TEST REPORT

Report Number. : R14176139-E4aV2

Applicant	:	Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0076, Japan
FCC ID	:	PY7-83262V
EUT Description	:	GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT, & NFC
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C: 2022

Date Of Issue:
2022-03-25

Prepared by:
UL LLC
12 Laboratory Dr.
Research Triangle Park, NC 27709 U.S.A.
TEL: (919) 549-1400

ACCREDITED
CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-03-16	Initial Issue	Haley Ackun
V2	2022-03-25	Harmonized all antenna descriptors to read as chain 0 and chain 1. Updated KDB 558074 version in section 3.	Brian Kiewra

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Sony Corporation
1-7-1 Konan Minato-ku
Tokyo, 108-0076, Japan

EUT DESCRIPTION: GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT, & NFC

SERIAL NUMBER: QV770028AQ & QV77003RB8

SAMPLE RECEIPT DATE: 2022-01-13

DATE TESTED: 2022-02-09 to 2022-03-16

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C: 2022	Complies

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

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

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, a2La, NIST, or any agency of the U.S. government.

Approved & Released For
UL LLC. By:

Brian Kiewra
Project Engineer
Consumer Technology Division
UL LLC.

Prepared By:

Haley Ackun
Engineering Project Handler
Consumer Technology Division
UL LLC.

2. TEST RESULTS SUMMARY

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
15.247 (a) (2)	6dB BW	Complies	None.
15.247 (b) (3)	Output Power	Complies	None.
See Comment	Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	PSD	Complies	None.
15.247 (d)	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	Radiated Emissions	Complies	None.
15.207	AC Mains Conducted Emissions	Refer to Comment	Refer to report R14176139-E4bV1 for the results of this test.

This report contains data provided by the applicant 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.

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3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15: 2022, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01.

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
☐	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr 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	U_{Lab}
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%

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 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 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 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

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6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a GSM/WCDMA/LTE phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT, & NFC. This report covers full testing for 2.4 GHz WLAN for modulation types 802.11b/g/n.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

2.4GHz Band-Chain 0 + Chain 1

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2Tx			
2412 - 2462	802.11b	18.08	64.27
2412 - 2462	802.11g	25.33	341.19
2412 - 2462	802.11n HT20 CDD	24.98	314.77

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:
The radio utilizes two loop antennas for diversity, with the following maximum gains:

Chain	Frequency Range (MHz)	Maximum Gain (dBi)
0	2402-2480	-2.3
1	2402-2480	-8.6

	Theory of Operation	Antenna	Manufacturer Tolerance	Block Diagram
Chain 0	WLAN Main/Bluetooth #1	WLAN Main/Bluetooth #1	Chain 0	WLAN Main/Bluetooth #1
Chain 1	WLAN Sub/Bluetooth #2	WLAN Sub/Bluetooth #2	Chain 1	WLAN Sub/Bluetooth #2

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.364 (conducted EUT) & 0.428 (radiated EUT).

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/mode with highest output power/PSD as worst-case scenario and can be found in report R14176139-E4bV1.

Band edge was performed with the EUT set to transmit on low and high channels. Radiated spurious and harmonic emissions between 1GHz and 18GHz were performed with the EUT set

to transmit at the worst-case mode/channel based on power and PSD. For this report, the worst-case Radiated Emissions from 1-18 GHz was found to be 11b.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20 mode: MCS0 (Nss=1)

All testing performed in 2Tx mode (Nss=1), where power per chain is equivalent to the 1Tx power on each chain. This allows 2Tx testing to cover all 1Tx testing.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	HP	14-dk1003dx	5CG016B4XM	TX2-RTL8821CE
Headphones	Sony	MDR-EX15AP	NA	-
Adapter	Sony	XQZ-UC11-010-236-21	1821W34209742	-
Adapter	Sony	XQZ-UC11-010-236-21	1821W34209856	-
USB Cable	Sony	XQZ-UC1	NA	NA

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	USB	1	USB-C	Non-shielded	<3m	Connected to Power Supply
2	3.5mm	1	3.5mm Audio	Non-shielded	<1m	Connected to headphones

TEST SETUP

Test software exercised the radio card.

SETUP DIAGRAM

Please refer to R14176139-EP2 for setup diagrams

7. MEASUREMENT METHOD

Duty Cycle: ANSI C63.10 Section 11.6

6 dB BW: ANSI C63.10 Subclause -11.8.2

Output Power:	ANSI C63.10 Subclause -11.9.1.3	Method PKPM1 Peak-reading power meter
Output Power:	ANSI C63.10 Subclause -11.9.2.3.2	Method AVGPM-G (Measurement using a gated RF average-reading power meter)

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

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

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1 and 6.10.5

General Radiated Spurious Emissions: ANSI C63.10-2013 Sections 6.3 and 6.6

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8. 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.
HI0090	Environmental Meter	Fisher Scientific	15-077-963	2021-07-12	2022-07-12
PWM005	RF Power Meter	Keysight Technologies	N1912A	2021-07-27	2022-07-27
PWS001	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2021-06-25	2022-06-25
PWS006	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	N1921a	2021-12-17	2022-12-17
SA0025	Spectrum Analyzer	Keysight Technologies	N9030A	2021-04-01	2022-04-01
SOFTEMI	Antenna Port Software	UL	Version 2022.02.16 and 2021.11.3	NA	NA
-	DC Power Supply	Keysight Technologies	E3633A	NA	NA
	Additional Equipment used				
MM0167 (PRE0126458)	True RMS Multimeter	Agilent	U1232A	2021-08-17	2023-08-17
MY61466084	Power Supply	Keysight	E3633A	-	-

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-05-03	2022-05-03
	Gain-Loss Chains				
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2021-07-09	2022-07-09
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2021-03-10	2022-03-10
SA0020	Spectrum Analyzer	Agilent	E4446A	2021-05-25	2022-05-25
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-03-11	2022-03-11
AT0069	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-06-29	2022-06-29
	Gain-Loss Chains				
C4-SAC03	Gain-loss string: 1-18GHz	Various	Various	2021-05-07	2022-05-07
	Receiver & Software				
SA0026	Spectrum Analyzer	Agilent	N9030A	2021-07-16	2022-07-16
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-02-15	2023-02-15
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
210642	Environmental Meter	Fisher Scientific	210701942	2021-8-16	2023-08-16

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

ANSI C63.10 Section 11.6

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 2TX-Chain 0	24.810	24.830	0.999	99.92%	0.00	0.010
802.11g 2TX-Chain 0	2.096	2.112	0.992	99.24%	0.00	0.010
802.11n HT20 2TX-Chain 0	5.426	5.444	0.997	99.67%	0.00	0.010
802.11b 2TX-Chain 1	24.810	24.830	0.999	99.92%	0.00	0.010
802.11g 2TX-Chain 1	2.094	2.112	0.991	99.15%	0.00	0.010
802.11n HT20 2TX-Chain 1	27.200	27.220	0.999	99.93%	0.00	0.010

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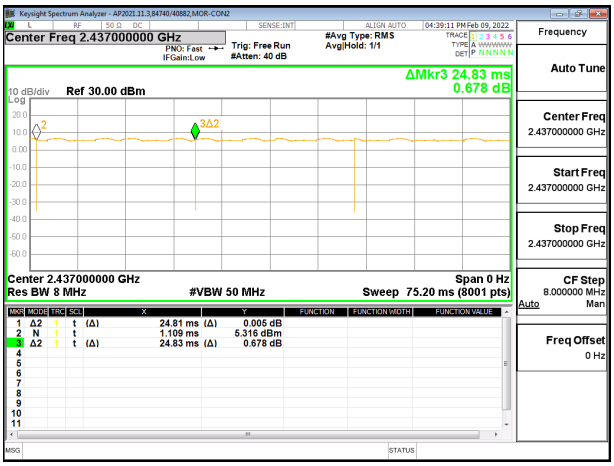
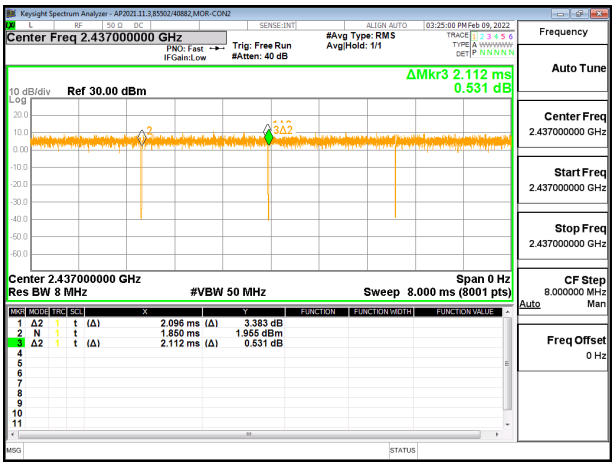
DUTY CYCLE PLOTS-CHAIN 0



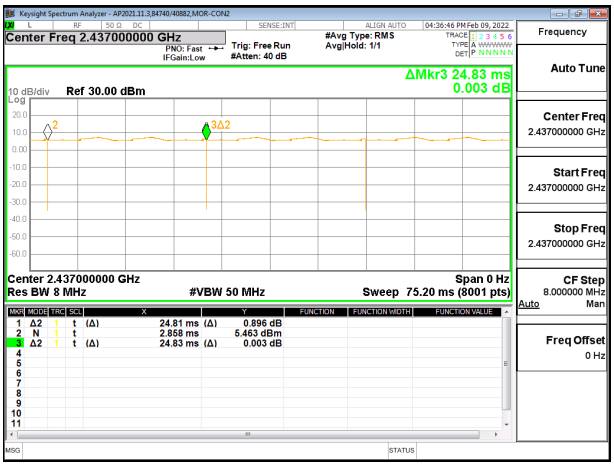
DUTY CYCLE 802.11b 2TX MODE



DUTY CYCLE 802.11g 2TX MODE

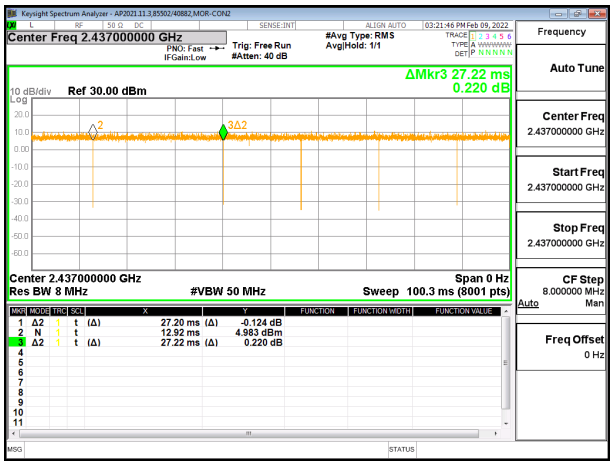
DUTY CYCLE 802.11nHT20 2TX MODE

DUTY CYCLE PLOTS-CHAIN 1



DUTY CYCLE 802.11b 2TX MODE

DUTY CYCLE 802.11g 2TX MODE



DUTY CYCLE 802.11nHT20 2TX MODE

6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

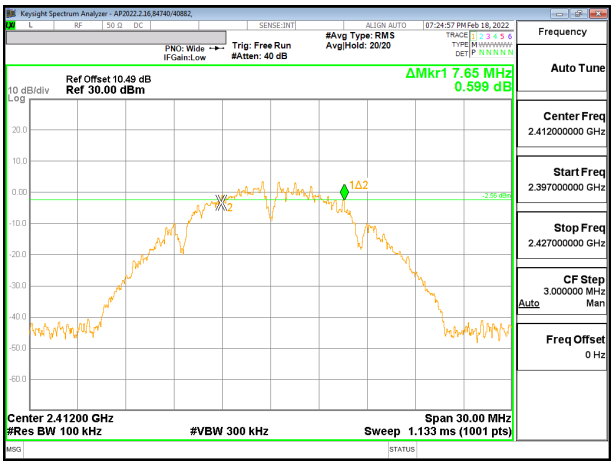
RESULTS

9.1.1. 802.11b MODE

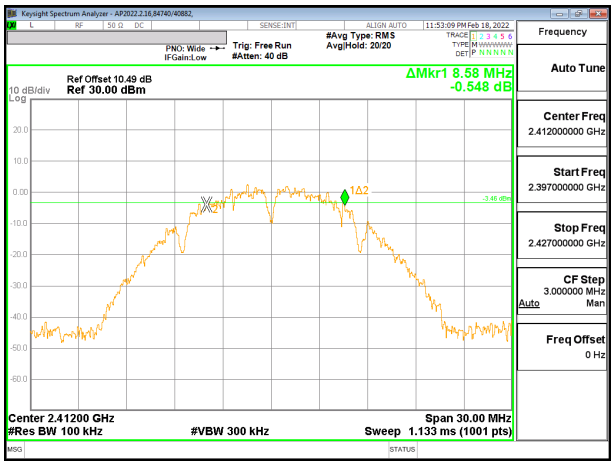
2TX Chain 0 + Chain 1 MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	7.6500	8.5800	0.5
Mid 6	2437	7.6200	7.6500	0.5
High 11	2462	6.6300	6.9600	0.5

LOW CHANNEL 1



LOW CHANNEL 1 CHAIN 0



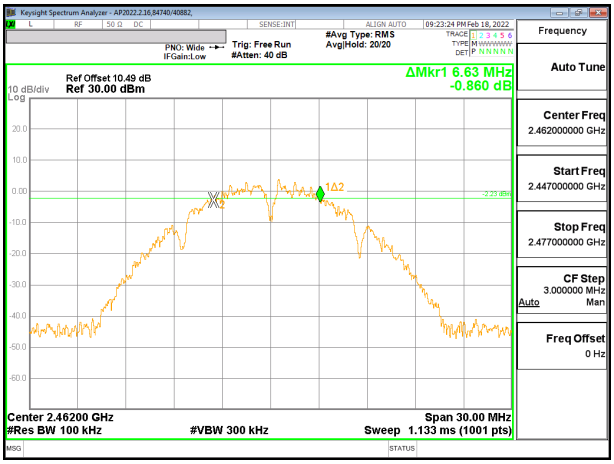
LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6

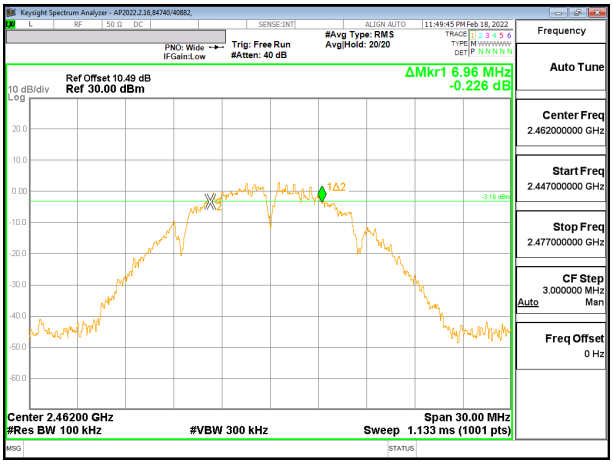
MID CHANNEL 6 CHAIN 0

MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



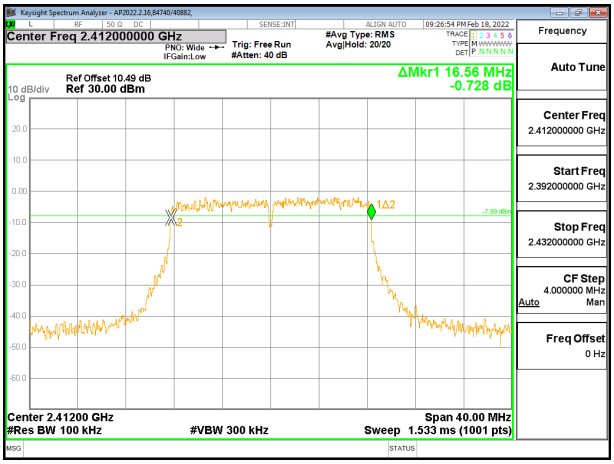
HIGH CHANNEL 11 CHAIN 1

9.1.2. 802.11g MODE

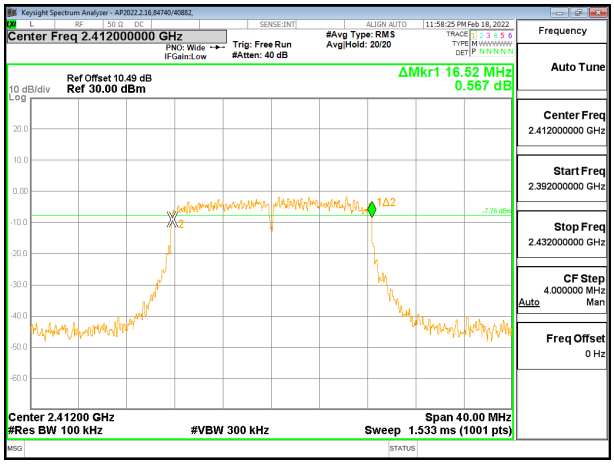
2TX Chain 0 + Chain 1 MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	16.5600	16.5200	0.5
Low 2	2417	16.4000	16.5200	0.5
Mid 6	2437	16.4000	16.5200	0.5
High 10	2457	16.4800	16.4400	0.5
High 11	2462	16.4800	14.8400	0.5

LOW CHANNEL 1

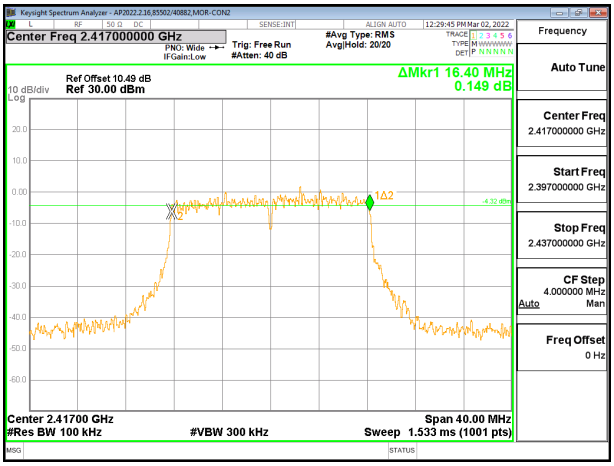


LOW CHANNEL 1 CHAIN 0

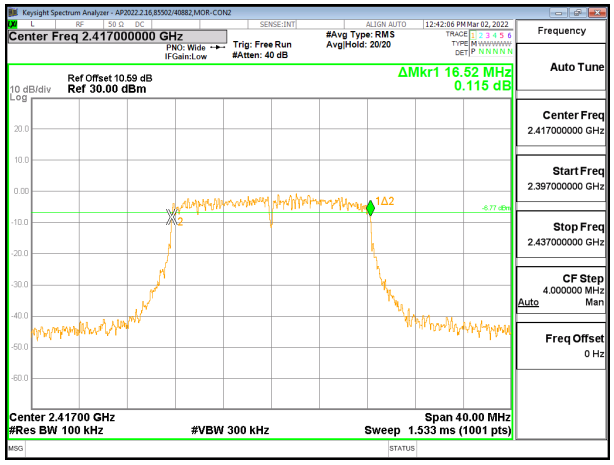


LOW CHANNEL 1 CHAIN 1

LOW CHANNEL 2

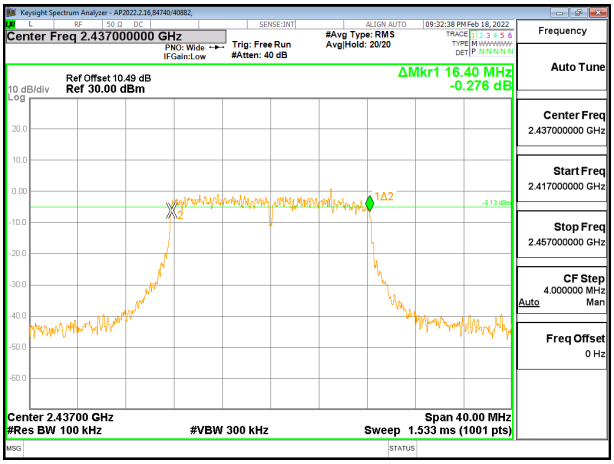


LOW CHANNEL 2 CHAIN 0

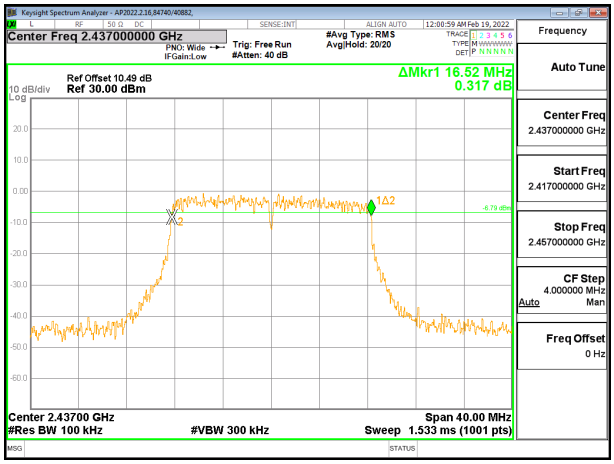


LOW CHANNEL 2 CHAIN 1

MID CHANNEL 6

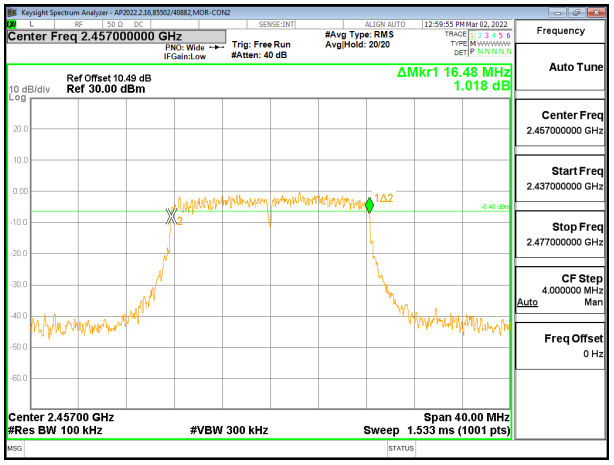


MID CHANNEL 6 CHAIN 0

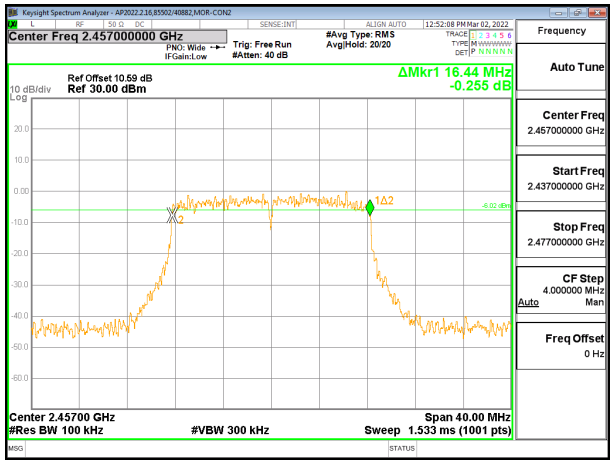


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 10

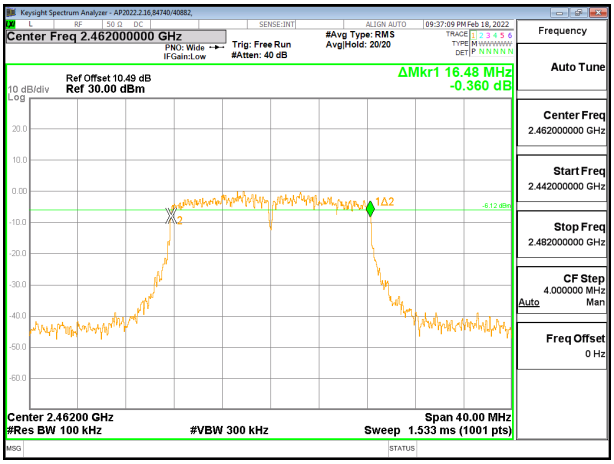


HIGH CHANNEL 10 CHAIN 0

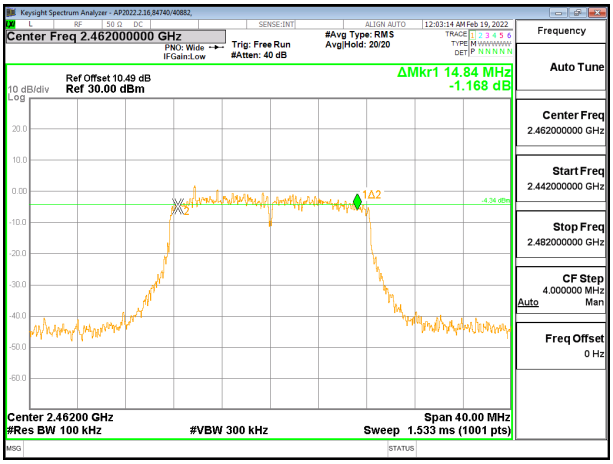


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



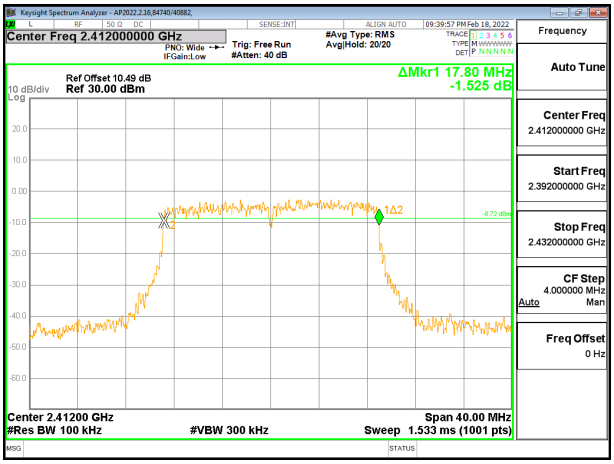
HIGH CHANNEL 11 CHAIN 1

9.1.3. 802.11n HT20 MODE

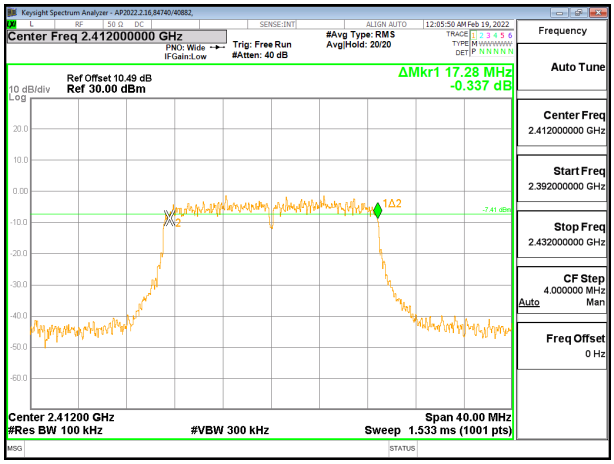
2TX Chain 0 + Chain 1 MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	17.8000	17.2800	0.5
Low 2	2417	16.6400	17.7200	0.5
Mid 6	2437	17.3600	17.7600	0.5
High 10	2457	17.6800	17.6400	0.5
High 11	2462	17.7200	17.7200	0.5

LOW CHANNEL 1

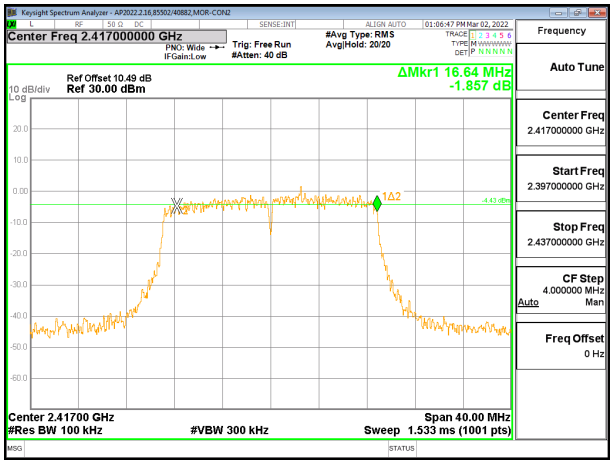


LOW CHANNEL 1 CHAIN 0

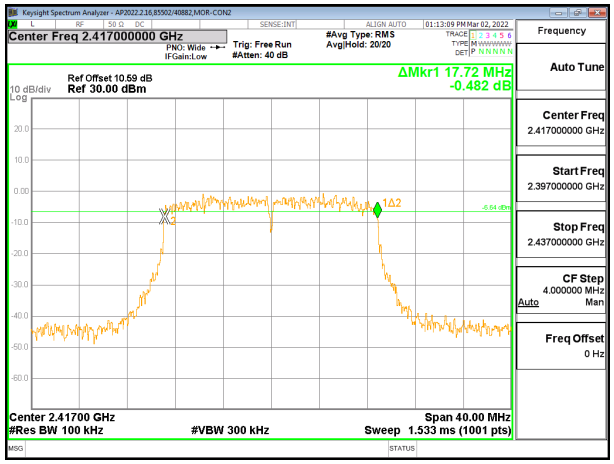


LOW CHANNEL 1 CHAIN 1

LOW CHANNEL 2

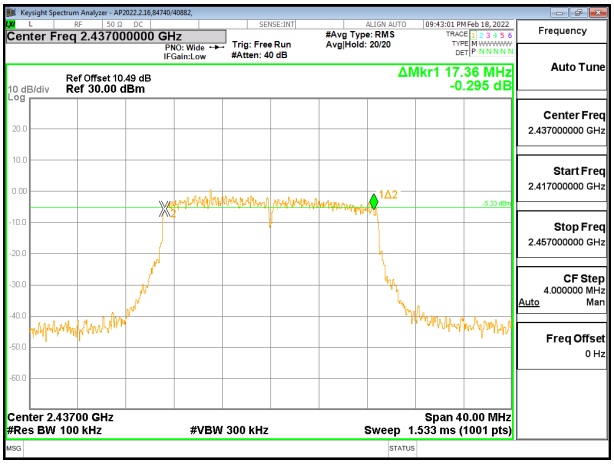


LOW CHANNEL 2 CHAIN 0

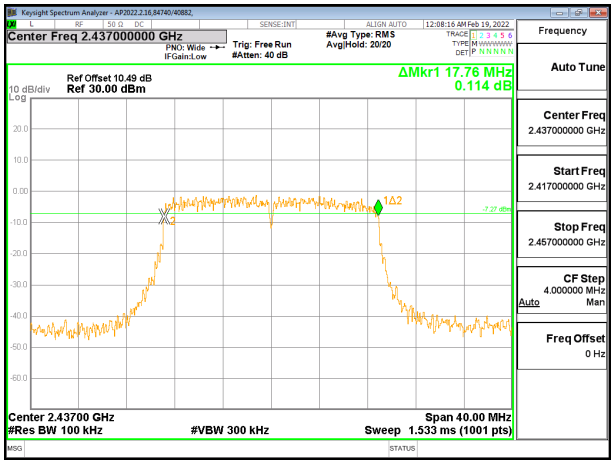


LOW CHANNEL 2 CHAIN 1

MID CHANNEL 6

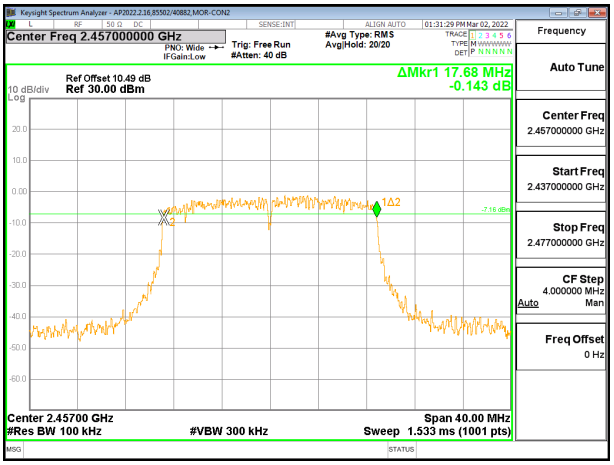


MID CHANNEL 6 CHAIN 0

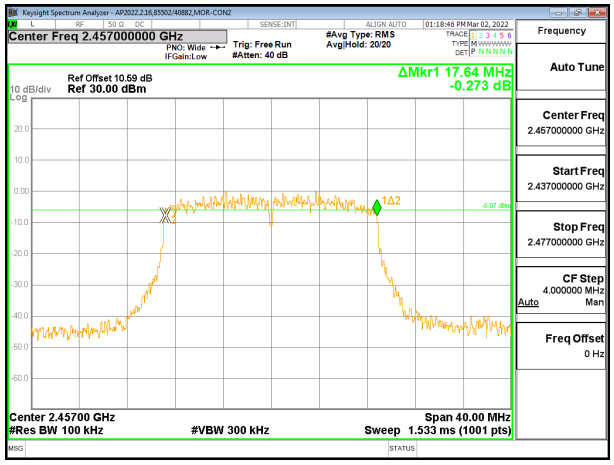


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 10

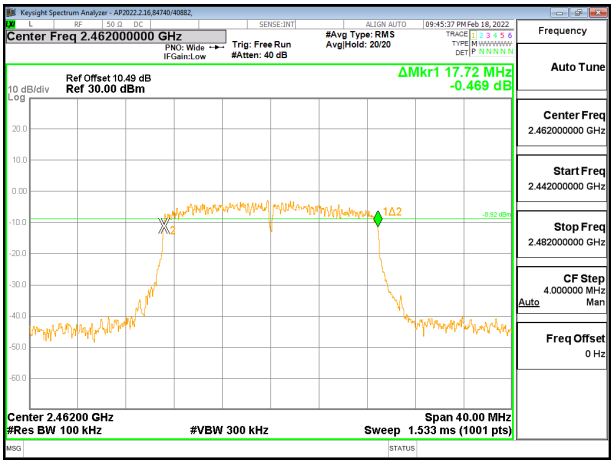


HIGH CHANNEL 10 CHAIN 0

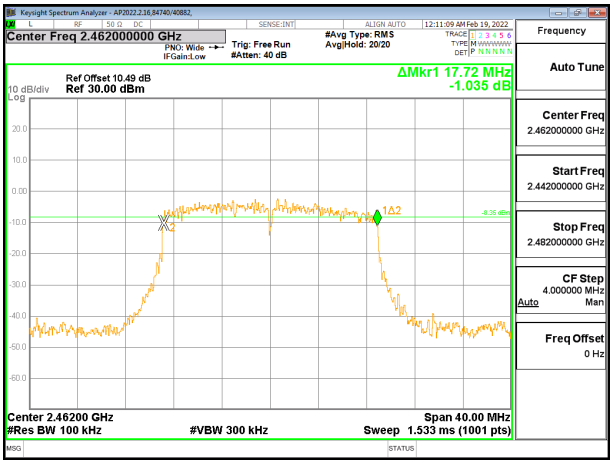


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

9.2. 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 peak power meter.

The cable assembly insertion loss of 10.61 dB (including 10.47 dB pad and 0.14 dB cable) for Chain 0 and 11.13dB (including 10.99 dB pad and 0.14 dB cable) for Chain 1 was entered as an offset for in the power meter.

DIRECTIONAL 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)	Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	-2.30	-8.60	-4.40	-1.88

RESULTS

9.2.1. 802.11b MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/40882
Test Date:	2022-02-14

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	Max Power (dBm)
Low 1	2412	-4.40	30.00	30.00
Mid 6	2437	-4.40	30.00	30.00
High 11	2462	-4.40	30.00	30.00

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

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low 1	2412	15.86	13.51	17.85	30.00	-12.15
Mid 6	2437	15.38	13.28	17.47	30.00	-12.53
High 11	2462	15.97	13.93	18.08	30.00	-11.92

9.2.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/40882
Test Date:	2022-02-14

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	Max Power (dBm)
Low 1	2412	-4.40	30.00	30.00
Low 2	2417	-4.40	30.00	30.00
Mid 6	2437	-4.40	30.00	30.00
High 10	2457	-4.40	30.00	30.00
High 11	2462	-4.40	30.00	30.00

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

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low 1	2412	21.88	21.44	24.68	30.00	-5.32
Low 2	2417	22.44	22.20	25.33	30.00	-4.67
Mid 6	2437	21.82	21.24	24.55	30.00	-5.45
High 10	2457	21.61	22.03	24.84	30.00	-5.16
High 11	2462	20.79	21.09	23.95	30.00	-6.05

9.2.3. 802.11n HT20 MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/40882
Test Date:	2022-02-14

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	Max Power (dBm)
Low 1	2412	-4.40	30.00	30.00
Low 2	2417	-4.40	30.00	30.00
Mid 6	2437	-4.40	30.00	30.00
High 10	2457	-4.40	30.00	30.00
High 11	2462	-4.40	30.00	30.00

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

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low 1	2412	20.45	19.99	23.24	30.00	-6.76
Low 2	2417	20.79	21.02	23.92	30.00	-6.08
Mid 6	2437	21.82	20.91	24.40	30.00	-5.60
High 10	2457	22.07	21.86	24.98	30.00	-5.02
High 11	2462	19.47	19.38	22.44	30.00	-7.56

9.3. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a gated average power meter.

The cable assembly insertion loss of 10.61 dB (including 10.47 dB pad and 0.14 dB cable) for Chain 0 and 11.13dB (including 10.99 dB pad and 0.14 dB cable) for Chain 1 was entered as an offset in the power meter.

RESULTS

9.3.1. 802.11b MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/40882
Test Date:	2022-02-14

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	13.33	10.78	15.25
Mid 6	2437	12.88	10.66	14.92
High 11	2462	13.30	11.08	15.34

9.3.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/40882
Test Date:	2022-02-14

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	13.16	12.66	15.93
Low 2	2417	14.00	13.57	16.80
Mid 6	2437	13.71	13.33	16.53
High 10	2457	13.93	13.43	16.70
High 11	2462	12.43	12.17	15.31

9.3.3. 802.11n HT20 MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/40882
Test Date:	2022-02-14

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	12.26	11.93	15.11
Low 2	2417	12.43	12.17	15.31
Mid 6	2437	13.61	13.37	16.50
High 10	2457	13.89	13.26	16.60
High 11	2462	11.45	11.25	14.36

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL:(919)549-1400

9.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

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

9.4.1. 802.11b MODE

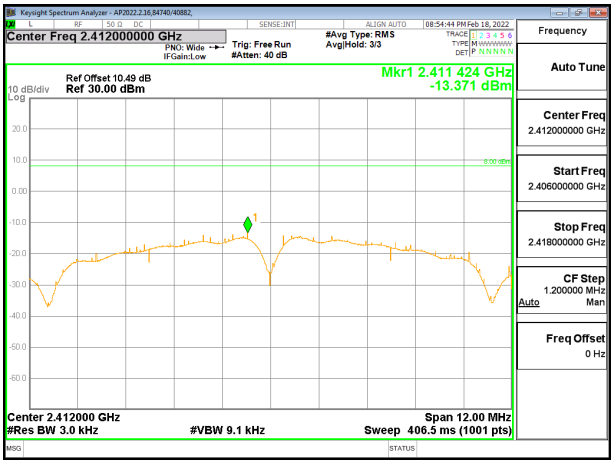
2TX Chain 0 + Chain 1 CDD MODE

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

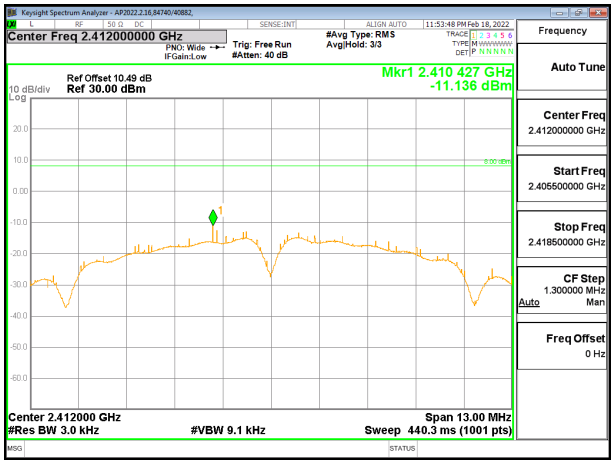
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Chain 1 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-13.371	-11.136	-9.10	8.0	-17.1
Mid 6	2437	-12.911	-10.427	-8.48	8.0	-16.5
High 11	2462	-10.484	-11.988	-8.16	8.0	-16.2

LOW CHANNEL 1

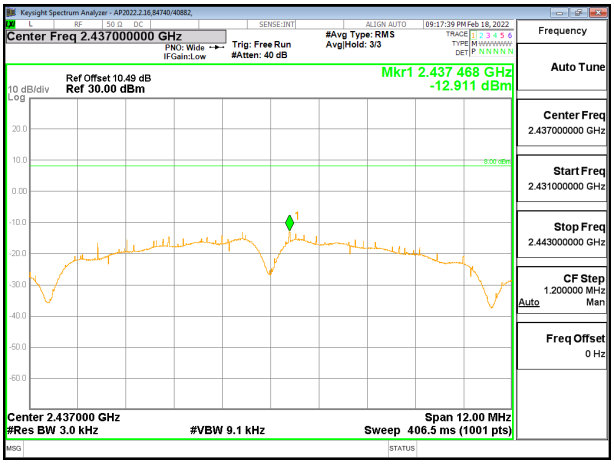


LOW CHANNEL 1 CHAIN 0

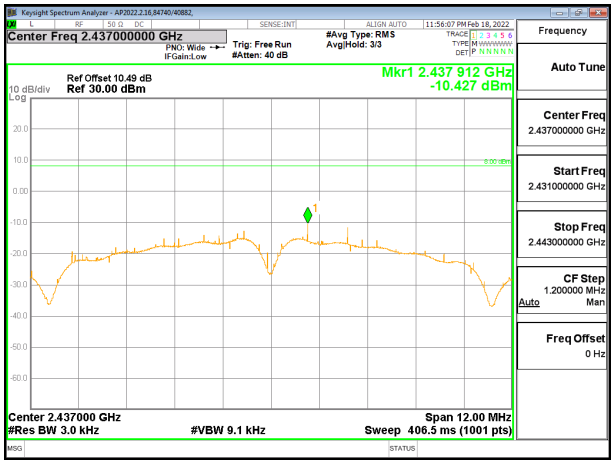


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6

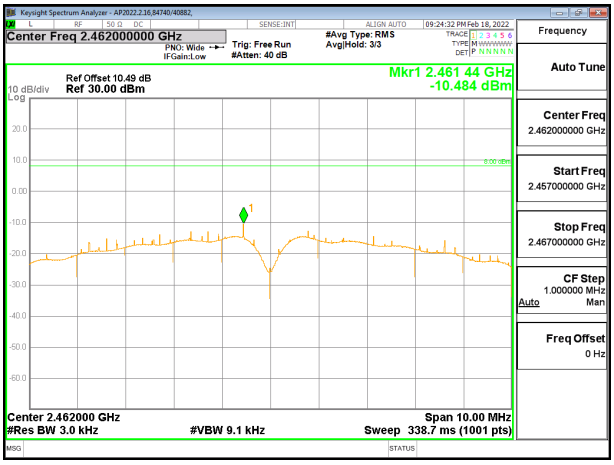


MID CHANNEL 6 CHAIN 0

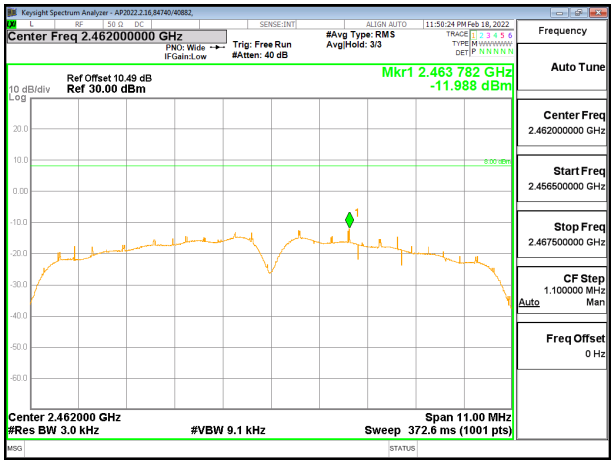


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

9.4.2. 802.11g MODE

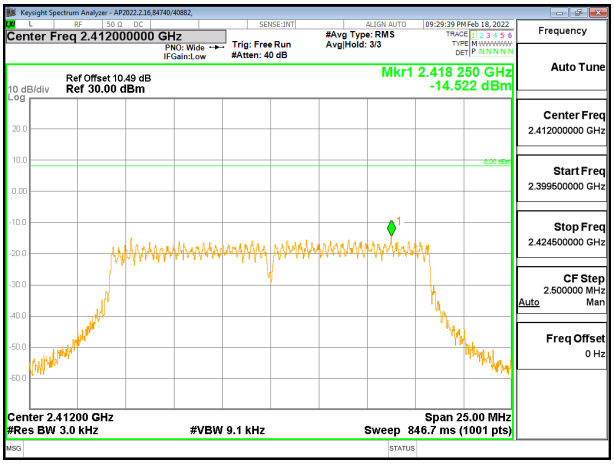
2TX Chain 0 + Chain 1 CDD MODE

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

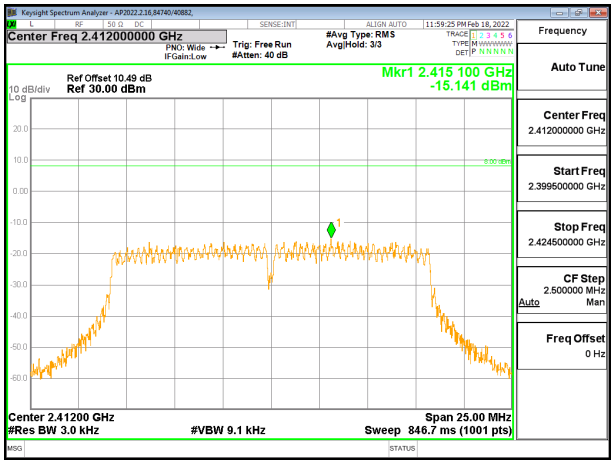
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Chain 1 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-14.522	-15.141	-11.81	8.0	-19.8
Low 2	2417	-12.888	-13.421	-10.14	8.0	-18.1
Mid 6	2437	-13.792	-14.628	-11.18	8.0	-19.2
High 10	2457	-13.472	-13.211	-10.33	8.0	-18.3
High 11	2462	-13.694	-14.141	-10.90	8.0	-18.9

LOW CHANNEL 1

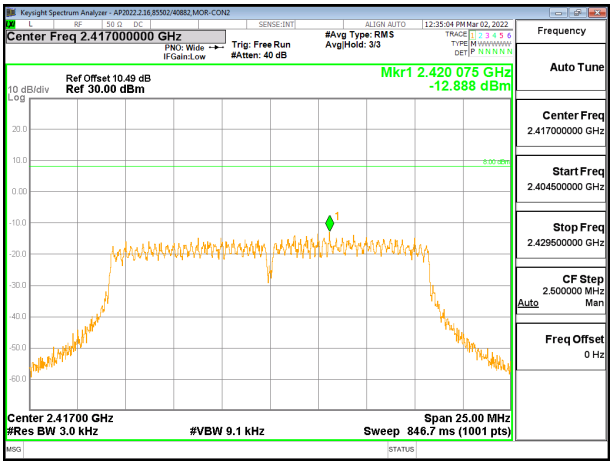


LOW CHANNEL 1 CHAIN 0

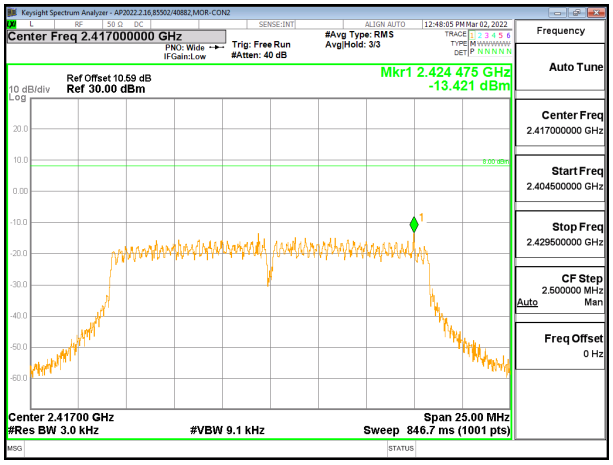


LOW CHANNEL 1 CHAIN 1

LOW CHANNEL 2

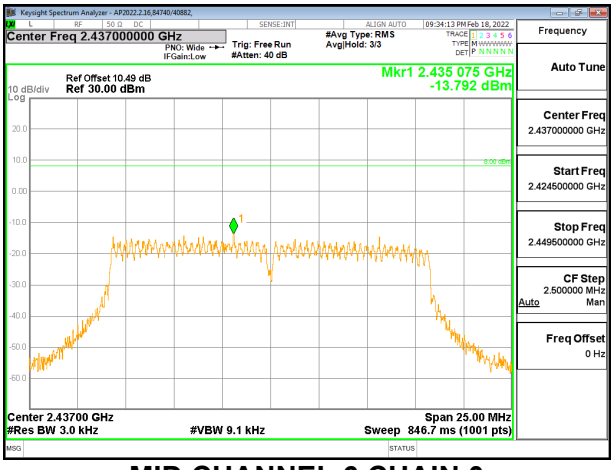


LOW CHANNEL 2 CHAIN 0

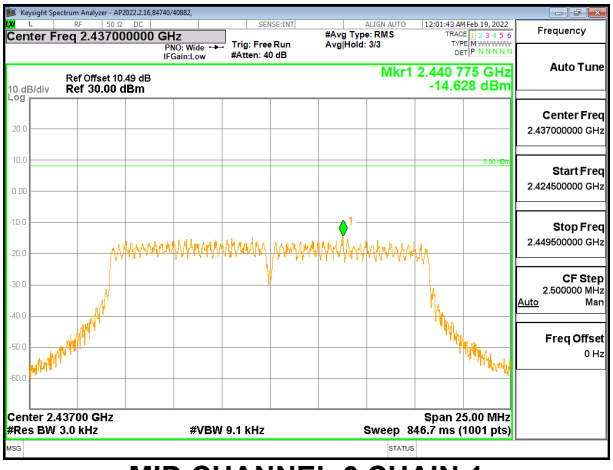


LOW CHANNEL 2 CHAIN 1

MID CHANNEL 6

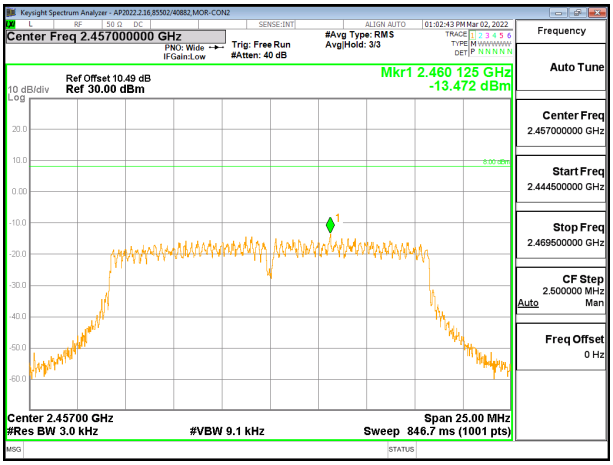


MID CHANNEL 6 CHAIN 0

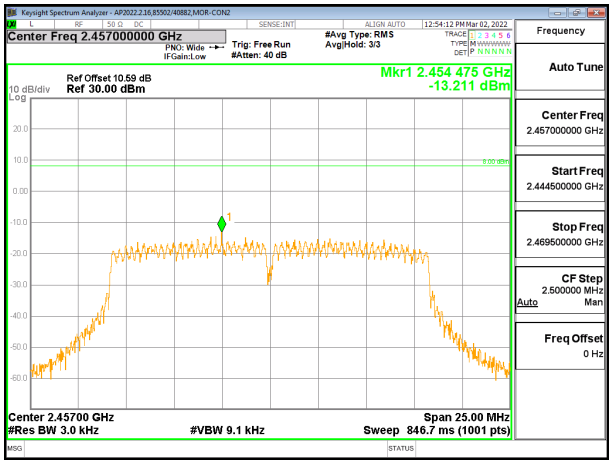


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 10

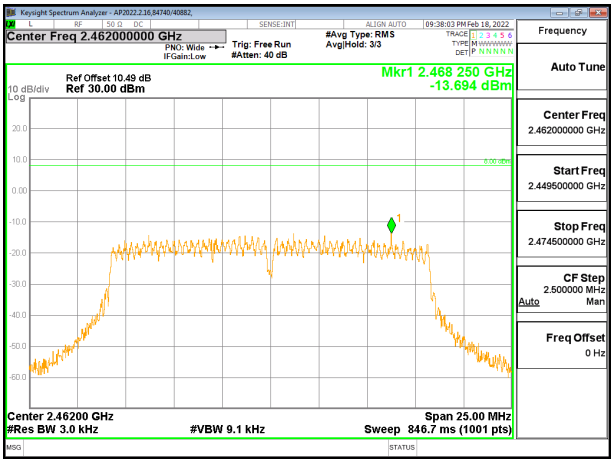


HIGH CHANNEL 10 CHAIN 0

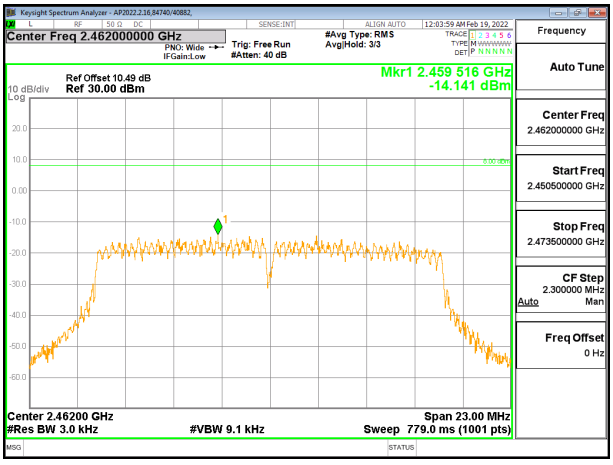


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 0

9.4.3. 802.11n HT20 MODE

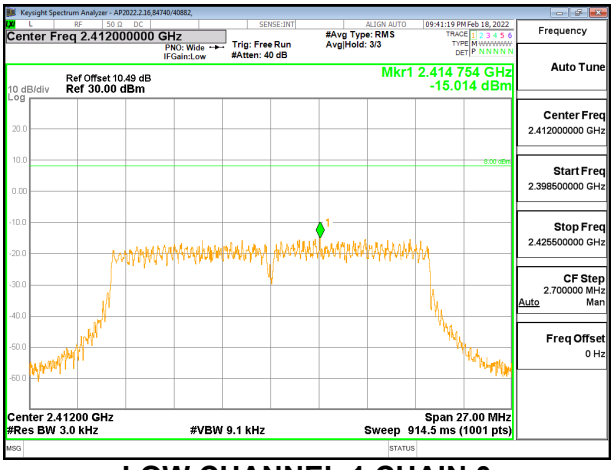
2TX Chain 0 + Chain 1 CDD MODE

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

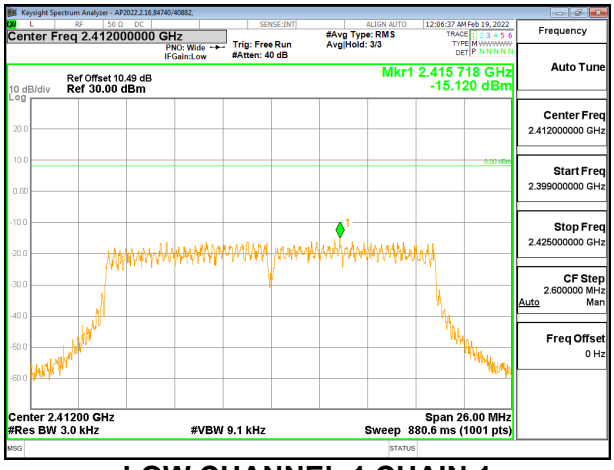
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Chain 1 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-15.014	-15.120	-12.06	8.0	-20.1
Low 2	2417	-12.132	-12.980	-9.53	8.0	-17.5
Mid 6	2437	-13.485	-13.716	-10.59	8.0	-18.6
High 10	2457	-12.243	-12.437	-9.33	8.0	-17.3
High 11	2462	-14.548	-15.506	-11.99	8.0	-20.0

LOW CHANNEL 1

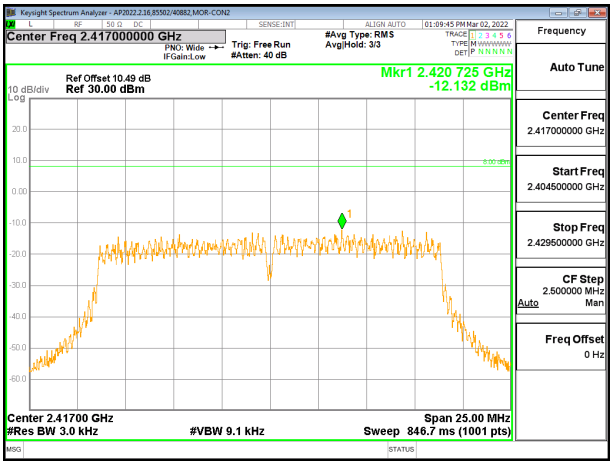


LOW CHANNEL 1 CHAIN 0

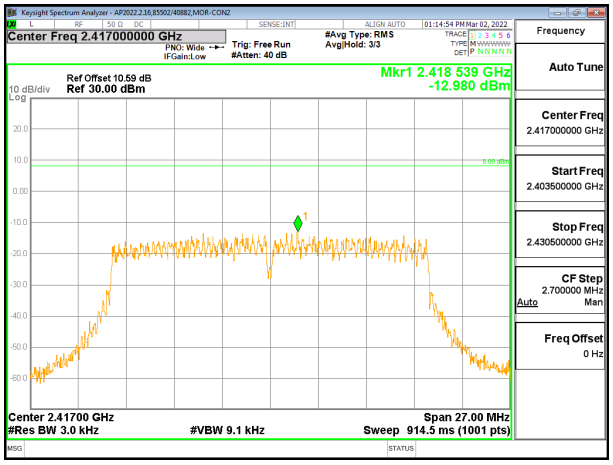


LOW CHANNEL 1 CHAIN 1

LOW CHANNEL 2

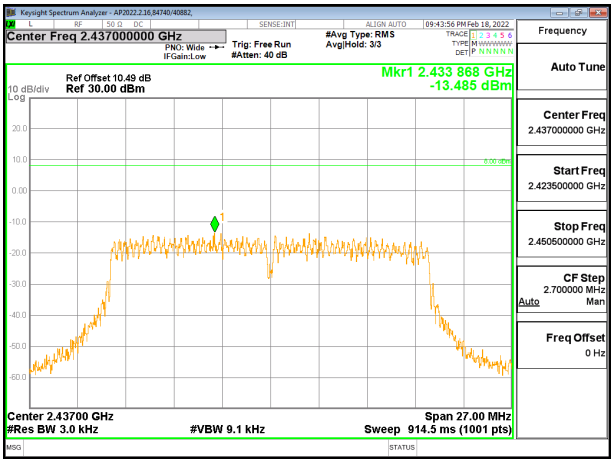


LOW CHANNEL 2 CHAIN 0

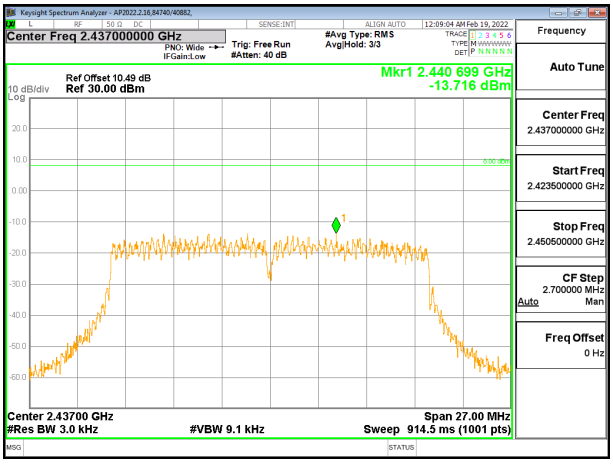


LOW CHANNEL 2 CHAIN 1

MID CHANNEL 6

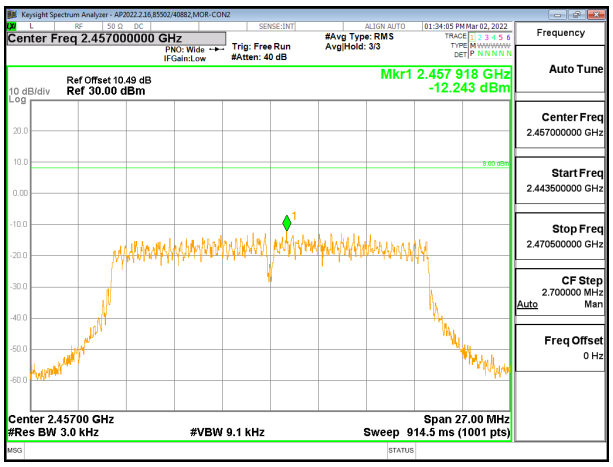


MID CHANNEL 6 CHAIN 0

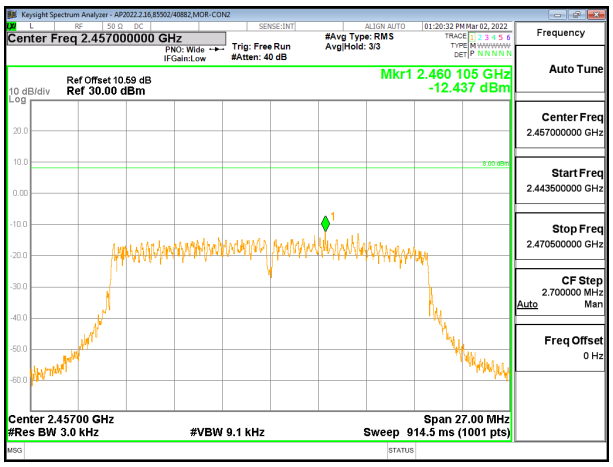


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 10

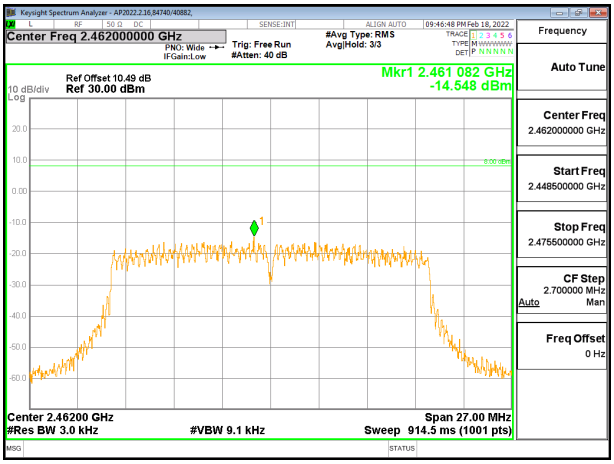


HIGH CHANNEL 10 CHAIN 0

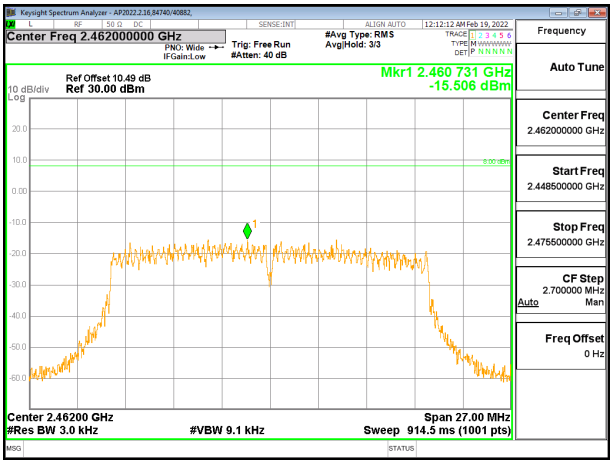


HIGH CHANNEL 10 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

9.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

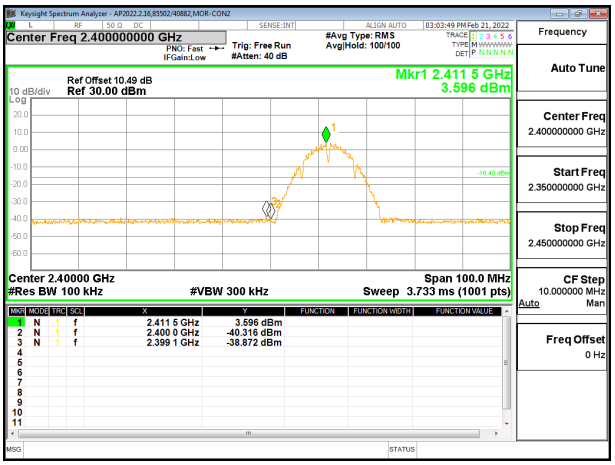
FCC §15.247 (d)

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

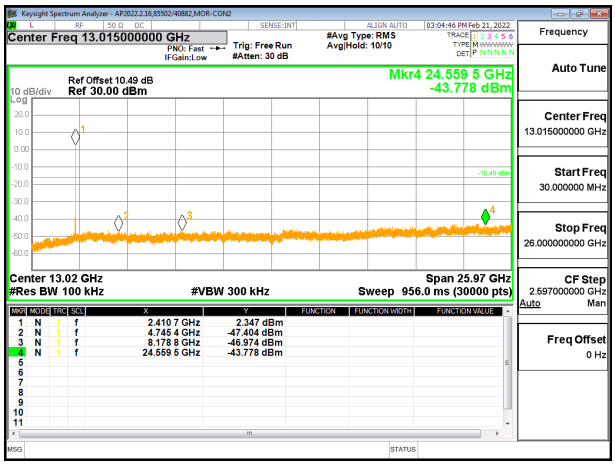
RESULTS

9.5.1. 802.11b MODE

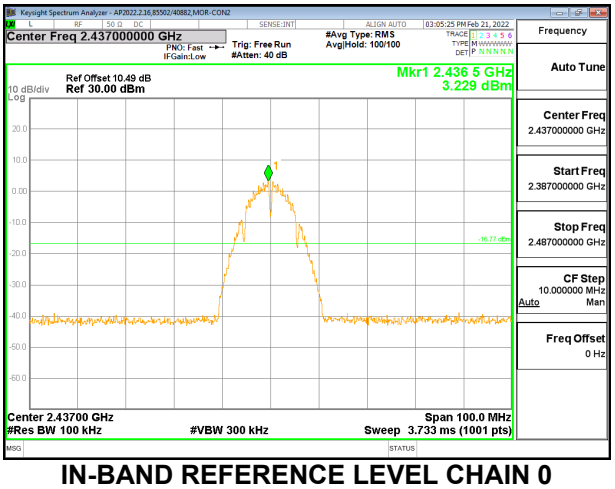
2TX Chain 0 + Chain 1 CDD MODE



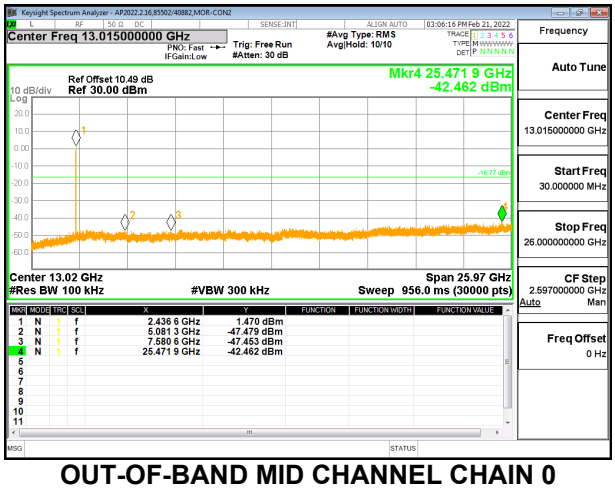
LOW CHANNEL 1 BANDEDGE CHAIN 0



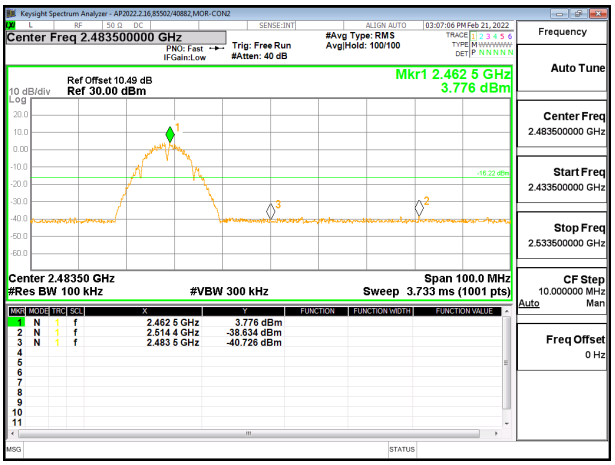
OUT-OF-BAND LOW CHANNEL 1 CHAIN 0



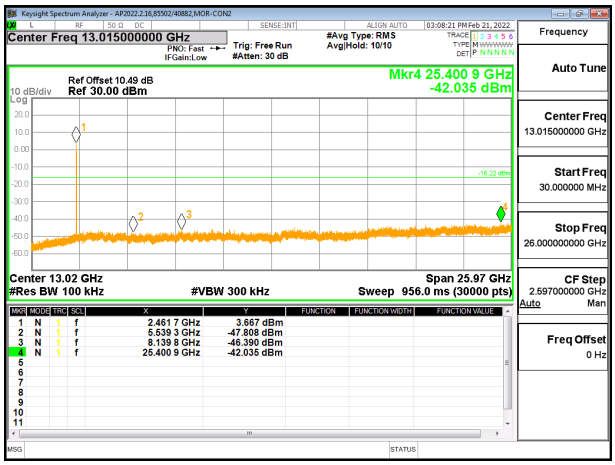
IN-BAND REFERENCE LEVEL CHAIN 0



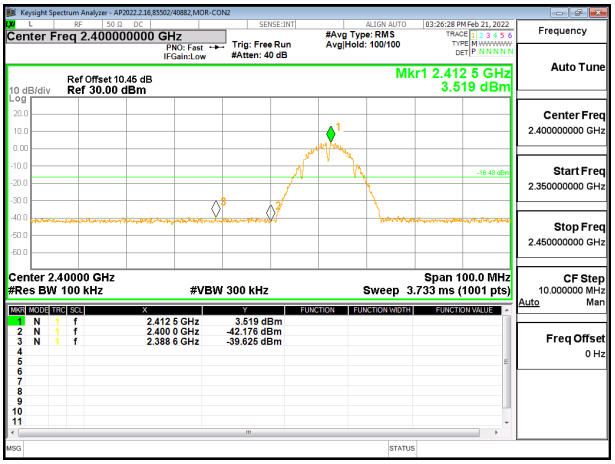
OUT-OF-BAND MID CHANNEL CHAIN 0



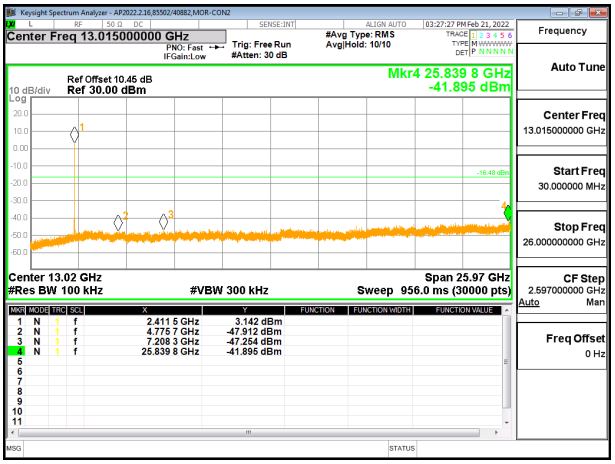
HIGH CHANNEL 11 BANDEDGE CHAIN 0



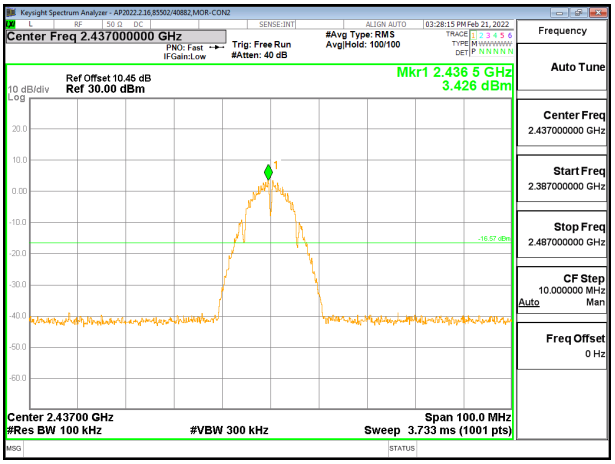
OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0



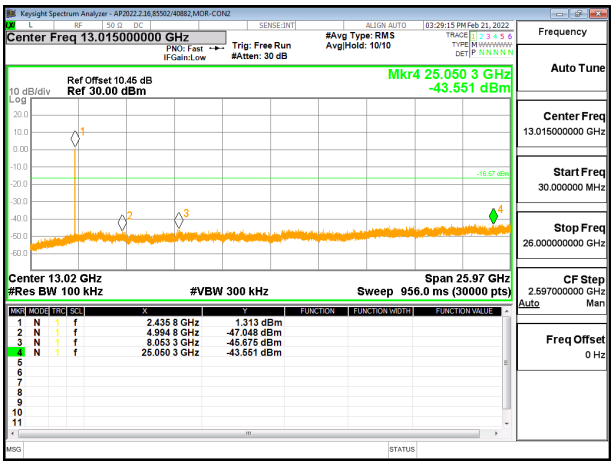
LOW CHANNEL 1 BANDEDGE CHAIN 1



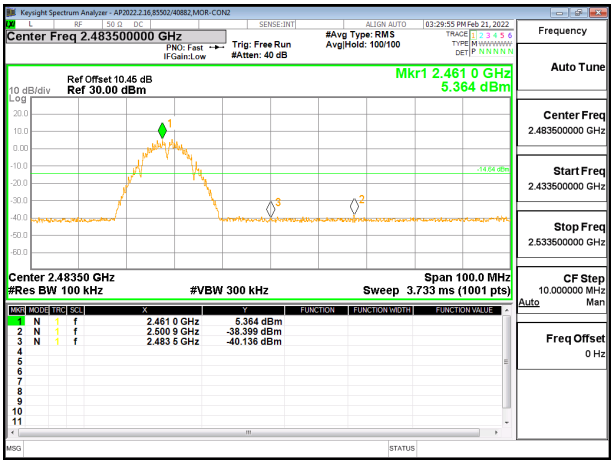
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



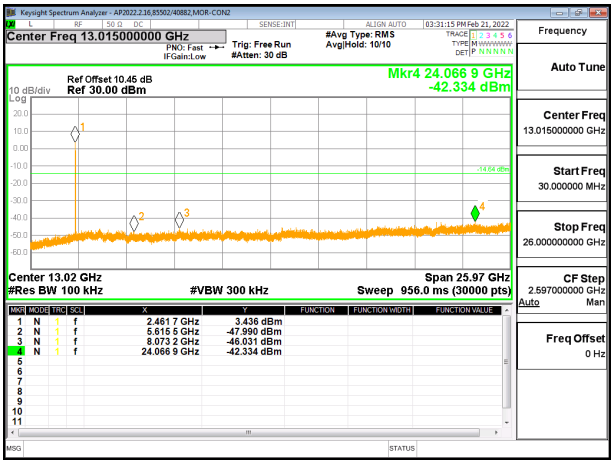
IN-BAND REFERENCE LEVEL CHAIN 1



OUT-OF-BAND MID CHANNEL CHAIN 1



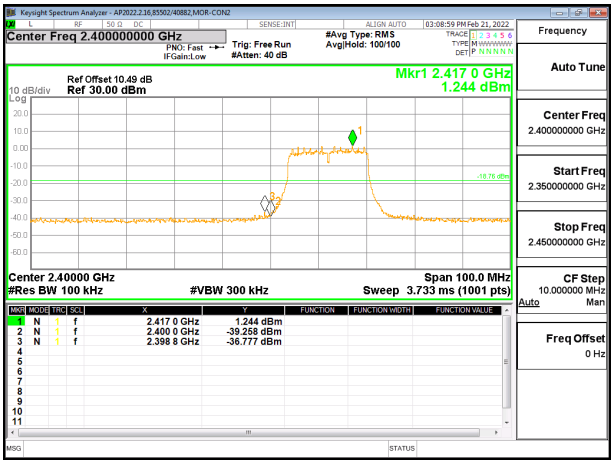
HIGH CHANNEL 11 BANDEDGE CHAIN 1



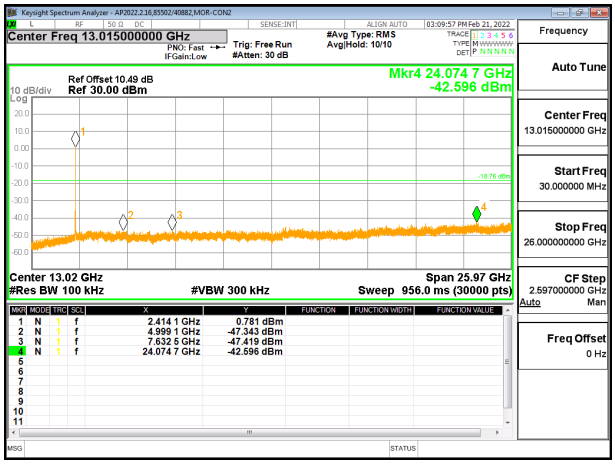
OUT-OF-BAND HIGH CHANNEL 11 CHAIN 1

9.5.2. 802.11g MODE

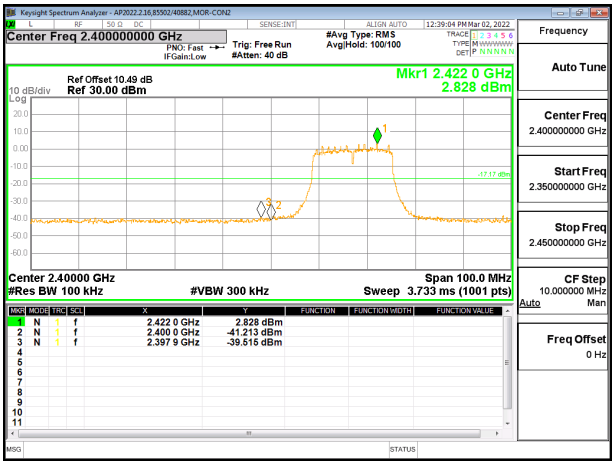
2TX Chain 0 + Chain 1 CDD MODE



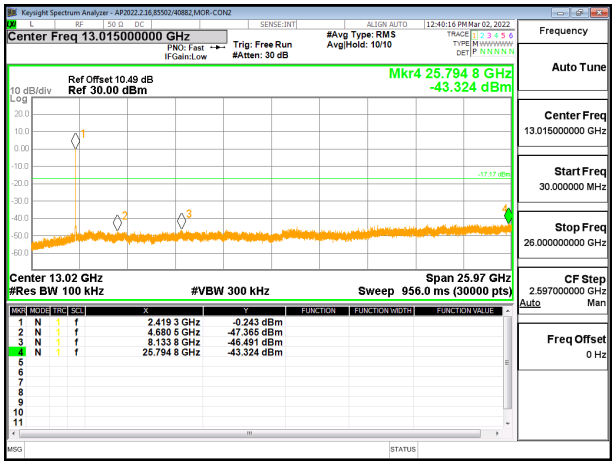
LOW CHANNEL 1 BANDEDGE CHAIN 0



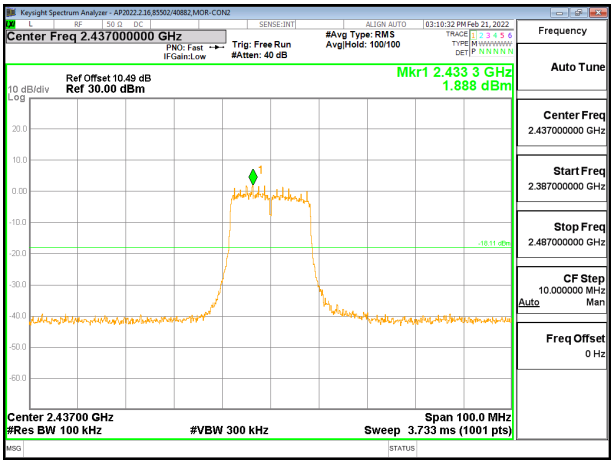
OUT-OF-BAND LOW CHANNEL 1 CHAIN 0



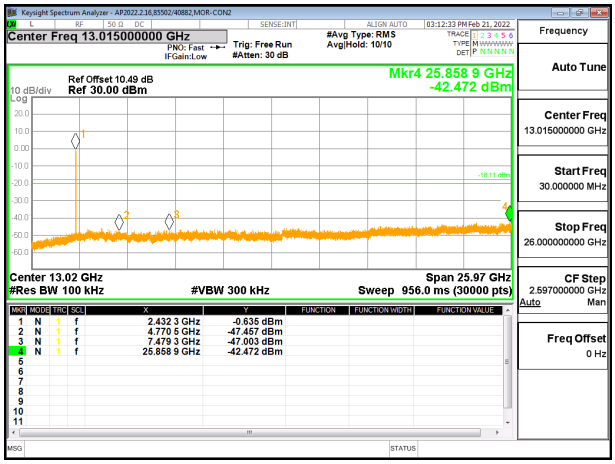
LOW CHANNEL 2 BANDEDGE CHAIN 0



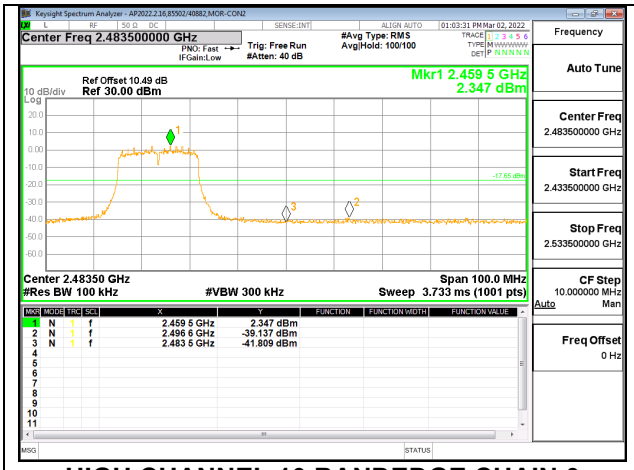
OUT-OF-BAND LOW CHANNEL 2 CHAIN 0



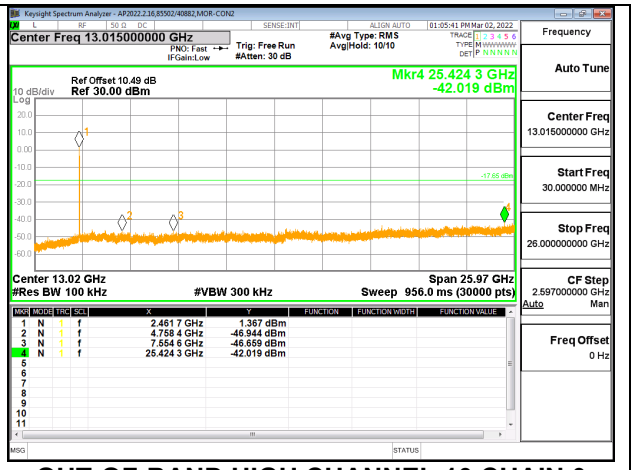
IN-BAND REFERENCE LEVEL CHAIN 0



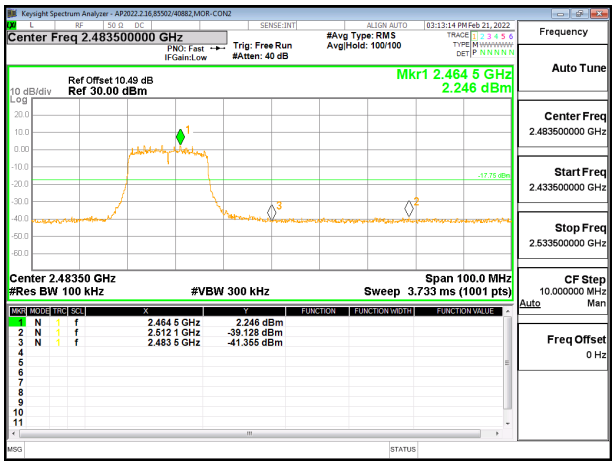
OUT-OF-BAND MID CHANNEL CHAIN 0



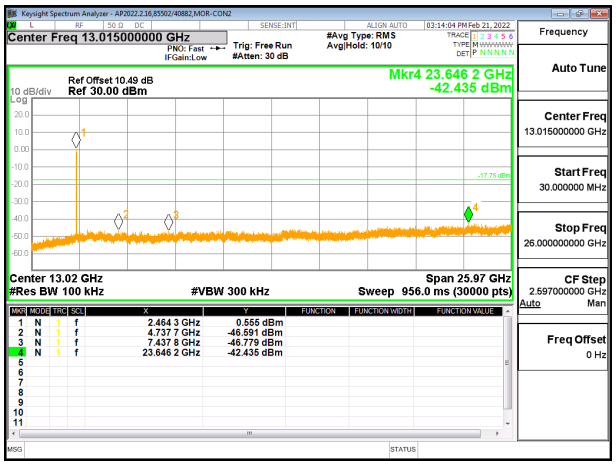
HIGH CHANNEL 10 BANDEDGE CHAIN 0



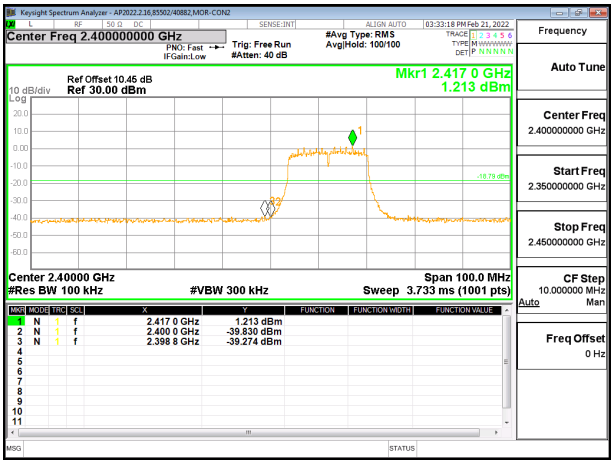
OUT-OF-BAND HIGH CHANNEL 10 CHAIN 0



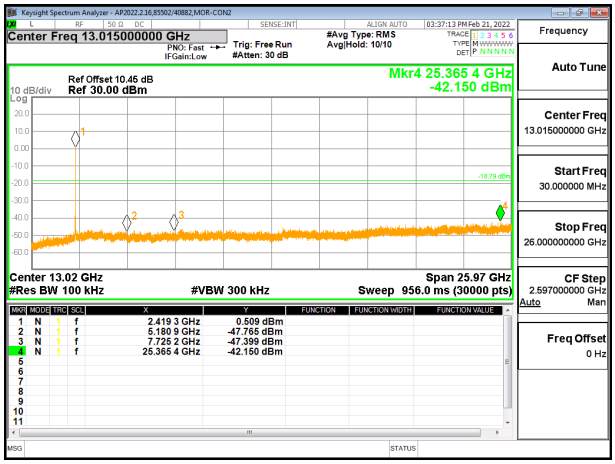
HIGH CHANNEL 11 BANDEDGE CHAIN 0



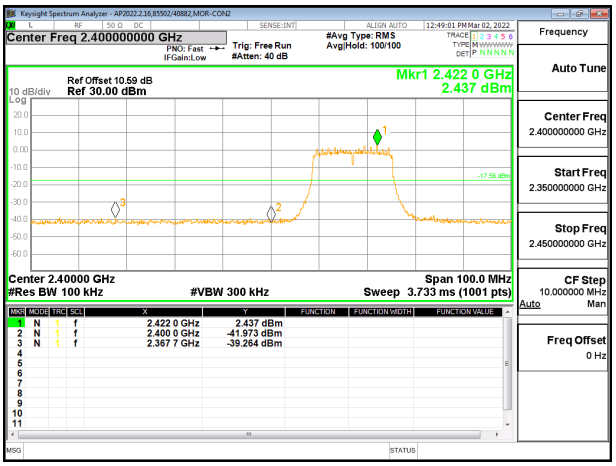
OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0



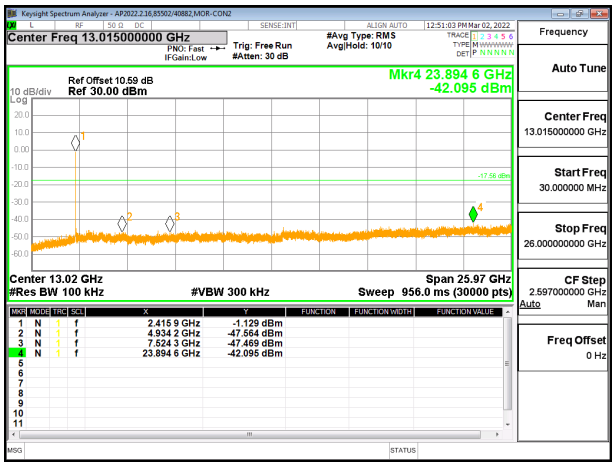
LOW CHANNEL 1 BANDEDGE CHAIN 1



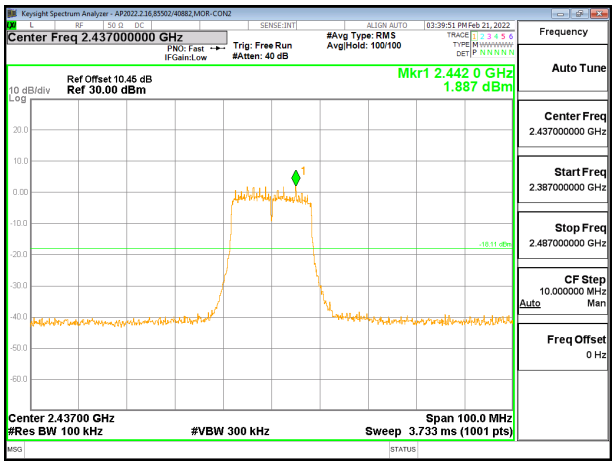
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



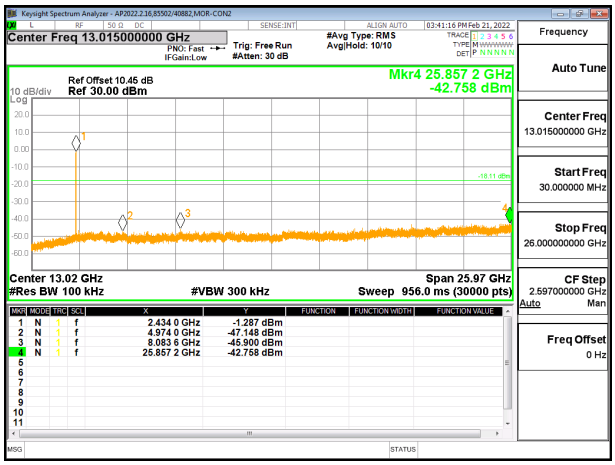
LOW CHANNEL 2 BANDEDGE CHAIN 0



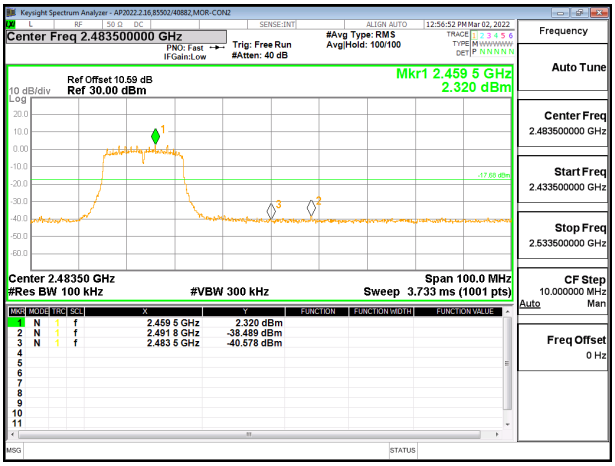
OUT-OF-BAND LOW CHANNEL 2 CHAIN 0



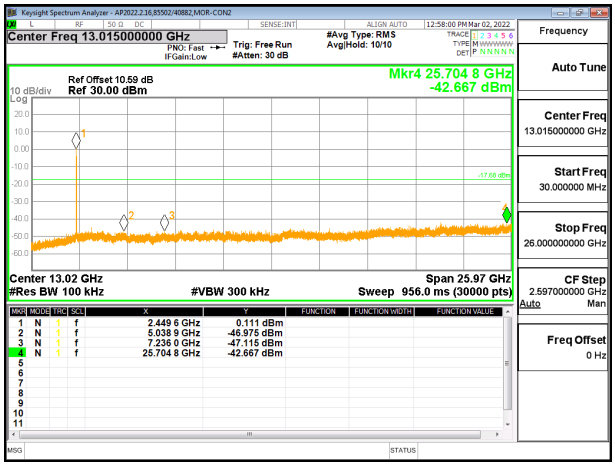
IN-BAND REFERENCE LEVEL CHAIN 1



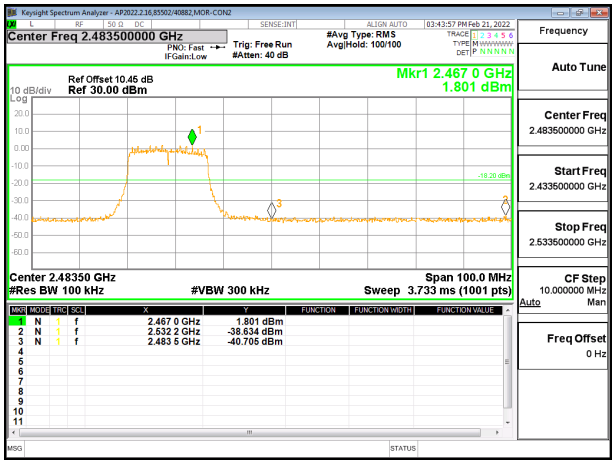
OUT-OF-BAND MID CHANNEL CHAIN 1



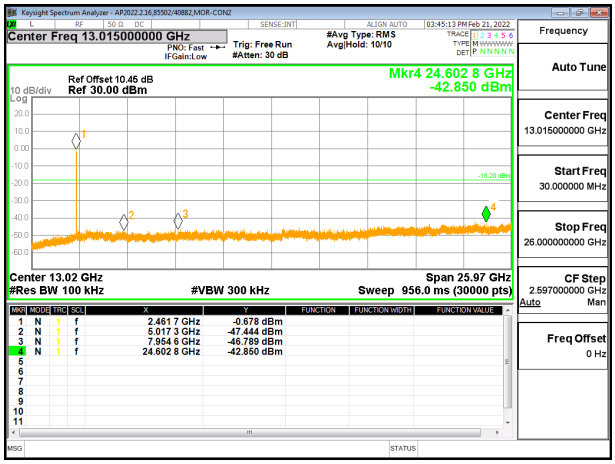
HIGH CHANNEL 10 BANDEDGE CHAIN 0



OUT-OF-BAND HIGH CHANNEL 10 CHAIN 0



HIGH CHANNEL 11 BANDEDGE CHAIN 1



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 1