TEST REPORT

Report Number. : R14634918-E4a

Applicant	:	Sony Corporation 1-7-1 Konan Minato-Ku Tokyo, 108-0075, Japan
FCC ID	:	PY7-12907W
EUT Description	:	GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
2023-03-15

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

CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2023-02-28	Initial Issue	Charles Moody
V2	2023-03-13	Corrected KDB information in Section 3, added explanation for MIMO testing in Section 6.5, updated output power, elaborated worst-case radiated testing, and updated antenna type.	Charles Moody
V3	2023-03-15	Added additional explanation for 2Tx testing in section 6.5	Charles Moody

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

SERIAL NUMBER: QV70015FA, QV7700FRFN, QV7700E1FN

SAMPLE RECEIPT DATE: 2022-12-12, 2023-01-20

DATE TESTED: 2023-01-31 TO 2023-03-08

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

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

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

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

Approved & Released For
UL LLC By:

Mike Antola
Staff Engineer
Consumer Technology Division
UL LLC

Prepared By:

Charles Moody
Engineer
Consumer Technology Division
UL LLC

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2. TEST RESULTS SUMMARY

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.

Below is a list of the data provided by the customer:
1) Antenna gain and type (see section 6.3)
2) Cable loss (see sections 9.3 and 9.4

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
15.247 (a) (2)	6dB BW	Compliant	None
15.247 (b) (3)	Output Power		
See Comment	Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	PSD	Compliant	None
15.247 (d)	Conducted Spurious Emissions		
15.209, 15.205	Radiated Emissions		
15.207	AC Mains Conducted Emissions		

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, 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. Suite B Morrisville, NC 27560, U.S.A		27265	

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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/5G Phone with BT, DTS, UNII a/b/g/n/ac/ax, GPS, WPT & NFC. This report covers 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	17.98	62.81
2412 - 2462	802.11g	20.66	116.41
2412 - 2462	802.11n HT20 CDD	20.43	110.41

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

The radio utilizes two antennas for diversity, with the following types and maximum gains:

Chain	Designation in Documentation	Type	Frequency Range (MHz)	Maximum Gain (dBi)
0	WiFi Main	Loop	2402-2480	-0.43
1	WiFi Sub	Monopole	2402-2480	-4.44

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 0.81 for the radiated sample and 0.293 for the conducted sample

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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 R14634918-E4b.

Band edge was performed with the EUT set to transmit at the highest power 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 average power. The worst-case radiated emissions from 1-18 GHz for CCK was 11b. For OFDM/OFDMA modulation schemes, the worst-case radiated emissions from 1-18 GHz can be found in R14634918-E4b.

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

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20mode: MCS0 (Nss=1)

Based on pretesting, all testing performed in 2Tx mode (NSS=1), where power per chain is equivalent to the 1Tx power on eachchain. This allows 2Tx testing to cover all 1Tx testing.

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6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Dell	Inspiron 15 3000	5KPQJP3	-
AC Adaptor	Sony	XQZ-UC1	1821W34209742	NA
Headphones	Sony	MDR-EX15AP	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-C	1	USB-C	Non-Shielded	<3m	Connected to power supply
2	3.5mm	1	AUX	Non-Shielded	<3m	Connected to headphones

TEST SETUP

The EUT is connected to a test laptop during the tests. Test software exercised the radio card.

SETUP DIAGRAM

Please refer to R14634918-EP2 for setup diagrams

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7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10, Section 11.6 : Zero-Span Spectrum Analyzer Method.

6 dB BW: ANSI C63.10 Subclause -11.8.1

Output Power: ANSI C63.10 Subclause -11.9.2.3.1 Method PKPM1 Peak-reading power meter
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 Section 6.3 to 6.6

AC Power-line conducted emissions: ANSI C63.10-2013, Section 6.2.

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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.
	Common Equipment				
	Conducted Room 2				
SA0025	Spectrum Analyzer	Keysight Technologies	N9030A	2022-05-02	2023-05-02
PWM005	RF Power Meter	Keysight Technologies	N1912A	2022-09-02	2024-09-02
PWM001 (PRE0136343)	RF Power Meter	Keysight Technologies	N1912A	2022-08-30	2023-08-30
PWS001 (PRE0137347)	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2022-07-07	2023-07-07
PWS002	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2022-09-27	2023-09-27
PWS005	Peak and Avg Power Sensor, 50MHz to 18GHz	Keysight Technologies	N1921A	2022-06-15	2023-06-15
HI0090	Environmental Meter	Fisher Scientific	15-077-963	2022-07-20	2023-07-20
76021	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
	Additional Equipment used				
MM0167 (PRE0126458)	True RMS Multimeter	Agilent	U1232A	2021-08-17	2023-08-17
*CBL091	Micro-Coax UTiFLEX Cable Assembly, Low Loss,40Ghz	Carlisle Interconnect Technologies	UFA147A-2-0360-200200	2022-02-15	2023-02-15
*CBL092	Micro-Coax UTiFLEX Cable Assembly, Low Loss,40Ghz	Carlisle Interconnect Technologies	UFA147A-2-0360-200200	2022-02-15	2023-02-15
CBL099	Micro-Coax UTiFLEX Cable Assembly, Low Loss,40Ghz, 39.3", Connectors 2	Carlisle Interconnect Technologies	UFA147A-0-0180-200200	2023-02-17	2024-02-17
CBL105	Micro-Coax UTiFLEX Cable Assembly, Low Loss	Carlisle Interconnect Technologies	UFB-197C-0-0160-300300	2023-02-17	2024-02-17
226561	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2022-05-03	2023-05-03
226563	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2022-05-03	2023-05-03
226564	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2023-02-16	2024-02-16
226559	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2023-02-16	2024-02-16

*NOTE: Testing with this cable was performed prior to 2023-02-15. Therefore, at the time of testing, all equipment was calibrated.

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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				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-03-21	2023-03-21
	Gain-Loss Chains				
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-10	2023-05-10
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-03-08	2023-03-08
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
210642	Environmental Meter	Fisher Scientific	15-077-963 s/n 210701942	2021-08-16	2023-08-16

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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)
2.4 GHz Band						
802.11b 2TX-Chain 0	12.400	12.410	0.999	99.92	0.00	0.010
802.11g 2TX-Chain 0	2.096	2.114	0.991	99.15	0.00	0.010
802.11n HT20 2TX-Chain 0	5.429	5.447	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	2.096	2.114	0.991	99.15	0.00	0.010
802.11n HT20 2TX-Chain 1	5.426	5.447	0.996	99.61	0.00	0.010

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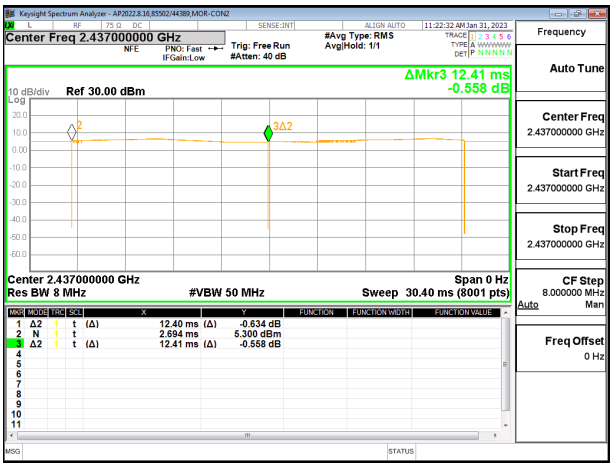
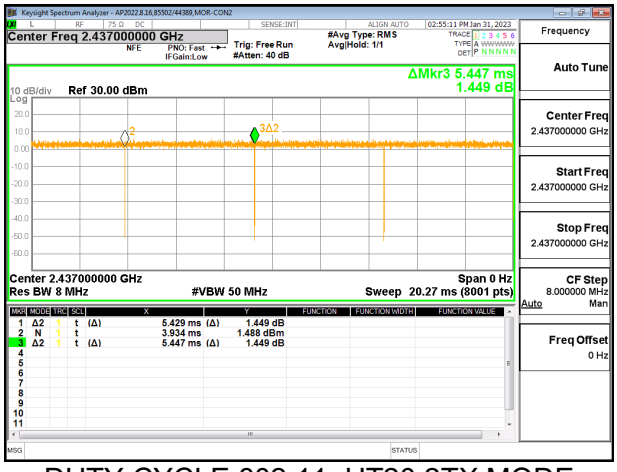
DUTY CYCLE PLOTS-CHAIN 0



DUTY CYCLE 802.11b 2TX MODE

DUTY CYCLE 802.11g 2TX MODE



DUTY CYCLE 802.11nHT20 2TX MODE

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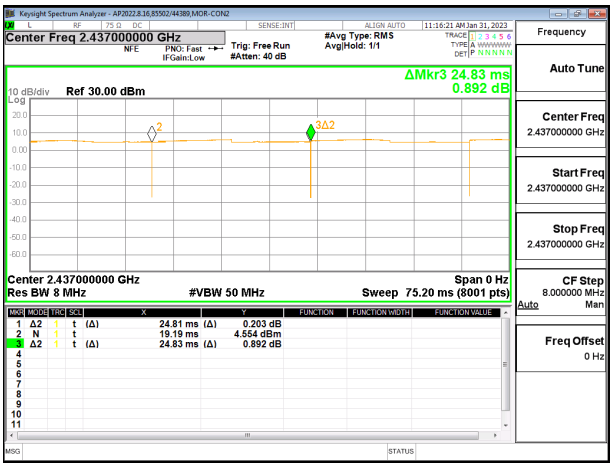
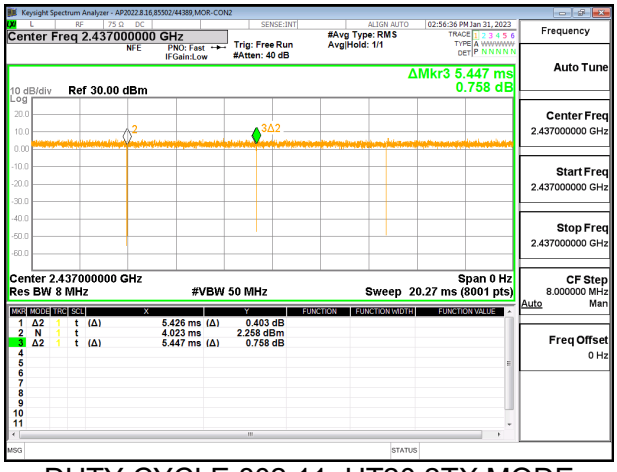
DUTY CYCLE PLOTS-CHAIN 1



DUTY CYCLE 802.11b 2TX MODE

DUTY CYCLE 802.11g 2TX MODE



DUTY CYCLE 802.11nHT20 2TX MODE

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9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

RESULTS

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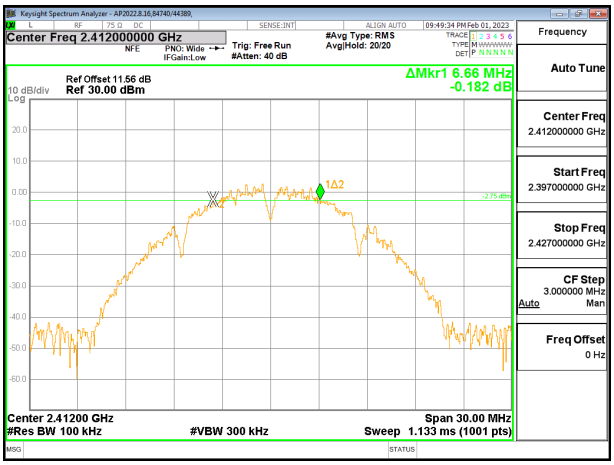
9.2.1. 802.11b MODE

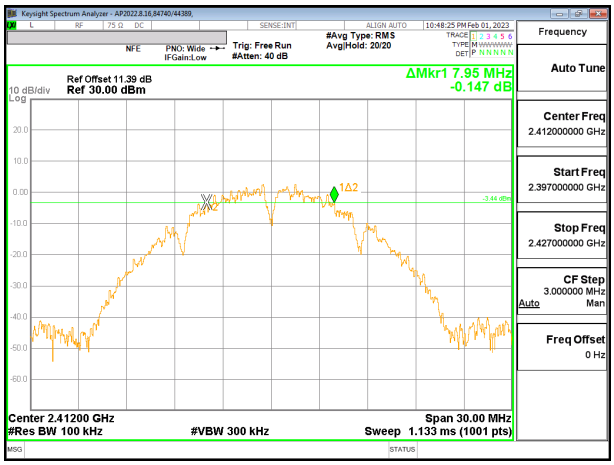
2TX Chain 0 + Chain 1 MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	6.6600	7.9500	0.5
Mid 6	2437	6.9000	7.4100	0.5
High 11	2462	7.1400	7.5600	0.5

LOW CHANNEL 1



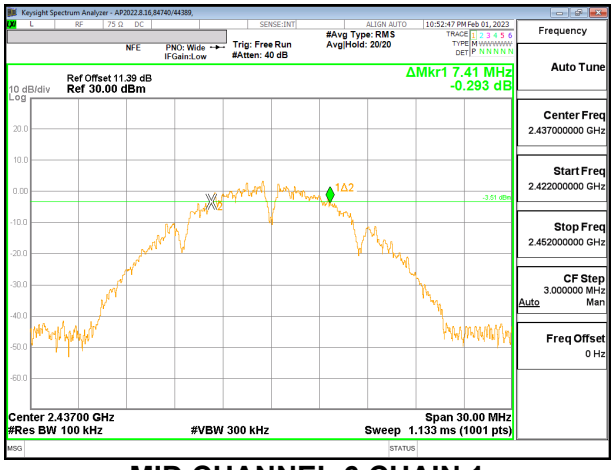
LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6

MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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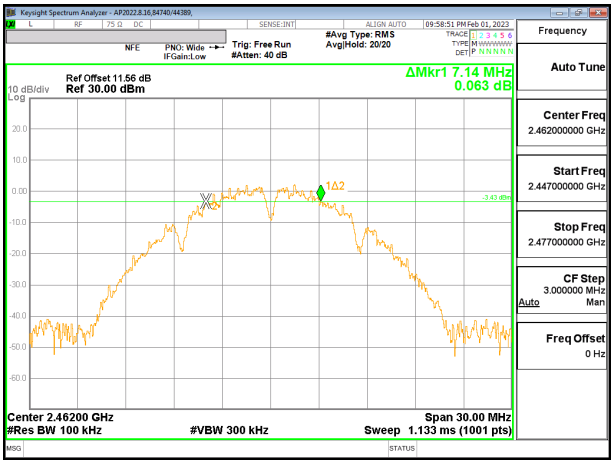
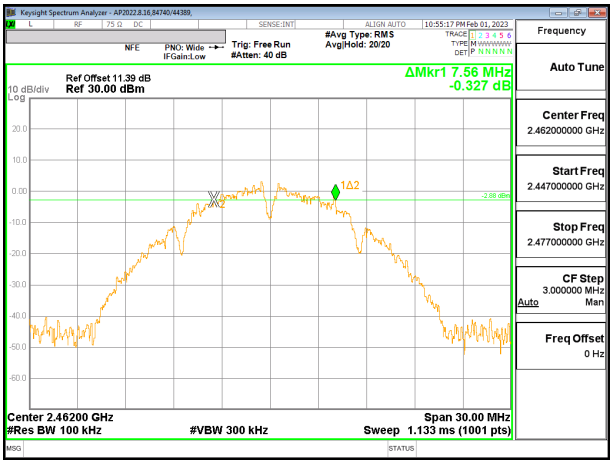
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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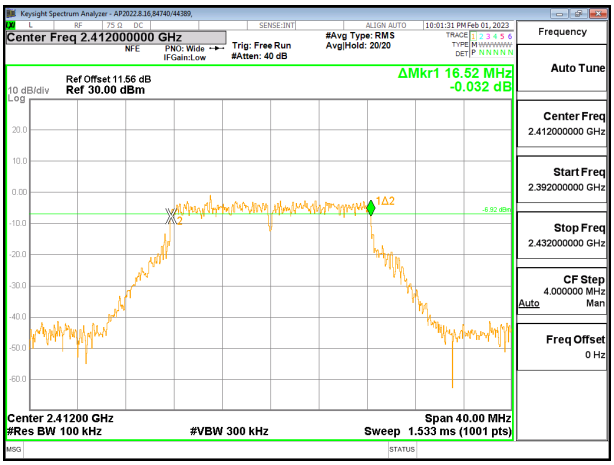
9.2.2. 802.11g MODE

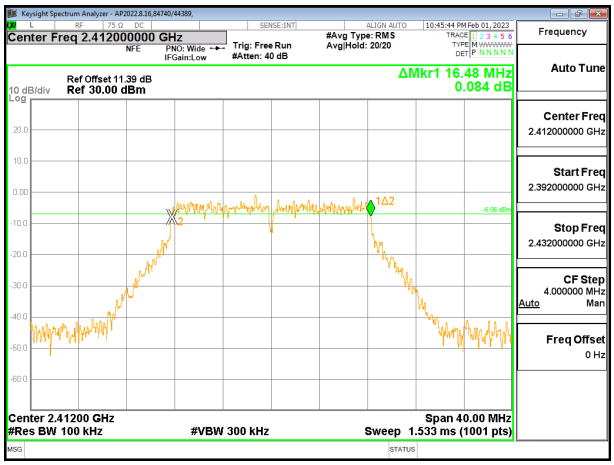
2TX Chain 0 + Chain 1 MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	16.5200	16.4800	0.5
Mid 6	2437	16.4800	16.5600	0.5
High 11	2462	15.8400	16.4800	0.5

LOW CHANNEL 1

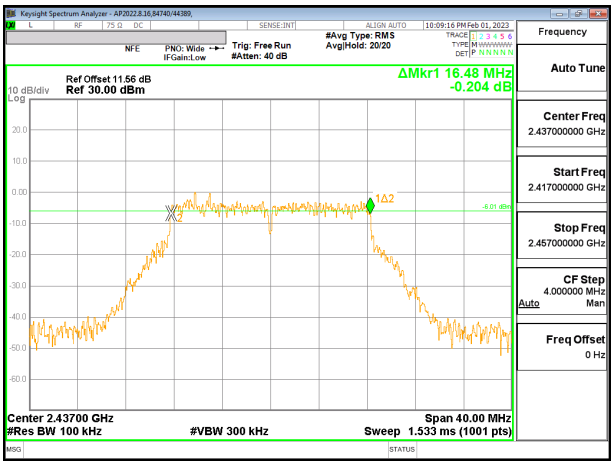


LOW CHANNEL 1 CHAIN 0

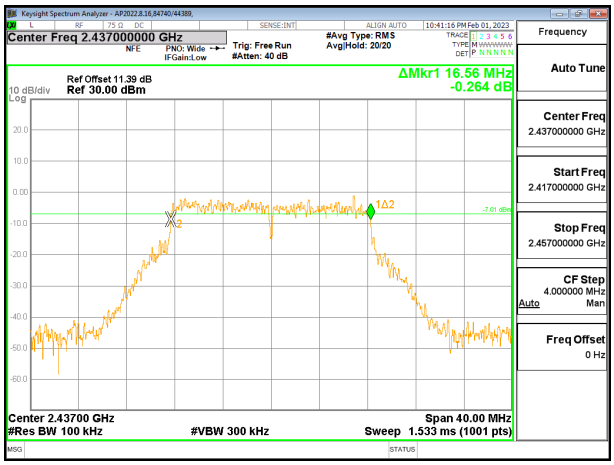


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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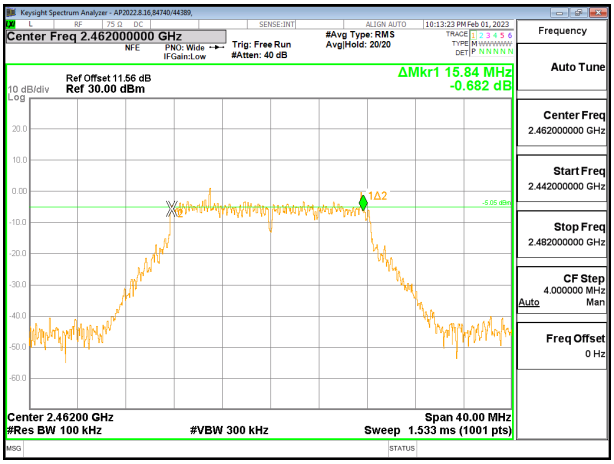
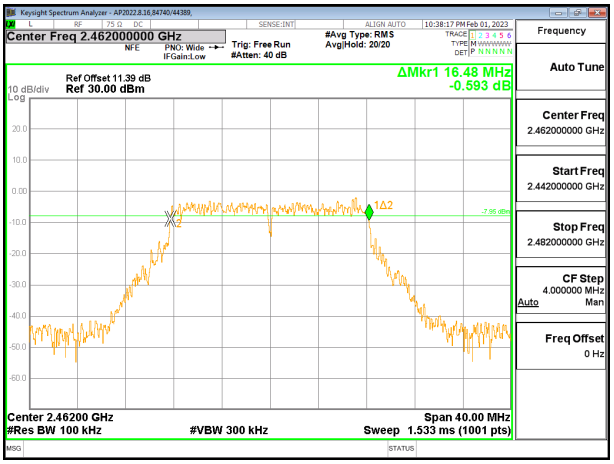
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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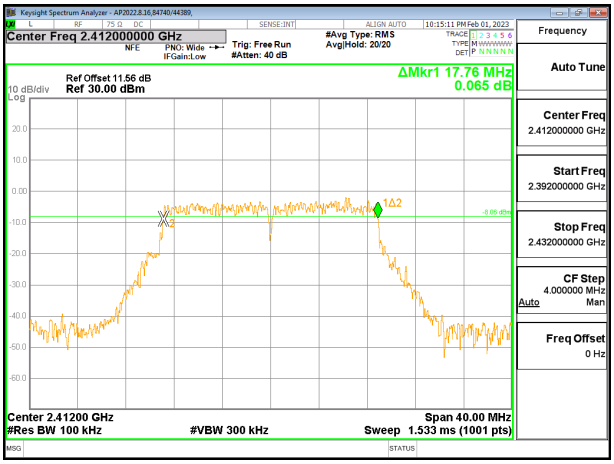
9.2.3. 802.11n HT20 MODE

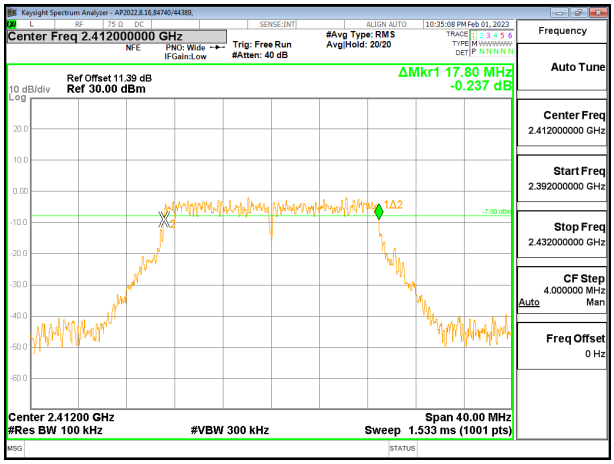
2TX Chain 0 + Chain 1 MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low 1	2412	17.7600	17.8000	0.5
Mid 6	2437	17.6800	17.8000	0.5
High 11	2462	17.7200	17.8000	0.5

LOW CHANNEL 1

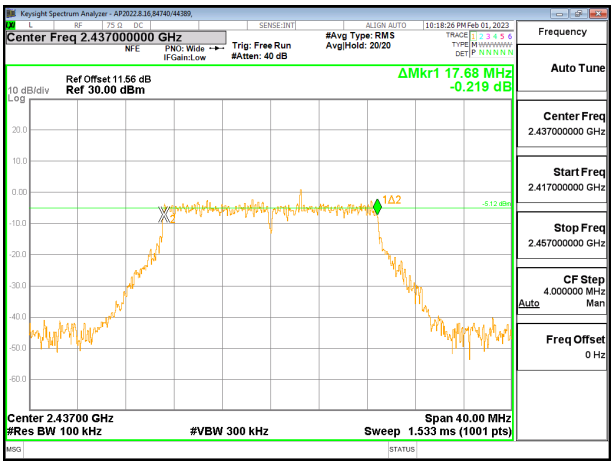


LOW CHANNEL 1 CHAIN 0

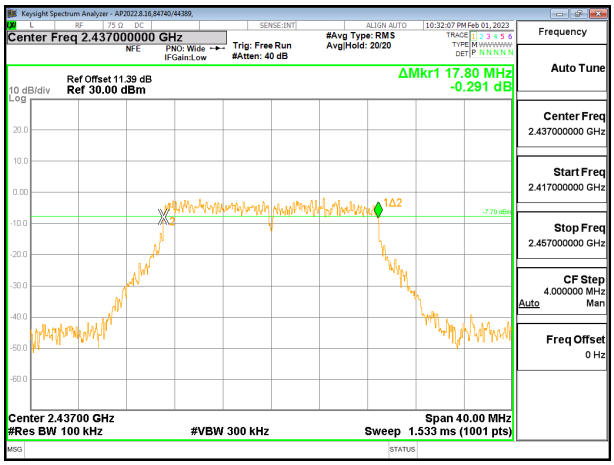


LOW CHANNEL 1 CHAIN 1

MID CHANNEL 6



MID CHANNEL 6 CHAIN 0



MID CHANNEL 6 CHAIN 1

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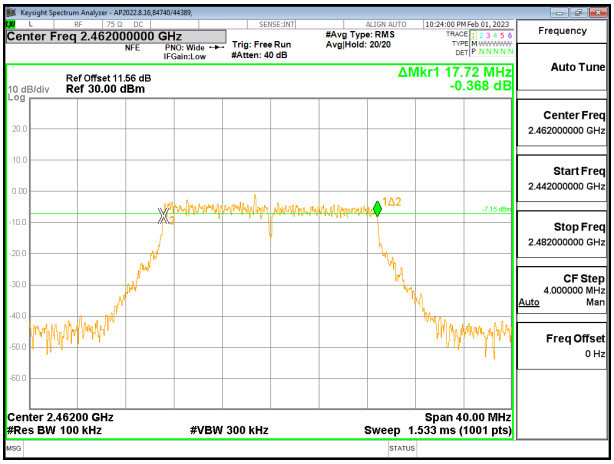
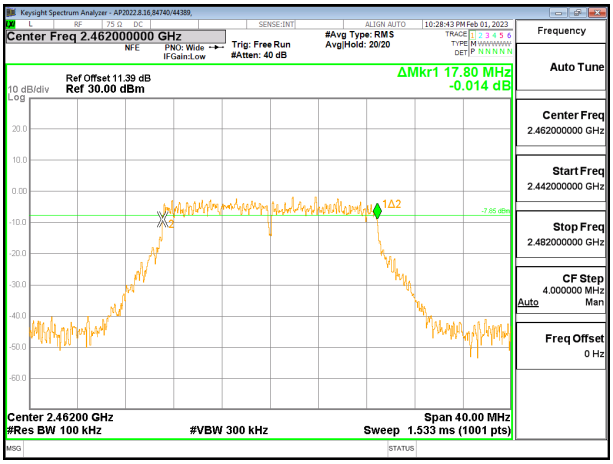
HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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9.3. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

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 for testing on 2023-02-01 of 11.56 dB (including 9.68 dB pad and 1.88 dB cable) for Chain 0 and 11.39dB (including 9.65 dB pad and 1.74 dB cable) for Chain 1 was entered as an offset for in the power meter.

The cable assembly insertion loss for testing on 2023-03-08 of 11.44 dB (including 9.72 dB pad and 1.72 dB cable) for Chain 0 and 11.31dB (including 9.71 dB pad and 1.6 dB cable) for Chain 1 was entered as an offset for in the power meter.

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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	-0.43	-4.44	-1.99	0.80

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RESULTS

9.3.1. 802.11b MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/44389
Test Date:	2023-02-01

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.99	30.00	30.00
Mid 6	2437	-1.99	30.00	30.00
High 11	2462	-1.99	30.00	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	15.77	13.79	17.90	30.00	-12.10
Mid 6	2437	15.70	14.10	17.98	30.00	-12.02
High 11	2462	15.32	13.99	17.72	30.00	-12.28

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9.3.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	27465/44389
Test Date:	2023-03-08

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.99	30.00	30.00
Mid 6	2437	-1.99	30.00	30.00
High 11	2462	-1.99	30.00	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	17.15	17.34	20.26	30.00	-9.74
Mid 6	2437	17.88	17.40	20.66	30.00	-9.34
High 11	2462	17.82	17.11	20.49	30.00	-9.51

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9.3.3. 802.11n HT20 MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	27465/44389
Test Date:	2023-03-08

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	Max Power (dBm)
Low 1	2412	-1.99	30.00	30.00
Mid 6	2437	-1.99	30.00	30.00
High 11	2462	-1.99	30.00	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	16.96	17.45	20.22	30.00	-9.78
Mid 6	2437	17.29	17.54	20.43	30.00	-9.57
High 11	2462	17.29	17.25	20.28	30.00	-9.72

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9.4. 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 for testing 2023-02-01 of 11.56 dB (including 9.68 dB pad and 1.88 dB cable) for Chain 0 and 11.39dB (including 9.65 dB pad and 1.74 dB cable) for Chain 1 was entered as an offset for in the power meter.

The cable assembly insertion loss for testing on 2023-03-08 of 11.44 dB (including 9.72 dB pad and 1.72 dB cable) for Chain 0 and 11.31dB (including 9.71 dB pad and 1.6 dB cable) for Chain 1 was entered as an offset for in the power meter.

RESULTS

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9.4.1. 802.11b MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	84740/44389
Test Date:	2023-02-01

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	12.95	10.99	15.09
Mid 6	2437	12.98	11.30	15.23
High 11	2462	12.55	11.13	14.91

9.4.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	27465/44389
Test Date:	2023-03-08

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	12.01	12.19	15.11
Mid 6	2437	12.07	12.11	15.10
High 11	2462	12.06	12.09	15.09

9.4.3. 802.11n HT20 MODE

2TX Chain 0 + Chain 1 CDD MODE

Test Engineer:	27465/44389
Test Date:	2023-03-08

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low 1	2412	12.02	12.15	15.10
Mid 6	2437	12.11	12.17	15.15
High 11	2462	12.10	12.10	15.11

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9.5. 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

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9.5.1. 802.11b MODE

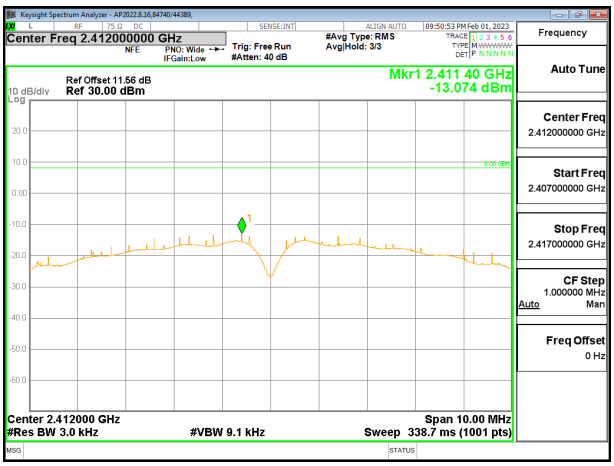
2TX Chain 0 + Chain 1 CDD MODE

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

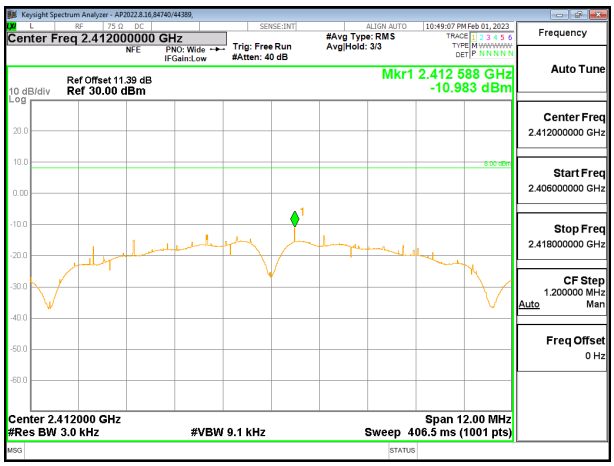
PSD Results

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	-13.074	-10.983	-8.894	8.0	-16.9
Mid 6	2437	-12.268	-12.530	-9.387	8.0	-17.4
High 11	2462	-12.606	-13.057	-9.815	8.0	-17.8

LOW CHANNEL 1



LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

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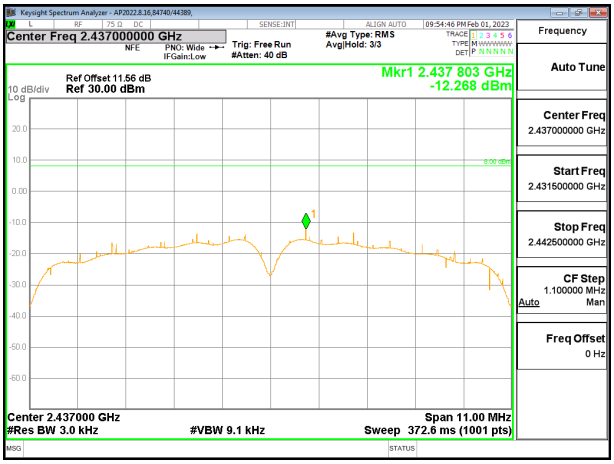
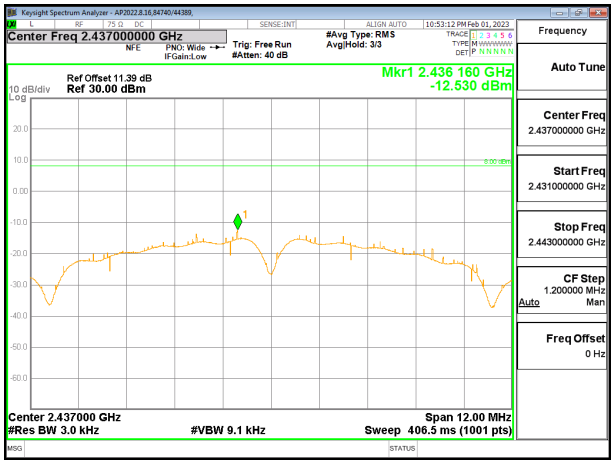
MID CHANNEL 6

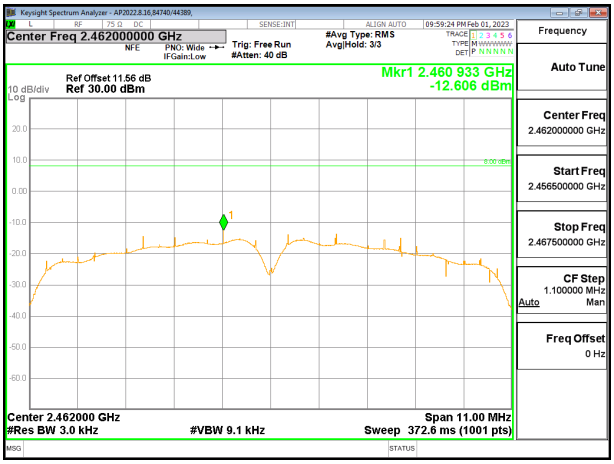


MID CHANNEL 6 CHAIN 0

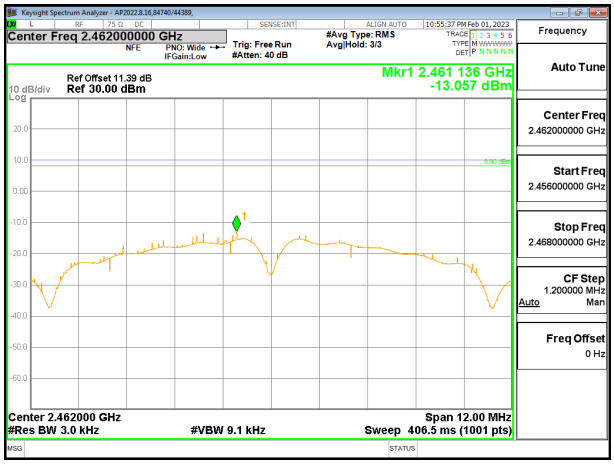


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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9.5.2. 802.11g MODE

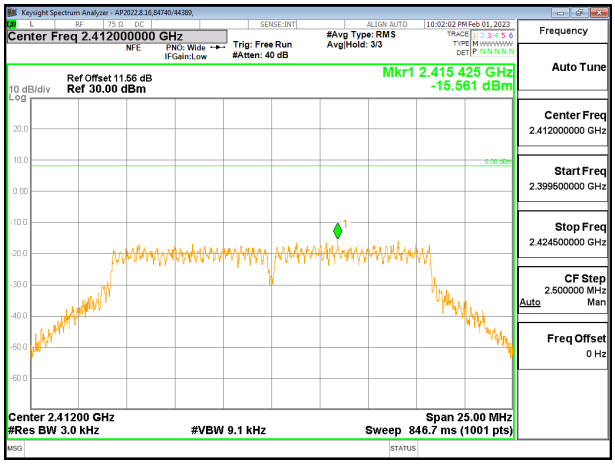
2TX Chain 0 + Chain 1 CDD MODE

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

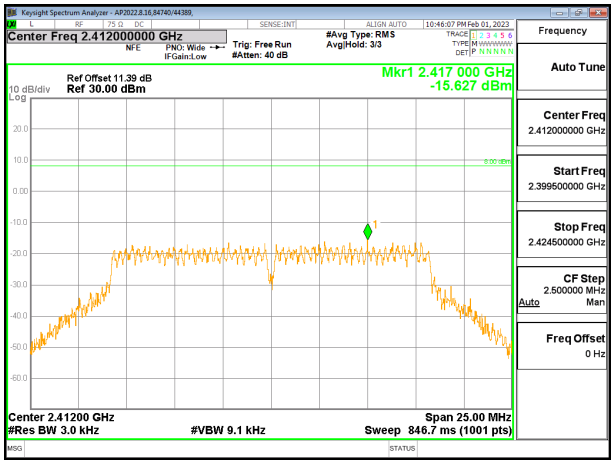
PSD Results

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	-15.561	-15.627	-12.584	8.0	-20.6
Mid 6	2437	-16.598	-15.513	-13.011	8.0	-21.0
High 11	2462	-15.609	-17.162	-13.306	8.0	-21.3

LOW CHANNEL 1



LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

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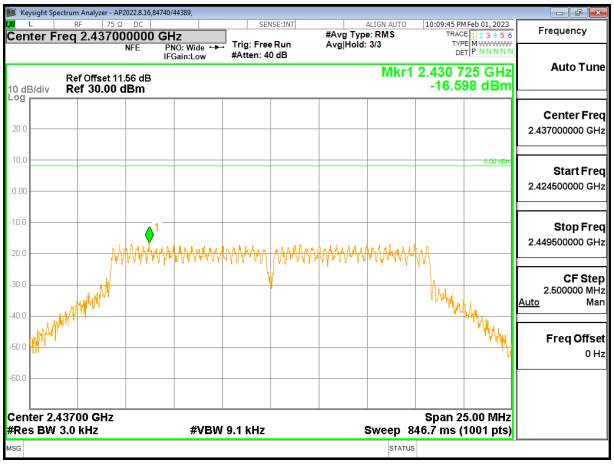
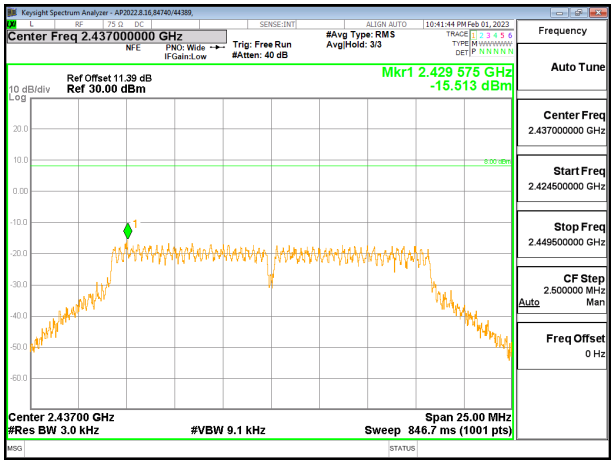
MID CHANNEL 6

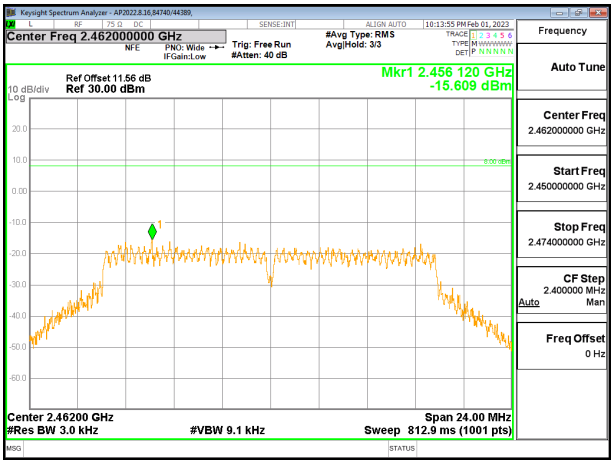


MID CHANNEL 6 CHAIN 0

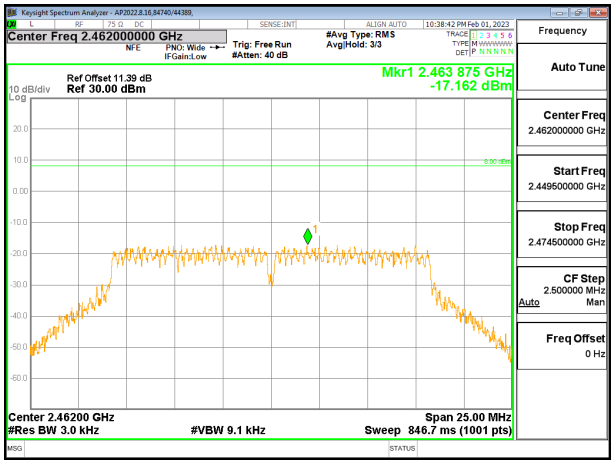


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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9.5.3. 802.11n HT20 MODE

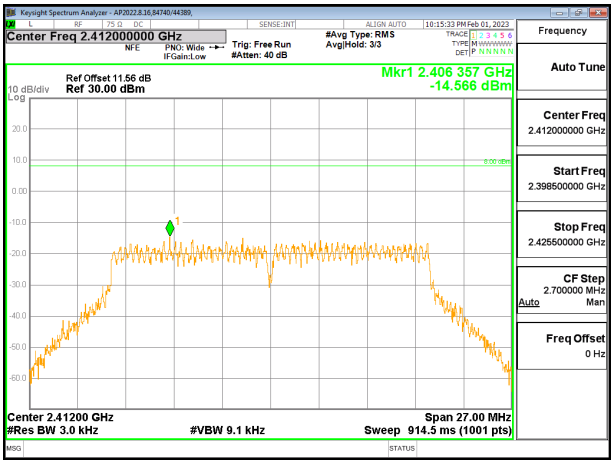
2TX Chain 0 + Chain 1 CDD MODE

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

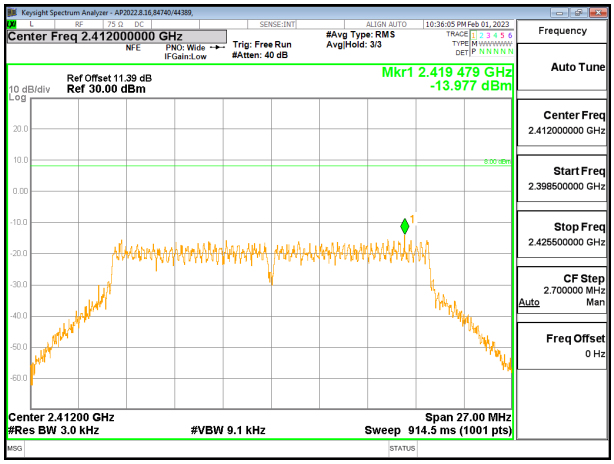
PSD Results

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	-14.566	-13.977	-11.251	8.0	-19.3
Mid 6	2437	-14.992	-14.825	-11.897	8.0	-19.9
High 11	2462	-15.563	-14.874	-12.195	8.0	-20.2

LOW CHANNEL 1



LOW CHANNEL 1 CHAIN 0



LOW CHANNEL 1 CHAIN 1

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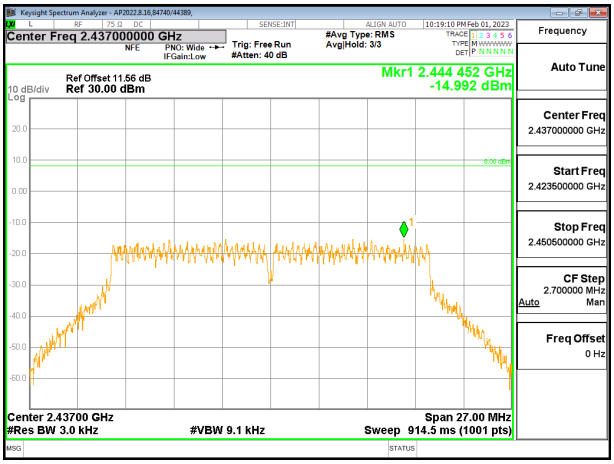
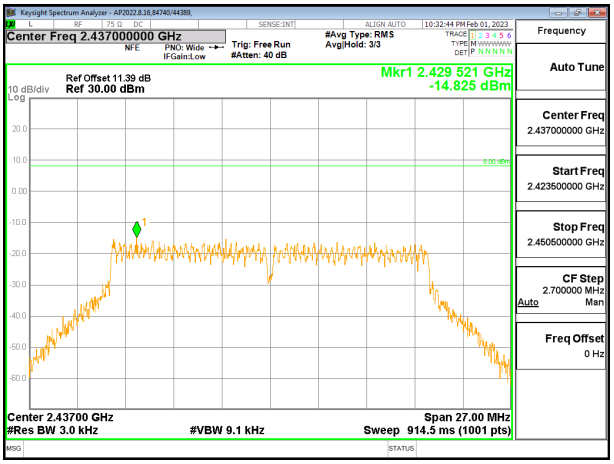
MID CHANNEL 6

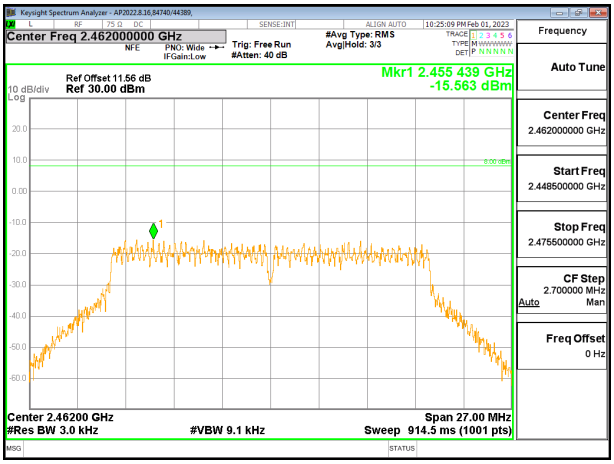


MID CHANNEL 6 CHAIN 0

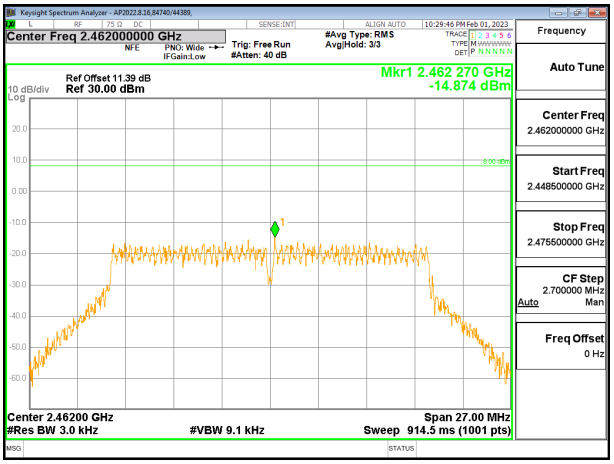


MID CHANNEL 6 CHAIN 1

HIGH CHANNEL 11



HIGH CHANNEL 11 CHAIN 0



HIGH CHANNEL 11 CHAIN 1

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9.6. 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

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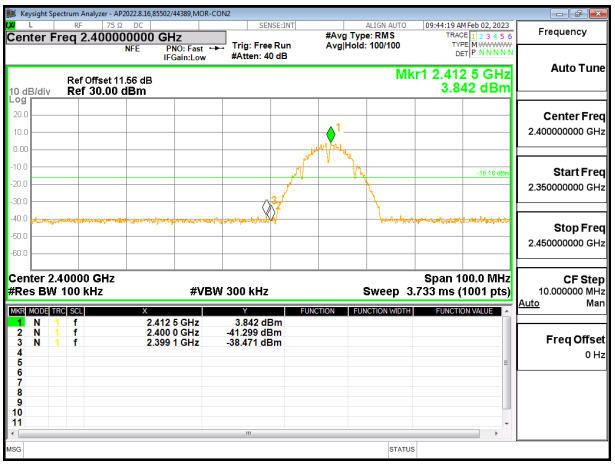
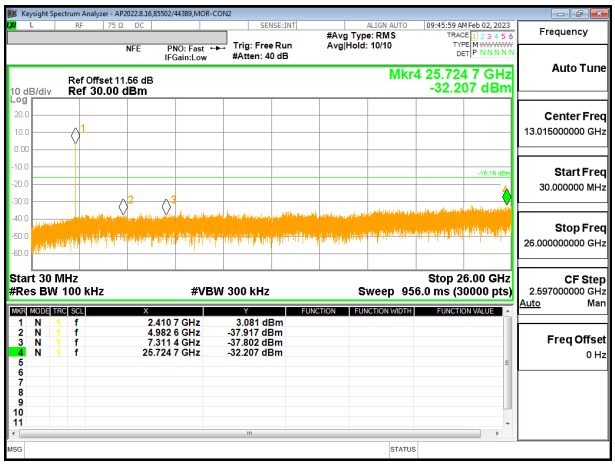
9.6.1. 802.11b MODE

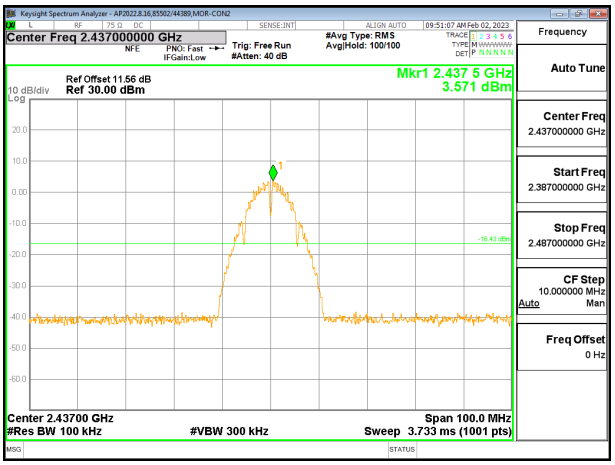
2TX Chain 0 + Chain 1 CDD MODE



LOW CHANNEL 1 BANDEDGE CHAIN 0

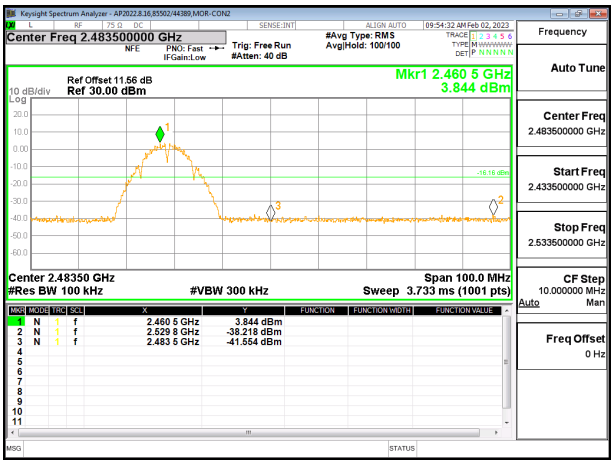


OUT-OF-BAND LOW CHANNEL 1 CHAIN 0

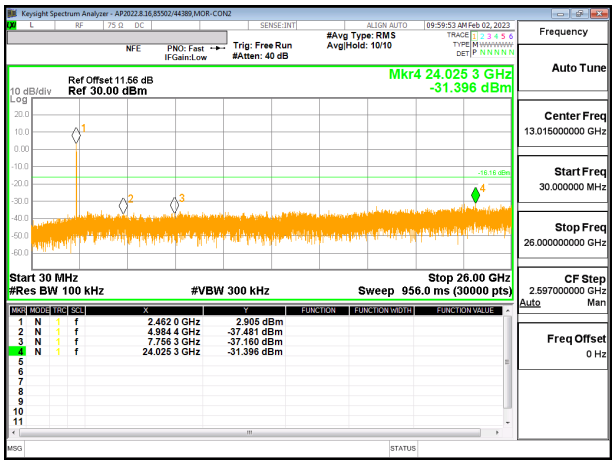


IN-BAND REFERENCE LEVEL CHAIN 0

OUT-OF-BAND MID CHANNEL CHAIN 0



HIGH CHANNEL 11 BANDEDGE CHAIN 0



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0

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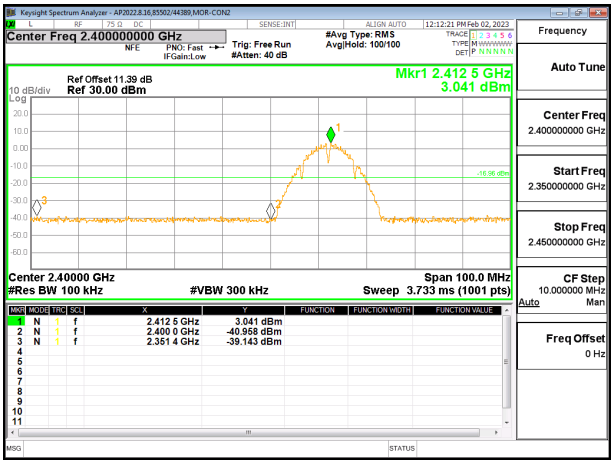
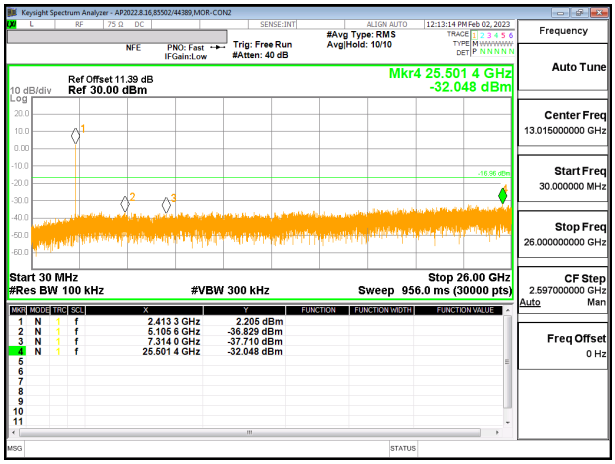
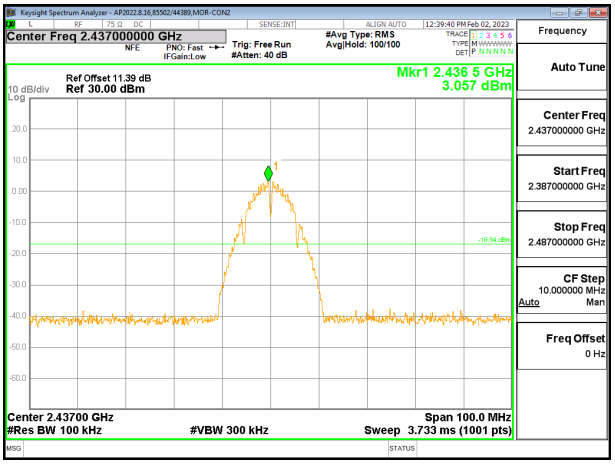


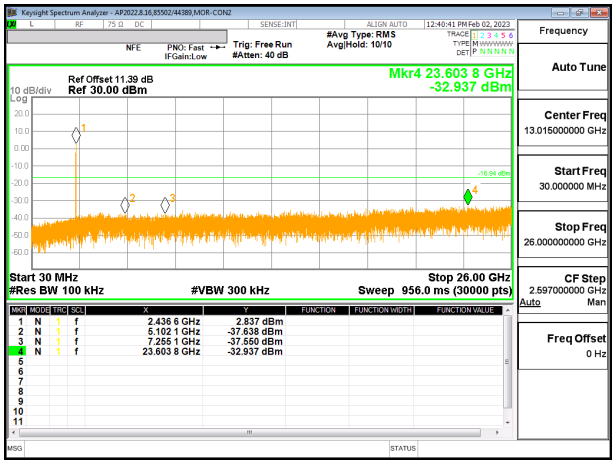
LOW CHANNEL 1 BANDEDGE CHAIN 1



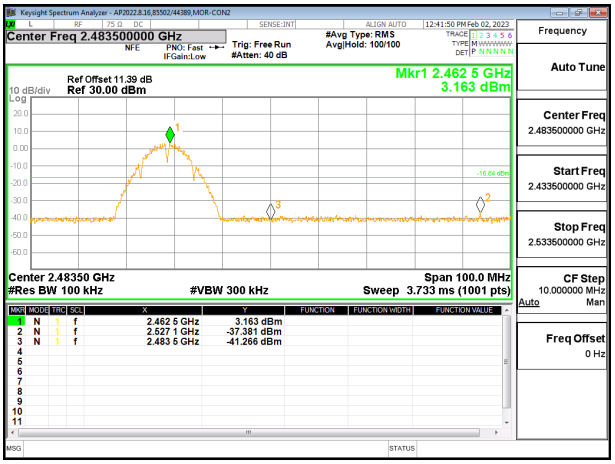
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



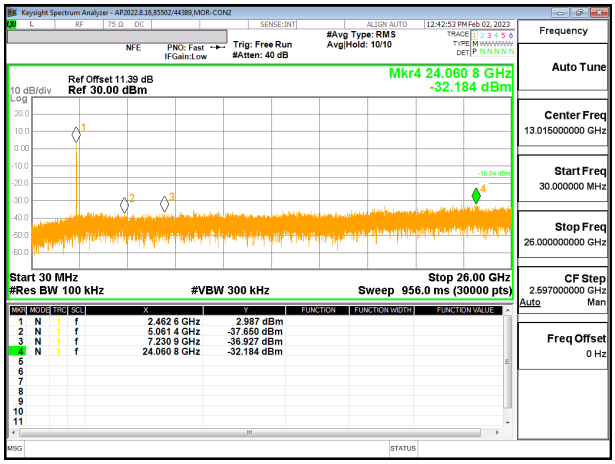
IN-BAND REFERENCE LEVEL CHAIN 1



OUT-OF-BAND MID CHANNEL CHAIN 1



HIGH CHANNEL 11 BANDEDGE CHAIN 1



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 1

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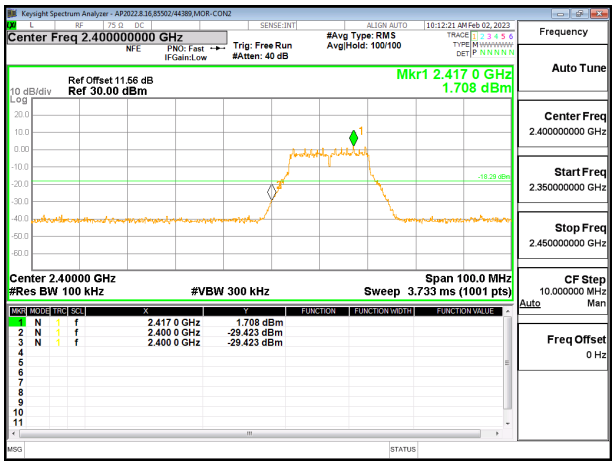
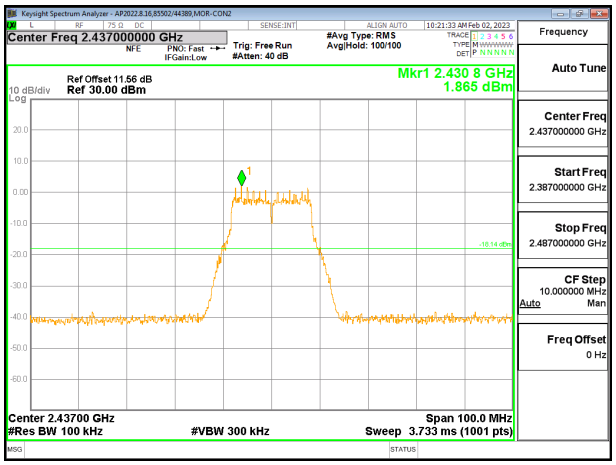
9.6.2. 802.11g MODE

2TX Chain 0 + Chain 1 CDD MODE

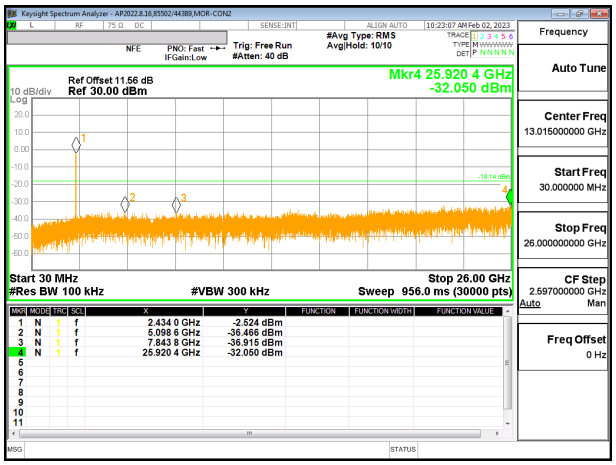


LOW CHANNEL 1 BANDEDGE CHAIN 0

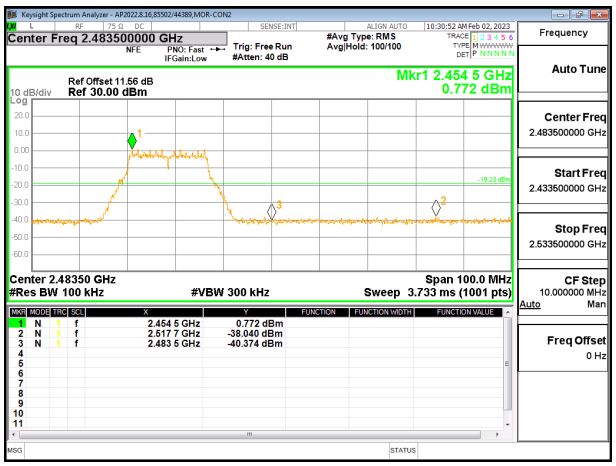
OUT-OF-BAND LOW CHANNEL 1 CHAIN 0



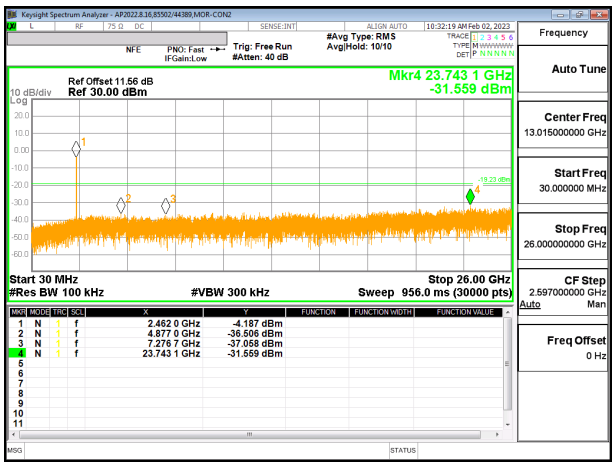
IN-BAND REFERENCE LEVEL CHAIN 0



OUT-OF-BAND MID CHANNEL CHAIN 0



HIGH CHANNEL 11 BANDEDGE CHAIN 0



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0

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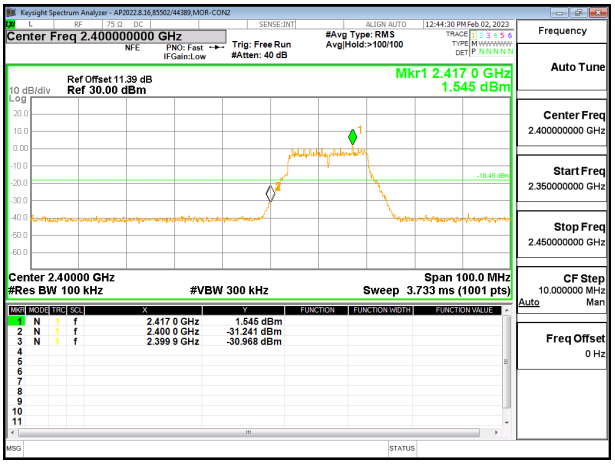
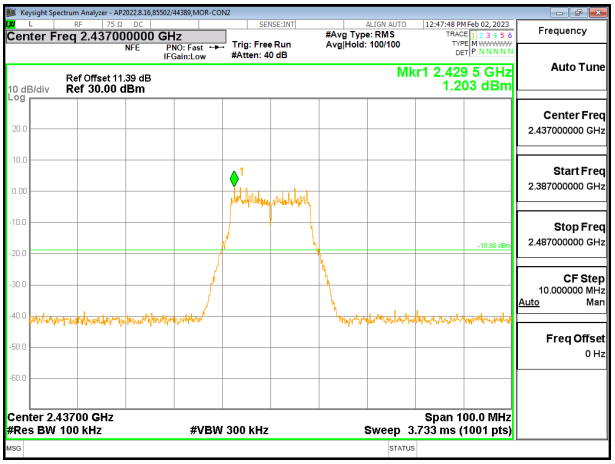
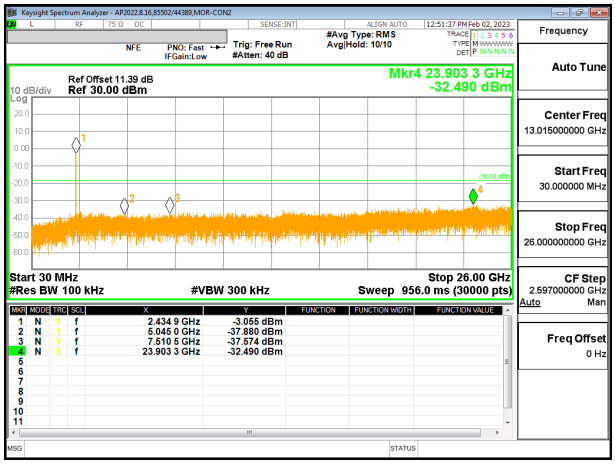


LOW CHANNEL 1 BANDEDGE CHAIN 1

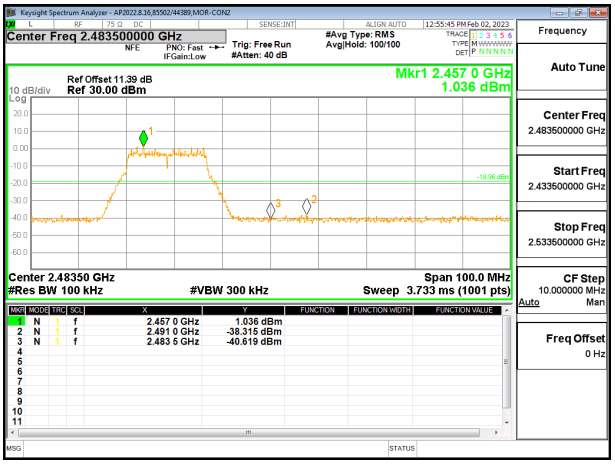
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



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

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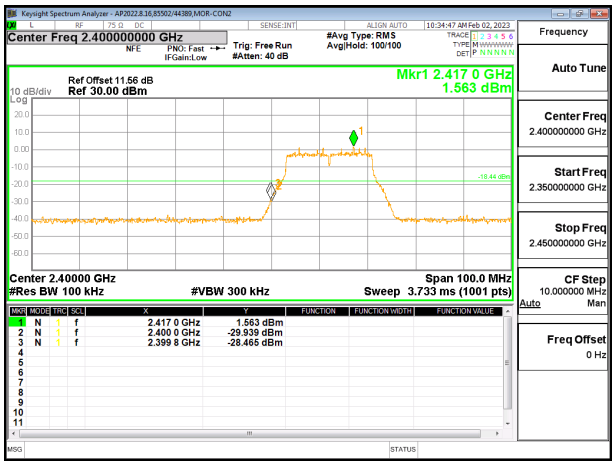
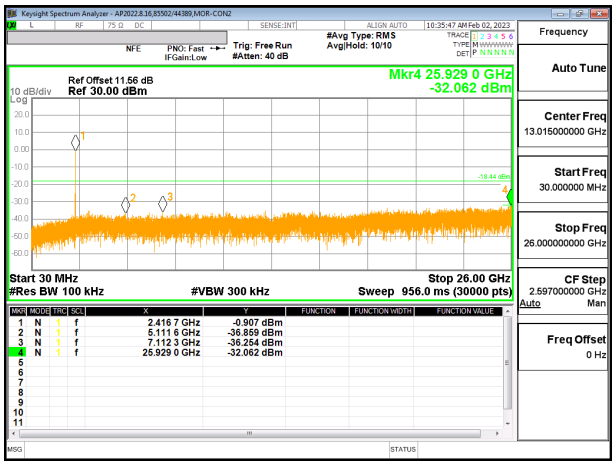
9.6.3. 802.11n HT20 MODE

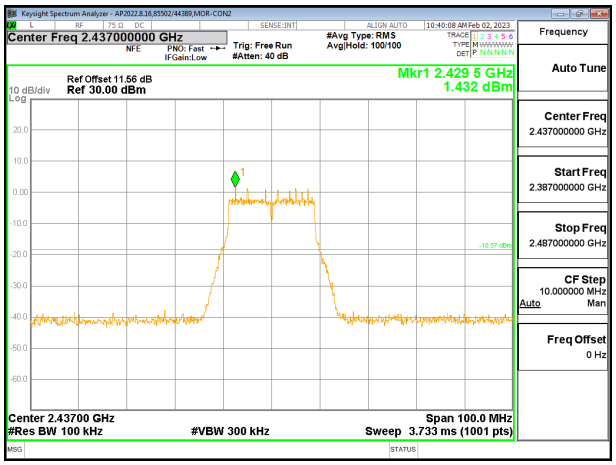
2TX Chain 0 + Chain 1 CDD MODE



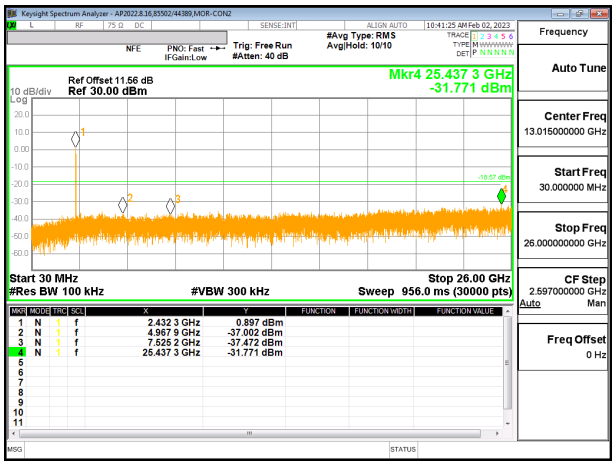
LOW CHANNEL 1 BANDEDGE CHAIN 0



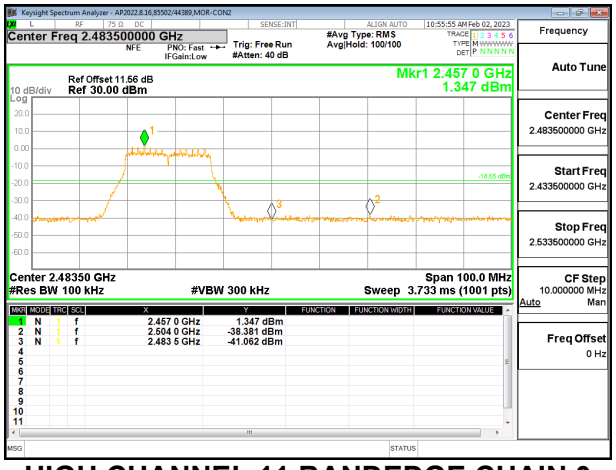
OUT-OF-BAND LOW CHANNEL 1 CHAIN 0



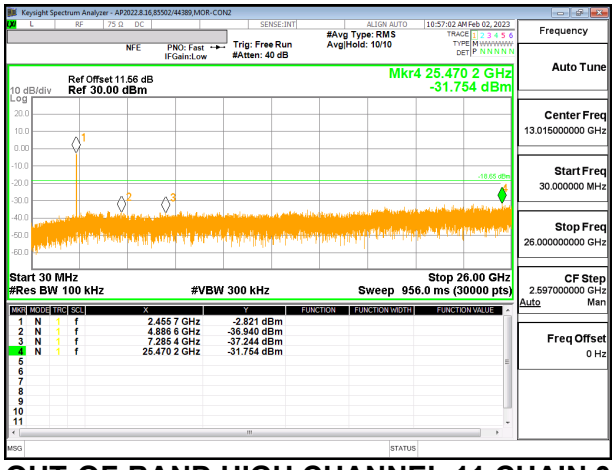
IN-BAND REFERENCE LEVEL CHAIN 0



OUT-OF-BAND MID CHANNEL CHAIN 0



HIGH CHANNEL 11 BANDEDGE CHAIN 0



OUT-OF-BAND HIGH CHANNEL 11 CHAIN 0

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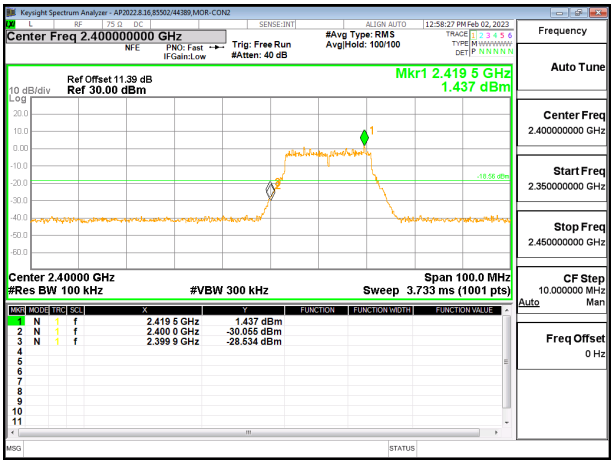
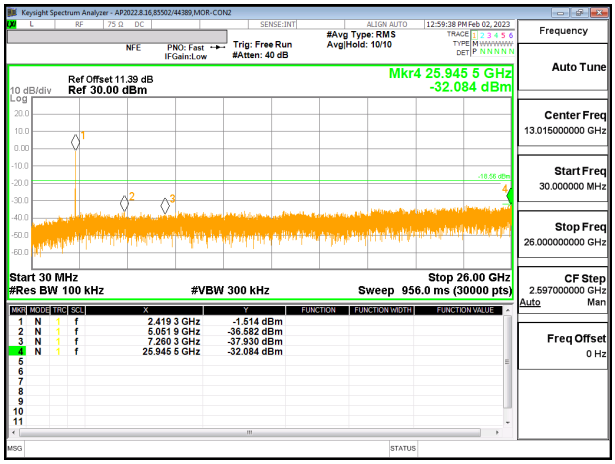
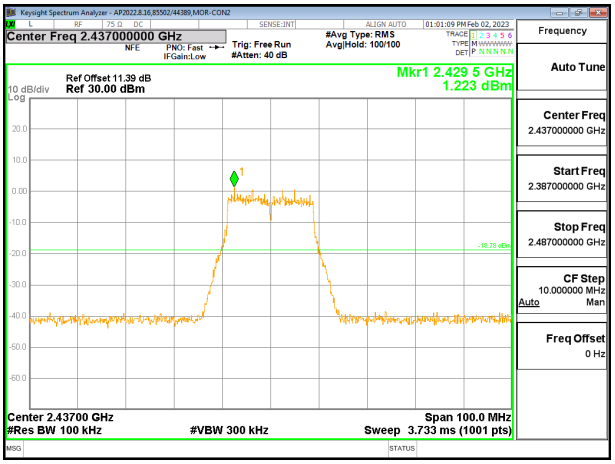


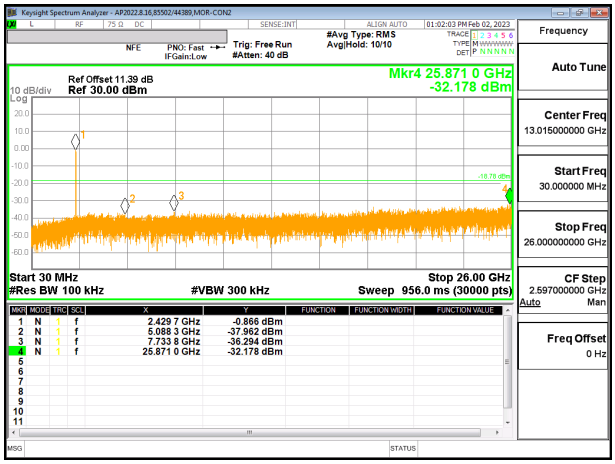
LOW CHANNEL 1 BANDEDGE CHAIN 1



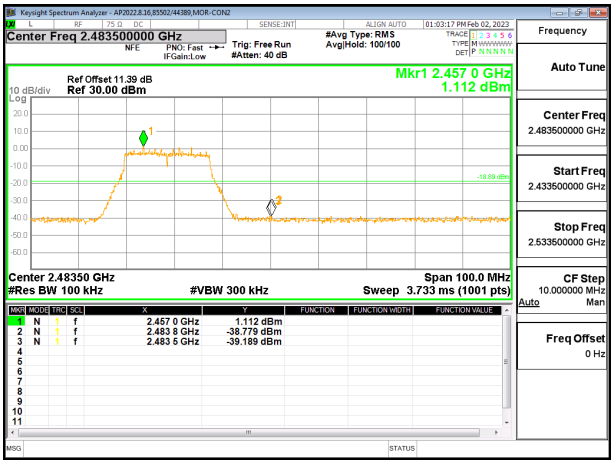
OUT-OF-BAND LOW CHANNEL 1 CHAIN 1



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

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10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for linear voltage averageing measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest power spectral density was tested. This was found to be an Ax test mode and therefore below 1GHz and above 18GHz is not included in this report. This data can be found in report R14634918-E4b

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

3D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).

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Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

KDB 414788 Open Field Site (OFS) and Chamber Correlation Justification

OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

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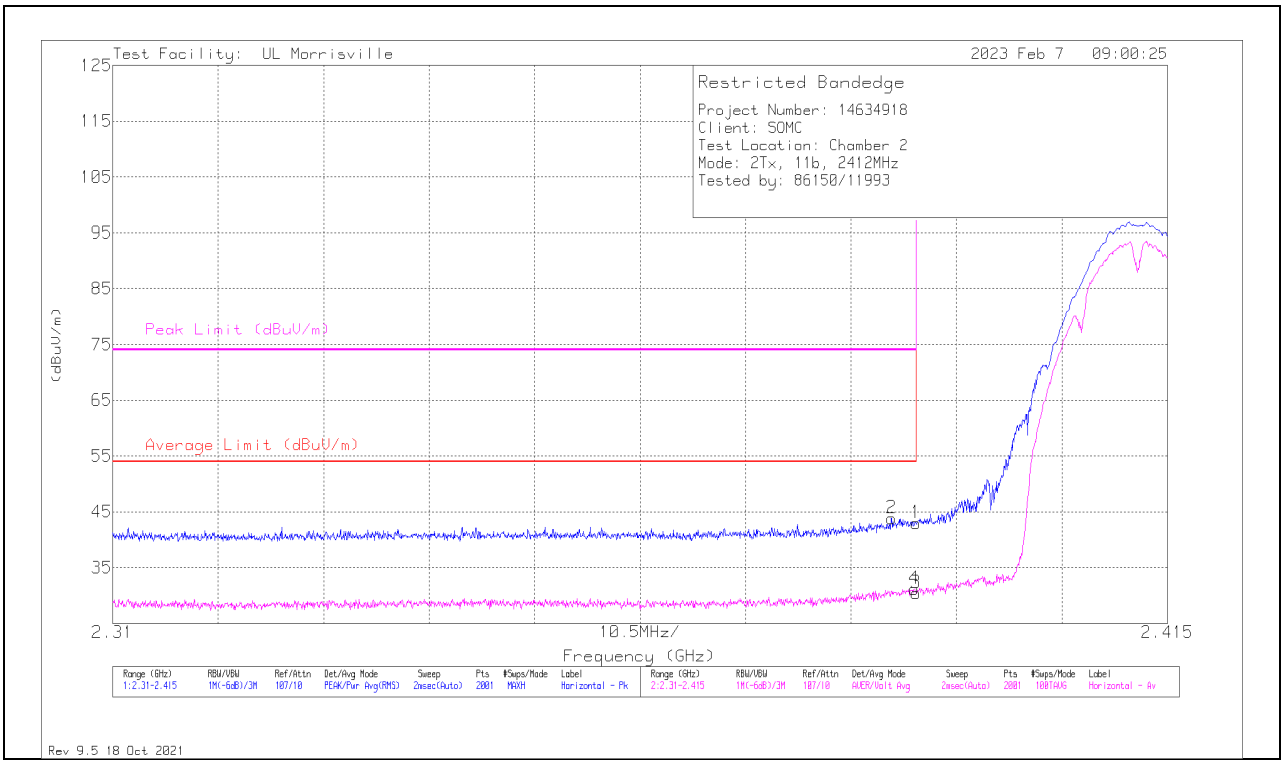
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.71	Pk	32	-23.8	42.91	-	-	74	-31.09	145	144	H
2	* ** 2.38754	35.65	Pk	32	-23.8	43.85	-	-	74	-30.15	145	144	H
3	* ** 2.38996	22.25	ADV	32	-23.8	30.45	54	-23.55	-	-	145	144	H
4	* ** 2.3898	22.96	ADV	32	-23.8	31.16	54	-22.84	-	-	145	144	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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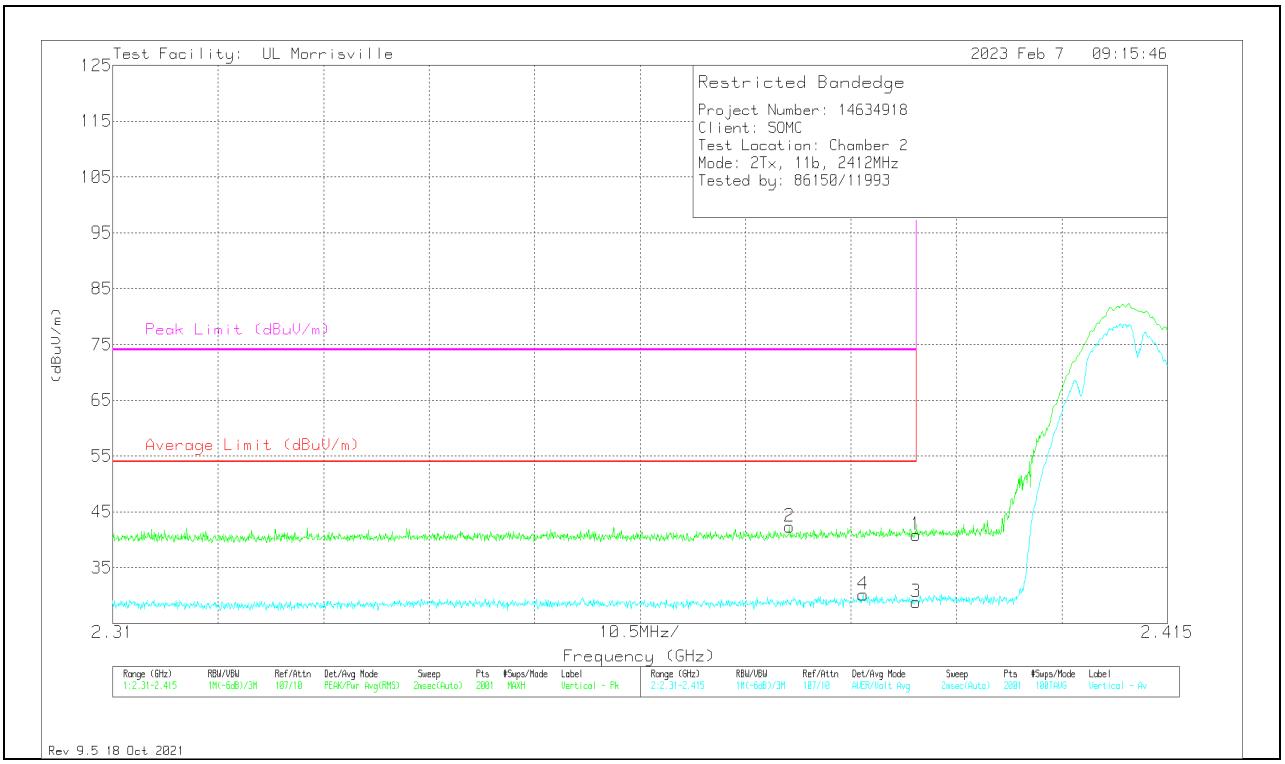
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	32.61	Pk	32	-23.8	40.81	-	-	74	-33.19	64	393	V
2	* ** 2.37736	34.16	Pk	32.1	-23.9	42.36	-	-	74	-31.64	64	393	V
3	* ** 2.38996	20.63	ADV	32	-23.8	28.83	54	-25.17	-	-	64	393	V
4	* ** 2.38471	21.89	ADV	32.1	-23.8	30.19	54	-23.81	-	-	64	393	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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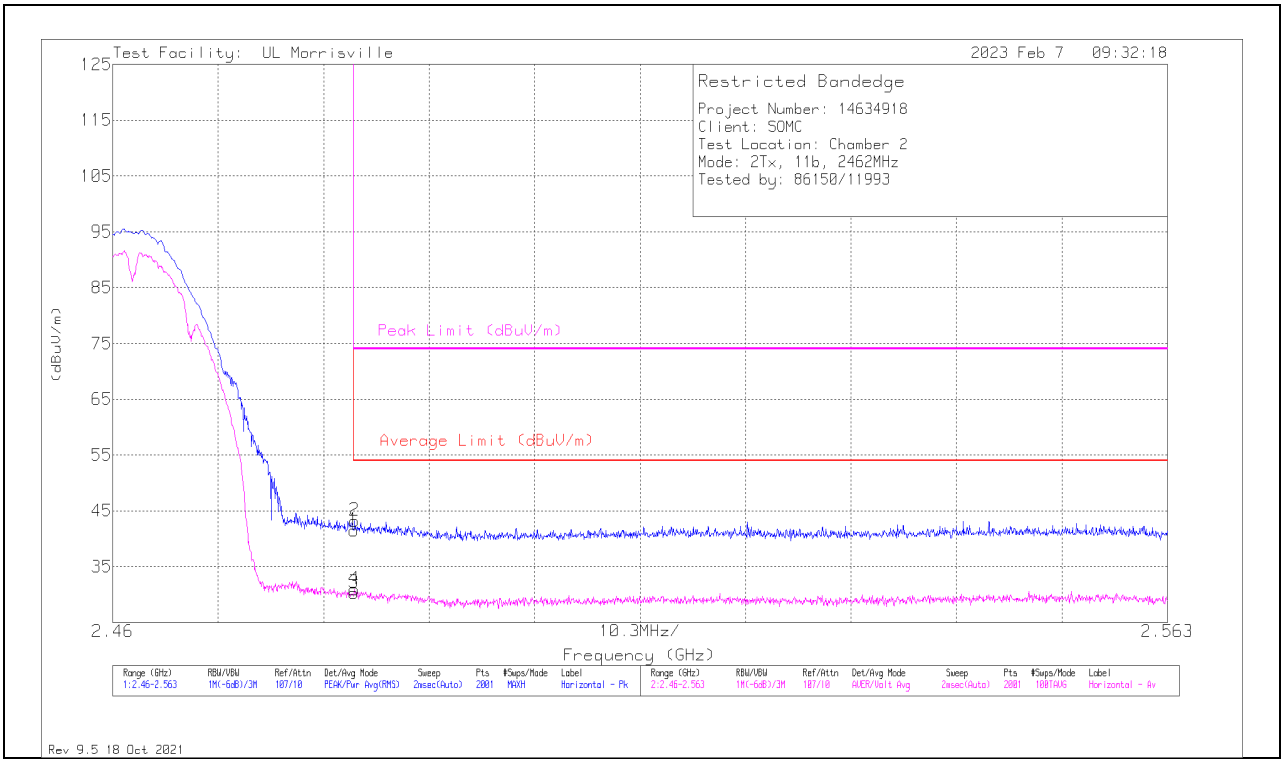
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	33.44	Pk	32.3	-24.3	41.44	-	-	74	-32.56	151	380	H
2	* ** 2.48364	35.16	Pk	32.3	-24.3	43.16	-	-	74	-30.84	151	380	H
3	* ** 2.48354	22.26	ADV	32.3	-24.3	30.26	54	-23.74	-	-	151	380	H
4	* ** 2.48359	22.87	ADV	32.3	-24.3	30.87	54	-23.13	-	-	151	380	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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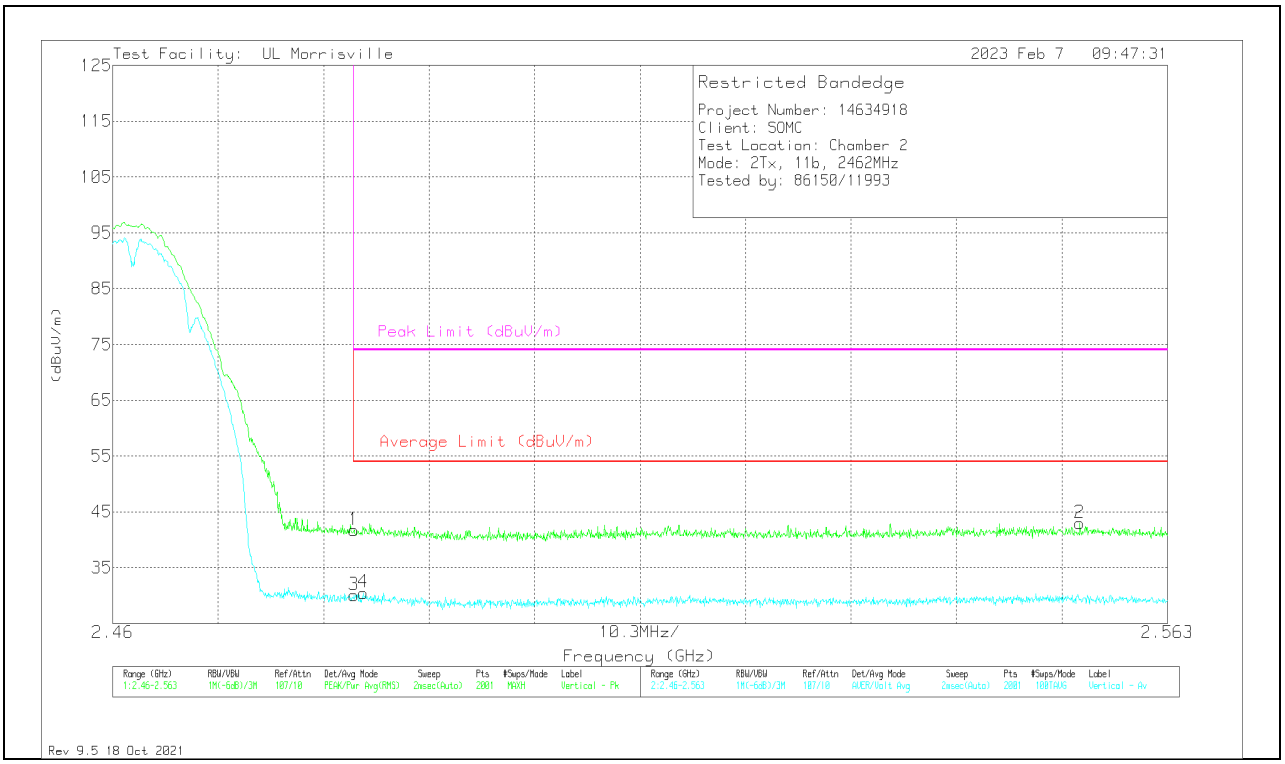
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	33.68	Pk	32.3	-24.3	41.68	-	-	74	-32.32	198	351	V
2	** 2.55445	35.06	Pk	32.5	-24.6	42.96	-	-	74	-31.04	198	351	V
3	* ** 2.48354	22.03	ADV	32.3	-24.3	30.03	54	-23.97	-	-	198	351	V
4	* ** 2.48446	22.59	ADV	32.3	-24.4	30.49	54	-23.51	-	-	198	351	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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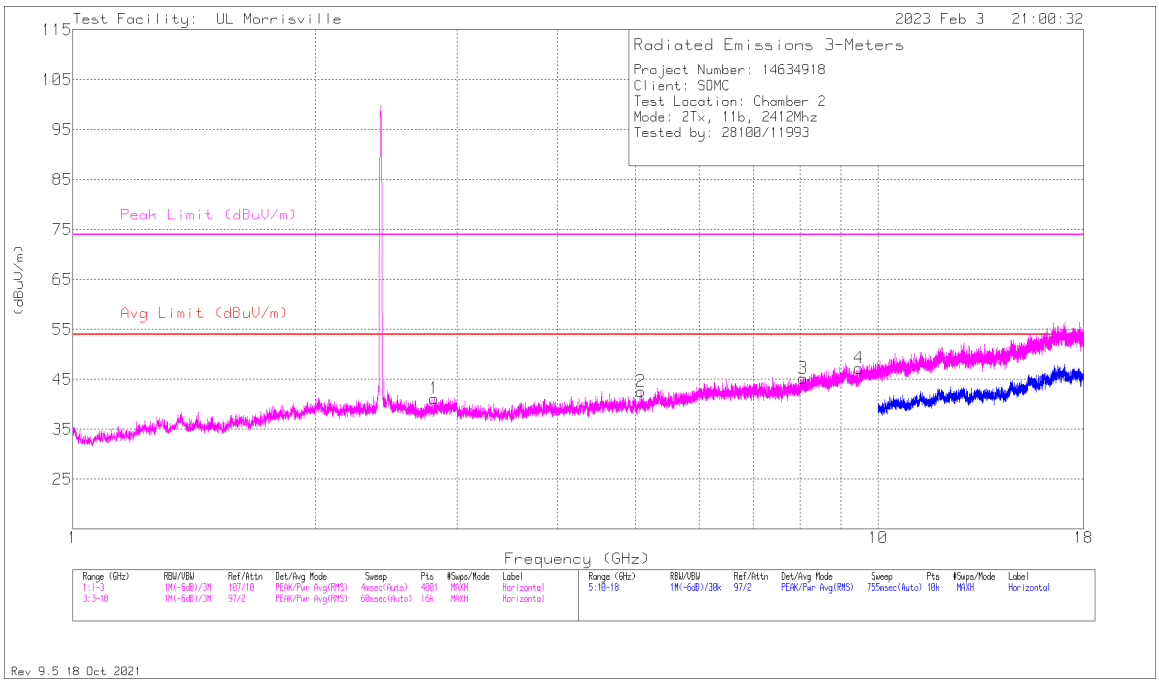
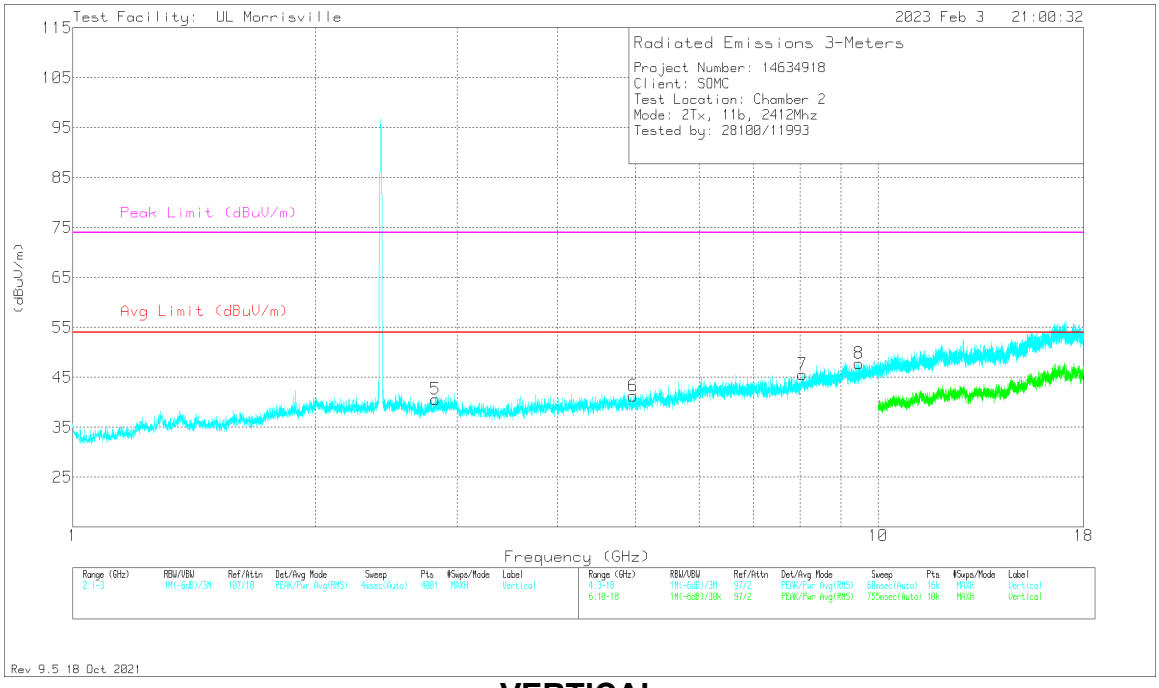
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.8095	34.69	Pk	32.3	-25.8	41.19	54	-12.81	74	-32.81	0-360	100	H
5	* ** 2.82	34.07	Pk	32.4	-25.8	40.67	54	-13.33	74	-33.33	0-360	101	V
2	* ** 5.0775	39.09	Pk	34.1	-30.6	42.59	54	-11.41	74	-31.41	0-360	101	H
3	* ** 8.06719	36.31	Pk	35.8	-26.9	45.21	54	-8.79	74	-28.79	0-360	199	H
4	* ** 9.46969	36.46	Pk	36.6	-25.8	47.26	54	-6.74	74	-26.74	0-360	199	H
6	* ** 4.96125	38.14	Pk	33.9	-30.8	41.24	54	-12.76	74	-32.76	0-360	199	V
7	* ** 8.05125	36.38	Pk	35.8	-26.6	45.58	54	-8.42	74	-28.42	0-360	101	V
8	* ** 9.46969	37.03	Pk	36.6	-25.8	47.83	54	-6.17	74	-26.17	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

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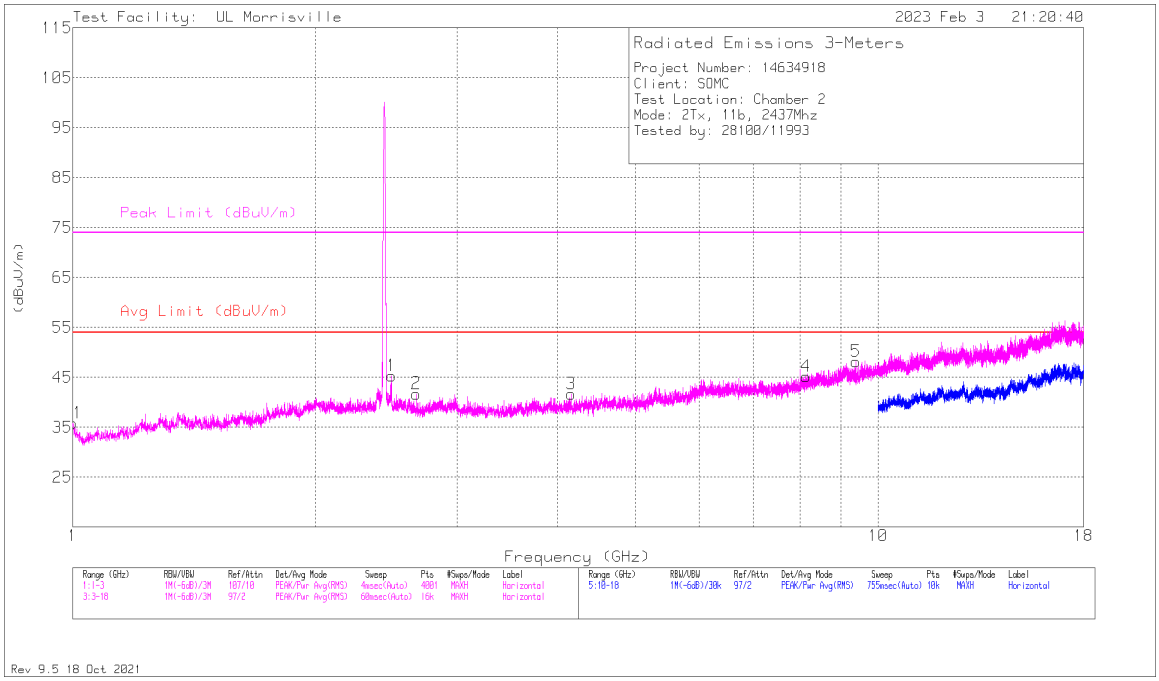
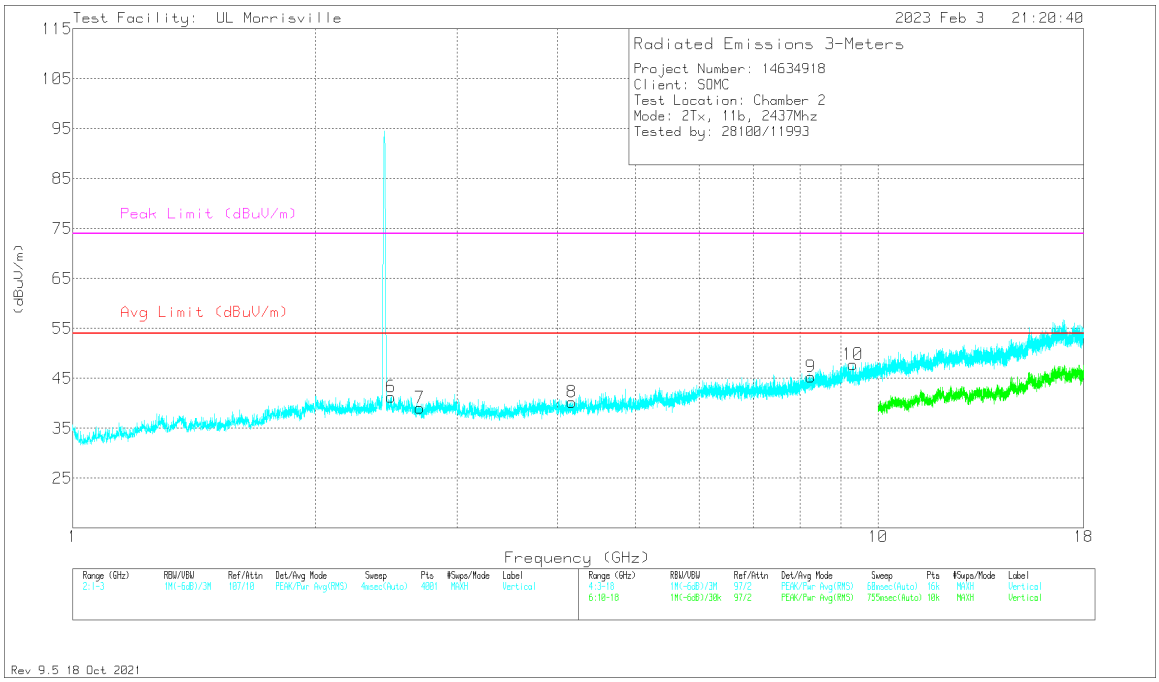
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.487	37.56	Pk	32.3	-24.5	45.36	54	-8.64	74	-28.64	0-360	101	H
2	* ** 2.669	35.34	Pk	32	-25.6	41.74	54	-12.26	74	-32.26	0-360	199	H
11	* ** 1.0005	33.4	Pk	27.3	-24.9	35.8	54	-18.2	74	-38.2	0-360	101	H
6	* ** 2.4835	33.33	Pk	32.3	-24.3	41.33	54	-12.67	74	-32.67	0-360	101	V
7	* ** 2.6975	33.32	Pk	31.7	-25.9	39.12	54	-14.88	74	-34.88	0-360	101	V
3	* ** 4.15688	39.35	Pk	33.3	-31	41.65	54	-12.35	74	-32.35	0-360	101	H
4	* ** 8.14031	36.18	Pk	35.7	-26.7	45.18	54	-8.82	74	-28.82	0-360	101	H
5	* ** 9.39123	37.16	PK2	36.5	-25.8	47.86	-	-	74	-26.14	288	315	H
	* ** 9.38836	24.72	ADV	36.5	-26	35.22	54	-18.78	-	-	288	315	H
8	* ** 4.16531	37.9	Pk	33.3	-30.9	40.3	54	-13.7	74	-33.7	0-360	199	V
9	* ** 8.25844	36.36	Pk	35.8	-26.8	45.36	54	-8.64	74	-28.64	0-360	199	V
10	* ** 9.30094	37.22	Pk	36.4	-25.9	47.72	54	-6.28	74	-26.28	0-360	199	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - Maximum Peak
ADV - Linear Voltage Average

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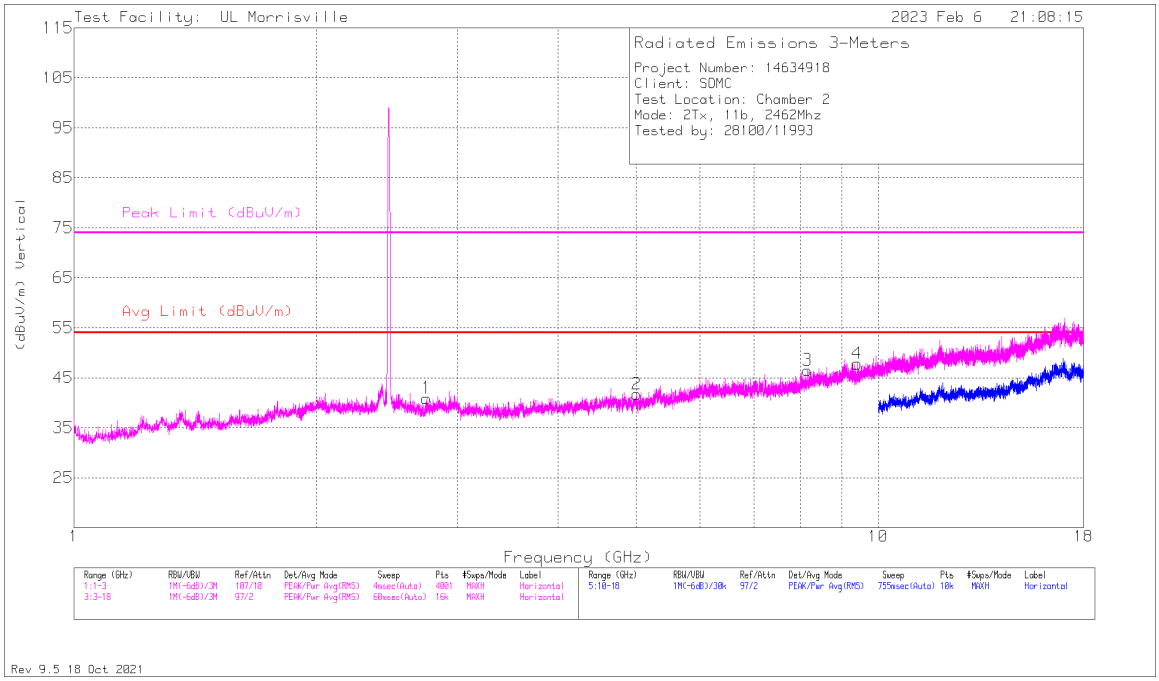
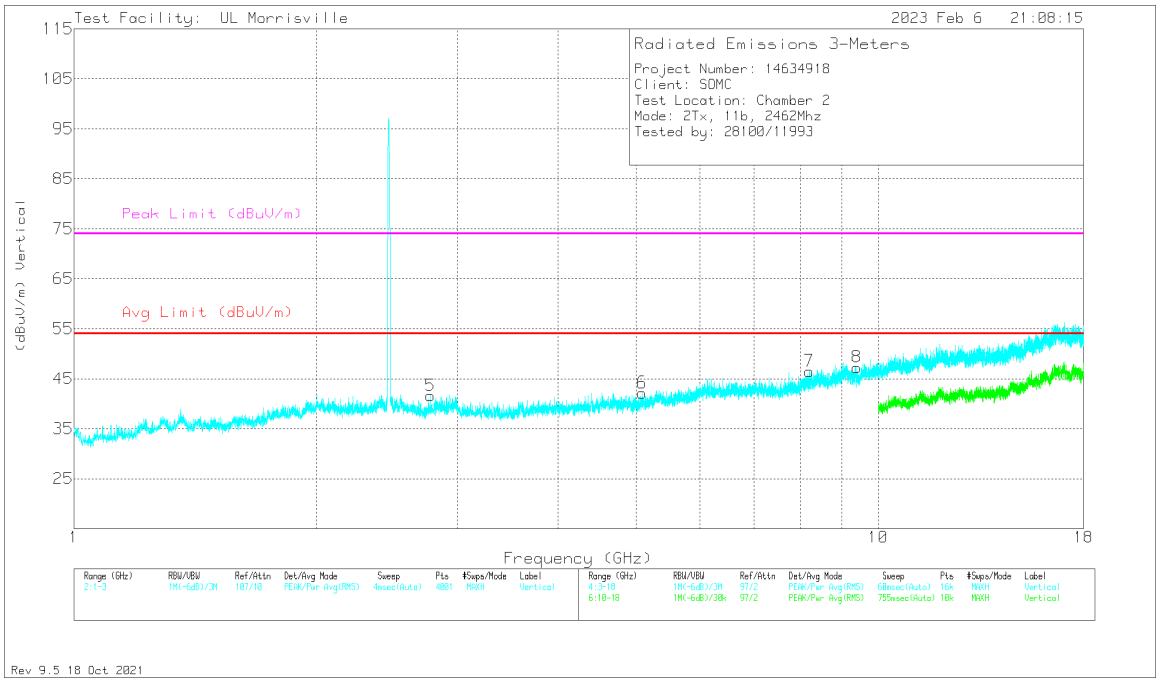
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.744	34.57	Pk	32	-25.7	40.87	54	-13.13	74	-33.13	0-360	101	H
5	* ** 2.775	35.32	Pk	32.2	-25.9	41.62	54	-12.38	74	-32.38	0-360	101	V
2	* ** 5.01	38.91	Pk	34	-31.2	41.71	54	-12.29	74	-32.29	0-360	199	H
3	* ** 8.16375	37.3	Pk	35.7	-26.5	46.5	54	-7.5	74	-27.5	0-360	101	H
4	* ** 9.41344	37.12	Pk	36.5	-25.8	47.82	54	-6.18	74	-26.18	0-360	199	H
6	* ** 5.085	38.74	Pk	34.1	-30.7	42.14	54	-11.86	74	-31.86	0-360	199	V
7	* ** 8.205	37.67	Pk	35.7	-26.9	46.47	54	-7.53	74	-27.53	0-360	199	V
8	* ** 9.40219	36.48	Pk	36.5	-25.7	47.28	54	-6.72	74	-26.72	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

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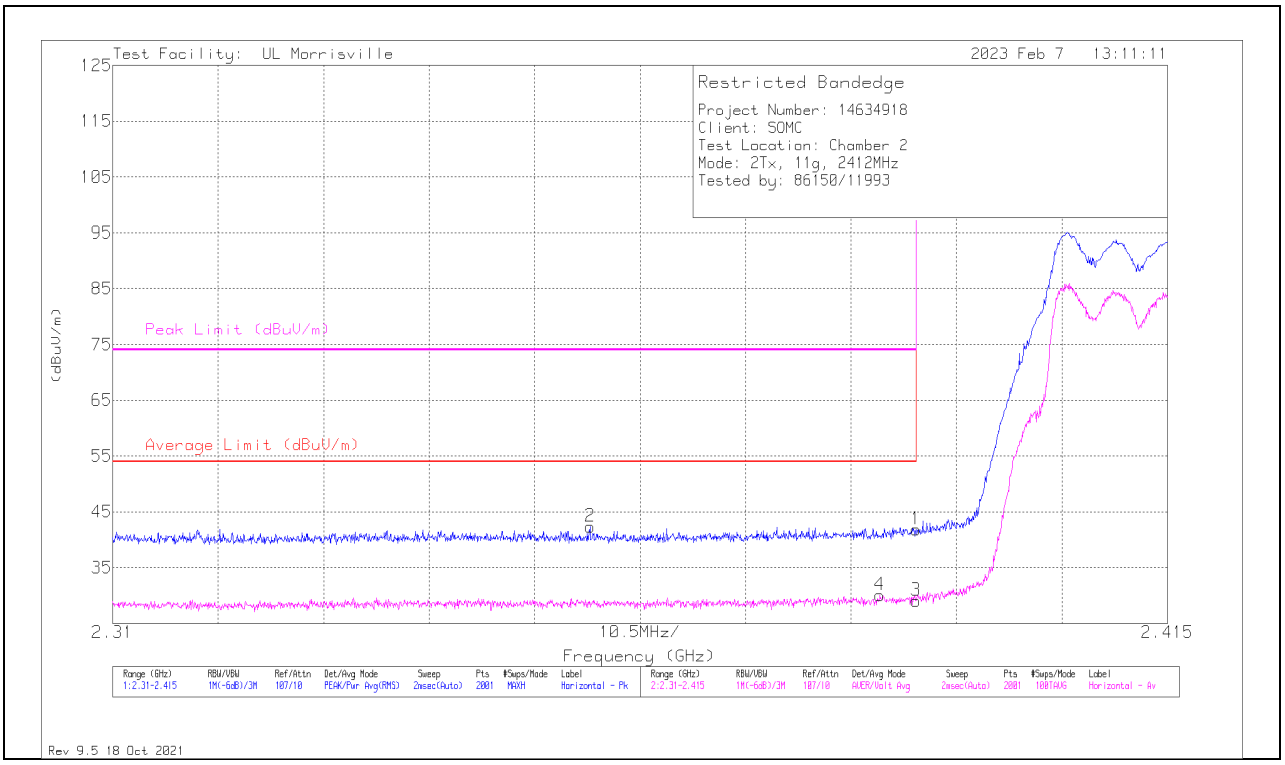
10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

2TX Chain 0 + Chain 1 CDD MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	33.68	Pk	32	-23.8	41.88	-	-	74	-32.12	296	107	H
2	* ** 2.35751	34.41	Pk	31.9	-24	42.31	-	-	74	-31.69	296	107	H
3	* ** 2.38996	20.84	ADV	32	-23.8	29.04	54	-24.96	-	-	296	107	H
4	* ** 2.38639	21.84	ADV	32	-23.8	30.04	54	-23.96	-	-	296	107	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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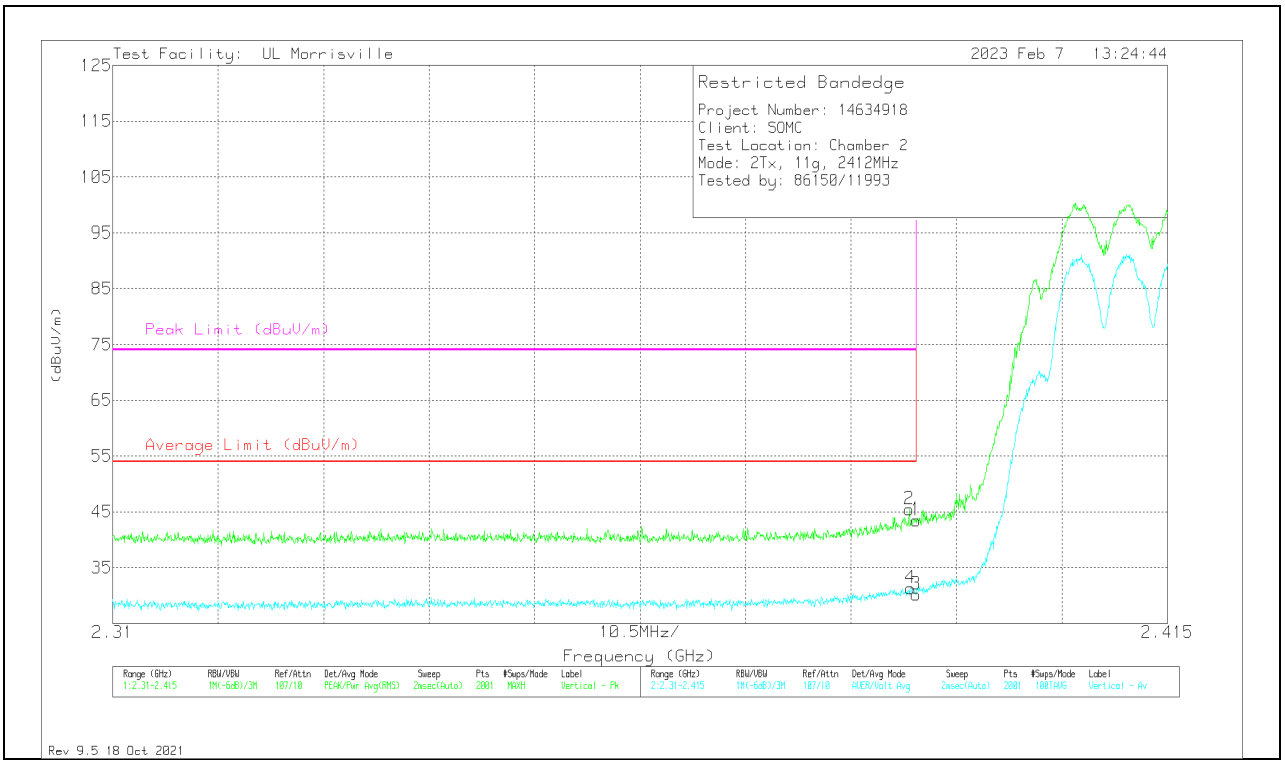
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	35.32	Pk	32	-23.8	43.52	-	-	74	-30.48	50	106	V
2	* ** 2.38928	37.25	Pk	32	-23.8	45.45	-	-	74	-28.55	50	106	V
3	* ** 2.38996	22.03	ADV	32	-23.8	30.23	54	-23.77	-	-	50	106	V
4	* ** 2.38943	23.04	ADV	32	-23.8	31.24	54	-22.76	-	-	50	106	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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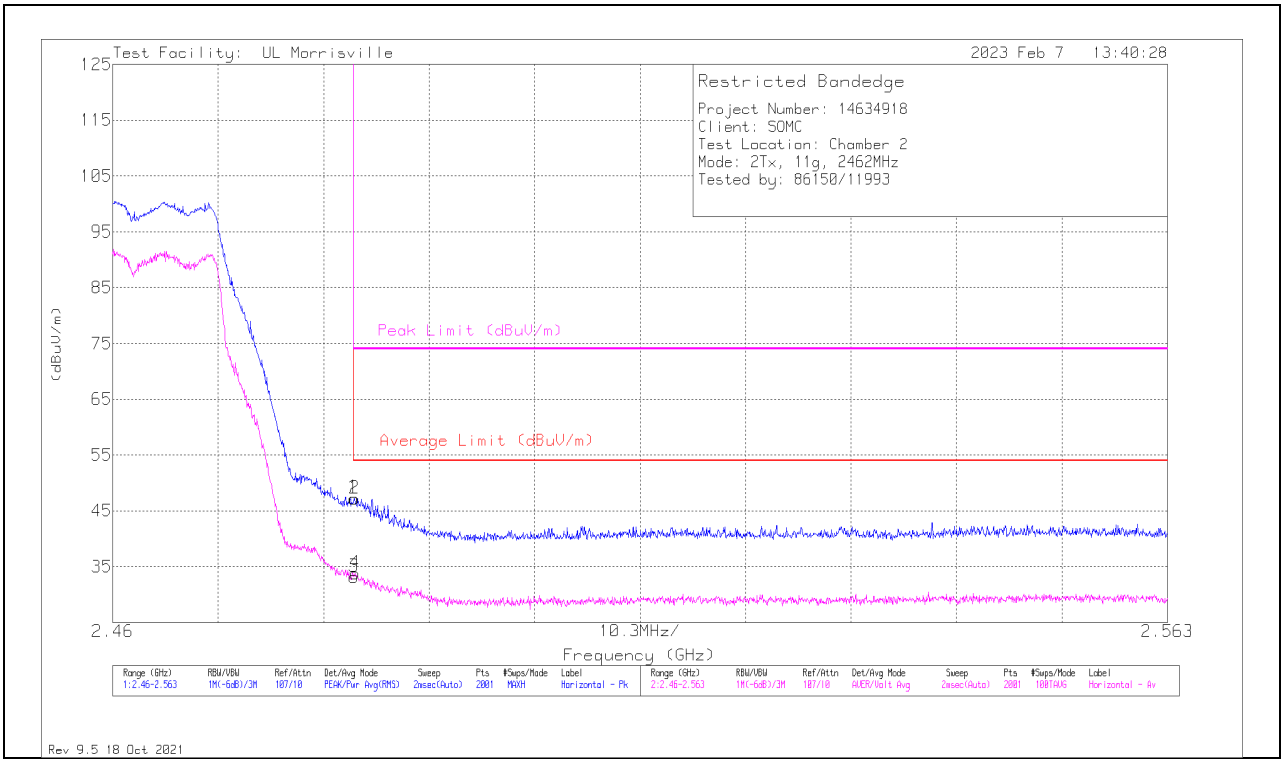
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	39.25	Pk	32.3	-24.3	47.25	-	-	74	-26.75	202	106	H
2	* ** 2.48364	39.19	Pk	32.3	-24.3	47.19	-	-	74	-26.81	202	106	H
3	* ** 2.48354	25.11	ADV	32.3	-24.3	33.11	54	-20.89	-	-	202	105	H
4	* ** 2.48369	25.83	ADV	32.3	-24.3	33.83	54	-20.17	-	-	202	105	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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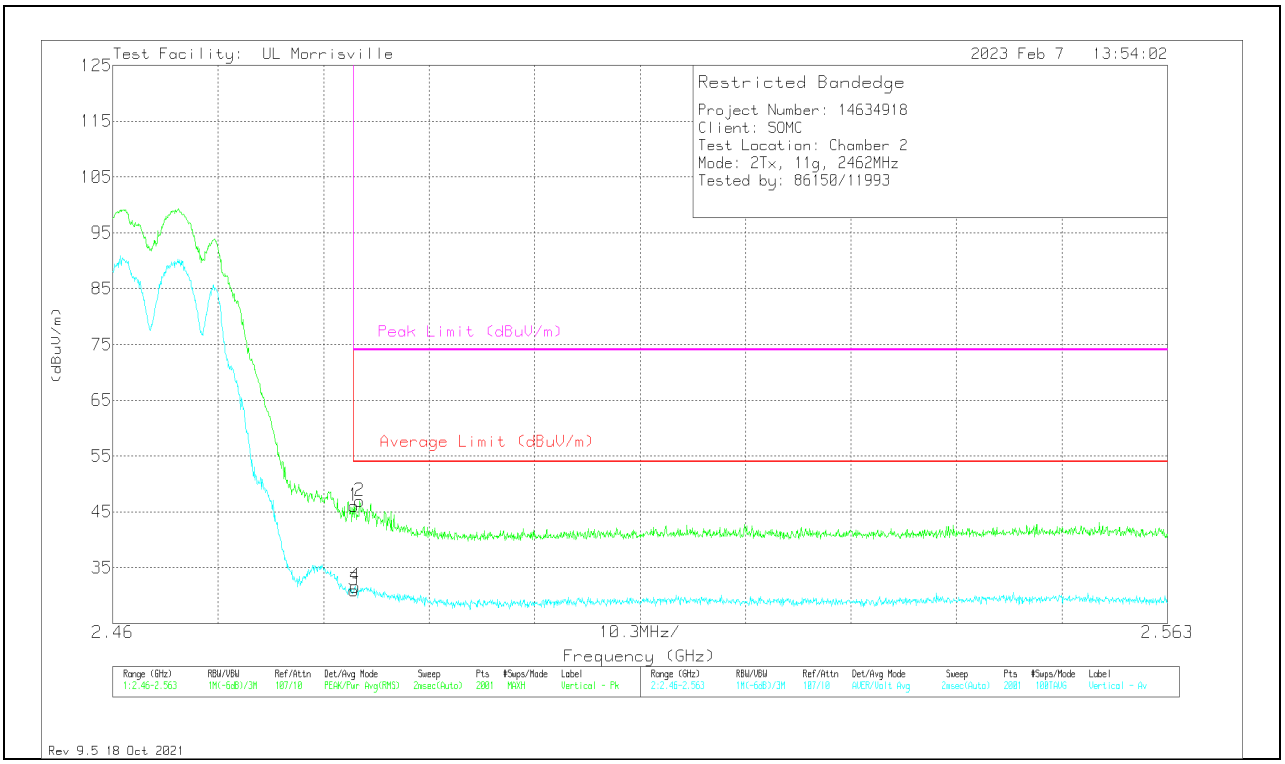
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.08	Pk	32.3	-24.3	46.08	-	-	74	-27.92	52	106	V
2	* ** 2.4841	39.05	Pk	32.3	-24.4	46.95	-	-	74	-27.05	52	106	V
3	* ** 2.48354	22.89	ADV	32.3	-24.3	30.89	54	-23.11	-	-	52	106	V
4	* ** 2.48369	23.61	ADV	32.3	-24.3	31.61	54	-22.39	-	-	52	106	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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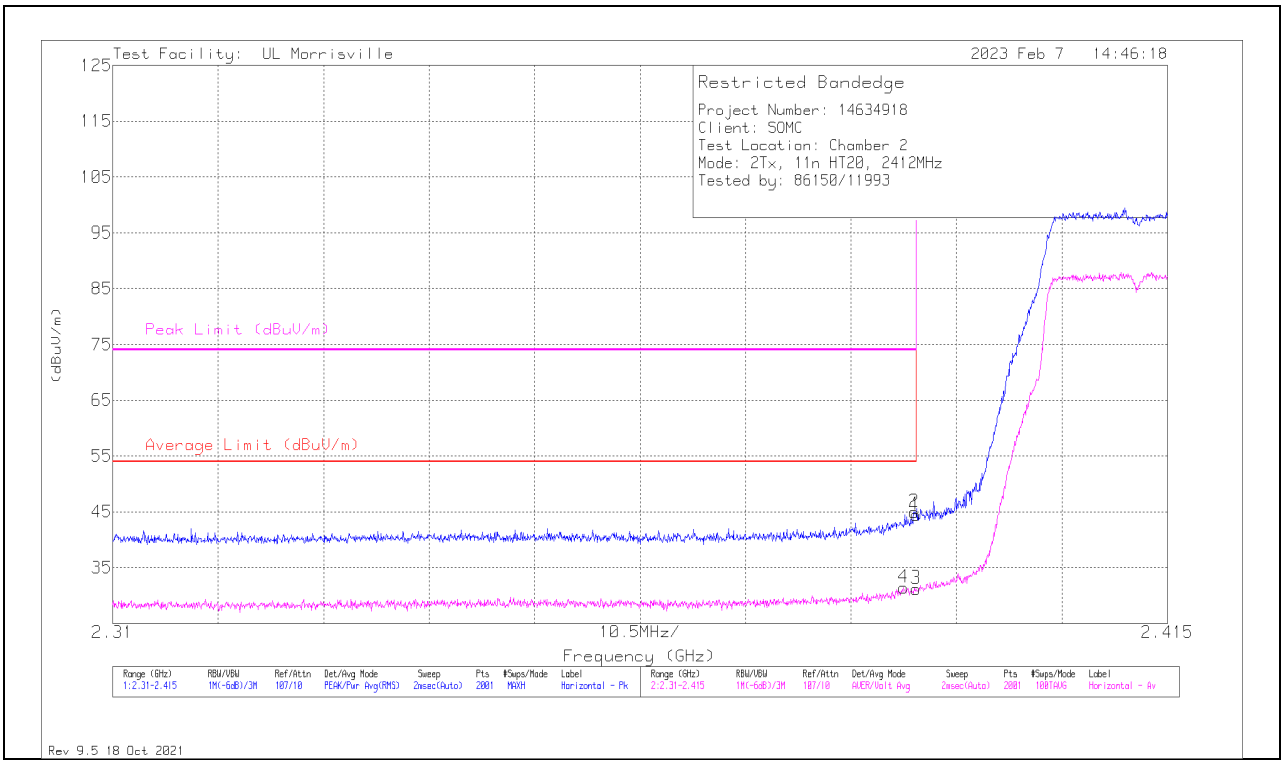
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

2TX Chain 0 + Chain 1 2 CDD MODE

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	36.27	Pk	32	-23.8	44.47	-	-	74	-29.53	51	147	H
2	* ** 2.3898	36.8	Pk	32	-23.8	45	-	-	74	-29	51	147	H
3	* ** 2.38996	23.03	ADV	32	-23.8	31.23	54	-22.77	-	-	51	147	H
4	* ** 2.38875	23.25	ADV	32	-23.8	31.45	54	-22.55	-	-	51	147	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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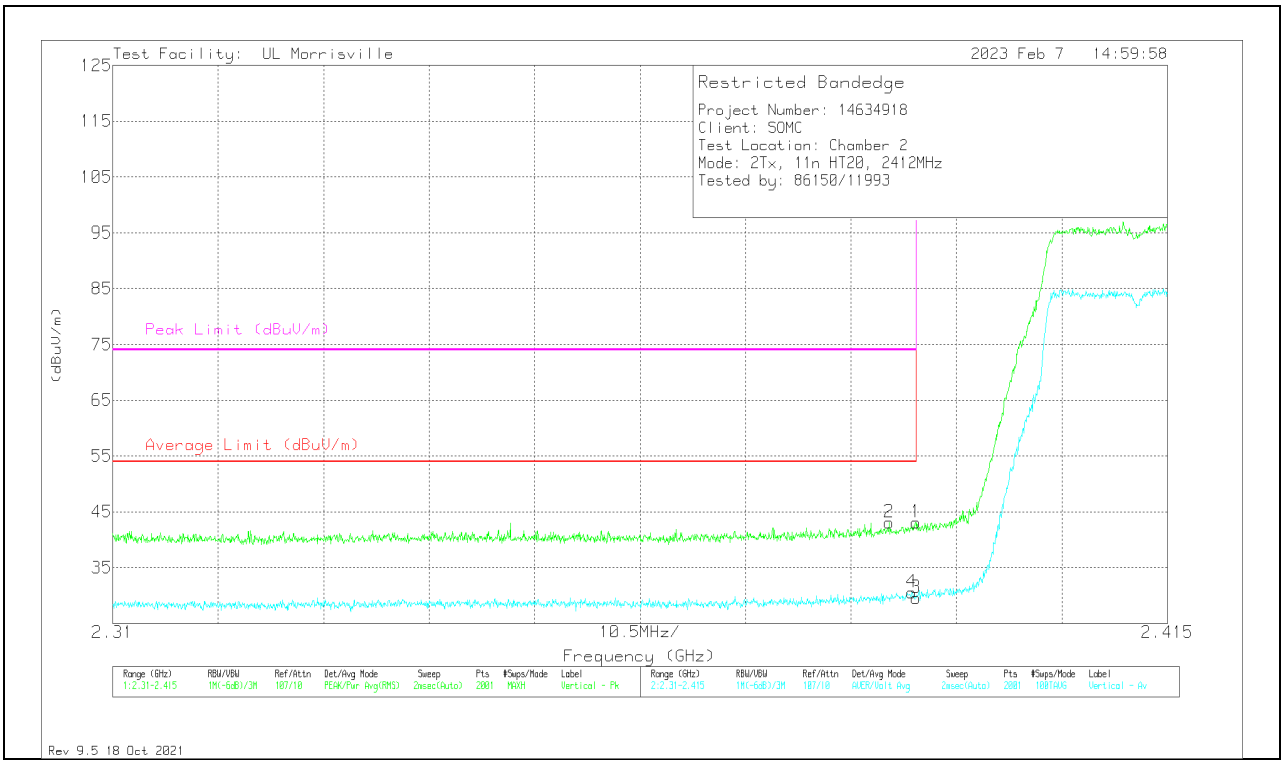
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.94	Pk	32	-23.8	43.14	-	-	74	-30.86	70	120	V
2	* ** 2.38728	34.86	Pk	32	-23.8	43.06	-	-	74	-30.94	70	120	V
3	* ** 2.38996	21.37	ADV	32	-23.8	29.57	54	-24.43	-	-	70	120	V
4	* ** 2.38954	22.3	ADV	32	-23.8	30.5	54	-23.5	-	-	70	120	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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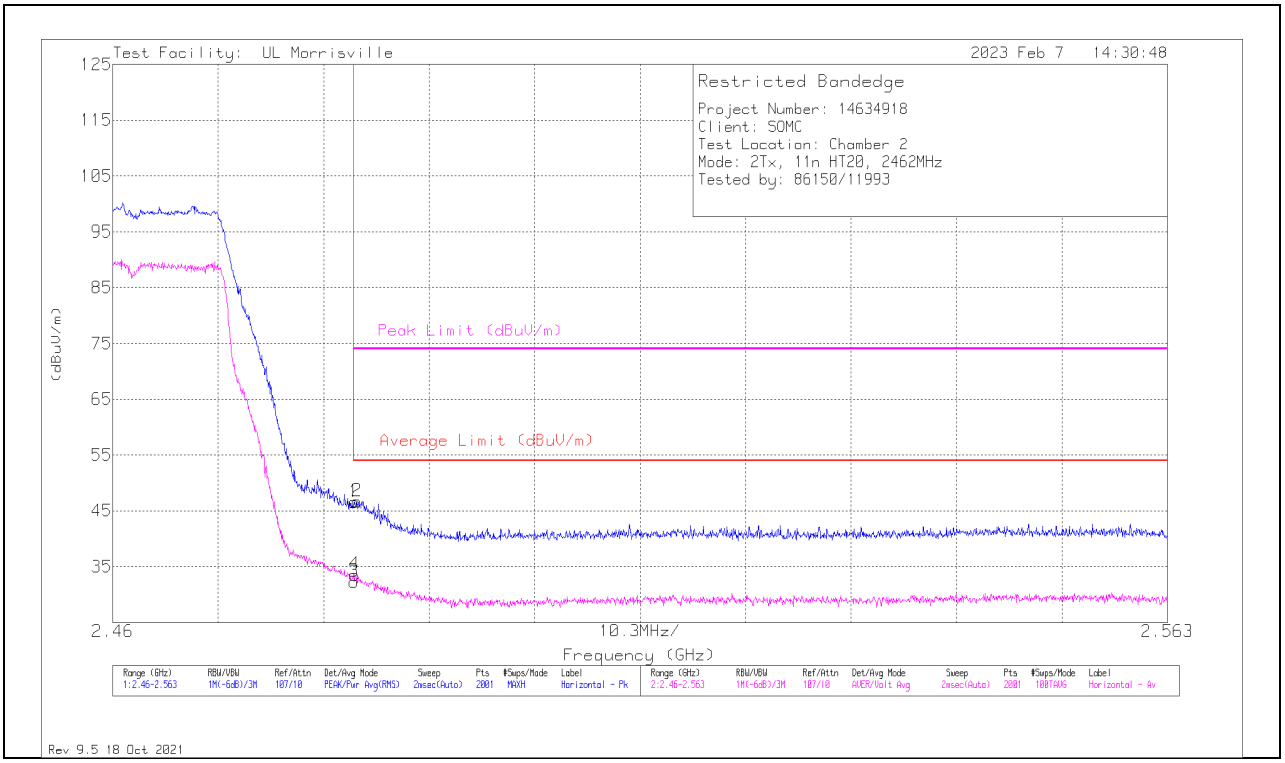
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.57	Pk	32.3	-24.3	46.57	-	-	74	-27.43	192	152	H
2	* ** 2.48384	38.8	Pk	32.3	-24.4	46.7	-	-	74	-27.3	192	152	H
3	* ** 2.48354	24.31	ADV	32.3	-24.3	32.31	54	-21.69	-	-	192	152	H
4	* ** 2.48364	25.52	ADV	32.3	-24.3	33.52	54	-20.48	-	-	192	152	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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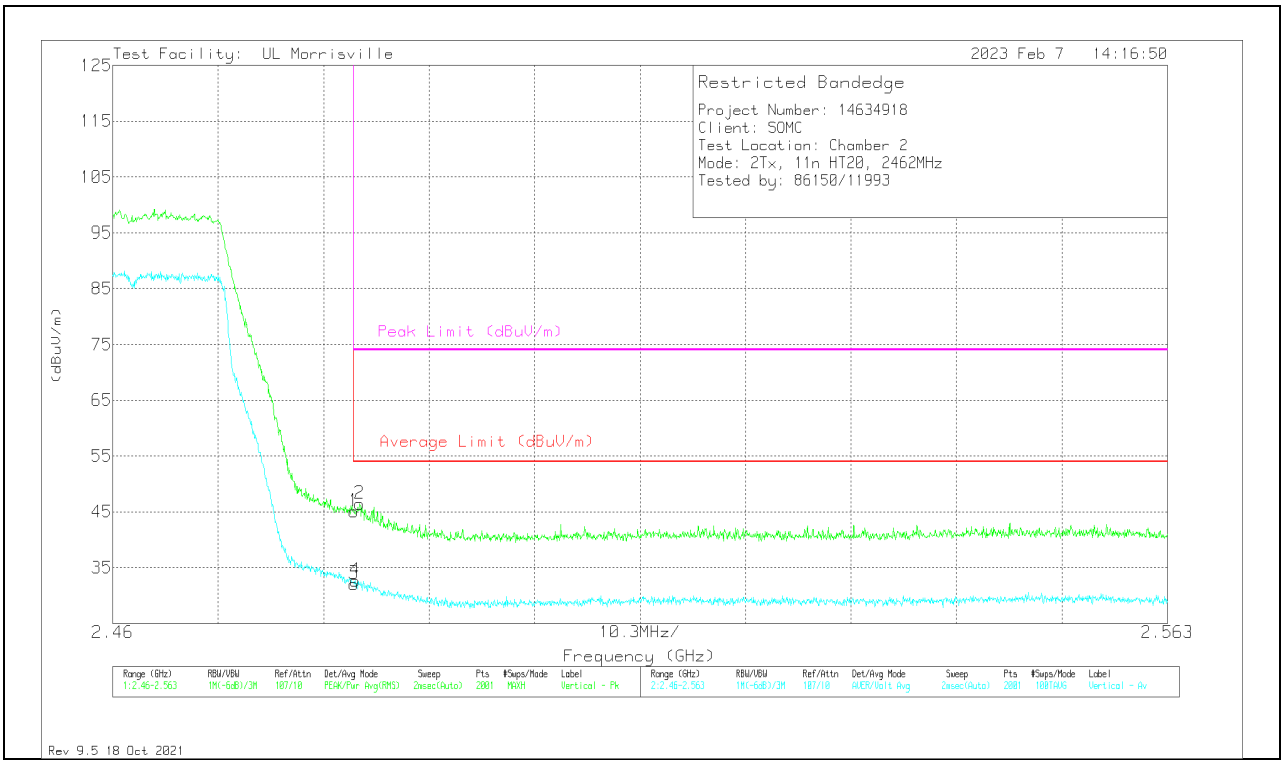
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	37.04	Pk	32.3	-24.3	45.04	-	-	74	-28.96	49	108	V
2	* ** 2.4841	38.57	Pk	32.3	-24.4	46.47	-	-	74	-27.53	49	108	V
3	* ** 2.48354	24.1	ADV	32.3	-24.3	32.1	54	-21.9	-	-	49	107	V
4	* ** 2.48369	24.66	ADV	32.3	-24.3	32.66	54	-21.34	-	-	49	107	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both lines.

RESULTS

See R14634918-E4b for AC Power Line Conducted Emissions.

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12. SETUP PHOTOS

Please refer to R14634918-EP2 for setup photos

END OF TEST REPORT

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