

TEST REPORT

Product Name : R105 Industrial Router
Model Number : VT-M2M-R105, VT-M2M-R105-F4NA,
VT-M2M-R105-F4NA-C
FCC ID : 2BEA6M2MR105

Prepared for : Vantron Technology, Inc.
Address : 48434 Milmont Drive Fremont, CA 94538-7324, USA

Prepared by : EMTEK (SHENZHEN) CO., LTD.
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Report Number : ENS2310300217W00202R
Date(s) of Tests : October 31, 2023 to November 17, 2023
Date of issue : November 20, 2023

1 TEST RESULT CERTIFICATION

Applicant : Vantron Technology, Inc.
Address : 48434 Milmont Drive Fremont, CA 94538-7324, USA
Manufacturer : Vantron Technology, Inc.
Address : 48434 Milmont Drive Fremont, CA 94538-7324, USA
EUT : R105 Industrial Router
Model Name : VT-M2M-R105, VT-M2M-R105-F4NA, VT-M2M-R105-F4NA-C
Trademark : Vantron

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart E	PASS
IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 2(02-2017)	PASS

The above equipment was tested by EMTEK (SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2, Part 15.407, IC RSS-247 Issue 2 and IC RSS-GEN, Issue 5.

The test results of this report relate only to the tested sample identified in this report.

Date of Test : October 31, 2023 to November 17, 2023

Prepared by : 
Luo peiye /Editor

Reviewer : 
Joe Xia/Supervisor

Approve & Authorized Signer : 
Lisa Wang/Manager



Modified History

Version	Report No.	Revision Date	Summary
Ver.1.0	ENS2310300217W00202R	/	Original Report



TABLE OF CONTENTS

1	TEST RESULT CERTIFICATION	2
2	EUT TECHNICAL DESCRIPTION	5
3	SUMMARY OF TEST RESULT	7
4	TEST METHODOLOGY	8
4.1	GENERAL DESCRIPTION OF APPLIED STANDARDS	8
4.2	MEASUREMENT EQUIPMENT USED	8
4.3	DESCRIPTION OF TEST MODES	9
5	FACILITIES AND ACCREDITATIONS	11
5.1	FACILITIES	11
5.2	EQUIPMENT	11
5.3	LABORATORY ACCREDITATIONS AND LISTINGS	11
6	TEST SYSTEM UNCERTAINTY	12
7	SETUP OF EQUIPMENT UNDER TEST	13
7.1	RADIO FREQUENCY TEST SETUP	13
7.2	RADIO FREQUENCY TEST SETUP	13
7.3	CONDUCTED EMISSION TEST SETUP	15
7.4	BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM	16
7.5	SUPPORT EQUIPMENT	16
8	TEST REQUIREMENTS	17
8.1	BANDWIDTH MEASUREMENT	17
8.2	MAXIMUM CONDUCTED OUTPUT POWER	92
8.3	MAXIMUM PEAK POWER DENSITY	165
8.4	UNDESIRABLE RADIATED SPURIOUS EMISSION	197
8.5	POWER LINE CONDUCTED EMISSIONS	216
8.6	ANTENNA APPLICATION	219

2 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product:	R105 Industrial Router
Model Number:	VT-M2M-R105, VT-M2M-R105-F4NA, VT-M2M-R105-F4NA-C (These models are identical in circuitry and electrical, mechanical and physical construction; Only the appearance is different)
Sample Number:	2#
Wifi Type:	Wifi 5G with 5150MHz-5250MHz Band Wifi 5G with 5725MHz-5850MHz Band
WLAN Supported:	802.11a/n/ac/ax
Data Rate :	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: MCS0-MCS7 802.11ac: MCS0-MCS9 802.11ax: MCS0-MCS11
Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/n OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11ac OFDM with BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM for 802.11ax
Frequency Range:	UNII-1: 5150MHz-5250MHz Band 5180-5240MHz for 802.11a/n(HT20)/ac(VHT20)/ax(HE20); 5190-5230MHz for 802.11n(HT40)/ac(VHT40)/ax(HE40); 5210MHz for 802.11ac(VHT80)/ax(HE80);
	UNII-3 with 5725MHz-5850MHz Band 5745-5825MHz for 802.11a/n(HT20)/ac(VHT20)/ax(HE20); 5755-5795MHz for 802.11n(HT40)/ac(VHT40); 5775MHz for 802.11ac(VHT80)/ax(HE80);
TPC Function:	Not Applicable
Antenna Port:	☒ Antenna port 1, ☒ Antenna port 2
Antenna Type:	☒ ANT 1: External Antenna ☒ ANT 2: External Antenna
Antenna Gain:	☒ ANT 1: 4.03 dBi ☒ ANT 2: 4.03 dBi
Transmit Power:	UNII-1 Band: 15.36 dBm UNII-3 Band: 16.14 dBm
Power Supply:	DC 12V
Adapter 1#:	MODEL NO.:GST25A12 INPUT:100-240VAC, 50/60Hz, 0.6A OUTPUT:12V, 2.08A, 25W MAX.

Adapter 2#:	MODEL:KS39DU-1200200 INPUT:100-240VAC, 50/60Hz, 2A OUTPUT:12V, 2A.
Test Voltage:	AC 120V/60Hz
Date of Received:	October 30, 2023
Temperature Range:	-20°C ~ +60°C
<i>Note: For more details, please refer to the User's manual of the EUT.</i>	



3 SUMMARY OF TEST RESULT

FCC Part Clause	IC Part Clause	Test Parameter	Verdict	Remark
15.407 (a) 15.407 (e) 2.1049	RSS-247, 6.2 RSS-Gen 6.7	99% , 6dB and 26dB Bandwidth	PASS	
15.407 (a)	RSS-247, 6.2	Maximum Conducted Output Power	PASS	
15.407 (a)	RSS-247, 6.2	PeakPower Spectral Density	PASS	
15.407 (b) 15.209 15.205	RSS-247, 6.2 RSS-Gen 8.9 RSS-Gen 8.10 RSS-Gen 6.13	RadiatedSpurious Emission	PASS	
15.207	RSS-Gen 8.8	Power Line Conducted Emission	PASS	
15.407(a) 15.203	RSS-Gen 6.8	Antenna Application	PASS	
NOTE1:N/A (Not Applicable) NOTE2:According to FCC OET KDB 789033, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.				

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for **FCC ID:2BEA6M2MR105** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:

FCC 47 CFR Part 2, Subpart J

FCC 47 CFR Part 15, Subpart E

IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021)

IC RSS-247 Issue 2(02-2017)

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

FCC KDB 789033 D2 General UNII Test Procedures New Rules v02r01

4.2 MEASUREMENT EQUIPMENT USED

Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESCI	101384	2023/5/13	1Year
AMN	Rohde & Schwarz	ENV216	101161	2023/5/13	1Year
AMN	Kyoritsu	KNW-407	8-1492-9	2023/5/11	1Year

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Pre-Amplifier	Bonn	BLMA 011001N	2213967A	2023/10/23	1Year
EMI Test Receiver	Rohde & Schwarz	ESR7	102551	2023/10/23	1Year
Bilog Antenna	Schwarzbeck	VULB9163	9163142	2022/7/24	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1198	2023/6/2	2 Year
Pre-Amplifier	Bonn	BLMA 0118-5G	2213967B-01	2023/10/23	1Year
Spectrum Analyzer	Rohde & Schwarz	FSV3044	101290	2023/10/23	1Year
Horn antenna	Schwarzbeck	BBHA9170	9170-399	2023/5/12	2 Year
Pre-Amplifier	Lunar EM	LNA18G26-40	J101213101000 1	2023/5/10	2 Year
Pre-Amplifier	Lunar EM	LNA26G40-40	J101313102800 1	2023/5/10	1 Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	2023/5/12	1 Year
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400-2485MHz)	2	2023/5/10	1 Year

For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Signal Analyzer	Agilent	N9010A	MY53470879	2023/5/10	1Year
Vector Signal Generater	Agilent	N5182B	MY53050878	2023/5/10	1Year
Analog Signal Generator	Agilent	N5171B	MY53050553	2023/5/10	1Year
Power Meter	Agilent	PS-X10-100	\	2023/5/13	1Year
Switchgroup	THEDA	ETF-025(VASC6)	TW5451008	N/A	N/A
MIMO Matrix Switch	THEDA	4P5TM18	TW5451009	N/A	N/A
Temperature&Humidity Chamber	ESPEC	EL-02KA	12107166	2023/5/10	1 Year

4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (802.11a: 54 Mbps; 802.11n(HT20): MCS0; 802.11ac(VHT20): MCS0; 802.11ax(HE20): MCS0; 802.11n(HT40): MCS0; 802.11ac(VHT40): MCS0; 802.11ax(HE40): MCS0; 802.11ac(VHT80):

MCS0; 802.11ax(HE80): MCS0;) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Wifi 5G with U-NII - 1

Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220		
40	5200	48	5240		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230		

Frequency and Channel list for 802.11ac (VHT80), 802.11ax(HE80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	48	5240

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	N/A	N/A	46	5230

Test Frequency and channel for 802.11ac (VHT80), 802.11ax(HE80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	N/A	N/A	N/A	N/A

Wifi 5G with U-NII -3

Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825
153	5765	161	5805		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795		

Frequency and Channel list for 802.11ac (VHT80), 80.11ax(HE80)::

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	N/A	N/A	159	5795

Test Frequency and channel for 802.11ac (VHT80), 80.11ax(HE80)::

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

The 5G WIFI has two antennas and support Multiple Outputs for 802.11n mode for this report; Antenna 1 Gain is 4.03 dBi; Antenna 2 Gain is 4.03 dBi; for this function is belong to Correlated Categorization equipment

According to KDB 662911, for equall antenna gains,

Directional gain = GANT + 10 log(NANT) dBi=10.1 dBi

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at:

EMTEK (Shenzhen) Co., Ltd.

Building 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

EMC Lab. : **Accredited by CNAS**
The Certificate Registration Number is L2291.
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017)

Accredited by FCC
Designation Number: CN1204
Test Firm Registration Number: 882943

Accredited by A2LA
The Certificate Number is 4321.01.

Accredited by Industry Canada
The Conformity Assessment Body Identifier is CN0008

Name of Firm : EMTEK (SHENZHEN) CO., LTD.
Site Location : Building 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

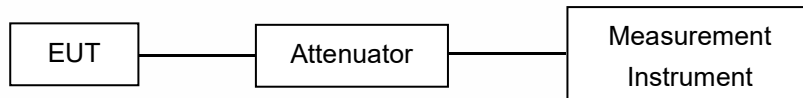
Test Parameter	Measurement Uncertainty
Frequency error	$\pm 20\text{Hz}$
Occupied Bandwidth	$\pm 0.5\text{KHz}$
Transmitter output power	$\pm 0.6\text{dB}$
Conducted spurious emissions	$\pm 3.2\text{dB}$
Radiated spurious emissions	$\pm 4.5\text{dB}$
Temperature	$\pm 1.2^{\circ}\text{C}$
Humidity	$\pm 3\%$
DC voltages	$\pm 0.25\text{V}$
Time	$\pm 1\%$

Measurement Uncertainty for a level of Confidence of 95%

7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP

The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

Below 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

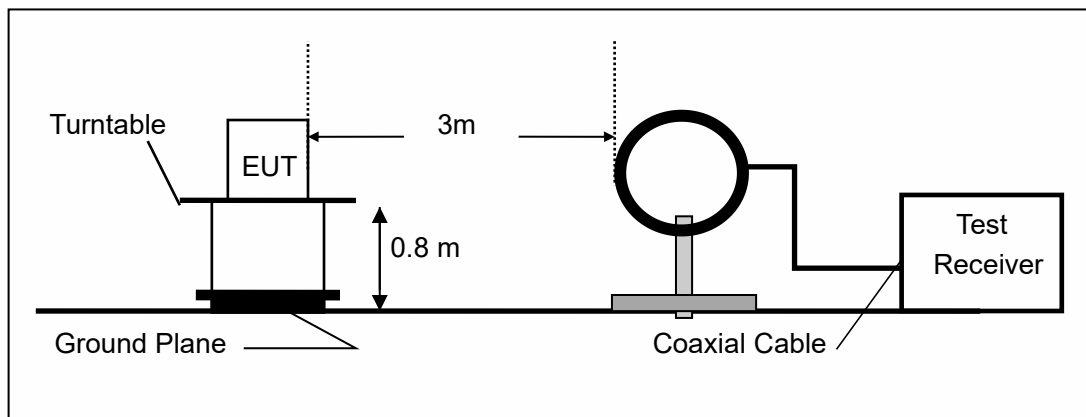
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

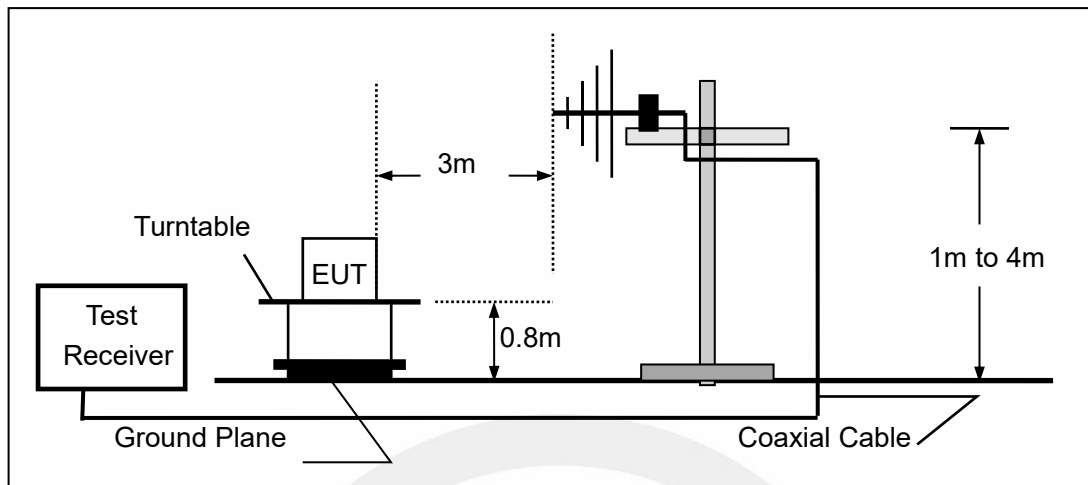
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

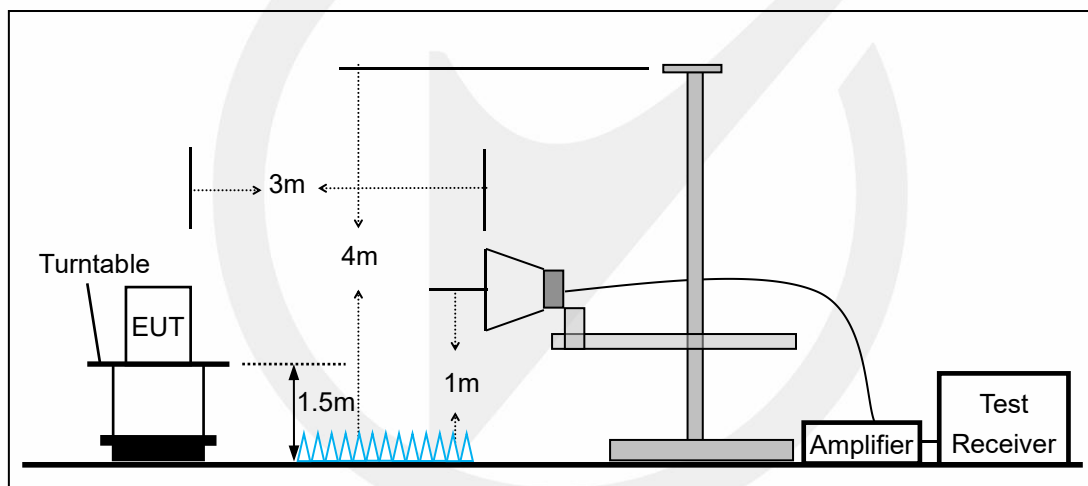
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

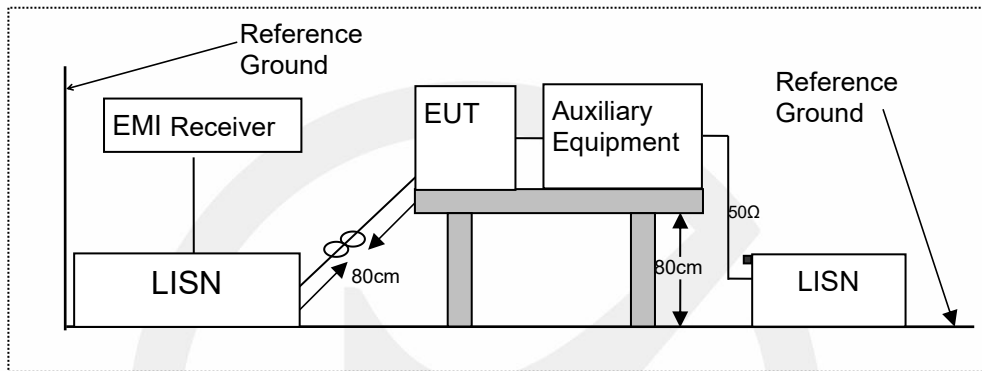


7.3 CONDUCTED EMISSION TEST SETUP

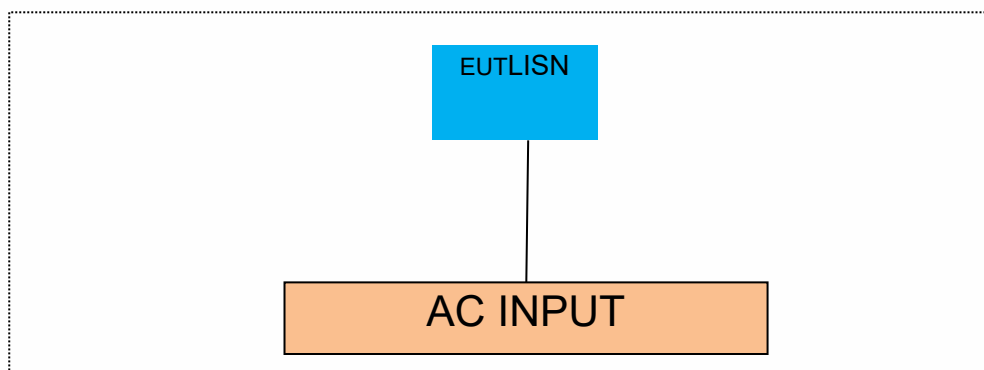
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.5 SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	ThinkPad S2 Yoga 3rd Gen	R9-OR98VZ

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

8 TEST REQUIREMENTS

8.1 BANDWIDTH MEASUREMENT

8.1.1 Applicable Standard

According to FCC Part 15.407(a)(1) for UNII Band I
According to FCC Part 15.407(a)(2) for UNII Band II-A and UNII Band II-C
According to FCC Part 15.407(a)(3) for UNII Band III
According to FCC Part 15.407(e) for UNII Band III
According to 789033 D02 Section II(C)
According to 789033 D02 Section II(D)
According to RSS-Gen6.6, RSS 247, 6.2

8.1.2 Conformance Limit

The 26dB bandwidth is used to determine the conducted power limits.
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

8.1.3 Test Configuration

Test according to clause 7.1 radio frequency test setup

8.1.4 Test Procedure

According to 789033 D02 v02r01 section C&D, the following is the measurement procedure.

1. Emission Bandwidth (EBW)

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

D. 99 Percent Occupied Bandwidth

The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section II.G.3.d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the EBW to 789033 D02 v01r02 General UNII Test Procedures New Rules v01 define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section II.E.

However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



8.1.5 Test Results

Temperature:	25°C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

Emission Bandwidth

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	20.440	5169.880	5190.320	---	---
	Ant2	5180	20.680	5169.720	5190.400	---	---
	Ant1	5200	20.320	5189.920	5210.240	---	---
	Ant2	5200	20.720	5189.560	5210.280	---	---
	Ant1	5240	20.560	5229.720	5250.280	---	---
	Ant2	5240	20.600	5229.600	5250.200	---	---
	Ant1	5745	21.080	5734.440	5755.520	---	---
	Ant2	5745	20.760	5734.680	5755.440	---	---
	Ant1	5785	20.640	5774.640	5795.280	---	---
	Ant2	5785	20.520	5774.800	5795.320	---	---
	Ant1	5825	20.480	5814.720	5835.200	---	---
	Ant2	5825	20.440	5814.680	5835.120	---	---
11N20MIMO	Ant1	5180	20.840	5169.560	5190.400	---	---
	Ant2	5180	20.880	5169.560	5190.440	---	---
	Ant1	5200	20.680	5189.640	5210.320	---	---
	Ant2	5200	21.040	5189.440	5210.480	---	---
	Ant1	5240	21.040	5229.560	5250.600	---	---
	Ant2	5240	20.440	5229.840	5250.280	---	---
	Ant1	5745	20.640	5734.800	5755.440	---	---
	Ant2	5745	20.920	5734.600	5755.520	---	---
	Ant1	5785	20.840	5774.520	5795.360	---	---
	Ant2	5785	20.920	5774.680	5795.600	---	---
	Ant1	5825	20.960	5814.320	5835.280	---	---
	Ant2	5825	20.440	5814.720	5835.160	---	---
11N40MIMO	Ant1	5190	40.160	5170.000	5210.160	---	---
	Ant2	5190	40.400	5169.440	5209.840	---	---
	Ant1	5230	40.000	5210.160	5250.160	---	---
	Ant2	5230	39.040	5210.400	5249.440	---	---
	Ant1	5755	40.240	5734.840	5775.080	---	---
	Ant2	5755	40.080	5734.760	5774.840	---	---
	Ant1	5795	39.920	5775.080	5815.000	---	---
	Ant2	5795	39.520	5775.080	5814.600	---	---
11AC20MIMO	Ant1	5180	20.800	5169.480	5190.280	---	---
	Ant2	5180	21.080	5169.320	5190.400	---	---
	Ant1	5200	21.000	5189.520	5210.520	---	---
	Ant2	5200	20.840	5189.640	5210.480	---	---
	Ant1	5240	20.920	5229.600	5250.520	---	---
	Ant2	5240	20.680	5229.640	5250.320	---	---
	Ant1	5745	20.920	5734.560	5755.480	---	---
	Ant2	5745	20.640	5734.760	5755.400	---	---
	Ant1	5785	20.880	5774.520	5795.400	---	---
	Ant2	5785	20.720	5774.680	5795.400	---	---
	Ant1	5825	20.560	5814.760	5835.320	---	---

	Ant2	5825	20.520	5814.800	5835.320	---	---
11AC40MIMO	Ant1	5190	39.920	5170.160	5210.080	---	---
	Ant2	5190	40.160	5169.680	5209.840	---	---
	Ant1	5230	39.840	5209.920	5249.760	---	---
	Ant2	5230	39.920	5209.920	5249.840	---	---
	Ant1	5755	40.160	5735.000	5775.160	---	---
	Ant2	5755	39.840	5734.920	5774.760	---	---
	Ant1	5795	40.080	5774.680	5814.760	---	---
	Ant2	5795	39.280	5775.240	5814.520	---	---
11AC80MIMO	Ant1	5210	81.600	5169.360	5250.960	---	---
	Ant2	5210	81.120	5169.360	5250.480	---	---
	Ant1	5775	82.080	5733.880	5815.960	---	---
	Ant2	5775	81.760	5734.040	5815.800	---	---
11AX20MIMO	Ant1	5180	21.480	5169.360	5190.840	---	---
	Ant2	5180	21.000	5169.440	5190.440	---	---
	Ant1	5200	20.960	5189.600	5210.560	---	---
	Ant2	5200	20.920	5189.600	5210.520	---	---
	Ant1	5240	20.600	5229.600	5250.200	---	---
	Ant2	5240	21.440	5229.360	5250.800	---	---
	Ant1	5745	21.280	5734.280	5755.560	---	---
	Ant2	5745	20.880	5734.640	5755.520	---	---
	Ant1	5785	21.080	5774.400	5795.480	---	---
	Ant2	5785	21.280	5774.200	5795.480	---	---
	Ant1	5825	21.160	5814.480	5835.640	---	---
	Ant2	5825	20.800	5814.760	5835.560	---	---
11AX40MIMO	Ant1	5190	39.600	5170.160	5209.760	---	---
	Ant2	5190	39.760	5170.080	5209.840	---	---
	Ant1	5230	40.160	5210.080	5250.240	---	---
	Ant2	5230	39.520	5210.320	5249.840	---	---
	Ant1	5755	40.640	5734.680	5775.320	---	---
	Ant2	5755	39.440	5735.400	5774.840	---	---
	Ant1	5795	40.240	5774.920	5815.160	---	---
	Ant2	5795	39.760	5775.160	5814.920	---	---
11AX80MIMO	Ant1	5210	81.920	5169.200	5251.120	---	---
	Ant2	5210	81.760	5169.360	5251.120	---	---
	Ant1	5775	81.920	5734.200	5816.120	---	---
	Ant2	5775	81.280	5734.360	5815.640	---	---

11A_Ant1_5180



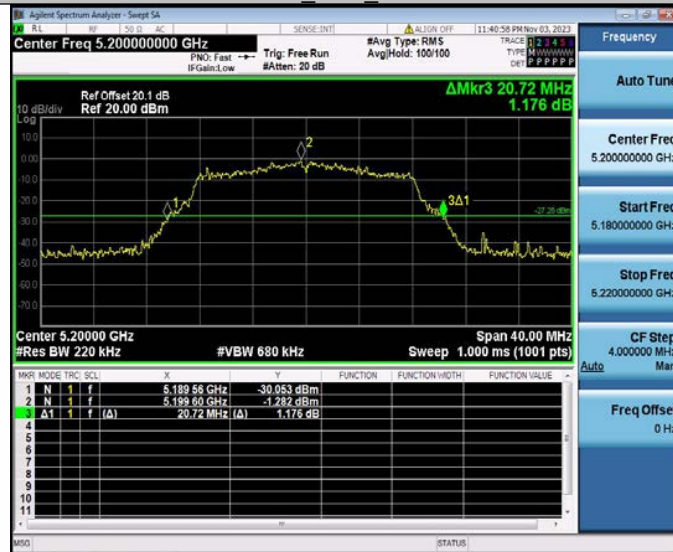
11A_Ant2_5180



11A_Ant1_5200



11A_Ant2_5200



11A_Ant1_5240



11A_Ant2_5240



11A_Ant2_5785



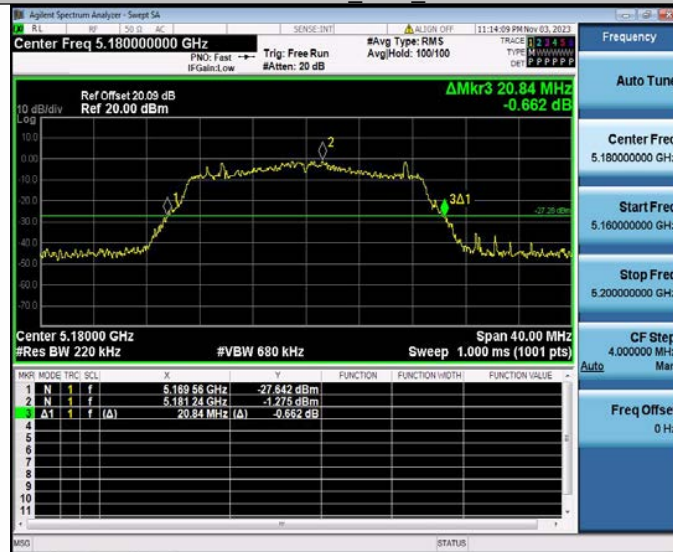
11A_Ant1_5825



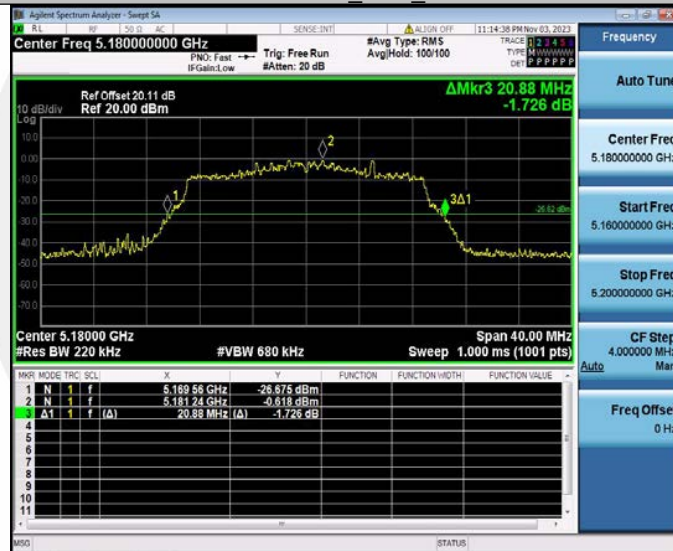
11A_Ant2_5825



11N20MIMO_Ant1_5180



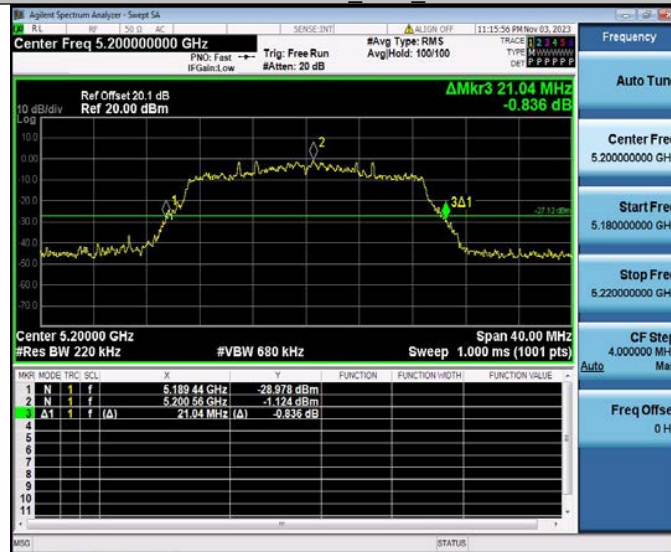
11N20MIMO_Ant2_5180



11N20MIMO_Ant1_5200



11N20MIMO_Ant2_5200



11N20MIMO_Ant1_5240



11N20MIMO_Ant2_5240



11N20MIMO_Ant1_5745



11N20MIMO_Ant2_5745



11N20MIMO_Ant1_5785



11N20MIMO_Ant2_5785



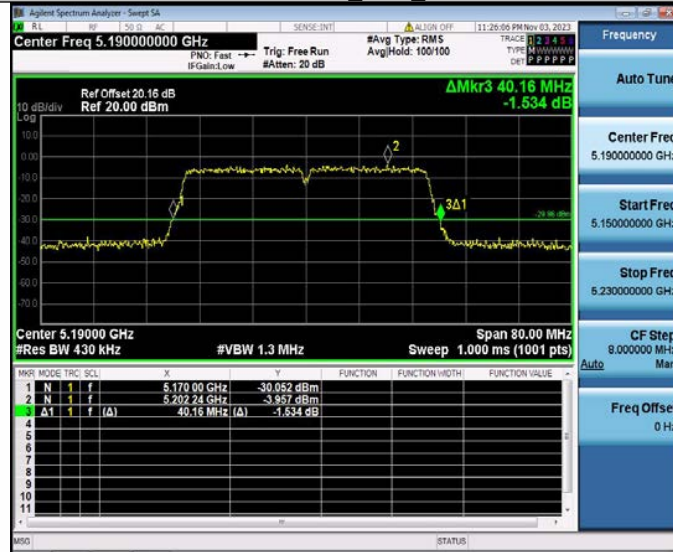
11N20MIMO_Ant1_5825



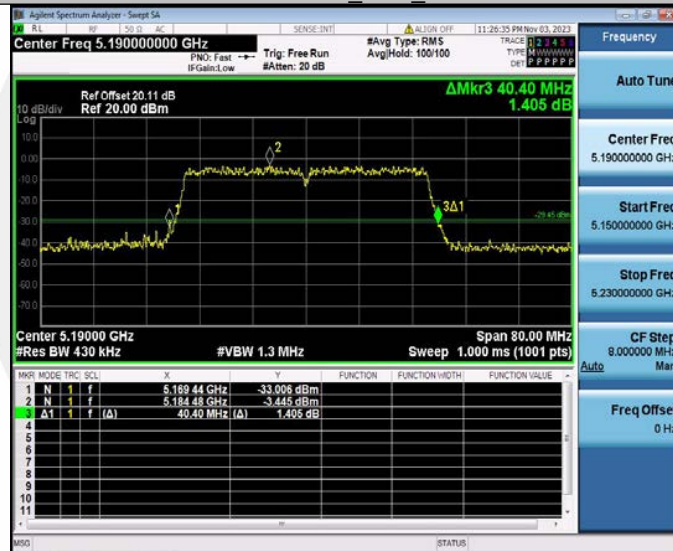
11N20MIMO_Ant2_5825



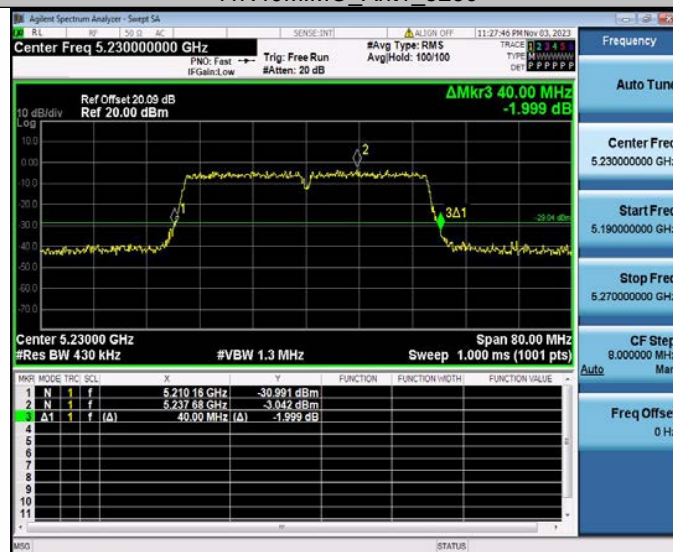
11N40MIMO_Ant1_5190



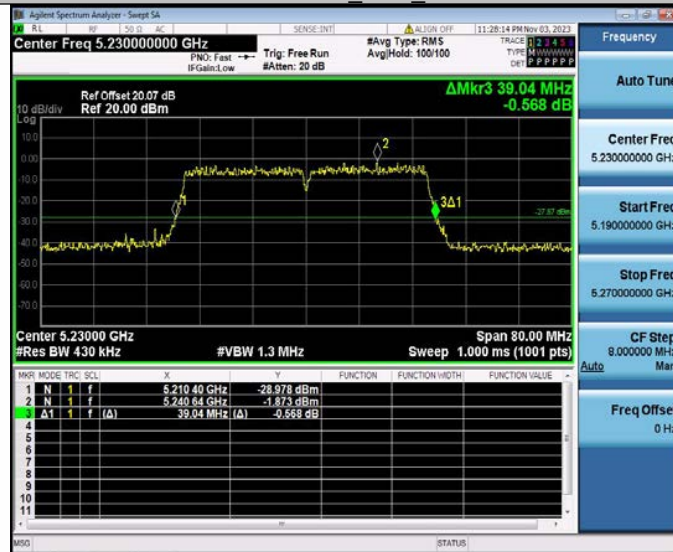
11N40MIMO_Ant2_5190



11N40MIMO_Ant1_5230



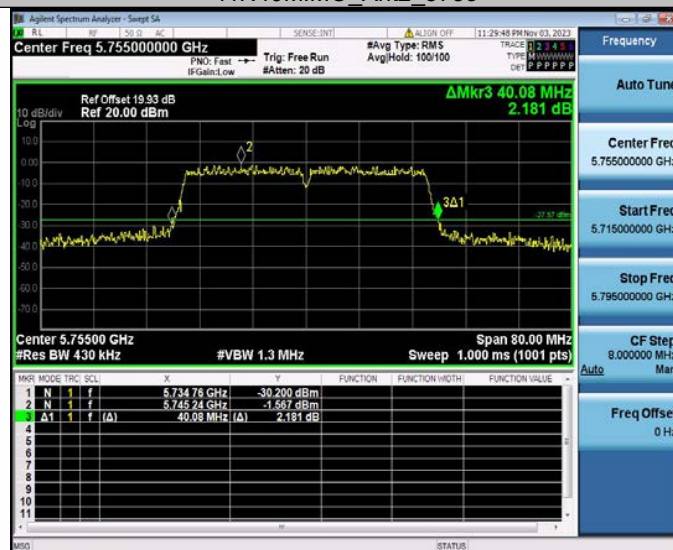
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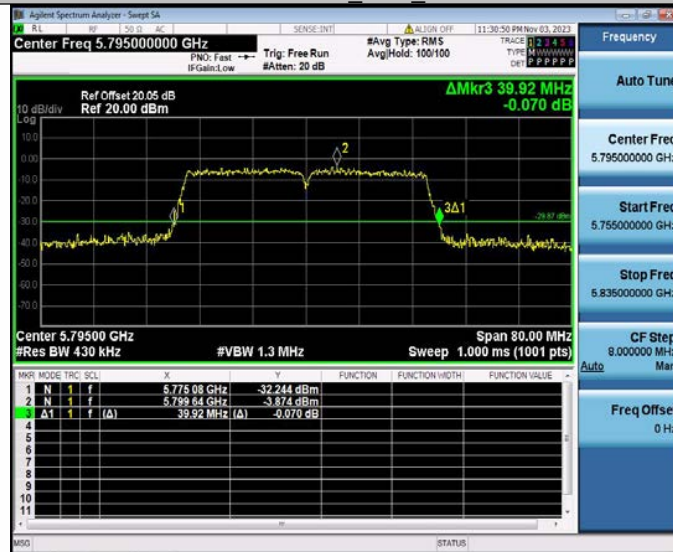
11N40MIMO_Ant1_5755



11N40MIMO_Ant2_5755



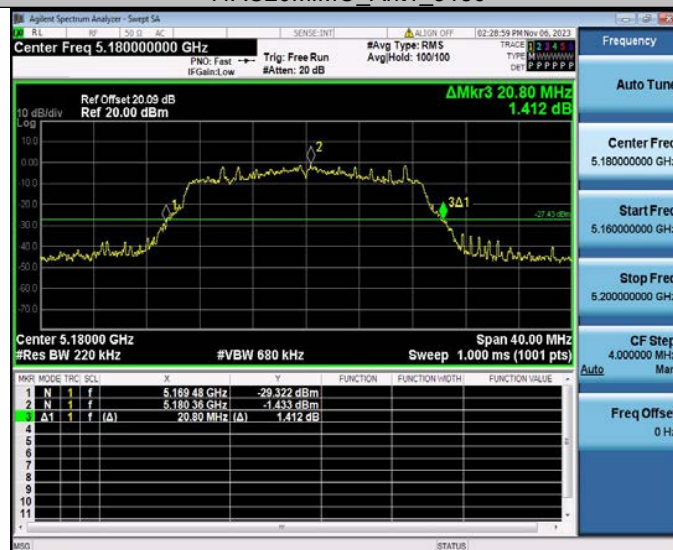
11N40MIMO_Ant1_5795



11N40MIMO_Ant2_5795



11AC20MIMO_Ant1_5180



11AC20MIMO_Ant2_5180



11AC20MIMO_Ant1_5200



11AC20MIMO_Ant2_5200



11AC20MIMO_Ant1_5240



11AC20MIMO_Ant2_5240



11AC20MIMO_Ant1_5745



11AC20MIMO_Ant2_5745



11AC20MIMO_Ant1_5785



11AC20MIMO_Ant2_5785



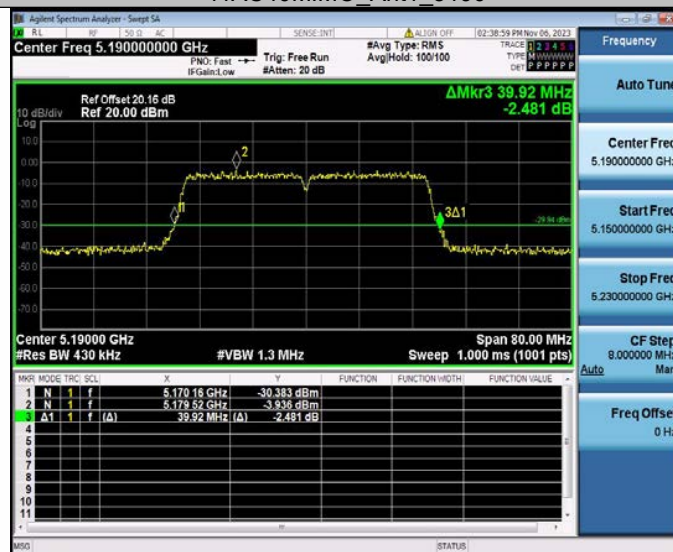
11AC20MIMO_Ant1_5825



11AC20MIMO_Ant2_5825



11AC40MIMO_Ant1_5190



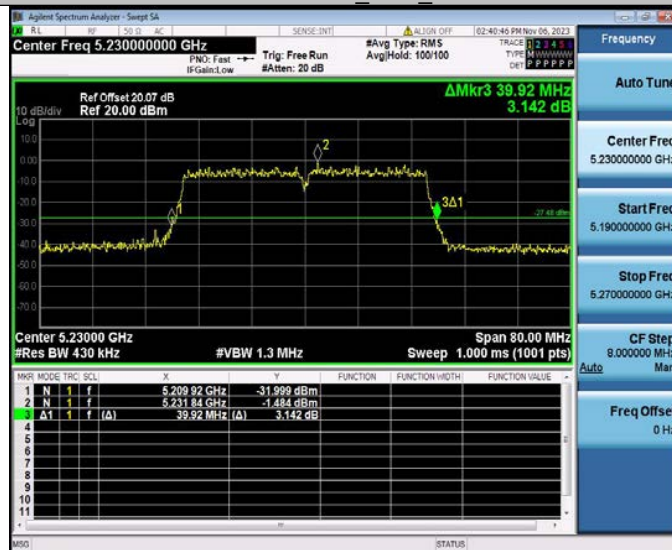
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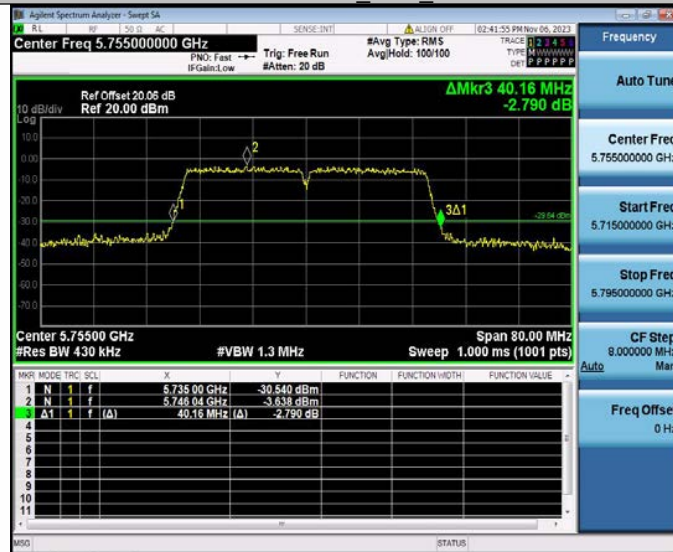
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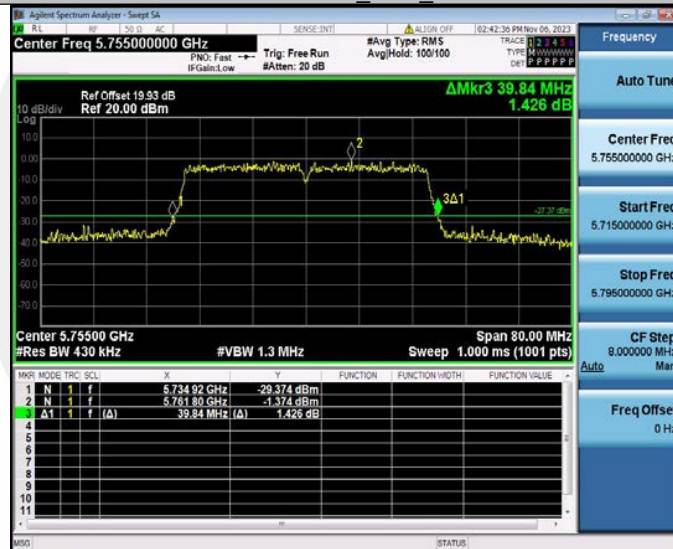
11AC40MIMO_Ant2_5230



11AC40MIMO_Ant1_5755



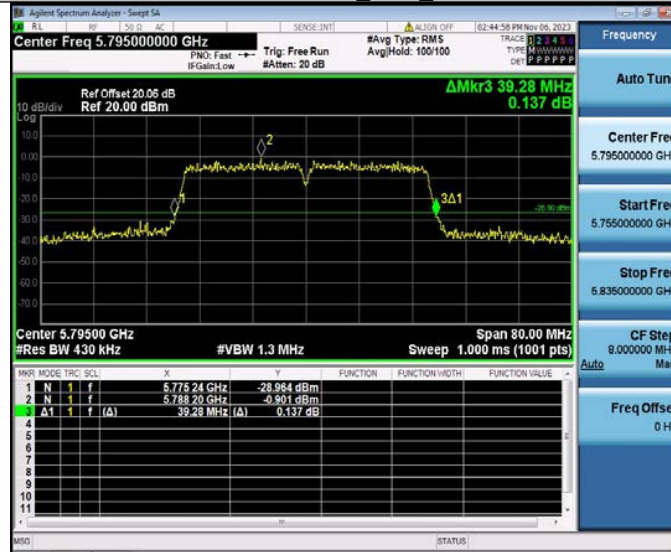
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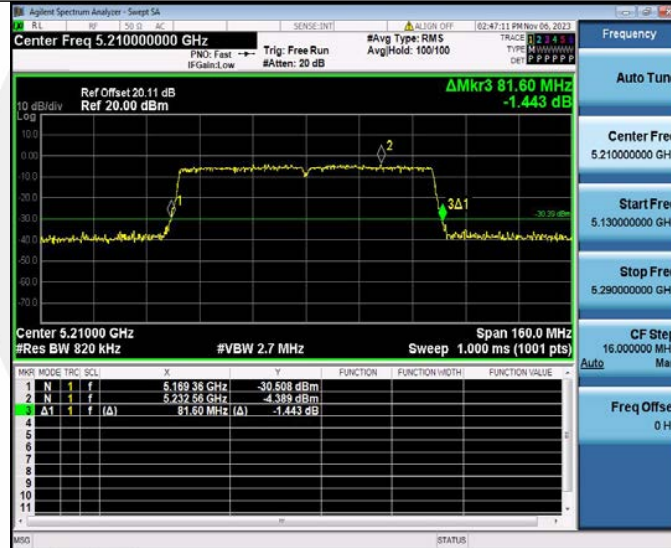
11AC40MIMO_Ant1_5795



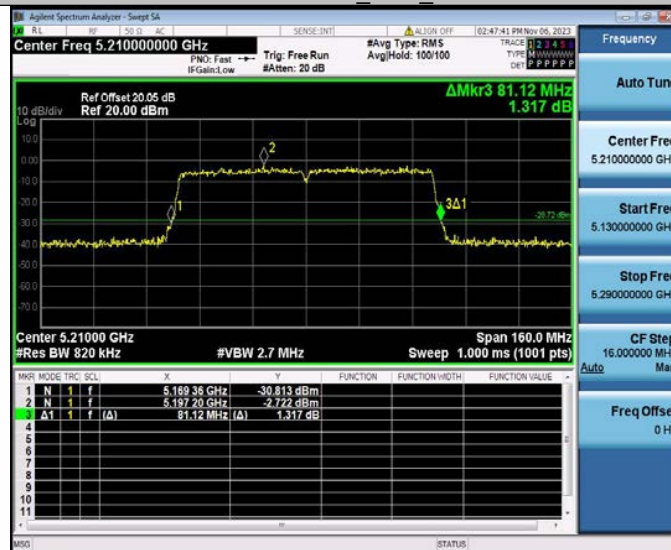
11AC40MIMO_Ant2_5795



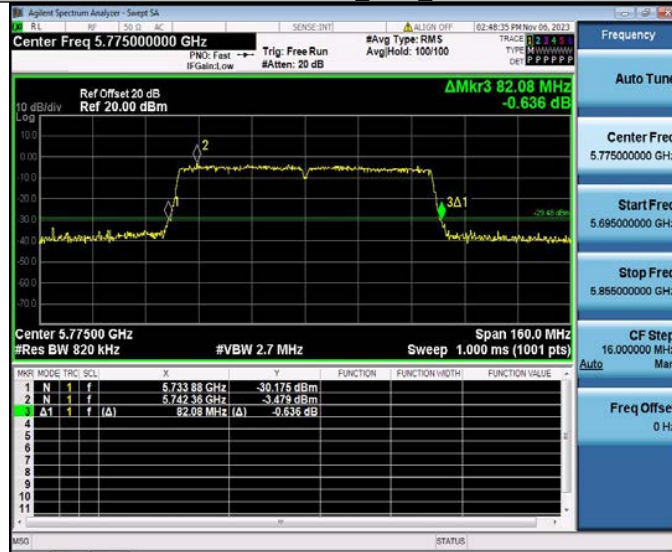
11AC80MIMO_Ant1_5210



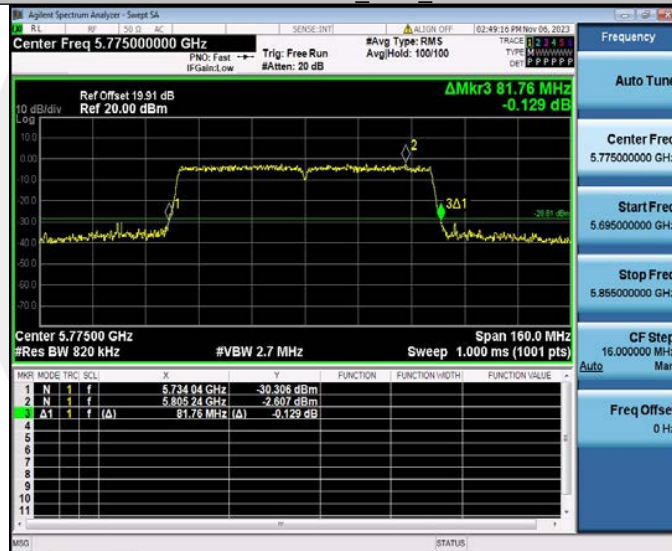
11AC80MIMO_Ant2_5210



11AC80MIMO_Ant1_5775



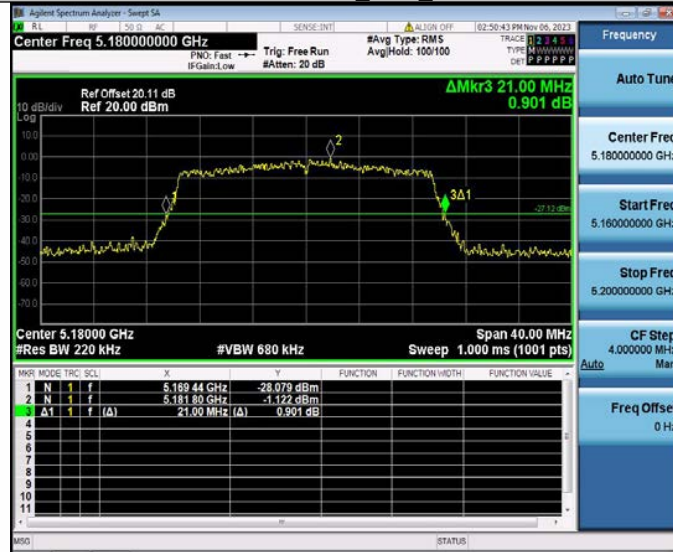
11AC80MIMO_Ant2_5775



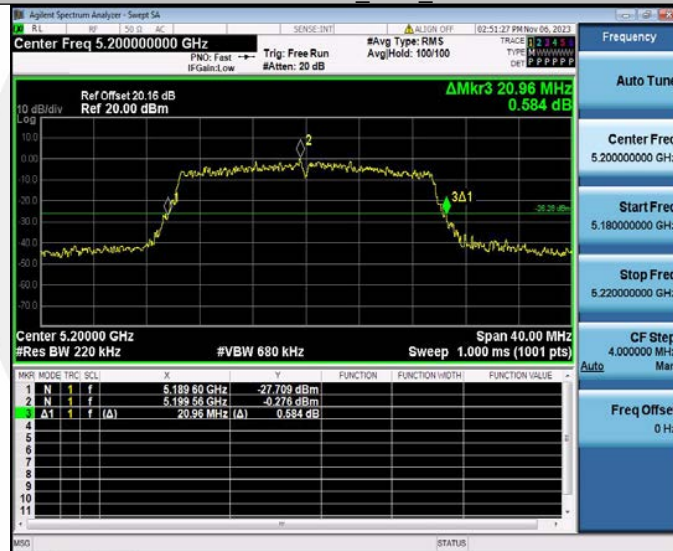
11AX20MIMO_Ant1_5180



11AX20MIMO_Ant2_5180



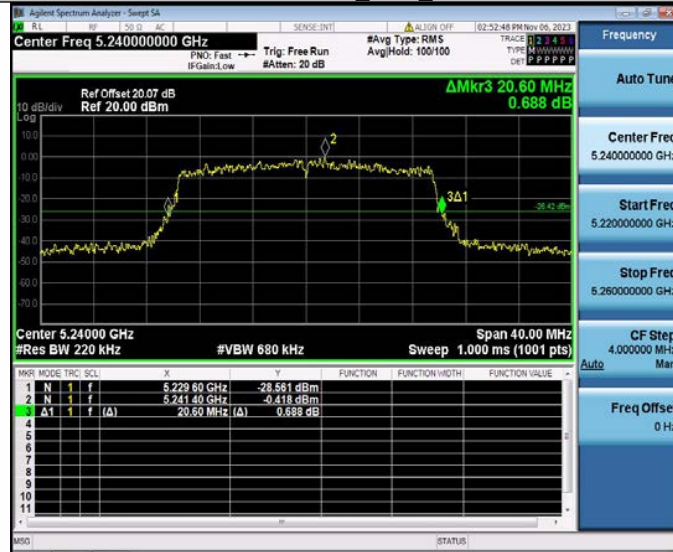
11AX20MIMO_Ant1_5200



11AX20MIMO_Ant2_5200



11AX20MIMO_Ant1_5240



11AX20MIMO_Ant2_5240



11AX20MIMO_Ant1_5745



11AX20MIMO_Ant2_5745



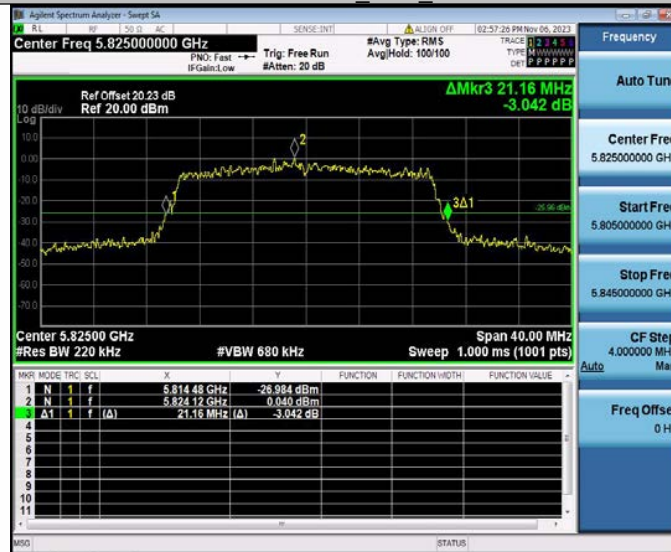
11AX20MIMO_Ant1_5785



11AX20MIMO_Ant2_5785



11AX20MIMO_Ant1_5825



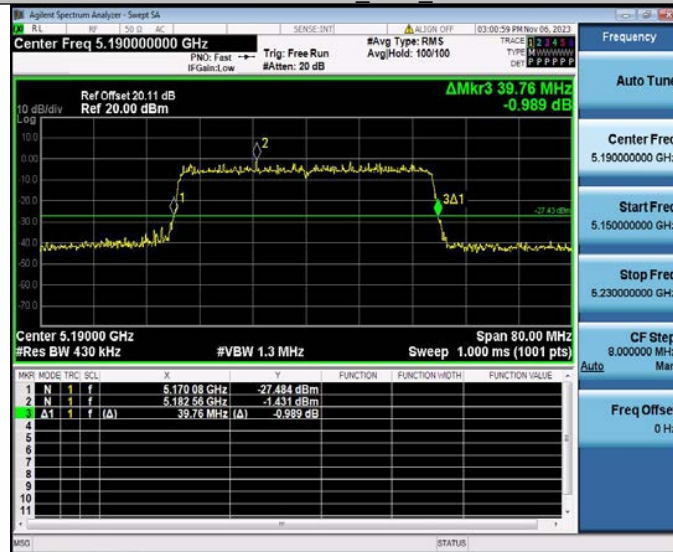
11AX20MIMO_Ant2_5825



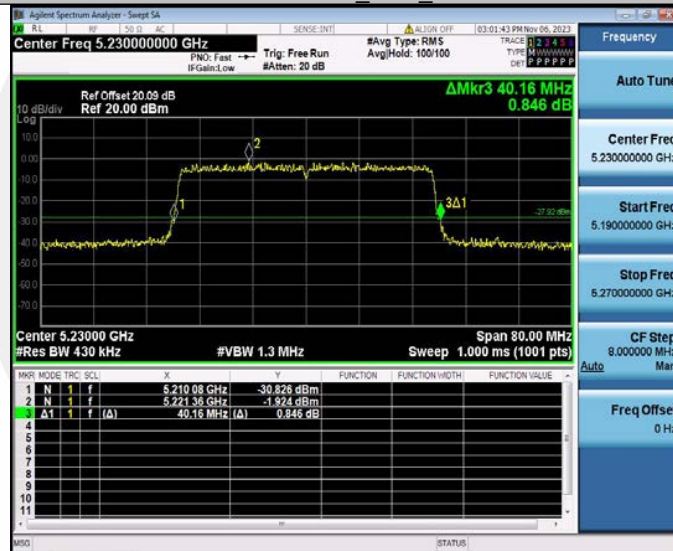
11AX40MIMO_Ant1_5190



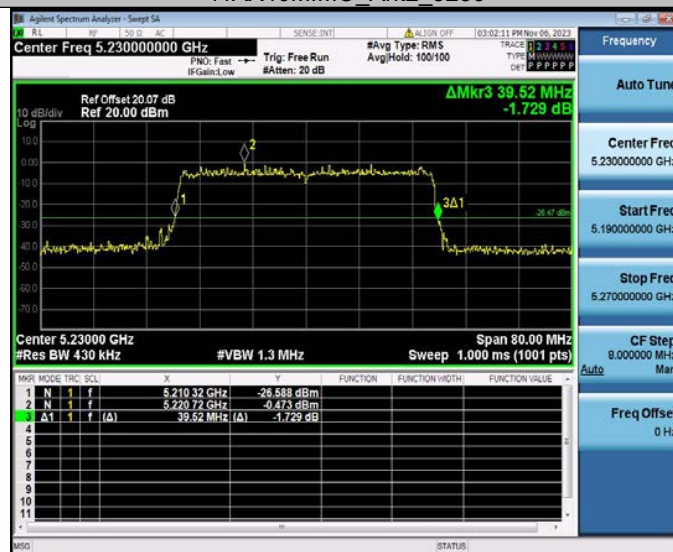
11AX40MIMO_Ant2_5190



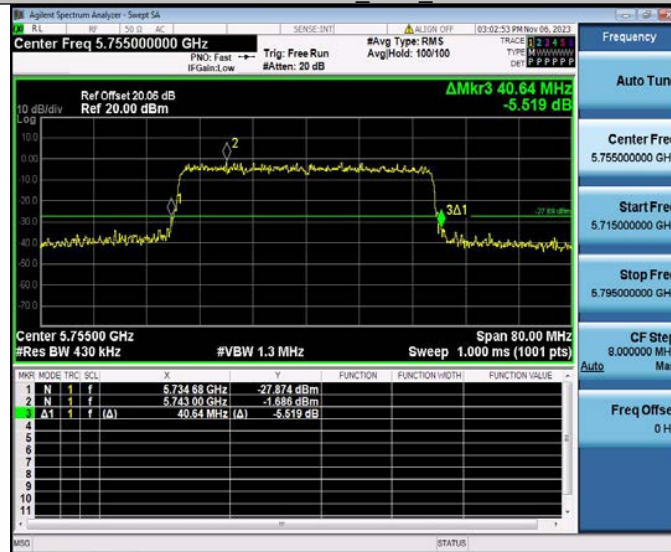
11AX40MIMO_Ant1_5230



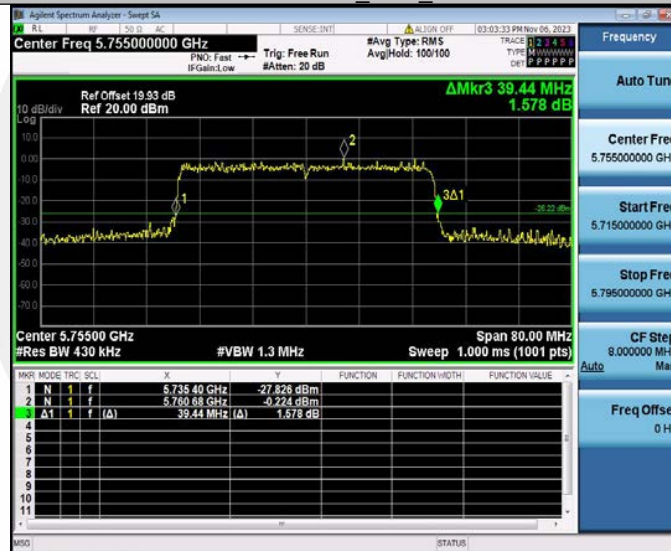
11AX40MIMO_Ant2_5230



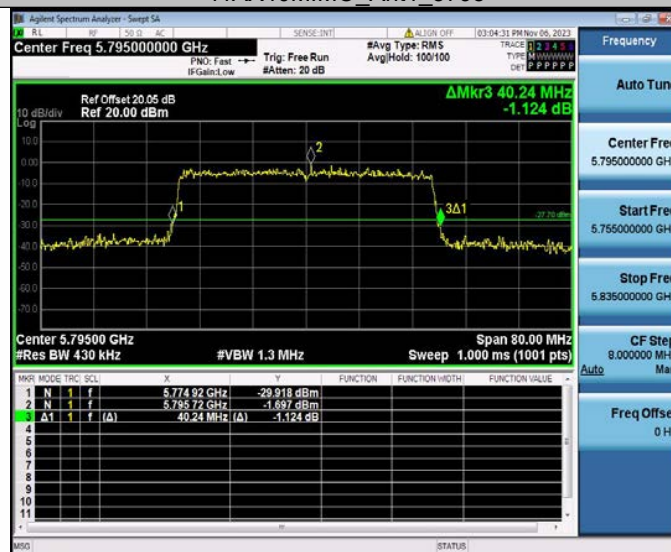
11AX40MIMO_Ant1_5755



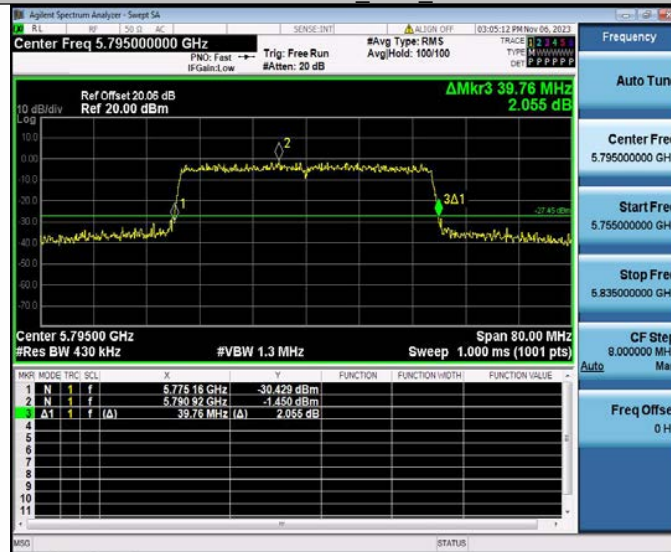
11AX40MIMO_Ant2_5755



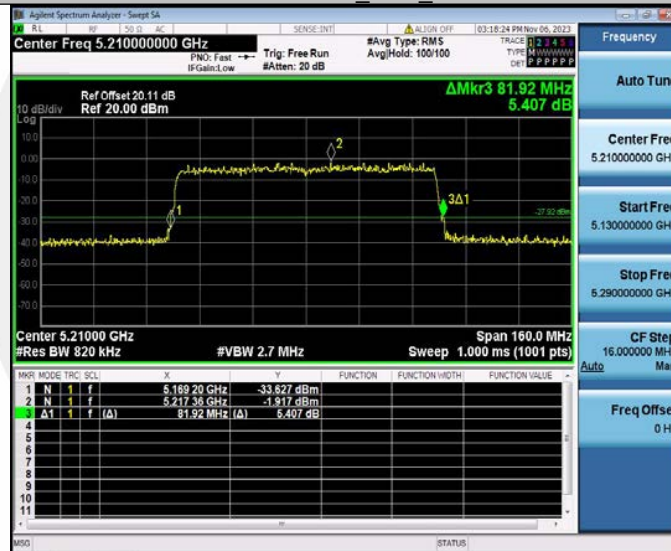
11AX40MIMO_Ant1_5795



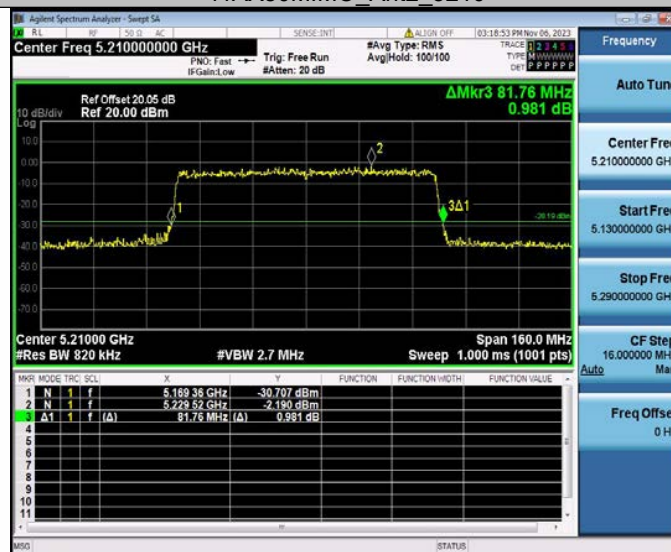
11AX40MIMO_Ant2_5795



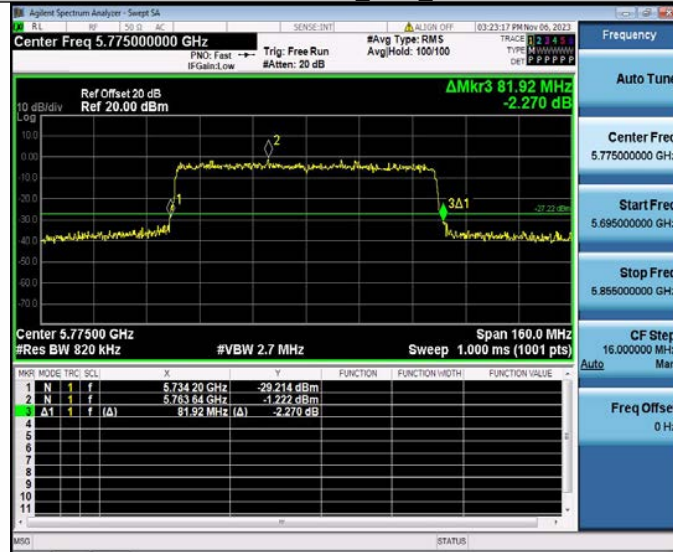
11AX80MIMO_Ant1_5210



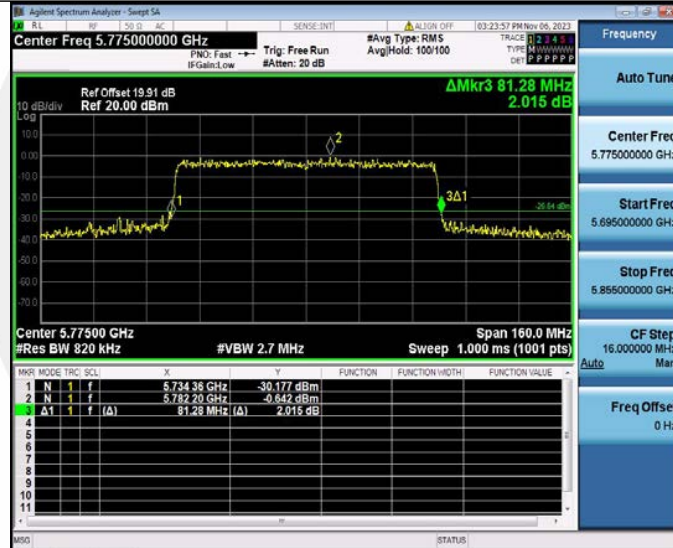
11AX80MIMO_Ant2_5210



11AX80MIMO_Ant1_5775



11AX80MIMO_Ant2_5775



Occupied channel bandwidth

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.082	5171.4299	5188.5119	---	---
	Ant2	5180	17.066	5171.4283	5188.4943	---	---
	Ant1	5200	17.106	5191.4531	5208.5591	---	---
	Ant2	5200	17.150	5191.4040	5208.5540	---	---
	Ant1	5240	17.051	5231.4905	5248.5415	---	---
	Ant2	5240	17.098	5231.4503	5248.5483	---	---
	Ant1	5745	17.099	5736.4272	5753.5262	---	---
	Ant2	5745	17.073	5736.4078	5753.4808	---	---
	Ant1	5785	17.063	5776.4271	5793.4901	---	---
	Ant2	5785	17.043	5776.4564	5793.4994	---	---
	Ant1	5825	17.083	5816.4014	5833.4844	---	---
	Ant2	5825	16.987	5816.5120	5833.4990	---	---
11N20MIMO	Ant1	5180	18.030	5170.9851	5189.0151	---	---
	Ant2	5180	17.790	5171.0951	5188.8851	---	---
	Ant1	5200	18.056	5190.9790	5209.0350	---	---
	Ant2	5200	17.775	5191.0944	5208.8694	---	---
	Ant1	5240	18.088	5230.9532	5249.0412	---	---
	Ant2	5240	17.758	5231.1437	5248.9017	---	---
	Ant1	5745	18.032	5735.9835	5754.0155	---	---
	Ant2	5745	17.782	5736.1039	5753.8859	---	---
	Ant1	5785	17.985	5775.9567	5793.9417	---	---
	Ant2	5785	17.803	5776.0862	5793.8892	---	---
	Ant1	5825	18.052	5815.9385	5833.9905	---	---
	Ant2	5825	17.780	5816.1250	5833.9050	---	---
11N40MIMO	Ant1	5190	36.894	5171.5716	5208.4656	---	---
	Ant2	5190	36.640	5171.7246	5208.3646	---	---
	Ant1	5230	36.911	5211.5668	5248.4778	---	---
	Ant2	5230	36.682	5211.6965	5248.3785	---	---
	Ant1	5755	36.782	5736.5811	5773.3631	---	---
	Ant2	5755	36.658	5736.6610	5773.3190	---	---
	Ant1	5795	36.792	5776.4819	5813.2739	---	---
	Ant2	5795	36.611	5776.6777	5813.2887	---	---
11AC20MIMO	Ant1	5180	18.135	5170.8729	5189.0079	---	---
	Ant2	5180	17.804	5171.0634	5188.8674	---	---
	Ant1	5200	18.112	5190.9123	5209.0243	---	---
	Ant2	5200	17.783	5191.0922	5208.8752	---	---
	Ant1	5240	17.990	5231.0072	5248.9972	---	---
	Ant2	5240	17.779	5231.0960	5248.8750	---	---
	Ant1	5745	18.020	5735.9680	5753.9880	---	---
	Ant2	5745	17.778	5736.1118	5753.8898	---	---
	Ant1	5785	18.039	5775.9454	5793.9844	---	---
	Ant2	5785	17.797	5776.0888	5793.8858	---	---
	Ant1	5825	18.050	5815.9361	5833.9861	---	---
	Ant2	5825	17.805	5816.0898	5833.8948	---	---
11AC40MIMO	Ant1	5190	36.963	5171.5513	5208.5143	---	---
	Ant2	5190	36.691	5171.6216	5208.3126	---	---
	Ant1	5230	36.908	5211.5453	5248.4533	---	---
	Ant2	5230	36.659	5211.6975	5248.3565	---	---
	Ant1	5755	36.908	5736.5054	5773.4134	---	---
	Ant2	5755	36.654	5736.6468	5773.3008	---	---
	Ant1	5795	36.810	5776.4996	5813.3096	---	---
	Ant2	5795	36.571	5776.6864	5813.2574	---	---

11AC80MIMO	Ant1	5210	76.727	5171.6977	5248.4247	---	---
	Ant2	5210	76.360	5171.9031	5248.2631	---	---
	Ant1	5775	76.460	5736.7174	5813.1774	---	---
	Ant2	5775	76.391	5736.7625	5813.1535	---	---
11AX20MIMO	Ant1	5180	18.997	5170.4782	5189.4752	---	---
	Ant2	5180	19.047	5170.4641	5189.5111	---	---
	Ant1	5200	19.046	5190.4737	5209.5197	---	---
	Ant2	5200	19.074	5190.4370	5209.5110	---	---
	Ant1	5240	19.073	5230.4957	5249.5687	---	---
	Ant2	5240	19.047	5230.4601	5249.5071	---	---
	Ant1	5745	19.051	5735.4572	5754.5082	---	---
	Ant2	5745	19.002	5735.5164	5754.5184	---	---
	Ant1	5785	19.012	5775.4677	5794.4797	---	---
	Ant2	5785	19.091	5775.4525	5794.5435	---	---
	Ant1	5825	19.058	5815.4669	5834.5249	---	---
	Ant2	5825	19.037	5815.4739	5834.5109	---	---
11AX40MIMO	Ant1	5190	37.843	5171.1014	5208.9444	---	---
	Ant2	5190	37.802	5171.1109	5208.9129	---	---
	Ant1	5230	37.796	5211.1470	5248.9430	---	---
	Ant2	5230	37.881	5211.0879	5248.9689	---	---
	Ant1	5755	37.790	5736.0944	5773.8844	---	---
	Ant2	5755	37.896	5736.0486	5773.9446	---	---
	Ant1	5795	37.924	5775.9935	5813.9175	---	---
	Ant2	5795	37.758	5776.0750	5813.8330	---	---
11AX80MIMO	Ant1	5210	77.777	5171.1930	5248.9700	---	---
	Ant2	5210	77.596	5171.2362	5248.8322	---	---
	Ant1	5775	77.647	5736.1078	5813.7548	---	---
	Ant2	5775	77.709	5736.0803	5813.7893	---	---

11A_Ant1_5180



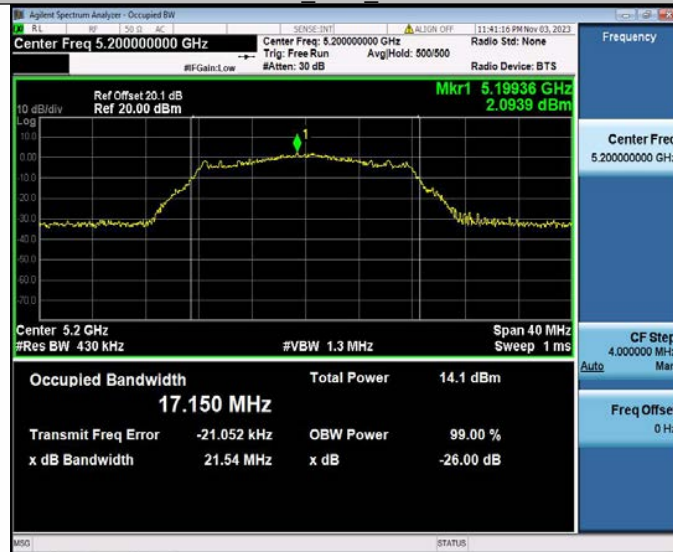
11A_Ant2_5180



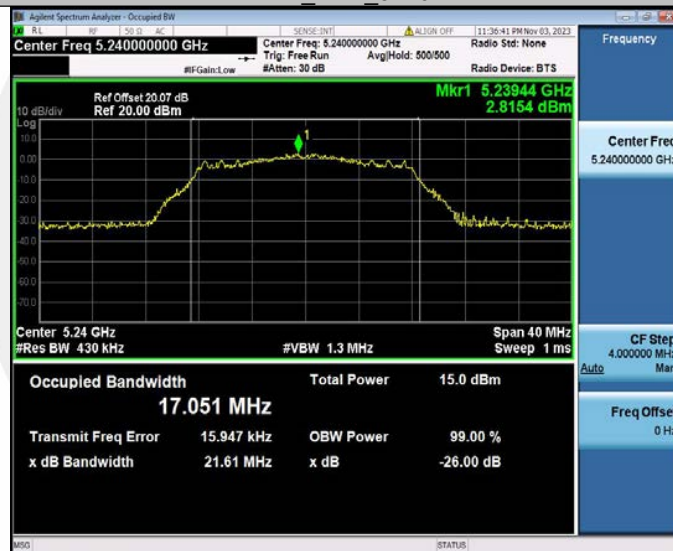
11A_Ant1_5200



11A_Ant2_5200



11A_Ant1_5240



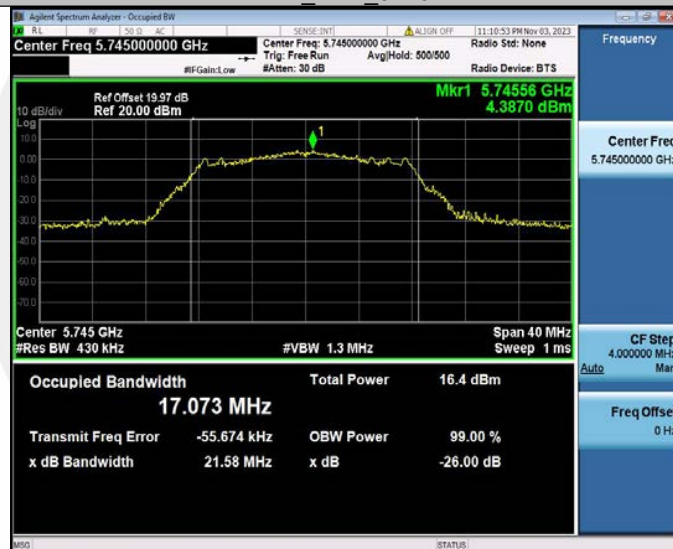
11A_Ant2_5240



11A_Ant1_5745



11A_Ant2_5745



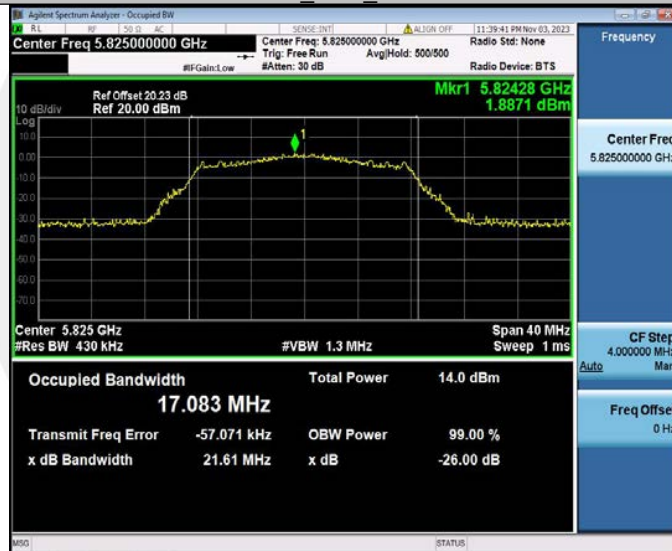
11A_Ant1_5785



11A_Ant2_5785



11A_Ant1_5825



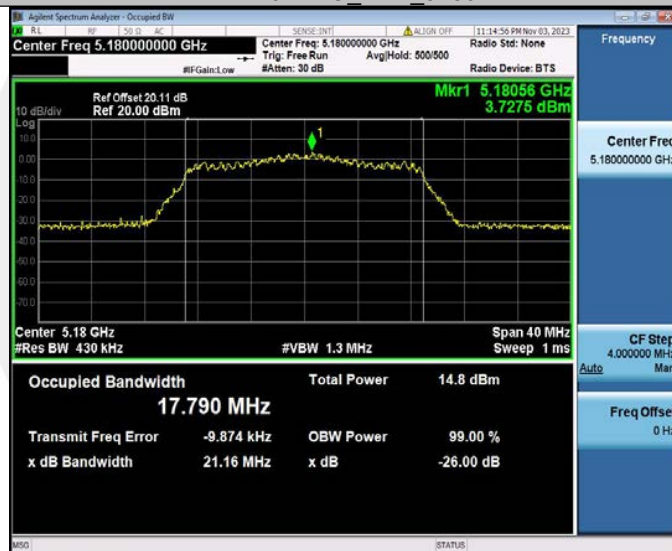
11A_Ant2_5825



11N20MIMO_Ant1_5180



11N20MIMO_Ant2_5180



11N20MIMO_Ant1_5200

