TEST REPORT

Report Number: R15103618-E6

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

FCC ID : PY7-46195Y

EUT Description : LTE/5G Portable Data Transmitter with BT, DTS/UNII a/b/g/n/ac/ax and GPS

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E: 2024

Date Of Issue:
2024-02-28

Prepared by:
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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2024-02-28	Initial Issue	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: LTE/5G Portable Data Transmitter with BT, DTS/UNII
                       a/b/g/n/ac/ax and GPS

SERIAL NUMBER: QV77000LJP, QV77006NLY, QV77009KLY

SAMPLE RECEIPT DATE: 2023-12-01 TO 2023-12-26

DATE TESTED: 2024-01-03 TO 2024-02-10

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
47 CFR Part 15 Subpart E: 2024	See Section 2

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: Reviewed By:
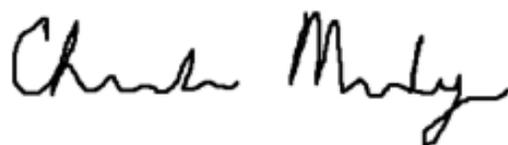
Jeffrey Moser   Charles Moody
Operations Manager   Engineer
Consumer, Medical and IT Segment   Consumer, Medical and IT Segment
UL LLC   UL LLC

2. TEST RESULT 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)
3)   Worst case data rates (see section 6.5)

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 12.2.
See Comment	26dB BW/99% OBW	Reporting purposes only	Per ANSI C63.10 Sections 6.9.2 and 6.9.3
15.407 (e)	6 dB BW	Compliant	None
15.407 (a) (1-3), (h) (1)	Output Power		
15.407 (a) (1-3)	PSD		
15.209, 15.205, 15.407 (b)	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
- FCC KDB 662911 D01 v02r01
- FCC KDB 905462 D03 v01r02/D06 v02
- FCC KDB 789033 D02 v02r01
- KDB 414788 D01 Radiated Test Site v01r01
- ANSI C63.10-2020

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	

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%.

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

6. EQUIPMENT UNDER TEST

6.1.   EUT DESCRIPTION

The EUT is a LTE/5G Portable Data Transmitter with BT, DTS/UNII a/b/g/n/ac/ax and GPS.
This report covers the full emissions testing of the 5 WLAN radio.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.2 GHz BAND

Average

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.2GHz Band, 2Tx			
5180-5240	802.11a	10.29	10.69
5180-5240	802.11n HT20	10.28	10.67
5190-5230	802.11n HT40	10.03	10.07
5210	802.11ac VHT80	10.09	10.21
5180-5240	802.11ax HE20	10.21	10.50
5190-5230	802.11ax HE40	10.20	10.47
5210	802.11ax HE80	10.01	10.02

5.3 GHz BAND

Average

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.3GHz Band, 2Tx			
5260-5320	802.11a	10.21	10.50
5260-5320	802.11n HT20	9.94	9.86
5270-5310	802.11n HT40	9.80	9.55
5290	802.11ac VHT80	10.20	10.47
5250	802.11ac VHT160	9.94	9.86
5260-5320	802.11ax HE20	10.22	10.52
5270-5310	802.11ax HE40	9.82	9.59
5290	802.11ax HE80	9.78	9.51
5250	802.11ax HE160	9.70	9.33

5.6 GHz BAND

Average

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.6GHz Band, 2Tx			
5500-5720	802.11a	10.07	10.16
5500-5720	802.11n HT20	10.10	10.23
5510-5710	802.11n HT40	10.22	10.52
5530-5690	802.11ac VHT80	10.00	10.00
5570	802.11ac VHT160	9.84	9.64
5500-5720	802.11ax HE20	10.30	10.72
5510-5710	802.11ax HE40	10.31	10.74
5530-5690	802.11ax HE80	10.20	10.47
5570	802.11ax HE160	10.18	10.42

5.8 GHz BAND

Average

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8GHz Band, 2Tx			
5745-5825	802.11a	10.07	10.16
5745-5825	802.11n HT20	10.10	10.23
5755-5795	802.11n HT40	9.85	9.66
5775	802.11ac VHT80	9.87	9.71
5745-5825	802.11ax HE20	10.39	10.94
5755-5795	802.11ax HE40	10.15	10.35
5775	802.11ax HE80	10.04	10.09

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	WLAN Main/Bluetooth#1	Monopole	5180-5320	-1.05
			5500-5700	-0.98
			5745-5825	-0.53
1	WLAN Sub/Bluetooth#2	Monopole	5180-5320	-1.85
			5500-5700	-0.59
			5745-5825	-0.92

6.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was 0.162.

6.5. WORST-CASE CONFIGURATION AND MODE

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

Radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low and high channels for bandedge and low, middle and high channels on modes with worst-case average power and PSD per band for harmonics and spurious. Since all power was uniform across all modes on the 5WLAN radio, the widest bandwidth modes were tested for bandedge. The following modes were tested for bandedge and spurious emissions across each band:

1.) 5.2 Band
    a. Spurious Emisssions: 11a and 26T
    b. Bandedge: HE20 242T, HE40 484T, and HE80 996T
2.) 5.3 Band
    a. Spurious Emissions: HE20 26T and 52T
    b. Bandedge: HE20 242T, HE40 484T, HE80 996T, and HE160 2x996T
3.) 5.6 Band
    a. Spurious Emissions: HE20 26T and HE40 484T
    b. Bandedge: HE20 242T, HE40 484T, HE80 996T, and HE160 2x996T
4.) 5.8 Band
    a. Spurious Emissions: HE20 26T (worst-case Power and PSD)
    b. Bandedge: HE20 242T, HE40 484T, and HE80 996T

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.

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

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

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0
802.11ac VHT80 mode: MCS0
802.11ac VHT160 mode: MCS0
802.11ax HE20mode: MCS0 (Nss = 1)
802.11ax HE40mode: MCS0 (Nss = 1)
802.11ax HE80mode: MCS0 (Nss = 1)
802.11ax HE160mode: MCS0 (Nss = 1)

Based on pretesting, full tone was worst-case over SU mode.

PSD was performed on 802.11ax HE20 26T in the place of all other modes as the highest power and narrowest bandwidth of these other modes, making it a worst-case mode.

6dB testing was only performed on the HE20 26T mode as this is the narrowest of all bandwidths and 6dB has a minimum bandwidth requirement. Therefore, HE20 26T was the worst case test mode.

For PSD, 26dB, and 6dB test plots, only the worst-case margin plots were included per mode for reference. All tabular data has been included.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Support Laptop	Lenovo	T14 Gen3	PF4FKVWW	N/A
Support Laptop	Lenovo	T14 Gen3	PF4FKVZE	N/A
Support Laptop	Lenovo	Yoga 7	PF49WDF9	PD9AX211NG
Support Laptop	Dell	Inspiron 15	2SFMJP3	N/A
AC Adapter	Sony	XQZ-UC1	3223W09206247	N/A
AC Adapter	Sony	XQZ-UC1	1821W34209802	N/A
Laptop AC Adapter	Lenovo	ADLX65YDC2D	8SSA10R16970D1SG35A13LV	N/A
Laptop AC Adapter	Dell	DA65NM191	CN-0KPVMF-DES00-22N-A4N0-A00	N/A
RJ45 Adapter	Best Buy	BE-PA3U6E	N/A	N/A

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	Shielded	<1m	Used to Connect EUT to AC Mains.
2	RJ-45	1	RJ-45	Shielded	<3m	Connected from EUT to support laptop
3	HDMI	1	HDMI	Shielded	<3m	Connected from EUT to support laptop
4	USB-C	1	USB-C	Shielded	<3m	Connected from EUT to support laptop

TEST SETUP

The EUT is connected to a support laptop during testing. Test software exercised the radio card.

SETUP DIAGRAMS

Please refer to R15103618-EP3 for setup diagrams

7. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v02r01, Section B.

6 dB Emission BW: KDB 789033 D02 v02r01, Section C.2

26 dB Emission BW: KDB 789033 D02 v02r01, Section C.1

Conducted Output Power: KDB 789033 D02 v02r01, Section E.3.b (Method PM-G)

Power Spectral Density: KDB 789033 D02 v02r01, Section F

Unwanted emissions in restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, and G.5.

AC Power Line Conducted Emissions: ANSI C63.10-2020, Section 6.2.

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2020 Section 6.4

8. TEST AND MEASUREMENT EQUIPMENT

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Common Equipment				
	Conducted Room 2				
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2023-06-14	2024-06-14
238710	Environmental Meter	Fisher Scientific	15-077-963	2023-06-27	2024-06-27
211056	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2023-08-01	2024-08-01
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2023-08-01	2024-08-01
SOFTEMI	Antenna Port Software	UL	Version 2023.02.16	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA
	Attenuators				
226561	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2023-02-16	2024-02-16
226563	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2023-02-16	2024-02-16
	Cables				
CBL091	Micro-Coax UTiFLEX Cable Assembly, Low Loss,40Ghz	Carlisle Interconnect Technologies	UFA147A-2-0360-200200	2023-02-17	2024-02-17
CBL092	Micro-Coax UTiFLEX Cable Assembly, Low Loss,40Ghz	Carlisle Interconnect Technologies	UFA147A-2-0360-200200	2023-02-17	2024-02-17

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2023-04-04	2024-04-04
179892	Environmental Meter	Fisher Scientific	15-077-963	2023-07-26	2024-06-31
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2023-07-31	2024-07-31
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2023-08-01	2024-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2023-04-04	2024-04-04
PS214	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Miscellaneous (if needed)				
84681	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2023-09-18	2024-09-18

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

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-04-06	2024-04-06
	18-40 GHz				
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
204705	Horn Antenna, 26-40GHz	Com-Power	AH-640	2023-07-20	2025-07-20
	Gain-Loss Chains				
91979	Gain-loss string: 1-18GHz	Various	Various	2023-05-16	2024-05-16
135999	Gain-loss string: 18-40GHz	Various	Various	2023-05-16	2024-05-16
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-03-24	2024-03-24
81018	Spectrum Analyzer	Agilent	E4446A	2023-08-01	2024-08-01
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

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				
89509	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-05-23	2025-05-23
	Gain-Loss Chains				
207640	Gain-loss string: 1-18GHz	Various	Various	2023-05-17	2024-05-17
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-04-10	2024-04-10
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

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

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
65682	Active Loop Antenna	ETS-Lindgren	6502	2023-10-03	2024-10-03
	30-1000 MHz				
85717	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB1	2023-03-01	2024-03-01
	1-18 GHz				
86408	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-06-19	2025-06-19
	Gain-Loss Chains				
91975	Gain-loss string: 0.009-30MHz	Various	Various	2023-06-06	2024-06-06
91978	Gain-loss string: 25-1000MHz	Various	Various	2023-06-06	2024-06-06
91977	Gain-loss string: 1-18GHz	Various	Various	2023-06-06	2024-06-06
	Receiver & Software				
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-02-02	2024-02-29
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
239540	Environmental Meter	Fisher Scientific	15-077-963	2023-07-19	2025-07-19

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 D01 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	PSD DC Correction Factor (dB)	Voltage Av DC Correction (dB)
802.11a CDD	2.095	2.114	0.991	99.10	0.00	0.00
802.11n HT20 CDD	5.426	5.447	0.996	99.61	0.00	0.00
802.11n HT40 CDD	5.425	5.449	0.996	99.56	0.00	0.00
802.11ac VHT80 CDD	5.426	5.447	0.996	99.61	0.00	0.00
802.11ac VHT160 CDD	5.426	5.447	0.996	99.61	0.00	0.00

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	PSD DC Correction Factor (dB)	Voltage Av DC Correction (dB)
802.11ax HE20 OFDMA, RU size 26T	2.328	2.457	0.947	94.75%	0.23	0.47
802.11ax HE20 OFDMA, RU size 52T	1.268	1.343	0.944	94.42%	0.25	0.50
802.11ax HE20 OFDMA, RU size 106T	0.639	0.680	0.940	93.97%	0.27	0.54
802.11ax HE20 OFDMA, RU size 242T	0.924	0.979	0.943	94.33%	0.25	0.51
802.11ax HE40 OFDMA, RU size 484T	0.507	0.542	0.935	93.45%	0.29	0.59
802.11ax HE80 OFDMA, RU size 996T	0.386	0.425	0.909	90.91%	0.41	0.83
802.11ax HE160 OFDMA, RU size 2x996T	0.383	0.419	0.913	91.34%	0.39	0.79

DUTY CYCLE PLOTS

DUTY CYCLE 802.11a CDD MODE

DUTY CYCLE 802.11n HT20 CDD MODE
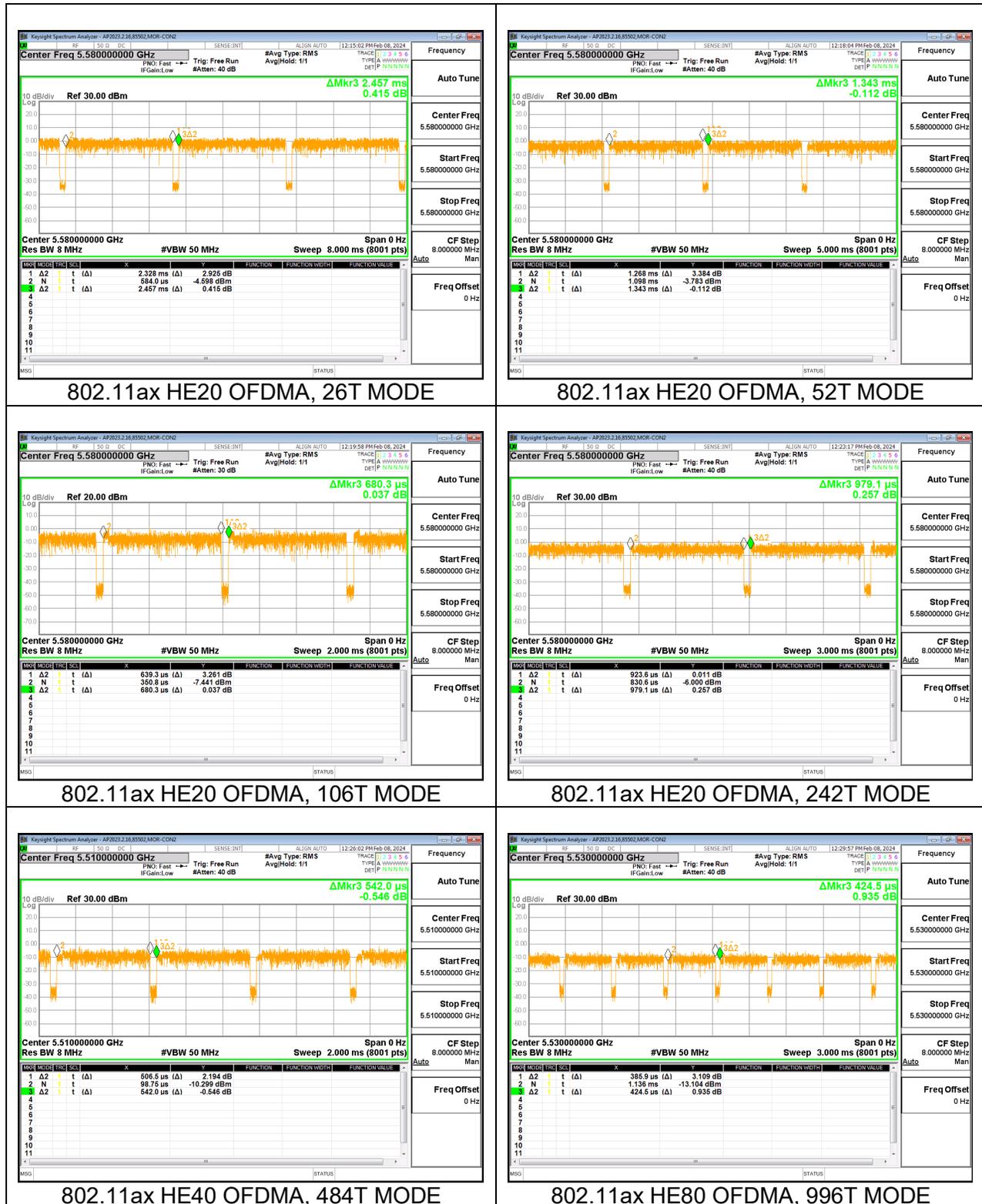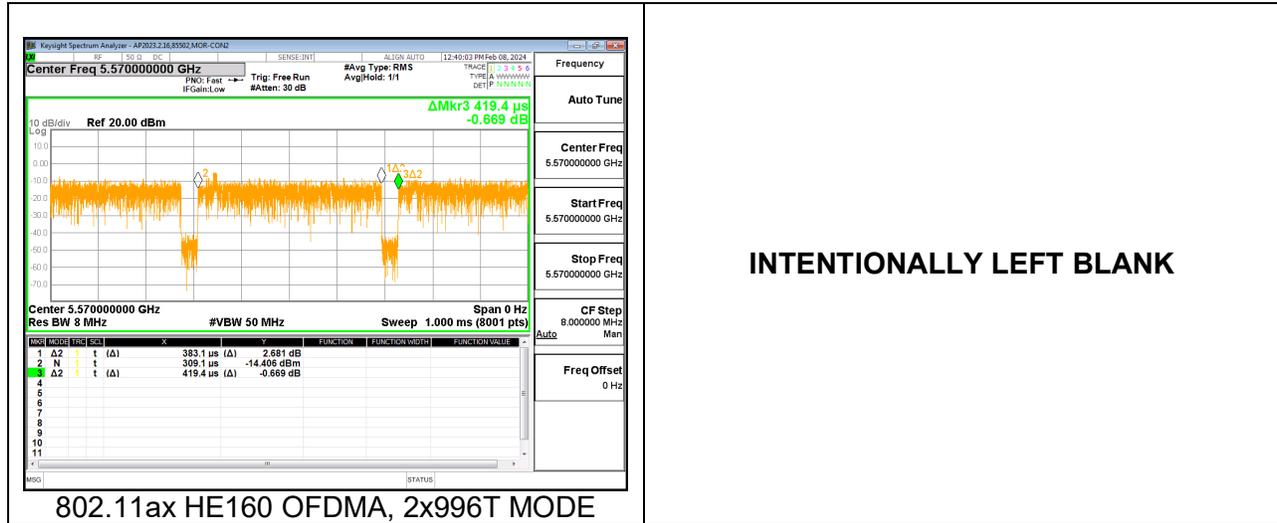

DUTY CYCLE 802.11n HT40 CDD MODE
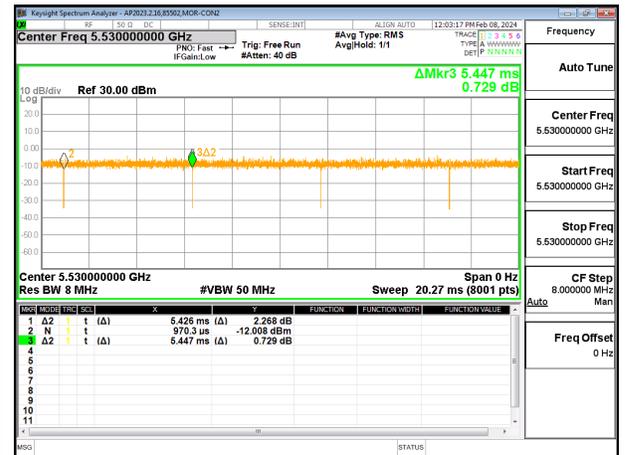
DUTY CYCLE 802.11ac VHT80 CDD MODE

DUTY CYCLE 802.11ac VHT160 CDD MODE

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802.11ax HE20 OFDMA, 26T MODE

802.11ax HE20 OFDMA, 52T MODE

802.11ax HE20 OFDMA, 106T MODE

802.11ax HE20 OFDMA, 242T MODE

802.11ax HE40 OFDMA, 484T MODE

802.11ax HE80 OFDMA, 996T MODE

802.11ax HE160 OFDMA, 2x996T MODE

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9.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. 802.11a MODE 2TX IN THE 5.2GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	24.00	23.68
Mid	5200	23.92	23.68
High	5240	23.84	23.52

LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1
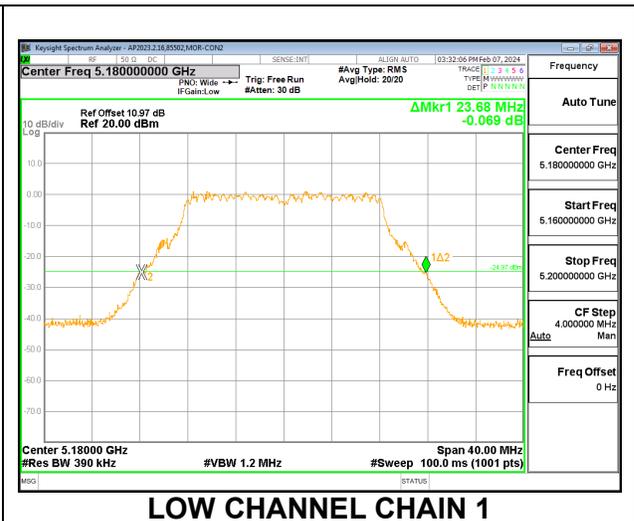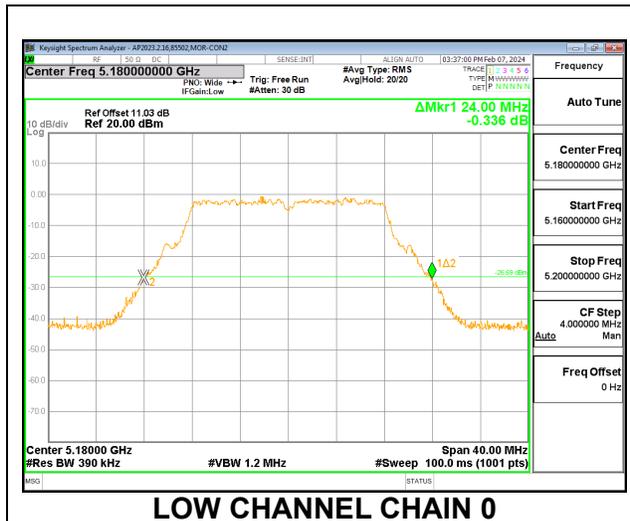
9.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	23.72	23.84
Mid	5200	24.24	24.08
High	5240	24.20	24.16

MID CHANNEL CHAIN 0 | MID CHANNEL CHAIN 1
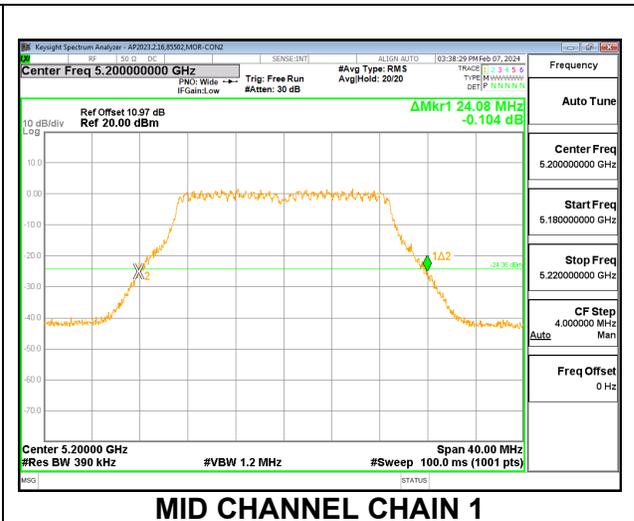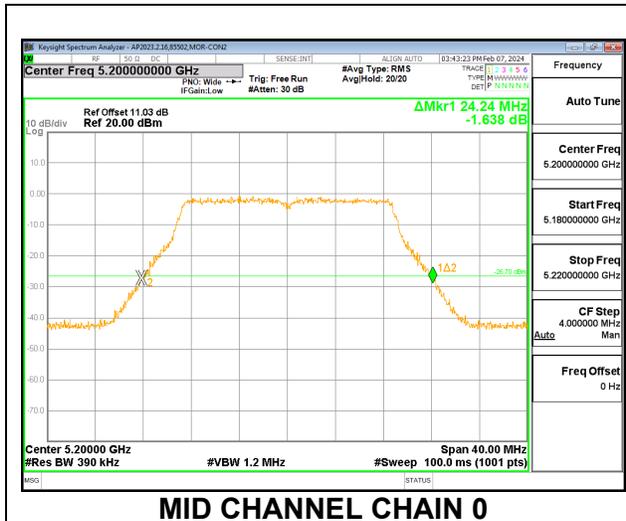
9.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5190	47.44	46.48
High	5230	47.20	46.00

LOW CHANNEL CHAIN 0
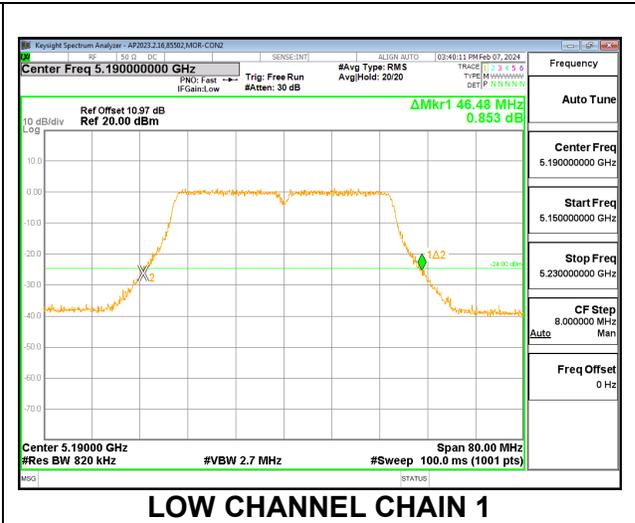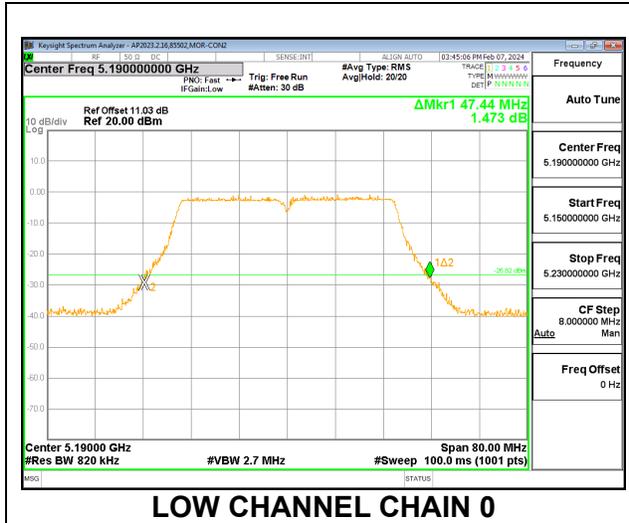
LOW CHANNEL CHAIN 1

9.2.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

2TX CDD MODE

Channel	Frequency	26dB BW Chain 0 (MHz)	26dB BW Chain 1 (MHz)
Mid	5210	94.72	93.76

MID CHANNEL CHAIN 0
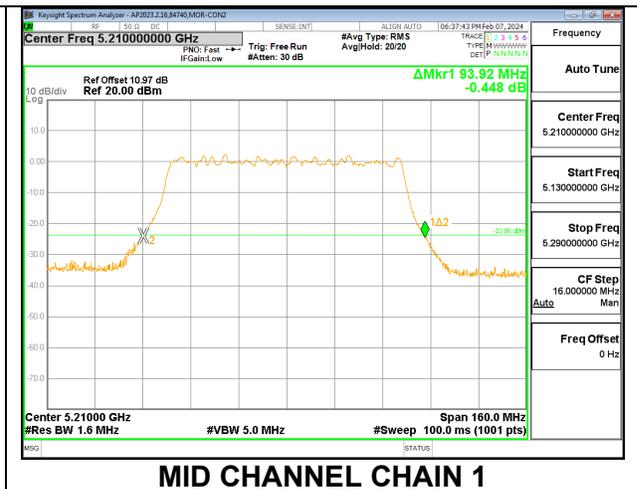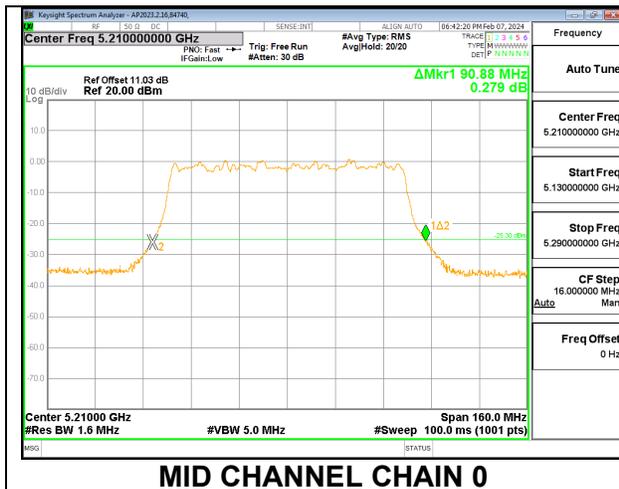

MID CHANNEL CHAIN 1
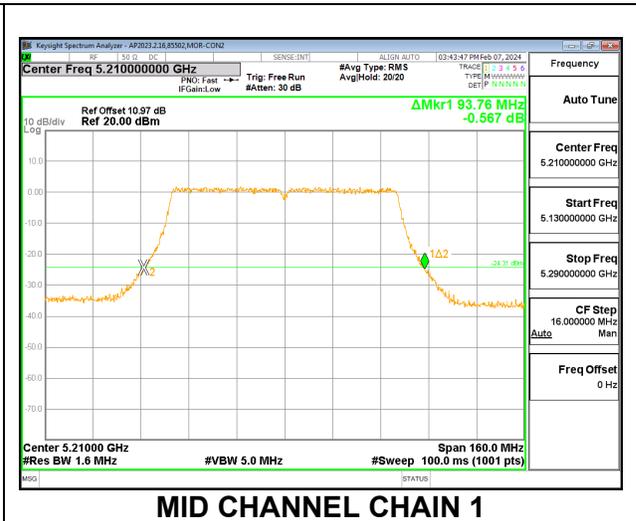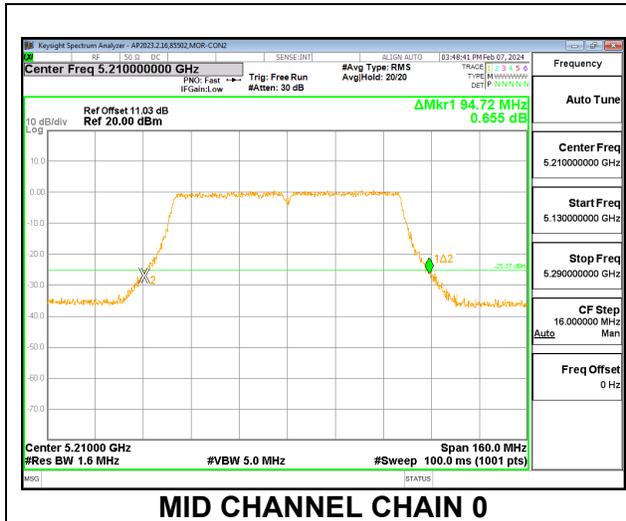
9.2.5. 802.11ax HE20 MODE 2TX IN THE 5.2GHz BAND

2TX CDD MODE – 26T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	20.52	20.32
Mid	5200	18.96	18.40
High	5240	20.32	20.28
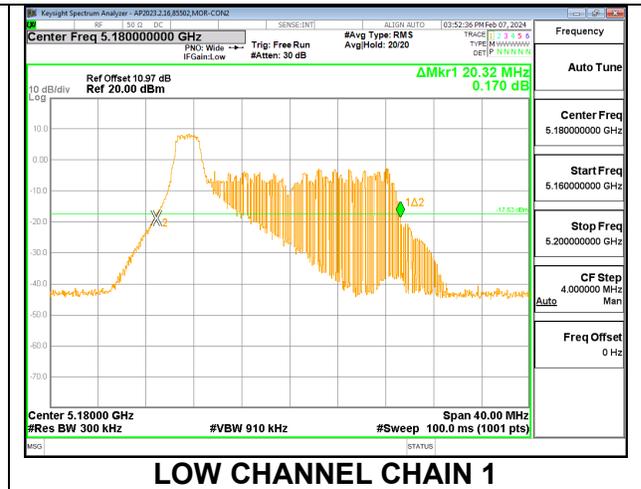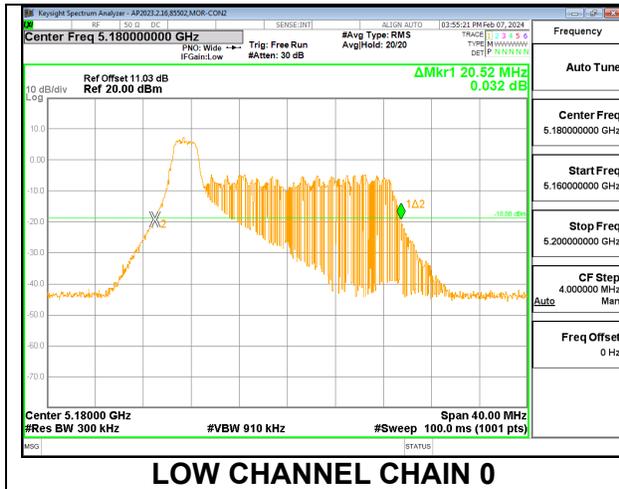
LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1

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2TX CDD MODE – 52T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	20.72	20.36
Mid	5200	19.44	18.88
High	5240	20.72	20.52
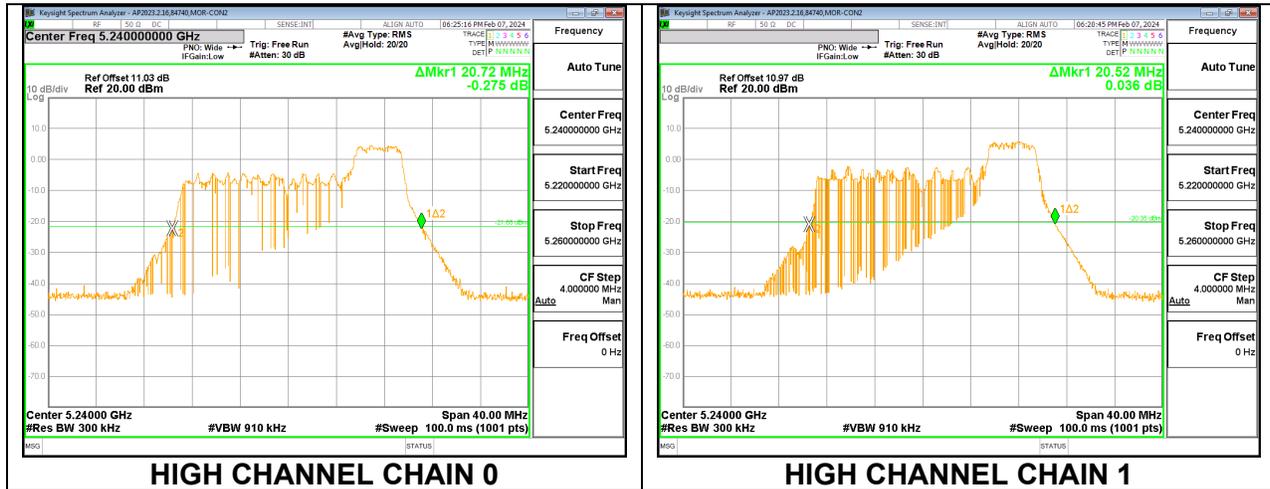
HIGH CHANNEL CHAIN 0   **HIGH CHANNEL CHAIN 1**

2TX CDD MODE: 106T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	22.04	21.36
Mid	5200	22.16	21.36
High	5240	21.56	21.20
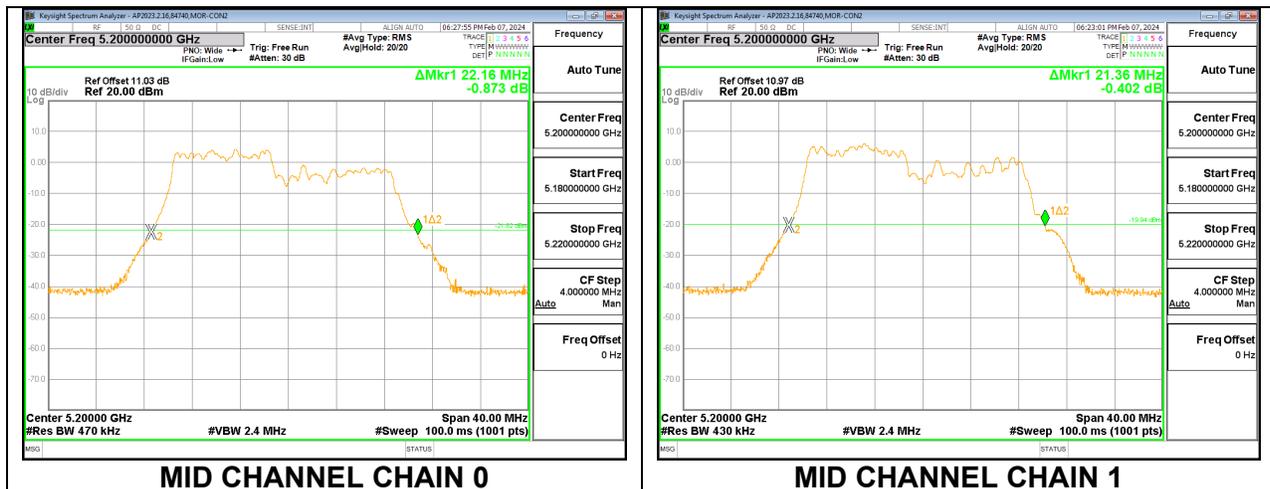
MID CHANNEL CHAIN 0   **MID CHANNEL CHAIN 1**

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2TX CDD MODE: 242T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5180	23.24	23.12
Mid	5200	23.24	23.24
High	5240	23.16	23.32

HIGH CHANNEL CHAIN 0

HIGH CHANNEL CHAIN 1
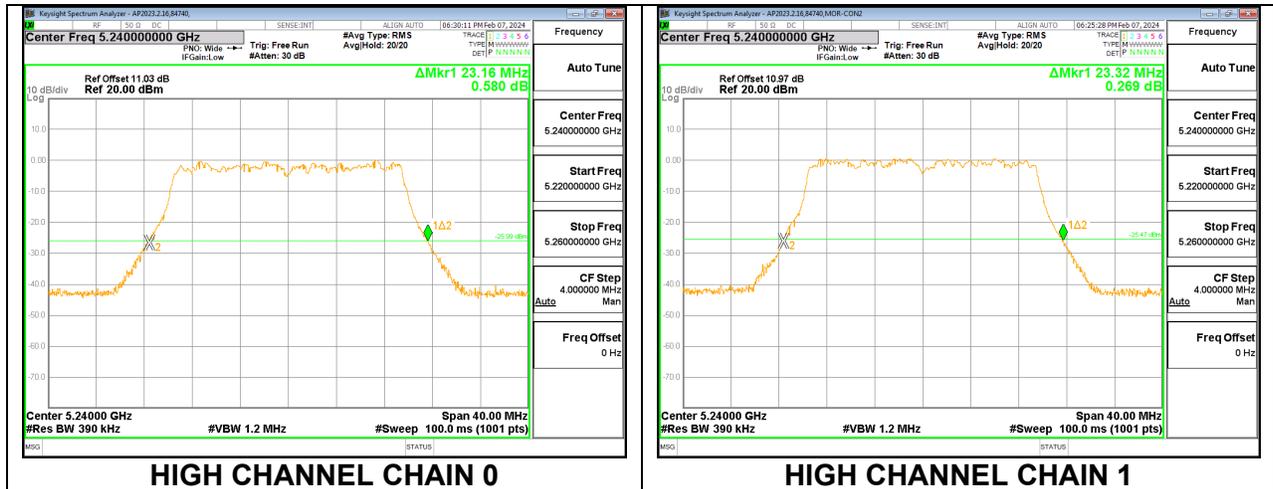
9.2.6. 802.11ax HE40 MODE 2TX IN THE 5.2GHz BAND
2TX CDD MODE: 484T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5190	44.56	45.68
High	5230	44.56	45.76

HIGH CHANNEL CHAIN 0

HIGH CHANNEL CHAIN 1
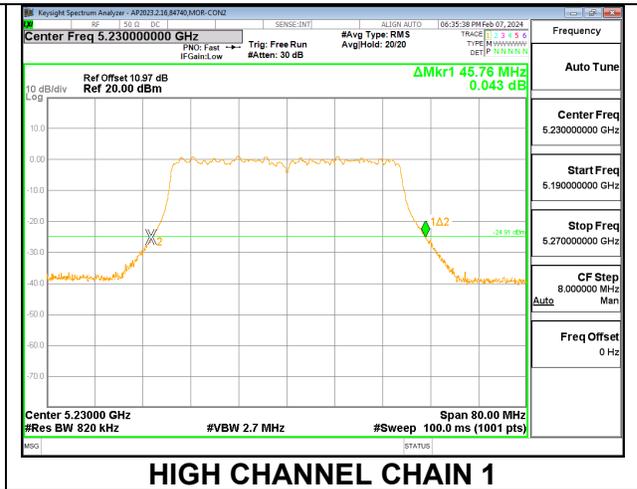
9.2.7. 802.11ax HE80 MODE 2TX IN THE 5.2GHz BAND
2TX CDD MODE: 996T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Mid	5210	90.88	93.92

MID CHANNEL CHAIN 0

MID CHANNEL CHAIN 1

9.2.8. 802.11a MODE IN THE 5.3 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	23.96	23.76
Mid	5300	23.96	23.80
High	5320	23.96	23.80

MID CHANNEL CHAIN 0   **MID CHANNEL CHAIN 1**

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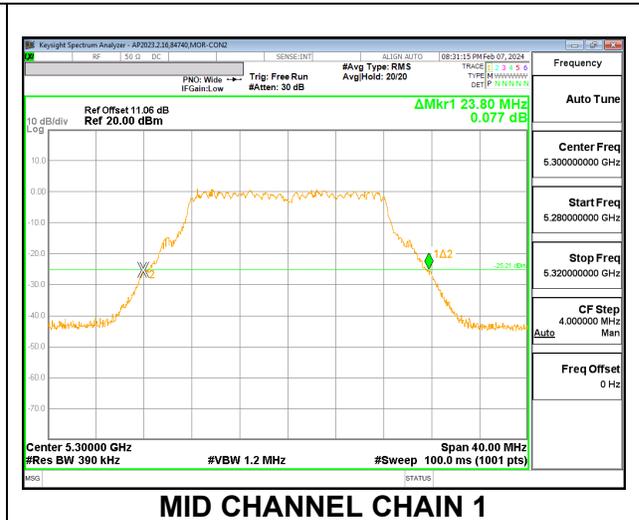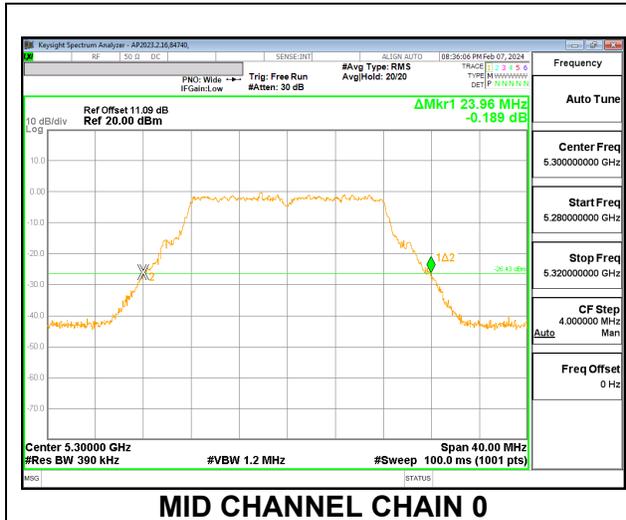
9.2.9. 802.11n HT20 MODE IN THE 5.3 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	24.20	23.80
Mid	5300	23.80	23.96
High	5320	24.04	24.04

LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1

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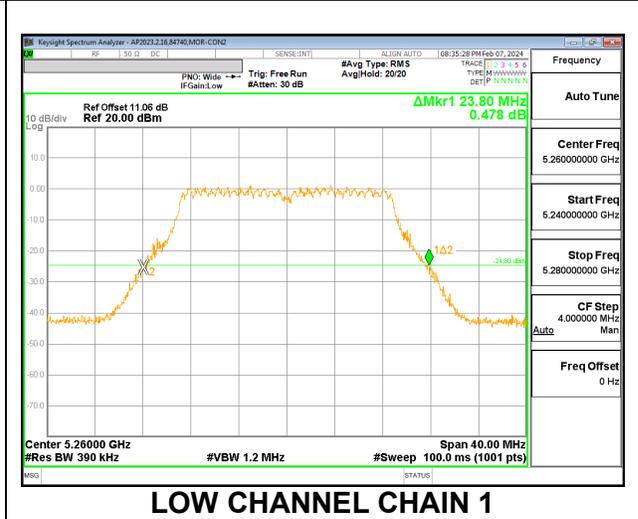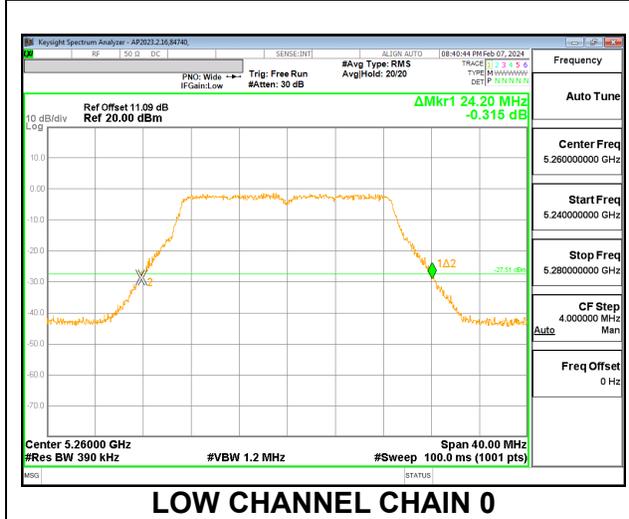
9.2.10.   802.11n HT40 MODE IN THE 5.3 GHz BAND

2TX CDD MODE

Channel	Frequency	26 dB Bandwidth Chain 0	26 dB Bandwidth Chain 1
	(MHz)	(MHz)	(MHz)
Low	5270	47.20	46.48
High	5310	46.96	46.56

LOW CHANNEL CHAIN 0   LOW CHANNEL CHAIN 1
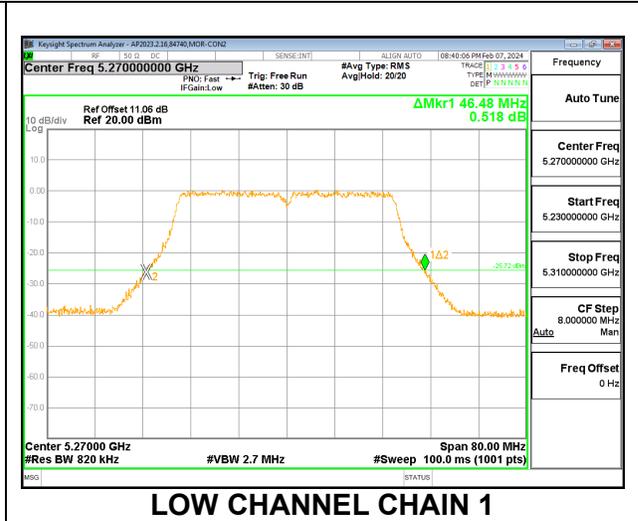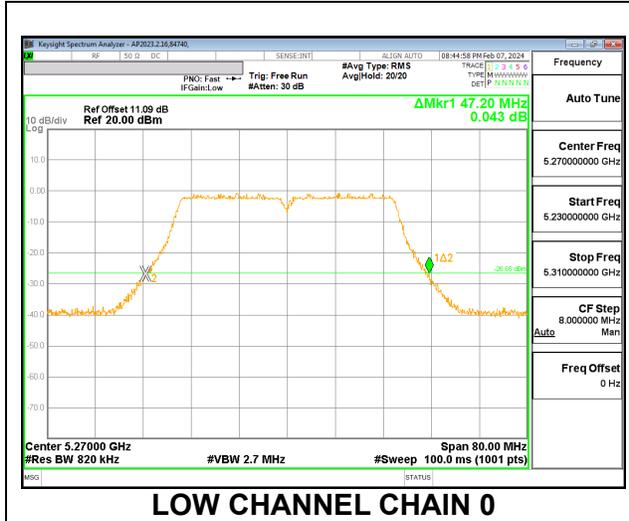
9.2.11.   802.11ac VHT80 MODE IN THE 5.3 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Mid	5290	96.32	93.76

MID CHANNEL CHAIN 0   **MID CHANNEL CHAIN 1**

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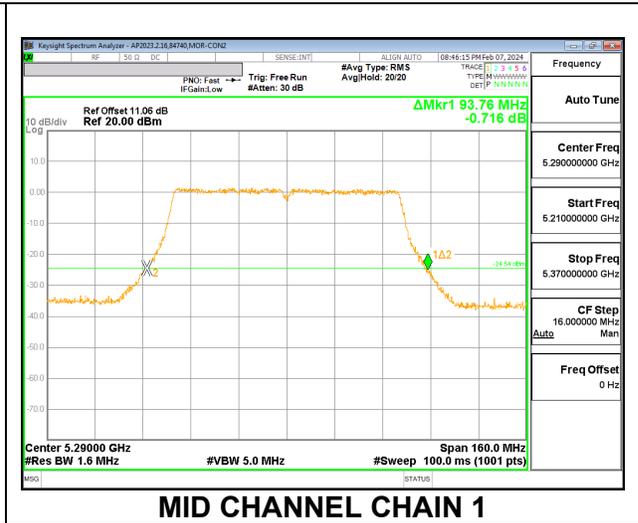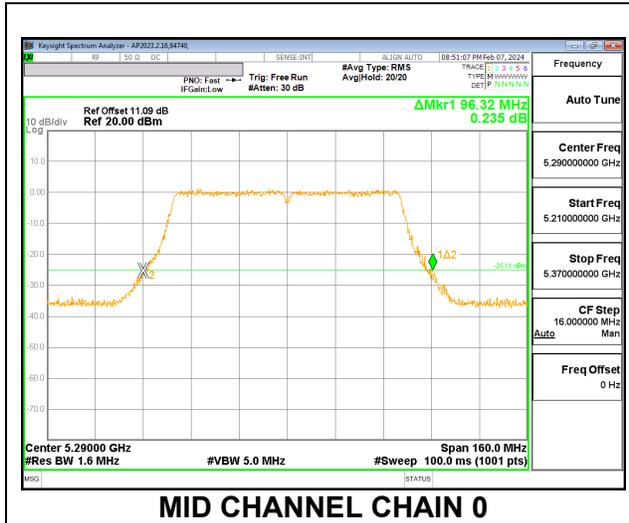
9.2.12.   802.11ac VHT160 MODE IN THE 5.3 GHz BAND

2TX CDD MODE

Channel	Frequency	26 dB Bandwidth Chain 0	26 dB Bandwidth Chain 1
	(MHz)	(MHz)	(MHz)
Mid	5250	178.88	178.24

MID CHANNEL CHAIN 0

MID CHANNEL CHAIN 1
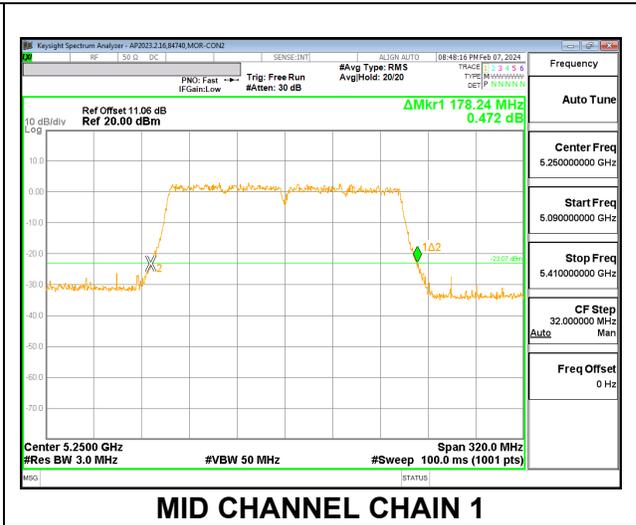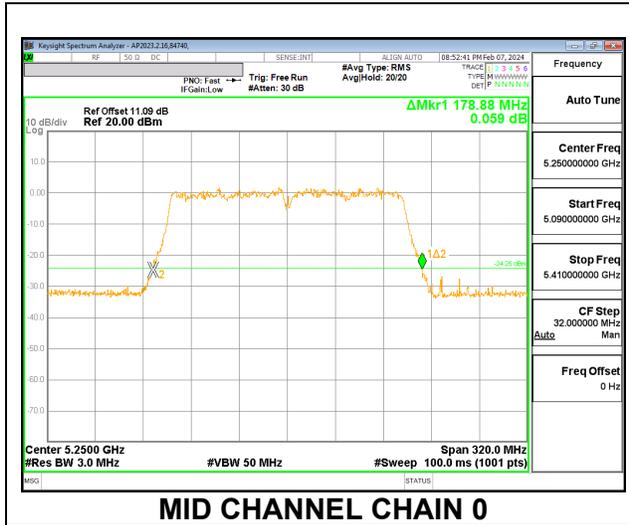
9.2.13. 802.11ax HE20 MODE 2TX IN THE 5.3GHz BAND

2TX CDD MODE: 26T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	20.56	20.32
Mid	5300	19.04	18.44
High	5320	20.68	20.20
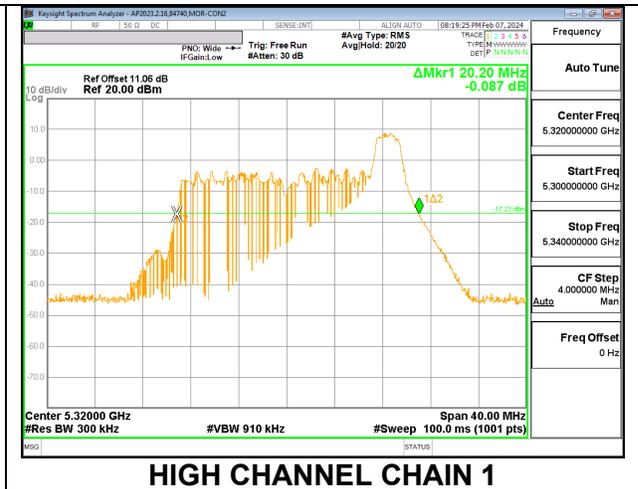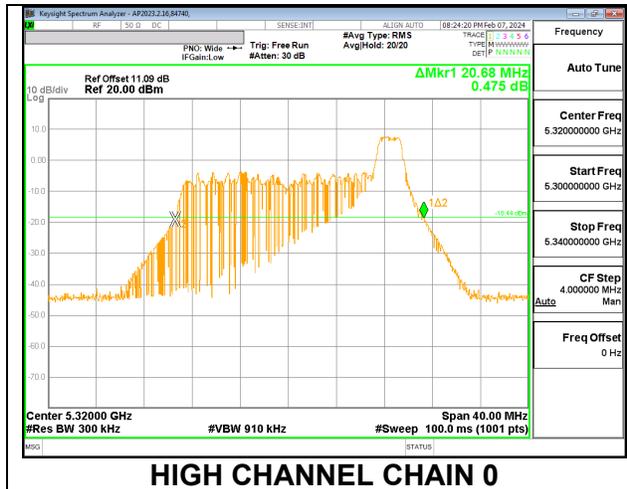
HIGH CHANNEL CHAIN 0

HIGH CHANNEL CHAIN 1

2TX CDD MODE: 52T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	20.88	20.44
Mid	5300	19.48	18.80
High	5320	20.64	20.48
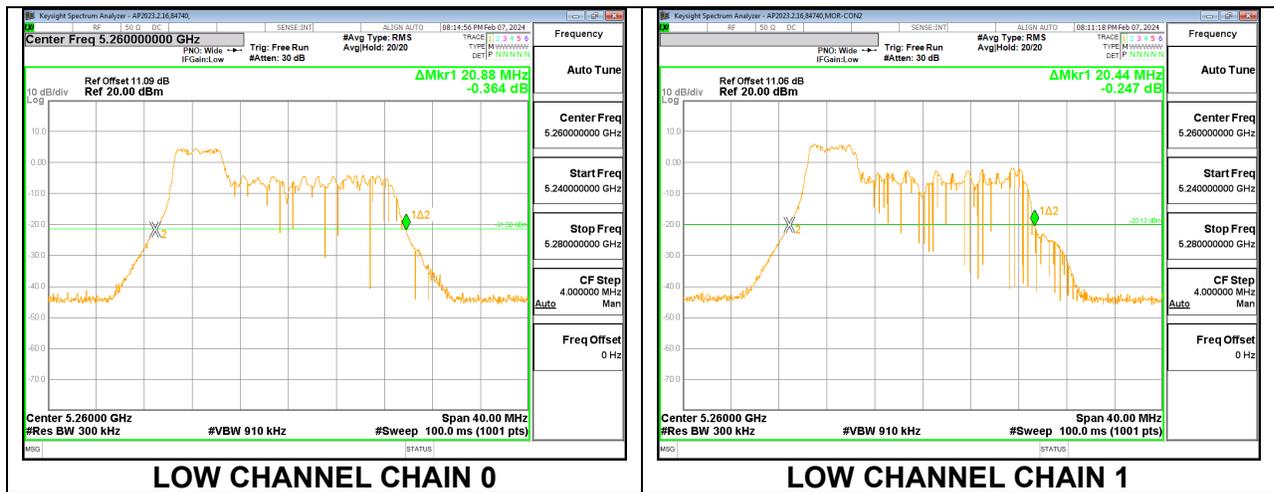
LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1

2TX CDD MODE: 106T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	22.32	21.80
Mid	5300	22.40	21.72
High	5320	21.04	21.20
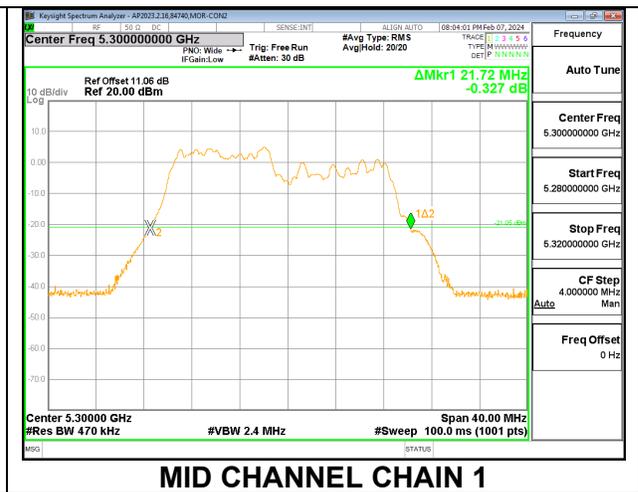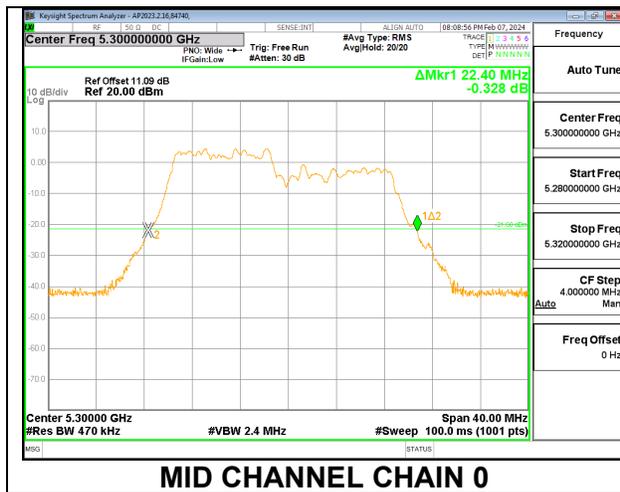
MID CHANNEL CHAIN 0

MID CHANNEL CHAIN 1

2TX CDD MODE: 242T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5260	23.28	23.32
Mid	5300	23.32	23.24
High	5320	23.28	23.08

LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1
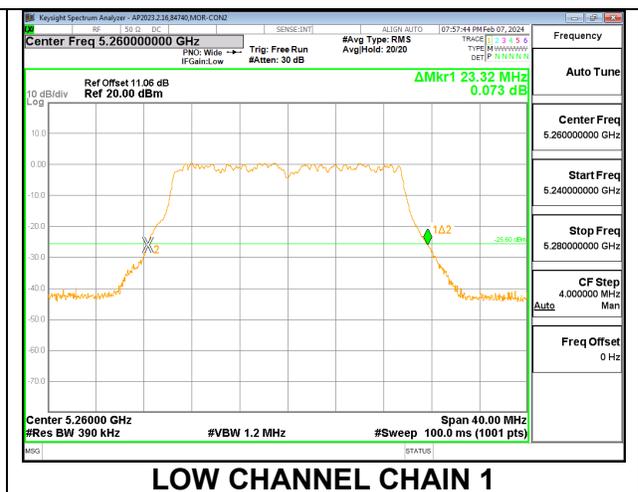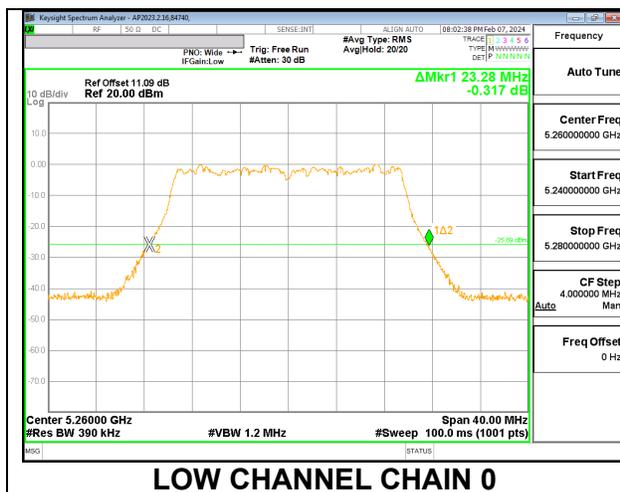
9.2.14. 802.11ax HE40 MODE 2TX IN THE 5.3GHz BAND

2TX CDD MODE: 484T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5270	44.56	45.68
High	5310	44.48	45.76

HIGH CHANNEL CHAIN 0

HIGH CHANNEL CHAIN 1
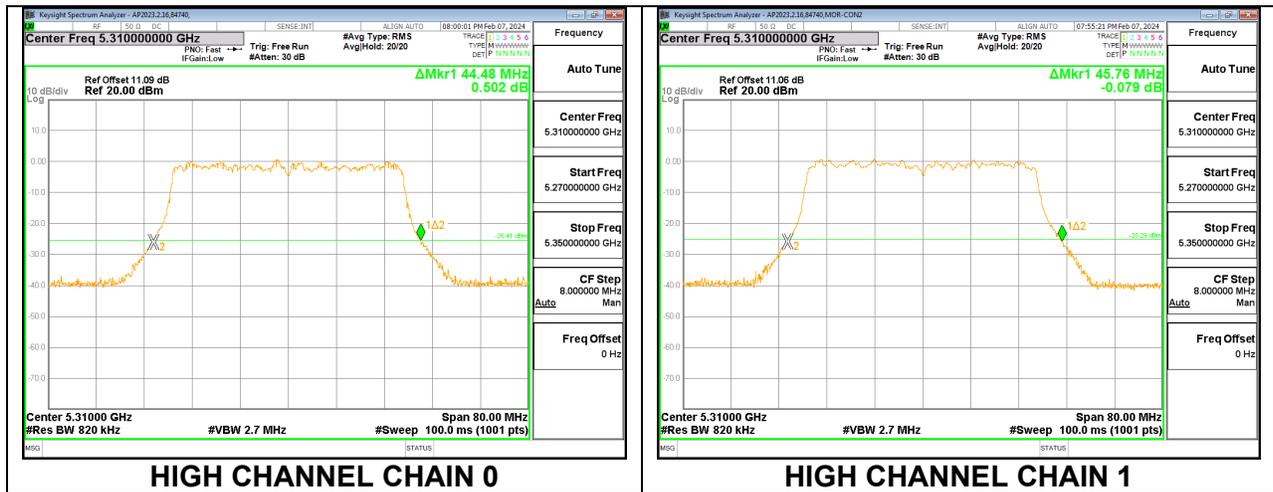
9.2.15. 802.11ax HE80 MODE 2TX IN THE 5.3GHz BAND

2TX CDD MODE: 996T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Mid	5290	90.72	93.76

MID CHANNEL CHAIN 0

MID CHANNEL CHAIN 1
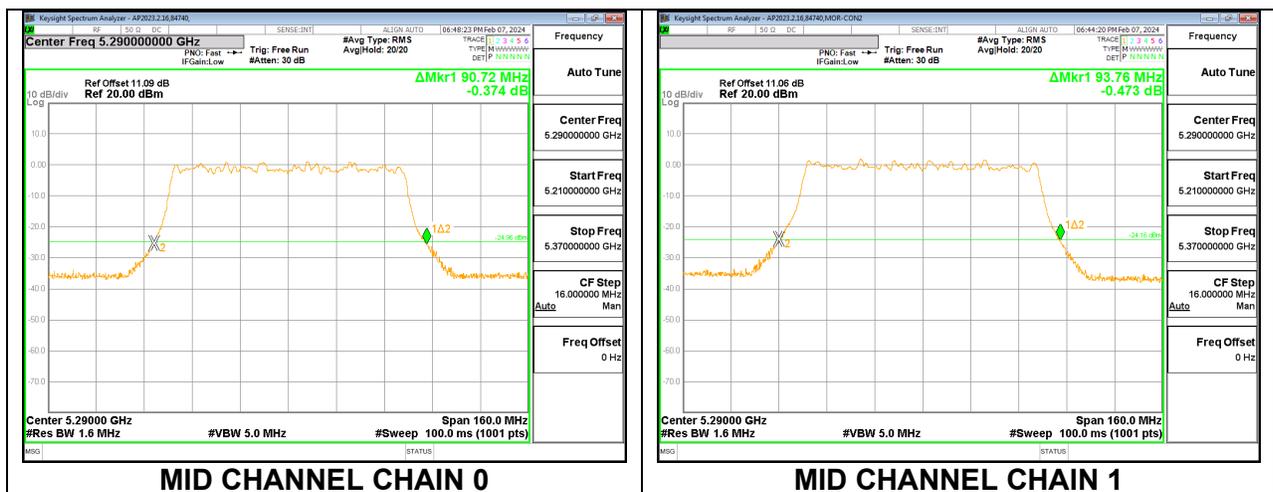
9.2.16.   802.11ax HE160 MODE 2TX IN THE 5.2GHz & 5.3GHz BAND
2TX CDD MODE: 2x996T

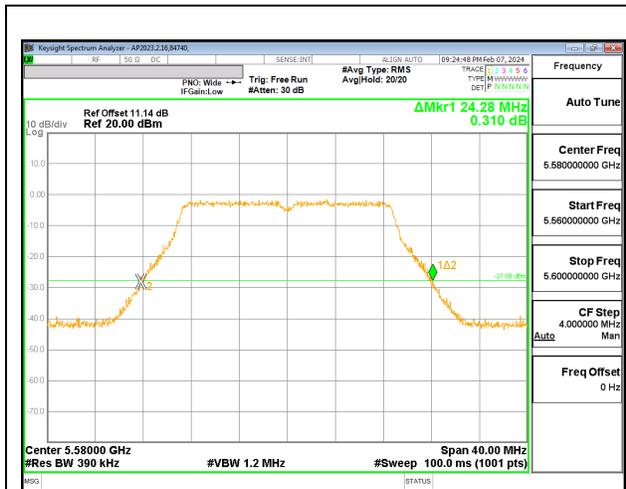| Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Mid	5250	179.52	180.16

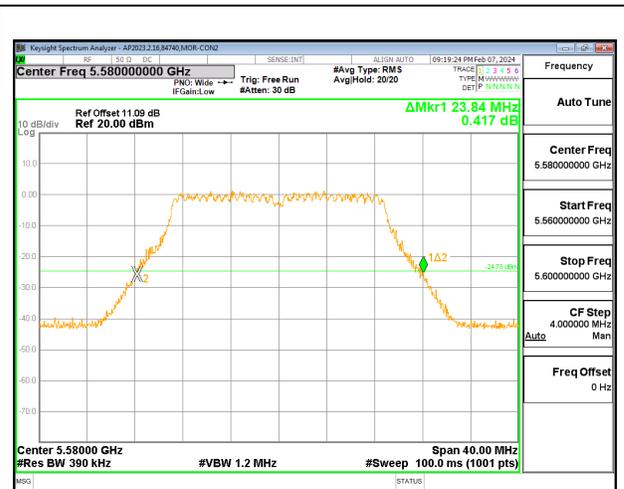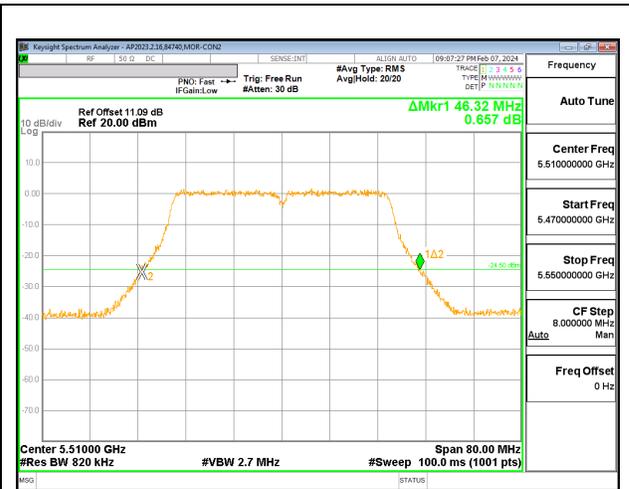**MID CHANNEL CHAIN 0**   **MID CHANNEL CHAIN 1**
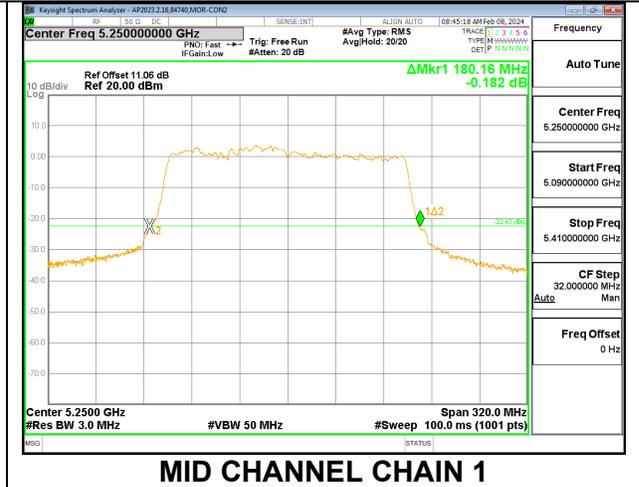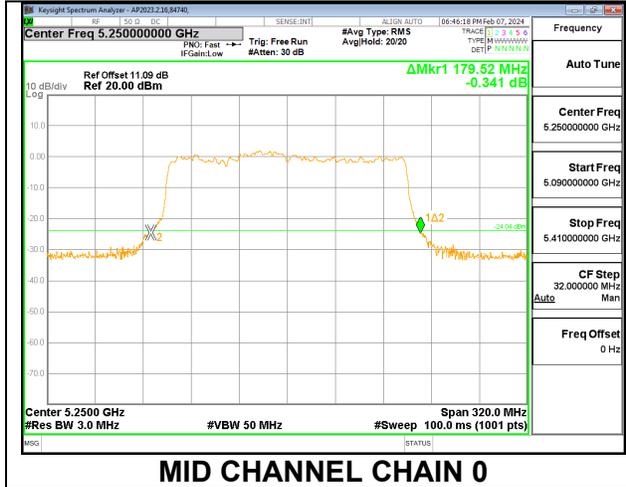
9.2.17. 802.11a MODE IN THE 5.6 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	24.00	23.84
Mid	5580	23.92	23.08
High	5700	24.04	23.40
144	5720	17.04	16.52

HIGH CHANNEL CHAIN 0
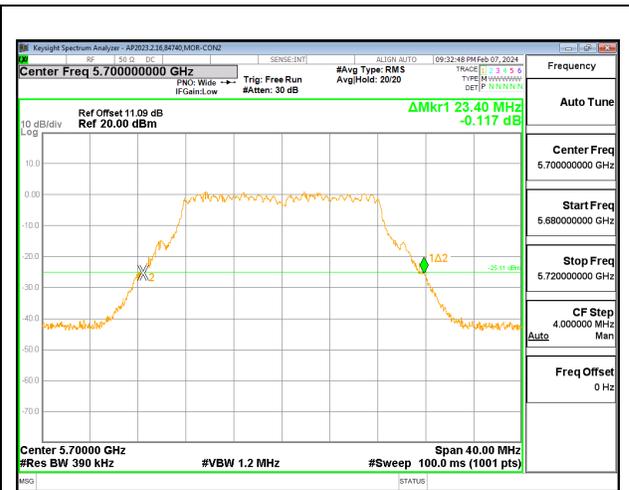
HIGH CHANNEL CHAIN 1

CHANNEL 144 CHAIN 0

CHANNEL 144 CHAIN 1

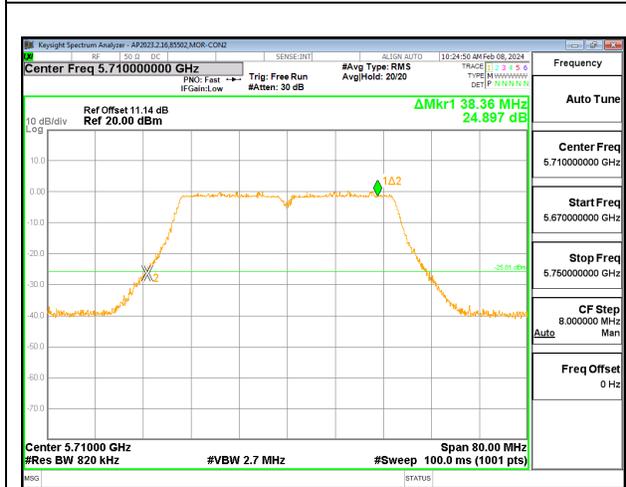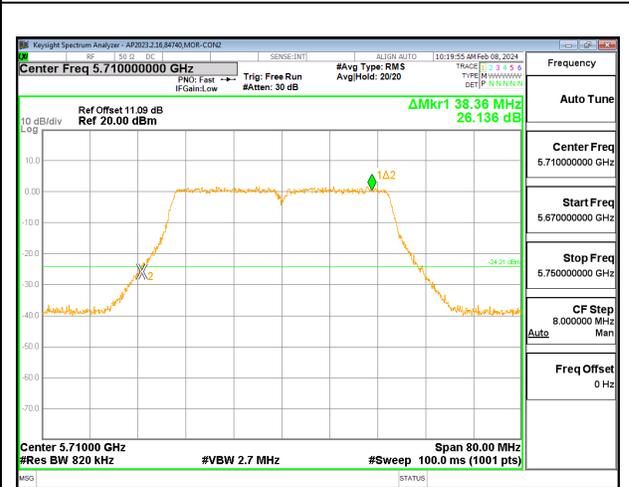## 9.2.18. 802.11n HT20 MODE IN THE 5.6 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	24.04	24.08
Mid	5580	24.28	23.84
High	5700	24.20	24.04
144	5720	17.24	17.20

MID CHANNEL CHAIN 0

MID CHANNEL CHAIN 1
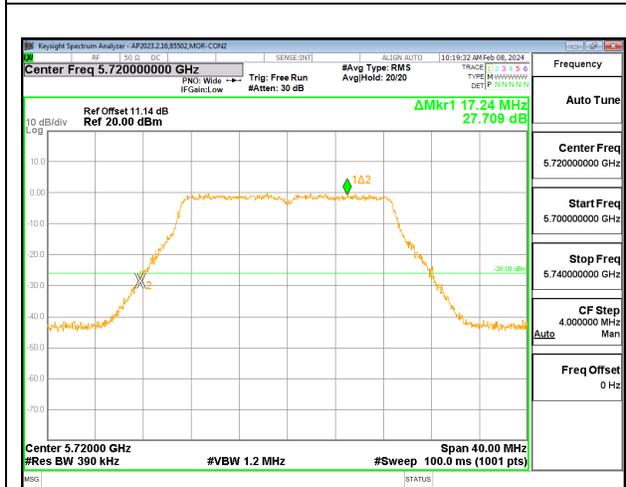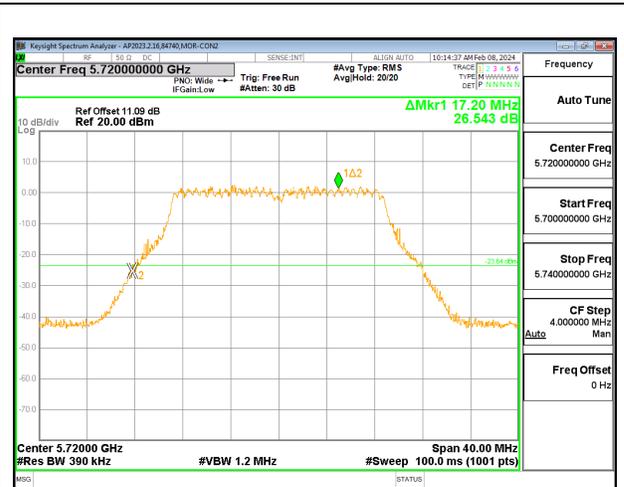
CHANNEL 144 CHAIN 0

CHANNEL 144 CHAIN 1

9.2.19. 802.11n HT40 MODE IN THE 5.6 GHz BAND

2TX CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5510	47.04	46.32
Mid	5550	46.80	46.64
High	5670	46.88	46.16
142	5710	38.36	38.36

LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1

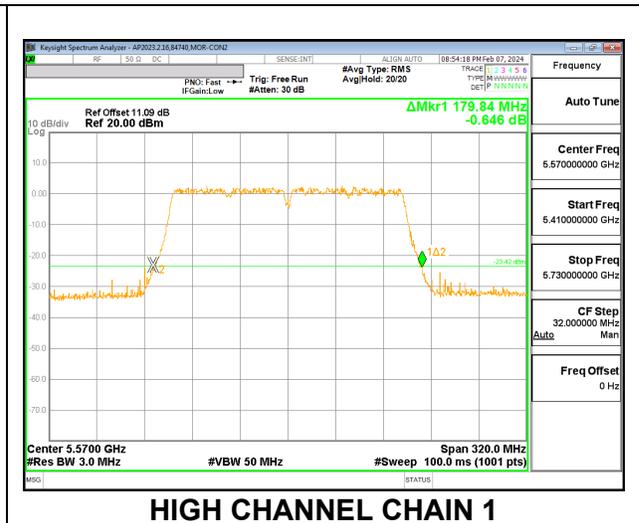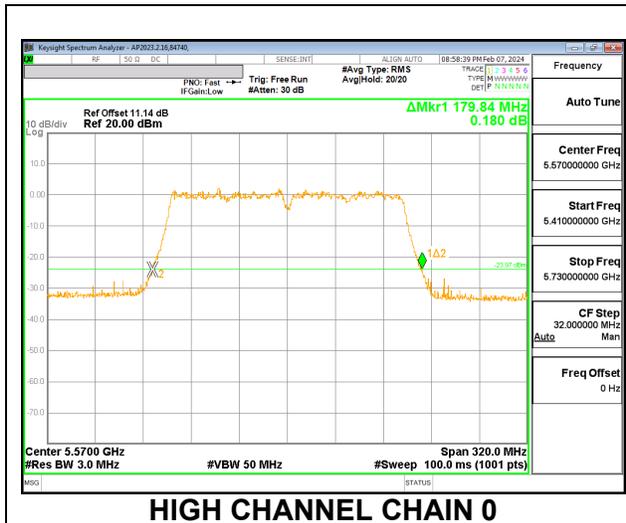**CHANNEL 142 CHAIN 0**

CHANNEL 142 CHAIN 1

9.2.20. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

2TX CDD MODE

Channel	Frequency	26dB BW Chain 0 (MHz)	26dB BW Chain 1 (MHz)
Low	5530	95.68	94.24
High	5610	95.36	94.72
138	5690	82.52	82.36

LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1

CHANNEL 138 CHAIN 0

CHANNEL 138 CHAIN 1

9.2.21.   802.11ac VHT160 MODE IN THE 5.6 GHz BAND

2TX CDD MODE

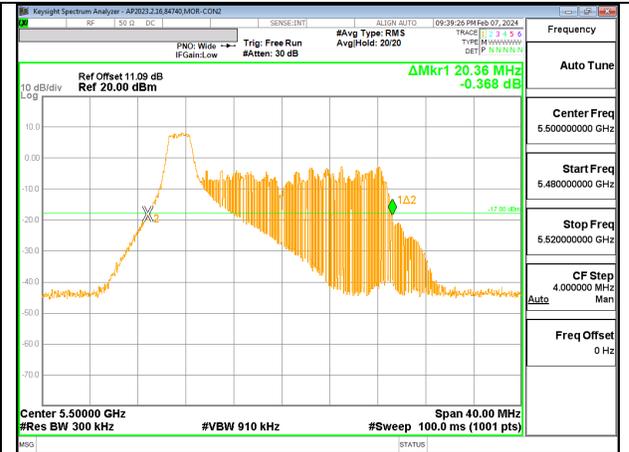| Channel	Frequency	26dB BW Chain 0 (MHz)	26dB BW Chain 1 (MHz)
Mid	5570	179.84	179.84

HIGH CHANNEL CHAIN 0

HIGH CHANNEL CHAIN 1

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9.2.22.   802.11ax HE20 MODE 2TX IN THE 5.6GHz BAND

2TX CDD MODE: 26T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	20.88	20.36
Mid	5580	19.00	18.40
High	5700	20.56	20.24
144	5720	16.16	16.08
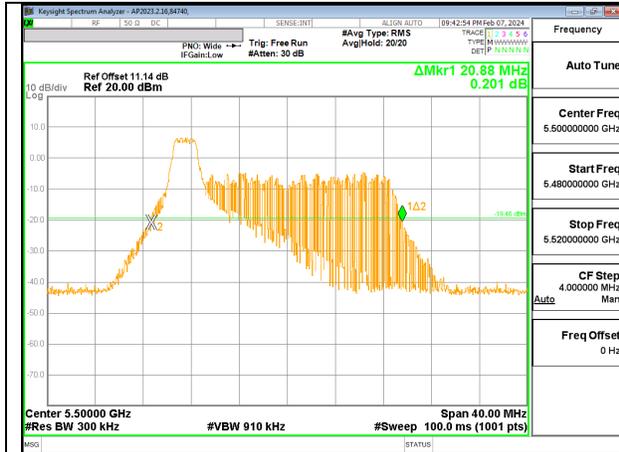
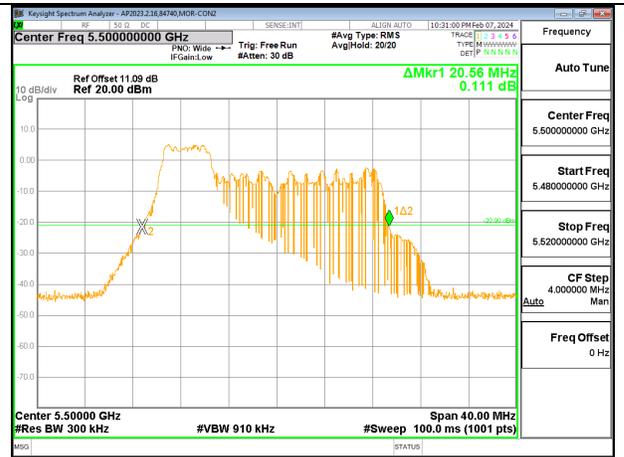LOW CHANNEL CHAIN 0
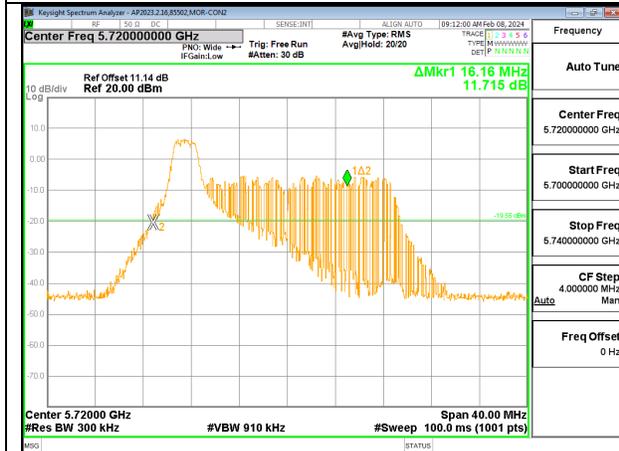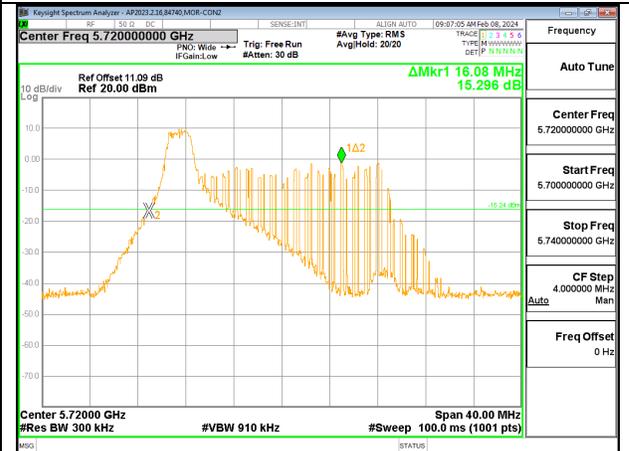
LOW CHANNEL CHAIN 1

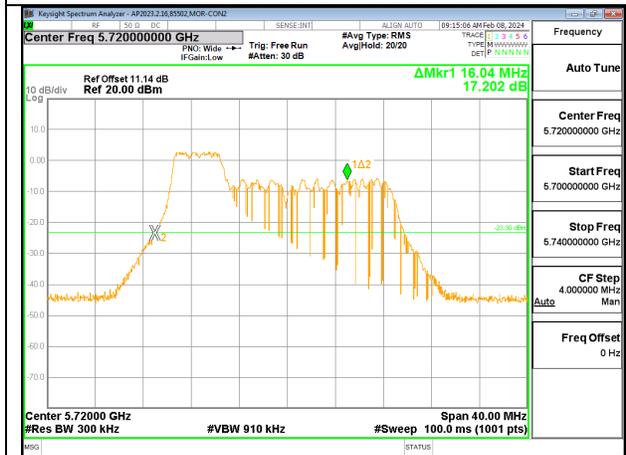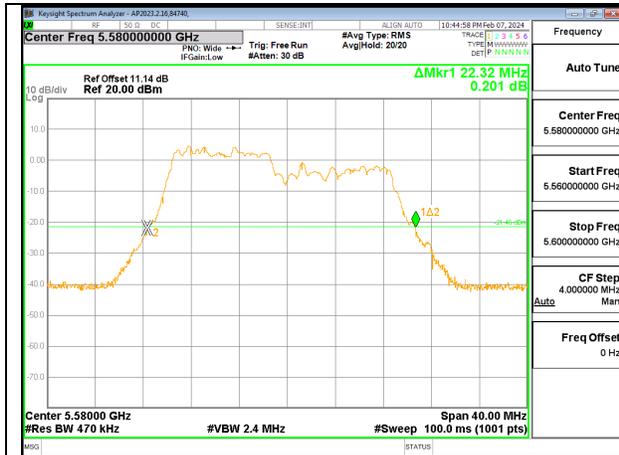CHANNEL 144 CHAIN 0

CHANNEL 144 CHAIN 1

2TX CDD MODE: 52T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	21.00	20.56
Mid	5580	19.40	18.76
High	5700	20.96	20.56
144	5720	16.04	16.32

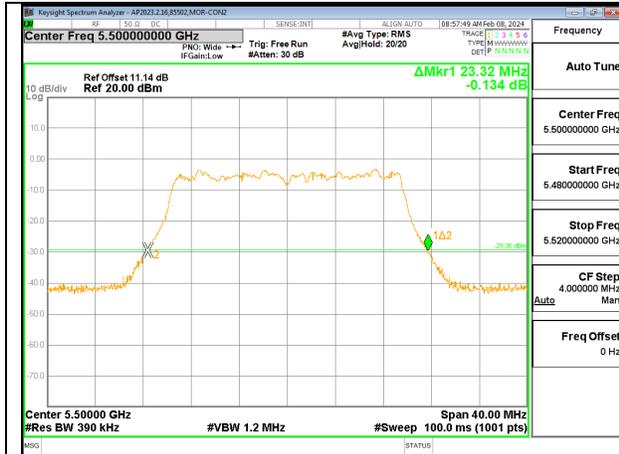
LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1

CHANNEL 144 CHAIN 0

CHANNEL 144 CHAIN 1

2TX CDD MODE: 106T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	22.24	21.76
Mid	5580	22.32	21.76
High	5700	21.48	21.20
144	5720	16.64	16.48

MID CHANNEL CHAIN 0 | MID CHANNEL CHAIN 1
CHANNEL 144 CHAIN 0 | CHANNEL 144 CHAIN 1

2TX CDD MODE: 242T

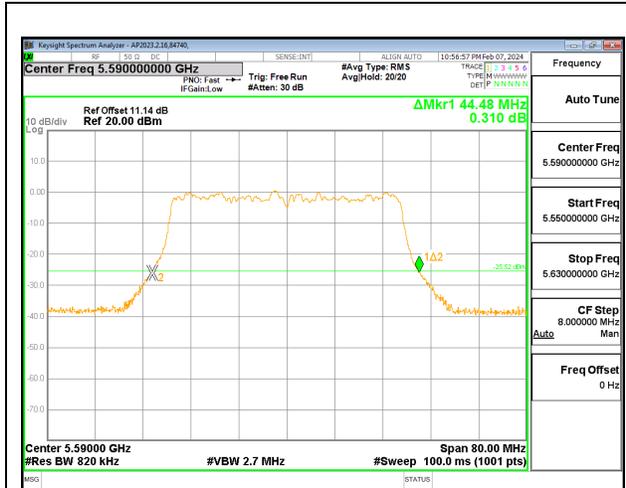| Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5500	23.32	23.24
Mid	5580	23.28	23.20
High	5700	23.20	23.04
144	5720	16.64	16.40

LOW CHANNEL CHAIN 0
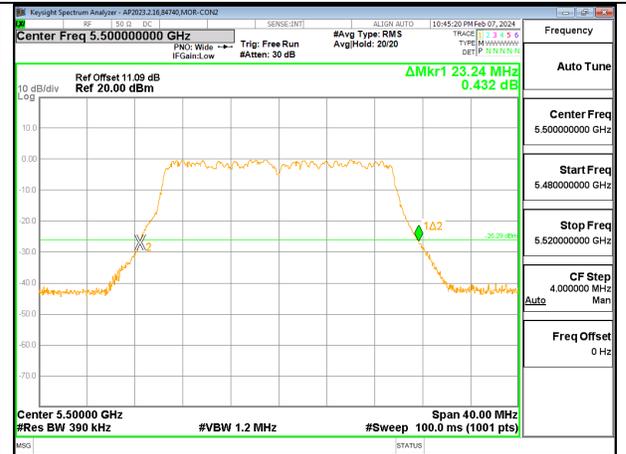
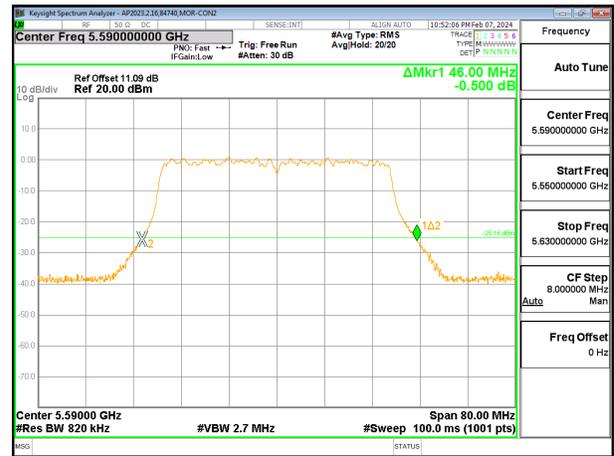LOW CHANNEL CHAIN 1

CHANNEL 144 CHAIN 0

CHANNEL 144 CHAIN 1

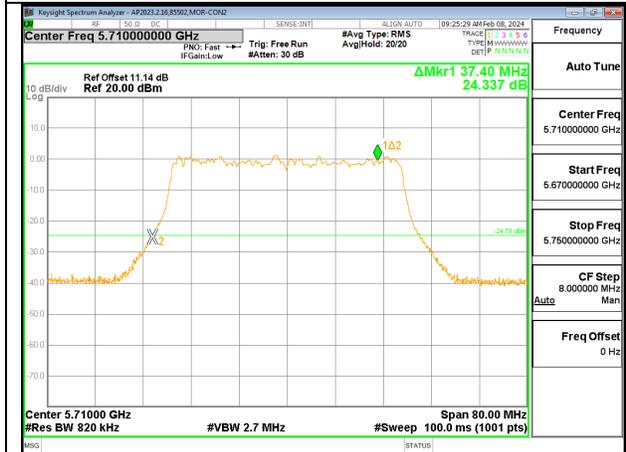## 9.2.23. 802.11ax HE40 MODE 2TX IN THE 5.6GHz BAND

2TX CDD MODE: 484T

Channel	Frequency (MHz)	26 dB Bandwidth Chain 0 (MHz)	26 dB Bandwidth Chain 1 (MHz)
Low	5510	44.72	45.84
Mid	5590	44.48	46.00
High	5670	44.72	45.76
142	5710	37.40	37.48

MID CHANNEL CHAIN 0

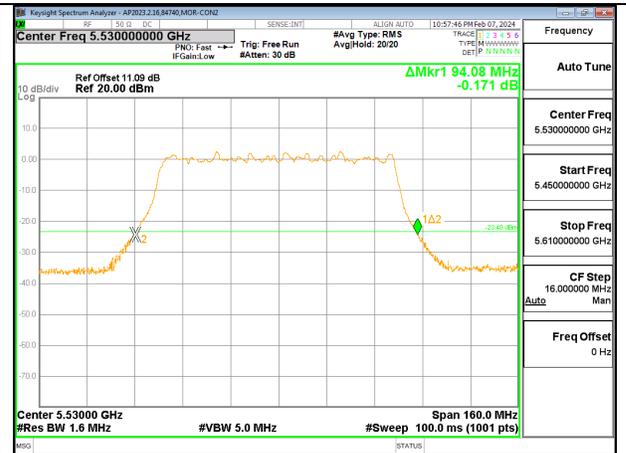MID CHANNEL CHAIN 1

CHANNEL 142 CHAIN 0

CHANNEL 142 CHAIN 1

9.2.24.   802.11ax HE80 MODE 2TX IN THE 5.6GHz BAND

2TX CDD MODE: 996T

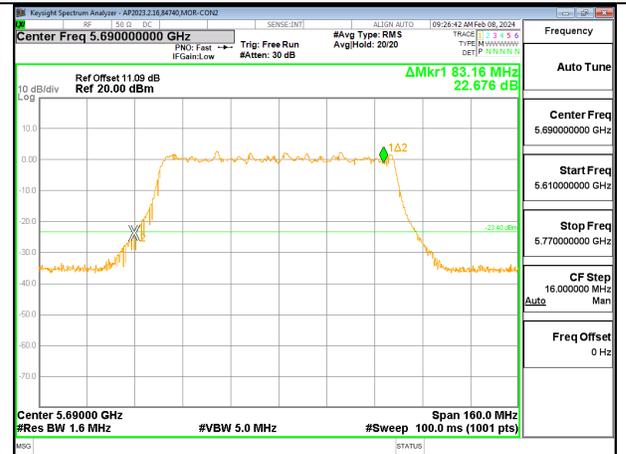| Channel	Frequency	26dB BW Chain 0 (MHz)	26dB BW Chain 1 (MHz)
Low	5530	91.20	94.08
High	5610	92.16	93.60
138	5690	79.64	83.16

LOW CHANNEL CHAIN 0

LOW CHANNEL CHAIN 1

CHANNEL 138 CHAIN 0

CHANNEL 138 CHAIN 1