

TEST REPORT

Report Number: 14523772-E4V2

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

Model : A3105 (Full Test Model)
A3106, A3108 (Variant Model)

Brand : APPLE

FCC ID : BCG-8440A (Full Test Model)
BCG-E8441A, BCG-E8442A (Variant Model)

IC : 579C-E8440A (Full Test Model)
579C-E8441A, 579C-E8442A (Variant Model)

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5 + A1 + A2

Date Of Issue:
August 28, 2023

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538 U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888

REPORT REVISION HISTORY



Rev.	Issue Date	Revisions	Revised By
V1	8/23/2023	Initial Issue	Chin Pang
V2	8/28/2023	Addressed TCB Questions on Sections 8, 9, and 10	Tony X. Li

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

EUT DESCRIPTION: SMARTPHONE

MODEL: A3105 (Full Test Model)
A3106, A3108 (Variant Model)

BRAND: APPLE

SERIAL NUMBER: JKX4322779, CLQXHK2TWK (CONDUCTED)
CW34G74L6C, GD61FMWJ6W (RADIATED)

SAMPLE RECEIPT DATE: MARCH 23, 2023

DATE TESTED: MARCH 28, 2023 – AUGUST 23, 2023

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

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested can demonstrate 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 considered unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:



Chin Pang
Senior Lab Engineer
Consumer Technology Division
UL Verification Services Inc.

Prepared By:



Tony Li
Senior Test Engineer
Consumer Technology Division
UL Verification Services Inc.

2. TEST RESULTS SUMMARY

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	Complies	None.
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power (Average)	Complies	Per ANSI C63.10, Section 11.9.2.3.2..
15.247 (e)	RSS-247 5.2 (b)	PSD	Complies	None.
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Complies	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Complies	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with;

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15
- FCC KDB 558074 D01 v05r02 15.247 Meas Guidance
- ANSI C63.10-2013
- KDB 662911
- RSS-GEN Issue 5 + A1 + A2
- KDB 414788 D01 Radiated Test Site v01r01
- RSS-247 Issue 2

4. FACILITIES AND ACCREDITATION

UL Verifications Services Inc. is accredited by A2LA, certification #0751.05, 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 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
<input checked="" type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
<input checked="" type="checkbox"/>	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
<input checked="" type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
<input checked="" type="checkbox"/>	Building 5: 47670 Kato Rd, Fremont, CA 94538 USA			

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	U_{LAB}
Conducted Antenna Port Emission Measurement	1.94
Power Spectral Density	2.466
Time Domain Measurements Using SA	3.39
RF Power Measurement Direct Method Using Power Meter	0.450 (Peak), 1.3 (Ave)
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.2%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable

Loss (dB) – 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:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) +

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 Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G NR1, IEEE 802.11a/b/g/n/ac/ax, Bluetooth (BT), Ultra-Wideband (UWB), GPS, NFC, NB UNII, 802.15.4, 802.15.4ab-NB and MSS technologies. The rechargeable battery is not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

The Model and FCC/IC ID covered by this report includes:

Full Test Model: A3105, FCC ID: BCG-E8440A, IC ID: 579C-E8440A

Variant Model: A3106; FCC ID: BCG-E8441A, IC ID: 579C-E8441A
A3108; FCC ID: BCG-E8442A, IC ID: 579C-E8442A

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)
1Tx			
2412 - 2472	802.11b	21.47	140.28
	802.11g	Covered by 802.11n HT20 1TX	
	802.11n HT20	21.48	140.60
	802.11ax HE20	21.43	139.00

2Tx			
2412 - 2472	802.11n HT20 CDD	24.44	277.97
	802.11g SDM/STBC	Covered by 802.11n HT20 2TX CDD	
	802.11ax HE20	24.46	279.25

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:

Frequency Range (GHz)	ANT 4 (dBi)	ANT 3 (dBi)
2.4	-1.1	-0.9

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was WiFi FW Version: 23_10_686.

6.5. WORST-CASE CONFIGURATION AND MODE

EUT was investigated in three orthogonal orientations X (Flatbed), Y (Landscape) and Z (Portrait) on ANT 4, ANT 3, and 2TX. It was determined that X (Flatbed) orientation was worst-case orientation for ANT 3 and Y (Landscape) orientation was the worst-case orientation for ANT4 and 2TX.

With same power on Full RU and SU higher data rate, investigation was performed on both band edges to determine the worst case, and SU mode was determined to be the worst case.

Radiated band edge, harmonic, and spurious emissions from 1GHz to 18GHz were performed with the EUT set to transmit at highest power on Low/Middle/High channels.

Radiated emissions below 1GHz, 18-26GHz and power line conducted emissions were performed with the EUT transmits at the channel with the highest output power as worst-case scenario. There were no emissions found below 30MHz within 20dB of the limit.

For radiated harmonics spurious below 1GHz, 1-18GHz L/M/H channels, 18-26GHz, and power line conducted emissions were performed with the EUT set at the 2TX CDD mode among the CDD/SDM modes and 2TX HE mode with power setting equal or higher than SISO modes as worst-case scenario. G mode is covered by HT20 mode since it has the same power as HT20.

Below 1GHz tests were performed with EUT connected to AC power adapter as the worst case; and for above 1GHz tests, the worst-case configuration reported was with EUT only. For AC line conducted emission, test was investigated with AC power adapter and with laptop.

The output power and psd for the 802.11 ax mode were investigated between all different tones, and we found that SU mode had the highest output power, and the lowest tone had the highest PSD readings. And after investigation, antenna port conducted tests were performed on both SU and lowest tones; radiated spurious emission and radiated band edge tests were performed on SU and lowest tones.

Low data rate was used to test on antenna port conducted tests and radiated spurious emissions since it has the highest maximum power. For radiated bandedge, following are the worst-case data rates set for test:

802.11b mode : 1 Mbps
802.11n HT20 mode : MCS7
802.11ax HE20 mode: MCS9
802.11ax HE20 RU26 and SU, MCS9

Note: In the Radiated Plots and emissions data, ANT0=ANT4 and ANT1=ANT 3.

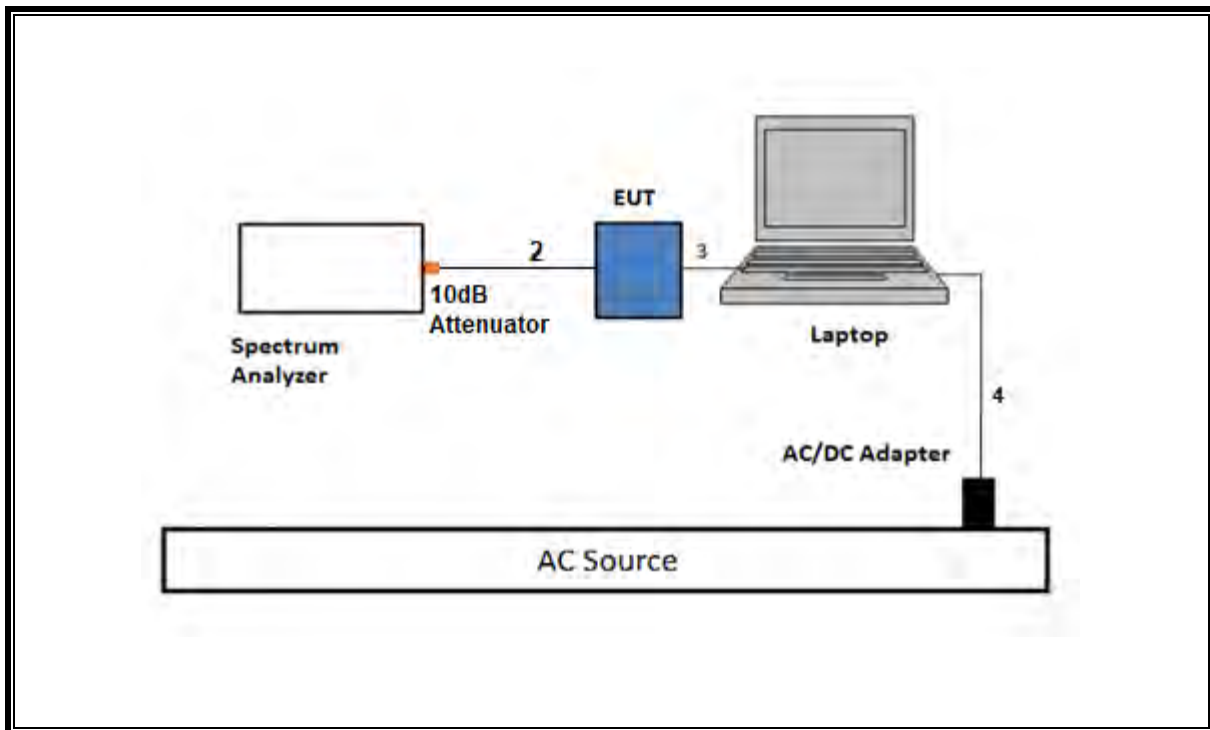
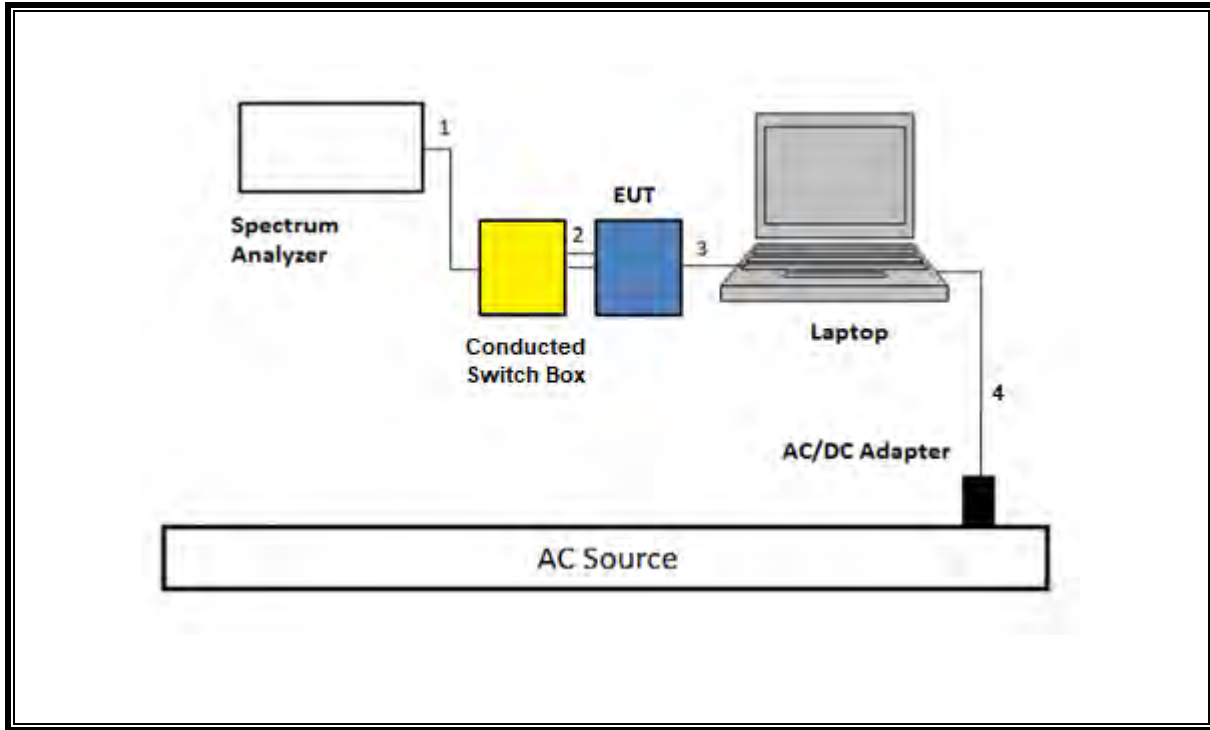
6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description	Manufacturer	Model	Serial Number	FCC ID/ DoC		
Laptop	Apple	Macbook Pro	C02VD7SAHV22	BCGA1708		
Laptop AC/DC adapter	Liteon Technology	A1424	NSW25679	DoC		
EUT AC/DC adapter	Apple	A1720	C3D8417A7R93KVPA8	DoC		
Conducted Switch Box	UL	n/a	208281	N/A		
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236358	N/A		
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	SMA	1	SMA	Shielded	0.75	To spectrum Analyzer
2	Antenna	2	SMA	Un-shielded	0.2	To Conducted Switch Box
3	USB-C	1	USB-C	Shielded	1.0	N/A
4	AC	1	AC	Un-shielded	2	N/A
I/O CABLES (RF RADIATED AND AC LINE CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Shielded	1	N/A

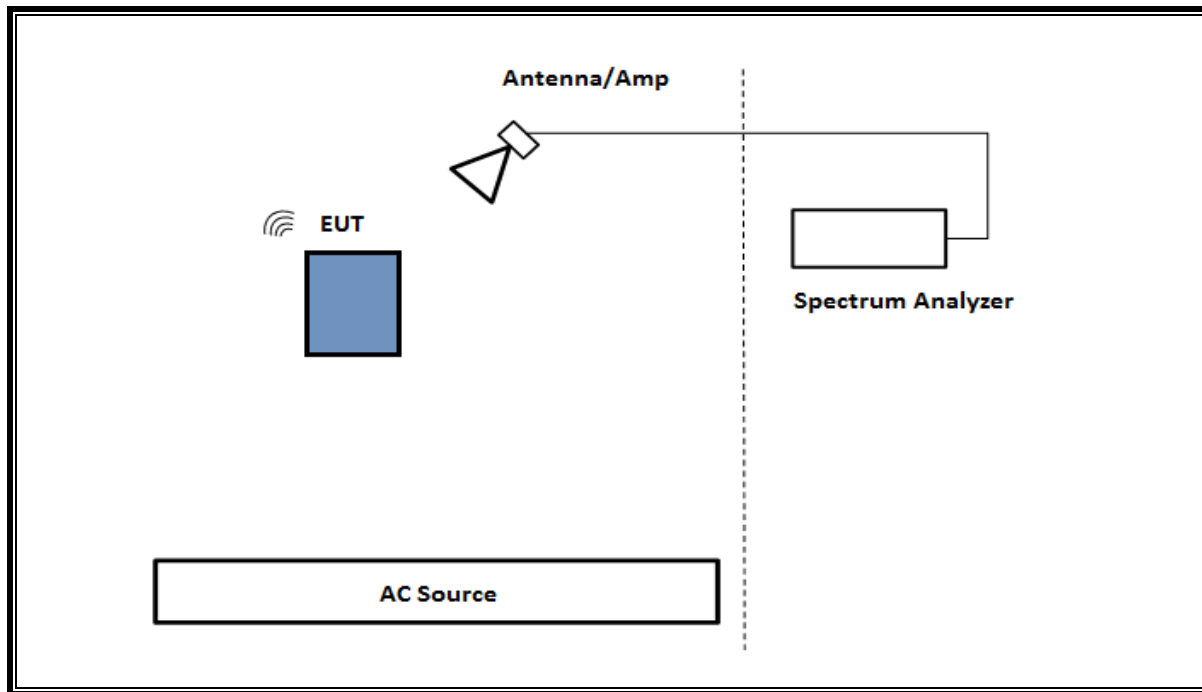
TEST SETUP

The EUT setup is shown as below. Test software exercised the radio card.

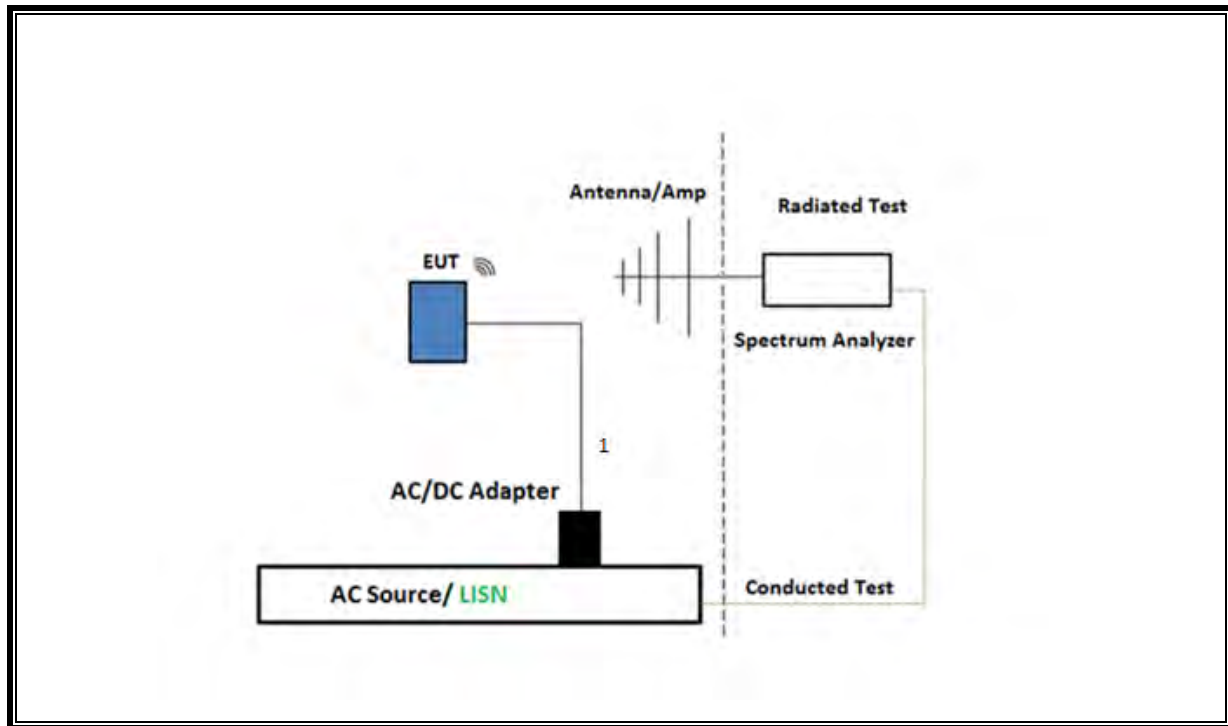
SETUP DIAGRAM FOR CONDUCTED TESTS



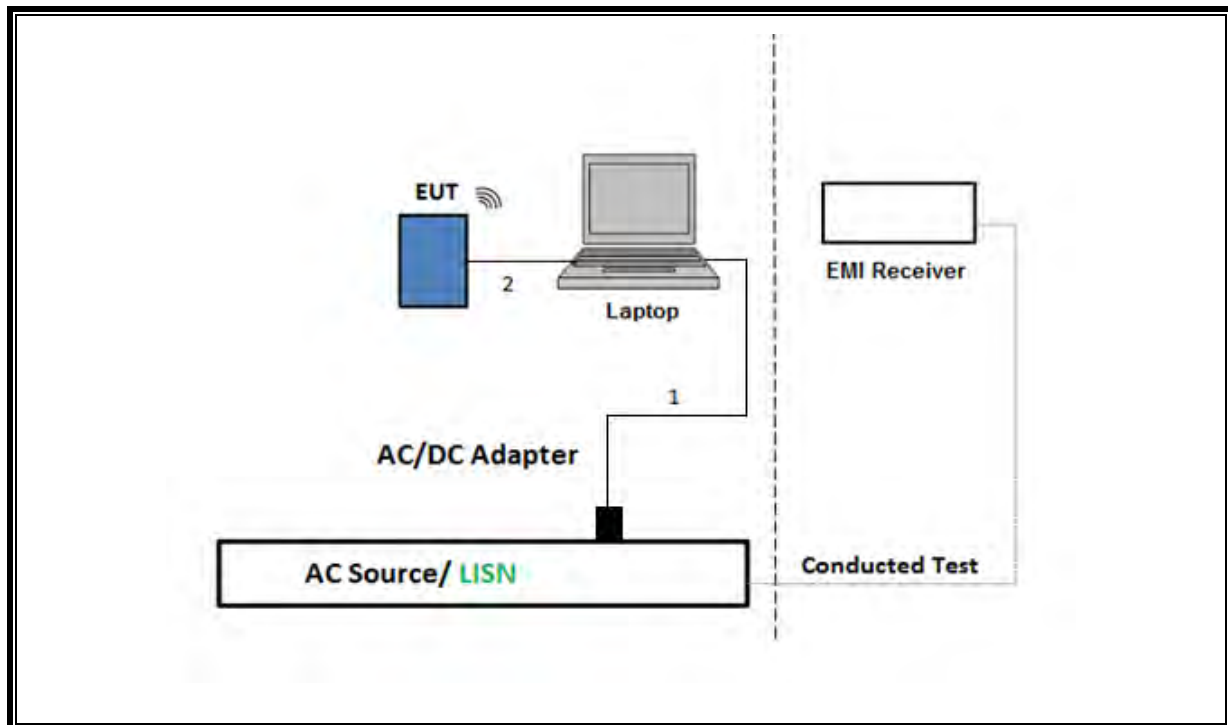
SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz



SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST



TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



7. MEASUREMENT METHOD

Test Item	Test Method
6 dB BW	ANSI C63.10 Subclause -11.8.1 RBW \geq DTS BW
99% BW	ANSI C63.10-2013, Subclause 6.9.3.
Output Power	ANSI C63.10 Subclause -11.9.2.3.2 Method AVGPM G (Measurement using an RF average-reading power meter)
PSD	ANSI C63.10 Subclause -11.10.3 Method AVGPSD-1
Radiated emissions non-restricted frequency bands	ANSI C63.10 Subclause -11.11 & Clause 13
Radiated emissions restricted frequency bands	ANSI C63.10 Subclause -11.12.1 & Clause 13
Conducted emissions in restricted frequency bands	ANSI C63.10 Subclause -11.12.2
Band-edge	ANSI C63.10 Subclause -11.13.3.2 & Clause 13: Integration method -Peak detection
Band-edge	ANSI C63.10 Subclause -11.13.3.3 & Clause 13: Integration method -Trace averaging with continuous transmission at full power
Radiated Spurious Emissions Below 30MHz	ANSI C63.10-2013 Subclause 6.4 & Clause 13
AC Power Line Conducted Emissions	ANSI C63.10-2013, Subclause 6.2

8. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	80397	02/28/2024	02/23/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	85214	02/28/2024	02/23/2023
Antenna, Horn 1-18GHz	ETS Lindgren	3117	200786	02/24/2024	02/24/2023
EMI Test Receiver	Rohde & Schwarz	ESW44	191428	02/20/2024	02/20/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A-544	87738	02/28/2024	02/23/2023
*Conducted Switch Box	N/A	CSB	221008	06/21/2023	06/21/2022
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236358	Verified/Characterized before use	
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236355	Verified/Characterized before use	
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90756	01/31/2024	01/24/2023
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90389	01/31/2024	01/24/2023
*Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	206807	02/28/2024	02/28/2023
*RF Filter Box, 1-18GHz, 12 Port.	UL-FR1	Frankenstein	230878	02/29/2024	02/29/2023
*EMI TEST RECEIVER	Rohde & Schwarz	ESW44	191428	02/29/2024	02/29/2023
*Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	200897	03/31/2024	03/07/2023
*Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	230300	01/12/2024	01/12/2023
*RF Filter Box, 1-18GHz, 12 Port.	UL-FR1	Frankenstein	231875	04/19/2023	04/19/2022
*EMI TEST RECEIVER	Rohde & Schwarz	ESW44	170063	02/29/2024	02/29/2023
Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	84797	09/20/2023	09/20/2022
*RF Filter Box, 1-18GHz	UL-FR1	NA	171389	05/31/2023	05/31/2022
*EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201497	02/29/2024	02/29/2023
Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	200784	01/31/2024	01/31/2023
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	Frankenstein	220095	01/31/2024	01/31/2023
*EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201500	02/29/2024	02/29/2023
*Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	80404	08/08/2023	08/08/2023
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	Frankenstein	216812	09/17/2023	09/17/2022
*EMI TEST RECEIVER	Rohde & Schwarz	ESW44	230548	02/29/2024	02/29/2023
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	222740	08/31/2023	08/31/2022

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	226673	01/09/2024	01/09/2023
*RF Filter Box, 1-18GHz, 17 Ports	UL-FR1	RATS 2	226781	04/30/2023	04/30/2022
*EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169935	02/29/2024	02/29/2023
Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	226671	01/09/2024	01/09/2023
*RF Filter Box, 1-18GHz, 17 Ports	UL-FR1	RATS 2	226779	03/05/2024	03/05/2023
*EMI TEST RECEIVER	Rohde & Schwarz	ESW44	226078	02/29/2024	02/29/2023
*Antenna, Passive Loop 100KHz to 30MHz	ETS-Lindgren	EM-6872	170015	07/28/2023	07/28/2022
*Antenna, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	170013	07/28/2023	07/28/2022
Antenna, Broadband Hybrid, 30MHz to 3000MHz	Sunol Sciences Corp.	JB3	230635	01/31/2024	01/23/2023
*Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	89831	08/10/2023	08/10/2022
RF Amplifier Assembly, 18- 26.5GHz, 60dB Gain	AMPLICAL	AMP18G26.5-60	171583	02/29/2024	02/29/2023
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	172363	01/31/2024	01/31/2023

AC Line Conducted					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
*EMI Test Receiver	Rohde & Schwarz	ESW44	201501	05/31/2024	05/31/2023
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250- 25-2-01-480V	175764	01/31/2024	01/31/2023
**Transient Limiter	TE	TBFL1	207996	08/15/2023	07/15/2022
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, May 1, 2023		
Conducted Software	UL	UL EMC	2020.8.16		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, Mar 3, 2023		

*Testing is completed before equipment expiration date and/or tested after calibration was completed.

**Cal Due date should be 07/15/2023 and according to internal quality system, it was extended to 08/15/2023.

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE LIMITS

None; for reporting purposes only.

PROCEDURE

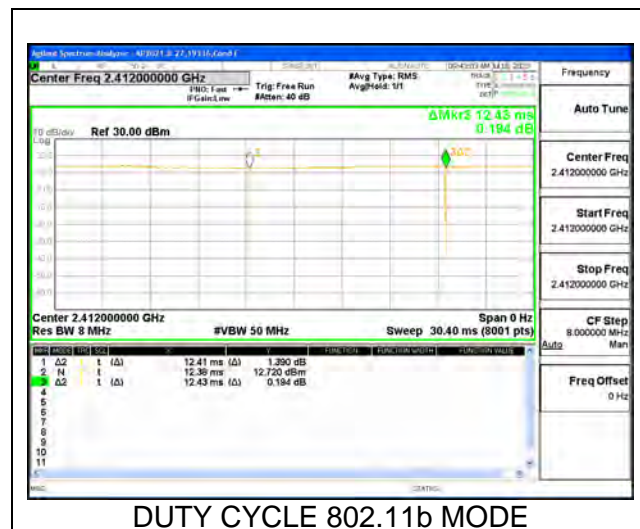
KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b	12.410	12.430	0.998	99.84%	0.00	0.010
802.11n HT20 MCS0	1.919	1.941	0.989	98.87%	0.00	0.010
802.11n HT20 MCS7	0.226	0.250	0.9048	90.48%	0.43	4.423
802.11ax HE20 RU26 MCS0	3.992	4.039	0.988	98.84%	0.00	0.010
802.11ax HE20 RU26 MCS9	0.350	0.394	0.889	88.87%	0.51	2.858
802.11ax HE20 SU MCS0	1.487	1.509	0.985	98.54%	0.00	0.010
802.11ax HE20 SU MCS9	0.167	0.190	0.882	88.18%	0.55	5.982

Note: Duty cycle 2TX is the same as 1TX.

DUTY CYCLE PLOTS



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

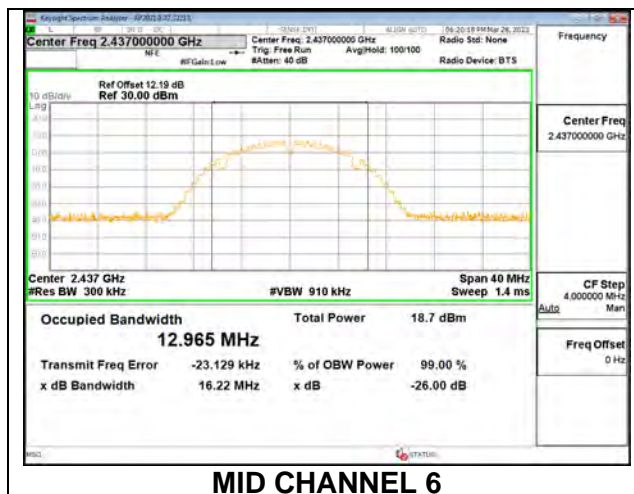
RESULTS

Only Mid channel plot is reported to show setting parameter complies with testing method/procedure.

9.2.1. 802.11b MODE 1TX

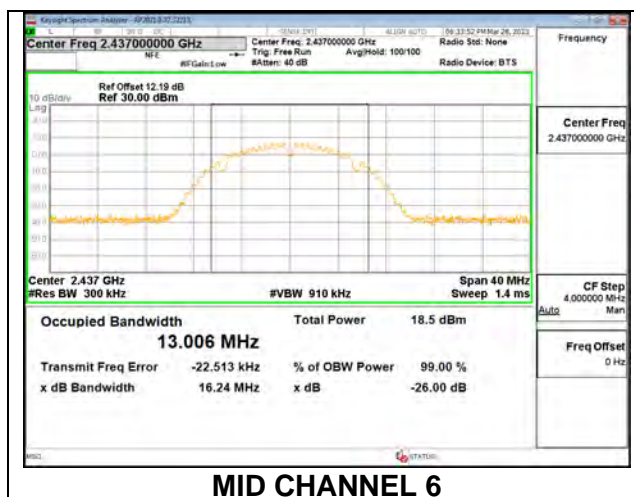
1TX ANT 4 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	12.943
Mid 6	2437	12.965
High 11	2462	12.988
High 12	2467	12.953
High 13	2472	12.758



1TX ANT 3 MODE

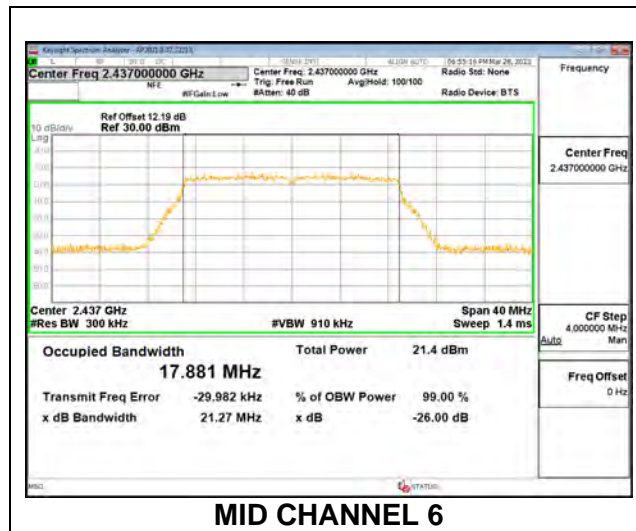
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	12.938
Mid 6	2437	13.006
High 11	2462	12.930
High 12	2467	12.976
High 13	2472	12.935



9.2.2. 802.11n HT20 MODE

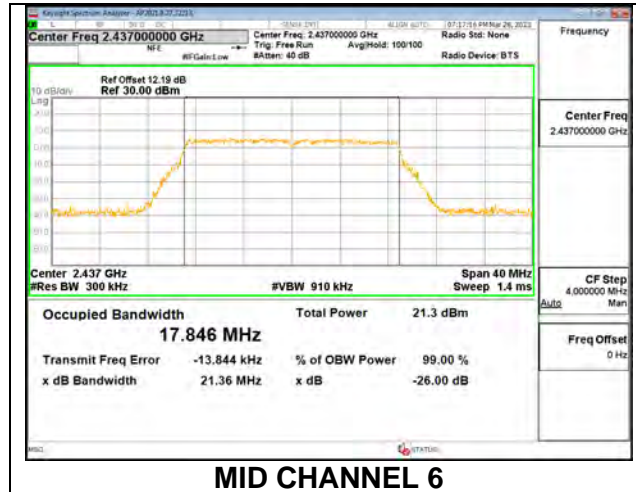
1TX ANT 4 MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	17.855
Low 2	2417	17.832
Mid 6	2437	17.881
High 10	2457	17.853
High 11	2462	17.803
High 12	2467	17.827
High 13	2472	17.695



1TX ANT 3 MODE

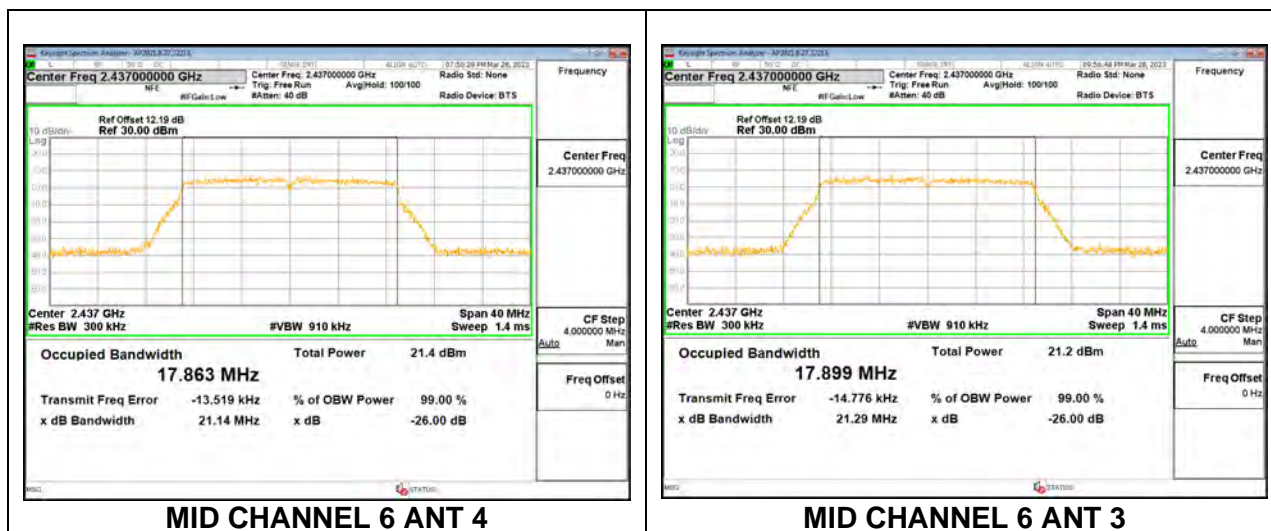
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	17.844
Low 2	2417	17.880
Mid 6	2437	17.846
High 10	2457	17.829
High 11	2462	17.829
High 12	2467	17.828
High 13	2472	17.818



9.2.3. 802.11n HT20 CDD MODE

ANT 4 + ANT 3 2TX MODE

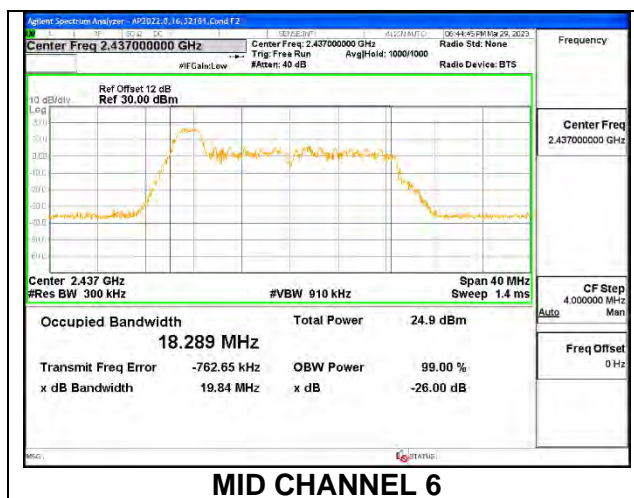
Channel	Frequency (MHz)	99% Bandwidth (MHz) ANT 4	99% Bandwidth (MHz) ANT 3
Low 1	2412	17.835	17.823
Low 2	2417	17.829	17.790
Low 3	2422	17.840	17.814
Mid 6	2437	17.863	17.899
High 9	2452	17.850	17.871
High 10	2457	17.806	17.843
High 11	2462	17.823	17.767
High 12	2467	17.872	17.846
High 13	2472	17.709	17.813



9.2.4. 802.11ax HE20 MODE

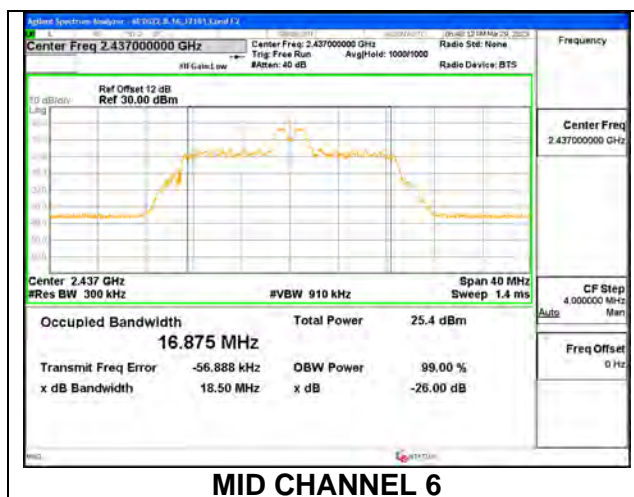
ANT 4 SISO MODE: 26-Tones, RU Index 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	18.411
Mid 6	2437	18.289
High 11	2462	18.226
High 12	2467	18.195
High 13	2472	17.937



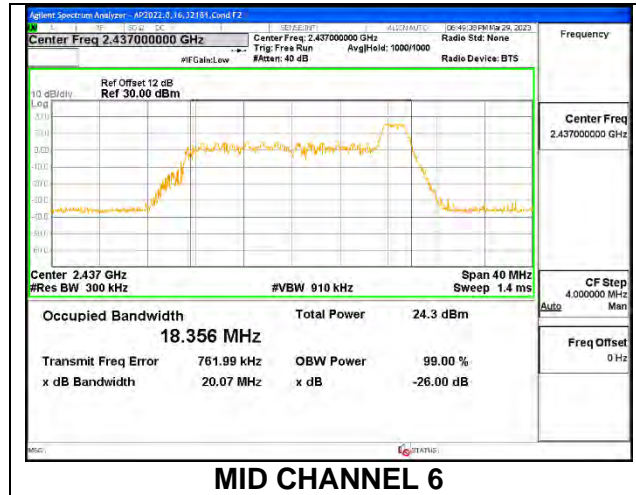
ANT 4 SISO MODE: 26-Tones, RU Index 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	16.916
Mid 6	2437	16.875
High 11	2462	16.995
High 12	2467	16.731
High 13	2472	16.390



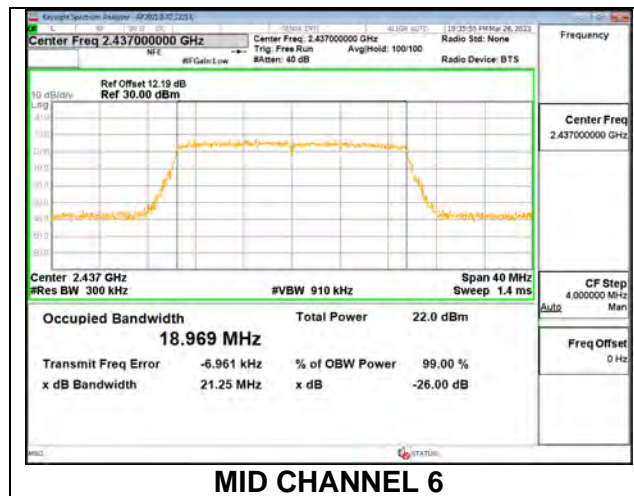
ANT 4 SISO MODE: 26-Tones, RU Index 8

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	18.335
Mid 6	2437	18.356
High 11	2462	18.459
High 12	2467	18.516
High 13	2472	18.601



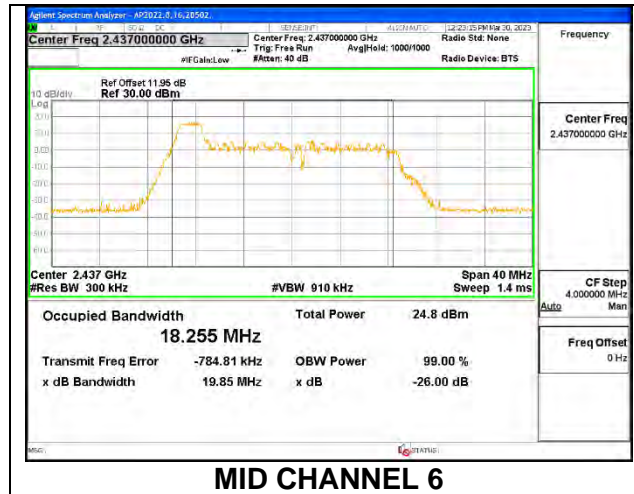
ANT 4 SISO MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	18.999
Low 2	2417	19.021
Low 3	2422	18.980
Mid 6	2437	18.969
High 9	2452	19.033
High 10	2457	19.006
High 11	2462	18.968
High 12	2467	18.985
High 13	2472	18.885



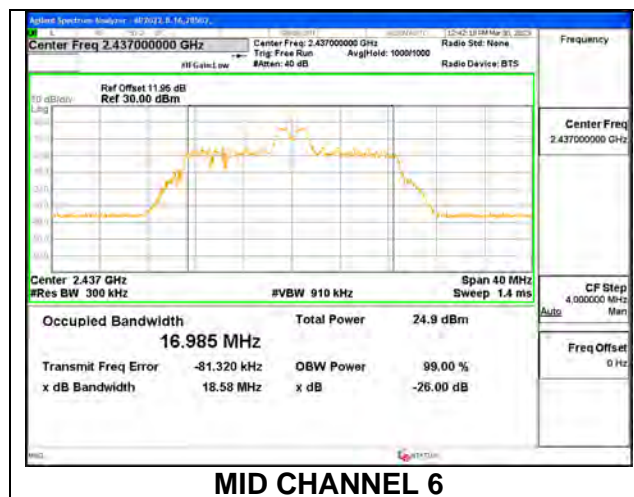
ANT 3 SISO MODE: 26-Tones, RU Index 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	18.404
Mid 6	2437	18.255
High 11	2462	18.249
High 12	2467	18.251
High 13	2472	18.030



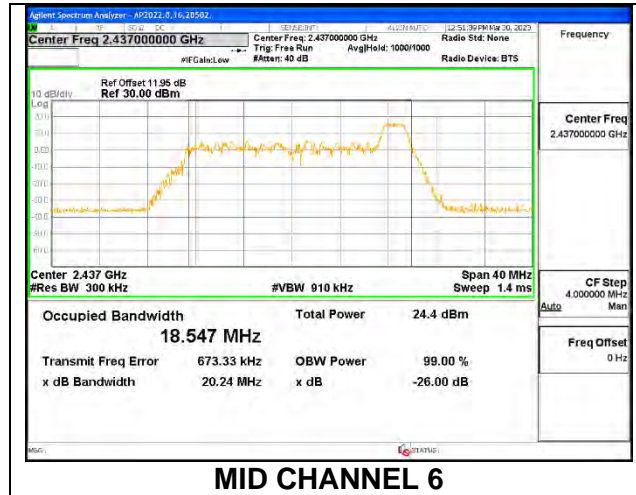
ANT 3 SISO MODE: 26-Tones, RU Index 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	16.767
Mid 6	2437	16.985
High 11	2462	16.758
High 12	2467	16.321
High 13	2472	16.709



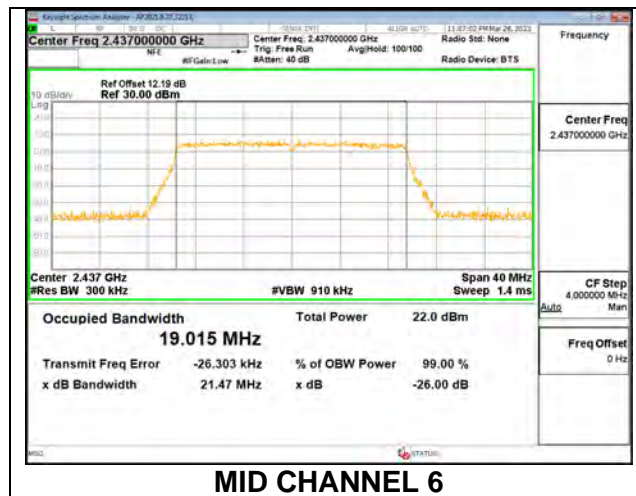
ANT 3 SISO MODE: 26-Tones, RU Index 8

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	18.276
Mid 6	2437	18.547
High 11	2462	18.210
High 12	2467	18.473
High 13	2472	18.587



ANT 3 SISO MODE: SU Mode

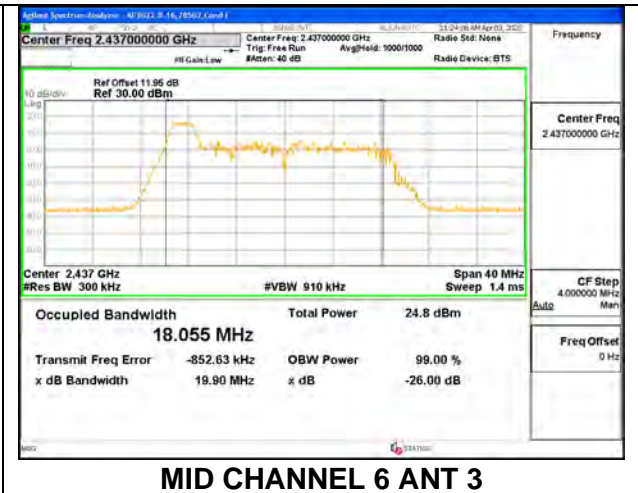
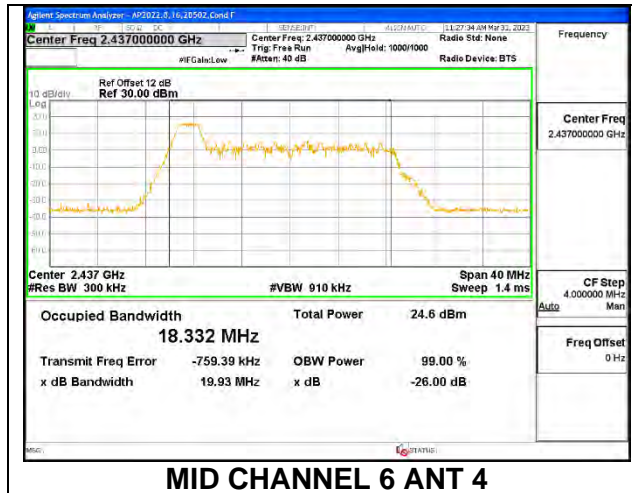
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	18.977
Low 2	2417	19.001
Low 3	2422	18.935
Mid 6	2437	19.015
High 9	2452	18.968
High 10	2457	18.988
High 11	2462	18.946
High 12	2467	18.973
High 13	2472	18.969



9.2.5. 802.11ax HE20 OFDMA MODE 2TX

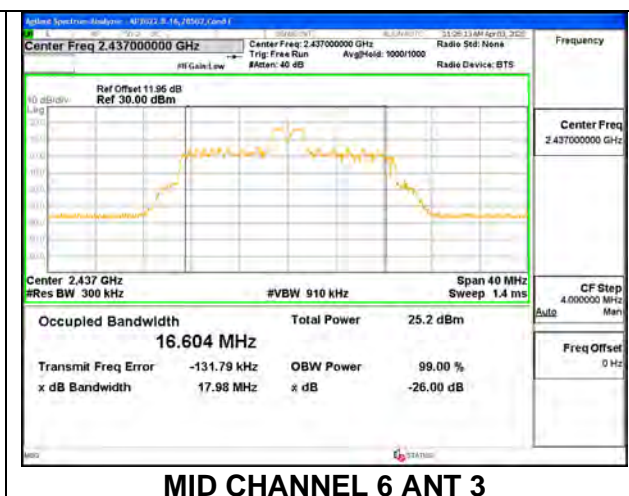
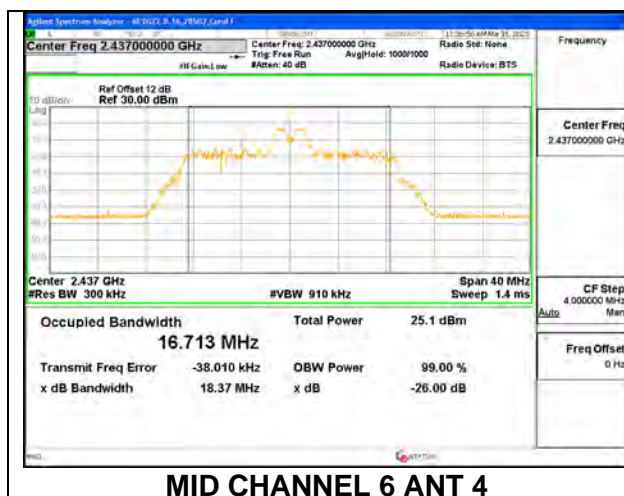
ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 0

Channel	Frequency (MHz)	99% Bandwidth (MHz) ANT 4	99% Bandwidth (MHz) ANT 3
Low 1	2412	18.473	18.437
Mid 6	2437	18.332	18.055
High 11	2462	18.360	18.274
High 12	2467	18.213	18.101
High 13	2472	17.881	18.063



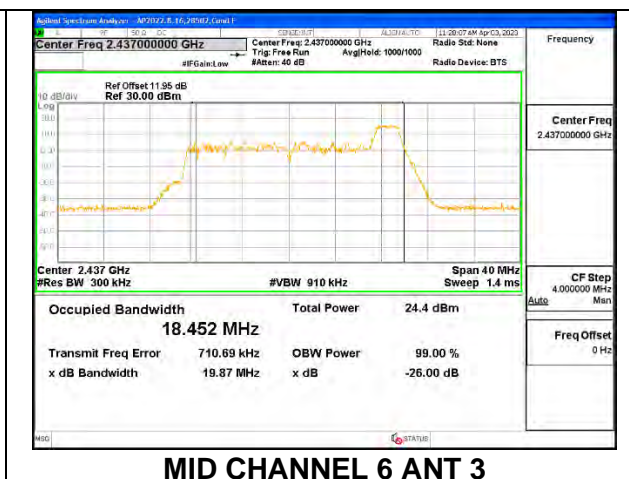
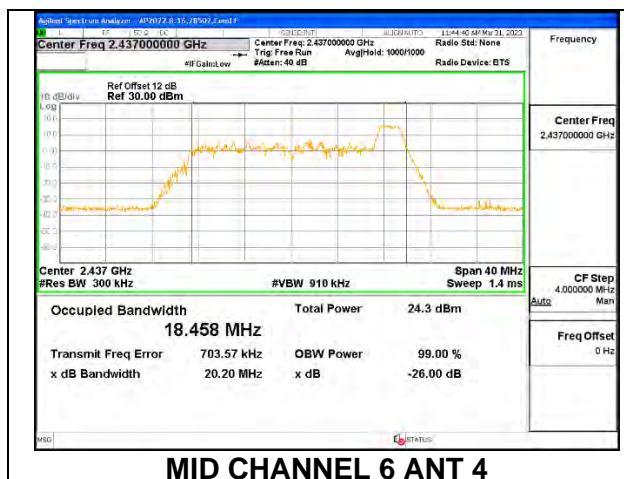
ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)	99% Bandwidth (MHz)
		ANT 4	ANT 3
Low 1	2412	16.757	16.348
Mid 6	2437	16.713	16.604
High 11	2462	16.946	16.479
High 12	2467	16.850	16.727
High 13	2472	16.484	16.626



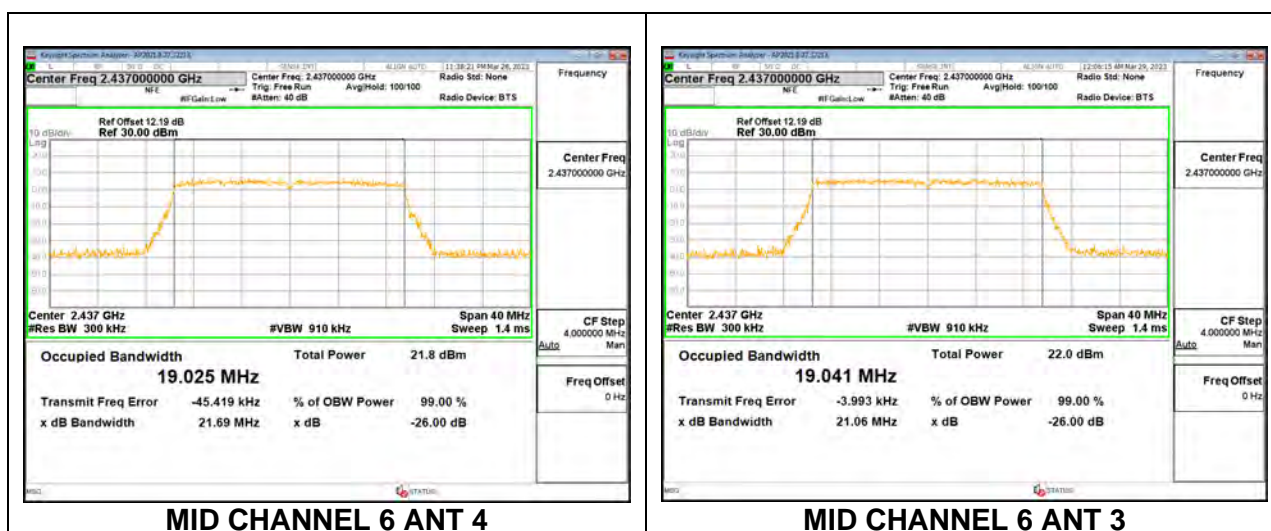
ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 8

Channel	Frequency (MHz)	99% Bandwidth (MHz)	99% Bandwidth (MHz)
		ANT 4	ANT 3
Low 1	2412	18.431	18.116
Mid 6	2437	18.458	18.452
High 11	2462	18.598	18.356
High 12	2467	18.470	18.448
High 13	2472	18.529	18.499



ANT 4 + ANT 3 2TX MODE: SU Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz) ANT 4	99% Bandwidth (MHz) ANT 3
Low 1	2412	19.010	18.984
Low 2	2417	18.969	18.987
Low 3	2422	18.982	18.914
Mid 6	2437	19.025	19.041
High 8	2447	18.997	19.023
High 9	2452	19.046	19.012
High 10	2457	19.007	18.986
High 11	2462	18.987	18.984
High 12	2467	18.953	18.976
High 13	2472	18.899	18.991



9.3. 6dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

RSS-247 5.2 (a)

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

RESULTS

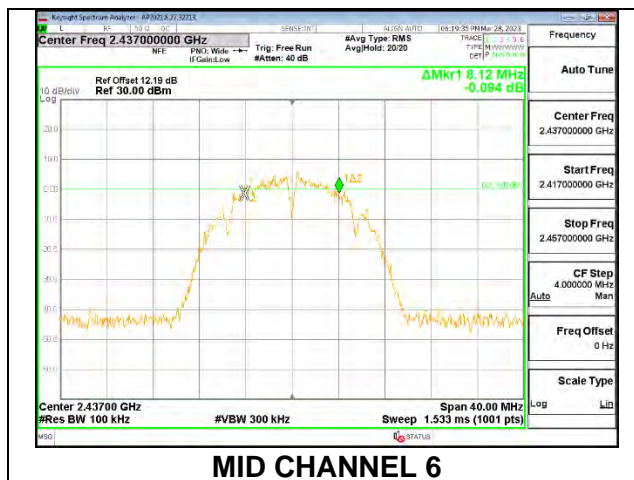
The 6dB bandwidth was measured for the narrowest bandwidth mode, b Mode and ax HE20 Mode 26-Tones as worst case to demonstrate compliance with the minimum required bandwidth of 500 kHz to cover all OFDMA modes.

Only Mid channel plot is reported to show setting parameter complies with testing method/procedure.

9.3.1. 802.11b MODE 1TX

1TX ANT 4 MODE

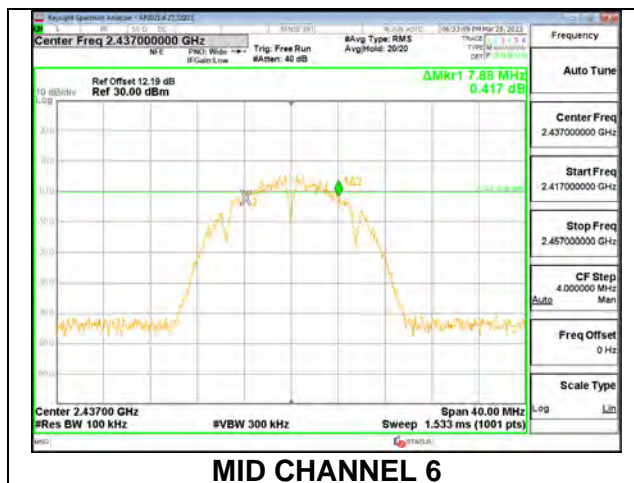
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	8.20	0.5
Mid 6	2437	8.12	0.5
High 11	2462	7.36	0.5
High 12	2467	8.24	0.5
High 13	2472	8.12	0.5



MID CHANNEL 6

1TX ANT 3 MODE

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	8.60	0.5
Mid 6	2437	7.88	0.5
High 11	2462	8.48	0.5
High 12	2467	9.12	0.5
High 13	2472	8.48	0.5

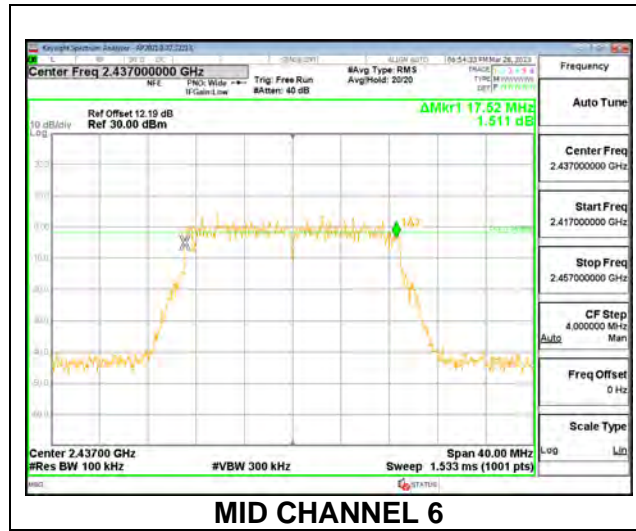


MID CHANNEL 6

9.3.2. 802.11n HT20 MODE

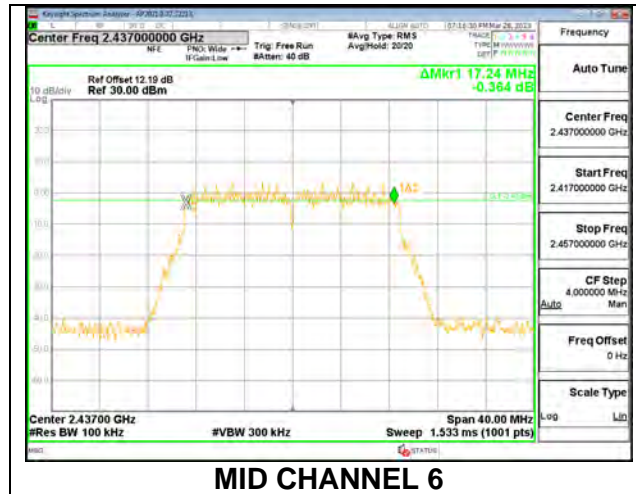
1TX ANT 4 MODE

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	17.40	0.5
Low 2	2417	17.76	0.5
Mid 6	2437	17.52	0.5
High 10	2457	17.48	0.5
High 11	2462	17.72	0.5
High 12	2467	17.64	0.5
High 13	2472	16.48	0.5



1TX ANT 3 MODE

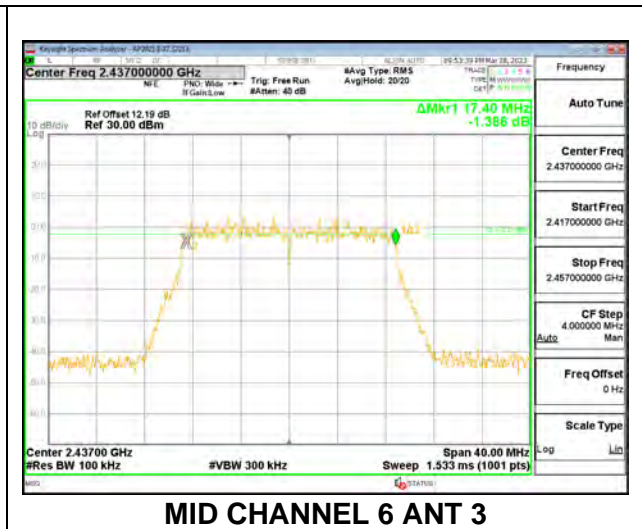
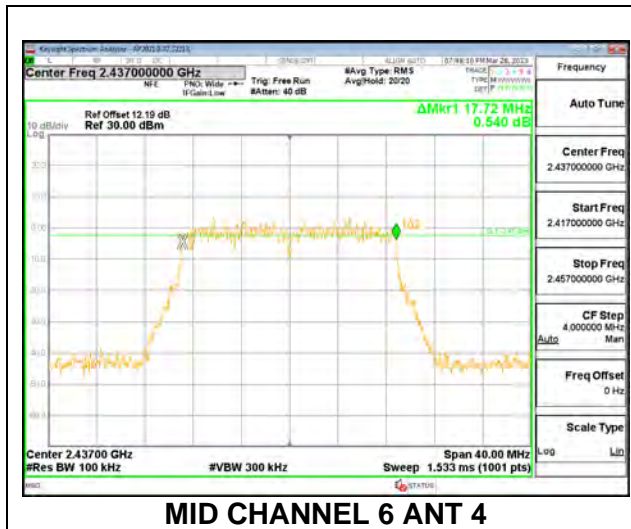
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	17.48	0.5
Low 2	2417	17.52	0.5
Mid 6	2437	17.24	0.5
High 10	2457	17.72	0.5
High 11	2462	17.32	0.5
High 12	2467	17.44	0.5
High 13	2472	16.76	0.5



9.3.3. 802.11n HT20 CDD MODE 2TX

ANT 4 + ANT3 2TX MODE

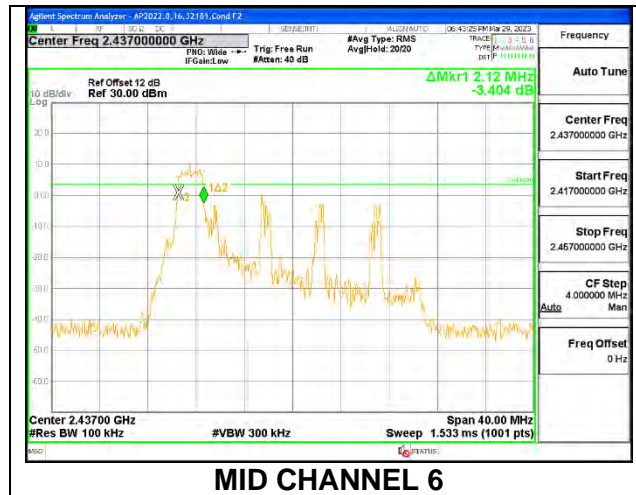
Channel	Frequency (MHz)	6dB Bandwidth ANT 4 (MHz)	6dB Bandwidth ANT 3 (MHz)	Minimum Limit (MHz)
Low 1	2412	17.68	17.72	0.5
Low 2	2417	17.04	17.60	0.5
Low 3	2422	16.76	17.44	0.5
Mid 6	2437	17.72	17.40	0.5
High 9	2452	17.72	17.48	0.5
High 10	2457	17.60	17.72	0.5
High 11	2462	17.68	17.60	0.5
High 12	2467	17.36	17.68	0.5
High 13	2472	17.08	17.44	0.5



9.3.4. 802.11ax HE20 MODE

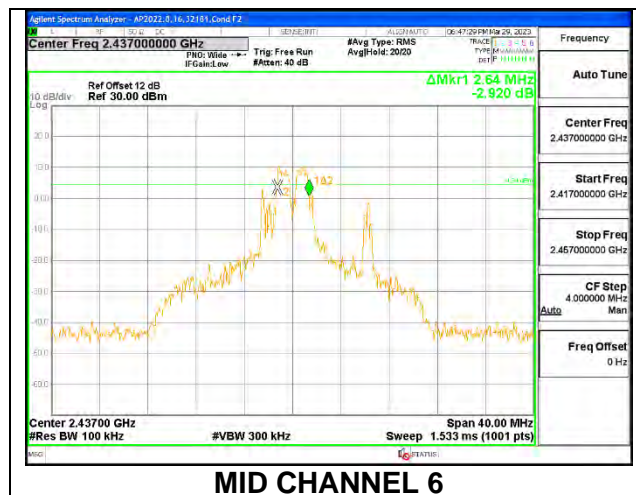
ANT 4 SISO MODE: 26-Tones, RU Index 0

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	2.12	0.5
Mid 6	2437	2.12	0.5
High 11	2462	2.08	0.5
High 12	2467	2.16	0.5
High 13	2472	2.20	0.5



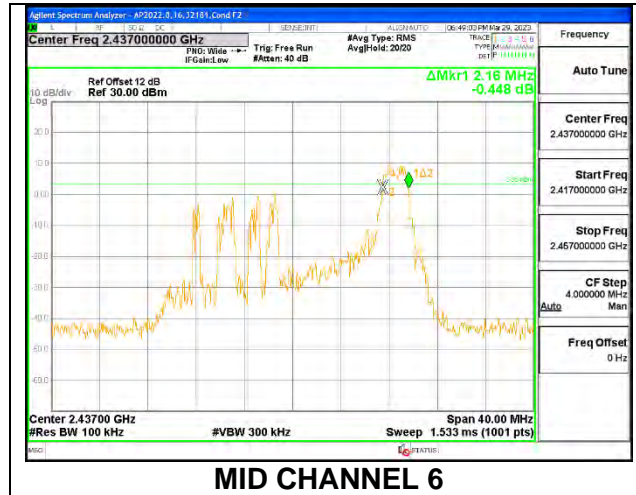
ANT 4 SISO MODE: 26-Tones, RU Index 4

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	2.68	0.5
Mid 6	2437	2.64	0.5
High 11	2462	2.76	0.5
High 12	2467	2.64	0.5
High 13	2472	2.64	0.5



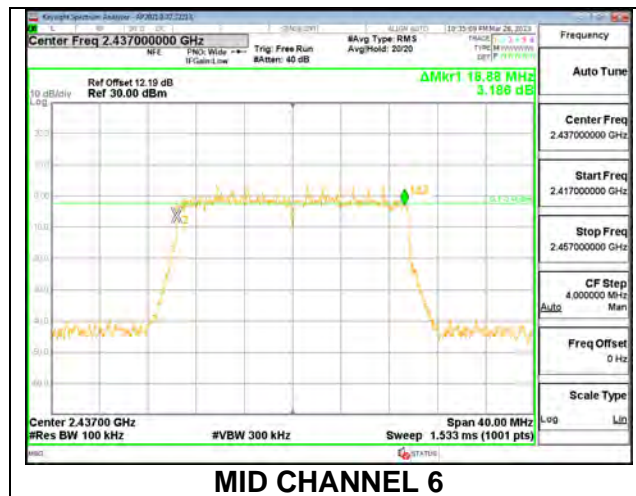
ANT 4 SISO MODE: 26-Tones, RU Index 8

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	2.12	0.5
Mid 6	2437	2.16	0.5
High 11	2462	2.12	0.5
High 12	2467	2.08	0.5
High 13	2472	2.04	0.5



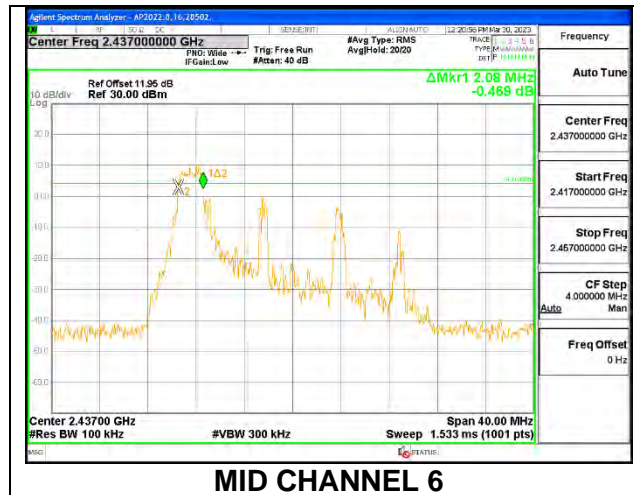
ANT 4 SISO MODE: SU Mode

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	18.32	0.5
Low 2	2417	18.96	0.5
Low 3	2422	18.48	0.5
Mid 6	2437	18.88	0.5
High 9	2452	18.32	0.5
High 10	2457	17.92	0.5
High 11	2462	18.56	0.5
High 12	2467	18.52	0.5
High 13	2472	17.08	0.5



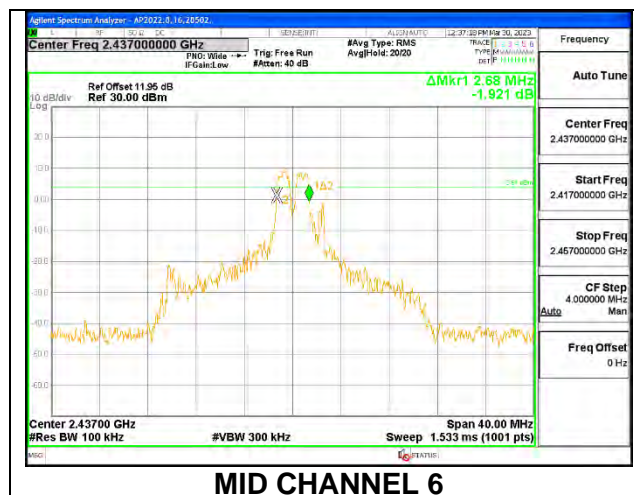
ANT 3 SISO MODE: 26-Tones, RU Index 0

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	2.16	0.5
Mid 6	2437	2.08	0.5
High 11	2462	2.12	0.5
High 12	2467	2.08	0.5
High 13	2472	2.12	0.5



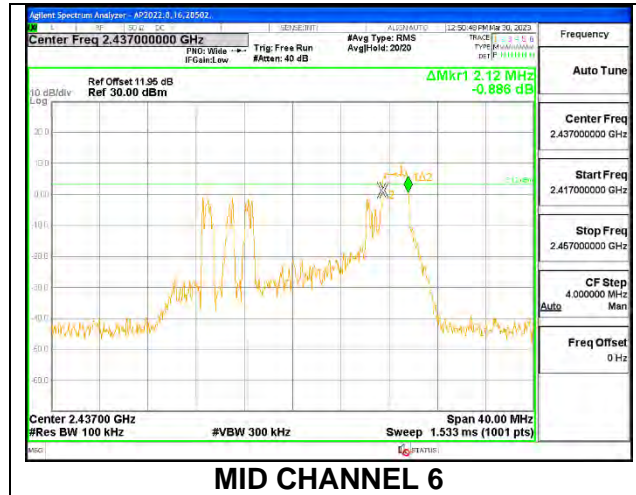
ANT 3 SISO MODE: 26-Tones, RU Index 4

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	2.64	0.5
Mid 6	2437	2.68	0.5
High 11	2462	2.64	0.5
High 12	2467	2.60	0.5
High 13	2472	2.56	0.5



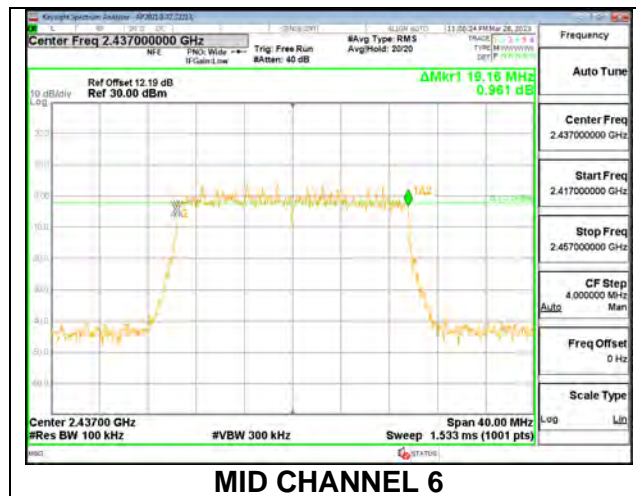
ANT 3 SISO MODE: 26-Tones, RU Index 8

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	2.08	0.5
Mid 6	2437	2.12	0.5
High 11	2462	2.04	0.5
High 12	2467	2.04	0.5
High 13	2472	2.12	0.5



ANT 3 SISO MODE: SU Mode

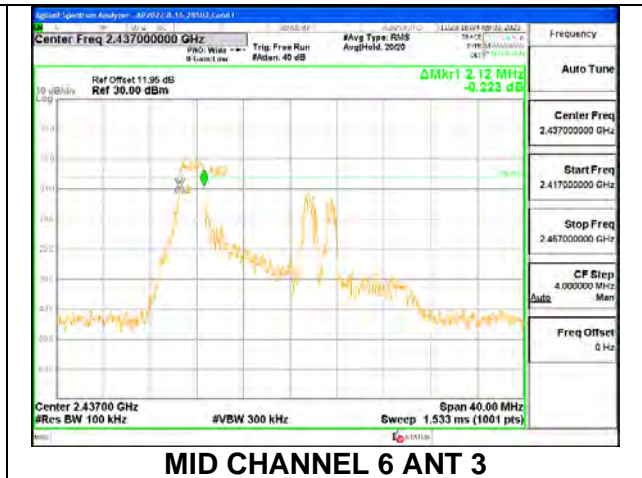
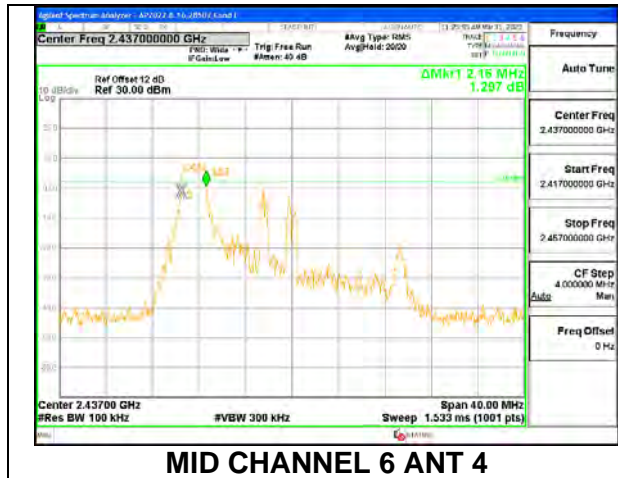
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low 1	2412	17.68	0.5
Low 2	2417	17.76	0.5
Low 3	2422	18.60	0.5
Mid 6	2437	19.16	0.5
High 9	2452	18.60	0.5
High 10	2457	17.76	0.5
High 11	2462	18.68	0.5
High 12	2467	18.80	0.5
High 13	2472	19.08	0.5



9.3.5. 802.11ax HE20 OFDMA MODE 2TX

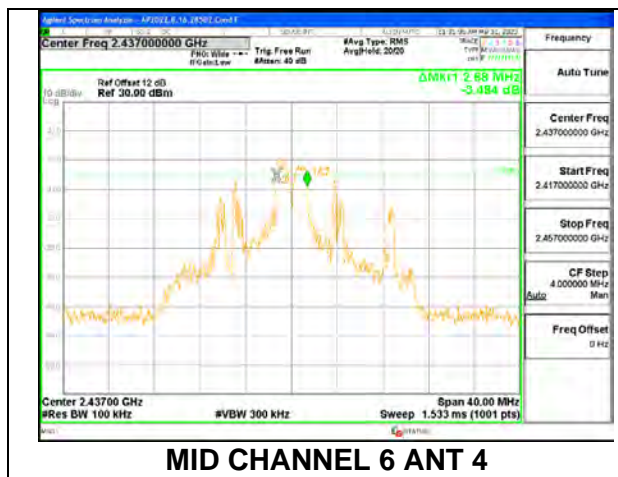
ANT 4 + ANT 3 2TX MODE : 26-Tones, RU Index 0

Channel	Frequency (MHz)	6dB BW(MHz) ANT 4	6dB BW (MHz) ANT 3	Minimum Limit (MHz)
Low 1	2412	2.20	2.08	0.5
Mid 6	2437	2.16	2.12	0.5
High 11	2462	2.12	2.08	0.5
High 12	2467	2.16	2.20	0.5
High 13	2472	2.08	2.08	0.5



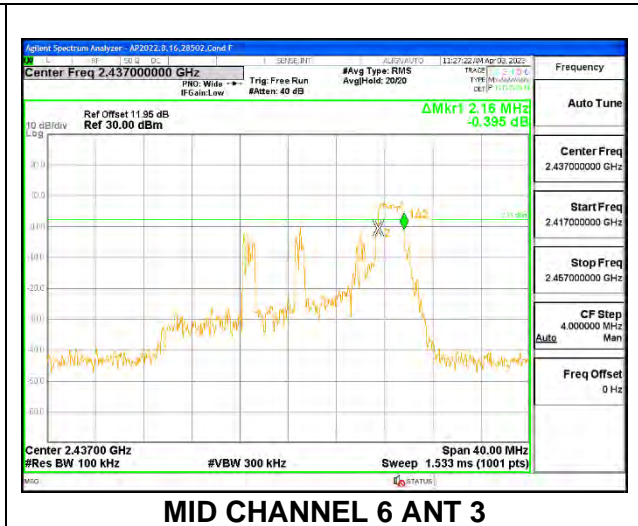
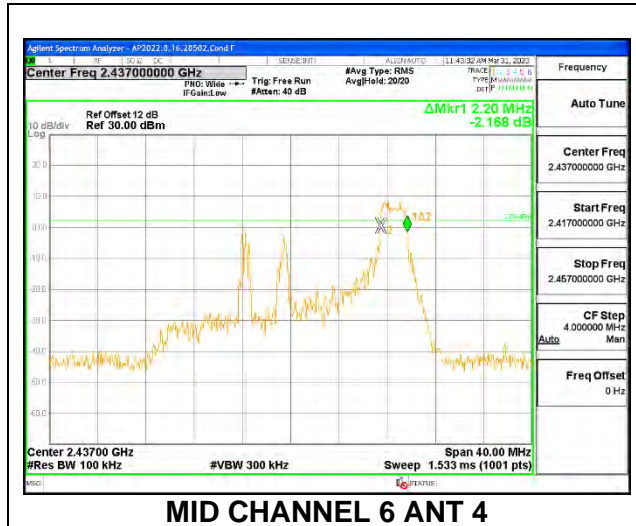
ANT 4 + ANT 3 2TX MODE : 26-Tones, RU Index 4

Channel	Frequency (MHz)	6dB BW(MHz) ANT 4	6dB BW (MHz) ANT 3	Minimum Limit (MHz)
Low 1	2412	2.60	2.64	0.5
Mid 6	2437	2.68	2.68	0.5
High 11	2462	2.64	2.72	0.5
High 12	2467	2.68	2.72	0.5
High 13	2472	2.68	2.64	0.5



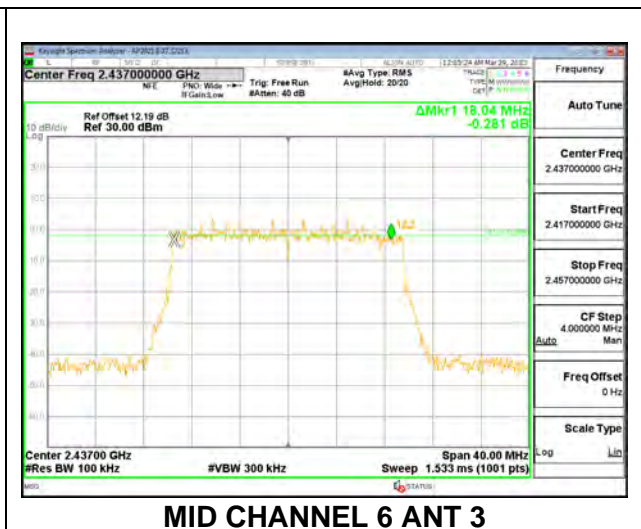
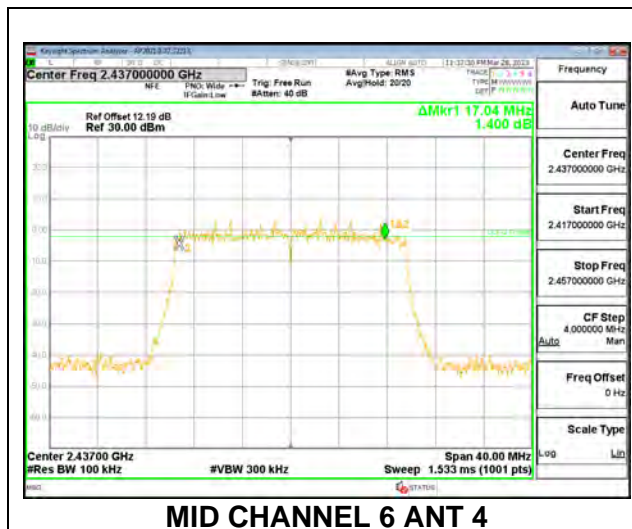
ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 8

Channel	Frequency (MHz)	6dB BW(MHz) ANT 4	6dB BW (MHz) ANT 3	Minimum Limit (MHz)
Low 1	2412	2.08	2.12	0.5
Mid 6	2437	2.20	2.16	0.5
High 11	2462	2.08	2.16	0.5
High 12	2467	2.12	2.16	0.5
High 13	2472	2.08	2.08	0.5



ANT 4 + ANT 3 2TX MODE: SU Mode

Channel	Frequency (MHz)	6dB BW(MHz) ANT 4	6dB BW (MHz) ANT 3	Minimum Limit (MHz)
Low 1	2412	18.40	18.36	0.5
Low 2	2417	18.56	18.64	0.5
Low 3	2422	18.80	18.08	0.5
Mid 6	2437	17.04	18.04	0.5
High 8	2447	19.00	18.72	0.5
High 9	2452	18.68	18.68	0.5
High 10	2457	18.84	18.32	0.5
High 11	2462	19.00	18.56	0.5
High 12	2467	18.60	18.76	0.5
High 13	2472	16.76	17.60	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

Measurements performed using a wideband RF power meter.

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

DIRECTIONAL ANTENNA GAIN

For 1 TX:

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

For 2 TX:

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes. The directional gains are as follows:

Band (GHz)	ANT 4 Antenna Gain (dBi)	ANT 3 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	-1.1	-0.9	-1.0	2.0

RESULTS

DIRECTIONAL GAIN CALCULATION:

ANSI C63.10-2013 section 14.4.3

Uncorrelated directional gain= $10 \cdot \text{LOG}((10^{\text{Ant1}/10} + 10^{\text{Ant2}/10})/2)$ Correlated directional Gain= $10 \cdot \text{LOG}(((10^{\text{Ant1}/20} + 10^{\text{Ant2}/20})^2)/2)$

Sample Calculation:

Ant4=-1.1, Ant3=-0.9

Uncorrelated Antenna gain= $10 \log [(10^{-1.1/10} + 10^{-0.9/10})/2] = -1.0 \text{dBi}$ Correlated Antenna gain= $10 \log [(10^{-1.1/20} + 10^{-0.9/20})^2/2] = 2.0 \text{dBi}$

9.4.1. 802.11b MODE 1TX

Test Engineer:	32543
Test Date:	7/19/2023

1TX ANT 4 MODE**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.1	30.00	30	36	30.00
Mid 6	2437	-1.1	30.00	30	36	30.00
High 11	2462	-1.1	30.00	30	36	30.00
High 12	2467	-1.1	30.00	30	36	30.00
High 13	2472	-1.1	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	21.47	21.47	30.00	-8.53
Mid 6	2437	21.41	21.41	30.00	-8.59
High 11	2462	21.26	21.26	30.00	-8.74
High 12	2467	21.41	21.41	30.00	-8.59
High 13	2472	20.45	20.45	30.00	-9.55

1TX ANT 3 MODE**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-0.9	30.00	30	36	30.00
Mid 6	2437	-0.9	30.00	30	36	30.00
High 11	2462	-0.9	30.00	30	36	30.00
High 12	2467	-0.9	30.00	30	36	30.00
High 13	2472	-0.9	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	21.41	21.41	30.00	-8.59
Mid 6	2437	21.47	21.47	30.00	-8.53
High 11	2462	21.37	21.37	30.00	-8.63
High 12	2467	21.45	21.45	30.00	-8.55
High 13	2472	20.45	20.45	30.00	-9.55

9.4.2. 02.11n HT20 MODE

Test Engineer:	32543
Test Date:	7/19/2023

1TX ANT 4 MODE**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.1	30.00	30	36	30.00
Low 2	2417	-1.1	30.00	30	36	30.00
Mid 6	2437	-1.1	30.00	30	36	30.00
High 10	2457	-1.1	30.00	30	36	30.00
High 11	2462	-1.1	30.00	30	36	30.00
High 12	2467	-1.1	30.00	30	36	30.00
High 13	2472	-1.1	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	17.44	17.44	30.00	-12.56
Low 2	2417	20.45	20.45	30.00	-9.55
Mid 6	2437	21.48	21.48	30.00	-8.52
High 10	2457	20.42	20.42	30.00	-9.58
High 11	2462	18.45	18.45	30.00	-11.55
High 12	2467	16.46	16.46	30.00	-13.54
High 13	2472	14.92	14.92	30.00	-15.08

1TX ANT 3 MODE

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-0.9	30.00	30	36	30.00
Low 2	2417	-0.9	30.00	30	36	30.00
Mid 6	2437	-0.9	30.00	30	36	30.00
High 10	2457	-0.9	30.00	30	36	30.00
High 11	2462	-0.9	30.00	30	36	30.00
High 12	2467	-0.9	30.00	30	36	30.00
High 13	2472	-0.9	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	17.46	17.46	30.00	-12.54
Low 2	2417	20.46	20.46	30.00	-9.54
Mid 6	2437	21.41	21.41	30.00	-8.59
High 10	2457	20.42	20.42	30.00	-9.58
High 11	2462	18.43	18.43	30.00	-11.57
High 12	2467	16.44	16.44	30.00	-13.56
High 13	2472	14.90	14.90	30.00	-15.10

9.4.3. 802.11n HT20 CDD MODE 2TX

ANT 4 + ANT3 2TX MODE

Test Engineer:	32543
Test Date:	7/19/2023

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.0	30.00	36	30.00
Low 2	2417	-1.0	30.00	36	30.00
Low 3	2422	-1.0	30.00	36	30.00
Mid 6	2437	-1.0	30.00	36	30.00
High 9	2452	-1.0	30.00	36	30.00
High 10	2457	-1.0	30.00	36	30.00
High 11	2462	-1.0	30.00	36	30.00
High 12	2467	-1.0	30.00	36	30.00
High 13	2472	-1.0	30.00	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	ANT 4 Meas Power (dBm)	ANT 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	16.91	16.92	19.93	30.00	-10.07
Low 2	2417	19.42	19.43	22.44	30.00	-7.56
Low 3	2422	20.93	20.91	23.93	30.00	-6.07
Mid 6	2437	21.41	21.45	24.44	30.00	-5.56
High 9	2452	20.45	20.46	23.47	30.00	-6.53
High 10	2457	19.41	19.46	22.45	30.00	-7.55
High 11	2462	17.47	17.47	20.48	30.00	-9.52
High 12	2467	14.94	14.91	17.94	30.00	-12.06
High 13	2472	14.43	14.97	17.72	30.00	-12.28

9.4.4. 802.11ax HE20 MODE

Test Engineer:	32543
Test Date:	7/19/2023

1TX ANT 4 MODE: 26-Tones, RU Index 0

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.1	30.00	30	36	30.00
Mid 6	2437	-1.1	30.00	30	36	30.00
High 11	2462	-1.1	30.00	30	36	30.00
High 12	2467	-1.1	30.00	30	36	30.00
High 13	2472	-1.1	30.00	30	36	30.00

Duty Cycle CF (dB)	0.0	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.42	13.42	30.00	-16.58
Mid 6	2437	13.40	13.40	30.00	-16.60
High 11	2462	13.47	13.47	30.00	-16.53
High 12	2467	13.42	13.42	30.00	-16.58
High 13	2472	0.94	0.94	30.00	-29.06

1TX ANT 4 MODE: 26-Tones, RU Index 4

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.1	30.00	30	36	30.00
Mid 6	2437	-1.1	30.00	30	36	30.00
High 11	2462	-1.1	30.00	30	36	30.00
High 12	2467	-1.1	30.00	30	36	30.00
High 13	2472	-1.1	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.42	13.42	30.00	-16.58
Mid 6	2437	13.40	13.40	30.00	-16.60
High 11	2462	13.44	13.44	30.00	-16.56
High 12	2467	13.45	13.45	30.00	-16.55
High 13	2472	0.92	0.92	30.00	-29.08

1TX ANT 4 MODE: 26-Tones, RU Index 8

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.1	30.00	30	36	30.00
Mid 6	2437	-1.1	30.00	30	36	30.00
High 11	2462	-1.1	30.00	30	36	30.00
High 12	2467	-1.1	30.00	30	36	30.00
High 13	2472	-1.1	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.48	13.48	30.00	-16.52
Mid 6	2437	13.47	13.47	30.00	-16.53
High 11	2462	13.40	13.40	30.00	-16.60
High 12	2467	13.43	13.43	30.00	-16.57
High 13	2472	0.90	0.90	30.00	-29.10

1TX ANT 4 MODE: SU Mode

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.1	30.00	30	36	30.00
Low 2	2417	-1.1	30.00	30	36	30.00
Low 3	2422	-1.1	30.00	30	36	30.00
Mid 6	2437	-1.1	30.00	30	36	30.00
High 9	2452	-1.1	30.00	30	36	30.00
High 10	2457	-1.1	30.00	30	36	30.00
High 11	2462	-1.1	30.00	30	36	30.00
High 12	2467	-1.1	30.00	30	36	30.00
High 13	2472	-1.1	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	16.88	16.88	30.00	-13.12
Low 2	2417	18.88	18.88	30.00	-11.12
Low 3	2422	20.97	20.97	30.00	-9.03
Mid 6	2437	21.43	21.43	30.00	-8.57
High 9	2452	20.94	20.94	30.00	-9.06
High 10	2457	18.91	18.91	30.00	-11.09
High 11	2462	16.96	16.96	30.00	-13.04
High 12	2467	14.93	14.93	30.00	-15.07
High 13	2472	9.91	9.91	30.00	-20.09

1TX ANT 3 MODE: 26-Tones, RU Index 0

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-0.9	30.00	30	36	30.00
Mid 6	2437	-0.9	30.00	30	36	30.00
High 11	2462	-0.9	30.00	30	36	30.00
High 12	2467	-0.9	30.00	30	36	30.00
High 13	2472	-0.9	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.42	13.42	30.00	-16.58
Mid 6	2437	13.42	13.42	30.00	-16.58
High 11	2462	13.41	13.41	30.00	-16.59
High 12	2467	13.47	13.47	30.00	-16.53
High 13	2472	0.96	0.96	30.00	-29.04

1TX ANT 3 MODE: 26-Tones, RU Index 4

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-0.9	30.00	30	36	30.00
Mid 6	2437	-0.9	30.00	30	36	30.00
High 11	2462	-0.9	30.00	30	36	30.00
High 12	2467	-0.9	30.00	30	36	30.00
High 13	2472	-0.9	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.46	13.46	30.00	-16.54
Mid 6	2437	13.45	13.45	30.00	-16.55
High 11	2462	13.41	13.41	30.00	-16.59
High 12	2467	13.40	13.40	30.00	-16.60
High 13	2472	0.91	0.91	30.00	-29.09

1TX ANT 3 MODE: 26-Tones, RU Index 8

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-0.9	30.00	30	36	30.00
Mid 6	2437	-0.9	30.00	30	36	30.00
High 11	2462	-0.9	30.00	30	36	30.00
High 12	2467	-0.9	30.00	30	36	30.00
High 13	2472	-0.9	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.44	13.44	30.00	-16.56
Mid 6	2437	13.45	13.45	30.00	-16.55
High 11	2462	13.46	13.46	30.00	-16.54
High 12	2467	13.46	13.46	30.00	-16.54
High 13	2472	0.90	0.90	30.00	-29.10

1TX ANT 3 MODE: SU Mode

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-0.9	30.00	30	36	30.00
Low 2	2417	-0.9	30.00	30	36	30.00
Low 3	2422	-0.9	30.00	30	36	30.00
Mid 6	2437	-0.9	30.00	30	36	30.00
High 9	2452	-0.9	30.00	30	36	30.00
High 10	2457	-0.9	30.00	30	36	30.00
High 11	2462	-0.9	30.00	30	36	30.00
High 12	2467	-0.9	30.00	30	36	30.00
High 13	2472	-0.9	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	16.80	16.80	30.00	-13.20
Low 2	2417	18.93	18.93	30.00	-11.07
Low 3	2422	20.98	20.98	30.00	-9.02
Mid 6	2437	21.40	21.40	30.00	-8.60
High 9	2452	20.91	20.91	30.00	-9.09
High 10	2457	18.91	18.91	30.00	-11.09
High 11	2462	16.98	16.98	30.00	-13.02
High 12	2467	14.92	14.92	30.00	-15.08
High 13	2472	9.92	9.92	30.00	-20.08

9.4.5. 802.11ax HE20 OFDMA MODE 2TX

Test Engineer:	32543
Test Date:	7/19/2023

ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 0

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.0	30.00	36	30.00
Mid 6	2437	-1.0	30.00	36	30.00
High 11	2462	-1.0	30.00	36	30.00
High 12	2467	-1.0	30.00	36	30.00
High 13	2472	-1.0	30.00	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	ANT 4 Meas Power (dBm)	ANT 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.40	13.42	16.42	30.00	-13.58
Mid 6	2437	13.41	13.47	16.45	30.00	-13.55
High 11	2462	13.45	13.45	16.46	30.00	-13.54
High 12	2467	12.42	12.45	15.45	30.00	-14.55
High 13	2472	-0.06	-0.07	2.95	30.00	-27.05

ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 4**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.0	30.00	36	30.00
Mid 6	2437	-1.0	30.00	36	30.00
High 11	2462	-1.0	30.00	36	30.00
High 12	2467	-1.0	30.00	36	30.00
High 13	2472	-1.0	30.00	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	ANT 4 Meas Power (dBm)	ANT 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.48	13.43	16.47	30.00	-13.53
Mid 6	2437	13.40	13.45	16.44	30.00	-13.56
High 11	2462	13.44	13.47	16.47	30.00	-13.53
High 12	2467	12.46	12.45	15.47	30.00	-14.53
High 13	2472	-0.07	-0.08	2.94	30.00	-27.06

ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 8**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.0	30.00	36	30.00
Mid 6	2437	-1.0	30.00	36	30.00
High 11	2462	-1.0	30.00	36	30.00
High 12	2467	-1.0	30.00	36	30.00
High 13	2472	-1.0	30.00	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	ANT 4 Meas Power (dBm)	ANT 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	13.41	13.46	16.45	30.00	-13.55
Mid 6	2437	13.45	13.46	16.47	30.00	-13.53
High 11	2462	13.43	13.44	16.45	30.00	-13.55
High 12	2467	12.44	12.40	15.43	30.00	-14.57
High 13	2472	-0.02	-0.10	2.95	30.00	-27.05

ANT 4 + ANT 3 2TX MODE: SU Mode**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.0	30.00	36	30.00
Low 2	2417	-1.0	30.00	36	30.00
Low 3	2422	-1.0	30.00	36	30.00
Mid 6	2437	-1.0	30.00	36	30.00
High 8	2447	-1.0	30.00	36	30.00
High 9	2452	-1.0	30.00	36	30.00
High 10	2457	-1.0	30.00	36	30.00
High 11	2462	-1.0	30.00	36	30.00
High 12	2467	-1.0	30.00	36	30.00
High 13	2472	-1.0	30.00	36	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power
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Results

Channel	Frequency (MHz)	ANT 4 Meas Power (dBm)	ANT 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	15.84	15.90	18.88	30.00	-11.12
Low 2	2417	17.98	17.98	20.99	30.00	-9.01
Low 3	2422	19.97	19.98	22.99	30.00	-7.01
Mid 6	2437	21.44	21.43	24.45	30.00	-5.55
High 8	2447	21.45	21.45	24.46	30.00	-5.54
High 9	2452	19.40	19.44	22.43	30.00	-7.57
High 10	2457	17.91	17.93	20.93	30.00	-9.07
High 11	2462	15.98	15.92	18.96	30.00	-11.04
High 12	2467	13.45	13.45	16.46	30.00	-13.54
High 13	2472	8.92	8.93	11.94	30.00	-18.06

9.5. 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.

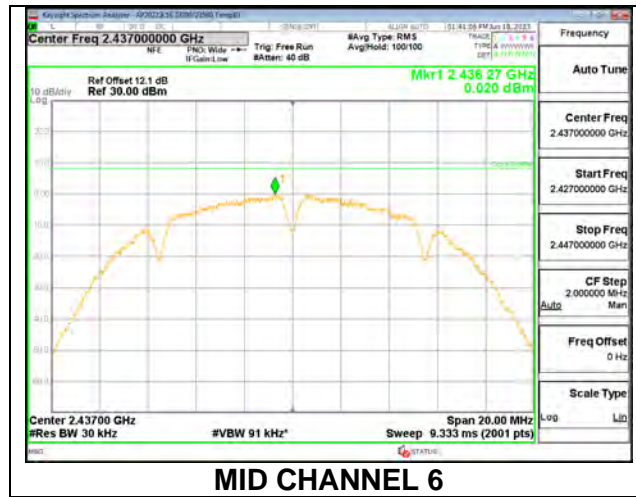
RESULTS

Only Mid channel plot is reported to show setting parameter complies with testing method/procedure.

9.5.1. 802.11b MODE 1TX

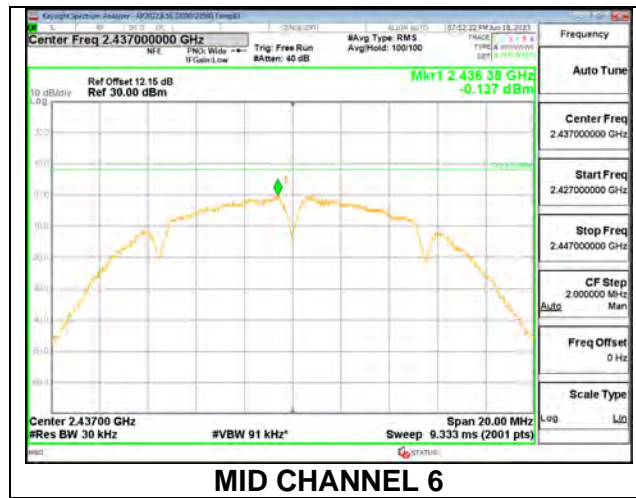
1TX ANT 4 MODE

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-0.542	-0.542	8.0	-8.5
Mid 6	2437	0.020	0.020	8.0	-8.0
High 11	2462	0.403	0.403	8.0	-7.6
High 12	2467	-1.228	-1.228	8.0	-9.2
High 13	2472	-3.051	-3.051	8.0	-11.1



1TX ANT 3 MODE

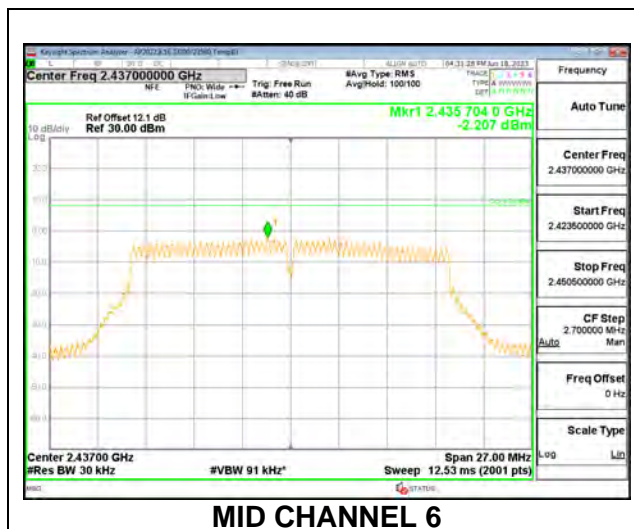
Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	0.878	0.878	8.0	-7.1
Mid 6	2437	-0.137	-0.137	8.0	-8.1
High 11	2462	-0.252	-0.252	8.0	-8.3
High 12	2467	-1.046	-1.046	8.0	-9.0
High 13	2472	-3.352	-3.352	8.0	-11.4



9.5.2. 802.11n HT20 MODE

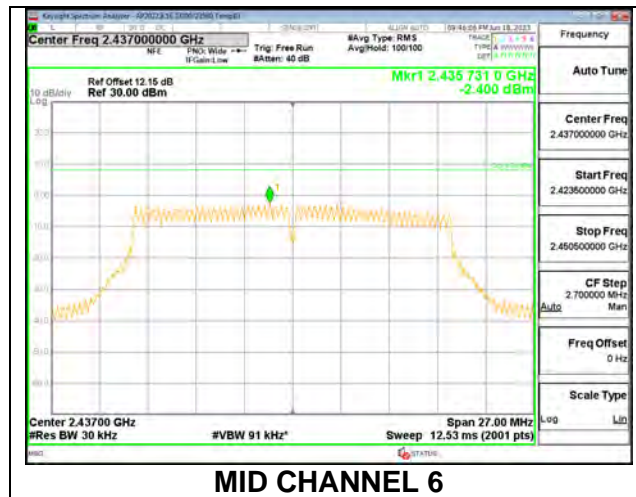
1TX ANT 4 MODE

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-6.227	-6.227	8.0	-14.2
Low 2	2417	-4.484	-4.484	8.0	-12.5
Mid 6	2437	-2.207	-2.207	8.0	-10.2
High 10	2457	-4.652	-4.652	8.0	-12.7
High 11	2462	-5.461	-5.461	8.0	-13.5
High 12	2467	-8.153	-8.153	8.0	-16.2
High 13	2472	-8.610	-8.610	8.0	-16.6



1TX ANT 3 MODE

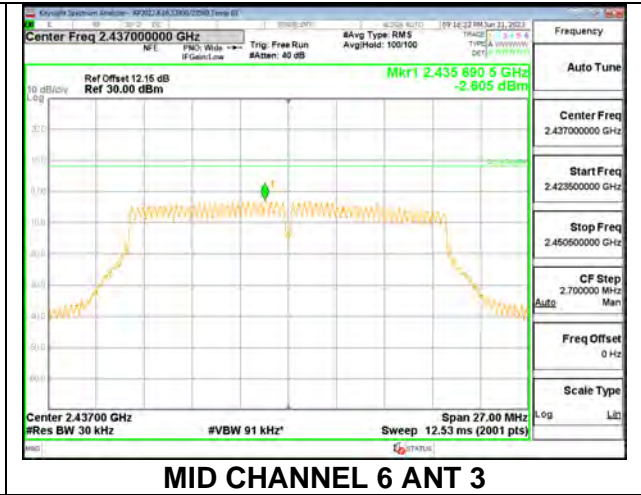
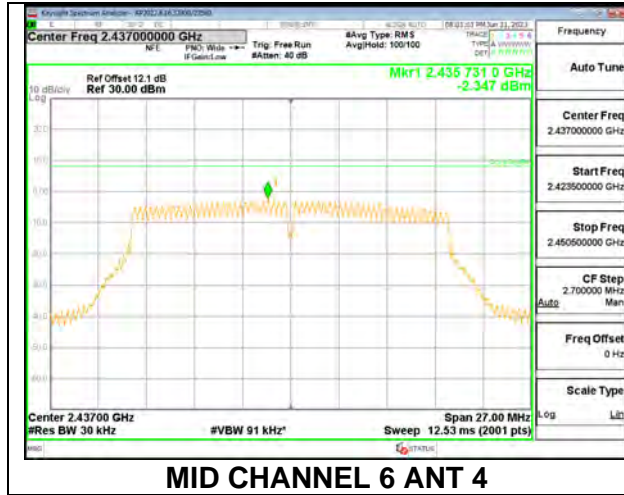
Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-5.948	-5.948	8.0	-13.9
Low 2	2417	-4.263	-4.263	8.0	-12.3
Mid 6	2437	-2.400	-2.400	8.0	-10.4
High 10	2457	-4.410	-4.410	8.0	-12.4
High 11	2462	5.487	5.487	8.0	-2.5
High 12	2467	-7.776	-7.776	8.0	-15.8
High 13	2472	-8.622	-8.622	8.0	-16.6



9.5.3. 802.11n HT20 CDD MODE 2TX

ANT 4 + ANT3 2TX MODE

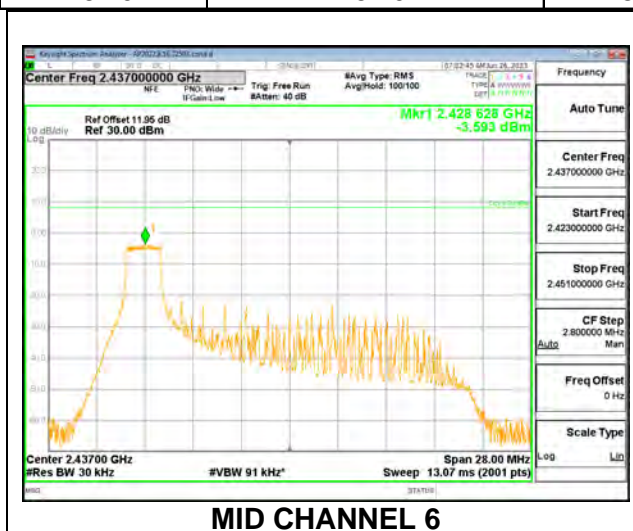
Duty Cycle CF (dB)		0.00		Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-6.839	-6.794	-3.81	8.0	-11.8
Low 2	2417	-5.367	-5.006	-2.17	8.0	-10.2
Low 3	2422	-3.892	-3.509	-0.69	8.0	-8.7
Mid 6	2437	-2.347	-2.605	0.54	8.0	-7.5
High 9	2452	-4.816	-4.503	-1.65	8.0	-9.6
High 10	2457	-5.319	-5.151	-2.22	8.0	-10.2
High 11	2462	-6.272	-6.647	-3.45	8.0	-11.4
High 12	2467	-8.926	-8.993	-5.95	8.0	-13.9
High 13	2472	-9.051	-8.934	-5.98	8.0	-14.0



9.5.4. 802.11ax HE20 MODE

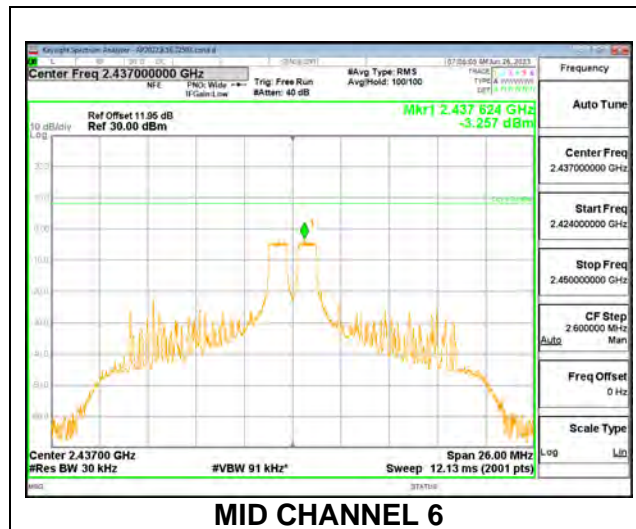
1TX ANT 4 MODE: 26-Tone RU Index 0

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.555	-3.555	8.0	-11.6
Mid 6	2437	-3.593	-3.593	8.0	-11.6
High 11	2462	-3.533	-3.533	8.0	-11.5
High 12	2467	-3.616	-3.616	8.0	-11.6
High 13	2472	-16.201	-16.201	8.0	-24.2



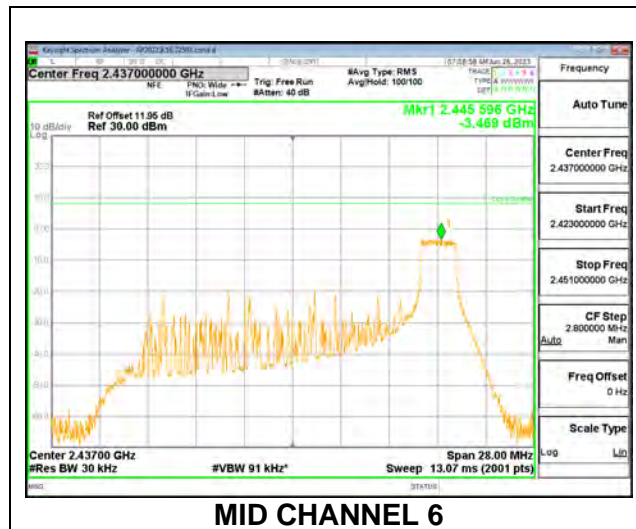
1TX ANT 4 MODE: 26-Tone RU Index 4

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.595	-3.595	8.0	-11.6
Mid 6	2437	-3.257	-3.257	8.0	-11.3
High 11	2462	-3.678	-3.678	8.0	-11.7
High 12	2467	-3.662	-3.662	8.0	-11.7
High 13	2472	-16.206	-16.206	8.0	-24.2



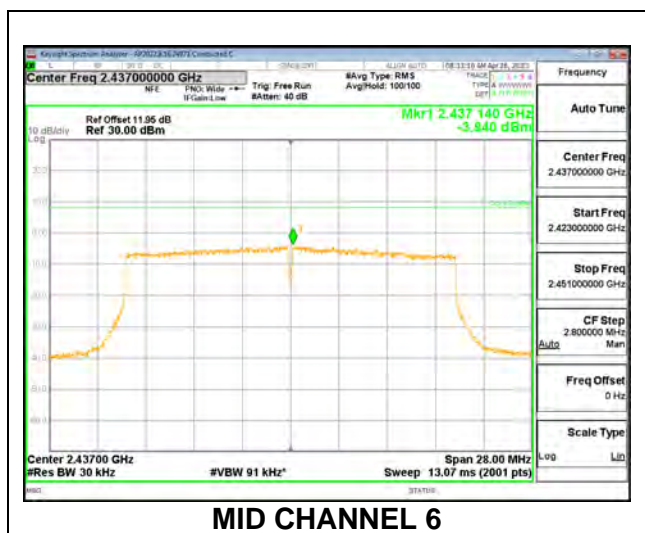
1TX ANT 4 MODE: 26-Tone RU Index 8

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.377	-3.377	8.0	-11.4
Mid 6	2437	-3.469	-3.469	8.0	-11.5
High 11	2462	-3.508	-3.508	8.0	-11.5
High 12	2467	-3.333	-3.333	8.0	-11.3
High 13	2472	-15.888	-15.888	8.0	-23.9



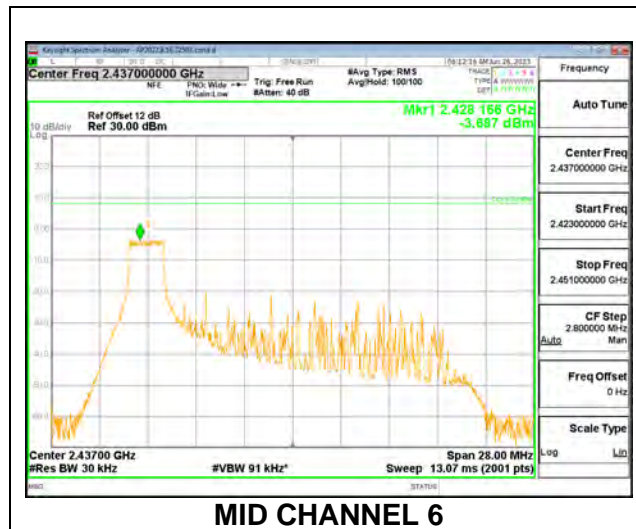
1TX ANT 4 MODE: SU Mode

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-7.981	-7.981	8.0	-16.0
Low 2	2417	-6.145	-6.145	8.0	-14.1
Low 3	2422	-4.484	-4.484	8.0	-12.5
Mid 6	2437	-3.840	-3.840	8.0	-11.8
High 9	2452	-4.430	-4.430	8.0	-12.4
High 10	2457	-6.107	-6.107	8.0	-14.1
High 11	2462	-8.198	-8.198	8.0	-16.2
High 12	2467	-10.473	-10.473	8.0	-18.5
High 13	2472	-15.113	-15.113	8.0	-23.1



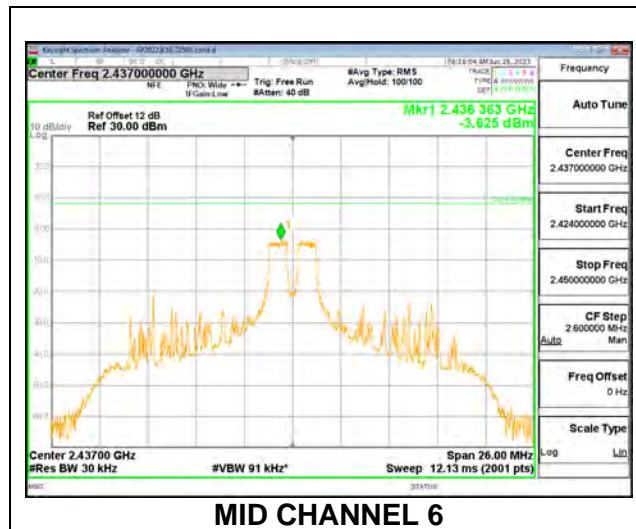
1TX ANT 3 MODE: 26-Tone RU Index 0

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.656	-3.656	8.0	-11.7
Mid 6	2437	-3.687	-3.687	8.0	-11.7
High 11	2462	-3.681	-3.681	8.0	-11.7
High 12	2467	-3.506	-3.506	8.0	-11.5
High 13	2472	-16.314	-16.314	8.0	-24.3



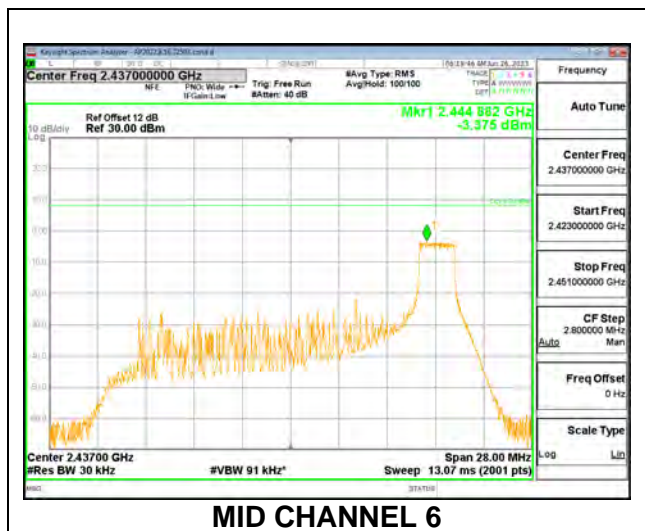
1TX ANT 3 MODE: 26-Tone RU Index 4

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.611	-3.611	8.0	-11.6
Mid 6	2437	-3.625	-3.625	8.0	-11.6
High 11	2462	-3.464	-3.464	8.0	-11.5
High 12	2467	-3.492	-3.492	8.0	-11.5
High 13	2472	-16.080	-16.080	8.0	-24.1



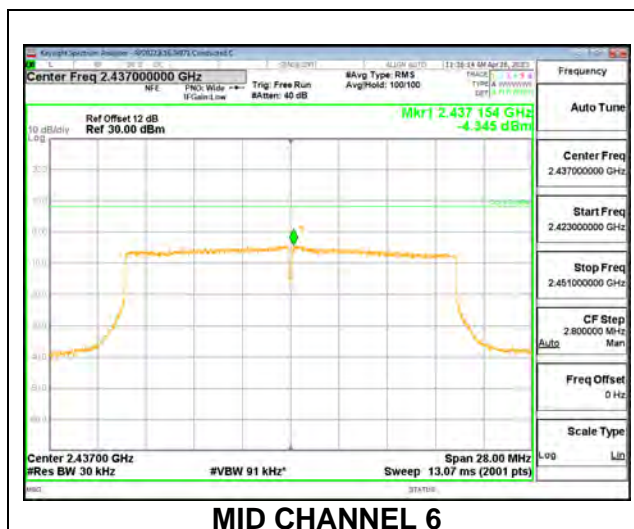
1TX ANT 3 MODE: 26-Tone RU Index 8

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.668	-3.668	8.0	-11.7
Mid 6	2437	-3.375	-3.375	8.0	-11.4
High 11	2462	-3.328	-3.328	8.0	-11.3
High 12	2467	-3.360	-3.360	8.0	-11.4
High 13	2472	-16.037	-16.037	8.0	-24.0



1TX ANT 3 MODE: SU Mode

Duty Cycle CF (dB)		0.00	Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-8.310	-8.310	8.0	-16.3
Low 2	2417	-6.430	-6.430	8.0	-14.4
Low 3	2422	-4.687	-4.687	8.0	-12.7
Mid 6	2437	-4.345	-4.345	8.0	-12.3
High 9	2452	-4.496	-4.496	8.0	-12.5
High 10	2457	-6.427	-6.427	8.0	-14.4
High 11	2462	-8.369	-8.369	8.0	-16.4
High 12	2467	-10.333	-10.333	8.0	-18.3
High 13	2472	-14.752	-14.752	8.0	-22.8

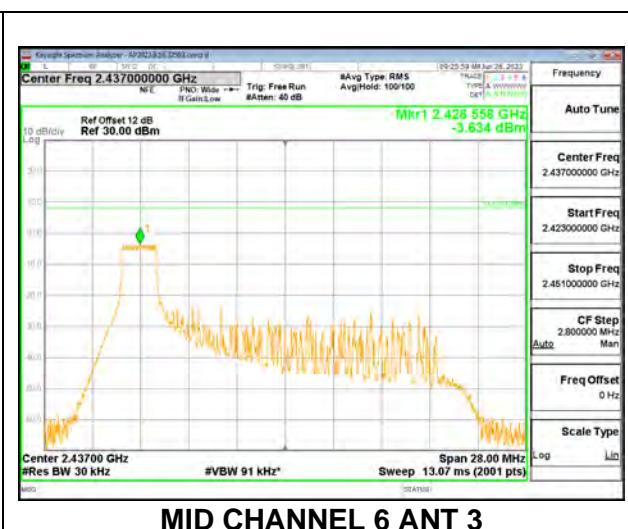
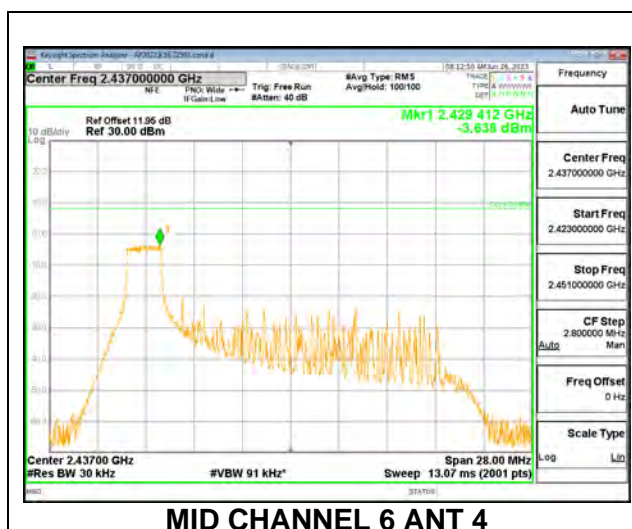


MID CHANNEL 6

9.5.5. 802.11ax HE20 OFDMA MODE 2TX

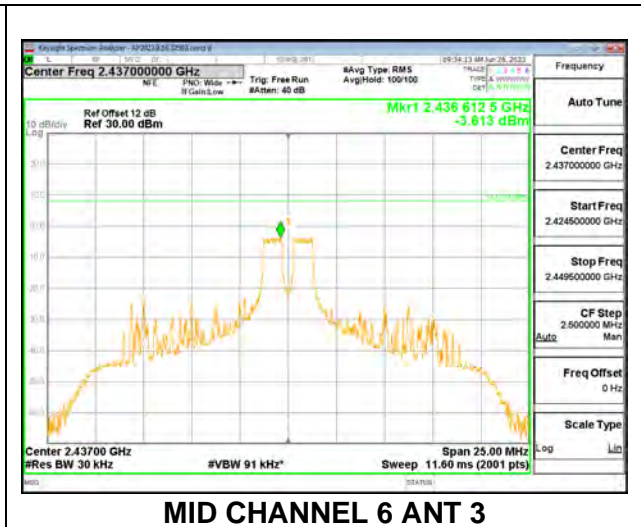
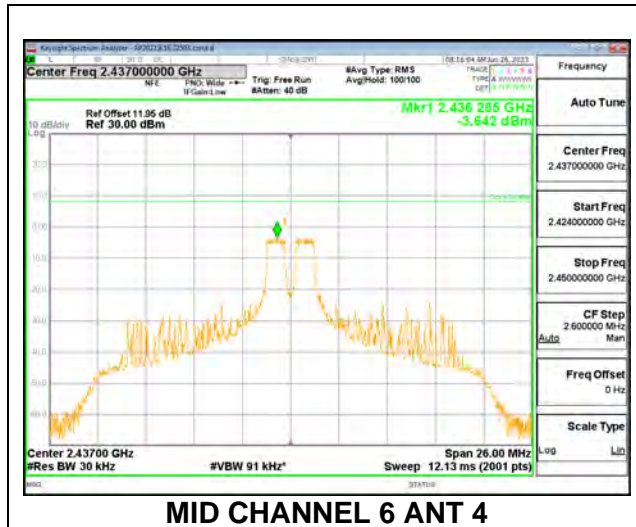
ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 0

Duty Cycle CF (dB)		0.00		Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.460	-3.632	-0.535	8.0	-8.5
Mid 6	2437	-3.638	-3.634	-0.626	8.0	-8.6
High 11	2462	-3.581	-3.339	-0.448	8.0	-8.4
High 12	2467	-4.651	-4.432	-1.530	8.0	-9.5
High 13	2472	-16.851	-17.081	-13.954	8.0	-22.0



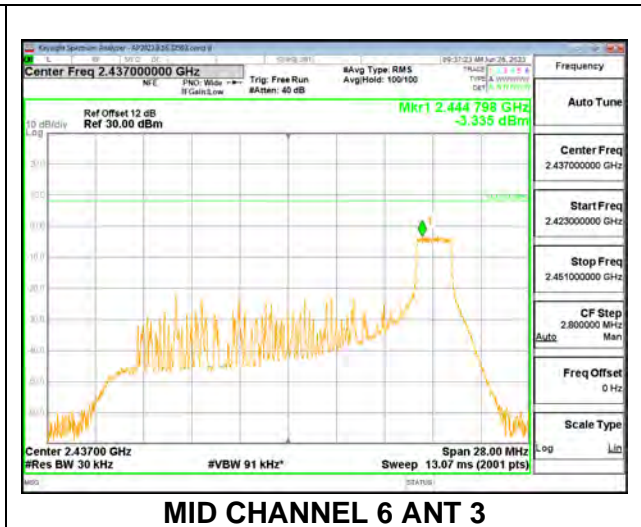
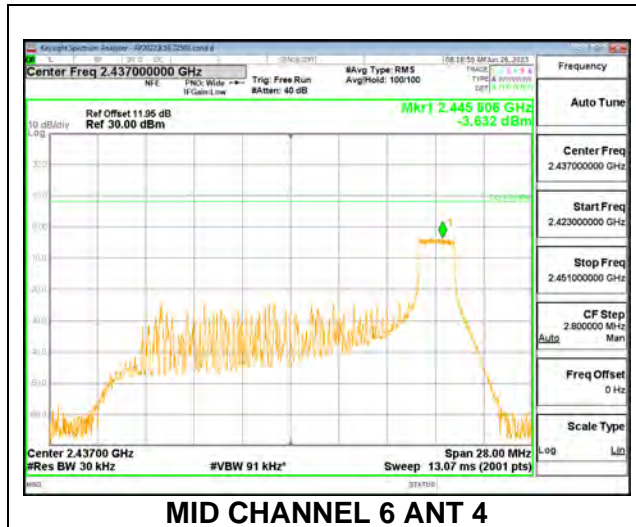
ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 4

Duty Cycle CF (dB)		Included in Calculations of Corr'd PSD				
Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.464	-3.499	-0.471	8.0	-8.5
Mid 6	2437	-3.642	-3.613	-0.617	8.0	-8.6
High 11	2462	-3.400	-3.426	-0.403	8.0	-8.4
High 12	2467	-4.480	-4.546	-1.503	8.0	-9.5
High 13	2472	-16.383	-17.072	-13.704	8.0	-21.7



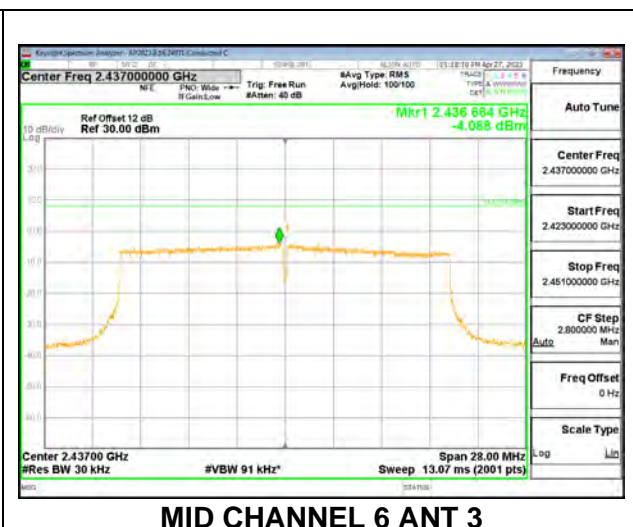
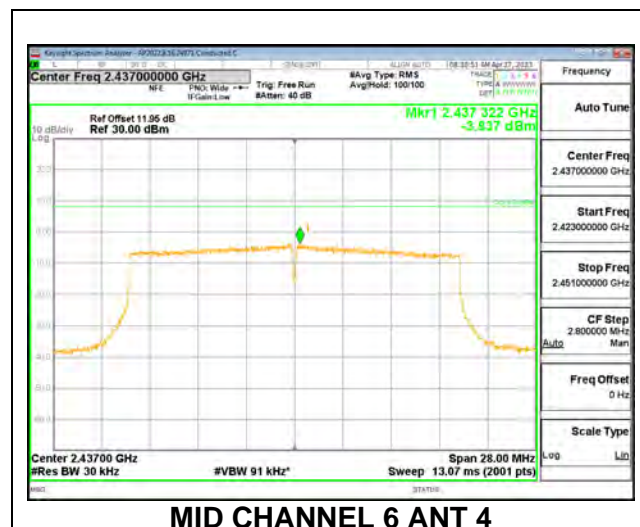
ANT 4 + ANT 3 2TX MODE: 26-Tones, RU Index 8

Duty Cycle CF (dB)		Included in Calculations of Corr'd PSD				
Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-3.595	-3.661	-0.618	8.0	-8.6
Mid 6	2437	-3.632	-3.335	-0.471	8.0	-8.5
High 11	2462	-3.686	-3.410	-0.536	8.0	-8.5
High 12	2467	-4.526	-4.528	-1.517	8.0	-9.5
High 13	2472	-17.007	-16.973	-13.980	8.0	-22.0



ANT 4 + ANT 3 2TX MODE: SU Mode

Duty Cycle CF (dB)		0.00		Included in Calculations of Corr'd PSD		
Channel	Frequency (MHz)	Ant 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-9.432	-9.285	-6.348	8.0	-14.3
Low 2	2417	-7.140	-7.021	-4.070	8.0	-12.1
Low 3	2422	-5.275	-5.004	-2.127	8.0	-10.1
Mid 6	2437	-3.837	-4.088	-0.950	8.0	-9.0
High 8	2447	-4.075	-4.002	-1.028	8.0	-9.0
High 9	2452	-5.817	-5.951	-2.873	8.0	-10.9
High 10	2457	-7.206	-7.497	-4.339	8.0	-12.3
High 11	2462	-9.362	-9.215	-6.278	8.0	-14.3
High 12	2467	-11.766	-11.761	-8.753	8.0	-16.8
High 13	2472	-16.382	-16.772	-13.562	8.0	-21.6



9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

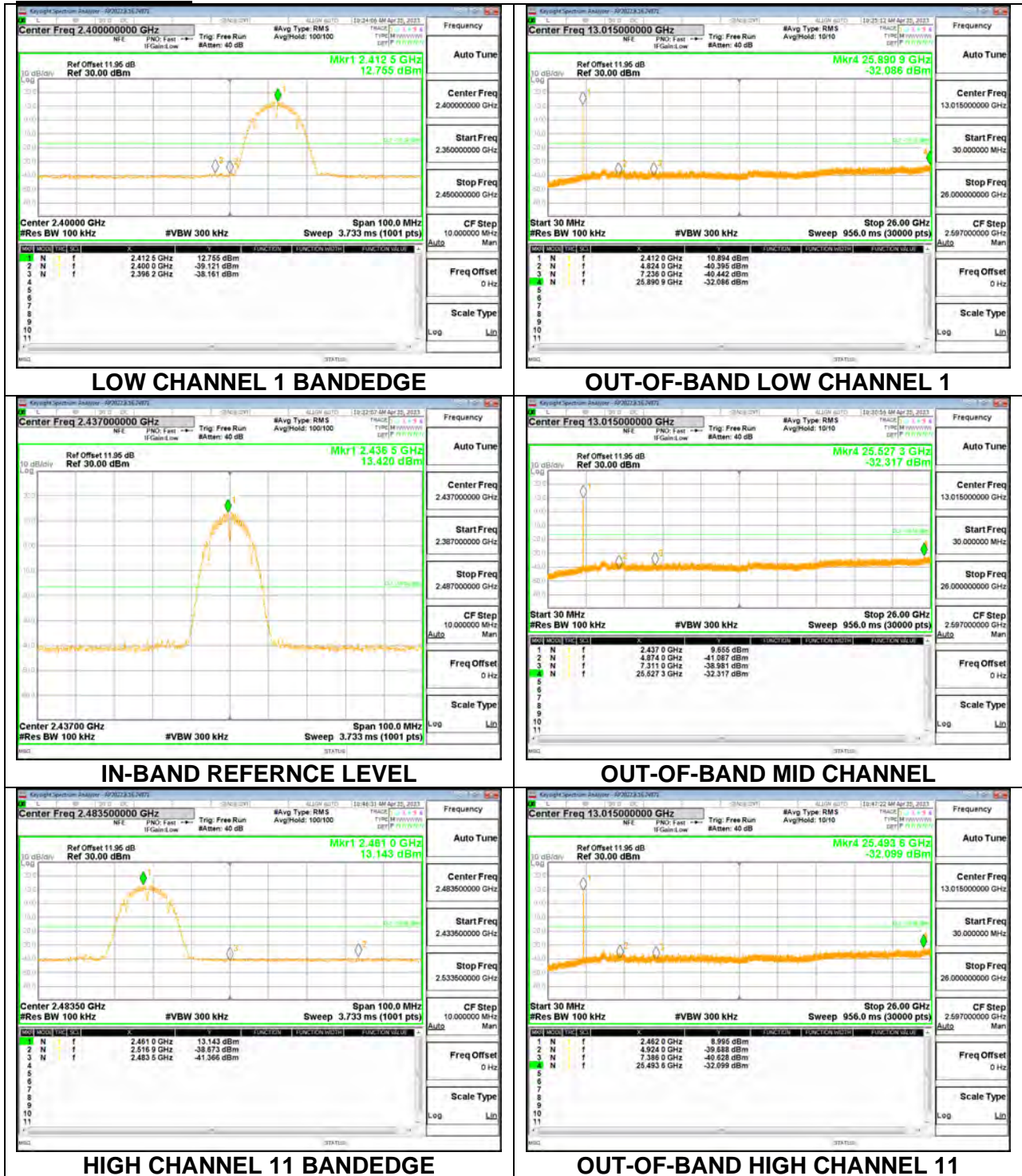
RSS-247 5.5

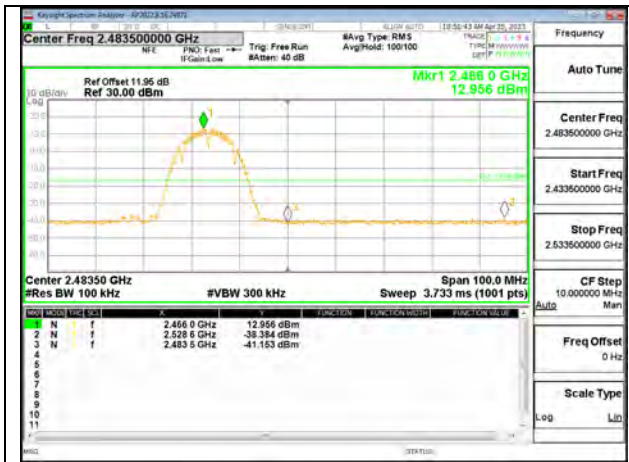
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

RESULTS

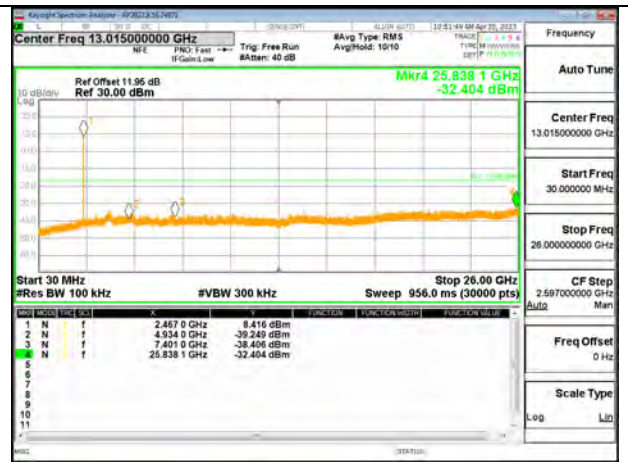
9.6.1. 802.11b MODE 1TX

1TX ANT 4 MODE

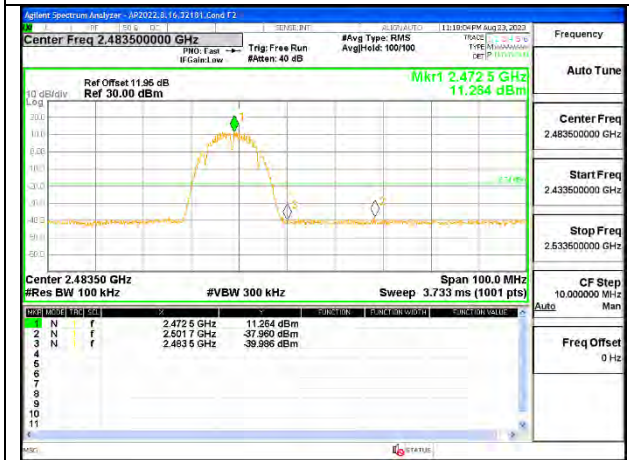




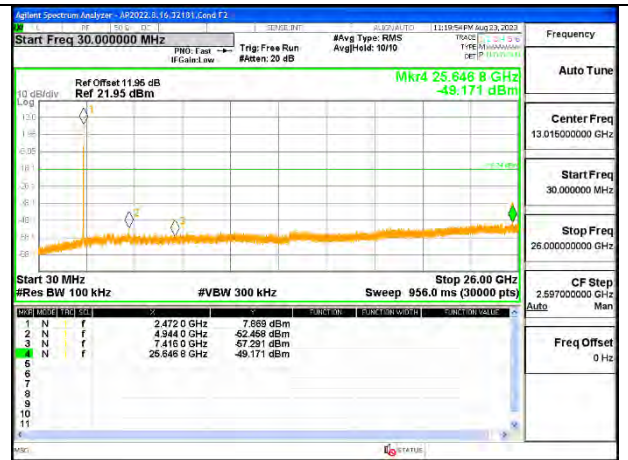
HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12

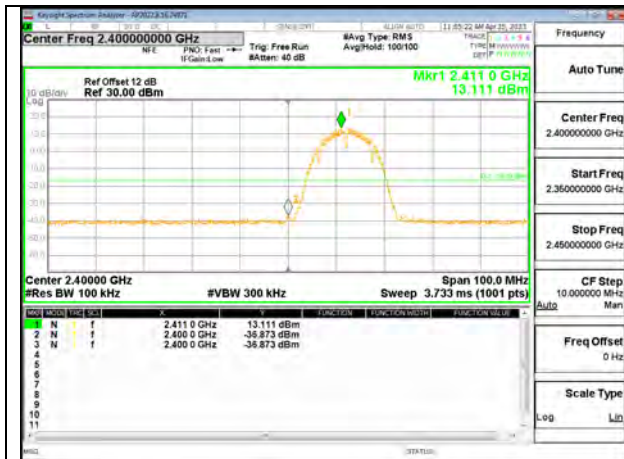


HIGH CHANNEL 13 BANDEDGE

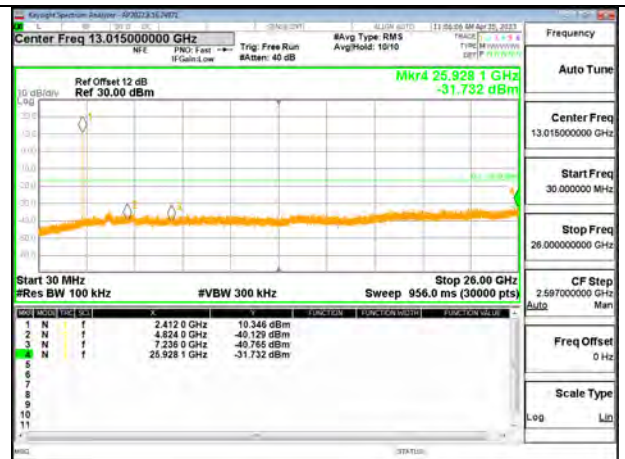


OUT-OF-BAND HIGH CHANNEL 13

1TX ANT 3 MODE



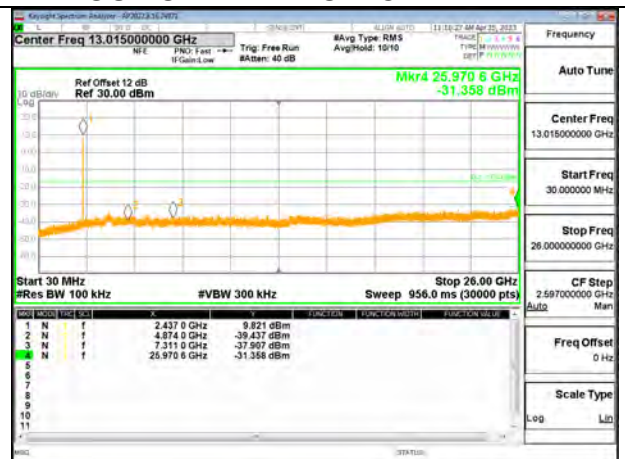
LOW CHANNEL 1 BANDEDGE



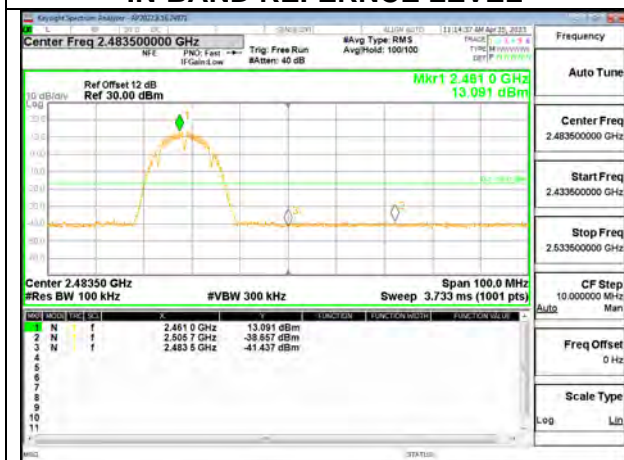
OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERENCE LEVEL



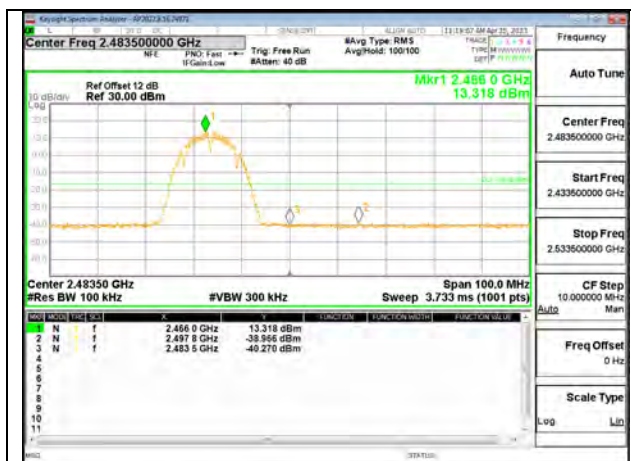
OUT-OF-BAND MID CHANNEL



HIGH CHANNEL 11 BANDEDGE



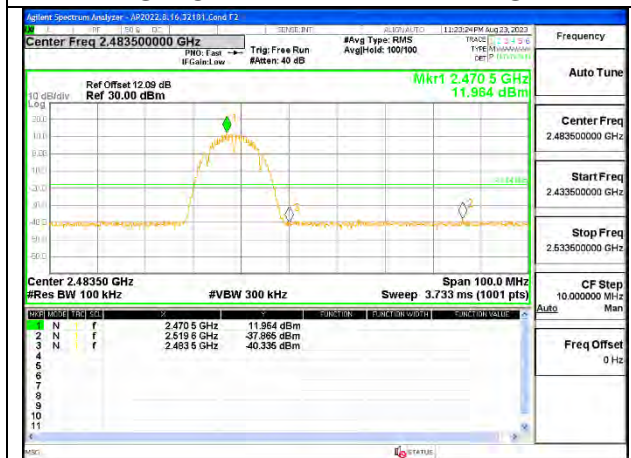
OUT-OF-BAND HIGH CHANNEL 11



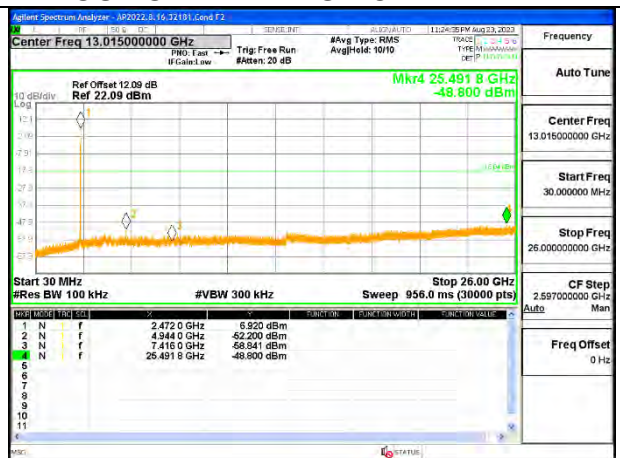
HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12



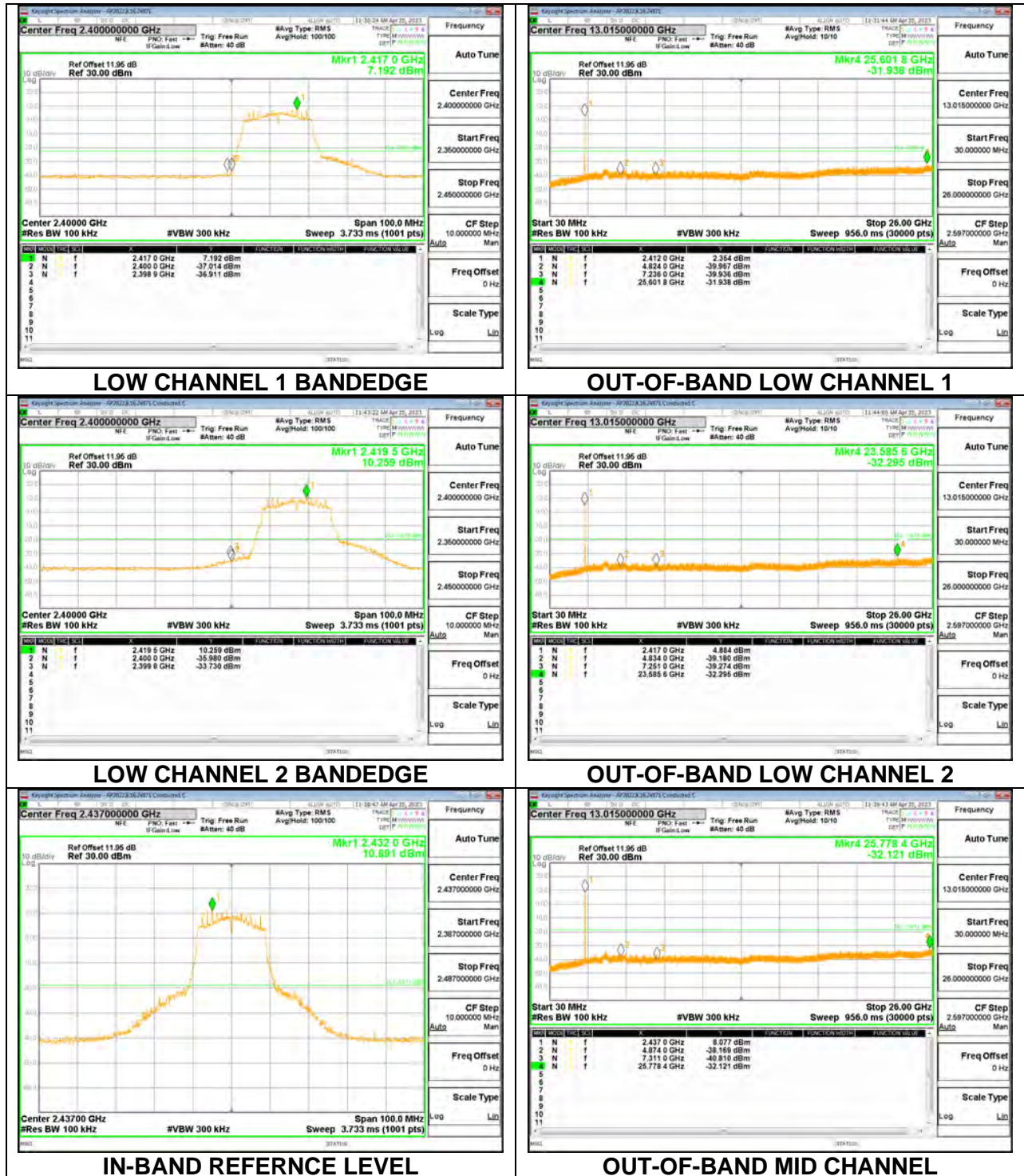
HIGH CHANNEL 13 BANDEDGE

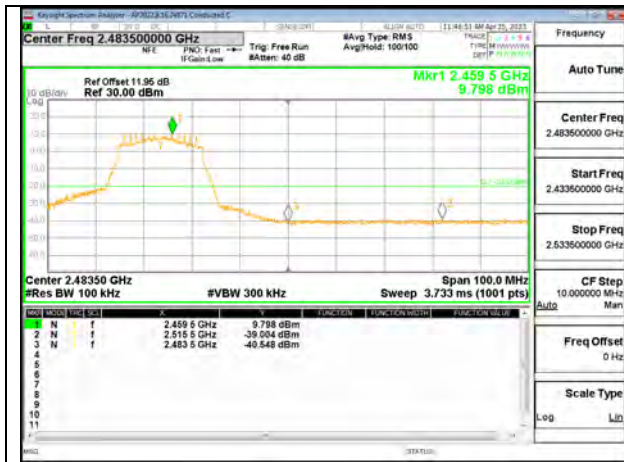


OUT-OF-BAND HIGH CHANNEL 13

9.6.2. 802.11n HT20 MODE

1TX ANT 4 MODE

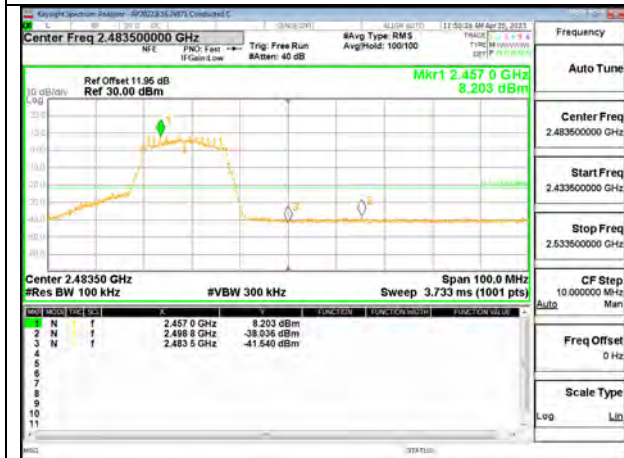




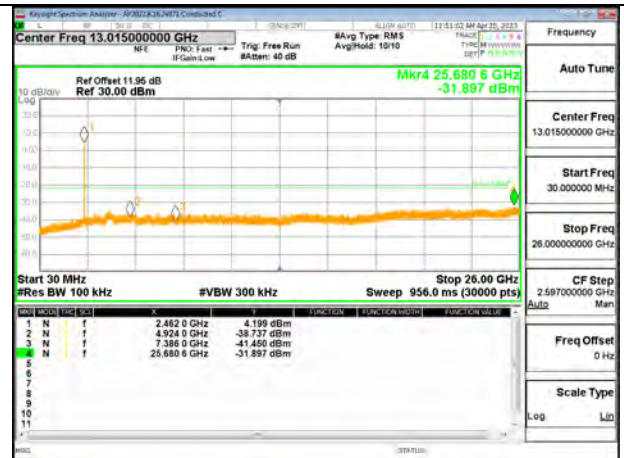
HIGH CHANNEL 10 BANDEDGE



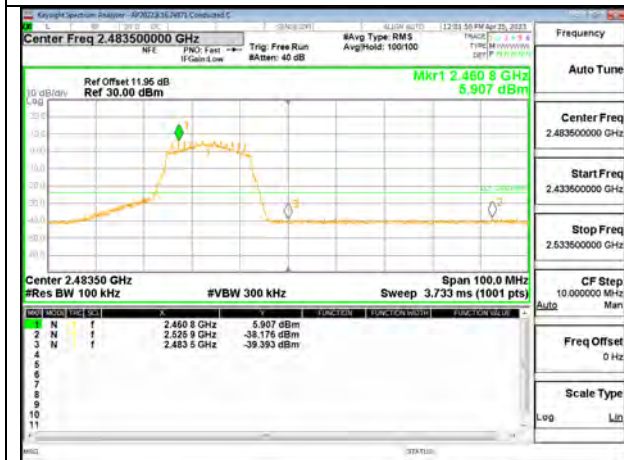
OUT-OF-BAND HIGH CHANNEL 10



HIGH CHANNEL 11 BANDEDGE



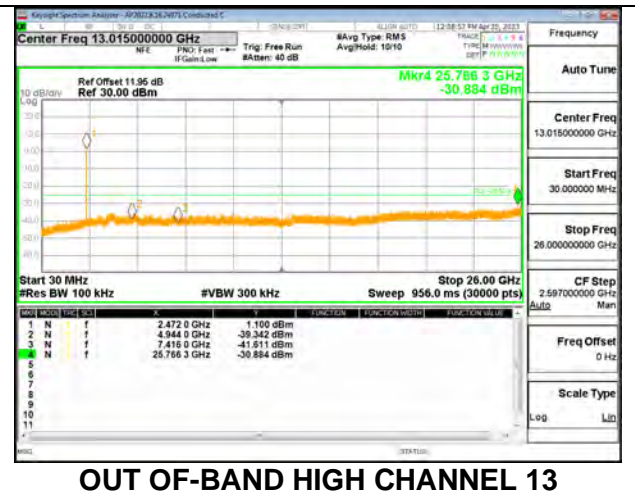
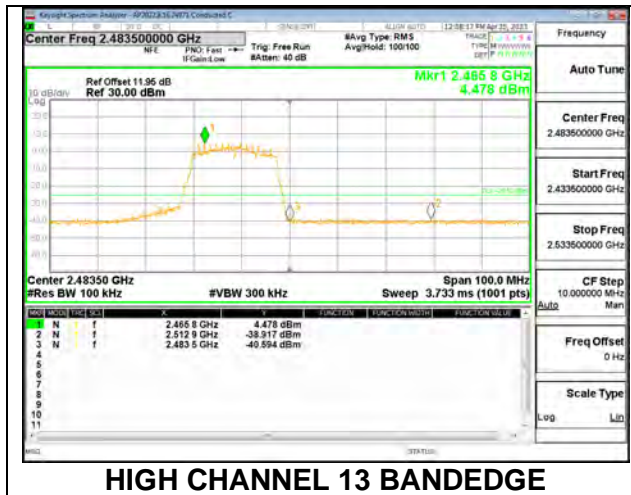
OUT-OF-BAND HIGH CHANNEL 11



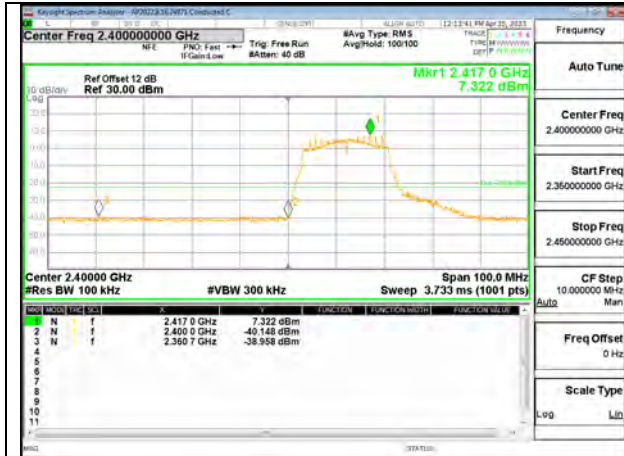
HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12



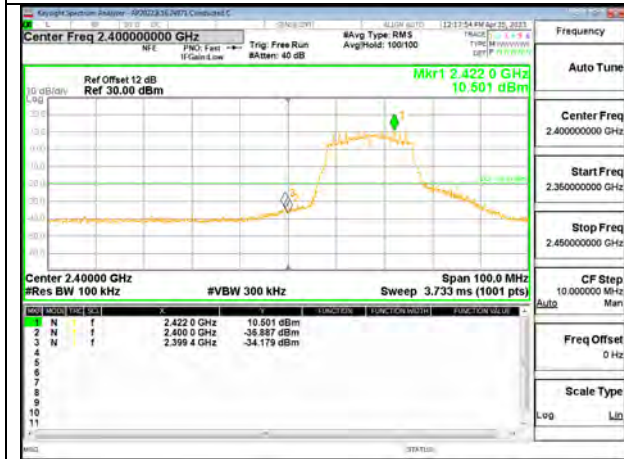
1TX ANT 3 MODE



LOW CHANNEL 1 BANDEDGE



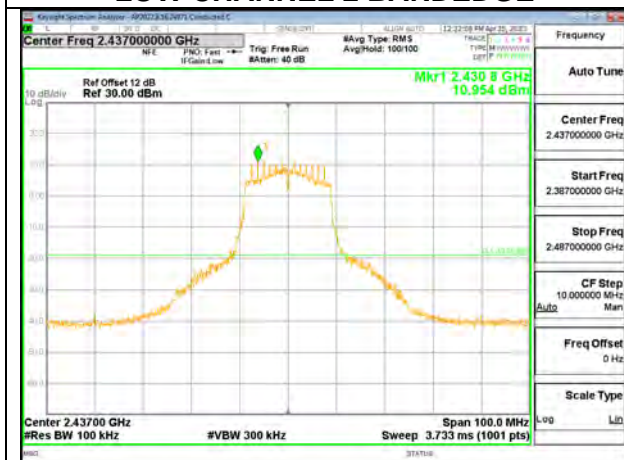
OUT-OF-BAND LOW CHANNEL 1



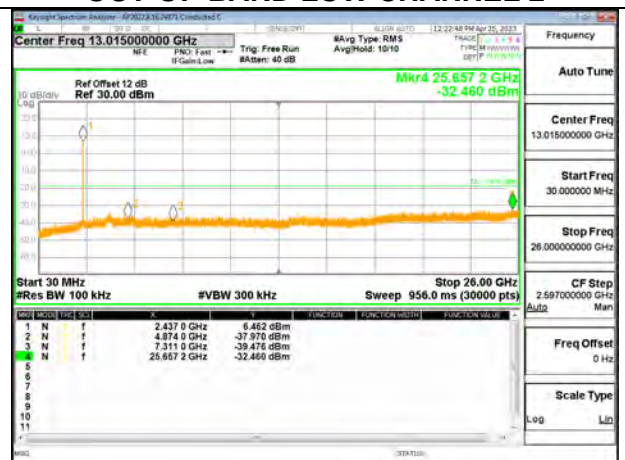
LOW CHANNEL 2 BANDEDGE



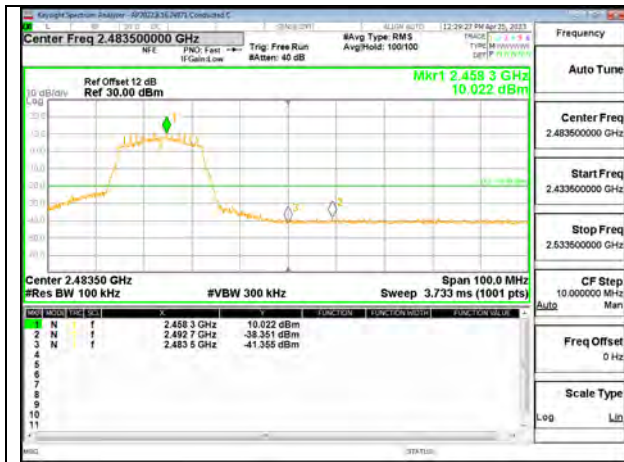
OUT-OF-BAND LOW CHANNEL 2



IN-BAND REFERENCE LEVEL



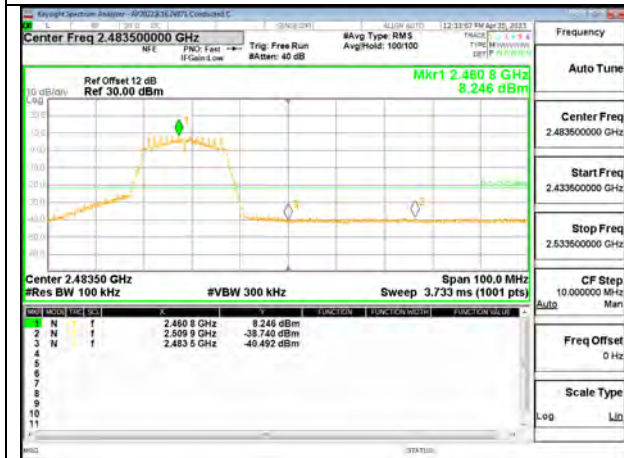
OUT-OF-BAND MID CHANNEL



HIGH CHANNEL 10 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 10



HIGH CHANNEL 11 BANDEDGE



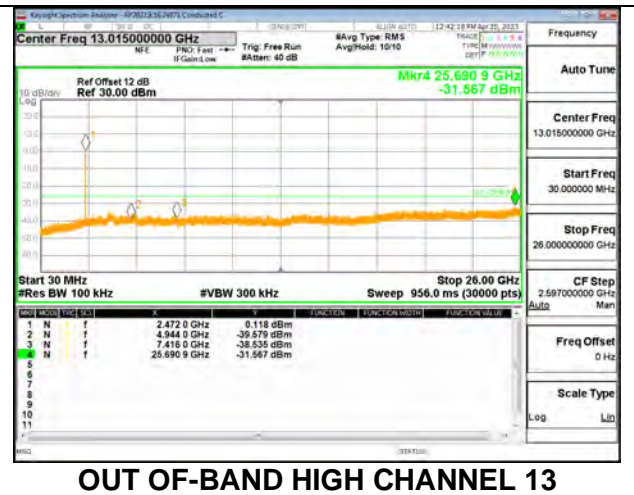
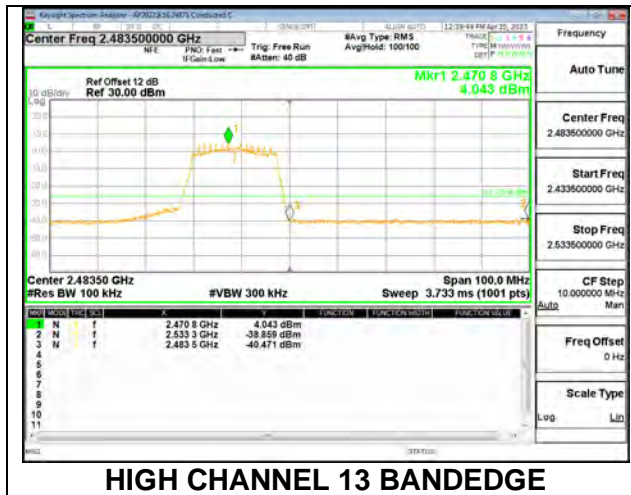
OUT-OF-BAND HIGH CHANNEL 11



HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12

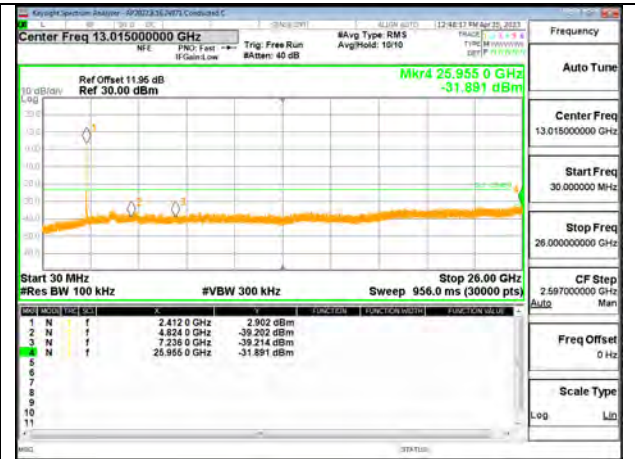


9.6.3. 802.11n HT20 MODE 2TX

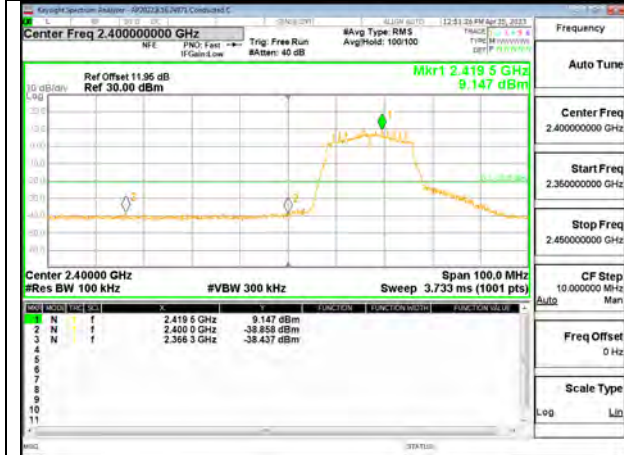
ANT 4 + ANT 3 2TX MODE



LOW CHANNEL 1 BANDEDGE ANT 4



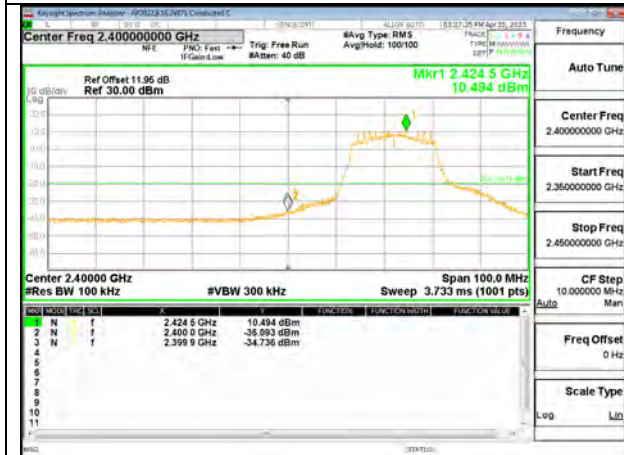
OUT-OF-BAND LOW CHANNEL 1 ANT 4



LOW CHANNEL 2 BANDEDGE ANT 4



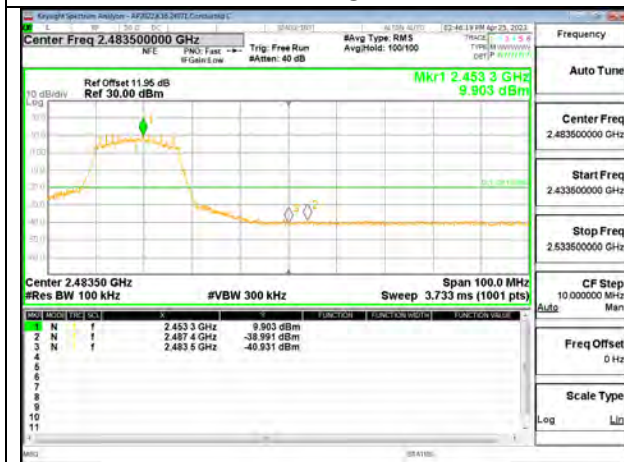
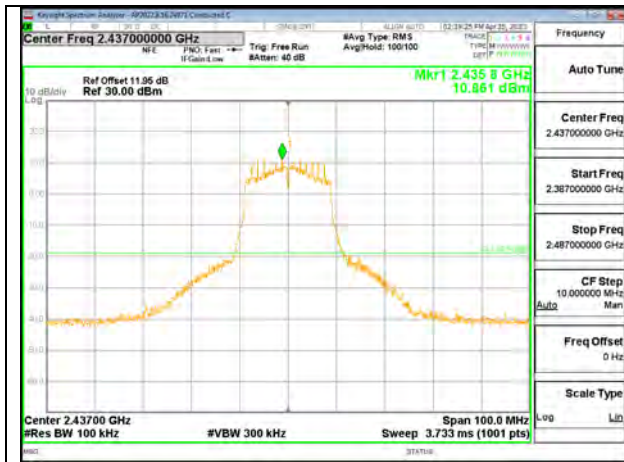
OUT-OF-BAND LOW CHANNEL 2 ANT 4

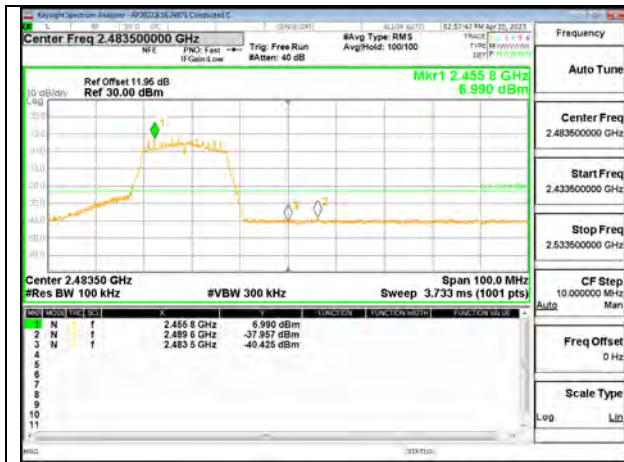


LOW CHANNEL 3 BANDEDGE ANT 4



OUT-OF-BAND LOW CHANNEL 3 ANT 4

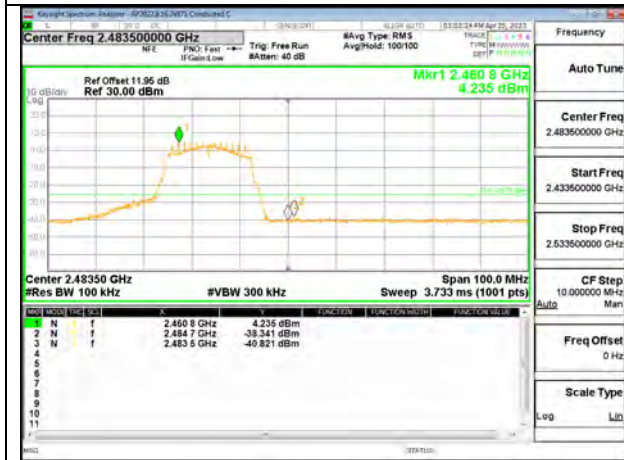




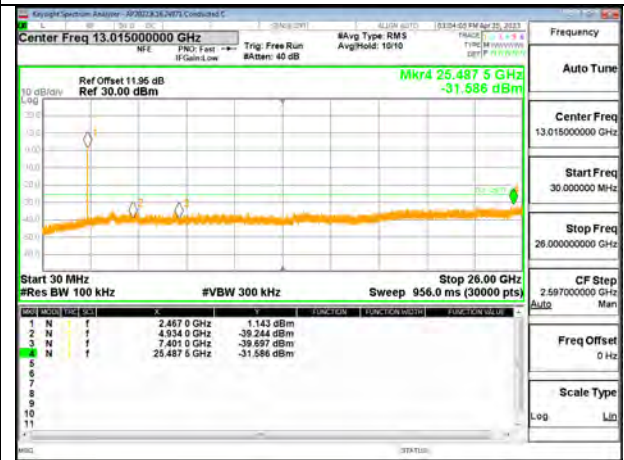
HIGH CHANNEL 11 BANDEDGE ANT 4



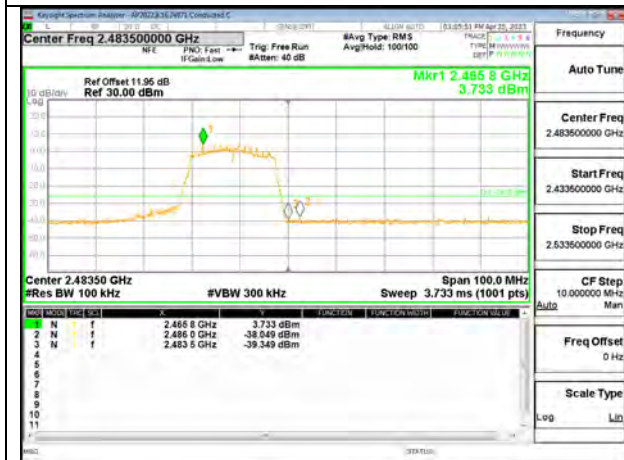
OUT-OF-BAND HIGH CHANNEL 11 ANT 4



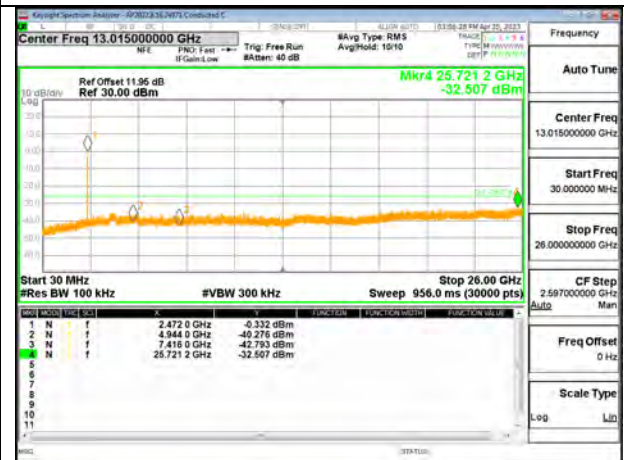
HIGH CHANNEL 12 BANDEDGE ANT 4



OUT-OF-BAND HIGH CHANNEL 12 ANT 4



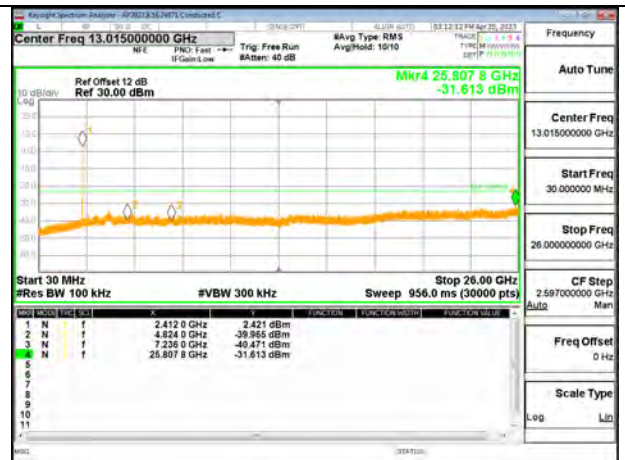
HIGH CHANNEL 13 BANDEDGE ANT 4



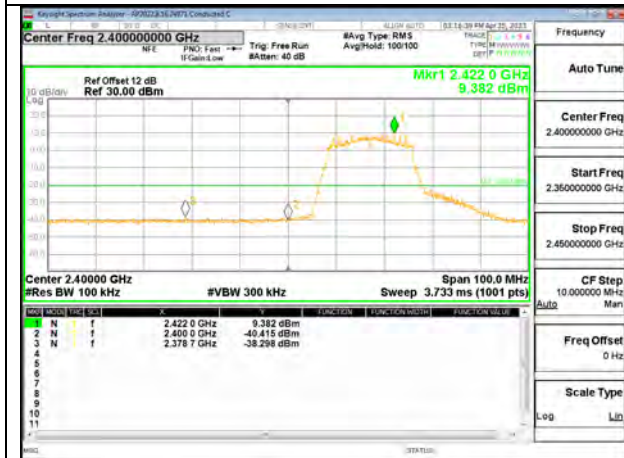
OUT-OF-BAND HIGH CHANNEL 13 ANT 4



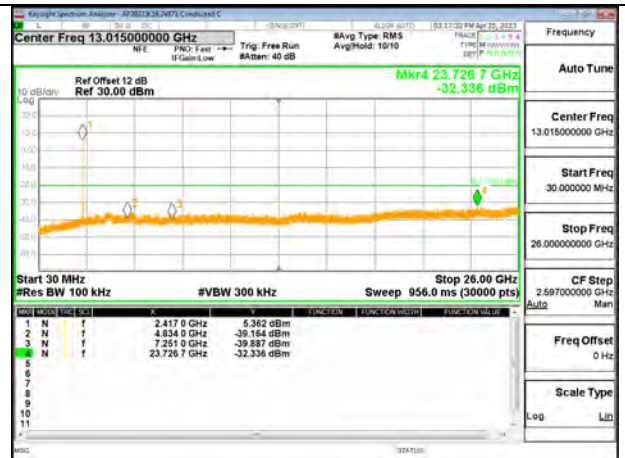
LOW CHANNEL 1 BANDEDGE ANT 3



OUT-OF-BAND LOW CHANNEL 1 ANT 3



LOW CHANNEL 2 BANDEDGE ANT 3



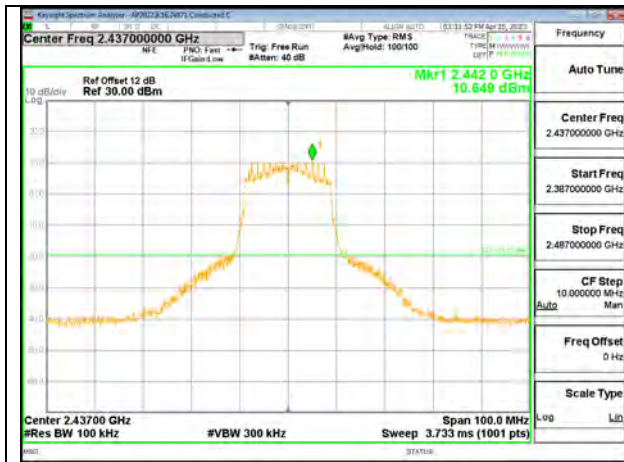
OUT-OF-BAND LOW CHANNEL 2 ANT 3



LOW CHANNEL 3 BANDEDGE ANT 3



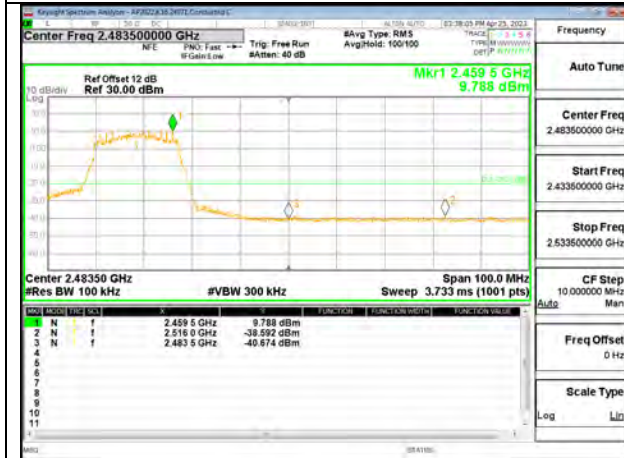
OUT-OF-BAND LOW CHANNEL 3 ANT 3



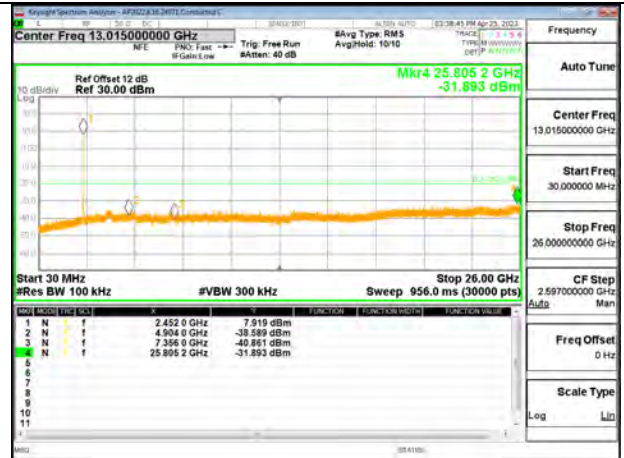
IN-BAND REFERENCE LEVEL ANT 3



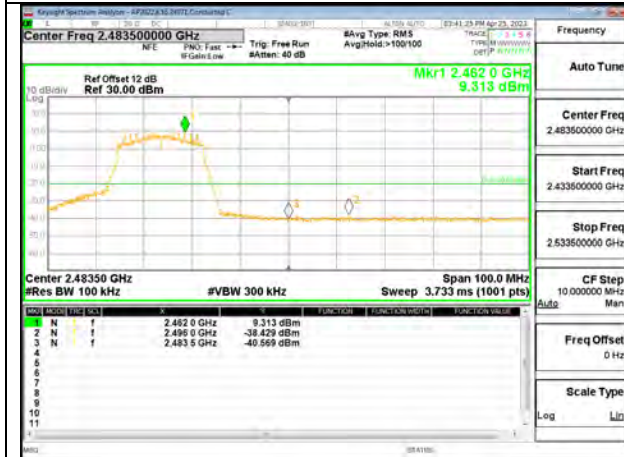
OUT-OF-BAND MID CHANNEL ANT 3



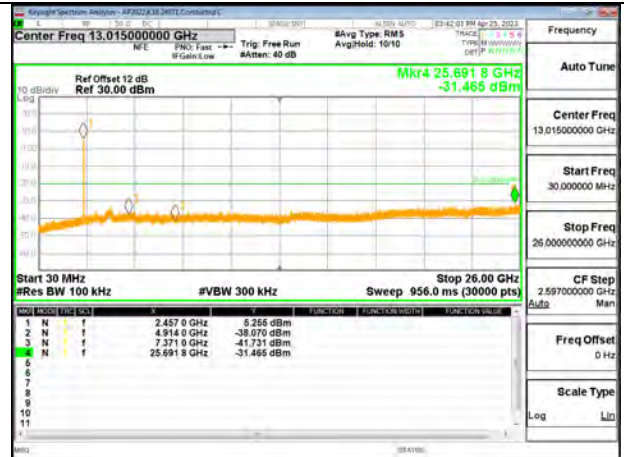
HIGH CHANNEL 9 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 9 ANT 3



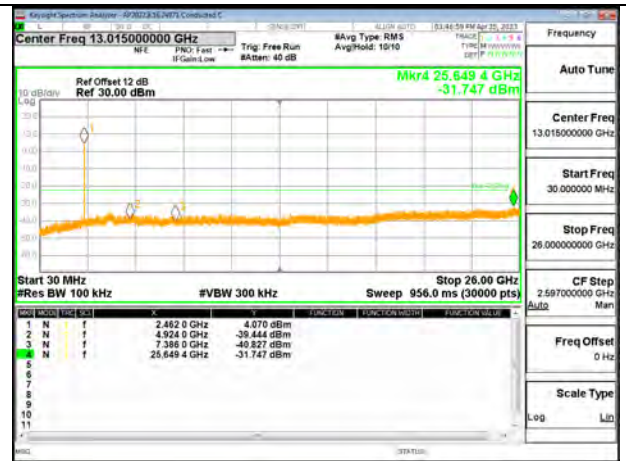
HIGH CHANNEL 10 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 10 ANT 3



HIGH CHANNEL 11 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 11 ANT 3



HIGH CHANNEL 12 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 12 ANT 3

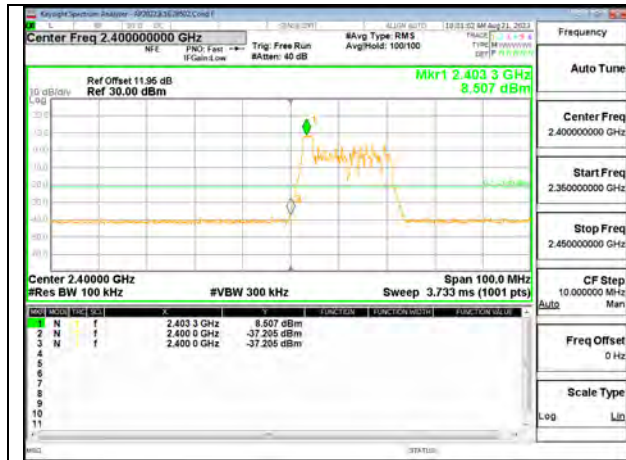


HIGH CHANNEL 13 BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL 13 ANT 3

9.6.4. 802.11ax HE20 MODE
1TX ANT 4 MODE, 26-Tone RU Index 0



LOW CHANNEL 1 BANDEDGE



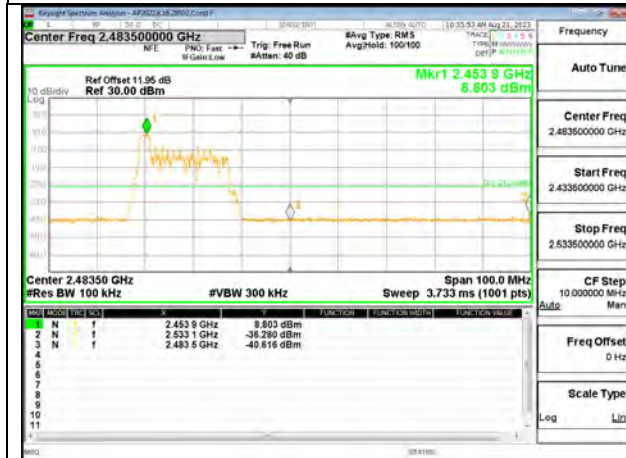
OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERENCE LEVEL



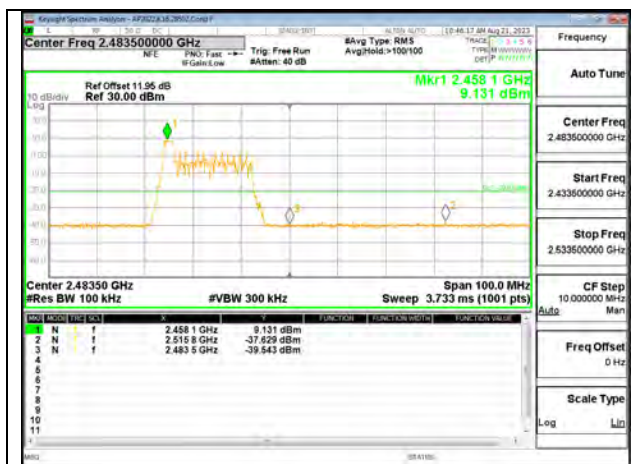
OUT-OF-BAND MID CHANNEL



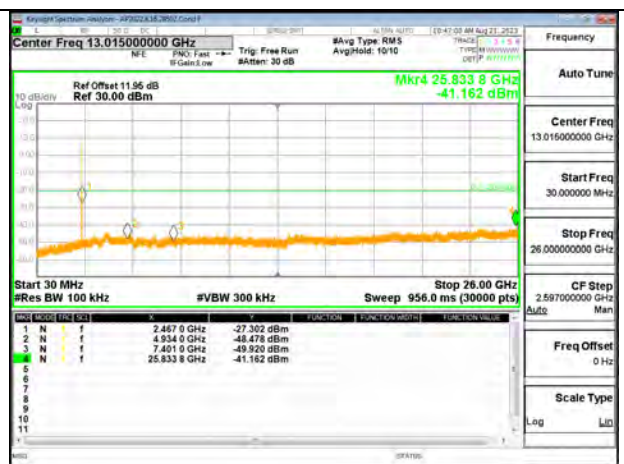
HIGH CHANNEL 11 BANDEDGE



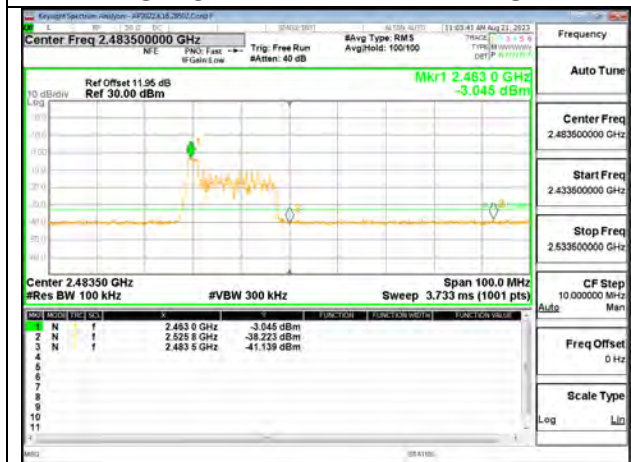
OUT-OF-BAND HIGH CHANNEL 11



HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12

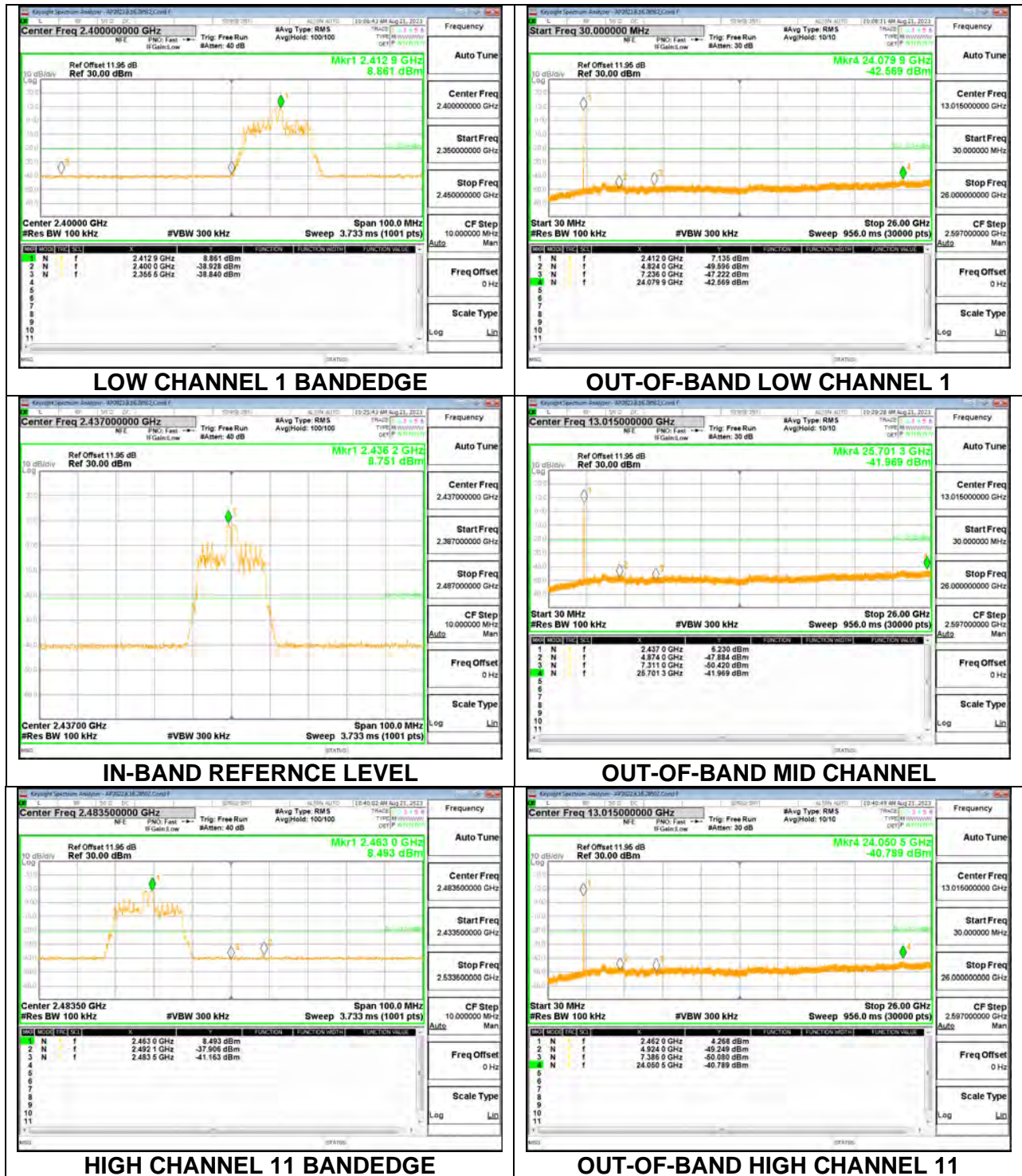


HIGH CHANNEL 13 BANDEDGE



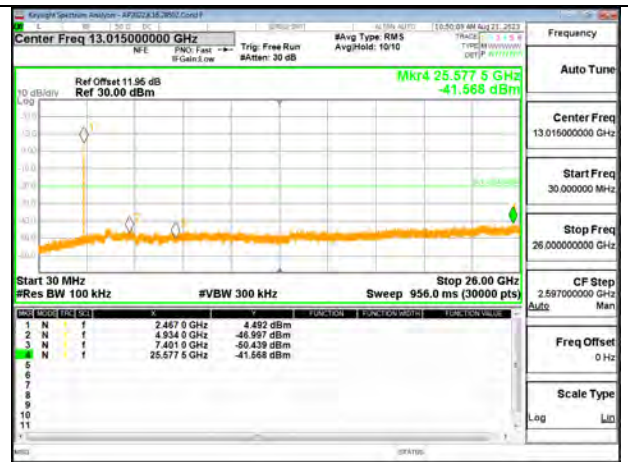
OUT-OF-BAND HIGH CHANNEL 13

1TX ANT 4 MODE, 26-Tone RU Index 4





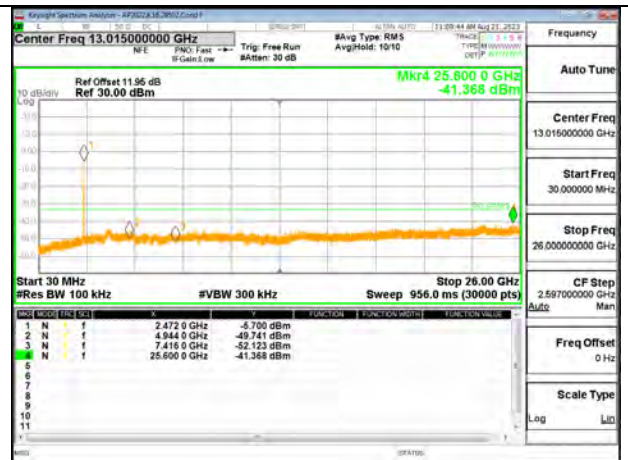
HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12



HIGH CHANNEL 13 BANDEDGE

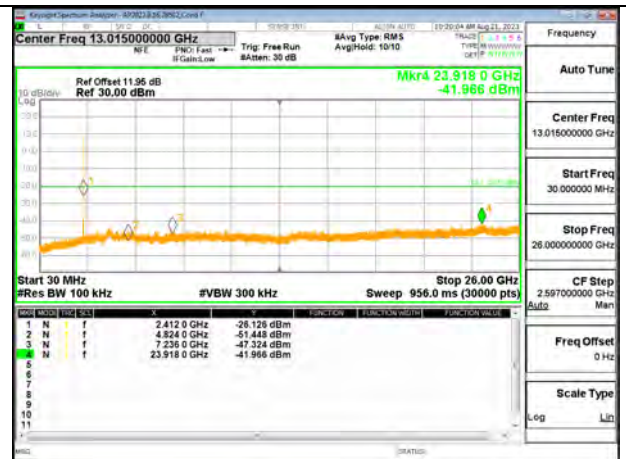


OUT-OF-BAND HIGH CHANNEL 13

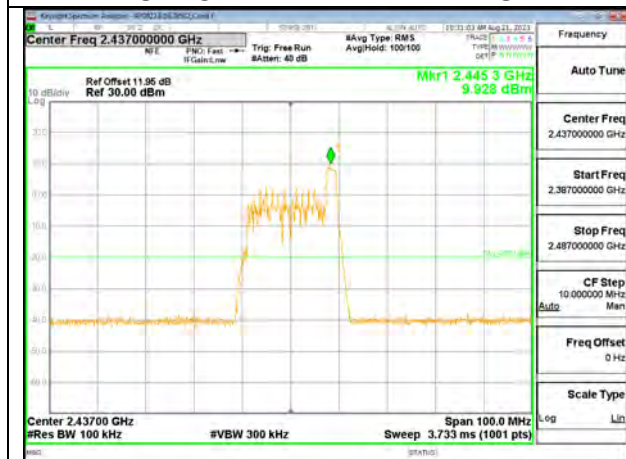
1TX ANT 4 MODE, 26-Tone RU Index 8



LOW CHANNEL 1 BANDEDGE



OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL 11 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 11



HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12



HIGH CHANNEL 13 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 13

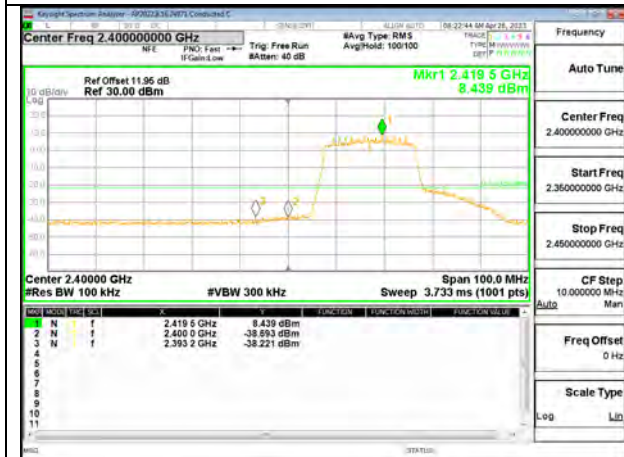
1TX ANT 4 MODE, SU Mode



LOW CHANNEL 1 BANDEDGE



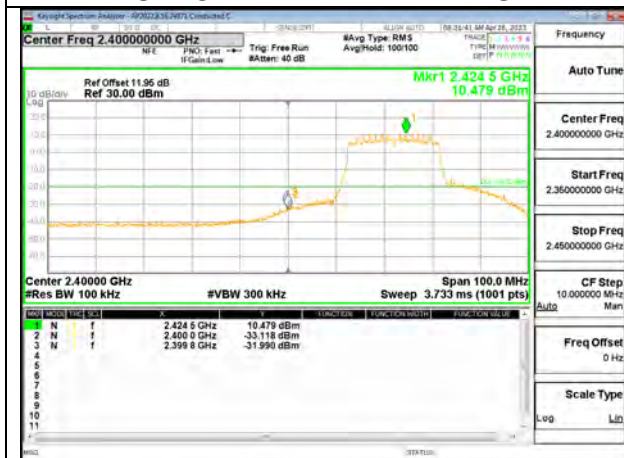
OUT-OF-BAND LOW CHANNEL 1



LOW CHANNEL 2 BANDEDGE



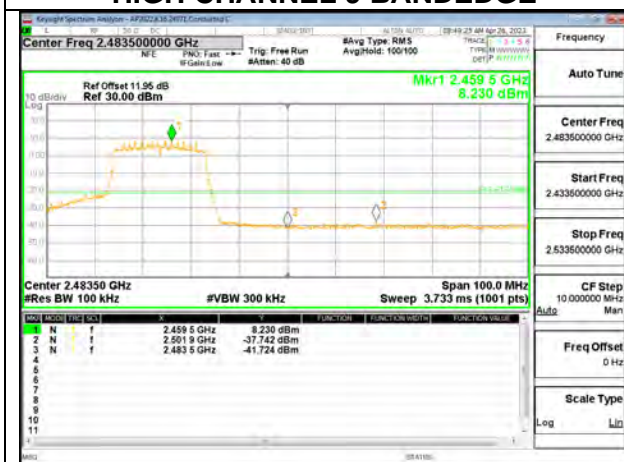
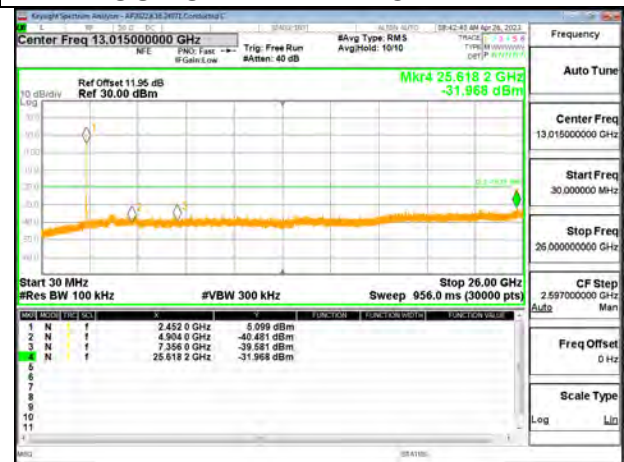
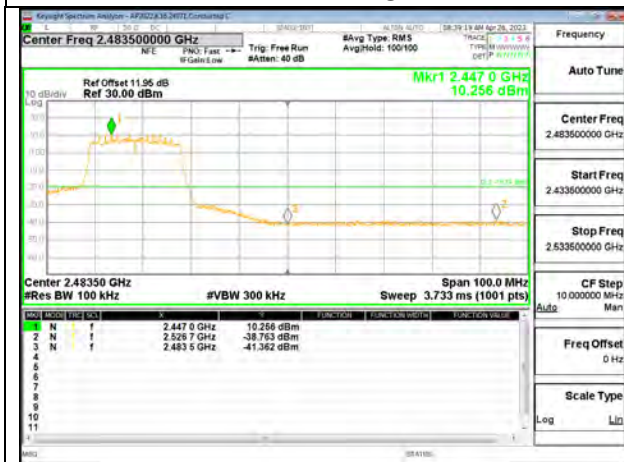
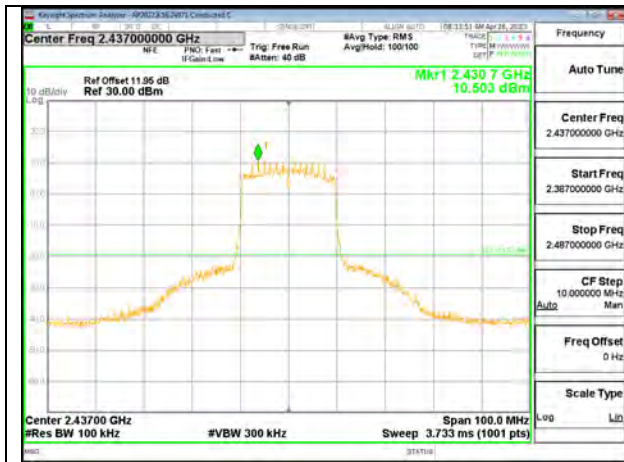
OUT-OF-BAND LOW CHANNEL 2

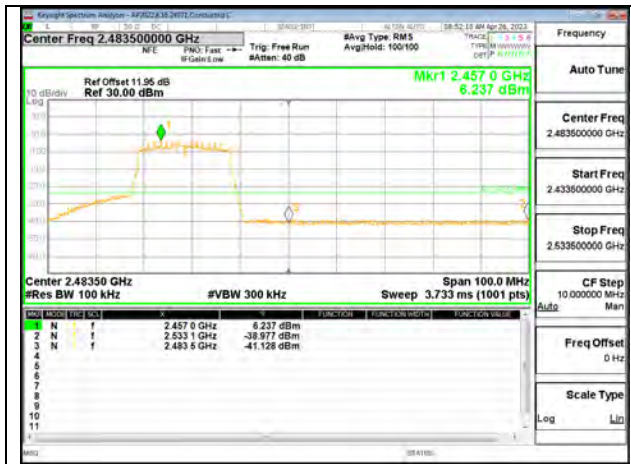


LOW CHANNEL 3 BANDEDGE



OUT-OF-BAND LOW CHANNEL 3

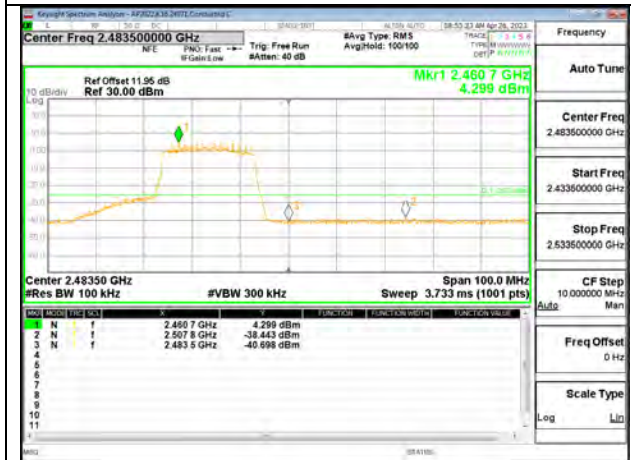




HIGH CHANNEL 11 BANDEDGE



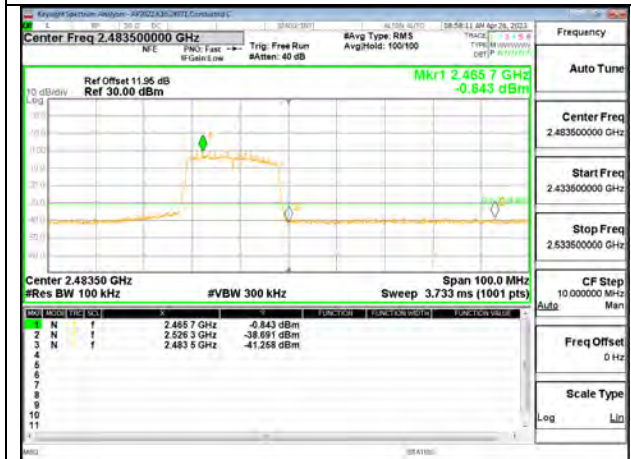
OUT-OF-BAND HIGH CHANNEL 11



HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12



HIGH CHANNEL 13 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 13

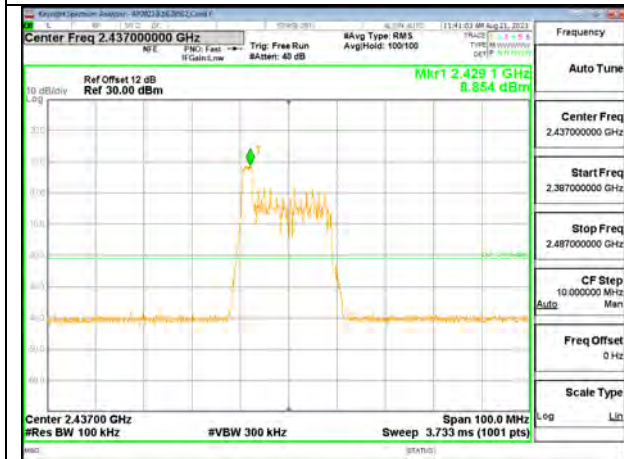
1TX ANT 3 MODE, 26-Tone RU Index 0



LOW CHANNEL 1 BANDEDGE



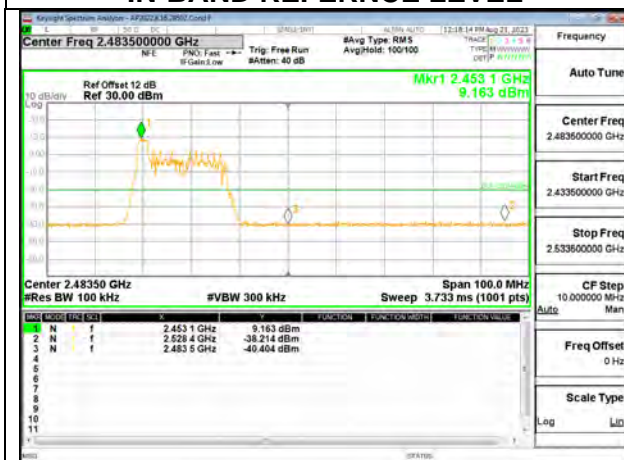
OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL 11 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 11



HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12



HIGH CHANNEL 13 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 13

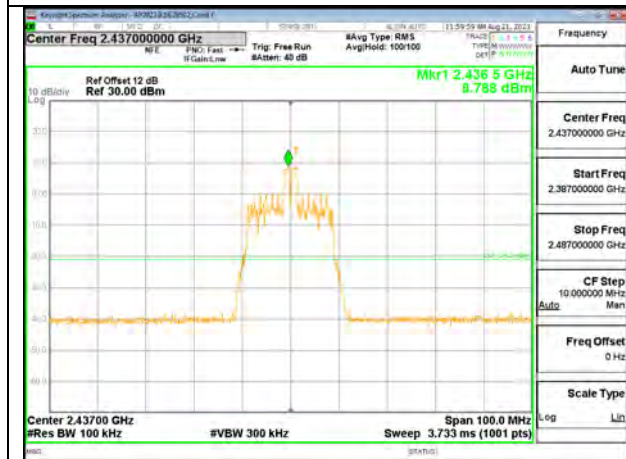
1TX ANT 3 MODE, 26-Tone RU Index 4



LOW CHANNEL 1 BANDEDGE



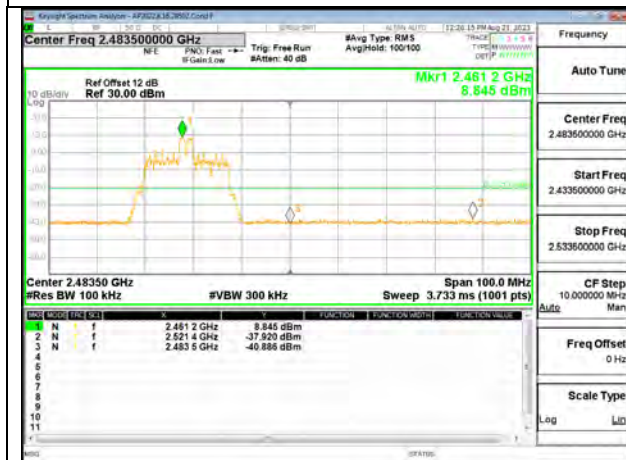
OUT-OF-BAND LOW CHANNEL 1



IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL 11 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 11



HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12

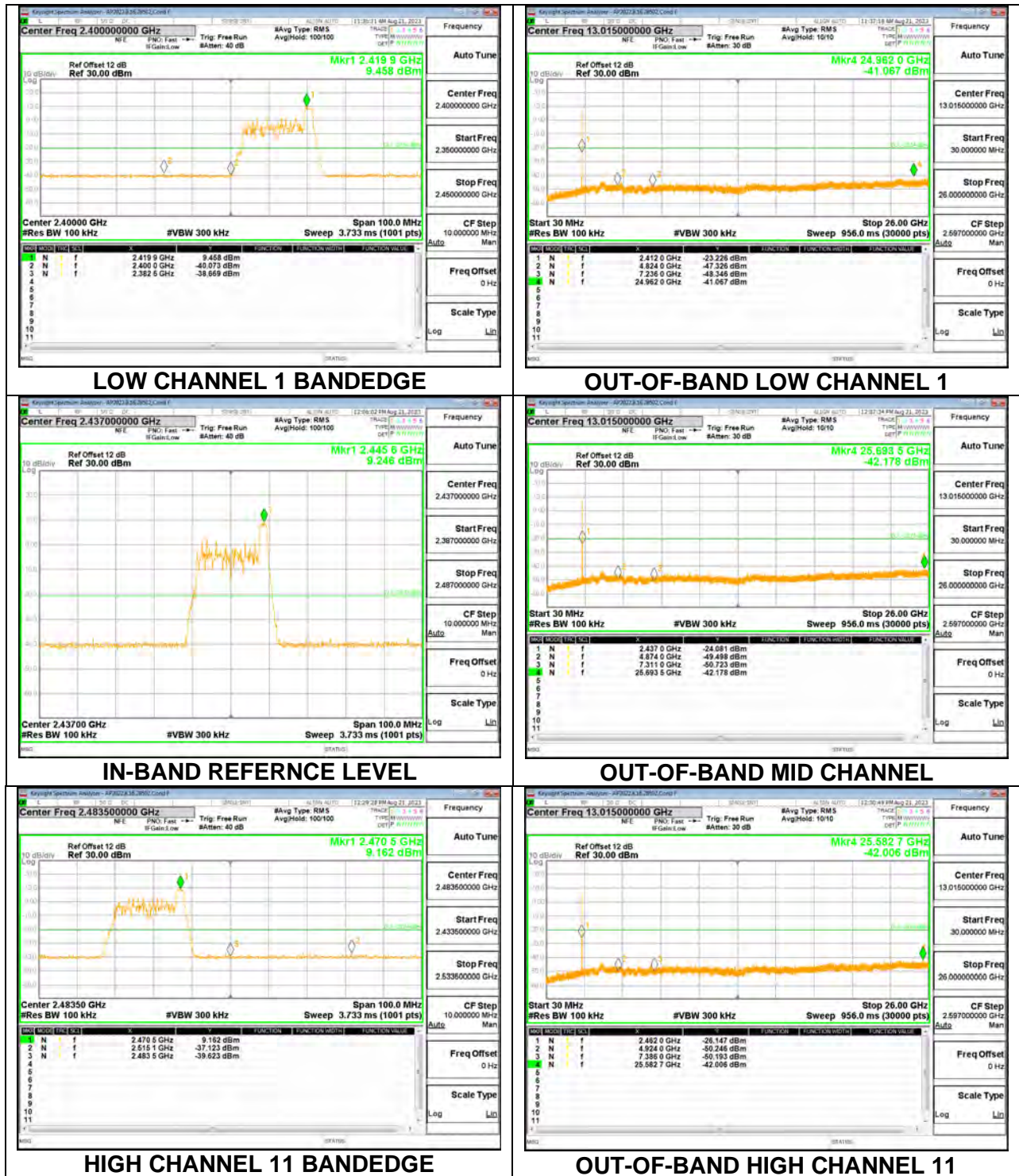


HIGH CHANNEL 13 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 13

1TX ANT 3 MODE, 26-Tone RU Index 8





HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12



HIGH CHANNEL 13 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 13