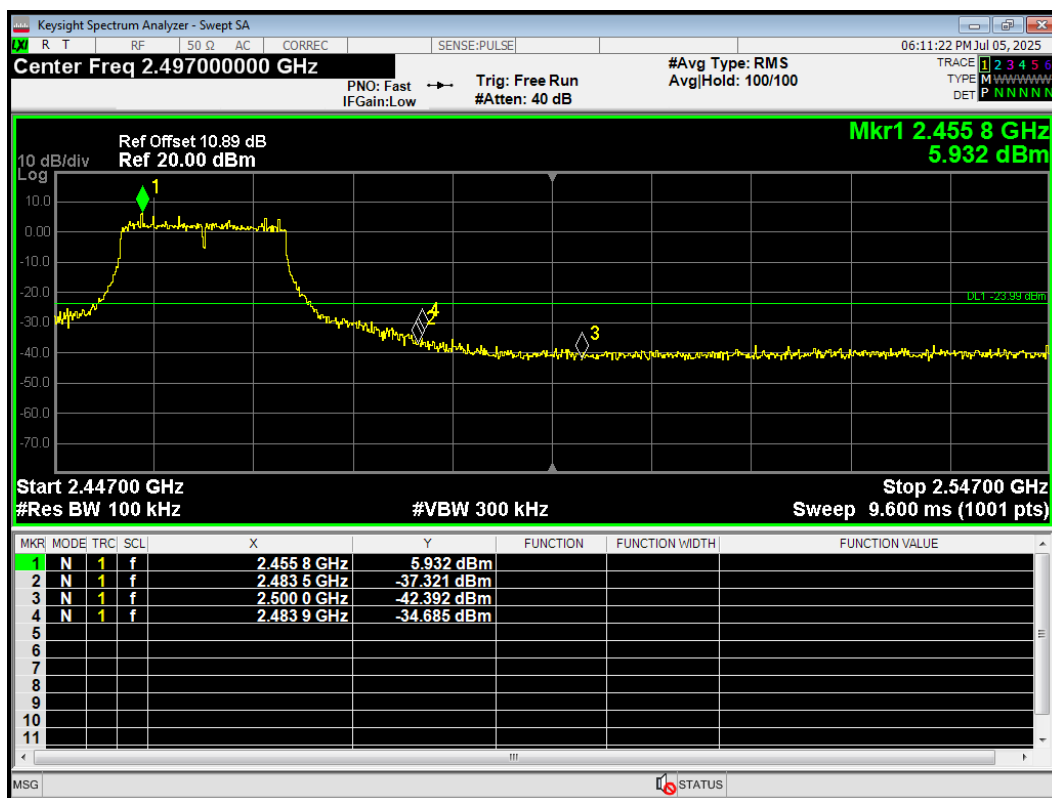
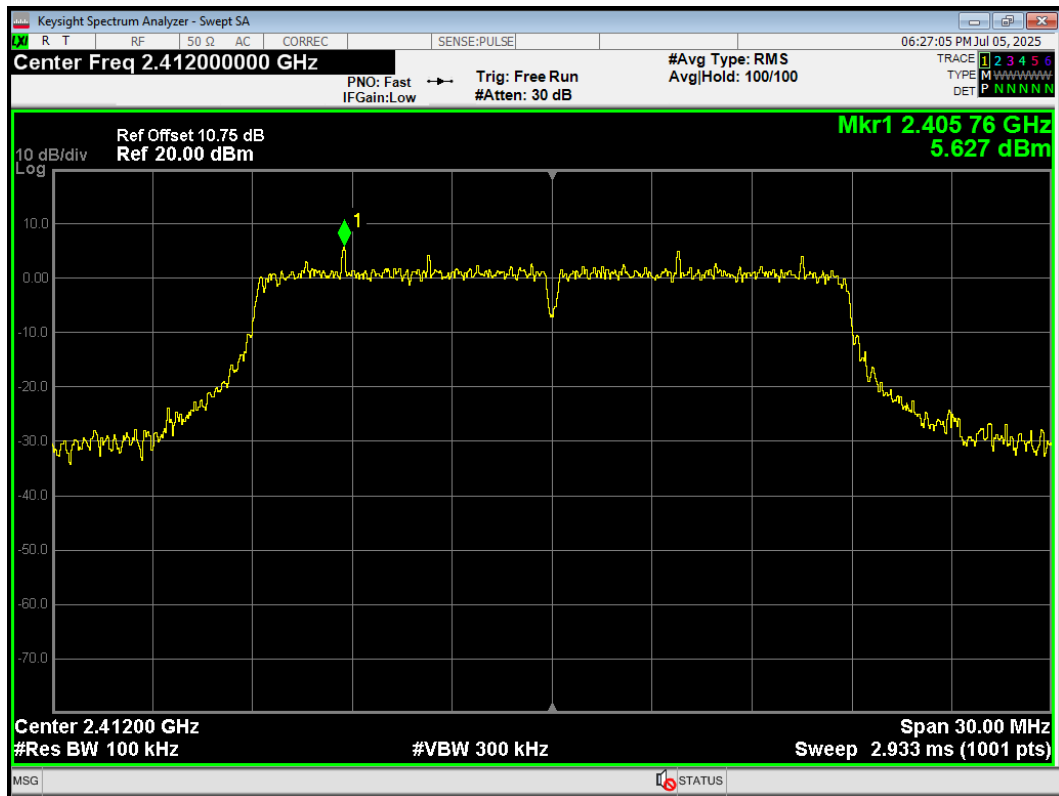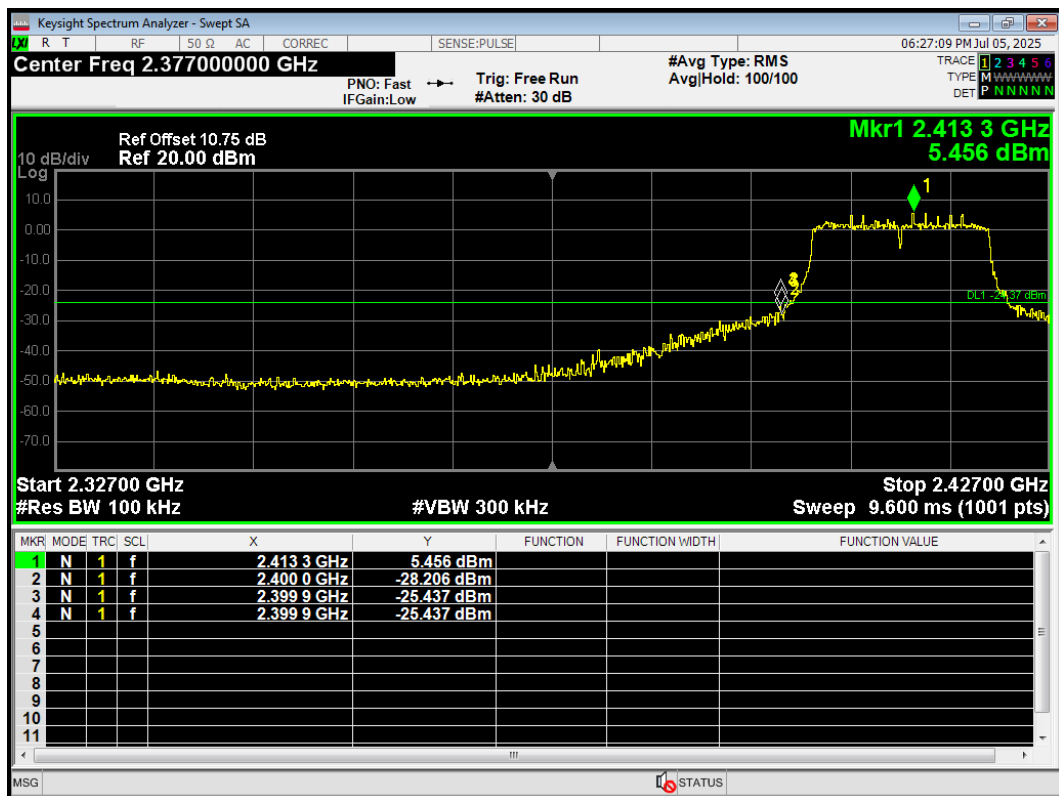Band Edge 802.11g 2457MHz　Ref

Band Edge 802.11g 2457MHz　Emission

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Band Edge 802.11g 2462MHz　Ref

Band Edge 802.11g 2462MHz　Emission

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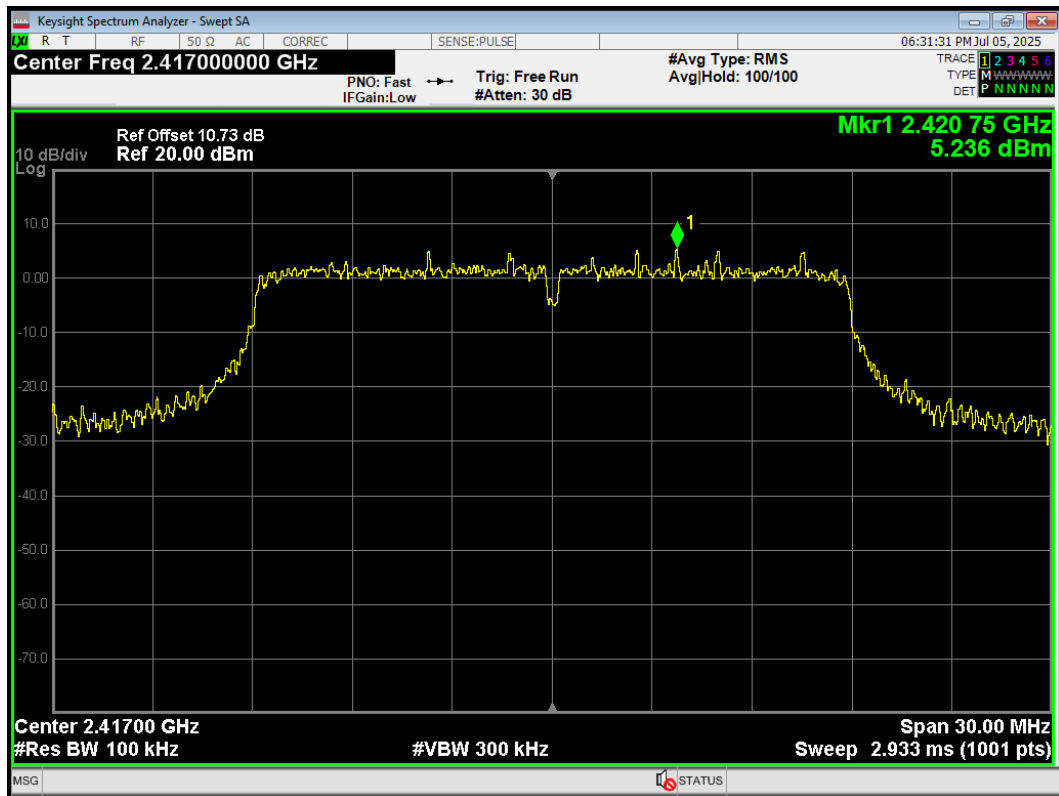
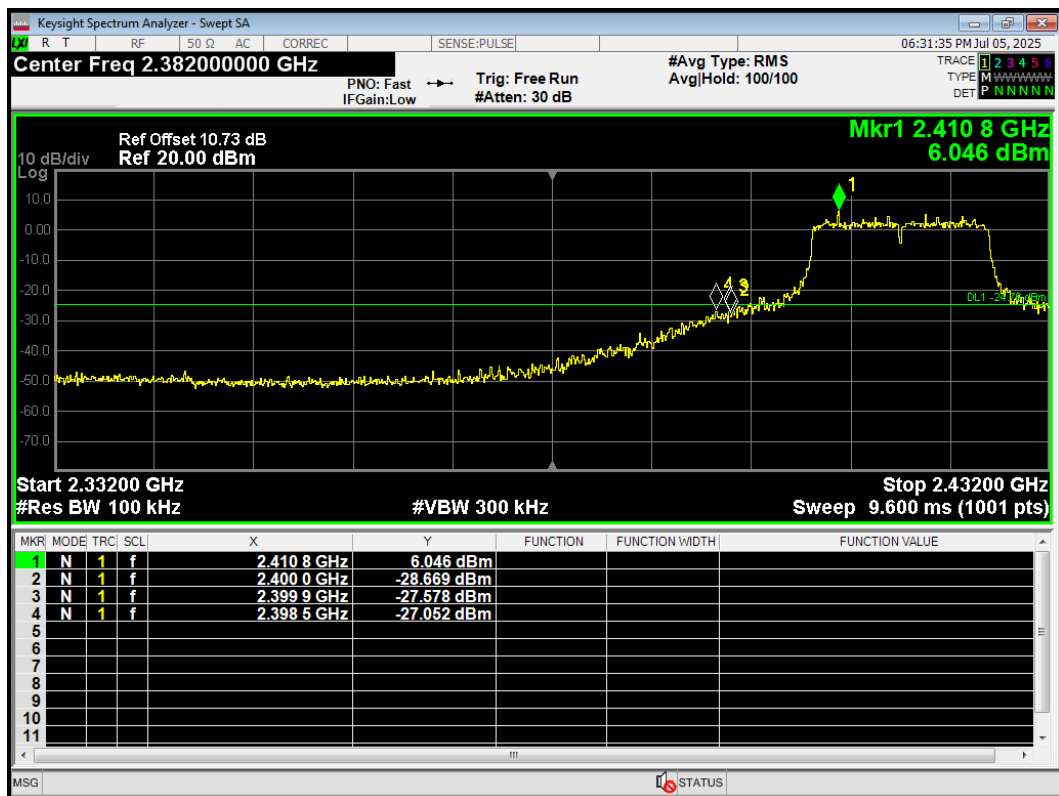Band Edge 802.11n(HT20) 2412MHz   Ref

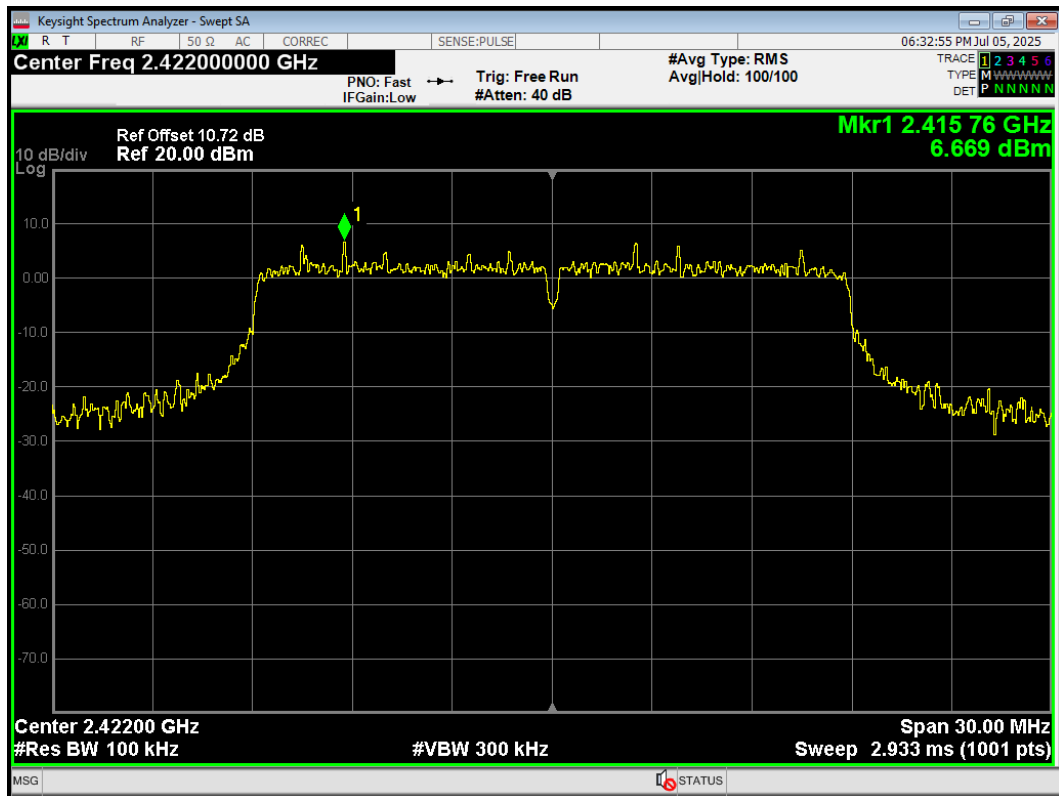Band Edge 802.11n(HT20) 2412MHz   Emission

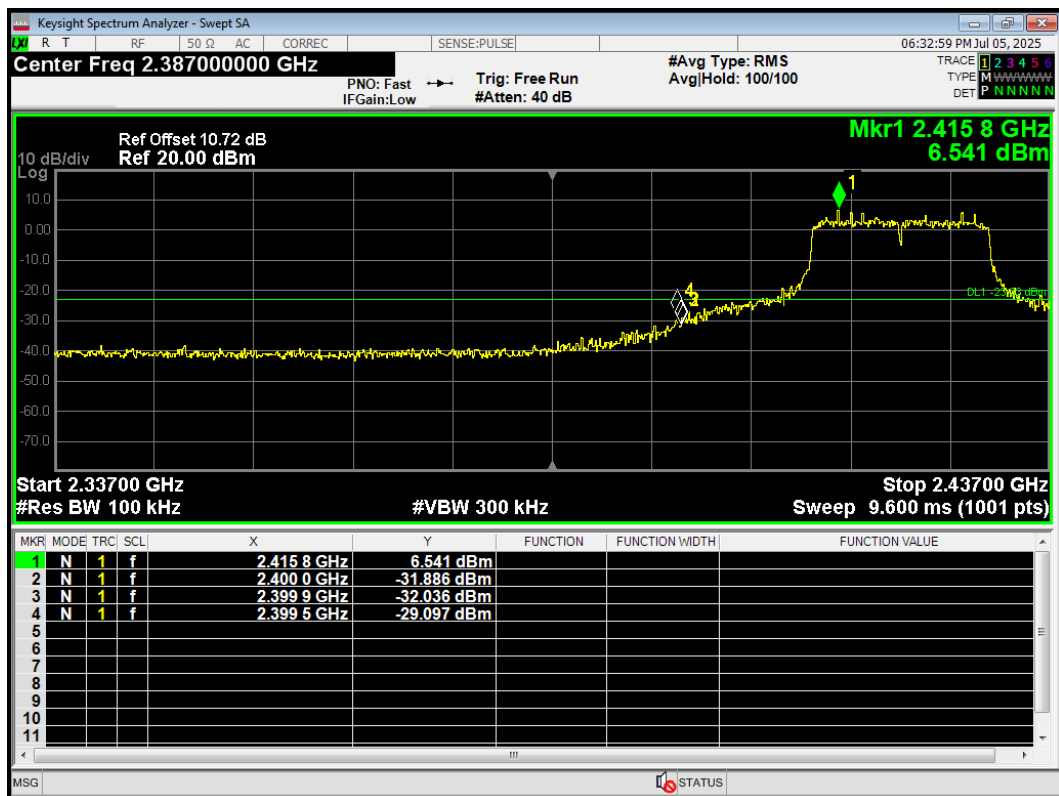Band Edge 802.11n(HT20) 2417MHz　　Ref

Band Edge 802.11n(HT20) 2417MHz　　Emission

Band Edge 802.11n(HT20) 2422MHz   Ref

Band Edge 802.11n(HT20) 2422MHz   Emission

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This report shall not be reproduced except in full, without the written approval of Eurofins TA Technology (Shanghai) Co., Ltd.
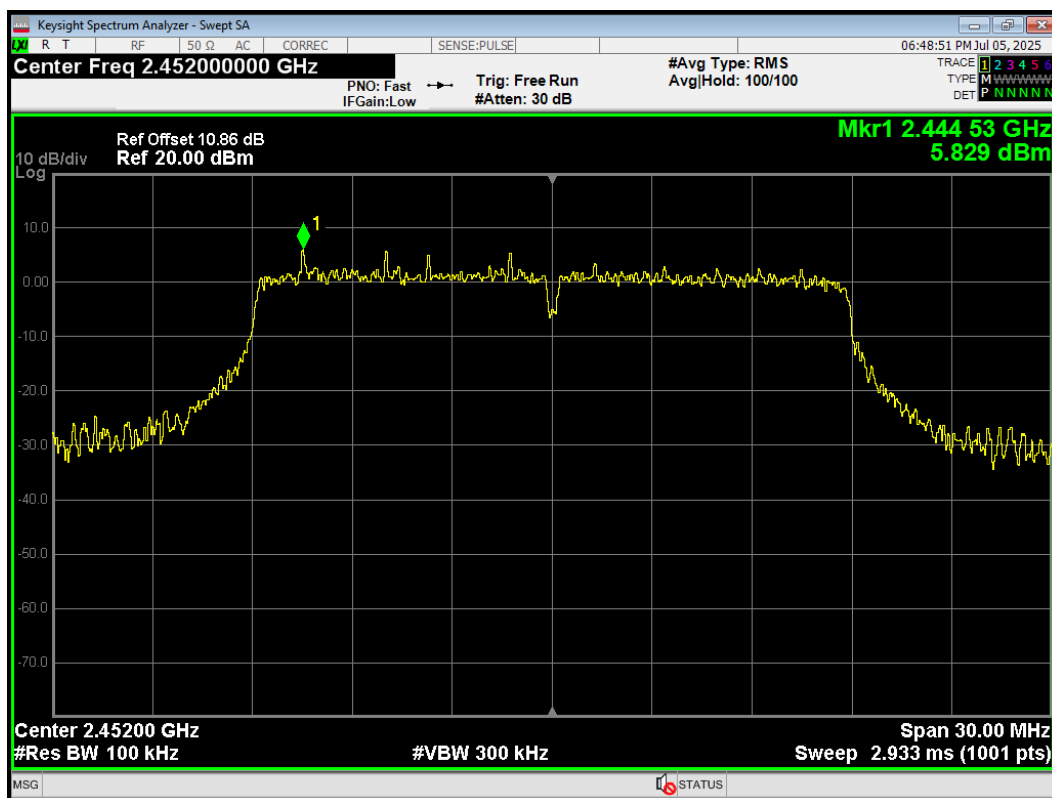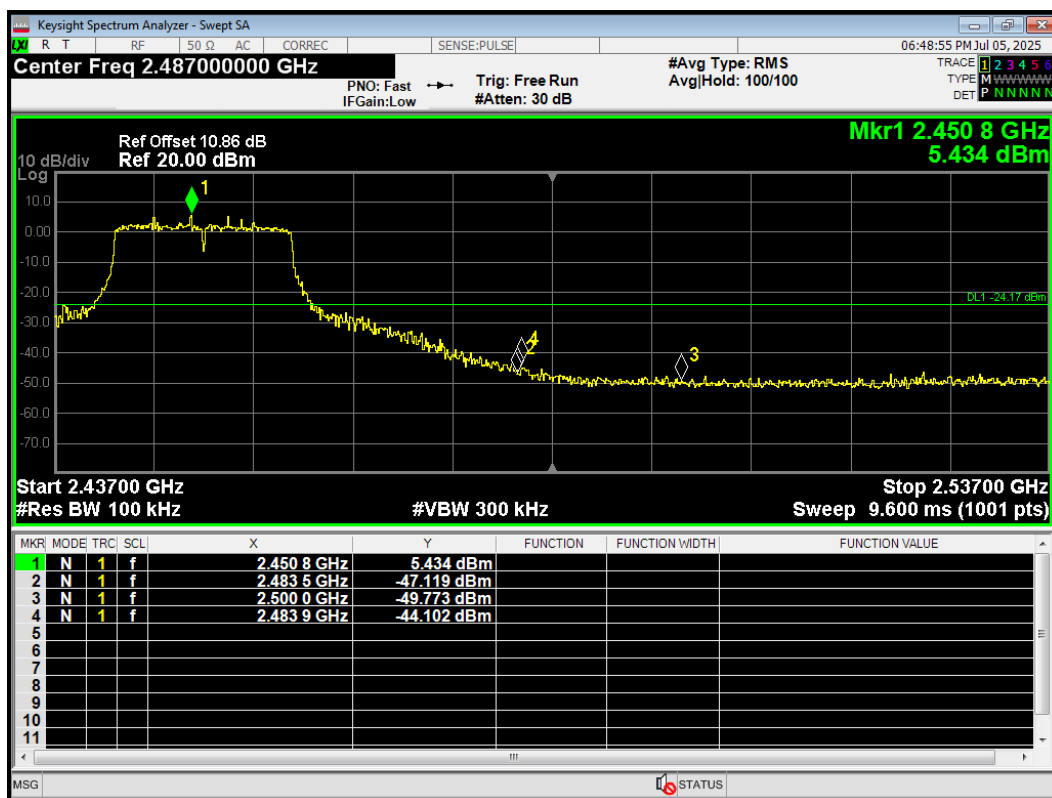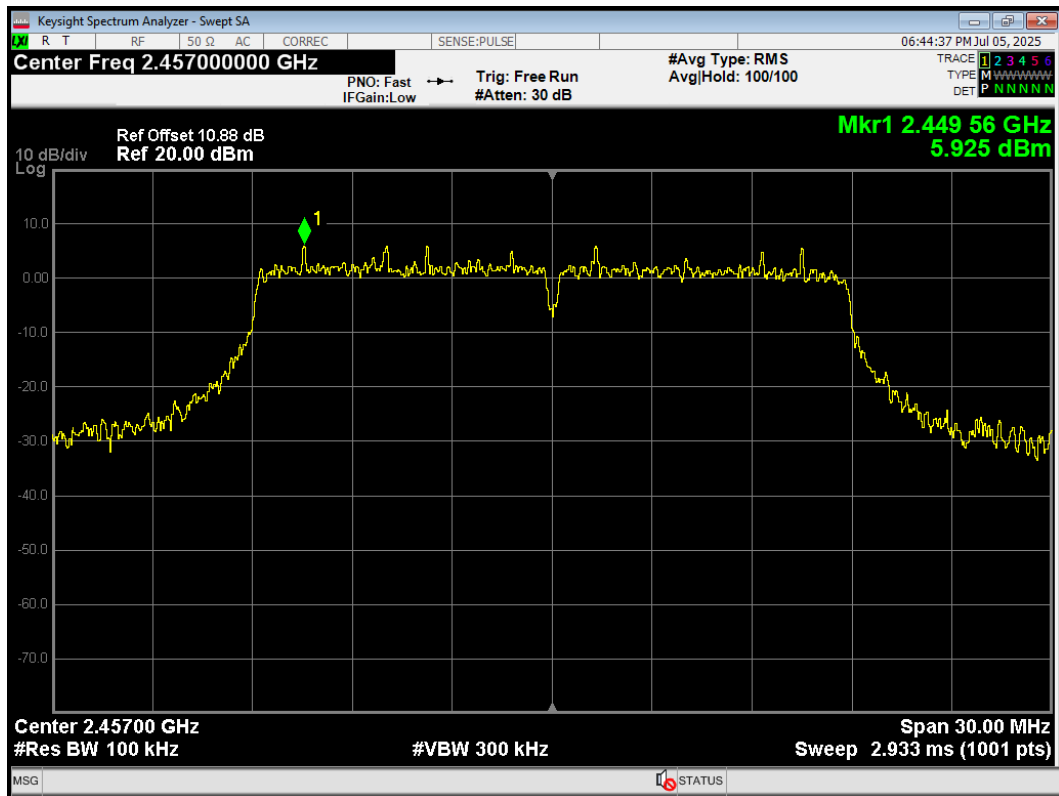
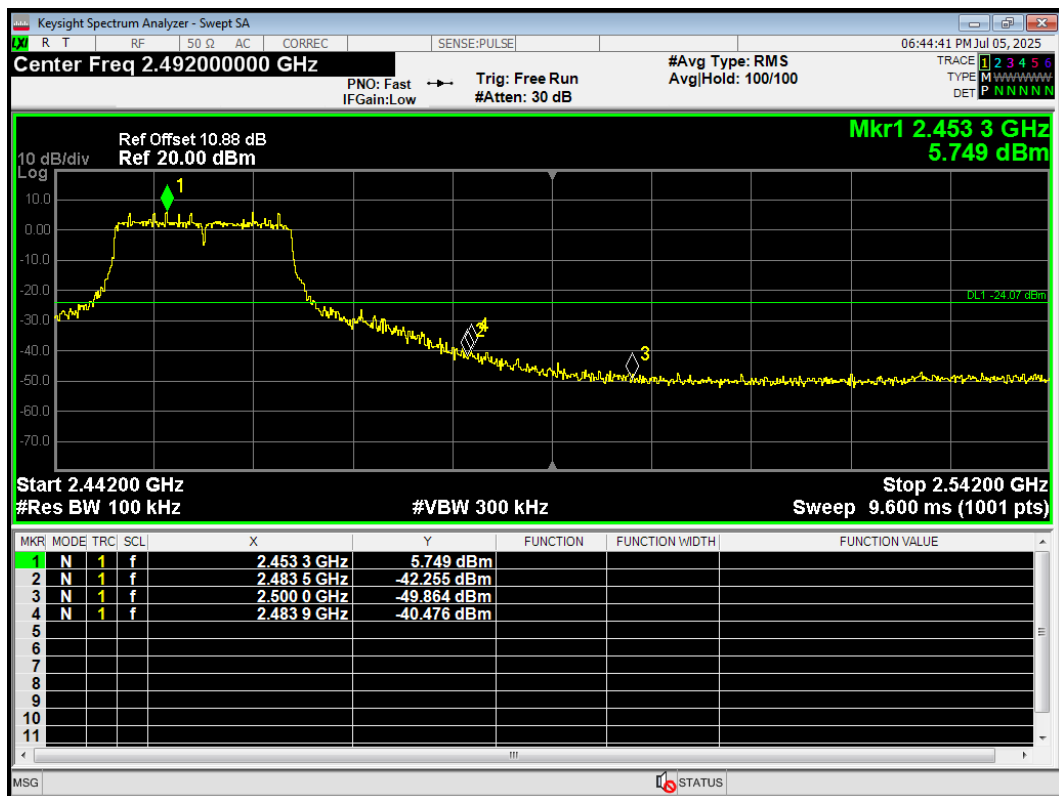Band Edge 802.11n(HT20) 2452MHz　Ref

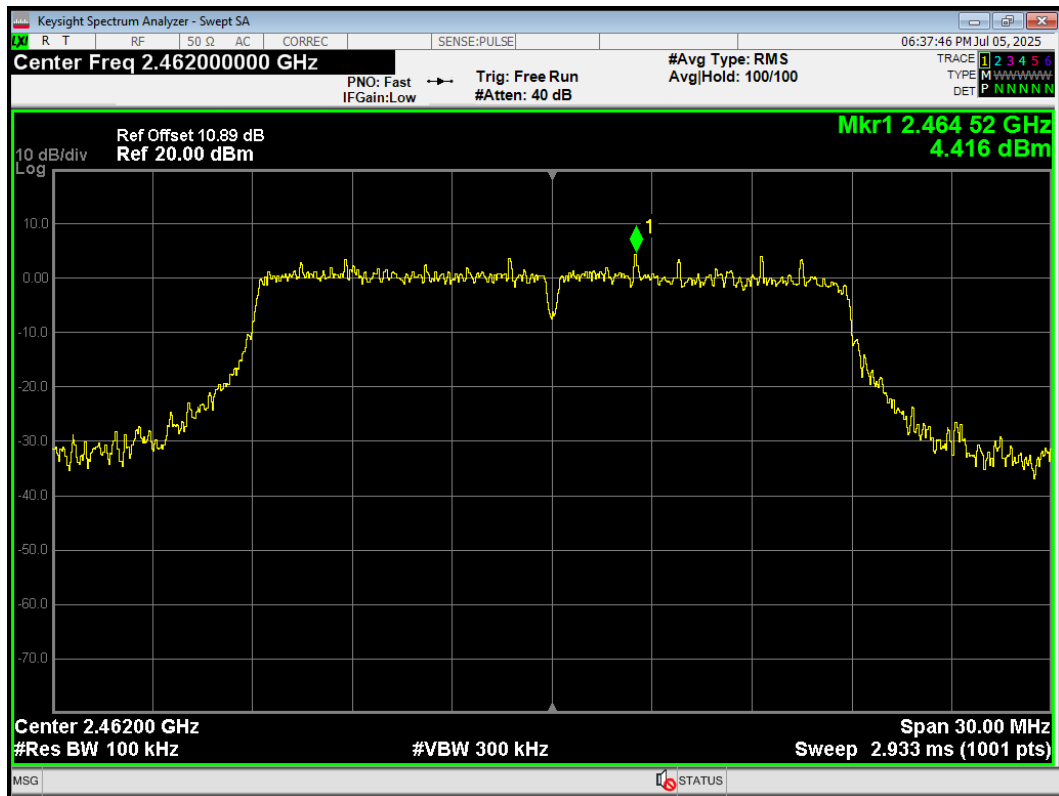Band Edge 802.11n(HT20) 2452MHz　Emission

Band Edge 802.11n(HT20) 2457MHz   Ref

Band Edge 802.11n(HT20) 2457MHz   Emission

Band Edge 802.11n(HT20) 2462MHz   Ref

Band Edge 802.11n(HT20) 2462MHz   Emission

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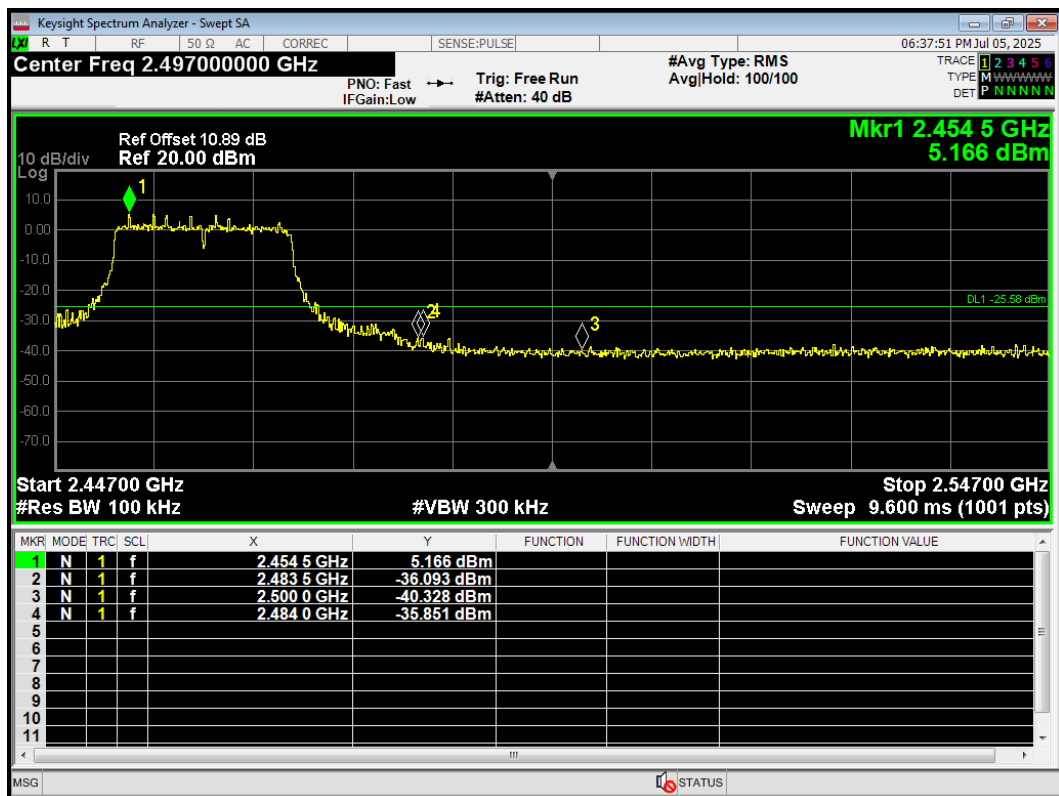
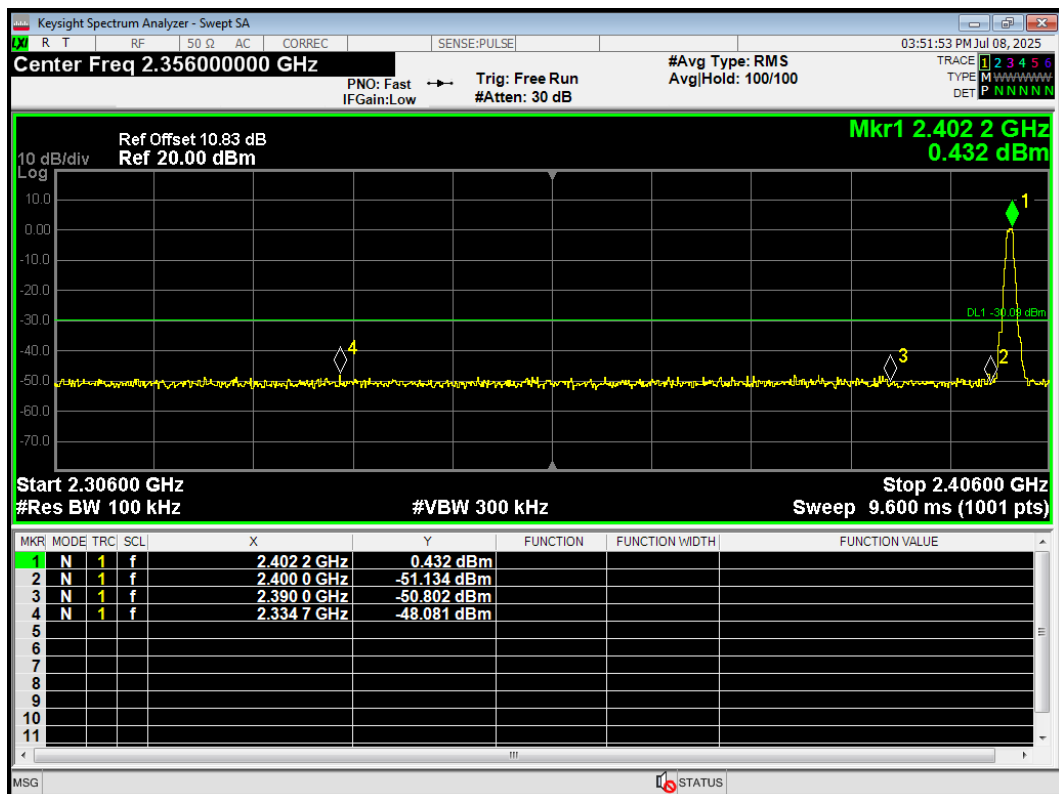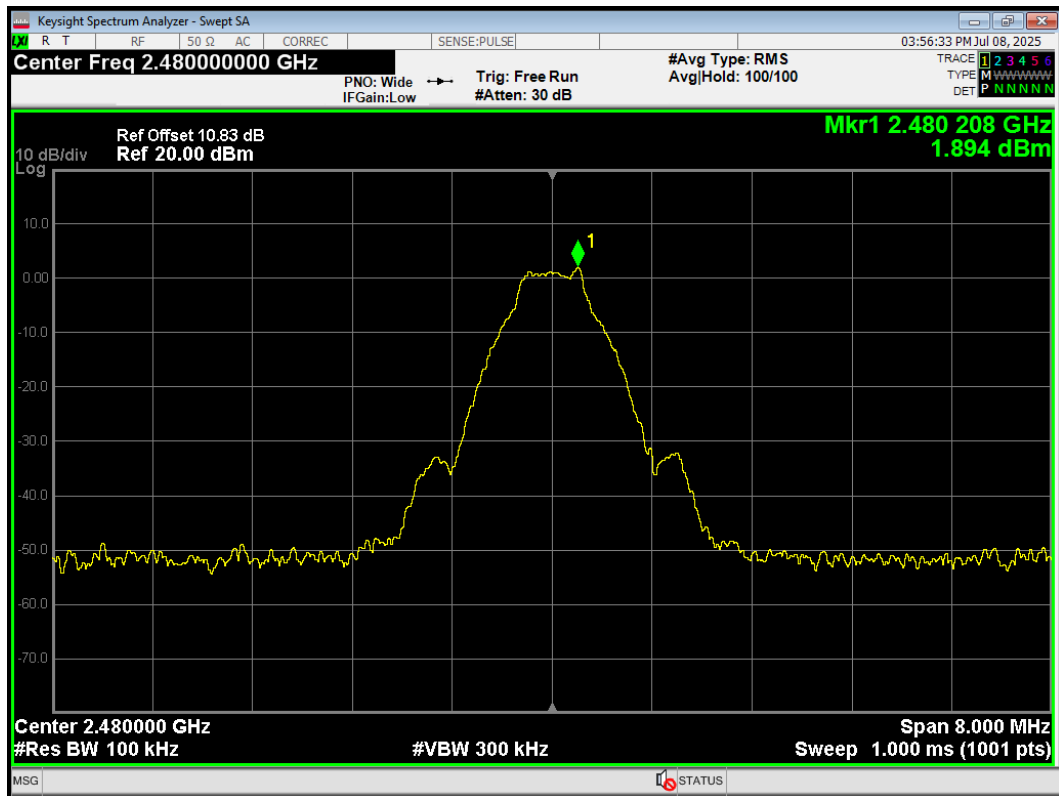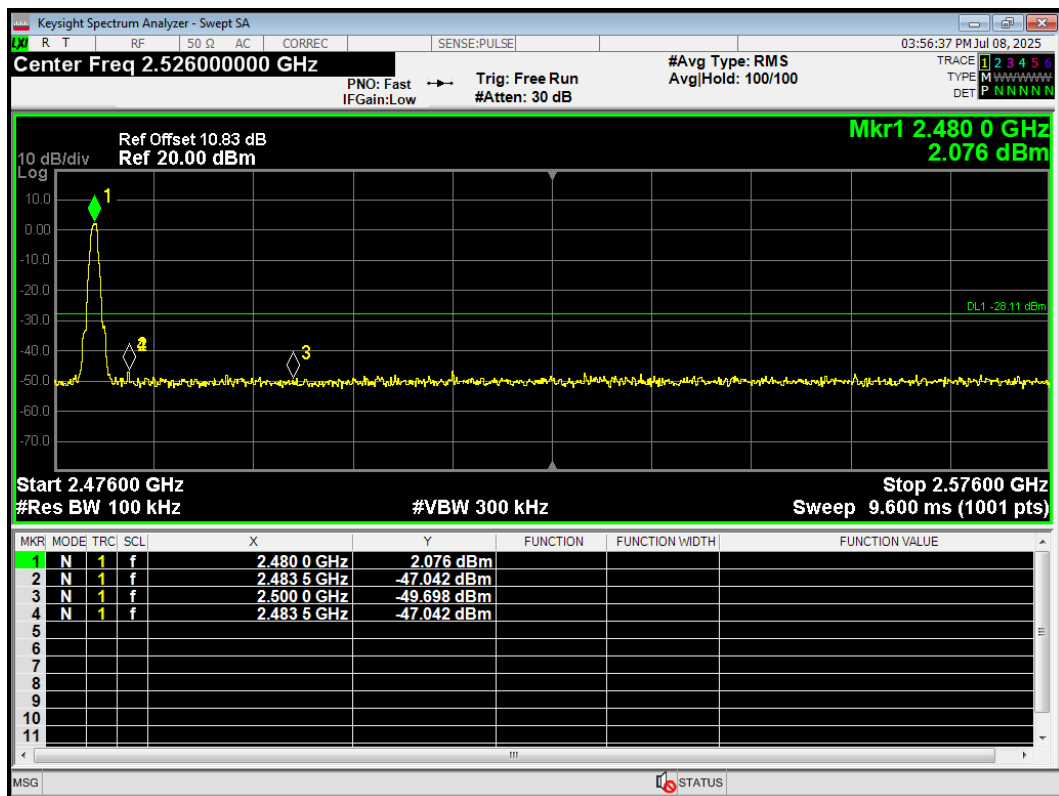Band Edge BLE 2402MHz   Ref
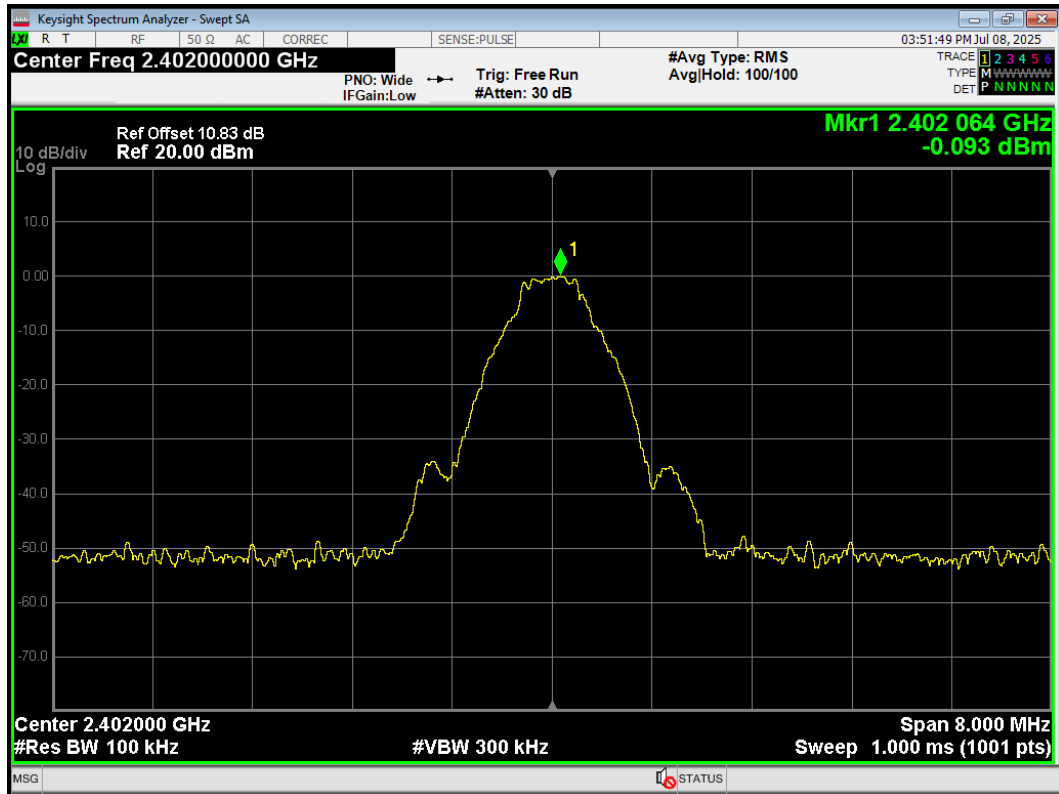
Band Edge BLE 2402MHz   Emission

Band Edge BLE 2480MHz   Ref

Band Edge BLE 2480MHz   Emission

5.4. Power Spectral Density

Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Method of Measurement

During the process of the testing, The EUT was connected to Spectrum Analyzer with a known loss.

The EUT is max power transmission with proper modulation.

Method AVGPSD-1 was used for this test.

a) Set instrument center frequency to DTS channel center frequency

b) Set span to at least 1.5 times the OBW

c) Set RBW to:3kHz≤RBW≤100kHz

d) Set VBW≥[3x RBW]

e) Detector=power averaging (rms) or sample detector (when rms not available)

f) Ensure that the number of measurement points in the sweep ≥ [2 X span/RBW]

g) Sweep time auto couple

h) Employ trace averaging (rms) mode over a minimum of 100 traces

i) Use the peak marker function to determine the maximum amplitude level.

j) If the measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced)

Method AVGPSD-2 was used for this test.

a) Measure the duty cycle (D)of the transmitter output signal as described in 11.6

b) Set instrument center frequency to DTS channel center frequency

c) Set span to at least 1.5 times the OBW

d) Set RBW to:3kHz≤RBW≤100kHz

e) Set VBW≥[3x RBW]

f) Detector= power averaging (rms) or sample detector (when rms not available)

g) Ensure that the number of measurement points in the sweep ≥ [2 X span/RBW]

h) Sweep time =auto couple

i) Do not use sweep triggering; allow sweep to "free run"

j) Employ trace averaging (rms) mode over a minimum of 100 traces

k) Use the peak marker function to determine the maximum amplitude level

l) Add [10 log(1/ D)], where D is the duty cycle measured in step a), to the measured PSD to compute the average PSD during the actual transmission time

m) If measured value exceeds requirement specified by regulatory agency then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced)
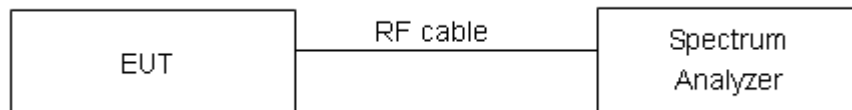
Test setup

```
┌──────────────┐          RF cable          ┌──────────────┐
│              │                            │  Spectrum    │
│     EUT      │────────────────────────────│  Analyzer    │
│              │                            │              │
└──────────────┘                            └──────────────┘
```

Limits

Rule Part 15.247(e) specifies that" For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. ''

Limits	≤ 8 dBm / 3kHz

Measurement Uncertainty
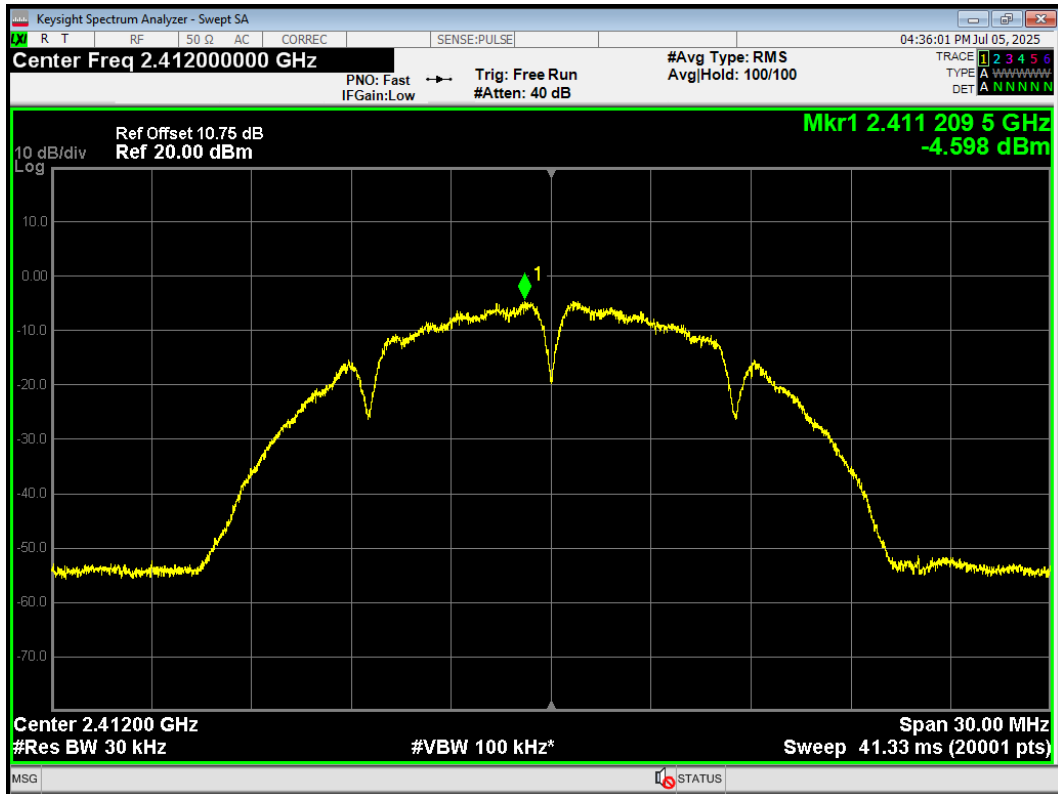
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.75dB.

Test Results:

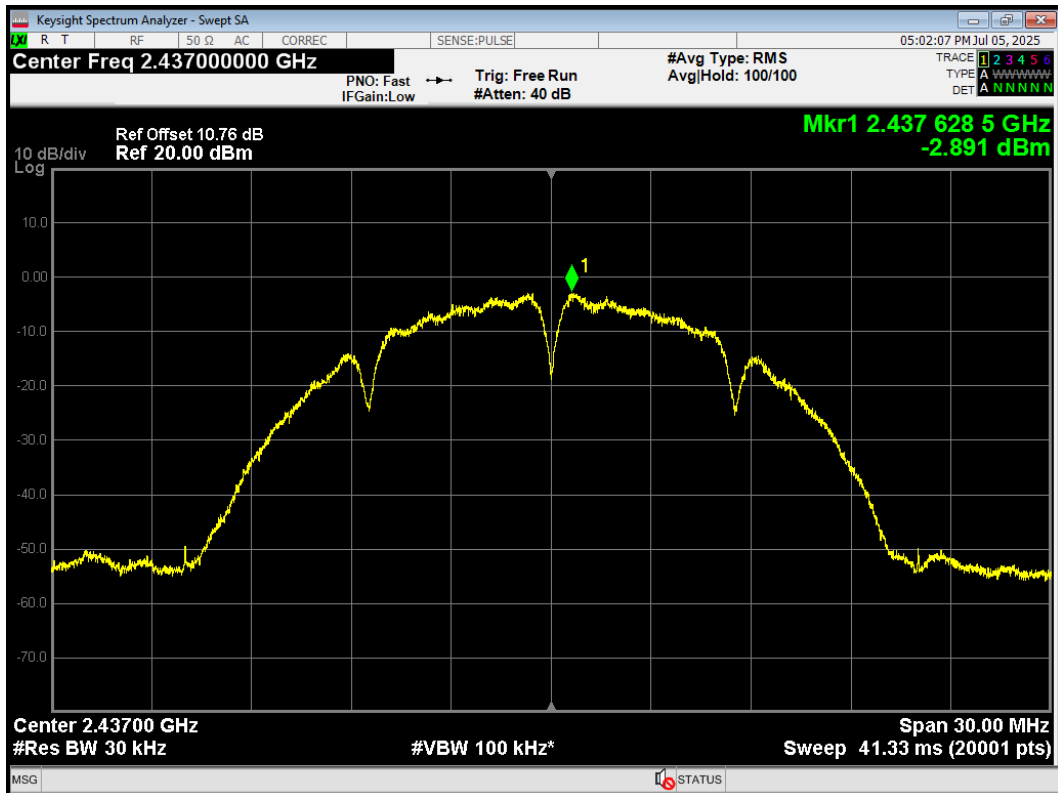| Test Mode	Carrier frequency (MHz) / Channel	Read Value (dBm / 30kHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
802.11b	2412/CH1	-4.60	-14.60	8	PASS
	2437/CH6	-2.89	-12.89	8	PASS
	2462/CH11	-3.21	-13.21	8	PASS
802.11g	2412/CH1	-7.34	-17.07	8	PASS
	2417/CH2	-6.50	-16.23	8	PASS
	2422/CH3	-6.83	-16.56	8	PASS
	2437/CH6	-6.50	-16.23	8	PASS
	2447/CH8	-7.31	-17.04	8	PASS
	2452/CH9	-6.40	-16.13	8	PASS
	2457/CH10	-6.68	-16.41	8	PASS
	2462/CH11	-7.18	-16.91	8	PASS
802.11n HT20	2412/CH1	-8.05	-17.89	8	PASS
	2417/CH2	-6.58	-16.42	8	PASS
	2422/CH3	-6.62	-16.46	8	PASS
	2437/CH6	-6.67	-16.51	8	PASS
	2452/CH9	-6.96	-16.80	8	PASS
	2457/CH10	-6.86	-16.70	8	PASS
	2462/CH11	-7.19	-17.03	8	PASS

Note: Power Spectral Density (dBm/3kHz) =Read Value+Duty cycle correction factor + 10*log10(3/30)

Test Mode	Carrier frequency (MHz) / Channel	Read Value (dBm / 3kHz)	Power Spectral Density (dBm / 3kHz)	Limit (dBm / 3kHz)	Conclusion
Bluetooth (Low Energy)	2402/CH0	-19.48	-18.82	8	PASS
	2440/CH19	-14.78	-14.12	8	PASS
	2480/CH39	-14.12	-13.46	8	PASS

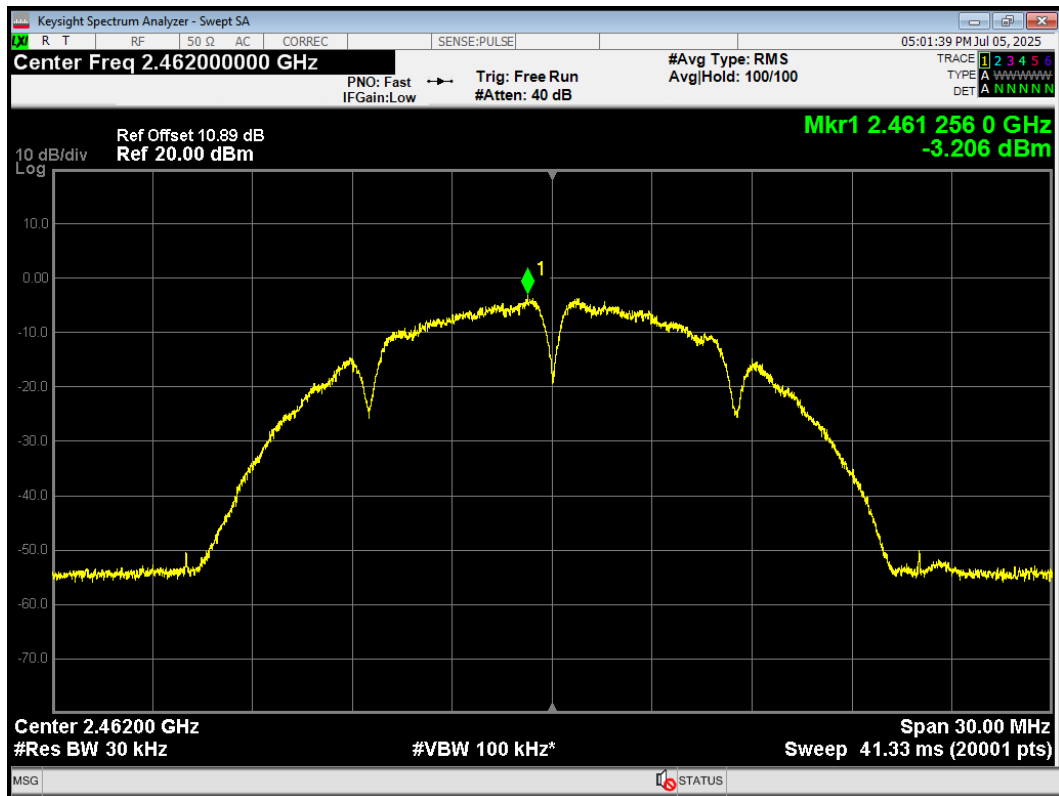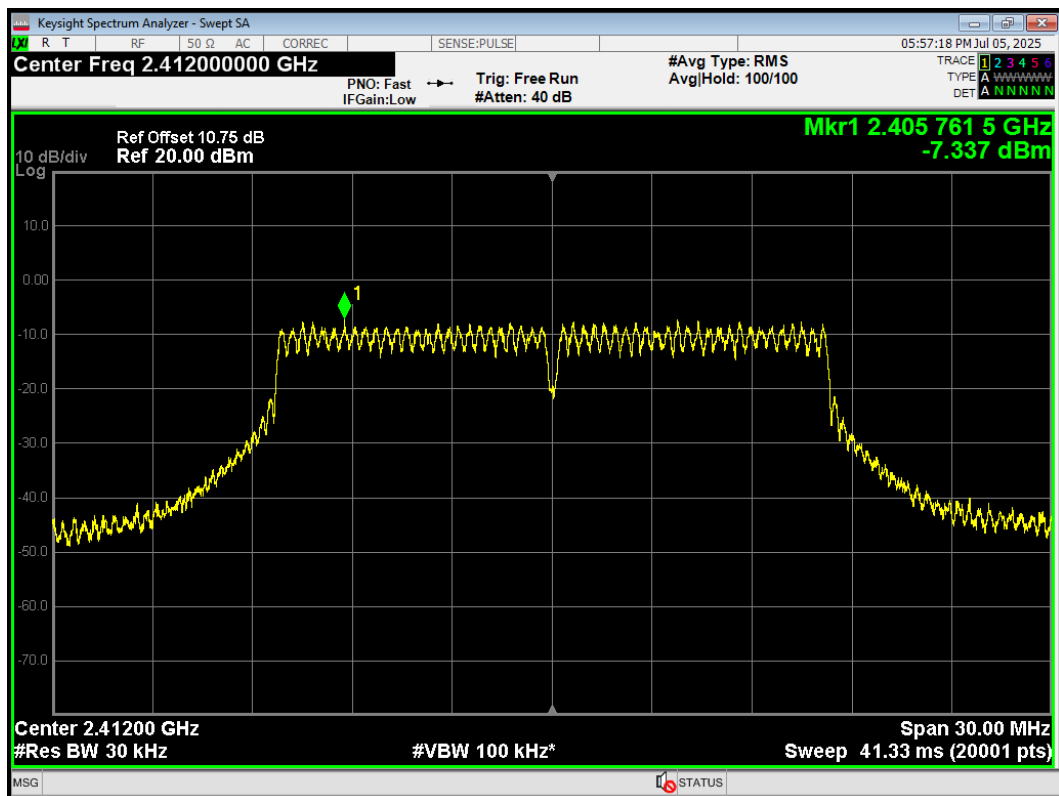Note: Power Spectral Density =Read Value+Duty cycle correction factor
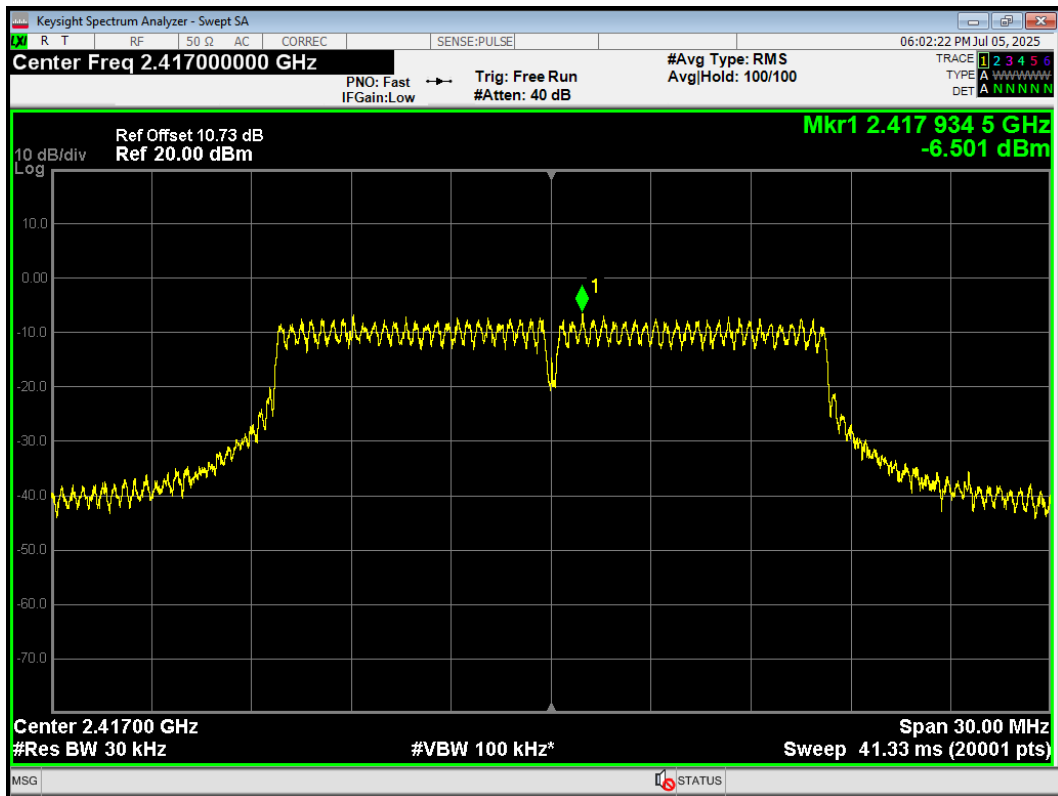
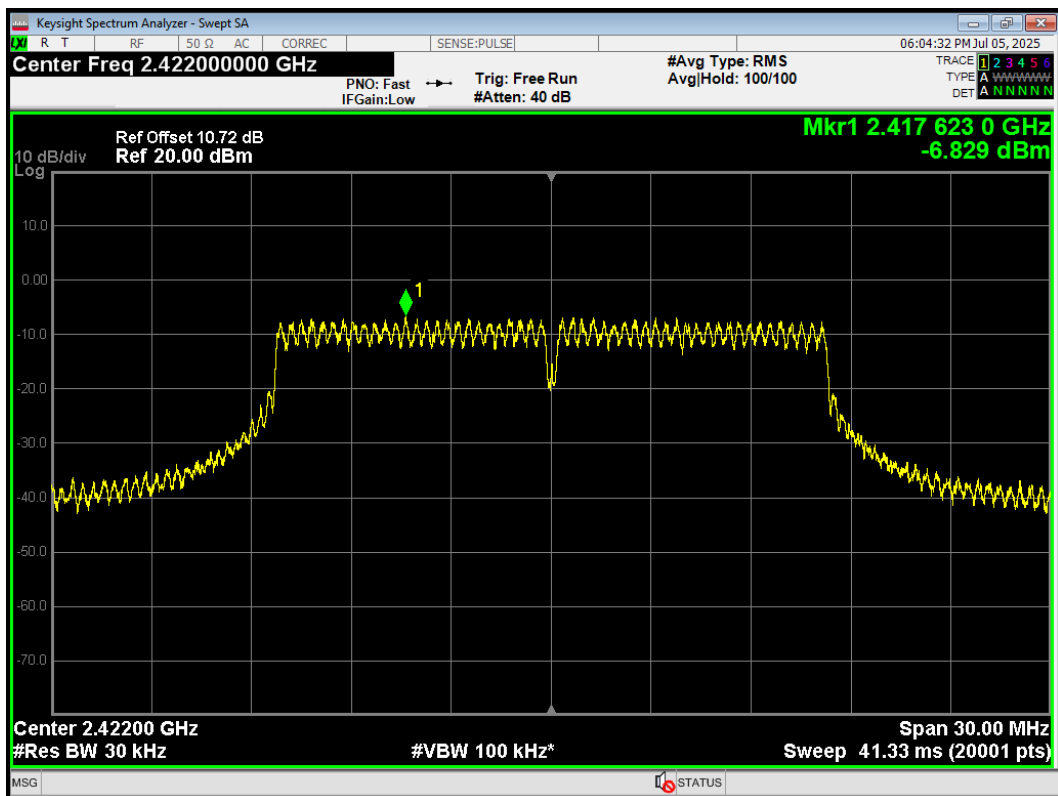PSD 802.11b 2412MHz

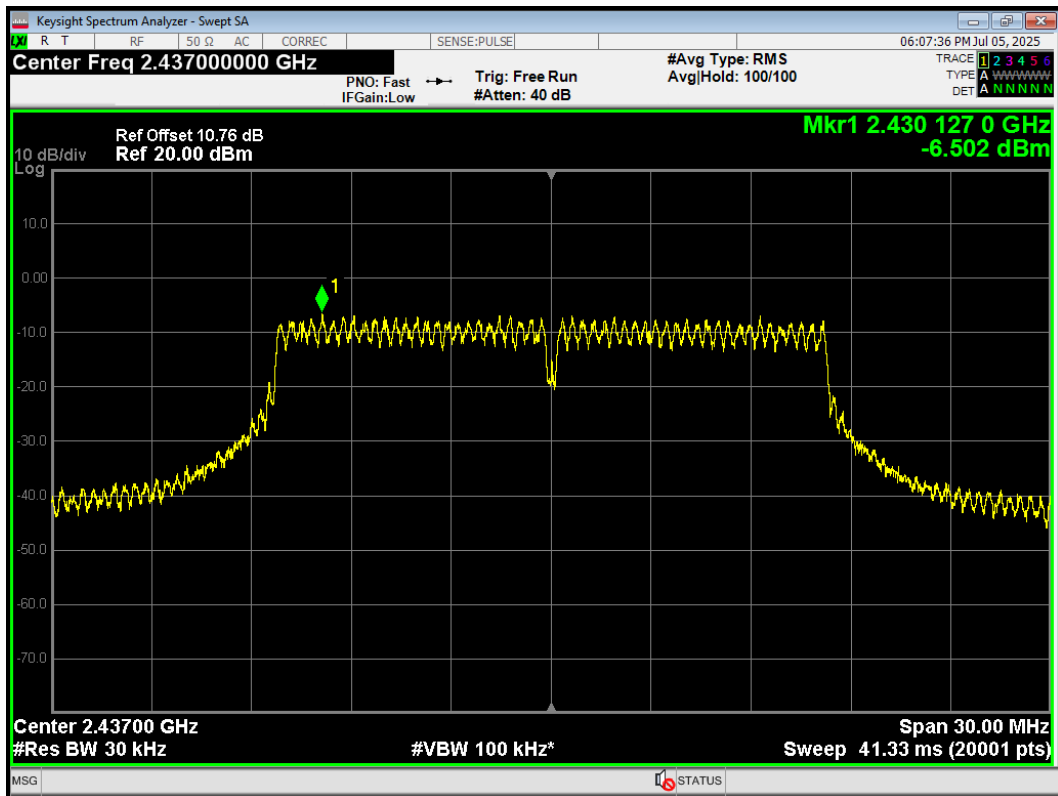PSD 802.11b 2437MHz

PSD 802.11b 2462MHz

PSD 802.11g 2412MHz

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PSD 802.11g 2417MHz

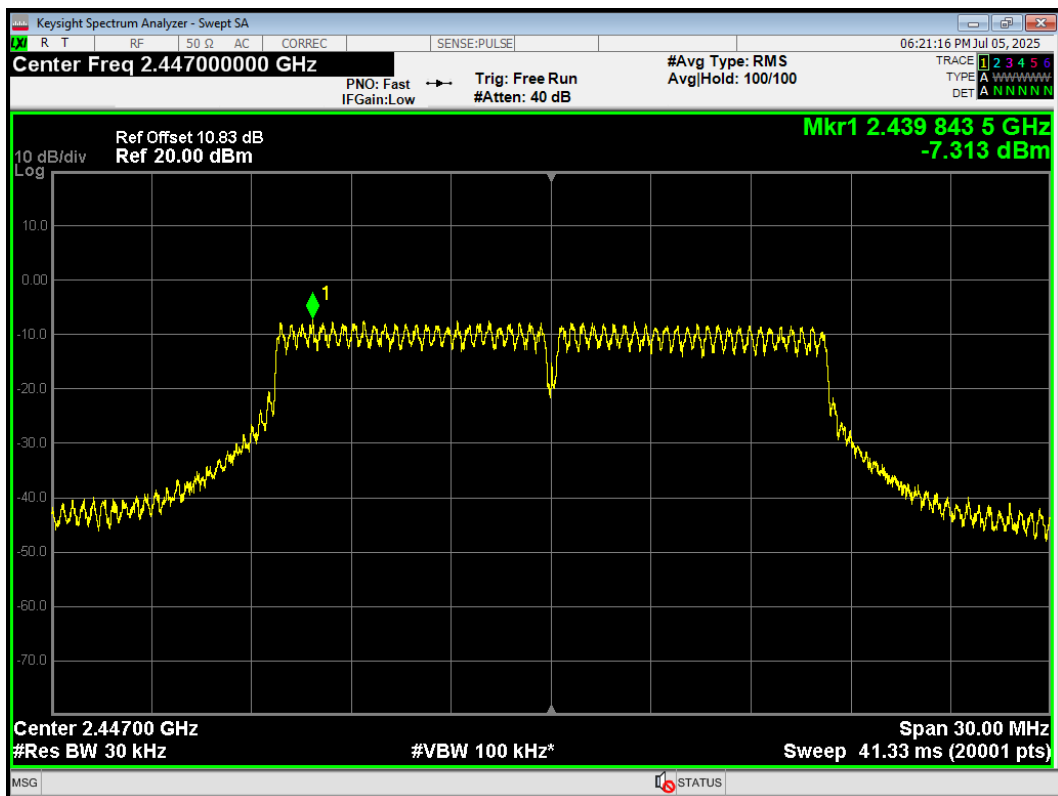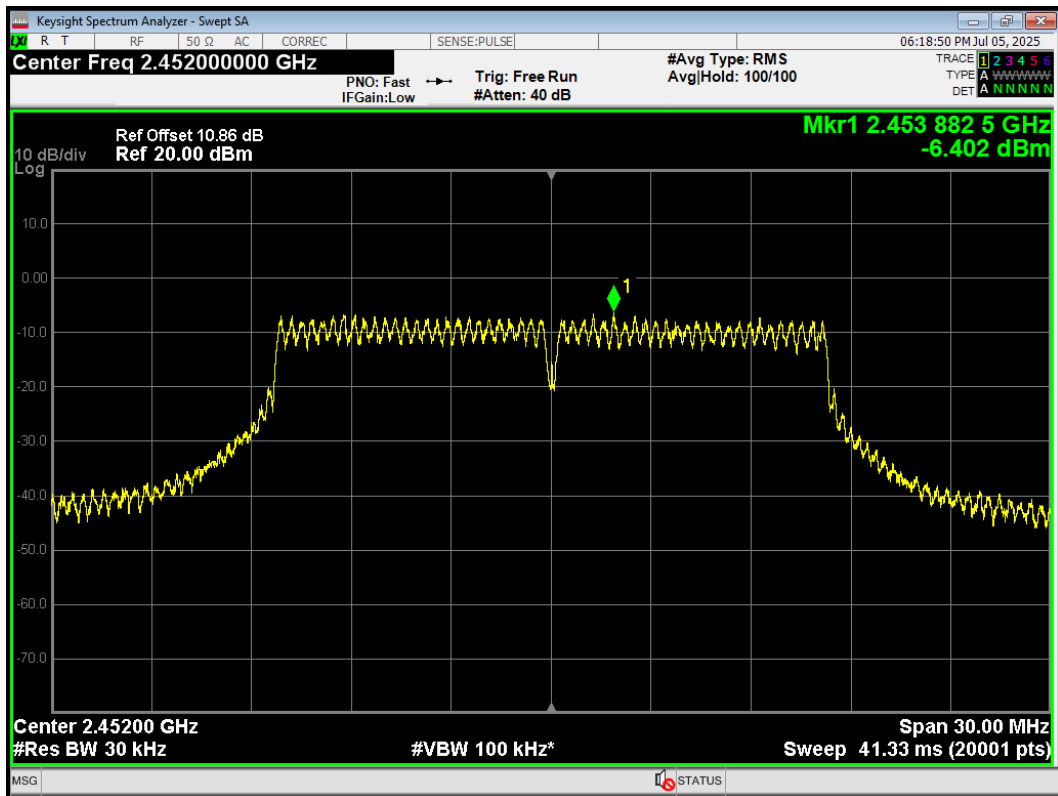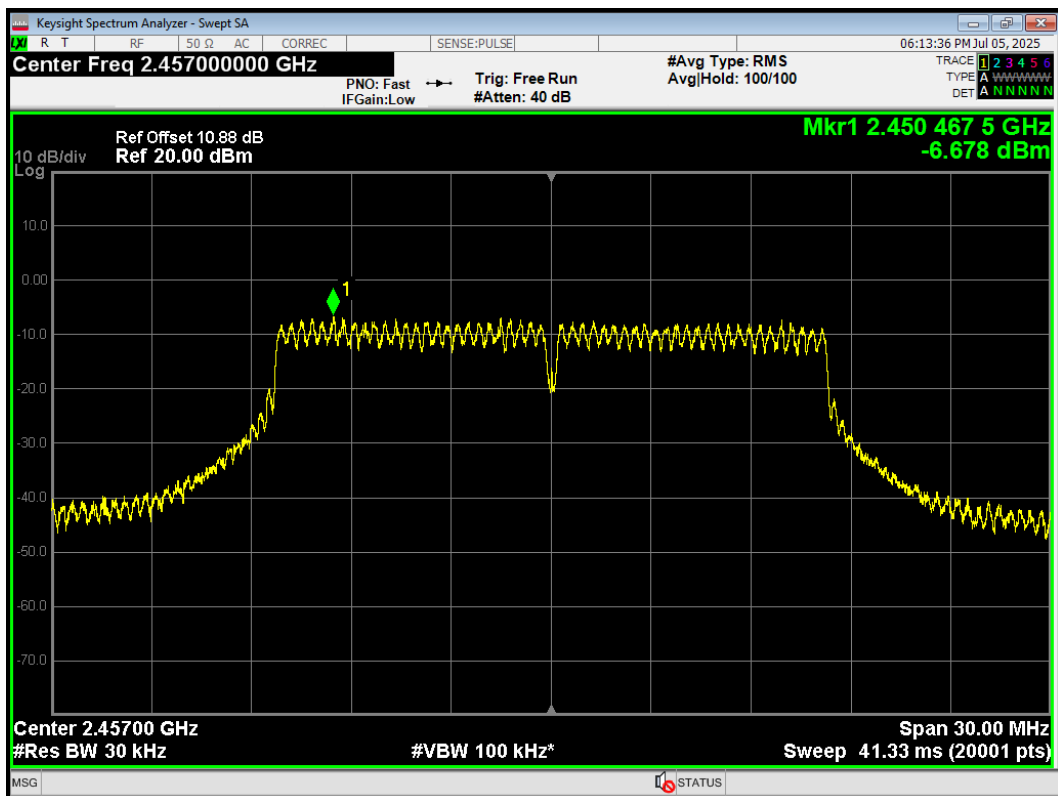## PSD 802.11g 2422MHz

PSD 802.11g 2437MHz

PSD 802.11g 2447MHz

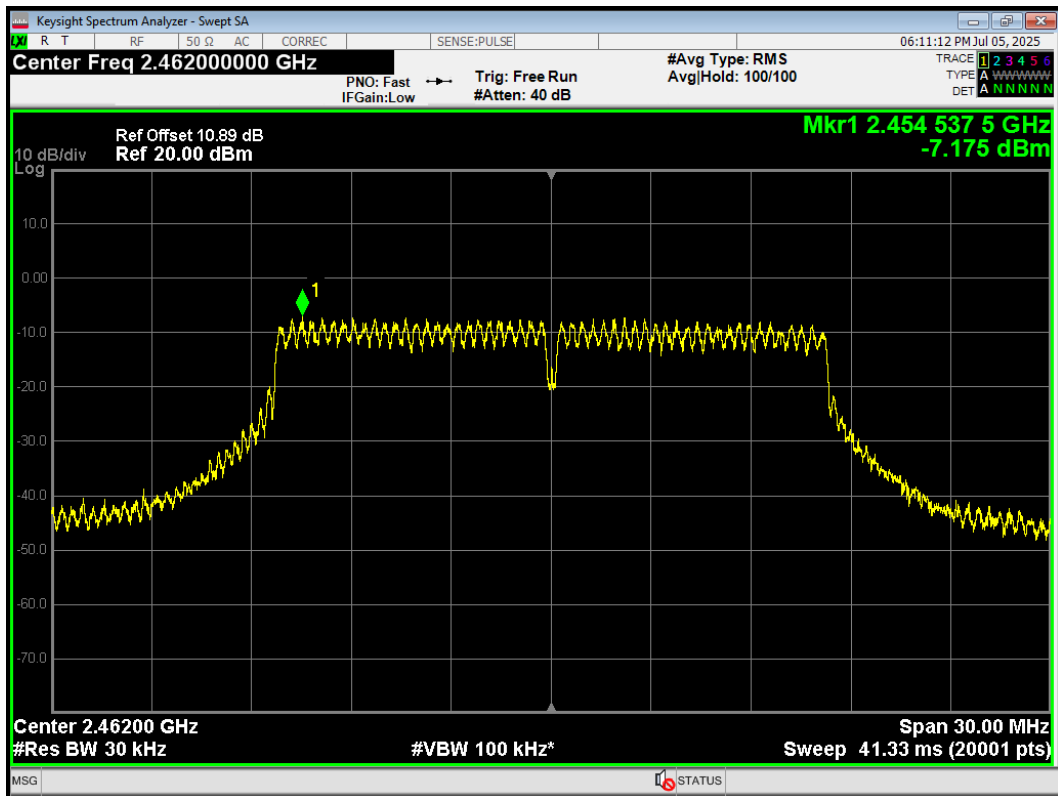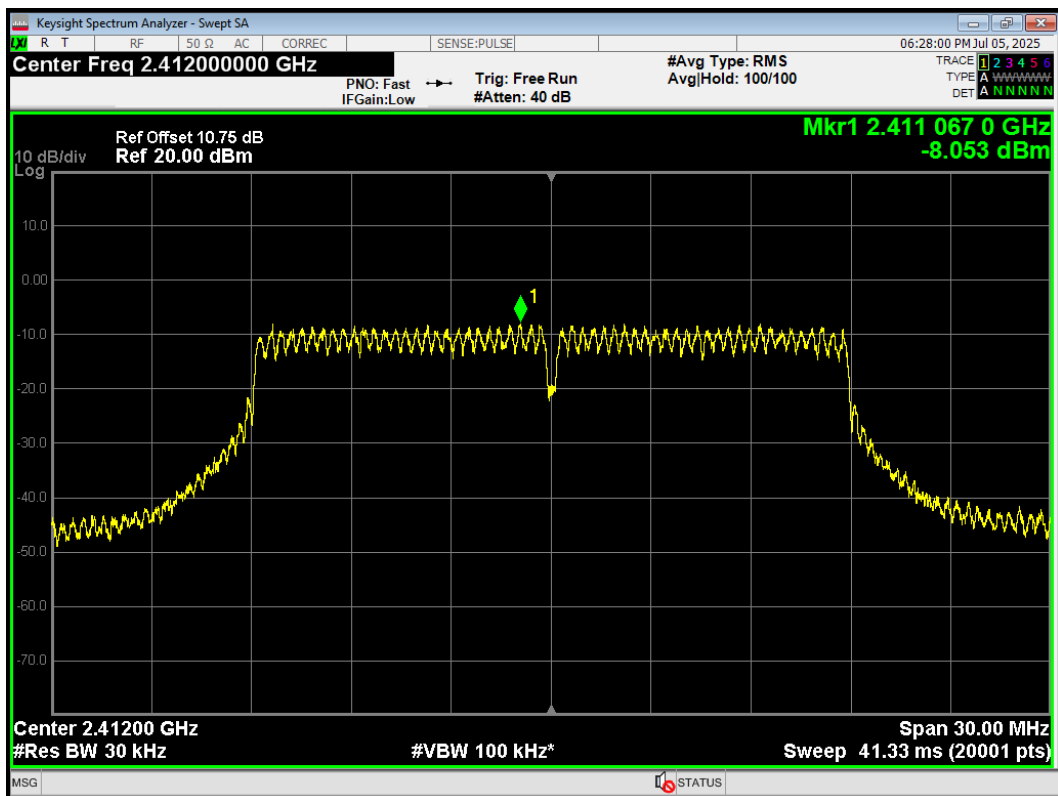## PSD 802.11g 2452MHz

PSD 802.11g 2457MHz

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PSD 802.11g 2462MHz

PSD 802.11n(HT20) 2412MHz

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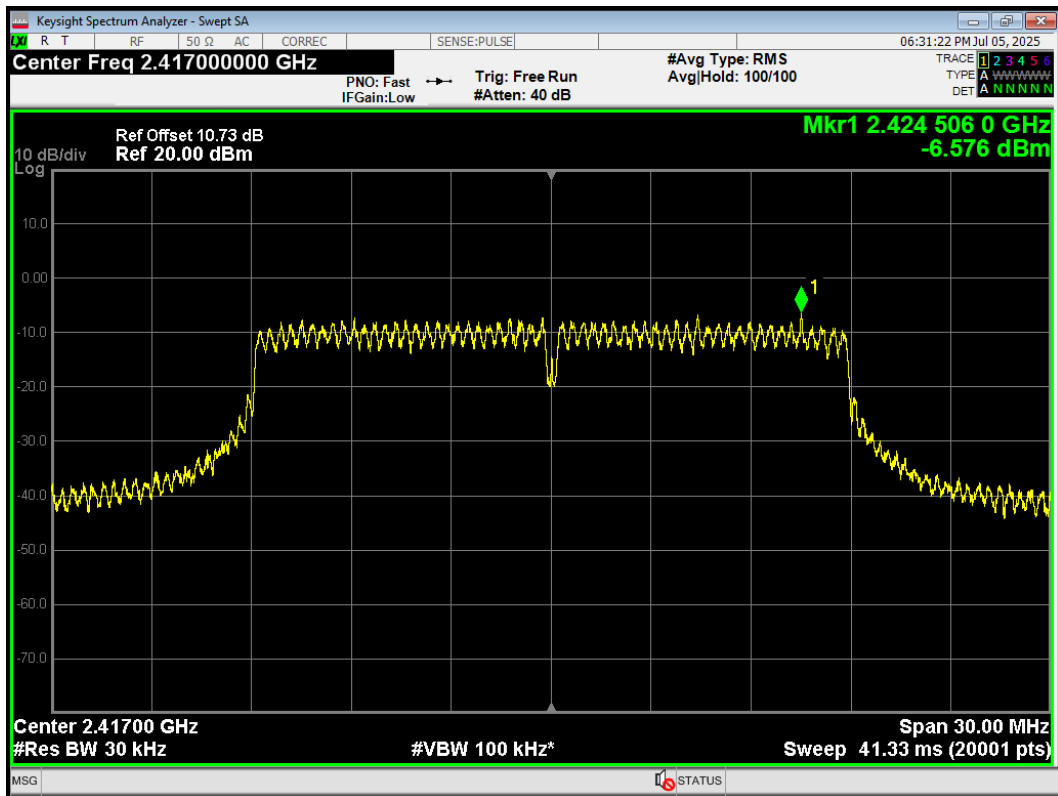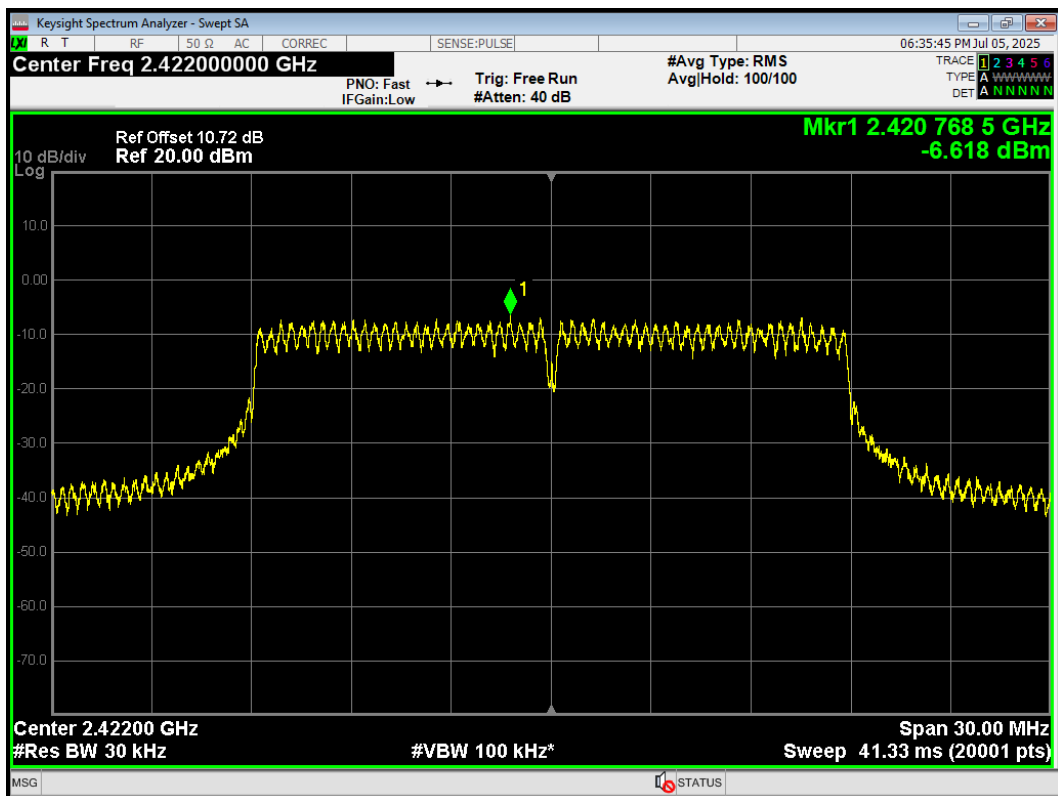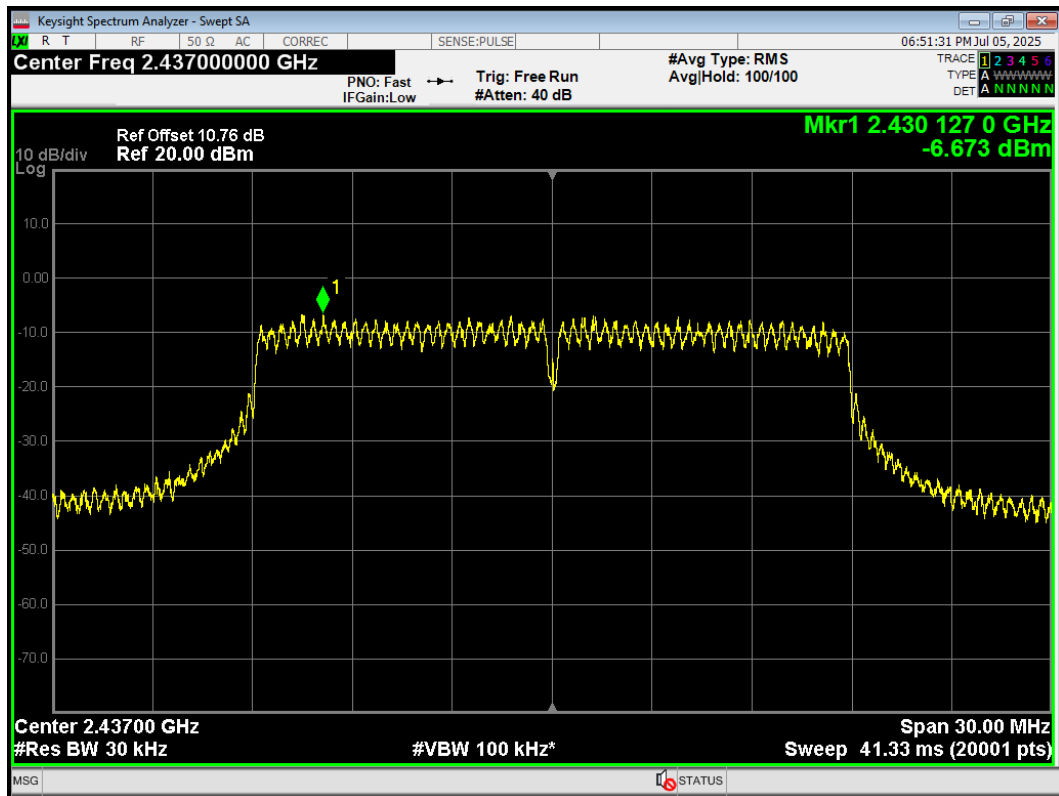
PSD 802.11n(HT20) 2417MHz

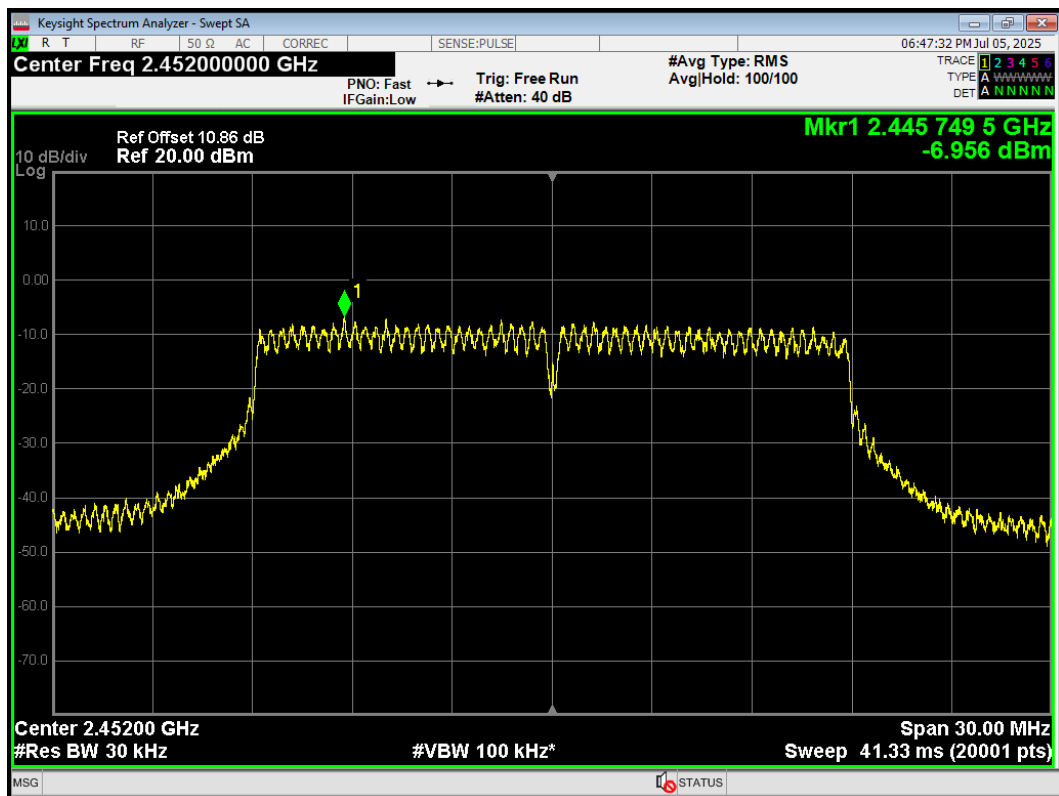## PSD 802.11n(HT20) 2422MHz

PSD 802.11n(HT20) 2437MHz

PSD 802.11n(HT20) 2452MHz

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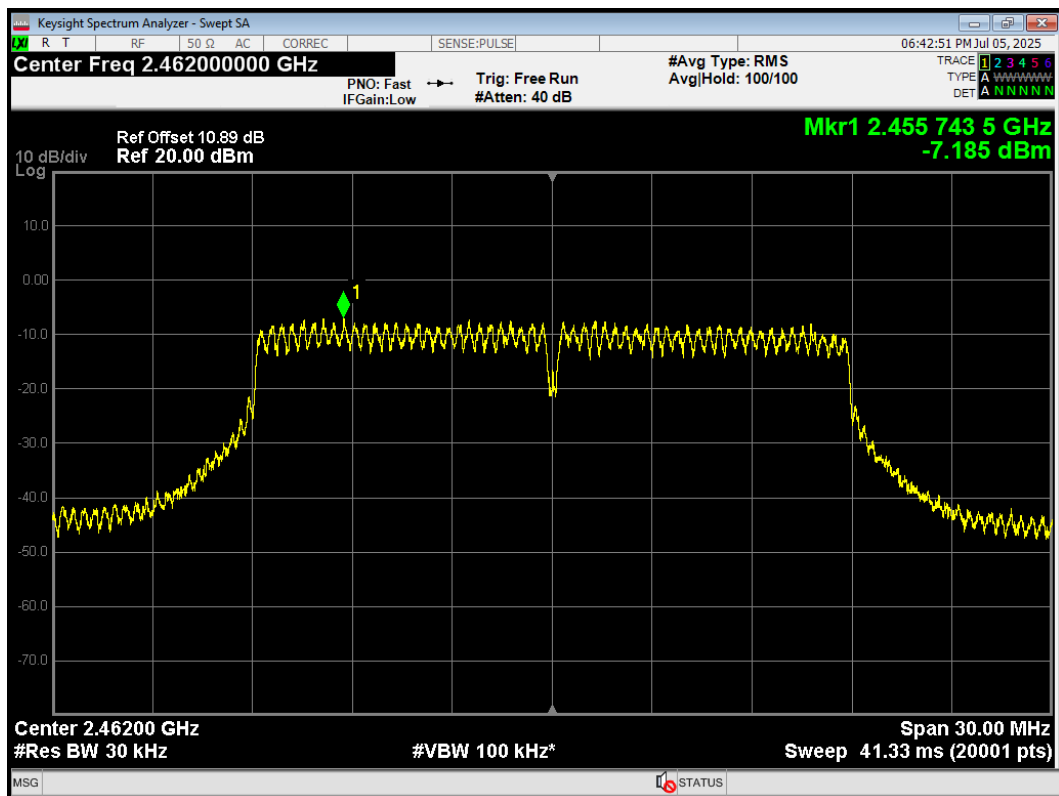
PSD 802.11n(HT20) 2457MHz
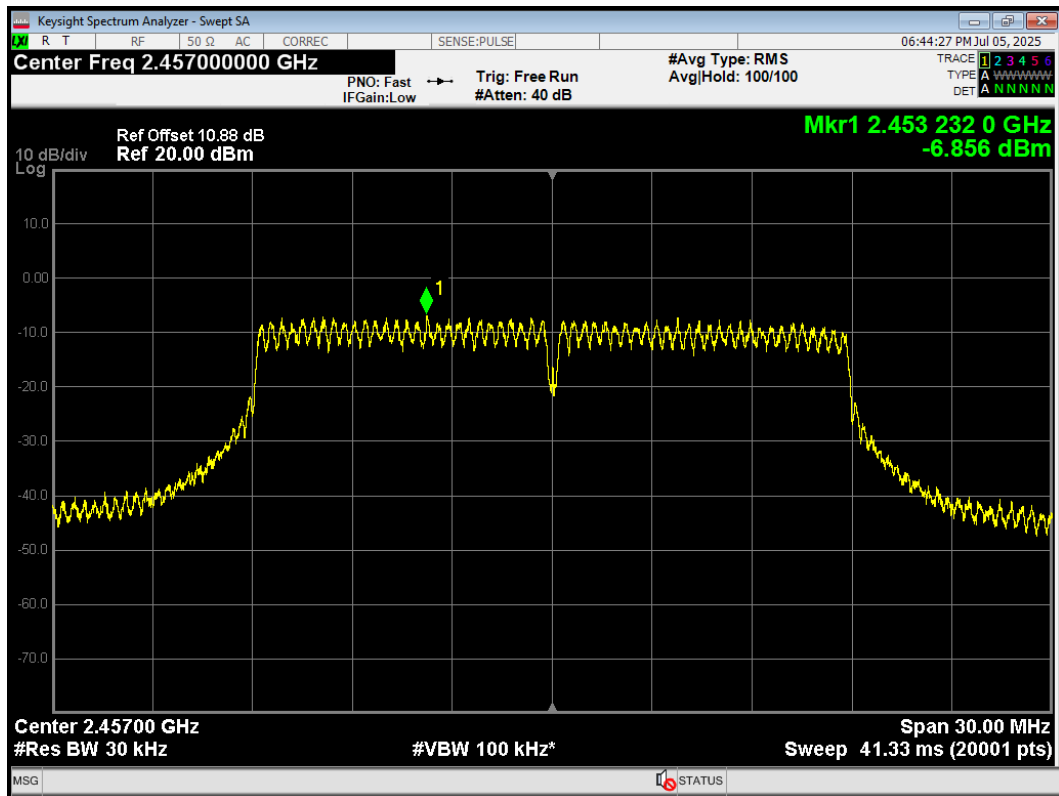
PSD 802.11n(HT20) 2462MHz

PSD BLE 2402MHz

PSD BLE 2440MHz

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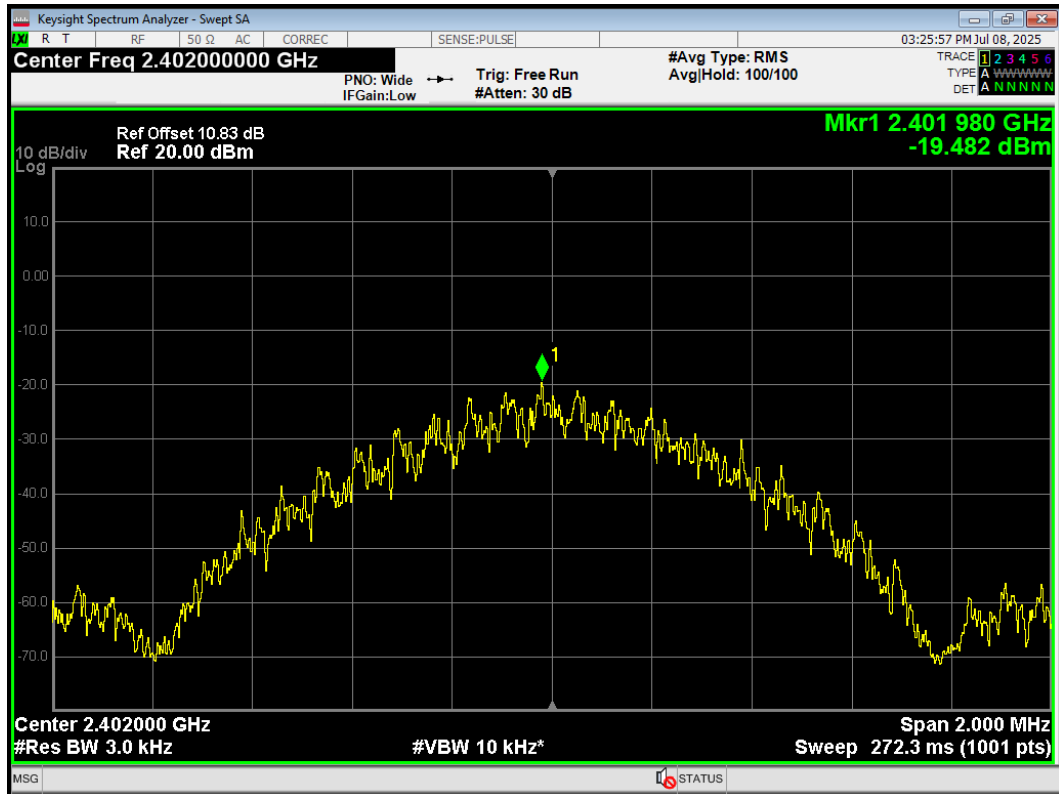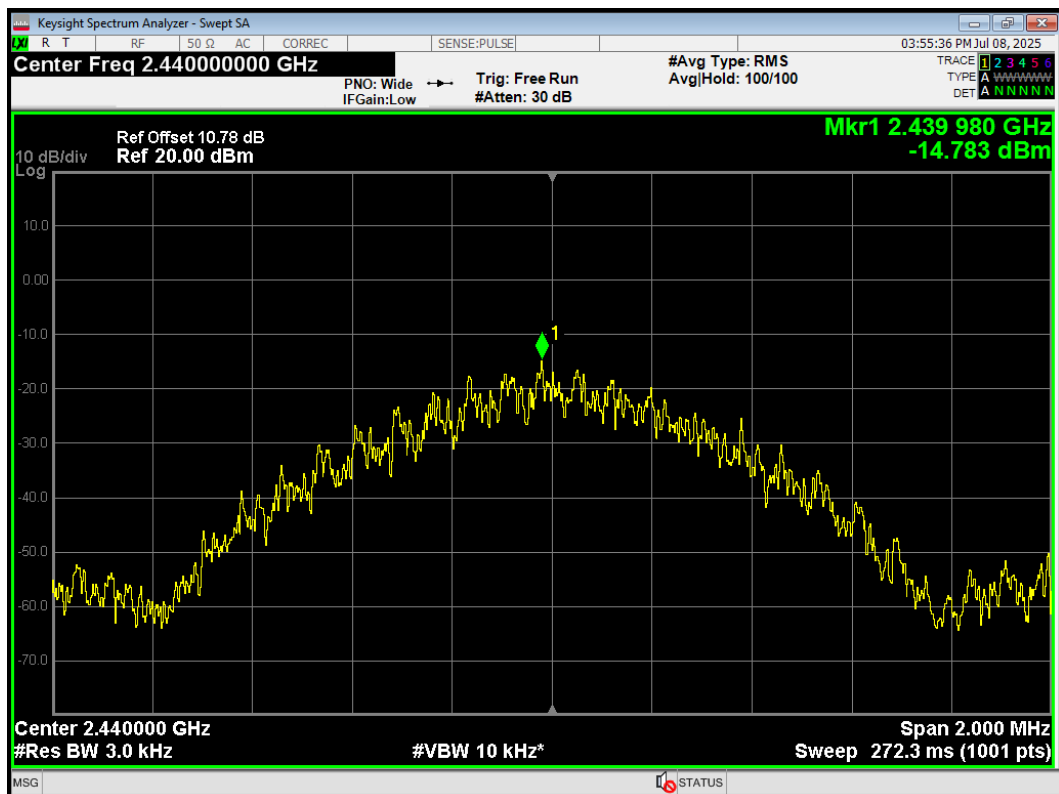
PSD BLE 2480MHz
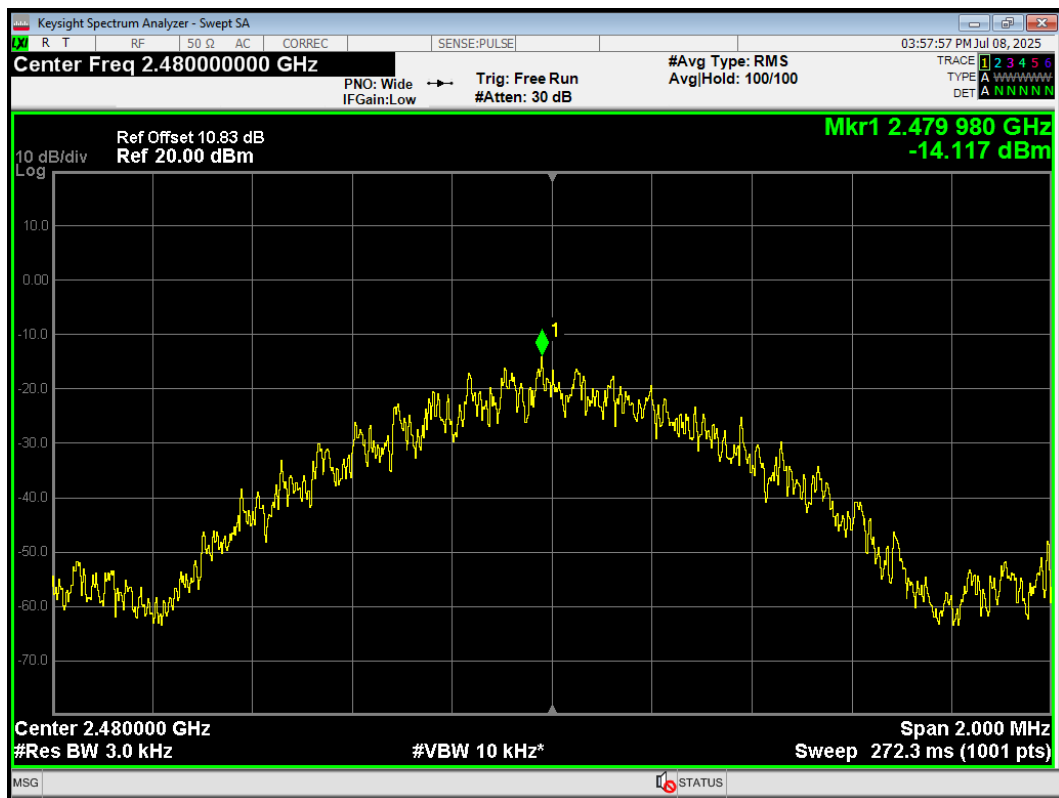
5.5. Spurious RF Conducted Emissions

Ambient Condition

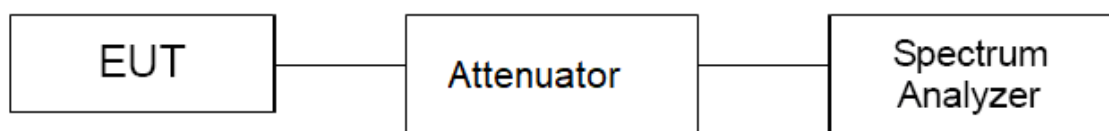| Temperature	Relative humidity
15°C ~ 35°C	20% ~ 80%

Method of Measurement

The EUT was connected to the spectrum analyzer with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW to 100 kHz and VBW to 300 kHz, Sweep is set to AUTO.
The test is in transmitting mode.

Test Setup

Limits

Rule Part 15.247(d) pacifies that "In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. "

Test Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit
802.11b	2412	7.610	-22.39
802.11b	2437	9.780	-20.22
802.11b	2462	9.230	-20.77
802.11g	2412	5.060	-24.94
802.11g	2417	5.180	-24.82
802.11g	2422	6.610	-23.39
802.11g	2437	6.380	-23.62
802.11g	2447	5.770	-24.23
802.11g	2452	6.660	-23.34

802.11g	2457	6.370	-23.63
802.11g	2462	6.170	-23.83
802.11n(HT20)	2412	5.070	-24.93
802.11n(HT20)	2417	5.860	-24.14
802.11n(HT20)	2422	5.540	-24.46
802.11n(HT20)	2437	6.380	-23.62
802.11n(HT20)	2452	5.750	-24.25
802.11n(HT20)	2457	5.420	-24.58
802.11n(HT20)	2462	5.060	-24.94

Mode	Frequency (MHz)	Carrier Level (dBm)	Limit (dBm)
BLE	2402	0.300	-29.70
BLE	2440	1.360	-28.64
BLE	2480	1.830	-28.17

Measurement Uncertainty

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

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB