

# TEST REPORT

**Report Number:** R14896020-E3

**Applicant :** Sonos  
301 Coromar Dr  
Goleta, CA 93117 USA

**Model :** S45

**Brand :** Sonos

**FCC ID :** SBVRM045

**IC :** 5373A-RM045

**EUT Description :** Wireless Smart Speaker

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART C  
ISED RSS-247 ISSUE 3  
ISED RSS-GEN ISSUE 5 + A1 + A2

**Date Of Issue:**  
2024-05-02

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## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2024-05-02	Initial Issue	B. Kiewra

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Sonos  
301 Coromar Dr  
Goleta, CA 93117 USA

**EUT DESCRIPTION:** Wireless Smart Speaker

**MODEL:** S45

**BRAND:** Sonos

**SERIAL NUMBER:** 00E5828D66C8, 000E58E7E7FB2, 000E58A36F038

**SAMPLE RECEIPT DATE:** 2024-02-12

**DATE TESTED:** 2024-02-12 to 2024-04-29

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	
ISED RSS-247 Issue 3	Refer to Section 2
ISED RSS-GEN Issue 5 + A1 + A2	

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 UL LLC By:

Prepared By:



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Staff Engineer  
Consumer, Medical and IT Segment  
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Project Engineer  
Consumer, Medical and IT Segment  
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## 2. TEST RESULTS SUMMARY

This report contains info provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

Below is a list of the data/info provided by the customer:

- 1) Antenna gain and type (see section 6.3)
- 2) Worst-case data rates (see section 0)

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
-	RSS-GEN 6.7	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	RSS-247 5.2 (a)	6dB BW	Compliant	None
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power		
See Comment		Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	RSS-247 5.2 (b)	PSD	Compliant	None
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions		
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions		
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions		

## 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2020, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, RSS-GEN Issue 5 + A1 + A2, and RSS-247 Issue 3.

## 4. 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	

## 5. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 5.1. 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.

### 5.2. 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.)

### 5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%
Time	3.39%

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

### 5.4. SAMPLE CALCULATION

#### **RADIATED EMISSIONS**

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

#### **MAINS CONDUCTED EMISSIONS**

Where relevant, the following sample calculation is provided:

$$\text{Final Voltage (dBuV)} = \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \text{LISN Insertion Loss}$$

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$



## 6. EQUIPMENT UNDER TEST

### 6.1. EUT DESCRIPTION

The EUT is a Wireless Smart Speaker that contains Radio0 and Radio1. Radio0 transmits BT, BLE, 2.4GHz WLAN, 5GHz WLAN, 6GHz WLAN. Radio1 transmits 5GHz and 6GHz WLAN. This report covers testing on Radio0 2.4GHz WLAN.

### 6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11b	25.17	328.85
2412 - 2472	802.11g	28.51	709.58
2412 - 2472	802.11n HT20	28.54	714.50
2412 - 2472	802.11ax HE20 26T	26.73	470.98
2412 - 2472	802.11ax HE20 52T	28.23	665.27
2422 - 2462	802.11ax HE20 106T	28.63	729.46
2422 - 2462	802.11ax HE20 242T	28.51	709.58

### 6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes 4 antennas for diversity, chain 0 connects ANT 1 and ANT2, chain 1 connects to ANT3 and ANT 4. Through pretesting it was determined that antenna 2 and antenna 3 are worst-case combination and result in worst-case antenna gains as declared below.

Mode	Type	Declared Correlated Gain (dBi)	Declared Uncorrelated Gain (dBi)
2.4GHz WLAN 2Tx MIMO	Triband Monopole	6.6	3.6

### 6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 78.1-45200-diag-lasso-rel-202312282317.

## 6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels. Radiated emissions performed on the modes with the highest power and PSD. Full tone tested to cover SU modes.

The EUT is intended to operate in one orientation. Therefore all testing was performed with the EUT in this intended orientation of operation.

Worst-case data rates as provided by the client were:

802.11b mode: 1 Mbps  
 802.11g mode: 6 Mbps  
 802.11n HT20mode: MCS0  
 802.11be HE20mode: MCS0

Note: To reduce size of report only representative plots are included for some conducted testing.

## 6.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T450s	NA	NA
Laptop	Lenovo	T470s	NA	NA
Ethernet Switch	Netgear	GS305v3	5U81385JA2EE6	NA
Switch PSU	Netgear	AD2015F20	332-10727-02	NA

### I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Mains	1	Hardwired	Non-Shielded	>3m	Connects to AC Mains
2	Ethernet	1	Ethernet	Non-Shielded	>3m	Connects to ENET switch

### TEST SETUP

The EUT is connected to a test laptop during the tests.

**SETUP DIAGRAMS**

Please refer to R14896020-EP1 for setup diagrams

## 7. TEST AND MEASUREMENT EQUIPMENT

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

### Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2023-06-14	2024-06-14
90416	Spectrum Analyzer	Keysight Technologies	N9030A	2023-06-09	2024-06-30
238710	Environmental Meter	Fisher Scientific	15-077-963	2023-06-27	2024-06-27
SOFTEMI	Antenna Port Software	UL	Version 2021.5.28	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2023.2.16	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2024.2.23	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA
245262	Conducted Switch Box	UL	CSB	2024-02-20	2025-02-20
211056	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2023-08-01	2024-08-01
211055	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2023-08-01	2024-08-01
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2023-08-01	2024-08-01
211058	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2023-08-01	2024-08-01

### Test Equipment Used - Wireless Conducted Attenuators, Cables, and Couplers

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
<b>Attenuators</b>					
226561	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2024-02-29	2025-02-29
226563	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2024-02-29	2025-02-29
<b>Cables</b>					
CBL030	SMA Male to SMA Male Cable Using PE-P141 Coax - 12"	Pasternack	Sucoflex 104PEA	2023-06-27	2024-06-27
CBL031	SMA Male to SMA Male Cable Using PE-P141 Coax - 12"	Pasternack	Sucoflex 104PEA	2023-06-27	2024-06-27

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
<b>1-18 GHz</b>					
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-04-06	2024-04-06
<b>18-40 GHz</b>					
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
<b>Gain-Loss Chains</b>					
91979	Gain-loss string: 1-18GHz	Various	Various	2023-05-16	2024-05-16
135999	Gain-loss string: 18-40GHz	Various	Various	2023-05-16	2024-05-16
<b>Receiver &amp; Software</b>					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-07-19	2024-07-19
81018	Spectrum Analyzer	Agilent	E4446A	2023-08-01	2024-08-01
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05
170112	10dB Pad, DC-18GHz, 5W	Mini-Circuits	BW-N10W5+	2023-11-09	2024-11-09

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
<b>1-18 GHz</b>					
86408	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-06-19	2025-06-19
<b>Gain-Loss Chains</b>					
91977	Gain-loss string: 1-18GHz	Various	Various	2023-06-06	2024-06-06
<b>Receiver &amp; Software</b>					
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-03-05	2025-03-05
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
200540	Environmental Meter	Fisher Scientific	15-077-963	2023-07-19	2025-07-19
35879	10dB Pad, DC-18GHz, 5W	Mini-Circuits	BW-N10W5+	2023-11-09	2024-11-09

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
<b>0.009-30MHz</b>					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-01-24	2025-01-24
<b>30-1000 MHz</b>					
90628	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-02	2026-01-02
<b>1-18 GHz</b>					
89509	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-05-23	2025-05-23
<b>Gain-Loss Chains</b>					
207638	Gain-loss string: 0.009-30MHz	Various	Various	2023-09-18	2024-09-18
207639	Gain-loss string: 25-1000MHz	Various	Various	2023-09-18	2024-09-18
207640	Gain-loss string: 1-18GHz	Various	Various	2023-05-17	2024-05-17
<b>Receiver &amp; Software</b>					
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-04-10	2024-04-10
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2023-04-04	2024-04-04
179892	Environmental Meter	Fisher Scientific	15-077-963	2023-07-26	2024-06-31
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2023-07-31	2024-07-31
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2023-08-01	2024-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2023-04-04	2024-04-04
PS214	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
91432	LISN, 50-ohm/50-uH, 2-conductor, 25A (For support gear only.)	Solar Electronics	8012-50-R-24-BNC	NA	NA

## 8. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10-2020 Section 11.6

6 dB BW: ANSI C63.10-2020 Subclause -11.8.2

Occupied BW (99%): ANSI C63.10-2020 Section 6.9.3

Output Power: ANSI C63.10-2020 Subclause -11.9.1.2 Method PKPM1 Peak-reading power meter  
ANSI C63.10-2020 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated RF average-reading power meter)

PSD: ANSI C63.10-2020 Subclause -11.10.2 Method PKPSD (peak PSD)

Conducted emissions non-restricted frequency bands: ANSI C63.10-2020 Subclause -11.11 and 6.10.4

Radiated emissions restricted frequency bands: ANSI C63.10-2020 Subclause -11.12.1 and 6.10.5, 6.3 to 6.6.

AC Power-line conducted emissions: ANSI C63.10-2020, Section 6.2.

## 9. ANTENNA PORT TEST RESULTS

### 9.1. ON TIME AND DUTY CYCLE

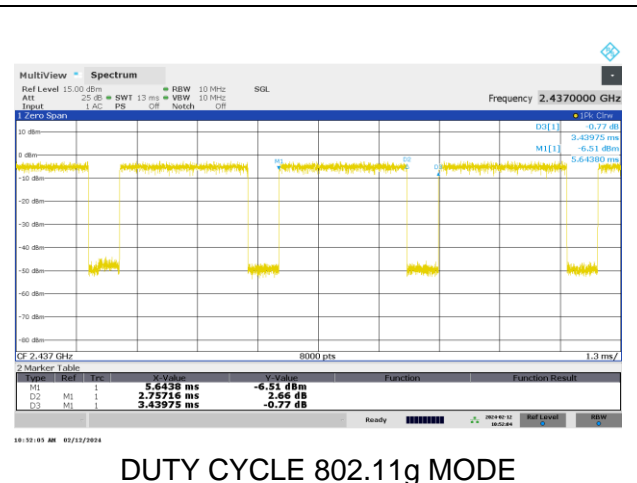
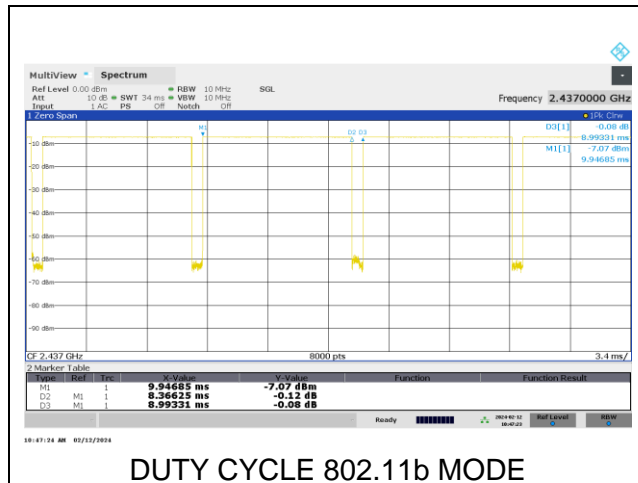
#### LIMITS

None; for reporting purposes only.

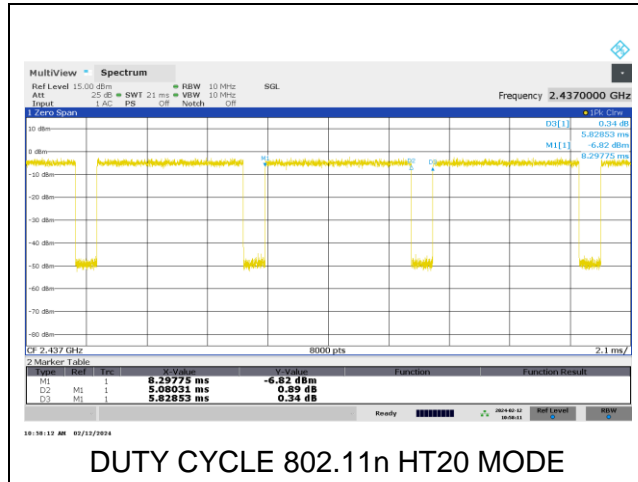
#### PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

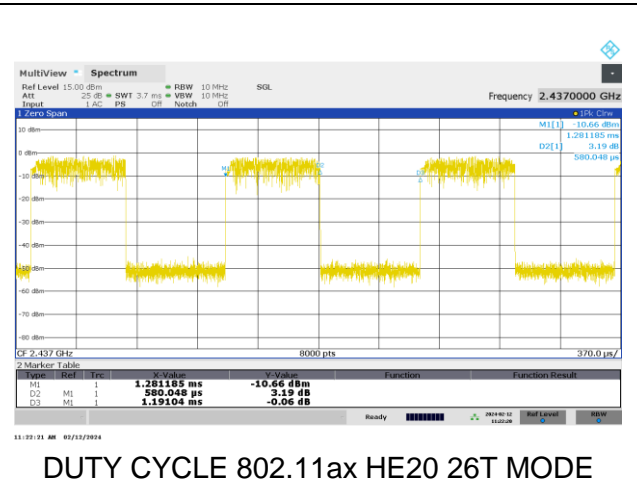
Mode	ON Time B (ms)	Period (ms)	Duty Cycle x (linear)	Duty Cycle (%)	Voltage Duty Cycle Correction Factor (dB)	RMS Duty Cycle Correction Factor (dB)
802.11b	8.366	8.993	0.930	93.03	0.63	0.31
802.11g	2.757	3.440	0.802	80.16	1.92	0.96
802.11n HT20	5.080	5.829	0.872	87.16	1.19	0.60
802.11be HE20 26T	0.580	1.191	0.487	48.70	6.25	3.12
802.11be HE20 52T	0.496	0.675	0.735	73.47	2.68	1.34
802.11be HE20 106T	0.436	1.038	0.420	42.01	7.53	3.77
802.11be HE20 242T	0.376	0.979	0.384	38.42	8.31	4.15
802.11be HE20 SU	4.100	4.863	0.843	84.30	1.48	0.74



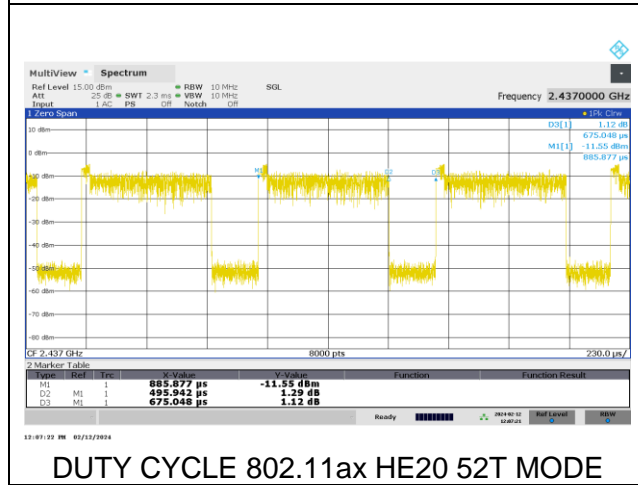




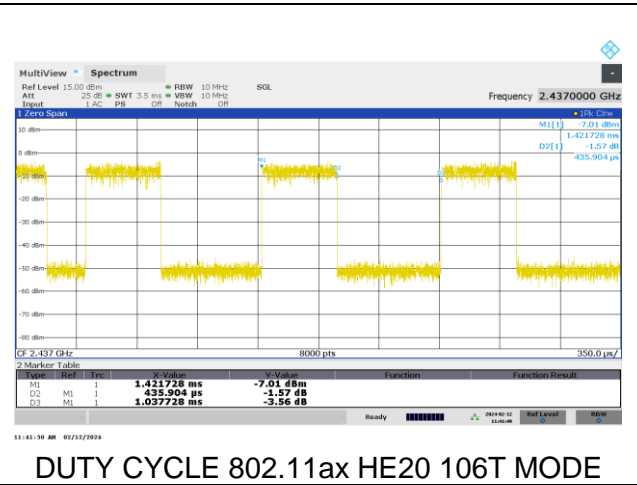
DUTY CYCLE 802.11n HT20 MODE



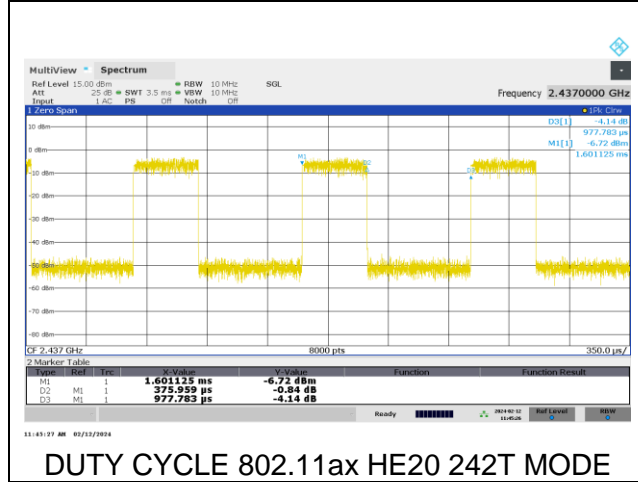
DUTY CYCLE 802.11ax HE20 26T MODE



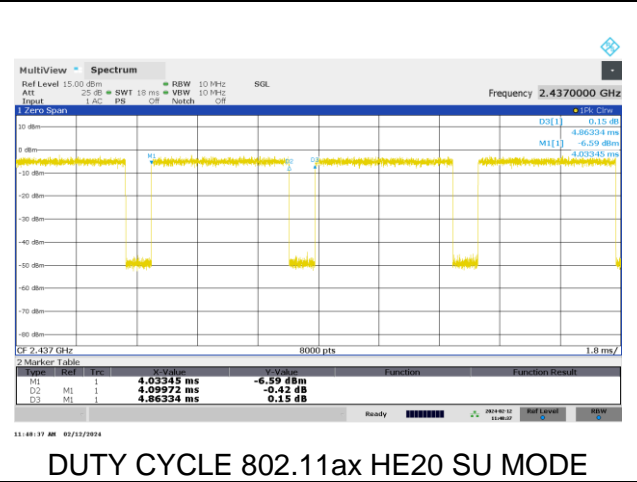
DUTY CYCLE 802.11ax HE20 52T MODE



DUTY CYCLE 802.11ax HE20 106T MODE



DUTY CYCLE 802.11ax HE20 242T MODE



DUTY CYCLE 802.11ax HE20 SU MODE

## 9.2. 99% BANDWIDTH

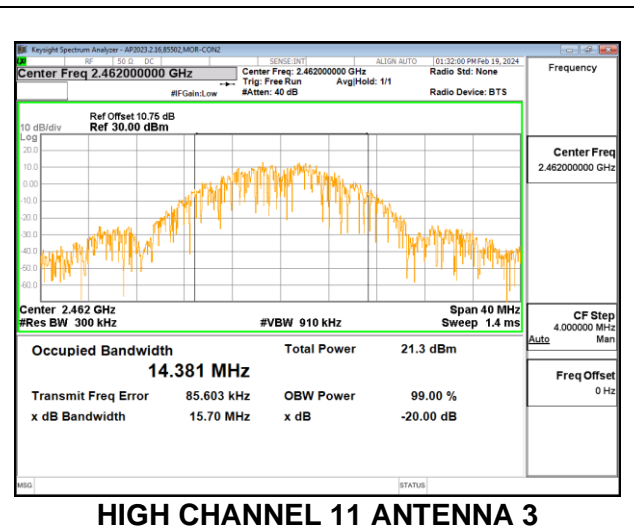
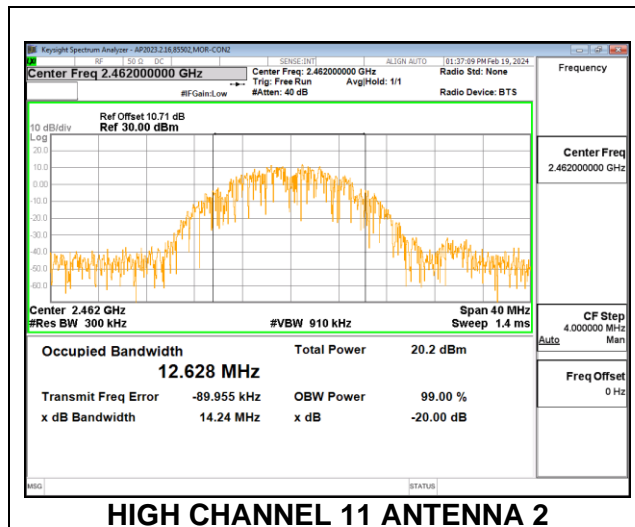
### LIMITS

None; for reporting purposes only.

### 9.2.1. 802.11b MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

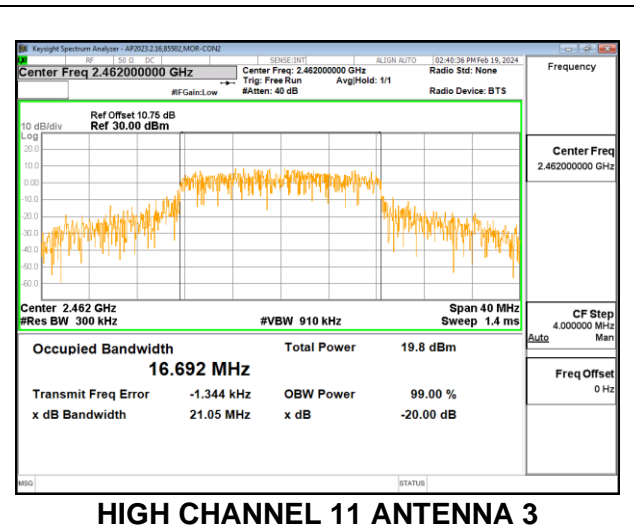
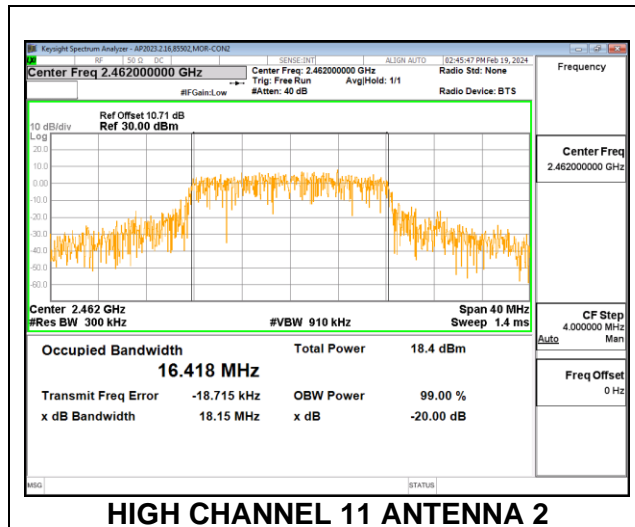
Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	12.676	14.356
Mid 6	2437	12.832	14.078
High 11	2462	12.628	14.381



### 9.2.2. 802.11g MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

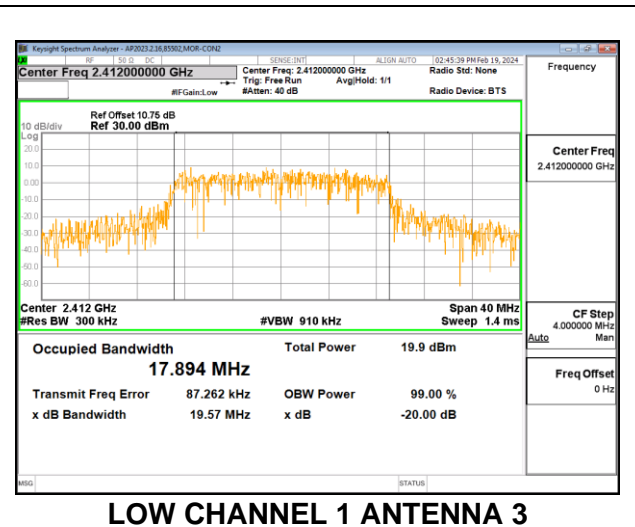
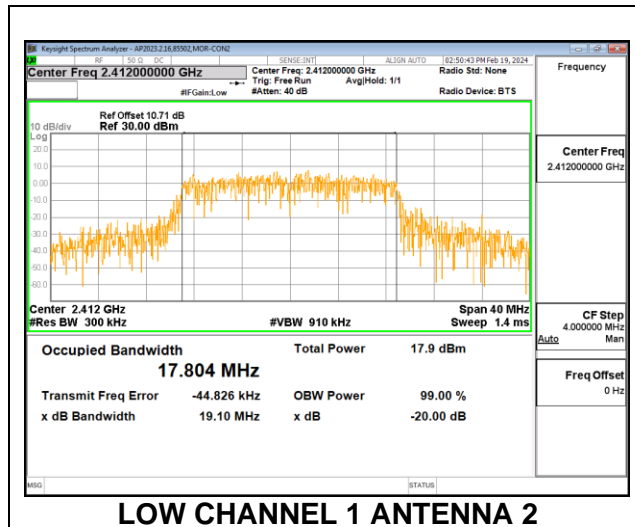
Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	16.511	16.642
Mid 6	2437	16.586	16.644
High 11	2462	16.418	16.692



### 9.2.3. 802.11n HT20 MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

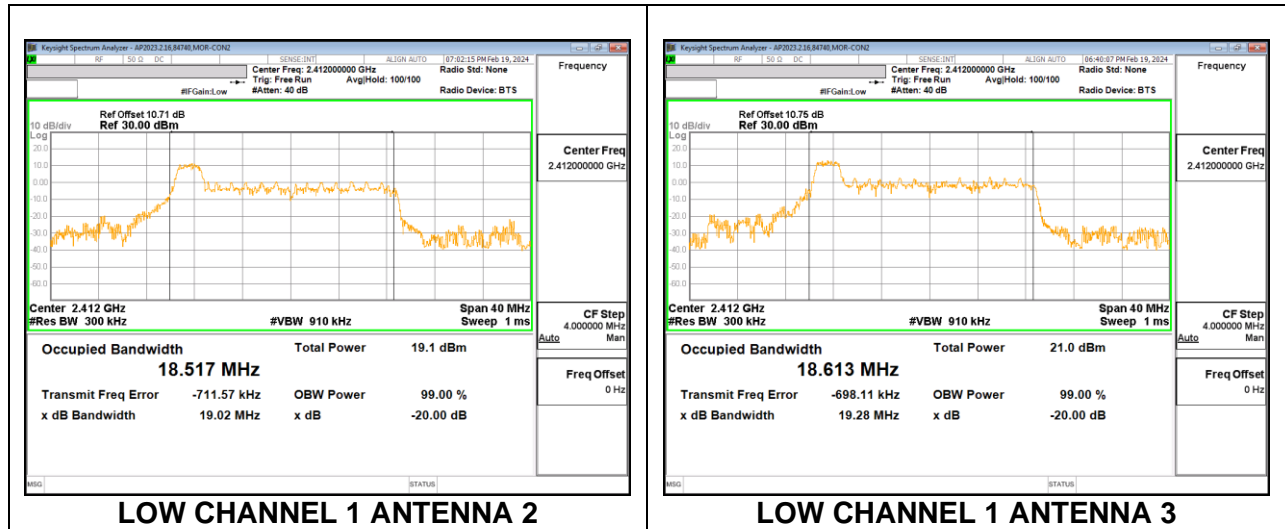
Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	17.804	17.894
Mid 6	2437	17.712	17.793
High 11	2462	17.694	17.747



### 9.2.4. 802.11ax HE20 MODE 2TX

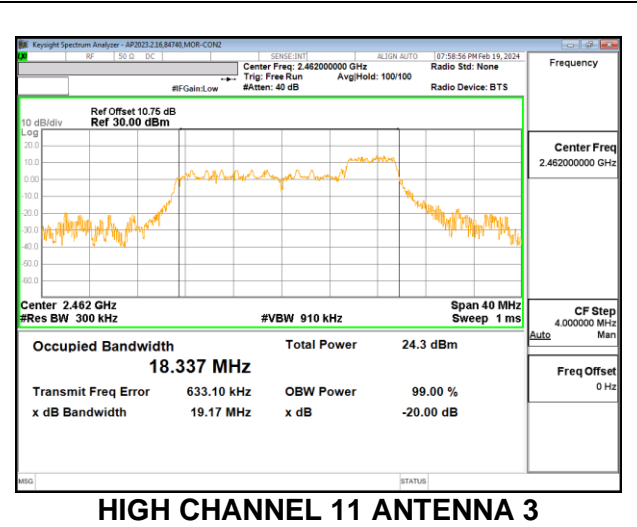
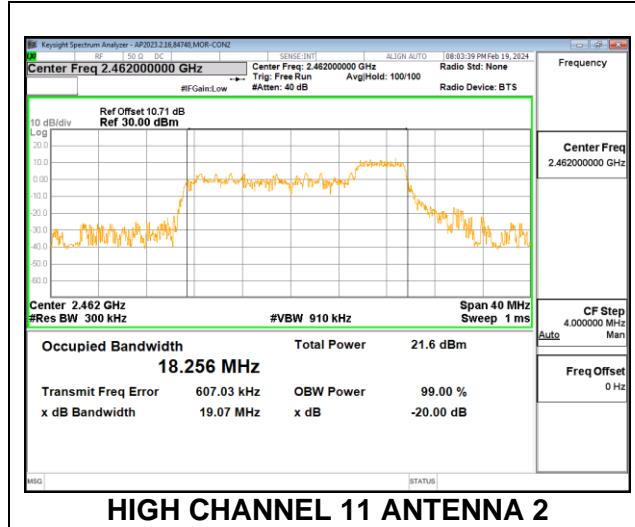
#### 2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 26T

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	18.517	18.613
Mid 6	2437	17.109	16.975
High 11	2462	18.398	18.510



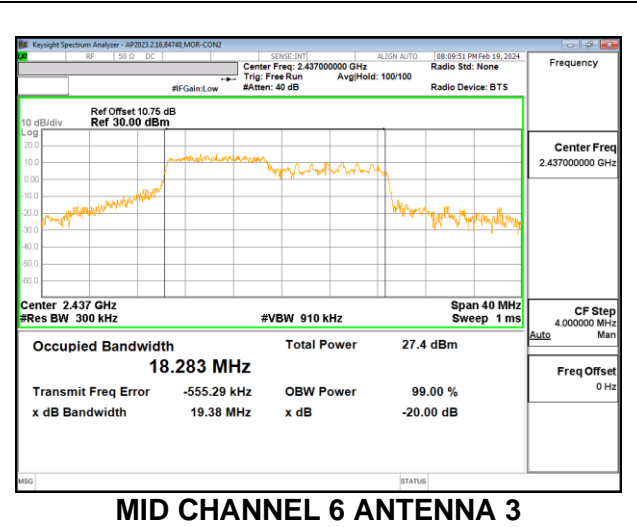
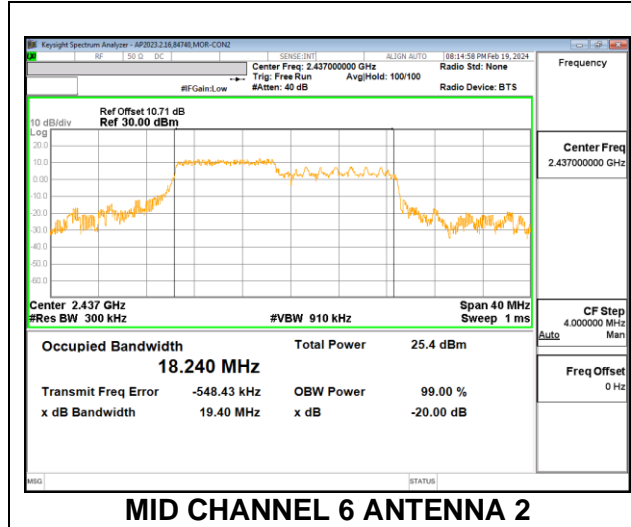
**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 52T**

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	18.284	18.250
Mid 6	2437	17.135	17.012
High 11	2462	18.256	18.337



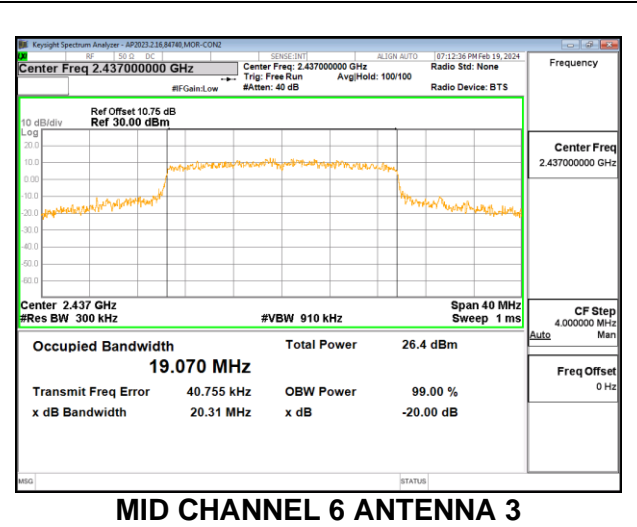
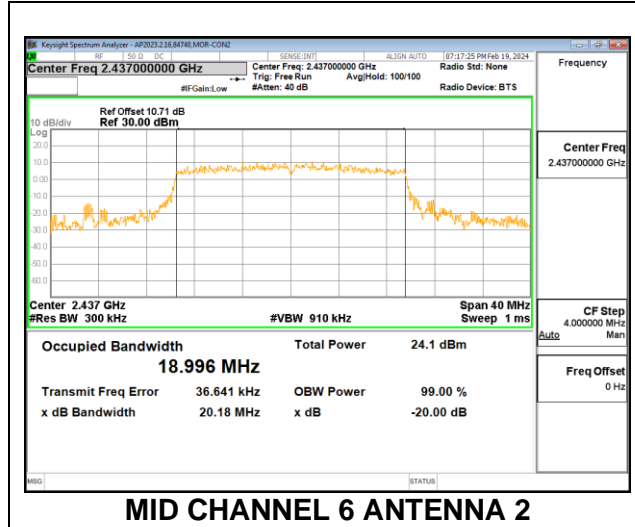
**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 106T**

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	18.249	18.272
Mid 6	2437	18.240	18.283
High 11	2462	18.265	18.243



**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 242T**

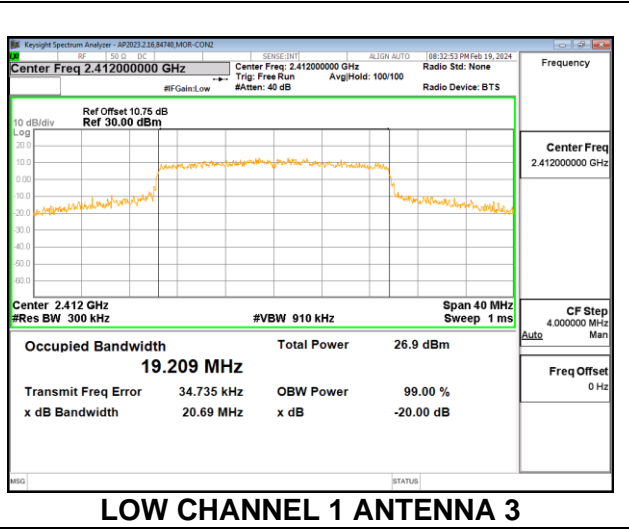
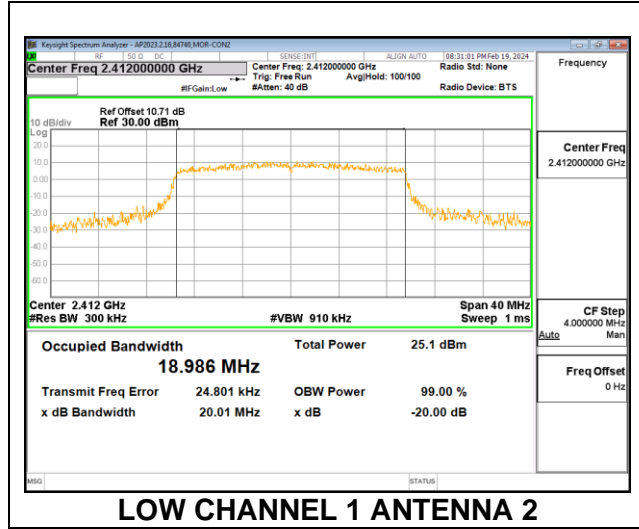
Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	18.990	19.171
Mid 6	2437	18.996	19.070
High 11	2462	18.995	19.125





**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: SU**

Channel	Frequency (MHz)	99% Bandwidth Antenna 2 (MHz)	99% Bandwidth Antenna 3 (MHz)
Low 1	2412	18.986	19.209
Mid 6	2437	19.030	19.149
High 11	2462	18.908	18.965



### 9.3. 6 dB BANDWIDTH

#### LIMITS

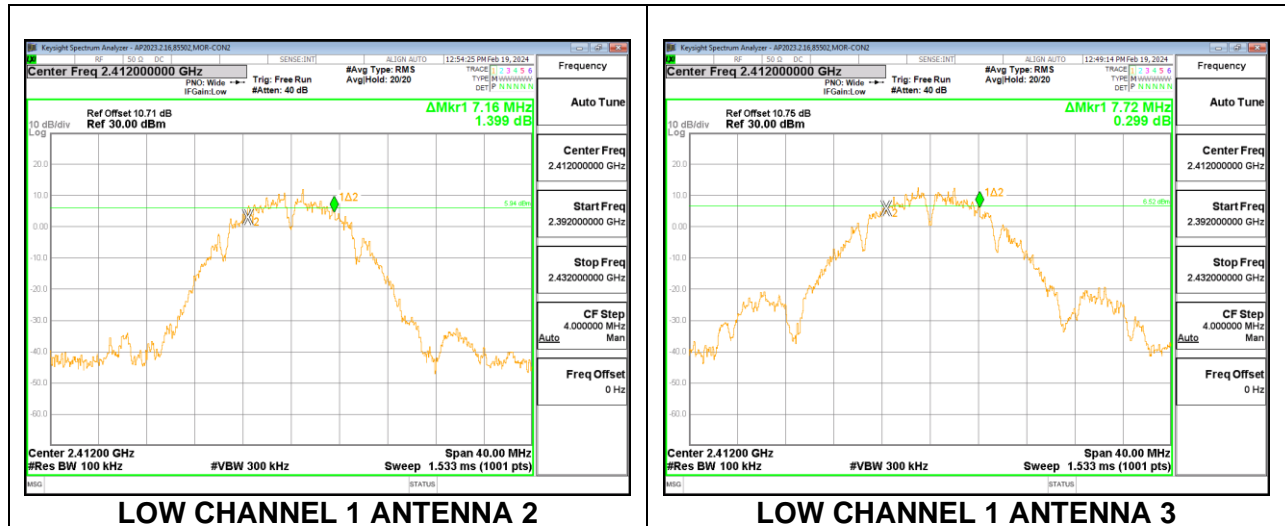
FCC §15.247 (a) (2)  
 RSS-247 5.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

#### 9.3.1. 802.11b MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

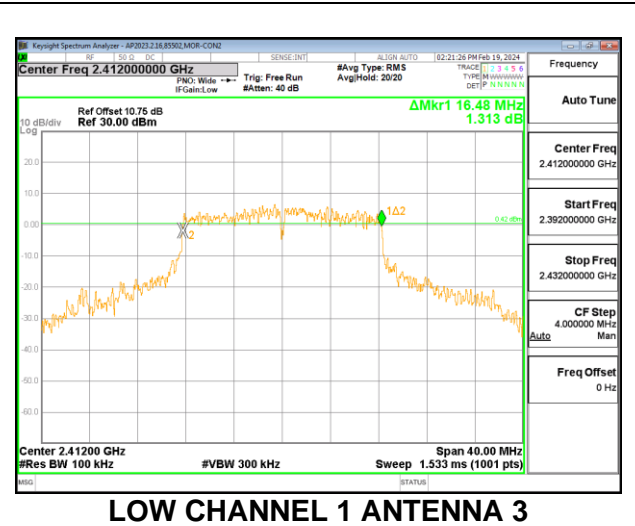
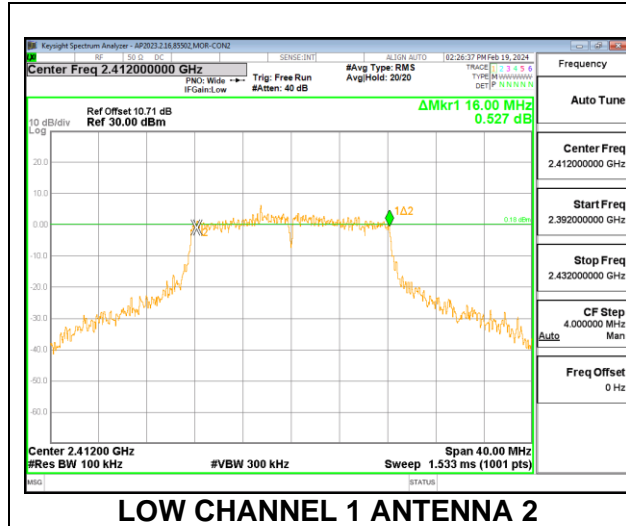
Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	7.16	7.72	0.5
Mid 6	2437	8.16	8.32	0.5
High 11	2462	8.68	8.16	0.5



### 9.3.2. 802.11g MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

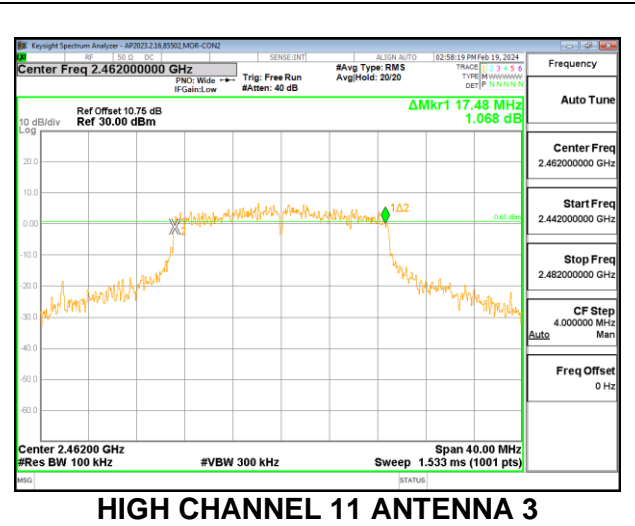
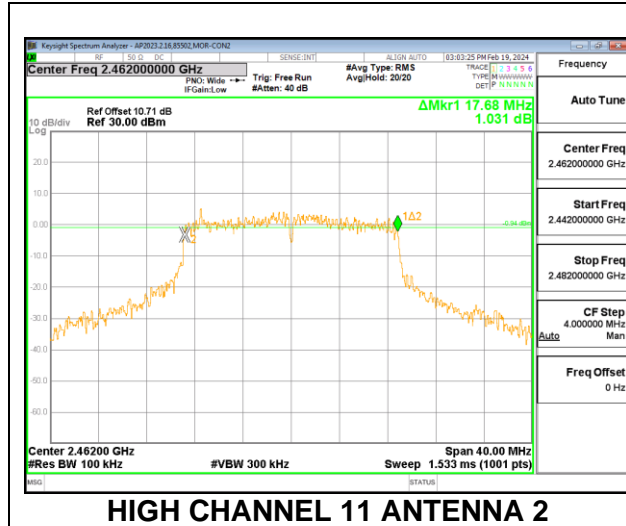
Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	16.00	16.48	0.5
Mid 6	2437	16.40	16.52	0.5
High 11	2462	16.44	16.48	0.5



### 9.3.3. 802.11n HT20 MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

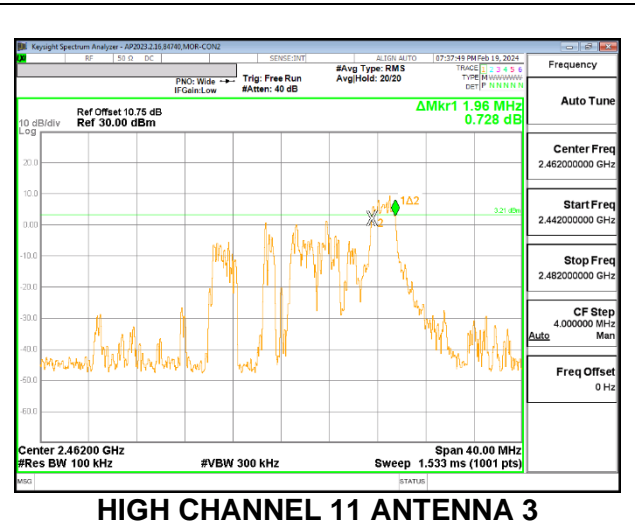
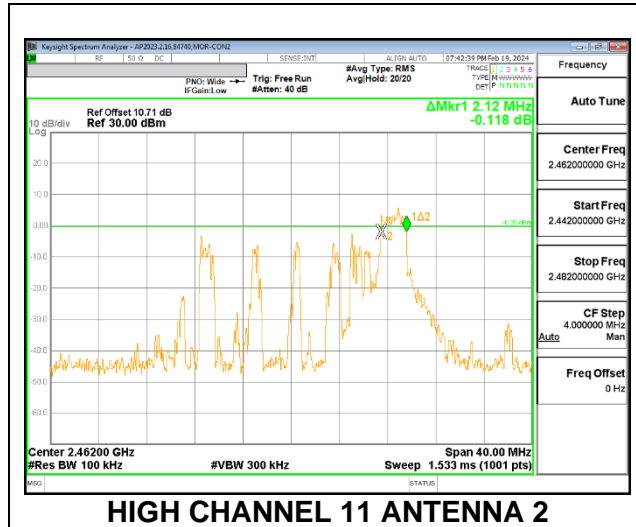
Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	17.72	17.72	0.5
Mid 6	2437	17.72	17.76	0.5
High 11	2462	17.68	17.48	0.5



### 9.3.4. 802.11ax HE20 MODE 2TX

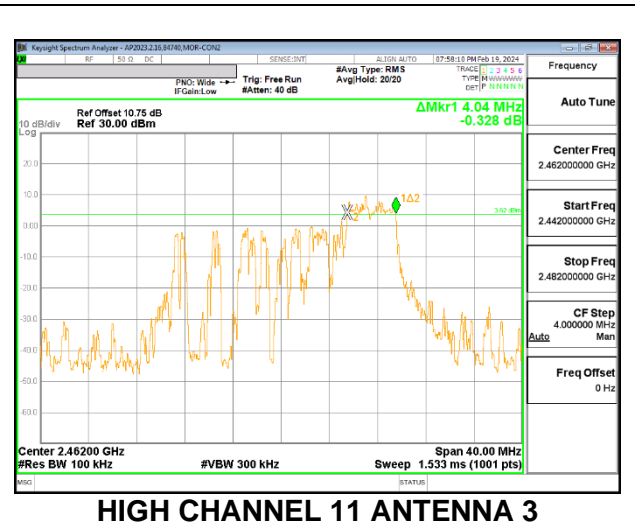
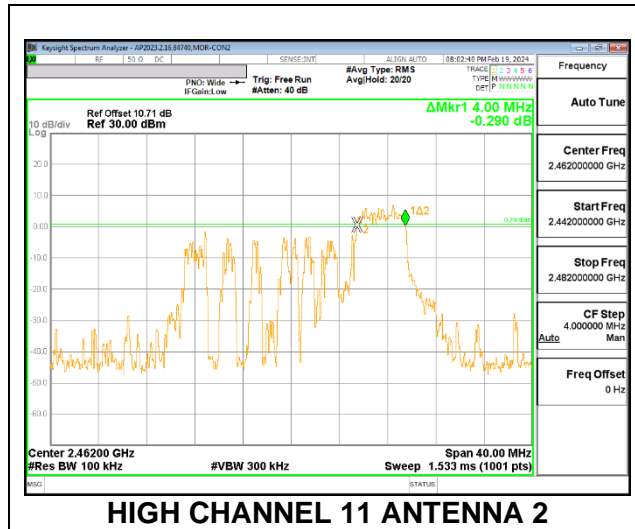
#### 2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 26T

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	2.04	2.00	0.5
Mid 6	2437	2.64	2.68	0.5
High 11	2462	2.12	1.96	0.5



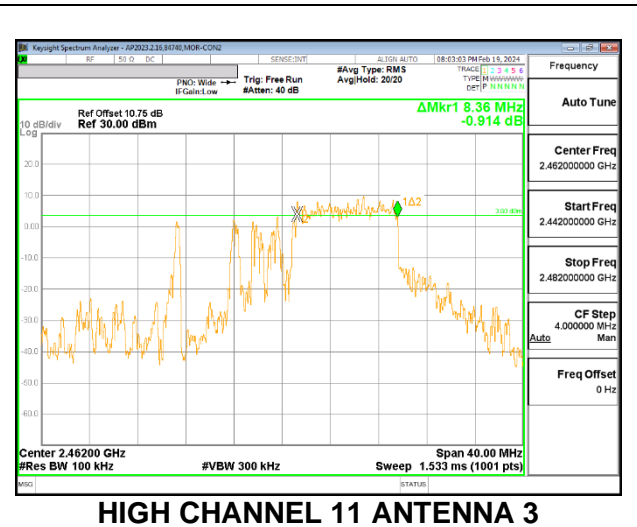
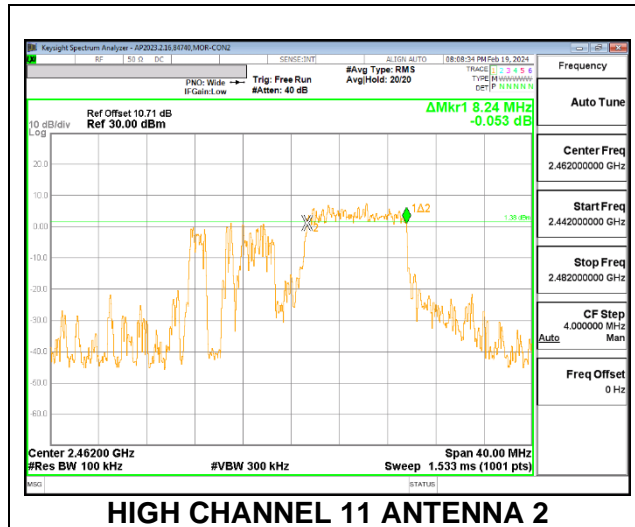
**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 52T**

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	4.08	4.08	0.5
Mid 6	2437	4.04	4.04	0.5
High 11	2462	4.00	4.04	0.5



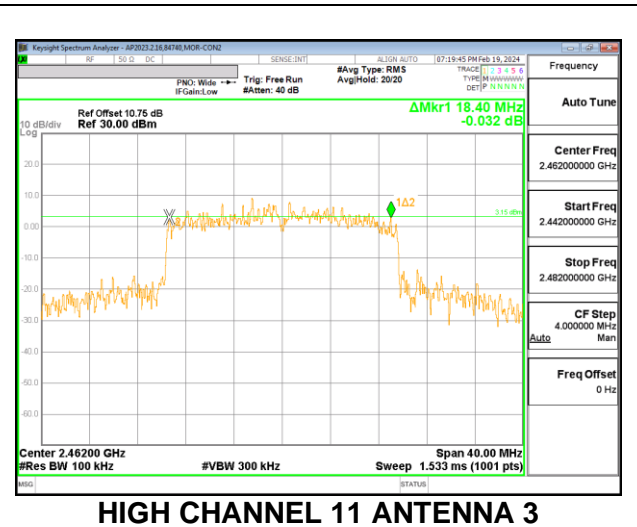
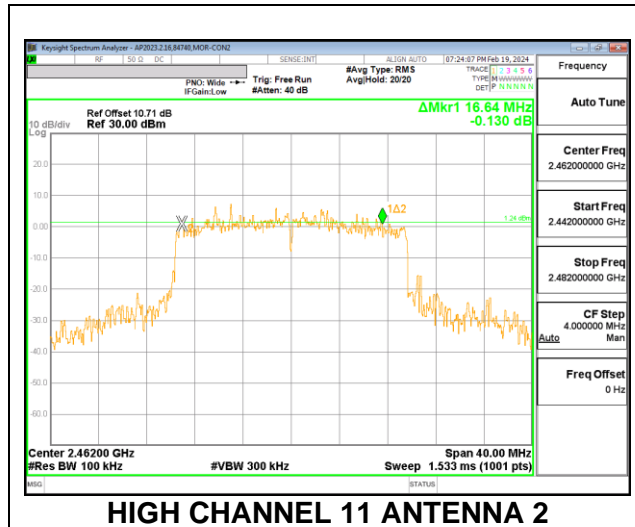
**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 106T**

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	8.28	8.56	0.5
Mid 6	2437	8.64	8.24	0.5
High 11	2462	8.24	8.36	0.5



**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 242T**

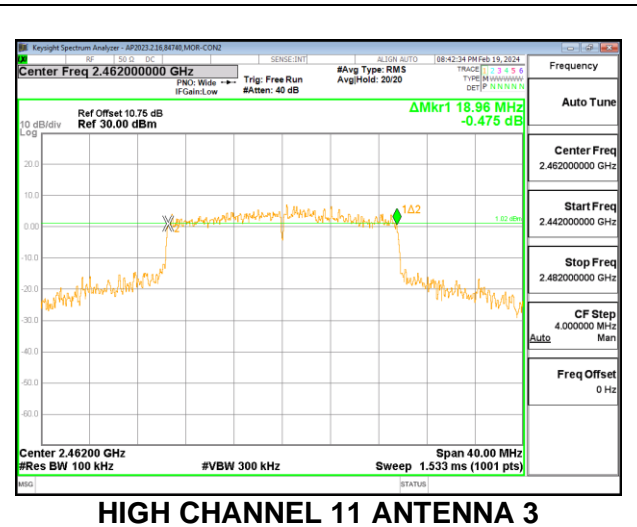
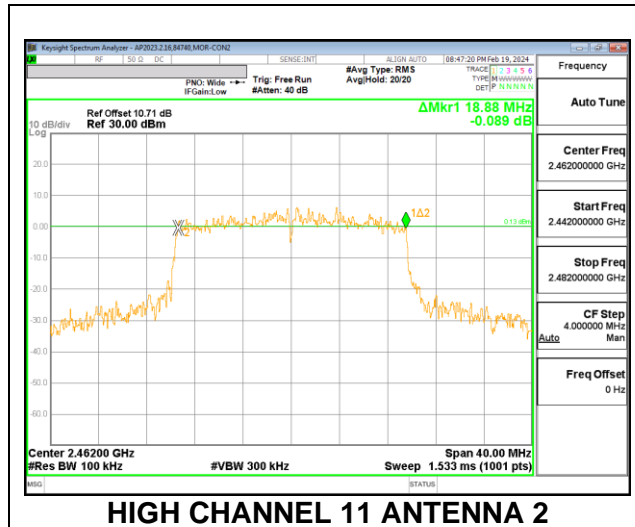
Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	18.96	18.48	0.5
Mid 6	2437	17.96	18.68	0.5
High 11	2462	16.64	18.40	0.5





**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: SU**

Channel	Frequency (MHz)	6 dB BW Antenna 2 (MHz)	6 dB BW Antenna 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	18.96	19.16	0.5
Mid 6	2437	19.00	18.88	0.5
High 11	2462	18.88	18.96	0.5



## 9.4. OUTPUT POWER

### LIMITS

FCC §15.247 (b) (3)  
RSS-247 5.4 (d)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.41dB (including 9.71 dB pad and 0.70 dB cable) for antenna 2 and 10.45dB (including 9.68dB pad and 0.77 dB cable) for antenna 3 was entered as an offset in the power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband power sensor. Peak output power was read directly from power meter.

**RESULTS**

**9.4.1. 802.11b MODE**

**2TX ANTENNA 2 + ANTENNA 3 CDD MODE**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Low 2	2417	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	20.51	22.62	24.70	30.00	-5.30
Low 2	2417	21.14	22.89	25.11	30.00	-4.89
Mid 6	2437	21.13	22.99	25.17	30.00	-4.83
High 11	2462	21.33	22.83	25.15	30.00	-4.85

### 9.4.2. 802.11g MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

#### Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Low 2	2417	3.60	30.00	30.00
Low 3	2422	3.60	30.00	30.00
Low 4	2427	3.60	30.00	30.00
Low 5	2432	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 8	2447	3.60	30.00	30.00
High 9	2452	3.60	30.00	30.00
High 10	2457	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

#### Results

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.85	25.14	27.15	30.00	-2.85
Low 2	2417	23.78	25.05	27.47	30.00	-2.53
Low 3	2422	25.31	25.37	28.35	30.00	-1.65
Low 4	2427	25.43	25.28	28.37	30.00	-1.63
Low 5	2432	25.59	25.40	28.51	30.00	-1.49
Mid 6	2437	25.56	25.31	28.45	30.00	-1.55
High 8	2447	25.40	25.23	28.33	30.00	-1.67
High 9	2452	25.43	25.21	28.33	30.00	-1.67
High 10	2457	25.25	25.12	28.20	30.00	-1.80
High 11	2462	23.17	25.05	27.22	30.00	-2.78

### 9.4.3. 802.11n HT20 MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

#### Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Low 2	2417	3.60	30.00	30.00
Low 3	2422	3.60	30.00	30.00
Low 4	2427	3.60	30.00	30.00
Low 5	2432	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 7	2442	3.60	30.00	30.00
High 8	2447	3.60	30.00	30.00
High 9	2452	3.60	30.00	30.00
High 10	2457	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

#### Results

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	23.40	25.12	27.35	30.00	-2.65
Low 2	2417	23.07	25.03	27.17	30.00	-2.83
Low 3	2422	25.20	25.12	28.17	30.00	-1.83
Low 4	2427	25.34	25.34	28.35	30.00	-1.65
Low 5	2432	25.67	25.39	28.54	30.00	-1.46
Mid 6	2437	25.51	25.30	28.42	30.00	-1.58
High 7	2442	25.61	25.27	28.45	30.00	-1.55
High 8	2447	25.68	25.37	28.54	30.00	-1.46
High 9	2452	25.57	25.21	28.40	30.00	-1.60
High 10	2457	25.46	25.33	28.41	30.00	-1.59
High 11	2462	23.36	24.97	27.25	30.00	-2.75

**9.4.4. 802.11ax HE20 MODE 2TX**

**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 26T**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	20.17	22.72	24.64	30.00	-5.36
Mid 6	2437	21.38	25.23	26.73	30.00	-3.27
High 11	2462	20.25	22.58	24.58	30.00	-5.42

**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 52T**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.73	25.06	27.06	30.00	-2.94
Mid 6	2437	24.13	25.36	27.80	30.00	-2.20
High 11	2462	25.27	25.17	28.23	30.00	-1.77

**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 106T**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Low 2	2417	3.60	30.00	30.00
Low 3	2422	3.60	30.00	30.00
Low 4	2427	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 8	2447	3.60	30.00	30.00
High 9	2452	3.60	30.00	30.00
High 10	2457	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	24.77	25.23	28.02	30.00	-1.98
Low 2	2417	24.42	25.22	27.85	30.00	-2.15
Low 3	2422	24.09	25.38	27.79	30.00	-2.21
Low 4	2427	25.55	25.47	28.52	30.00	-1.48
Mid 6	2437	25.67	25.56	28.63	30.00	-1.37
High 8	2447	25.57	25.55	28.57	30.00	-1.43
High 9	2452	24.77	25.45	28.13	30.00	-1.87
High 10	2457	24.33	25.38	27.90	30.00	-2.10
High 11	2462	23.99	25.37	27.74	30.00	-2.26



**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 242T**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Low 2	2417	3.60	30.00	30.00
Low 3	2422	3.60	30.00	30.00
Low 4	2427	3.60	30.00	30.00
Low 5	2432	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 8	2447	3.60	30.00	30.00
High 9	2452	3.60	30.00	30.00
High 10	2457	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	23.51	25.17	27.43	30.00	-2.57
Low 2	2417	24.37	25.38	27.91	30.00	-2.09
Low 3	2422	24.91	25.42	28.18	30.00	-1.82
Low 4	2427	24.78	25.39	28.11	30.00	-1.89
Low 5	2432	25.18	25.49	28.35	30.00	-1.65
Mid 6	2437	25.52	25.48	28.51	30.00	-1.49
High 8	2447	25.49	25.48	28.50	30.00	-1.50
High 9	2452	25.04	25.42	28.24	30.00	-1.76
High 10	2457	24.11	25.32	27.77	30.00	-2.23
High 11	2462	23.72	25.00	27.42	30.00	-2.58

**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: SU**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	Max Power (dBm)
Low 1	2412	3.60	30.00	30.00
Low 2	2417	3.60	30.00	30.00
Low 3	2422	3.60	30.00	30.00
Low 4	2427	3.60	30.00	30.00
Low 5	2432	3.60	30.00	30.00
Mid 6	2437	3.60	30.00	30.00
High 8	2447	3.60	30.00	30.00
High 9	2452	3.60	30.00	30.00
High 10	2457	3.60	30.00	30.00
High 11	2462	3.60	30.00	30.00

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	23.21	25.12	27.28	30.00	-2.72
Low 2	2417	25.53	25.46	28.51	30.00	-1.49
Low 3	2422	25.49	25.32	28.42	30.00	-1.58
Low 4	2427	25.53	25.26	28.41	30.00	-1.59
Low 5	2432	25.48	25.37	28.44	30.00	-1.56
Mid 6	2437	25.60	25.37	28.50	30.00	-1.50
High 8	2447	25.49	25.26	28.39	30.00	-1.61
High 9	2452	25.55	25.31	28.44	30.00	-1.56
High 10	2457	25.33	25.15	28.25	30.00	-1.75
High 11	2462	23.56	25.12	27.42	30.00	-2.58

## 9.5. AVERAGE POWER

### LIMITS

None; for reporting purposes only

### TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.41dB (including 9.71 dB pad and 0.70 dB cable) for antenna 2 and 10.45dB (including 9.68dB pad and 0.77 dB cable) for antenna 3 was entered as an offset in the power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband power sensor. Gated average output power was read directly from power meter.

### 9.5.1. 802.11b MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

#### Results

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)
Low 1	2412	17.76	20.11	22.10
Low 2	2417	18.41	20.46	22.57
Mid 6	2437	18.42	20.51	22.60
High 11	2462	18.57	20.29	22.52

### 9.5.2. 802.11g MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)
Low 1	2412	15.11	17.61	19.55
Low 2	2417	15.09	17.64	19.56
Low 3	2422	16.61	18.85	20.88
Low 4	2427	16.02	18.27	20.30
Low 5	2432	18.16	20.16	22.28
Mid 6	2437	18.06	20.25	22.30
High 8	2447	18.20	19.86	22.12
High 9	2452	17.24	19.06	21.25
High 10	2457	15.77	17.80	19.91
High 11	2462	15.19	17.59	19.56

### 9.5.3. 802.11n HT20 MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)
Low 1	2412	15.09	17.61	19.54
Low 2	2417	15.02	17.68	19.56
Low 3	2422	16.04	18.58	20.50
Low 4	2427	16.00	18.51	20.44
Low 5	2432	17.94	20.24	22.25
Mid 6	2437	17.92	20.35	22.31
High 7	2442	17.98	20.27	22.28
High 8	2447	17.42	19.66	21.69
High 9	2452	16.00	18.42	20.39
High 10	2457	15.59	17.90	19.91
High 11	2462	15.15	17.58	19.54

### 9.5.4. 802.11ax HE20 MODE 2TX

#### 2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 26T

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

#### Results

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)
Low 1	2412	11.08	13.51	15.47
Mid 6	2437	11.38	13.83	15.79
High 11	2462	11.45	13.64	15.69

#### 2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 52T

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

#### Results

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)
Low 1	2412	14.16	16.56	18.53
Mid 6	2437	14.24	16.74	18.68
High 11	2462	14.50	16.70	18.75

**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 106T**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)
Low 1	2412	14.21	16.70	18.64
Low 2	2417	15.13	17.51	19.49
Low 3	2422	15.59	17.96	19.95
Low 4	2427	18.06	20.24	22.30
Mid 6	2437	18.05	20.28	22.32
High 8	2447	18.08	20.11	22.22
High 9	2452	16.81	18.79	20.92
High 10	2457	16.35	18.33	20.46
High 11	2462	14.37	16.56	18.61

**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 242T**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Results**

Channel	Frequency (MHz)	Antenna 2 Meas Power (dBm)	Antenna 3 Meas Power (dBm)	Total Corr'd Power (dBm)
Low 1	2412	14.03	16.54	18.47
Low 2	2417	15.45	17.82	19.81
Low 3	2422	15.95	18.25	20.26
Low 4	2427	16.92	19.20	21.22
Low 5	2432	17.42	19.70	21.72
Mid 6	2437	18.47	20.64	22.70
High 8	2447	18.52	20.46	22.61
High 9	2452	17.08	19.12	21.23
High 10	2457	14.73	16.85	18.93
High 11	2462	14.24	16.37	18.44

**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: SU**

<b>Test Engineer:</b>	85502
<b>Test Date:</b>	2024-03-24

**Results**

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Antenna 2 Meas Power (dBm)</b>	<b>Antenna 3 Meas Power (dBm)</b>	<b>Total Corr'd Power (dBm)</b>
Low 1	2412	14.62	17.16	19.08
Low 2	2417	15.93	18.44	20.37
Low 3	2422	16.55	18.94	20.92
Low 4	2427	17.59	19.83	21.86
Low 5	2432	17.08	19.40	21.40
Mid 6	2437	18.05	20.28	22.32
High 8	2447	18.06	20.13	22.23
High 9	2452	17.71	19.74	21.85
High 10	2457	15.81	17.82	19.94
High 11	2462	15.30	17.55	19.58

## 9.6. POWER SPECTRAL DENSITY

### LIMITS

FCC §15.247 (e)  
RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### RESULTS

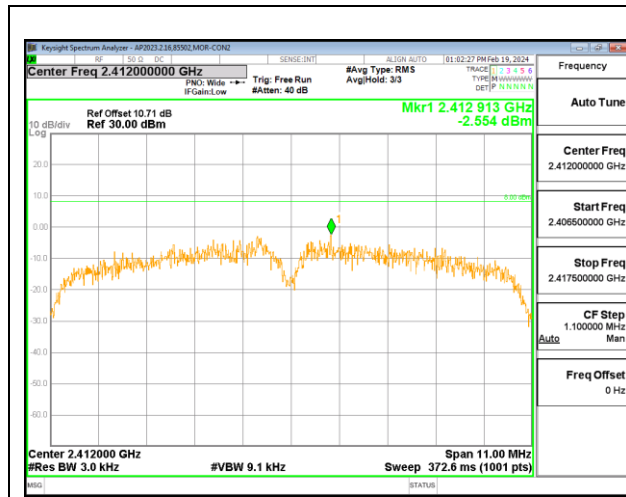


### 9.6.1. 802.11b MODE

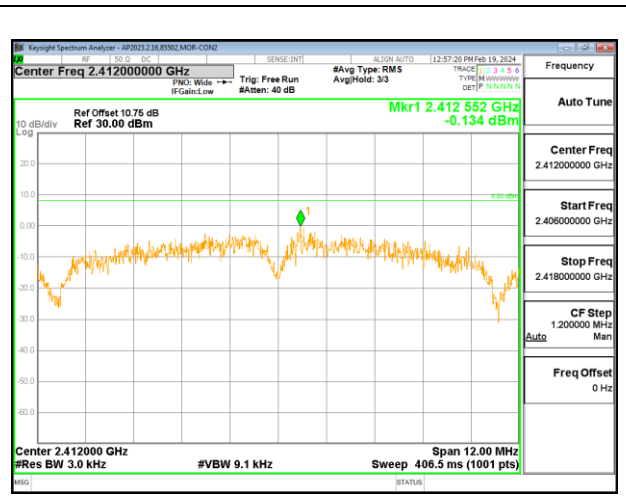
#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

##### PSD Results

Channel	Frequency (MHz)	Antenna 2 Meas (dBm/ 3kHz)	Antenna 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-2.55	-0.13	1.83	8.0	-6.2
Mid 6	2437	-3.47	-1.42	0.69	8.0	-7.3
High 11	2462	-3.56	-1.69	0.48	8.0	-7.5



**LOW CHANNEL 1 ANTENNA 2**



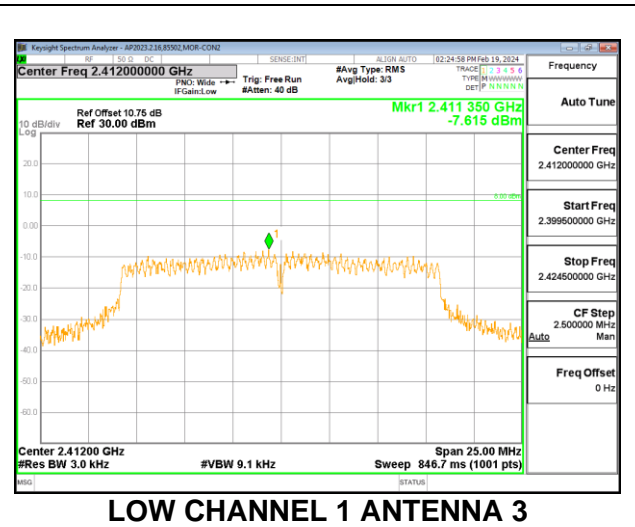
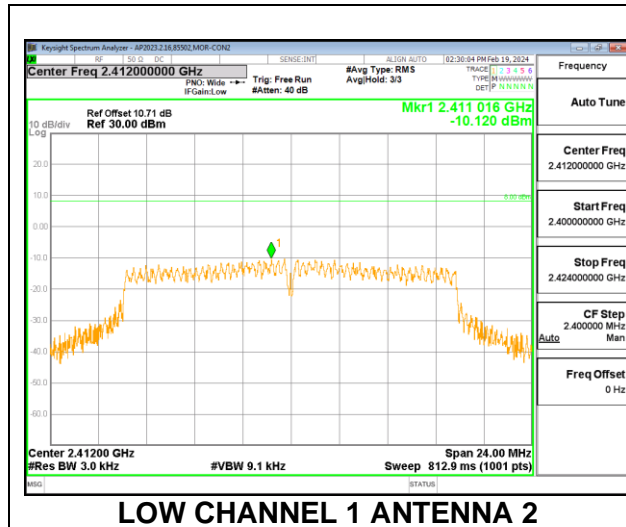
**LOW CHANNEL 1 ANTENNA 3**

### 9.6.2. 802.11g MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

##### PSD Results

Channel	Frequency (MHz)	Antenna 2 Meas (dBm/ 3kHz)	Antenna 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-10.12	-7.62	-5.68	8.0	-13.7
Mid 6	2437	-9.72	-8.35	-5.97	8.0	-14.0
High 11	2462	-9.63	-8.09	-5.78	8.0	-13.8

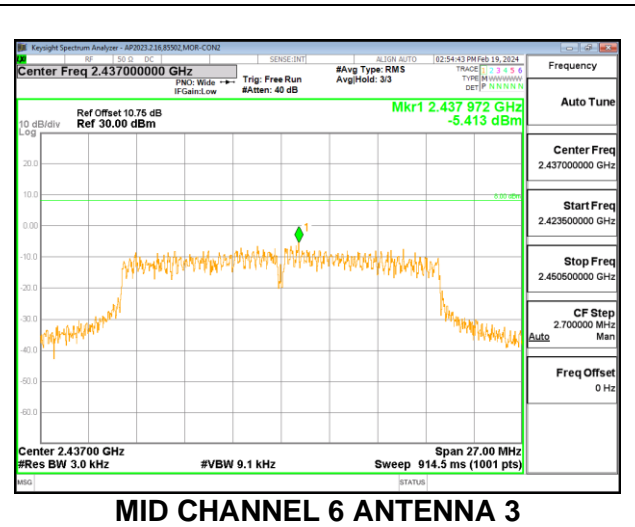
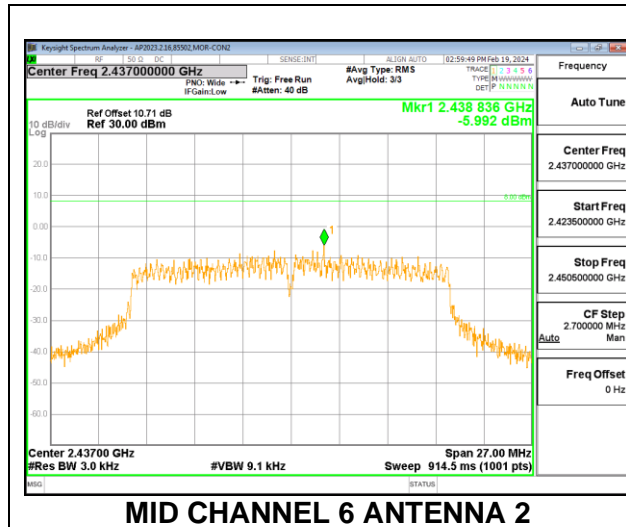


### 9.6.3. 802.11n HT20 MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

##### PSD Results

Channel	Frequency (MHz)	Antenna 2 Meas (dBm/ 3kHz)	Antenna 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-7.42	-6.19	-3.75	8.0	-11.8
Mid 6	2437	-5.99	-5.41	-2.68	8.0	-10.7
High 11	2462	-7.53	-5.16	-3.18	8.0	-11.2

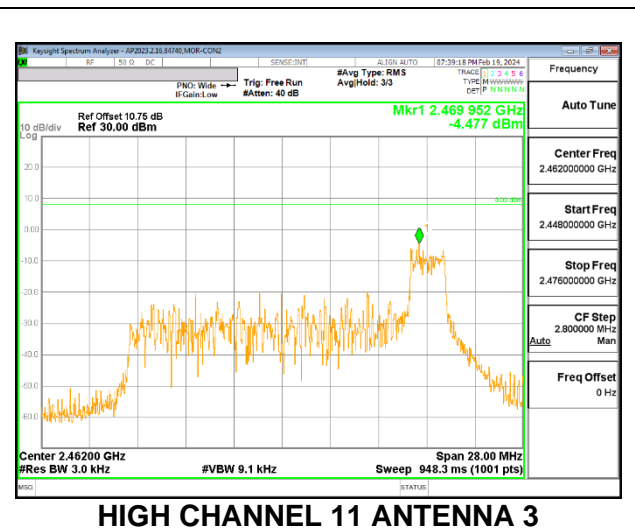
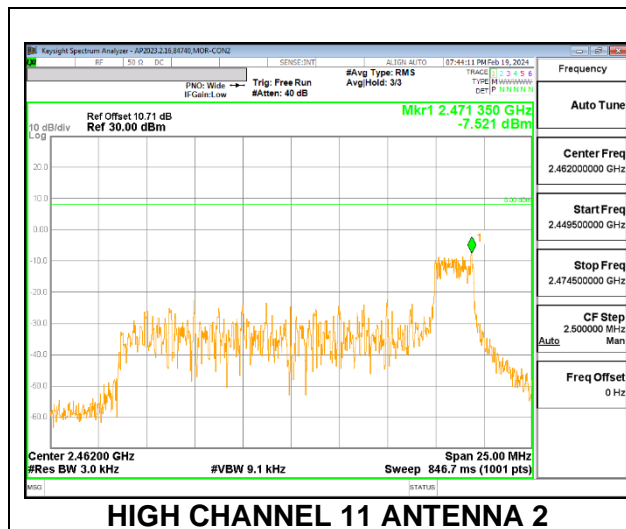


### 9.6.4. 802.11ax HE20 MODE 2TX

#### 2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 26T

##### PSD Results

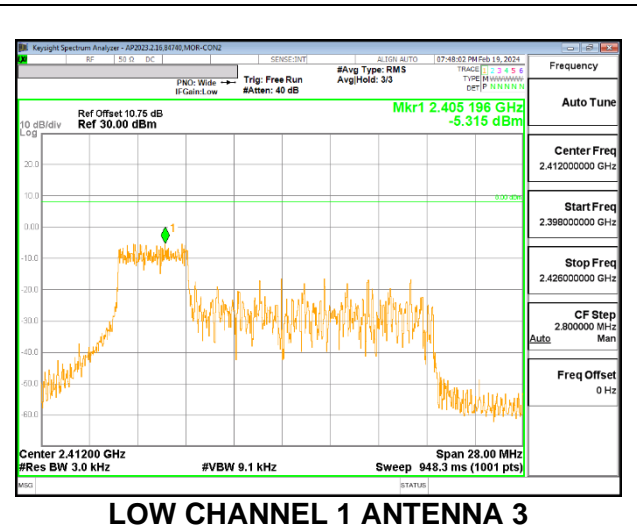
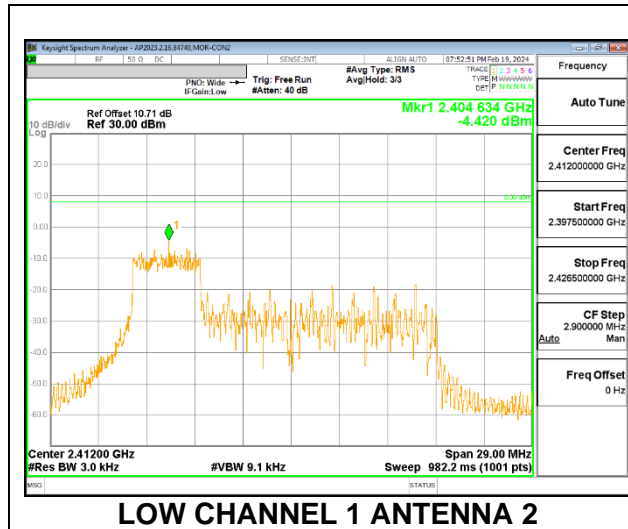
Channel	Frequency (MHz)	Antenna 2 Meas (dBm/ 3kHz)	Antenna 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-7.86	-6.30	-4.00	8.0	-12.0
Mid 6	2437	-7.31	-5.39	-3.23	8.0	-11.2
High 11	2462	-7.52	-4.48	-2.73	8.0	-10.7



**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 52T**

**PSD Results**

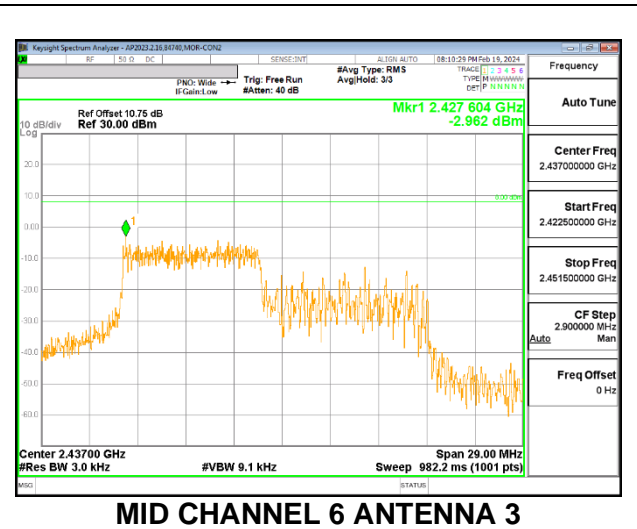
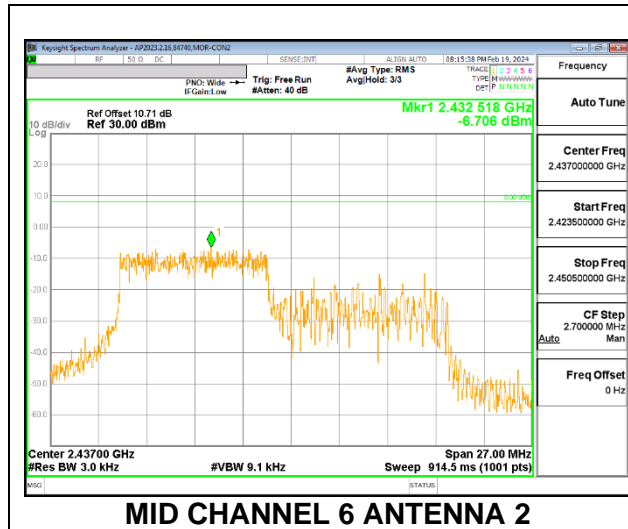
Channel	Frequency (MHz)	Antenna 2 Meas (dBm/ 3kHz)	Antenna 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-4.42	-5.32	-1.83	8.0	-9.8
Mid 6	2437	-7.78	-3.60	-2.20	8.0	-10.2
High 11	2462	-7.06	-5.90	-3.43	8.0	-11.4



**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 106T**

**PSD Results**

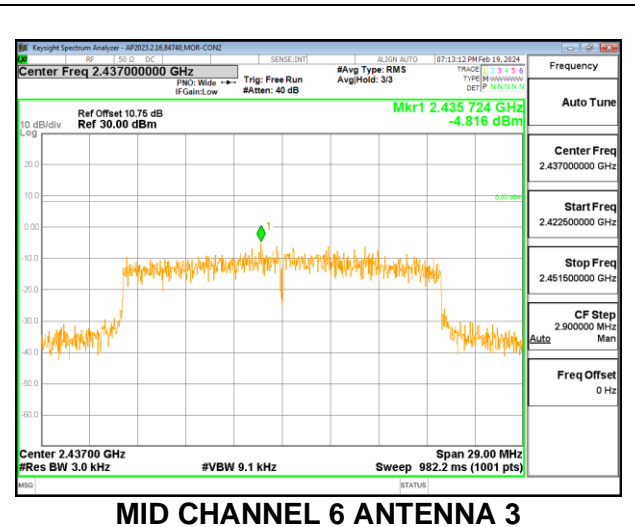
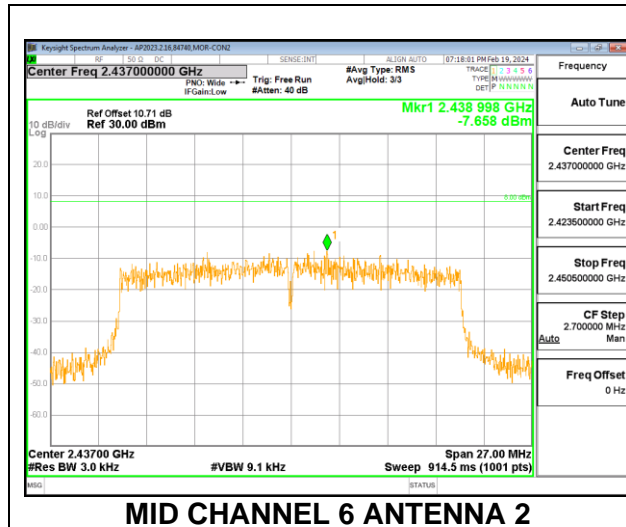
Channel	Frequency (MHz)	Antenna 2 Meas (dBm/3kHz)	Antenna 3 Meas (dBm/3kHz)	Total Corr'd PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low 1	2412	-6.13	-4.79	-2.40	8.0	-10.4
Mid 6	2437	-6.71	-2.96	-1.43	8.0	-9.4
High 11	2462	-5.40	-4.19	-1.74	8.0	-9.7



**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: 242T**

**PSD Results**

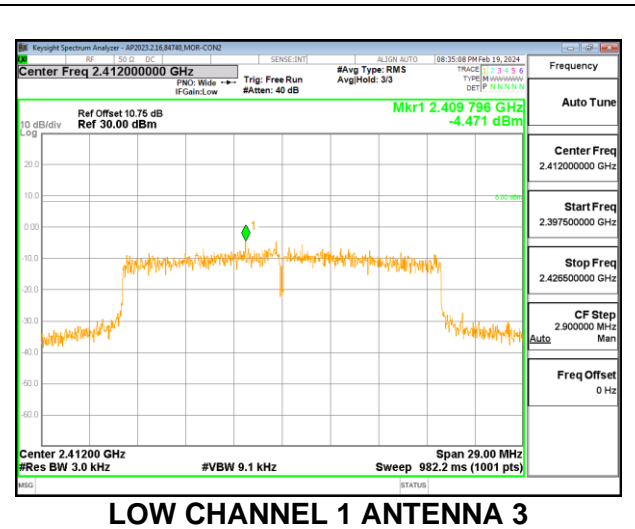
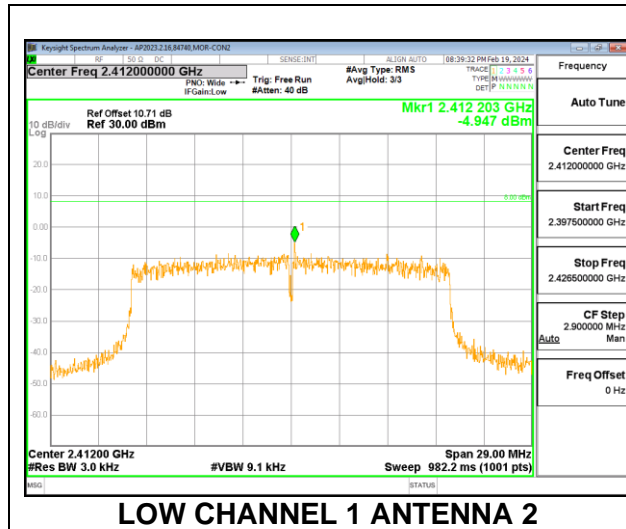
Channel	Frequency (MHz)	Antenna 2 Meas (dBm/3kHz)	Antenna 3 Meas (dBm/3kHz)	Total Corr'd PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low 1	2412	-8.05	-5.96	-3.87	8.0	-11.9
Mid 6	2437	-7.66	-4.82	-3.00	8.0	-11.0
High 11	2462	-6.39	-7.01	-3.68	8.0	-11.7



**2TX ANTENNA 2 + ANTENNA 3 CDD OFDMA MODE: SU**

**PSD Results**

Channel	Frequency (MHz)	Antenna 2 Meas (dBm/ 3kHz)	Antenna 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-4.95	-4.47	-1.69	8.0	-9.7
Mid 6	2437	-7.26	-5.97	-3.55	8.0	-11.6
High 11	2462	-7.09	-5.48	-3.20	8.0	-11.2





## 9.7. CONDUCTED SPURIOUS EMISSIONS

### LIMITS

FCC §15.247 (d)  
RSS-247 5.5

Output power was measured based on the use of peak measurement, therefore the required attenuation is -20 dBc.

### RESULTS

### 9.7.1. 802.11b MODE

#### 2TX ANTENNA 2 + ANTENNA 3 CDD MODE

