

FCC ID: KA2E15A1
Report No.: T210319W02-RP2

Page: 1 / 697
Rev.: 00

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART E

(Class II Permissive Change)

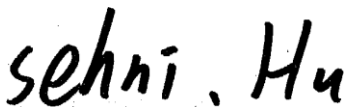
Test Standard	FCC Part 15.407
Product name	(1) AX1500 Wi-Fi 6 AI Range Extender; (2) AX1500 Mesh Range Extender
Brand Name	D-Link
Model No.	E15
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

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

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc.(Wugu Laboratory)

Approved by:



Sehni Hu
Supervisor

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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Report No.: T210319W02-RP2

Page: 2 / 697
Rev.: 00

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	June 30, 2022	Initial Issue	ALL	Allison Chen

Table of contents

1. GENERAL INFORMATION	4
1.1 EUT INFORMATION	4
1.2 EUT CHANNEL INFORMATION	5
1.3 ANTENNA INFORMATION	6
1.4 MEASUREMENT UNCERTAINTY	7
1.5 FACILITIES AND TEST LOCATION	8
1.6 INSTRUMENT CALIBRATION.....	8
1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT.....	10
1.8 TEST METHODOLOGY AND APPLIED STANDARDS	10
2. TEST SUMMARY	11
3. DESCRIPTION OF TEST MODES	12
3.1 THE EUT CHANNEL NUMBER OF OPERATING CONDITION.....	12
3.2 THE WORST MODE OF MEASUREMENT	14
3.3 EUT DUTY CYCLE	15
4. TEST RESULT	17
4.1 AC POWER LINE CONDUCTED EMISSION	17
4.2 26DB BANDWIDTH, 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)	20
4.3 OUTPUT POWER MEASUREMENT.....	118
4.4 POWER SPECTRAL DENSITY	130
4.5 RADIATION BANDEDGE AND SPURIOUS EMISSION	188
APPENDIX-A TEST PHOTO	A-1
APPENDIX 1 - PHOTOGRAPHS OF EUT	

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	D-Link Corporation 14420 Myford Road Suite 100, Irvine, California 92606, United States
Manufacturer	Amigo Technology Inc. No.82,Gongye 2nd Rd., Annan Dist.,Tainan City 709Tainan,Taiwan.
Equipment	(1) AX1500 Wi-Fi 6 AI Range Extender; (2) AX1500 Mesh Range Extender
Model No.	E15
Model Discrepancy	N/A
Trade Name	D-Link
Received Date	March 19, 2021
Date of Test	November 10 ~ December 17, 2021
Power Operation	Power from AC 120V, 60Hz

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. This project is a Permissive change II submission for the purpose of Reason of change and the difference between previous and new product is updated software to make it support adding DFS band and BF function. The device is identical to original certified device and there any no hardware change or modification to the device.

1.2 EUT CHANNEL INFORMATION

Frequency Range	UNII-1	
	IEEE 802.11a	5180 ~ 5240 MHz
	IEEE 802.11n HT 20	5180 ~ 5240 MHz
	IEEE 802.11n HT 40	5190 ~ 5230 MHz
	IEEE 802.11ac VHT 20	5180 ~ 5240 MHz
	IEEE 802.11ac VHT 40	5190 ~ 5230 MHz
	IEEE 802.11ac VHT 80	5210 MHz
	IEEE 802.11ax 20	5180 ~ 5240 MHz
	IEEE 802.11ax 40	5190 ~ 5230 MHz
	IEEE 802.11ax 80	5210 MHz
	UNII-2a	
	IEEE 802.11a	5260 ~ 5320 MHz
	IEEE 802.11n HT 20	5260 ~ 5320 MHz
	IEEE 802.11n HT 40	5270 ~ 5310 MHz
	IEEE 802.11ac VHT 20	5260 ~ 5320 MHz
	IEEE 802.11ac VHT 40	5270 ~ 5310 MHz
	IEEE 802.11ac VHT 80	5290 MHz
	IEEE 802.11ax 20	5260 ~ 5320 MHz
	IEEE 802.11ax 40	5270 ~ 5310 MHz
	IEEE 802.11ax 80	5290 MHz
	UNII-2c	
	IEEE 802.11a	5500 ~ 5700 MHz
	IEEE 802.11n HT 20	5500 ~ 5700 MHz
	IEEE 802.11n HT 40	5510 ~ 5670 MHz
	IEEE 802.11ac VHT 20	5500 ~ 5700 MHz
	IEEE 802.11ac VHT 40	5510 ~ 5670 MHz
	IEEE 802.11ac VHT 80	5530 MHz
	IEEE 802.11ax 20	5500 ~ 5700 MHz
	IEEE 802.11ax 40	5510 ~ 5670 MHz
	IEEE 802.11ax 80	5530 MHz
	UNII-3	
	IEEE 802.11a	5745 ~ 5825 MHz
	IEEE 802.11n HT 20	5745 ~ 5825 MHz
	IEEE 802.11n HT 40	5755 ~ 5795 MHz
	IEEE 802.11ac VHT 20	5745 ~ 5825 MHz
	IEEE 802.11ac VHT 40	5755 ~ 5795 MHz
	IEEE 802.11ac VHT 80	5775 MHz
	IEEE 802.11ax 20	5745 ~ 5825 MHz
	IEEE 802.11ax 40	5755 ~ 5795 MHz
	IEEE 802.11ax 80	5775 MHz

Report No.: T210319W02-RP2

Modulation Type	<ol style="list-style-type: none"> 1. IEEE 802.11a mode: OFDM 2. IEEE 802.11n HT 20 mode: OFDM 3. IEEE 802.11n HT 40 mode: OFDM 4. IEEE 802.11ac VHT 20 mode: OFDM 5. IEEE 802.11ac VHT 40 mode: OFDM 6. IEEE 802.11ac VHT 80 mode: OFDM 7. IEEE 802.11ax 20 mode: OFDMA 8. IEEE 802.11ax 40 mode: OFDMA 9. IEEE 802.11ax 80 mode: OFDMA
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Remark:

1. Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 for test channels.
2. Device does not support TDWR Band, exclude 5600-5650MHz.

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
<input type="checkbox"/> 1 MHz or less	1	Middle
<input type="checkbox"/> 1 MHz to 10 MHz	2	1 near top and 1 near bottom
<input checked="" type="checkbox"/> More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Specification	<input type="checkbox"/> PIFA <input type="checkbox"/> PCB <input type="checkbox"/> Dipole <input type="checkbox"/> Coils <input checked="" type="checkbox"/> embedded antenna
Antenna Gain	Chain 0: 3.1 dBi Chain 1: 3.3 dBi Power Directional Gain: 6.21 dBi
Antenna connector	MHF compatible

Notes:

1. Power Directional Gain = $10 \cdot \log \left\{ \left[10^{(Ant1/20)} + 10^{(Ant2/20)} + \dots + 10^{(Ant N /20)} \right]^2 / N \text{ ANT} \right\}$ dBi
2. Two dipole detachable Antennas used which uses a unique coupling to the EUT meeting rule 15.203.

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 9K~30M	+/- 2.25
3M Semi Anechoic Chamber / 30M~1G (Horizontally)	+/- 3.91
3M Semi Anechoic Chamber / 30M~1G (Vertically)	+/- 4.57
3M Semi Anechoic Chamber / 1G~6G	+/- 5.20
3M Semi Anechoic Chamber / 6G~18G	+/- 5.18
3M Semi Anechoic Chamber / 18G~40G	+/- 3.68

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

Report No.: T210319W02-RP2

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	Jack Chen	-
Radiation	Ray Li / Tony Chao	-
RF Conducted	Jack Chen	-

Remark: The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC public Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309.

1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Signal Analyzer	KEYSIGHT	N9010B	MY59071573	05/25/2021	05/24/2022
Power Meter	Anritsu	ML2487A	6K00003260	05/24/2021	05/23/2022
Power Sensor	Anritsu	MA2490A	032910	05/24/2021	05/23/2022
Software	Radio Test Software Ver. 21				

AC line Conduction Test Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
CABLE	EMCI	CFD300-NL	CERF	06/28/2021	06/27/2022
EMI Test Receiver	R&S	ESCI	100064	07/05/2021	07/04/2022
LISN	SCHAFFNER	NNB 41	03/10013	02/02/2021	02/01/2022
Software	EZ-EMC(CCS-3A1-CE-wugu)				

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

Report No.: T210319W02-RP2

3M 966 Chamber Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Bilog Antenna	Sunol Sciences	JB3	A030105	07/19/2021	07/18/2022
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/24/2021	02/23/2022
Coaxial Cable	EMCI	EMC105	190914+1111	09/17/2021	09/16/2022
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/06/2021	01/05/2022
High Pass Filters	MICRO TRONICS	HPM13195	003	02/08/2021	02/07/2022
Horn Antenna	ETS LINDGREN	3116	26370	12/11/2020 11/30/2021	12/10/2021 11/29/2022
Horn Antenna	ETS LINDGREN	3117	55165	07/29/2021	07/28/2022
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/09/2020 12/05/2021	12/08/2021 12/04/2022
Pre-Amplifier	EMEC	EM330	060609	02/24/2021	02/23/2022
Pre-Amplifier	HP	8449B	3008A00965	12/25/2020	12/24/2021
Pre-Amplifier	MITEQ	AMF-6F-1800 4000-37-8P	985646	09/08/2021	09/07/2022
Spectrum Analyzer	Agilent	E4446A	US42510268	09/23/2021	09/22/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 6.11-20180419c				

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.



Report No.: T210319W02-RP2

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
	N/A				

Support Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
1	NB	Lenovo	T440P	N/A	N/A
2	NB(L)	Toshiba	PORTEGE R30-A	N/A	PD97260H

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.407, KDB 789033 D02.

2. TEST SUMMARY

FCC Standard Sec.	Chapter	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207	4.1	AC Conducted Emission	Pass
15.407(a)	4.2	26dB Bandwidth	Pass
15.407(e)	4.2	6dB Bandwidth	Pass
2.1049	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	4.3	Output Power Measurement	Pass
15.407(a)	4.4	Power Spectral Density	Pass
15.407(b)	4.5	Radiation Band Edge	Pass
15.407(b)	4.5	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE EUT CHANNEL NUMBER OF OPERATING CONDITION

<p>Operation mode</p>	<ol style="list-style-type: none"> 1. IEEE 802.11a mode: 6Mbps 2. IEEE 802.11n HT 20 mode: MCS8 3. IEEE 802.11n HT 40 mode: MCS8 4. IEEE 802.11ac VHT 20 mode: MCS0 5. IEEE 802.11ac VHT 40 mode: MCS0 6. IEEE 802.11ac VHT 80 mode: MCS0 7. IEEE 802.11ax 20 mode: MCS0 8. IEEE 802.11ax 40 mode: MCS0 9. IEEE 802.11ax 80 mode: MCS0 																																																															
<p>Operating Frequency</p>	<table border="1"> <thead> <tr> <th></th> <th>Mode</th> <th>Frequency Range (MHz)</th> </tr> </thead> <tbody> <tr> <td rowspan="7">U-NII-1</td> <td>IEEE 802.11a</td> <td>5180, 5220, 5240</td> </tr> <tr> <td>IEEE 802.11n HT 20</td> <td>5180, 5220, 5240</td> </tr> <tr> <td>IEEE 802.11n HT 40</td> <td>5190, 5230</td> </tr> <tr> <td>IEEE 802.11ac VHT 80</td> <td>5210</td> </tr> <tr> <td>IEEE 802.11ax 20</td> <td>5180, 5220, 5240</td> </tr> <tr> <td>IEEE 802.11ax 40</td> <td>5190, 5230</td> </tr> <tr> <td>IEEE 802.11ax 80</td> <td>5210</td> </tr> <tr> <td rowspan="7">U-NII-2a</td> <td>IEEE 802.11a</td> <td>5260, 5300, 5320</td> </tr> <tr> <td>IEEE 802.11n HT 20</td> <td>5260, 5300, 5320</td> </tr> <tr> <td>IEEE 802.11n HT 40</td> <td>5270, 5310</td> </tr> <tr> <td>IEEE 802.11ac VHT 80</td> <td>5290</td> </tr> <tr> <td>IEEE 802.11ax 20</td> <td>5260, 5300, 5320</td> </tr> <tr> <td>IEEE 802.11ax 40</td> <td>5270, 5310</td> </tr> <tr> <td>IEEE 802.11ax 80</td> <td>5290</td> </tr> <tr> <td rowspan="7">U-NII-2c</td> <td>IEEE 802.11a</td> <td>5500, 5580, 5700</td> </tr> <tr> <td>IEEE 802.11n HT 20</td> <td>5500, 5580, 5700</td> </tr> <tr> <td>IEEE 802.11n HT 40</td> <td>5510, 5550, 5670</td> </tr> <tr> <td>IEEE 802.11ac VHT 80</td> <td>5530</td> </tr> <tr> <td>IEEE 802.11ax 20</td> <td>5500, 5580, 5700</td> </tr> <tr> <td>IEEE 802.11ax 40</td> <td>5510, 5550, 5670</td> </tr> <tr> <td>IEEE 802.11ax 80</td> <td>5530</td> </tr> <tr> <td rowspan="7">U-NII-3</td> <td>IEEE 802.11a</td> <td>5745, 5785, 5825</td> </tr> <tr> <td>IEEE 802.11n HT 20</td> <td>5745, 5785, 5825</td> </tr> <tr> <td>IEEE 802.11n HT 40</td> <td>5755, 5795</td> </tr> <tr> <td>IEEE 802.11ac VHT 80</td> <td>5775</td> </tr> <tr> <td>IEEE 802.11ax 20</td> <td>5745, 5785, 5825</td> </tr> <tr> <td>IEEE 802.11ax 40</td> <td>5755, 5795</td> </tr> <tr> <td>IEEE 802.11ax 80</td> <td>5775</td> </tr> </tbody> </table>		Mode	Frequency Range (MHz)	U-NII-1	IEEE 802.11a	5180, 5220, 5240	IEEE 802.11n HT 20	5180, 5220, 5240	IEEE 802.11n HT 40	5190, 5230	IEEE 802.11ac VHT 80	5210	IEEE 802.11ax 20	5180, 5220, 5240	IEEE 802.11ax 40	5190, 5230	IEEE 802.11ax 80	5210	U-NII-2a	IEEE 802.11a	5260, 5300, 5320	IEEE 802.11n HT 20	5260, 5300, 5320	IEEE 802.11n HT 40	5270, 5310	IEEE 802.11ac VHT 80	5290	IEEE 802.11ax 20	5260, 5300, 5320	IEEE 802.11ax 40	5270, 5310	IEEE 802.11ax 80	5290	U-NII-2c	IEEE 802.11a	5500, 5580, 5700	IEEE 802.11n HT 20	5500, 5580, 5700	IEEE 802.11n HT 40	5510, 5550, 5670	IEEE 802.11ac VHT 80	5530	IEEE 802.11ax 20	5500, 5580, 5700	IEEE 802.11ax 40	5510, 5550, 5670	IEEE 802.11ax 80	5530	U-NII-3	IEEE 802.11a	5745, 5785, 5825	IEEE 802.11n HT 20	5745, 5785, 5825	IEEE 802.11n HT 40	5755, 5795	IEEE 802.11ac VHT 80	5775	IEEE 802.11ax 20	5745, 5785, 5825	IEEE 802.11ax 40	5755, 5795	IEEE 802.11ax 80	5775
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Report No.: T210319W02-RP2

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2. The system support 802.11a/n ht20/n ht40/ac vht20/40/80/ax hew 20/40/80, the vht20/vht40 were reduced since the identical parameters with 802.11n ht20 and ht40.
3. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations. The device supports SISO and MIMO at 802.11a/n/ac/ax mode, per pre-test, MIMO 2TX mode was the worst and reported.
4. The device supports indoor access points and client devices. Both modes have same power level.
5. The device supports non-BF mode and BF mode. Both modes have evaluate on power item. Since the power of non-BF mode is greater than BF mode, the BF mode will be exempt from conducted test [except power].

Report No.: T210319W02-RP2

3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Power supply Mode	Mode 1: EUT power by AC 120V
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Remark:

1. The worst mode was record in this test report.
2. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by AC 120V
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input checked="" type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by AC 120V
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report

Report No.: T210319W02-RP2

3.3 EUT DUTY CYCLE

Temperature: 21.3~24.9°C

Test date: November 22 ~30, 2021

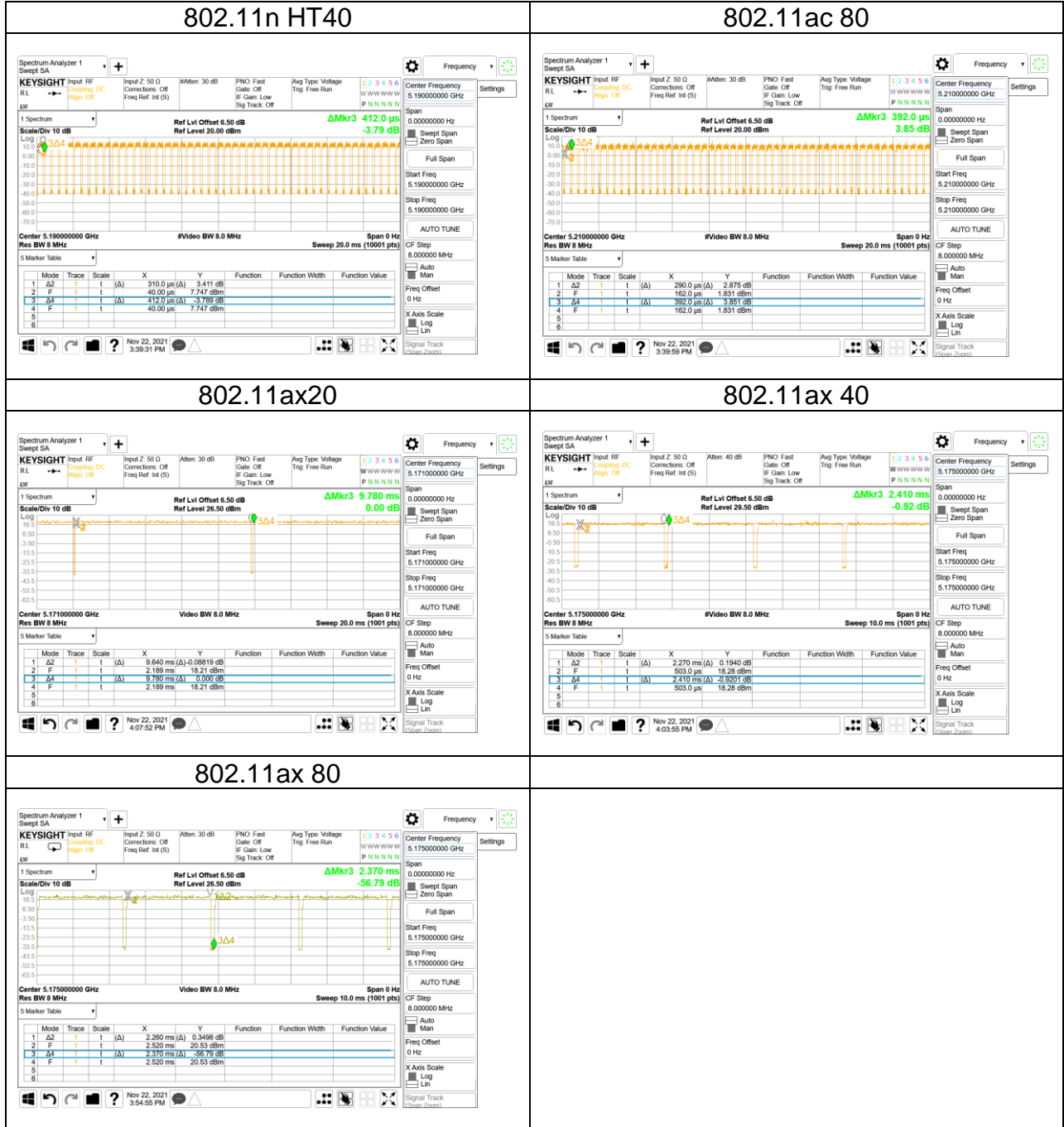
Humidity: 47~60% RH

Tested by: Jack Chen

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	93.02	0.31	0.74	1.00
802.11n_20	85.43	0.68	1.67	2.00
802.11n_40	75.24	1.24	3.23	4.00
802.11ac_80	73.98	1.31	3.45	4.00
802.11ax_20	98.56	0.06	0.10	0.01
802.11ax_40	94.19	0.26	0.44	1.00
802.11ax_80	95.35	0.21	0.44	1.00



Report No.: T210319W02-RP2



Report No.: T210319W02-RP2

4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a),

Frequency Range (MHz)	Limits(dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

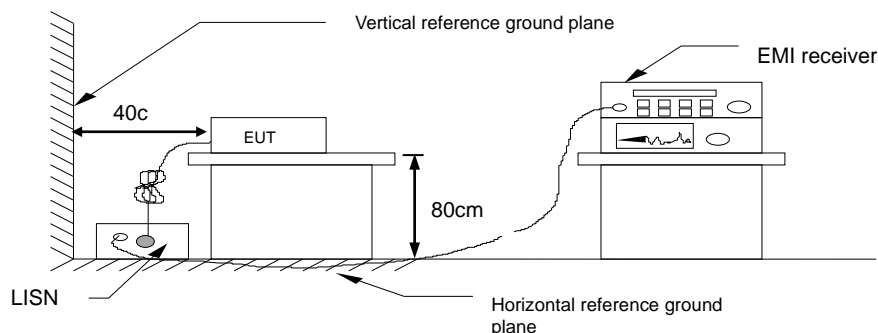
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup



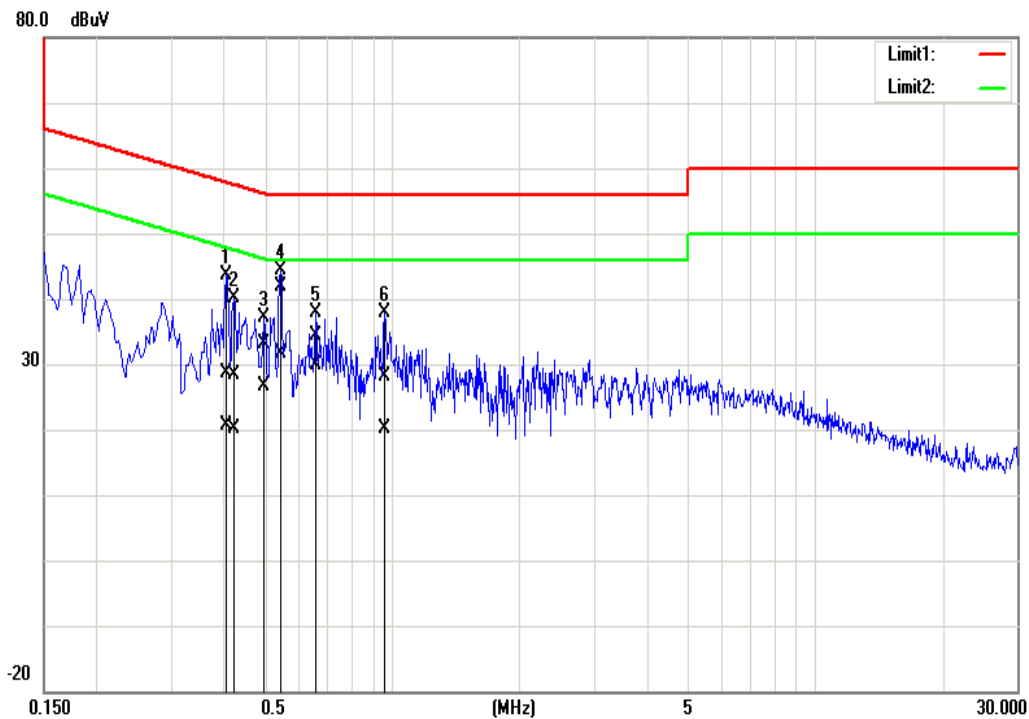
4.1.4 Test Result

Pass.

Report No.: T210319W02-RP2

Test Data

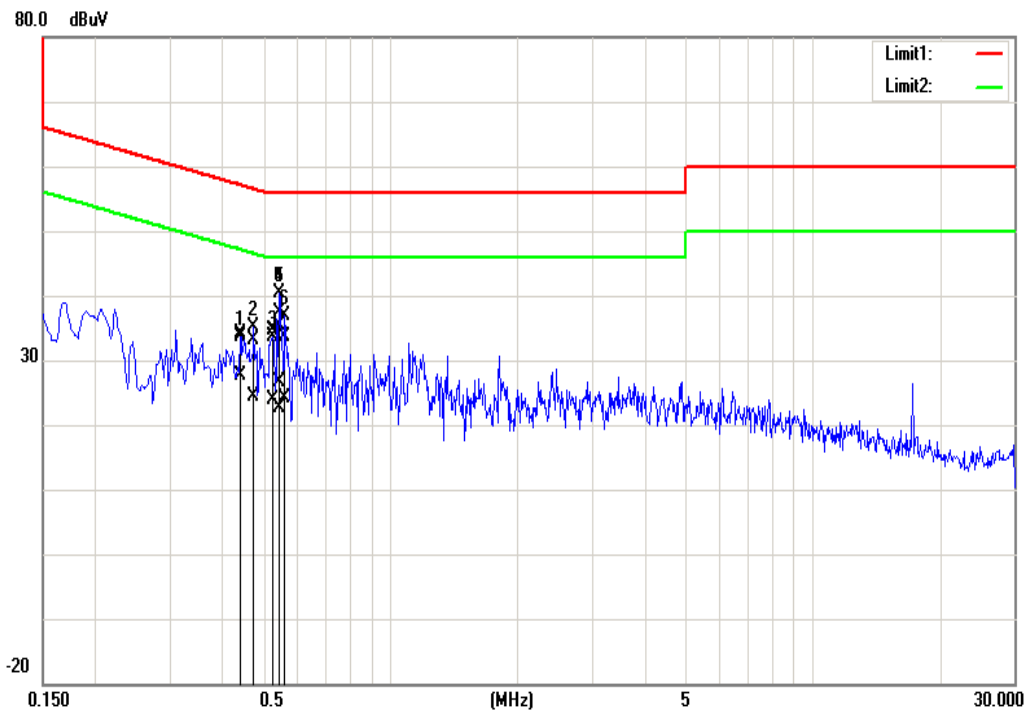
Test Mode:	Mode 1	Temp/Hum	21.3(°C)/ 48%RH
Phase:	Line	Test Date	December 16, 2021
Test Voltage:	120Vac, 60Hz	Test Engineer	Jack Chen



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.4060	18.48	10.47	10.26	28.74	20.73	57.73	47.73	-28.99	-27.00	Pass
0.4220	18.07	9.95	10.26	28.33	20.21	57.41	47.41	-29.08	-27.20	Pass
0.4980	22.77	16.36	10.26	33.03	26.62	56.03	46.03	-23.00	-19.41	Pass
0.5460	31.55	21.32	10.26	41.81	31.58	56.00	46.00	-14.19	-14.42	Pass
0.6580	24.23	19.50	10.26	34.49	29.76	56.00	46.00	-21.51	-16.24	Pass
0.9620	17.87	9.90	10.28	28.15	20.18	56.00	46.00	-27.85	-25.82	Pass

Note: Correction factor = LISN loss + Cable loss.

Test Mode:	Mode 1	Temp/Hum	21.3(°C)/ 48%RH
Phase:	Neutral	Test Date	December 16, 2021
Test Voltage:	120Vac, 60Hz	Test Engineer	Jack Chen



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.4420	23.99	17.46	10.26	34.25	27.72	57.02	47.02	-22.77	-19.30	Pass
0.4740	22.76	14.08	10.26	33.02	24.34	56.44	46.44	-23.42	-22.10	Pass
0.5260	24.32	13.62	10.26	34.58	23.88	56.00	46.00	-21.42	-22.12	Pass
0.5380	25.03	12.28	10.26	35.29	22.54	56.00	46.00	-20.71	-23.46	Pass
0.5460	27.15	16.31	10.26	37.41	26.57	56.00	46.00	-18.59	-19.43	Pass
0.5620	23.29	13.81	10.26	33.55	24.07	56.00	46.00	-22.45	-21.93	Pass

Note: Correction factor = LISN loss + Cable loss.

4.2 26dB BANDWIDTH, 6dB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

4.2.1 Test Limit

26 dB Bandwidth : For reporting purposes only.

6 dB Bandwidth : Least 500kHz.

Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

26dB

1. This measurement setting are specified in section D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW: approximately 1% of the emission bandwidth.
3. Set the VBW>RBW.
4. Detoctor = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26dB down from the peak of the emission. Compare this with the RBW setting of the analyser. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

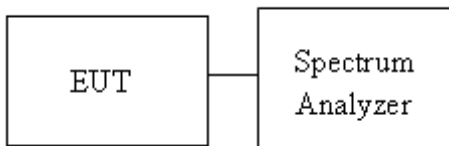
6dB

1. This measurement setting are specified in section D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = 100 kHz.
3. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
4. Detoctor = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. 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.

99%

1. This measurement setting are specified in section D of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set center frequency to the nominal EUT channel center frequency.
3. Set span = 1.5 times to 5.0 times the OBW.
4. Set RBW = 1 % to 5% of the OBW.
5. Set VBW \geq 3 xRBW

4.2.3 Test Setup



Report No.: T210319W02-RP2

4.2.4 Test Result

Temperature: 21.3~24.9°C

Test date:

 November 22 ~
December 17, 2021

Humidity: 47~60% RH

Tested by:

Jack Chen

UNII-1 5150-5250 MHz

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5180	16.578	16.534	21.67	21.21
Mid	5220	16.582	16.544	21.62	21.27
High	5240	16.590	16.498	21.95	21.14

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5180	17.755	17.744	23.02	22.39
Mid	5220	17.783	17.729	21.89	22.06
High	5240	17.743	17.754	21.94	22.30

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5190	36.321	36.346	41.54	43.70
High	5230	36.328	36.250	43.39	42.14

Test mode: IEEE 802.11ac VHT80 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5210	75.712	75.919	98.05	95.14



Report No.: T210319W02-RP2

Test mode: IEEE 802.11ax HE20 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5180	106/53	18.026	17.859	20.65	20.56
Mid	5220	106/53	17.740	17.205	20.27	20.11
High	5240	106/53	17.688	17.813	20.52	20.11

Test mode: IEEE 802.11ax HE40 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5180	106/53	16.998	17.480	21.82	20.89
High	5220	106/53	17.732	17.450	21.18	20.84

Test mode: IEEE 802.11ax HE80 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5210	106/53	77.008	77.080	80.56	80.54

Report No.: T210319W02-RP2

UNII-2a 5250-5350 MHz

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5260	16.575	16.555	22.10	20.89
Mid	5300	16.557	16.527	21.97	21.26
High	5320	16.582	16.516	21.11	20.73

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5260	17.796	17.759	23.56	22.08
Mid	5300	17.752	17.760	22.33	22.52
High	5320	17.789	17.747	22.11	21.72

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5270	36.311	36.273	43.18	42.22
High	5310	36.405	36.436	42.92	41.90

Test mode: IEEE 802.11ac VHT80 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5290	75.584	75.612	83.11	84.86

Test mode: IEEE 802.11ax HE20 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5260	106/53	17.784	17.252	19.87	20.75
Mid	5300	106/53	17.505	17.737	20.33	20.39
High	5320	106/54	17.905	17.666	20.15	20.75

Test mode: IEEE 802.11ax HE40 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5270	106/53	17.207	17.342	21.38	20.71
High	5310	106/56	17.604	17.584	21.94	21.06

Test mode: IEEE 802.11ax HE80 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5290	106/60	76.976	76.998	81.44	81.00

Report No.: T210319W02-RP2

UNII-2c 5470-5725 MHz

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5500	16.608	16.583	22.10	21.49
Mid	5580	16.589	16.586	22.13	21.44
High	5700	16.577	16.574	22.21	21.92

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5500	17.767	17.729	22.78	21.97
Mid	5580	17.755	17.761	22.70	22.18
High	5700	17.739	17.744	21.82	22.04

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5510	36.271	36.417	43.45	43.47
Mid	5550	36.330	36.242	42.60	42.13
High	5670	36.331	36.299	42.64	42.81

Test mode: IEEE 802.11ac VHT80 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5530	75.623	75.909	92.76	92.38

Test mode: IEEE 802.11ax HE20 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5500	106/53	17.898	18.031	20.49	20.28
Mid	5580	106/53	17.852	17.408	20.14	20.53
High	5700	106/54	18.073	18.045	21.60	20.54

Test mode: IEEE 802.11ax HE40 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5510	106/53	17.567	17.156	21.37	20.78
Mid	5550	106/53	17.658	17.458	21.75	21.22
High	5670	106/56	16.979	17.373	22.48	20.11

Test mode: IEEE 802.11ax HE80 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 26dB BW (MHz)	Chain 1 26dB BW (MHz)
Low	5530	106/53	76.860	76.791	80.88	80.16

Report No.: T210319W02-RP2

UNII-3 5725-5850 MHz

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5745	18.613	19.231	16.02	16.44
Mid	5785	19.660	19.145	16.36	15.76
High	5825	19.906	19.340	15.29	16.08

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5745	18.881	18.981	17.57	17.41
Mid	5785	20.084	19.053	17.20	16.44
High	5825	20.216	19.810	16.52	15.41

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5755	36.541	36.442	35.21	35.57
High	5795	36.510	36.352	35.46	35.90

Test mode: IEEE 802.11ac VHT80 mode

Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5775	75.737	75.657	75.60	75.11



Report No.: T210319W02-RP2

Test mode: IEEE 802.11ax HE20 mode

Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5745	106/53	17.954	17.832	17.10	17.070
Mid	5785	106/54	17.635	18.028	17.09	17.13
High	5825	106/54	18.114	17.928	17.10	17.09

Test mode: IEEE 802.11ax HE40 mode

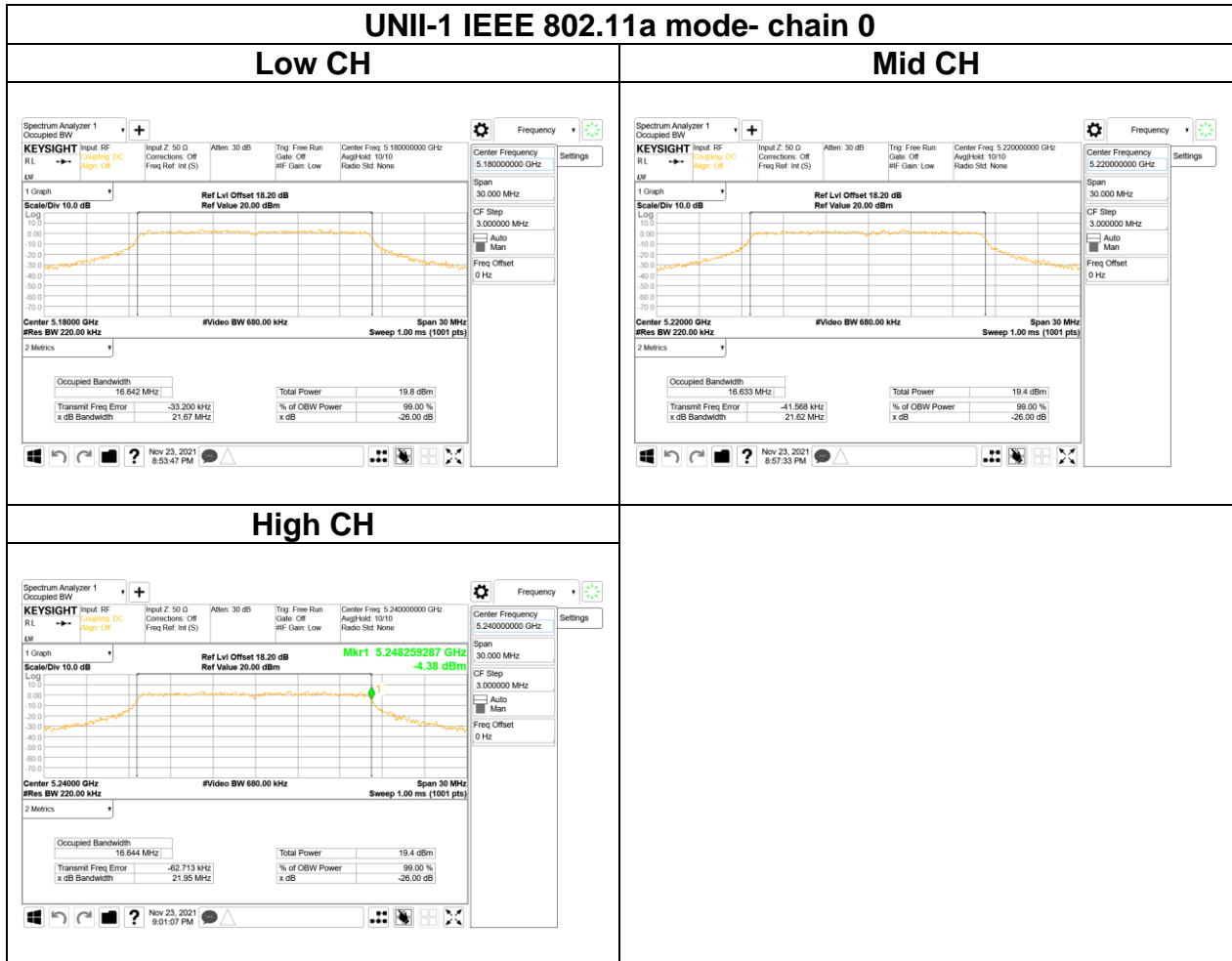
Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5755	106/53	17.824	17.805	16.590	15.320
High	5795	106/56	17.994	17.643	16.560	16.580

Test mode: IEEE 802.11ax HE80 mode

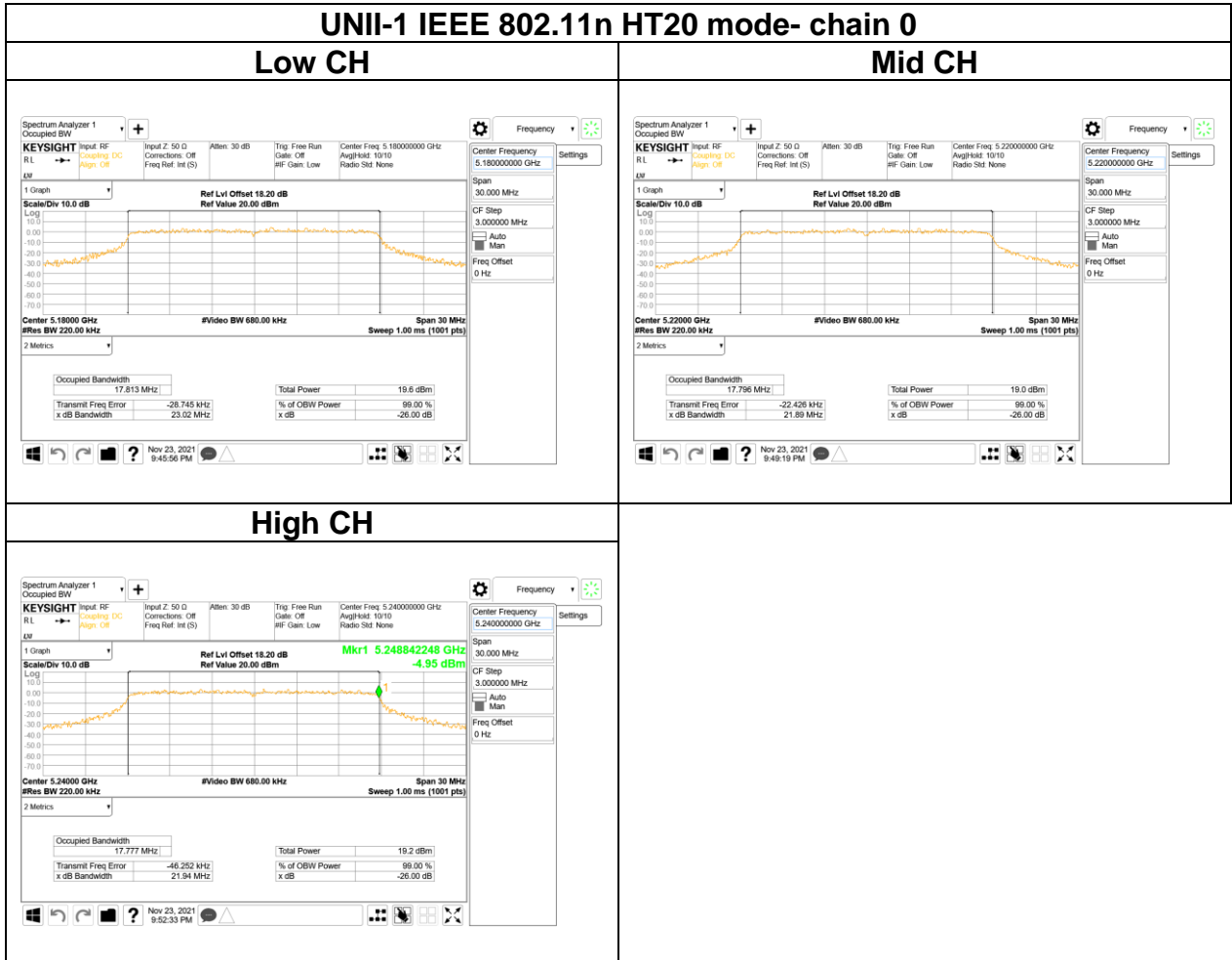
Channel	Frequency (MHz)	RU config	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)
Low	5775	106/53	76.915	76.913	75.61	76.27

Report No.: T210319W02-RP2

Test Plots (26dB BANDWIDTH)

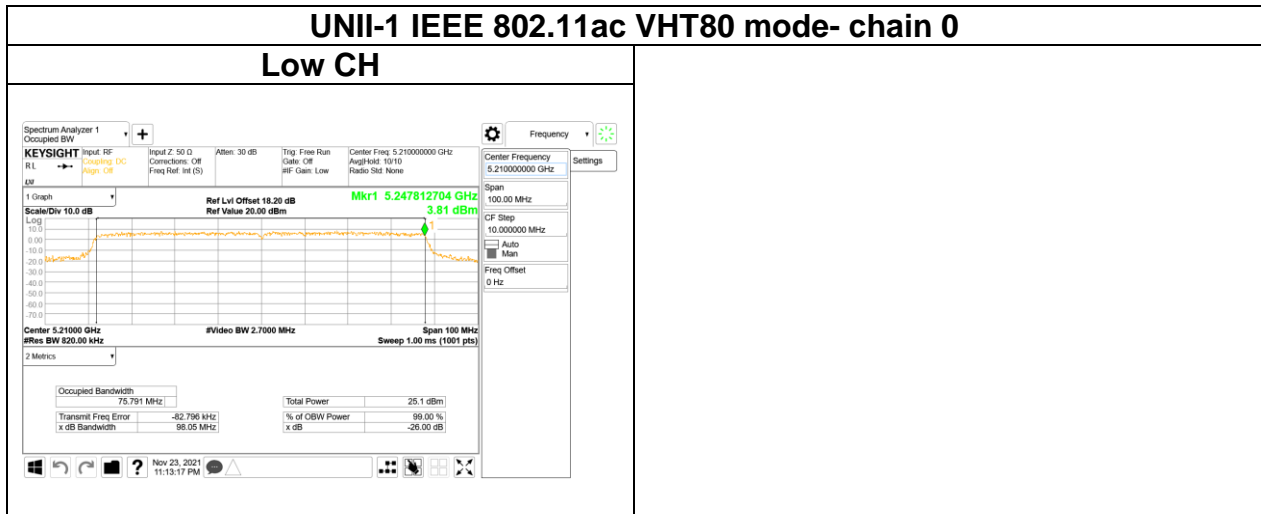
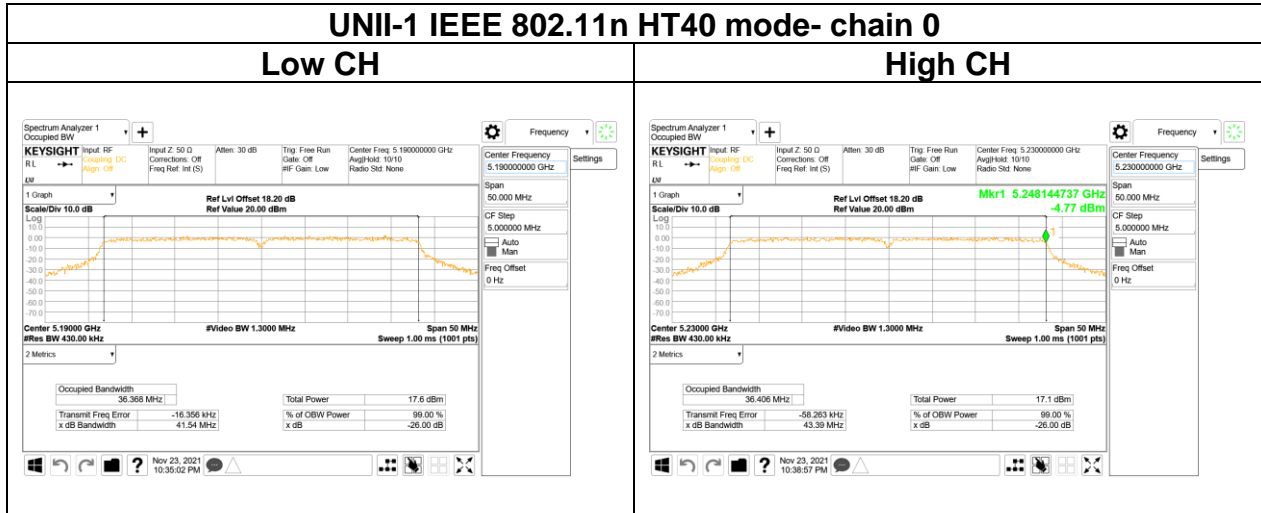


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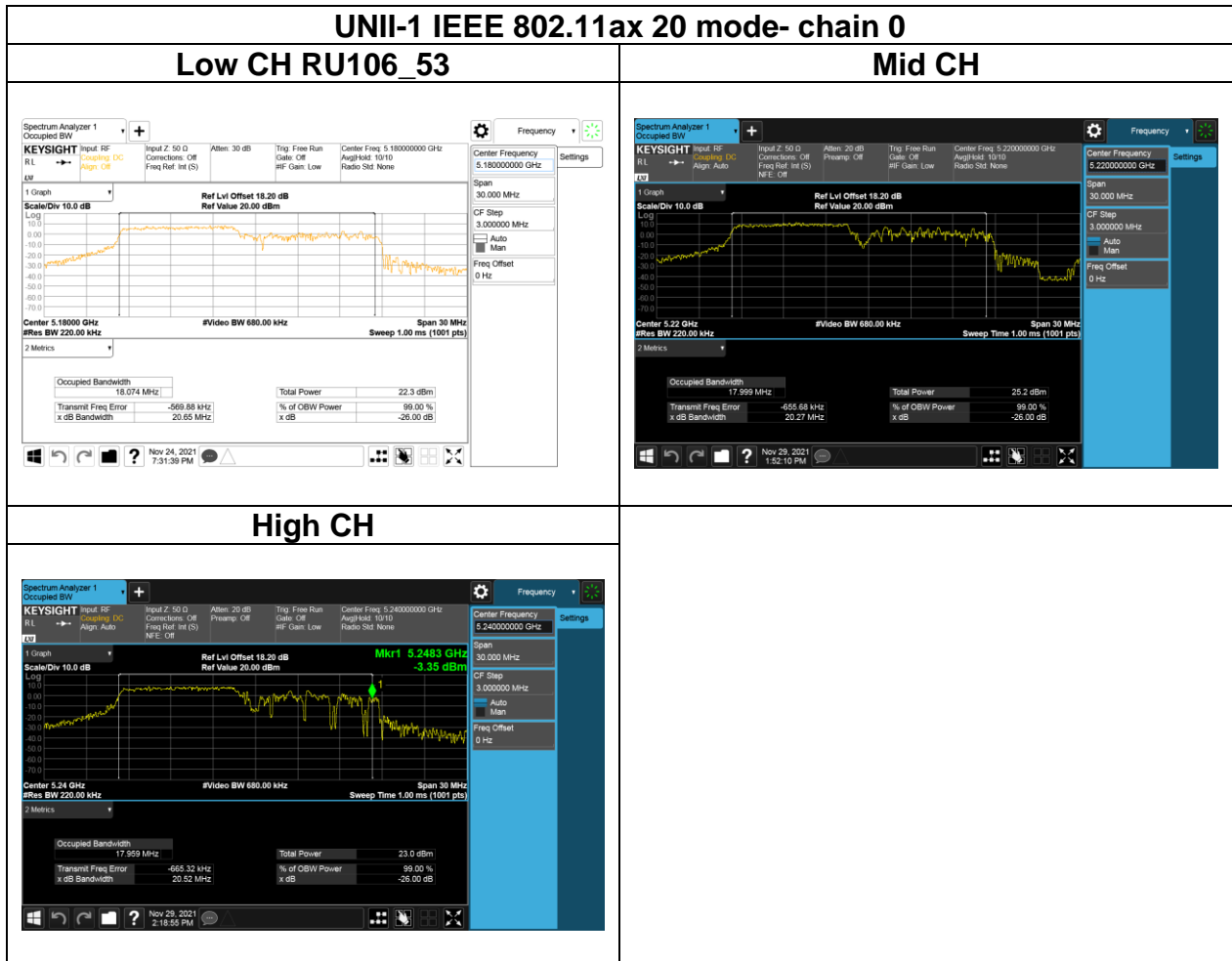




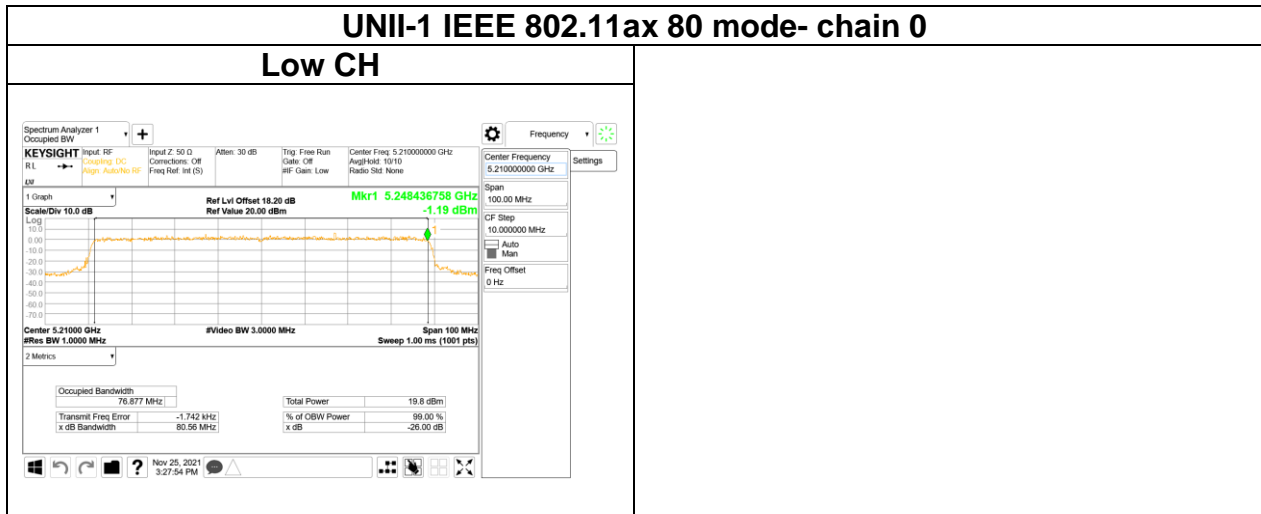
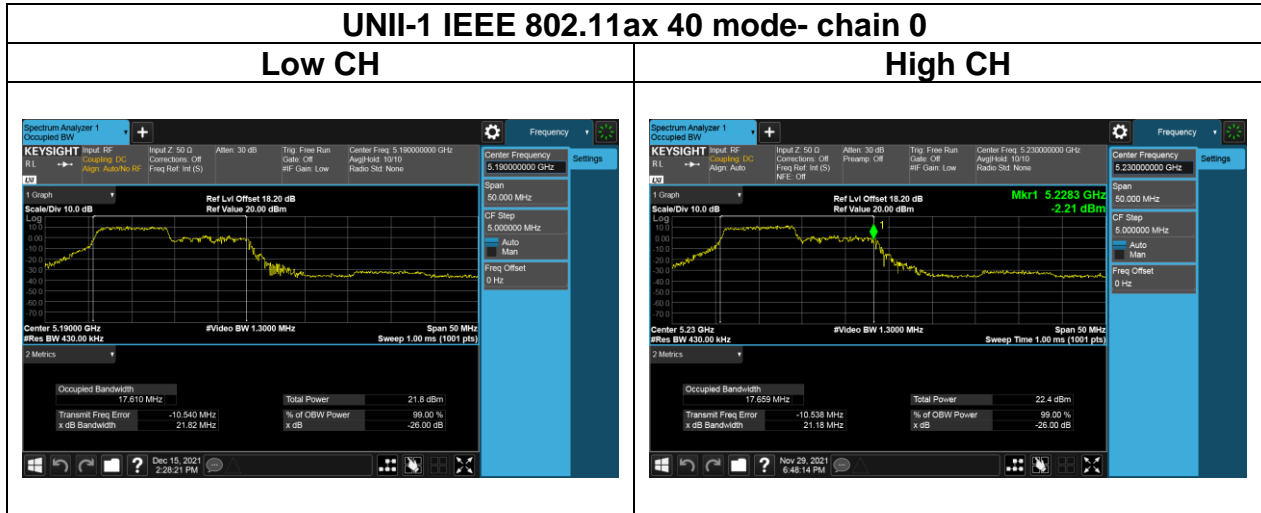
Report No.: T210319W02-RP2



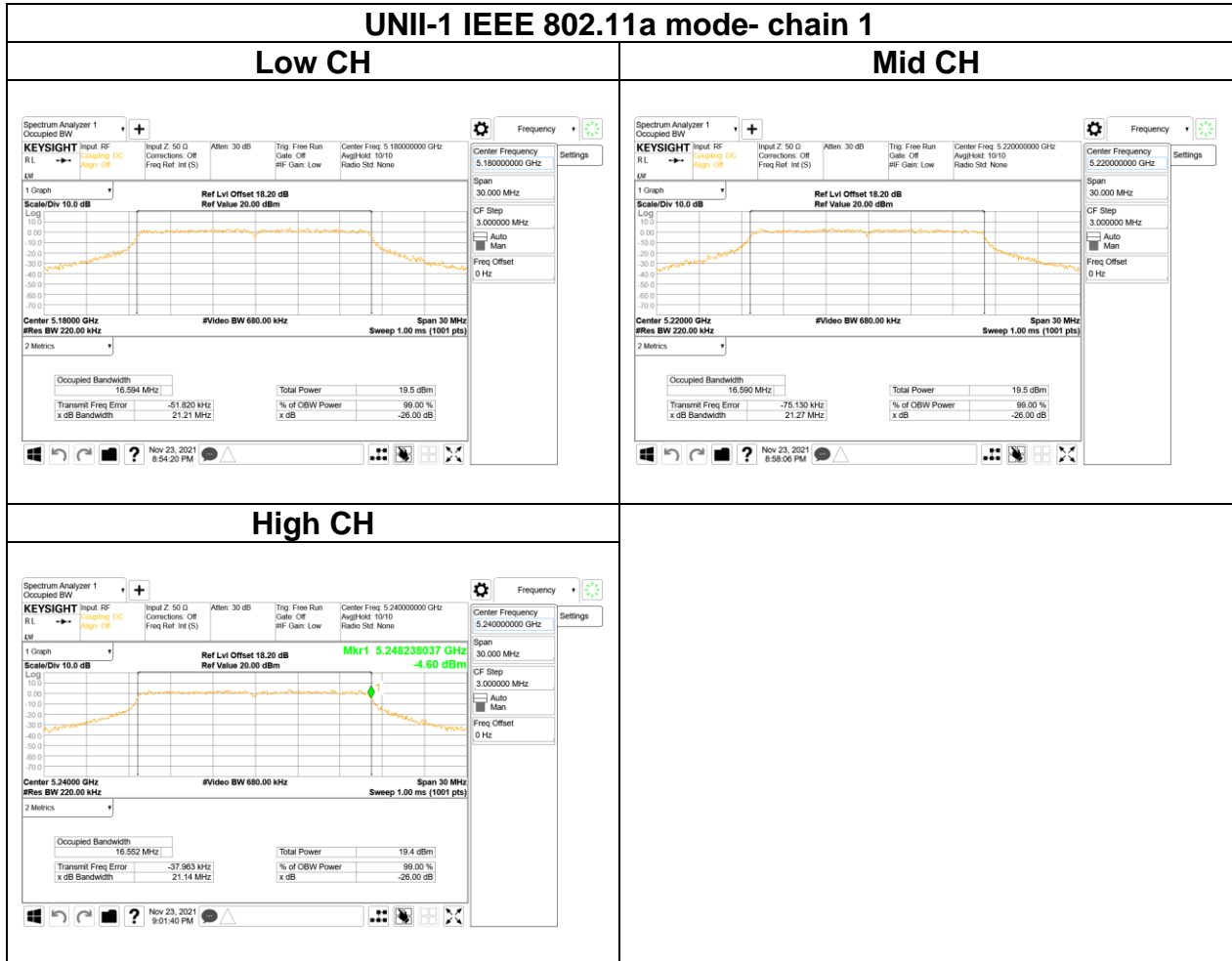
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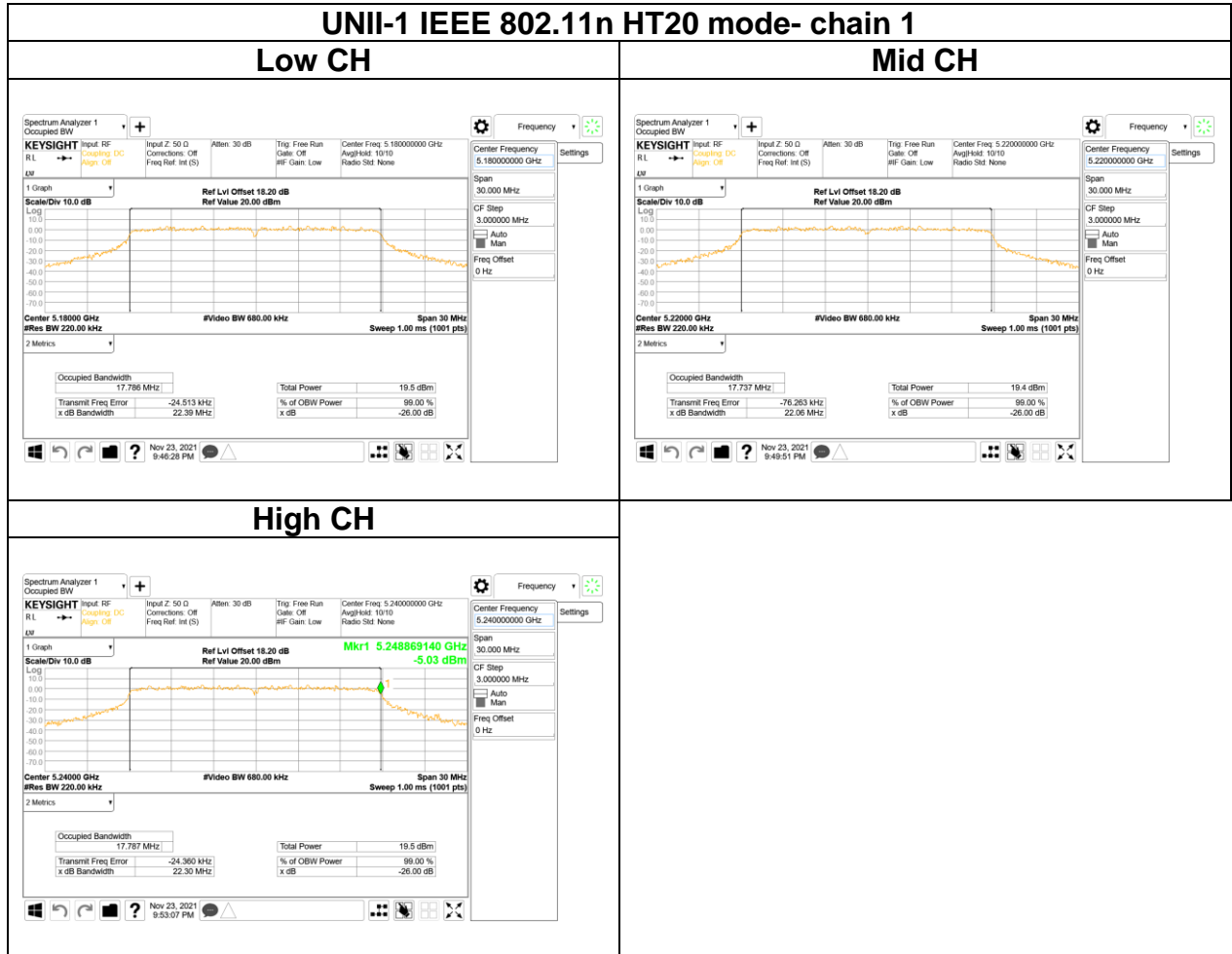
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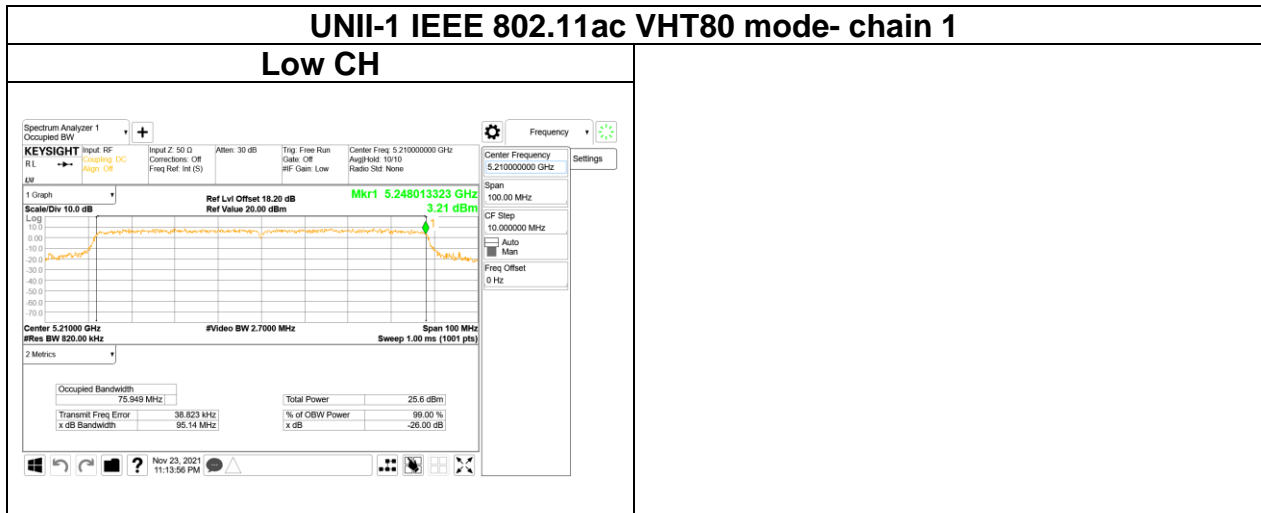
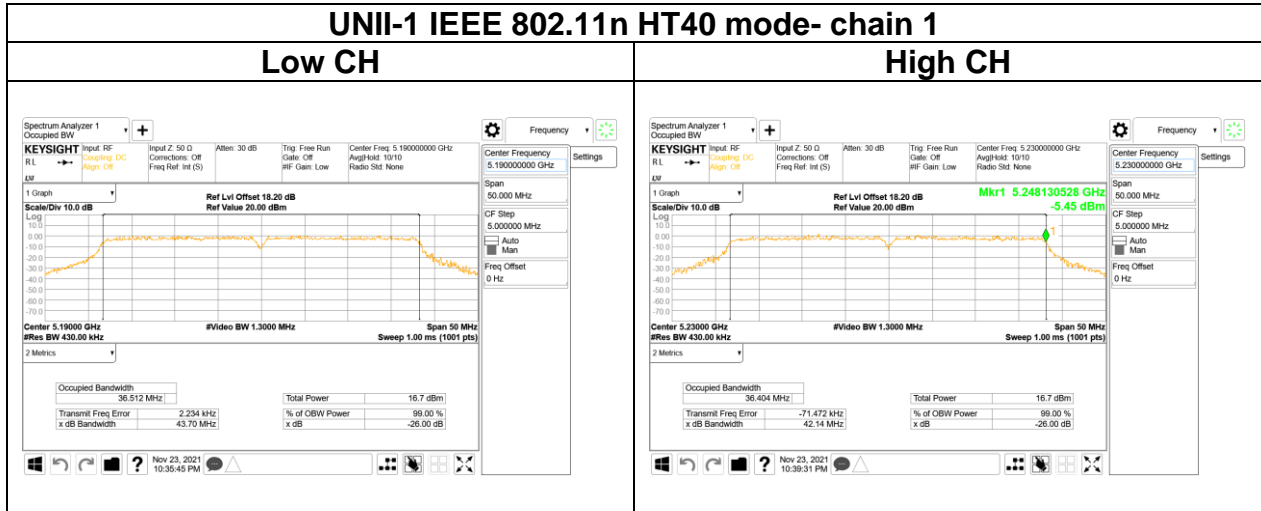
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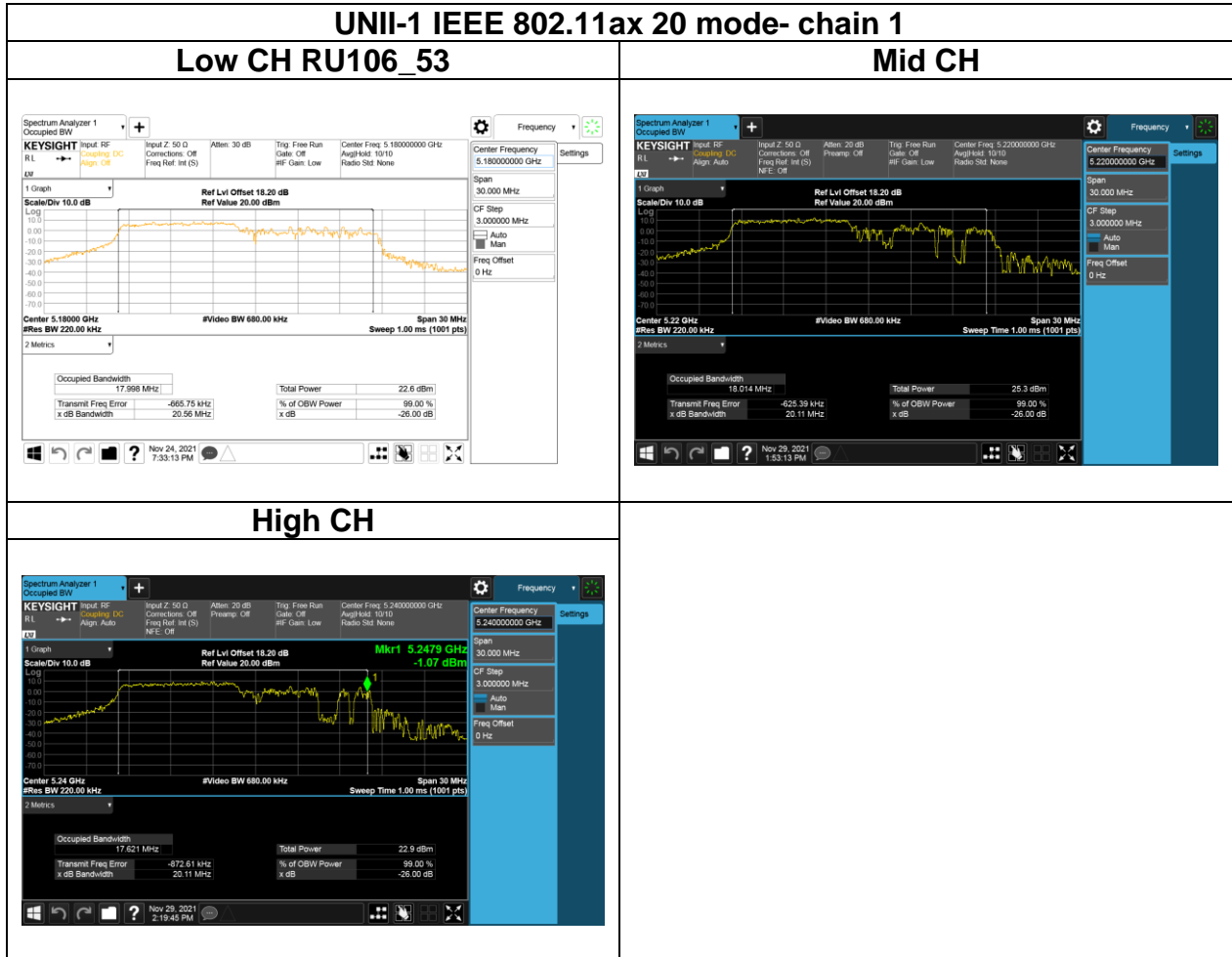
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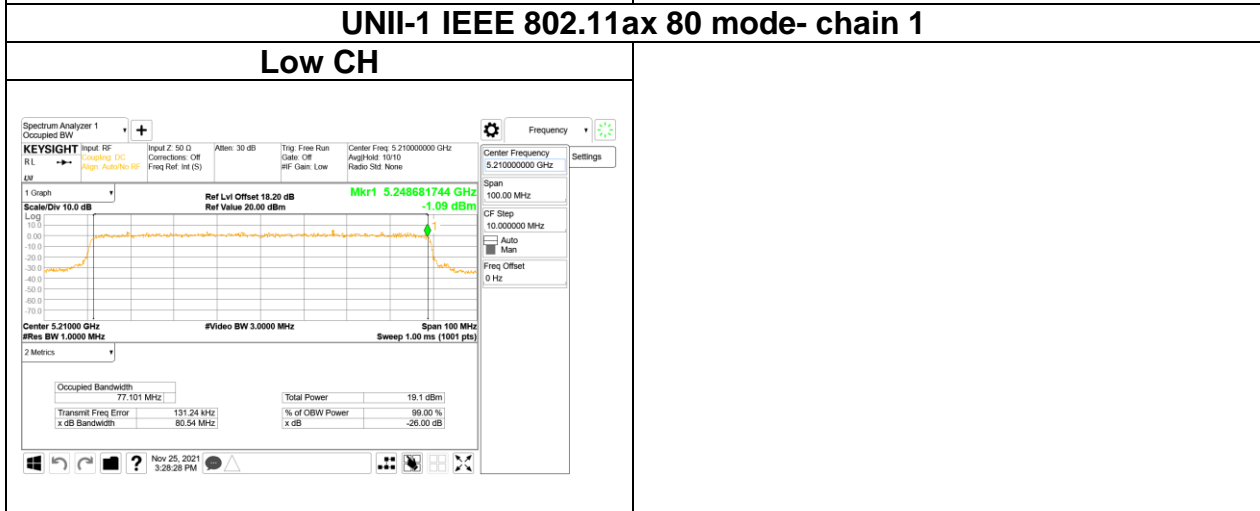
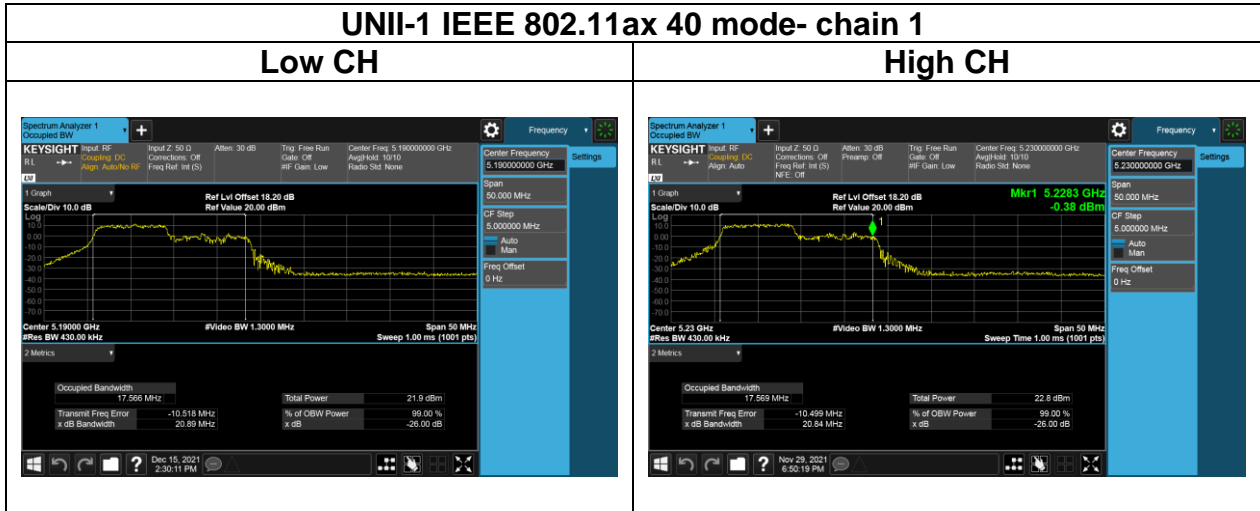
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Report No.: T210319W02-RP2

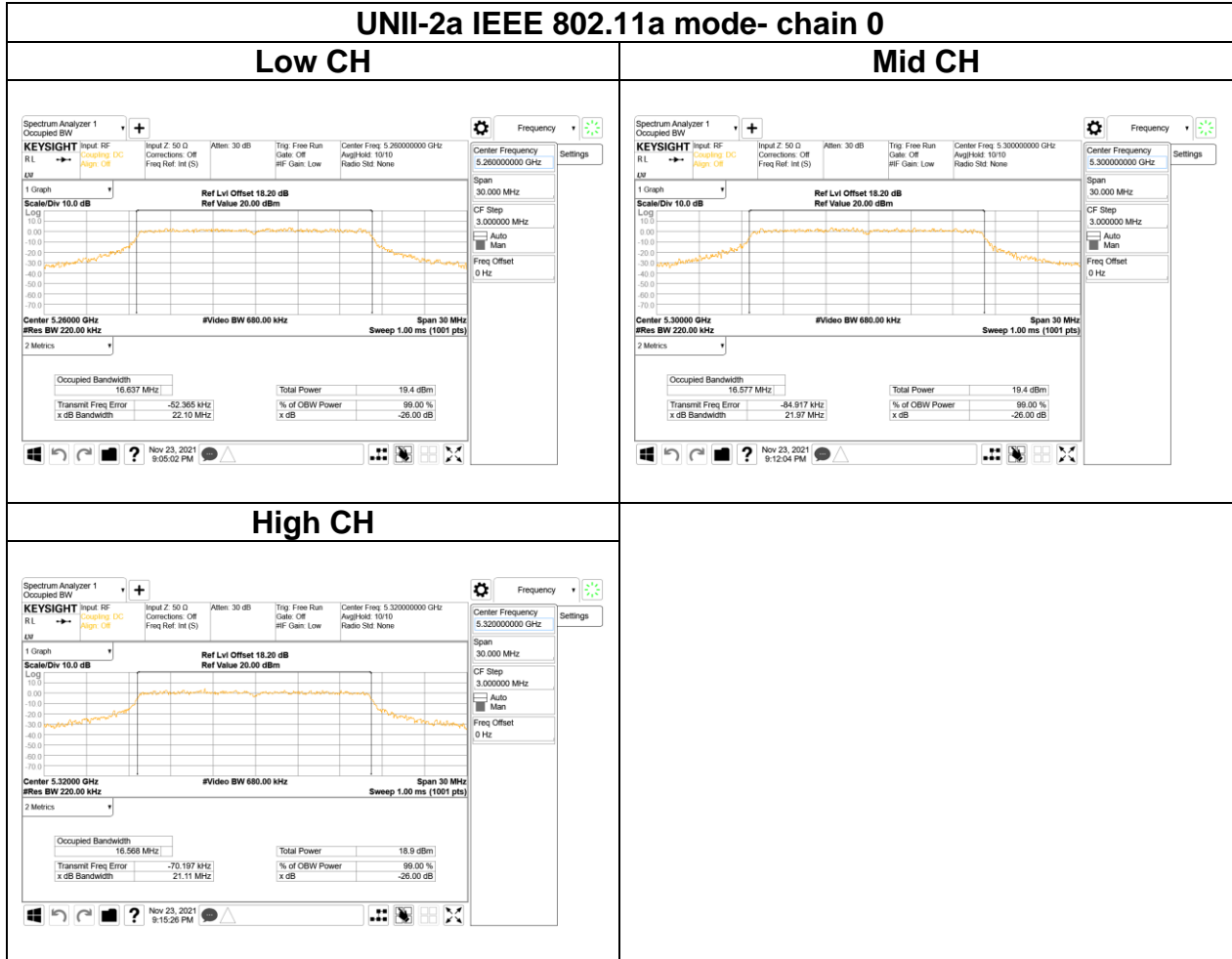


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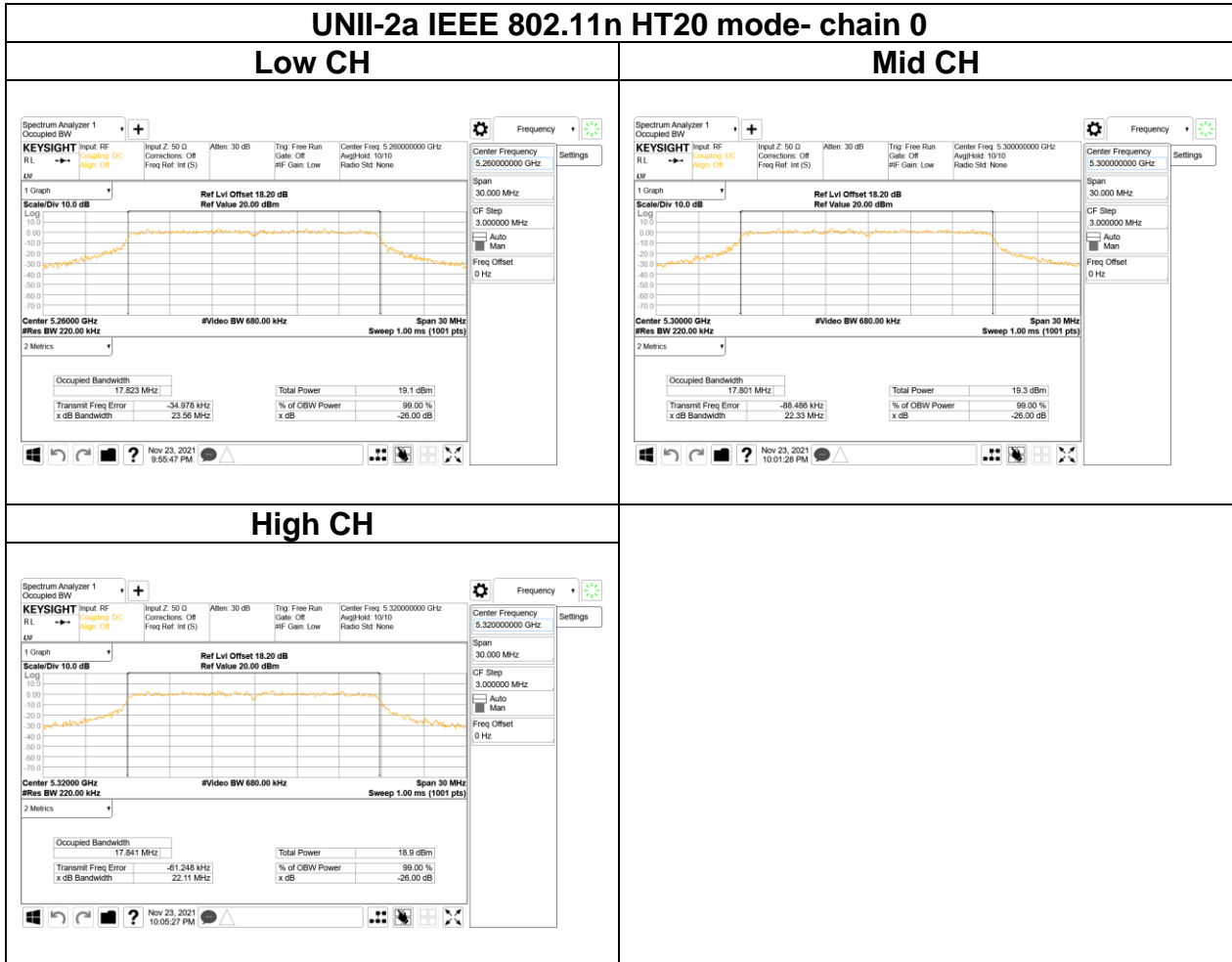


Report No.: T210319W02-RP2

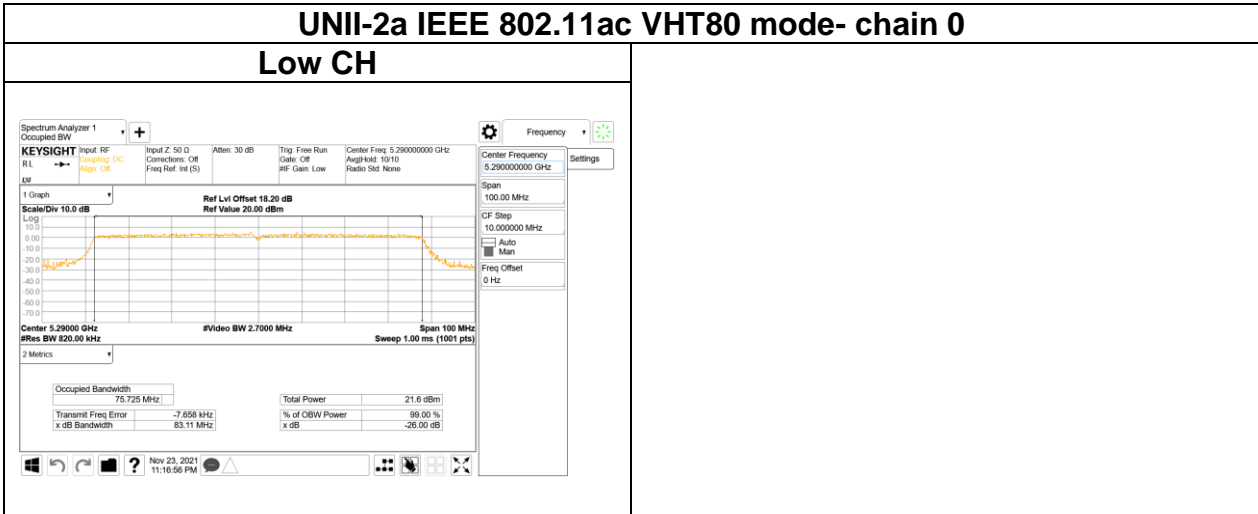
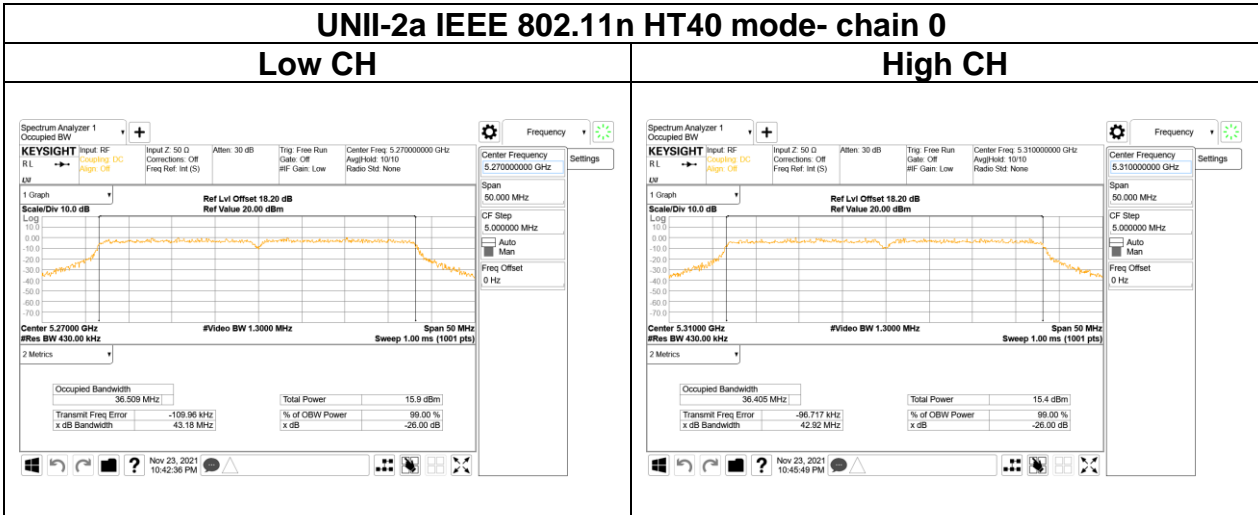
Test Plots (26dB BANDWIDTH)



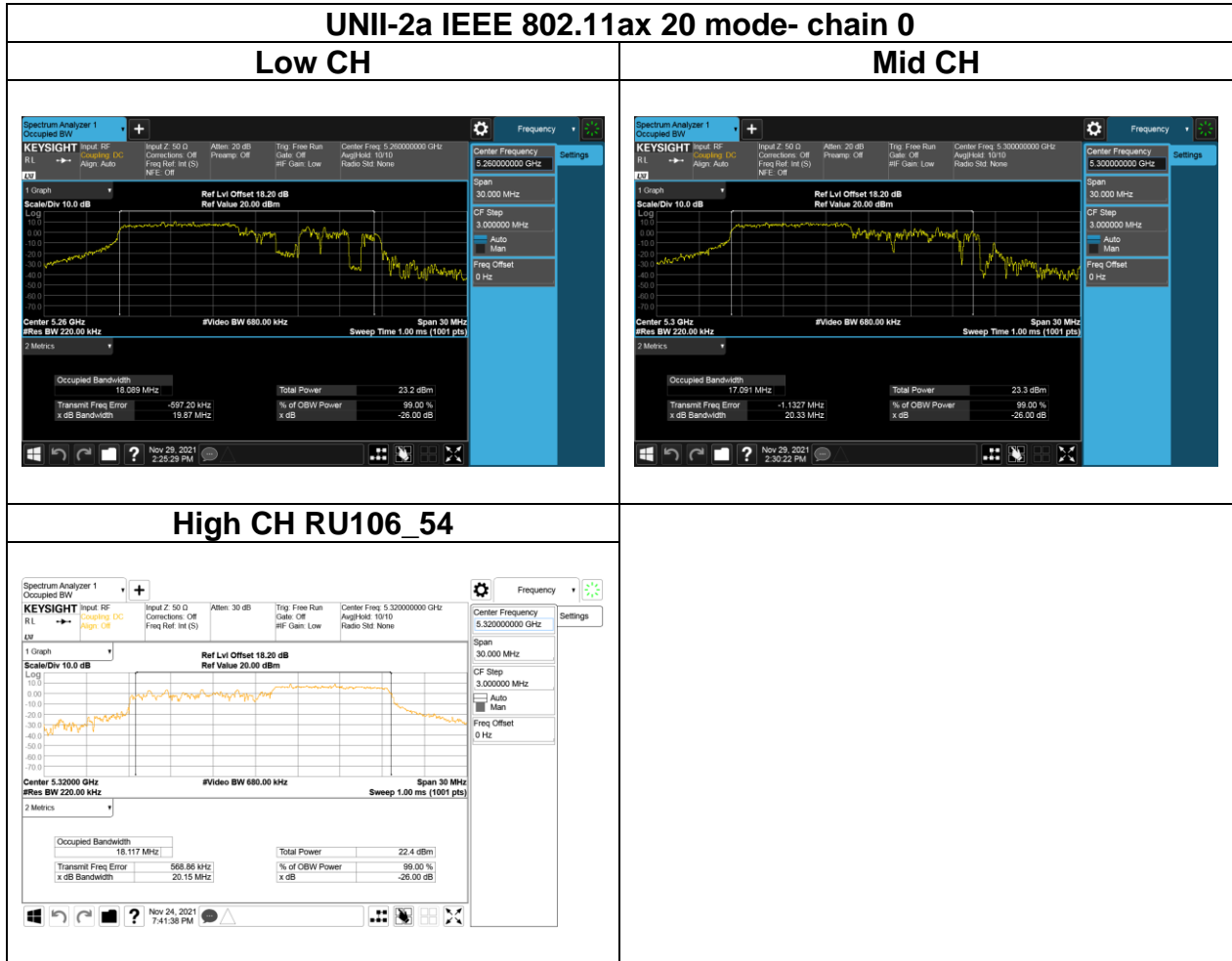
Report No.: T210319W02-RP2



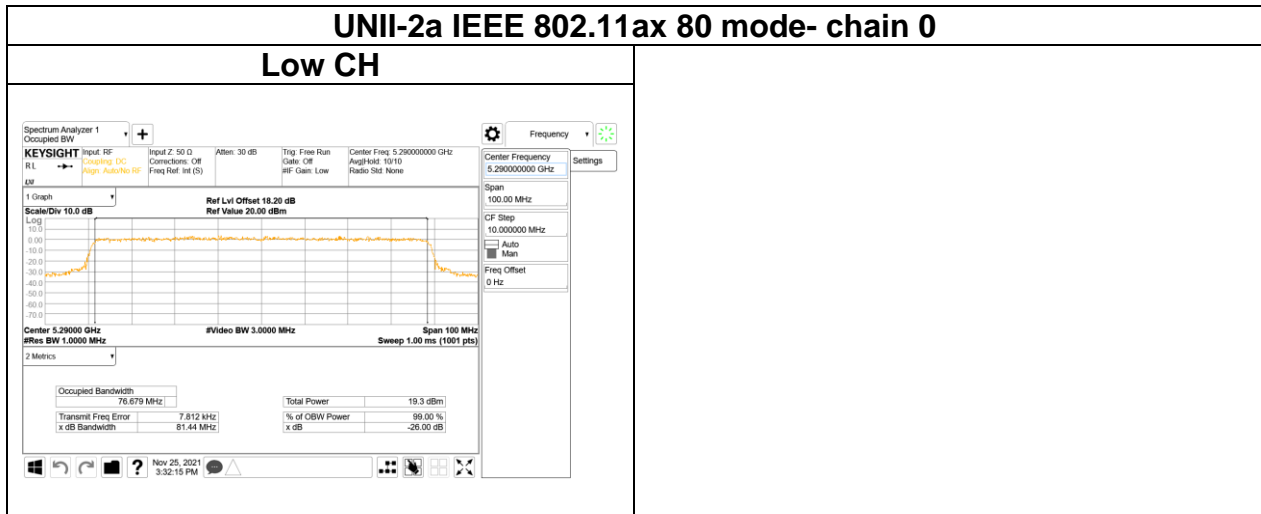
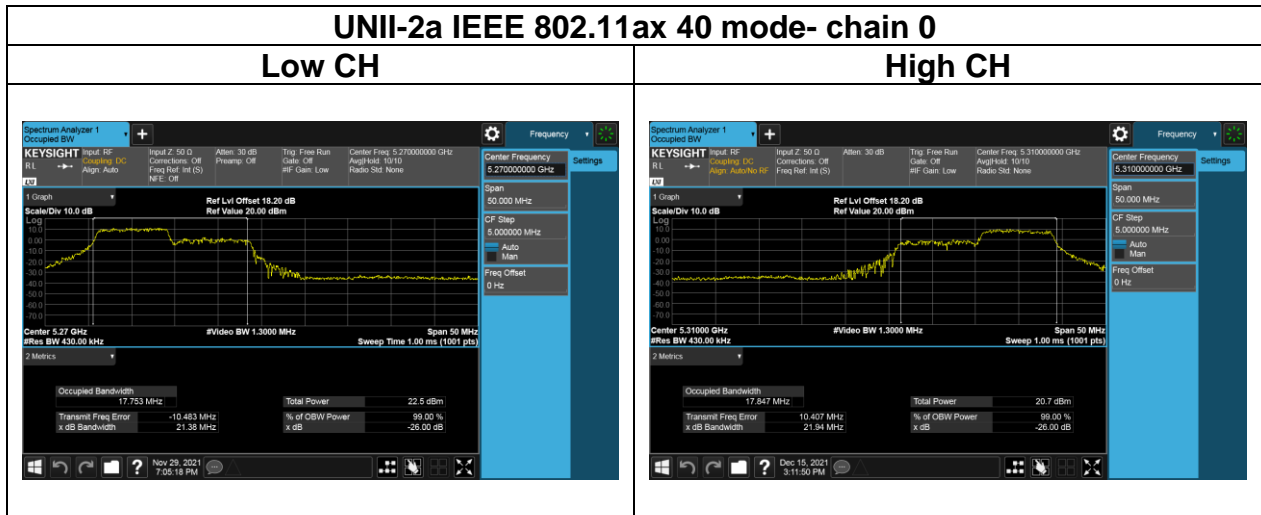
Report No.: T210319W02-RP2



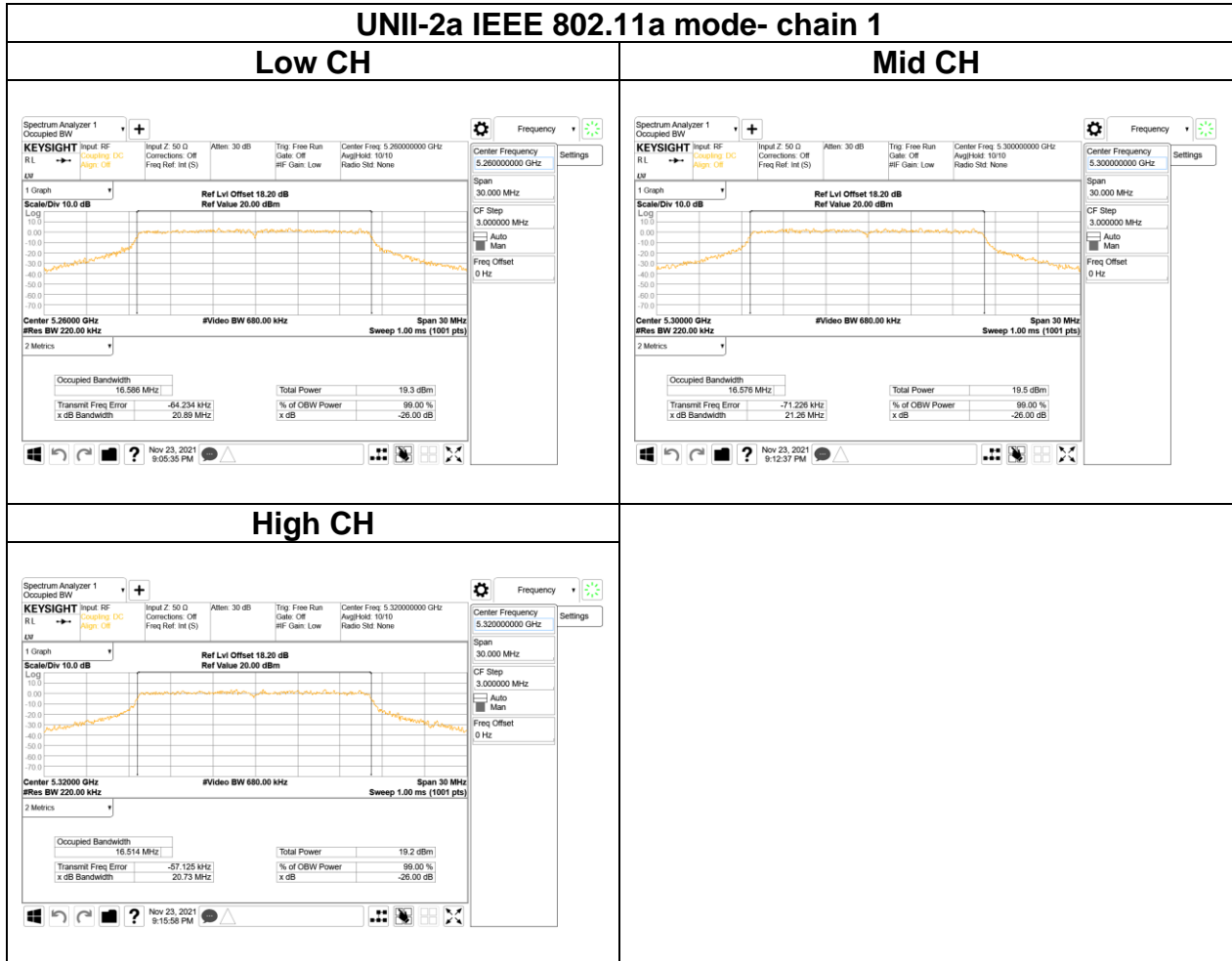
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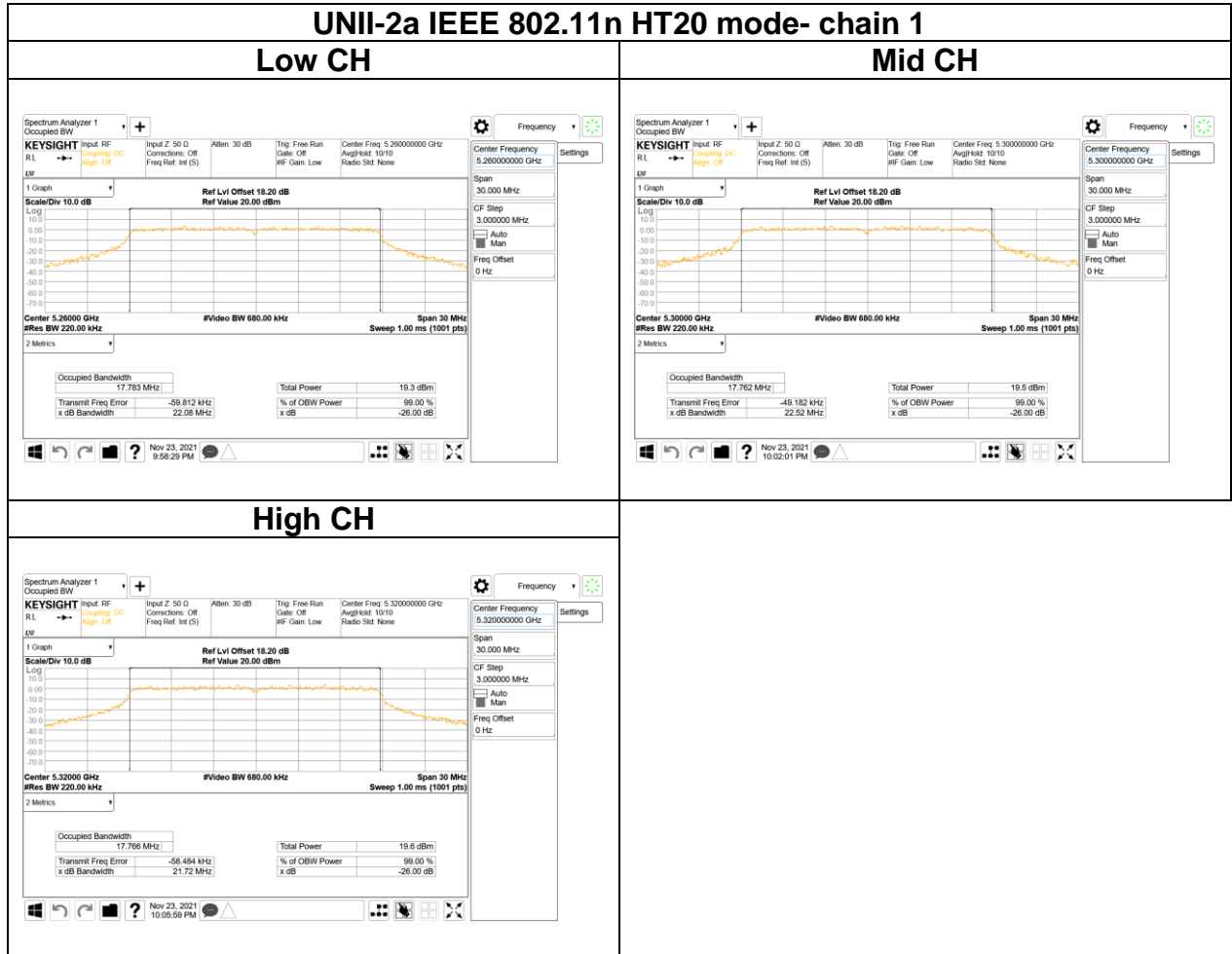
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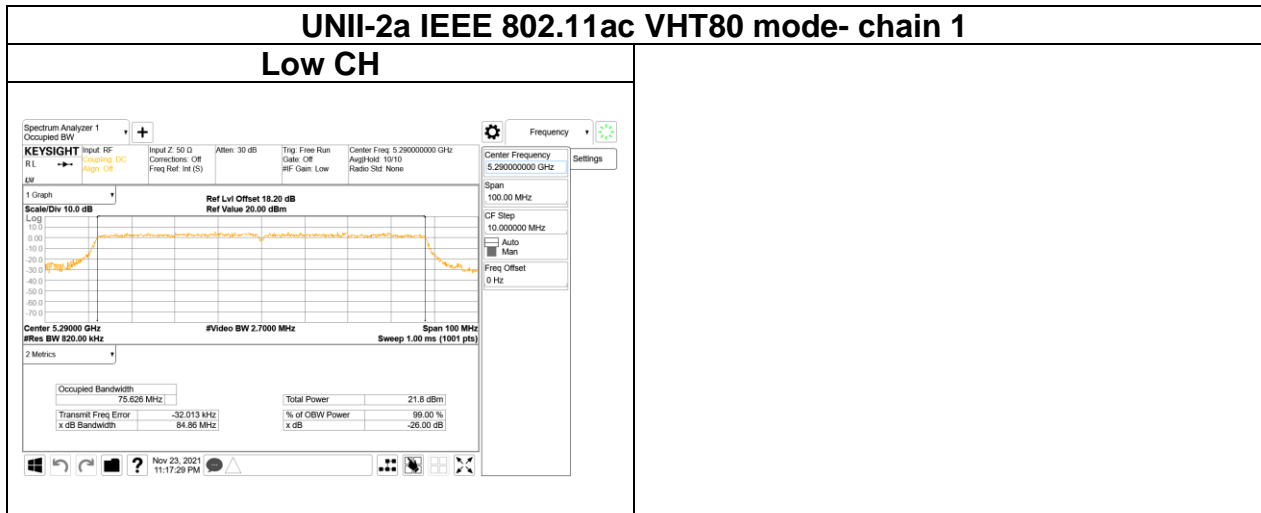
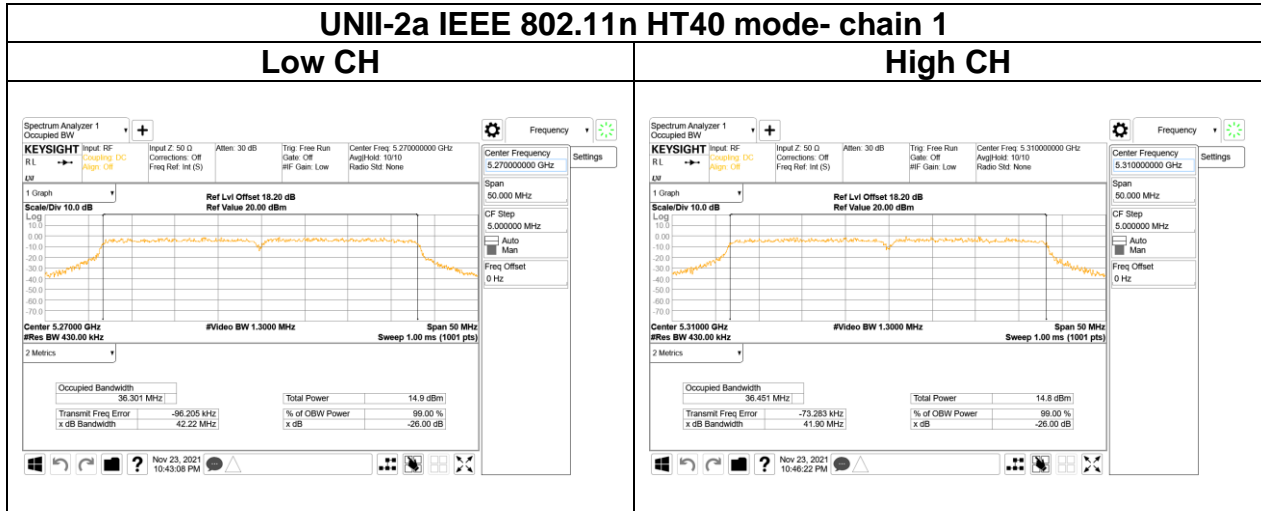
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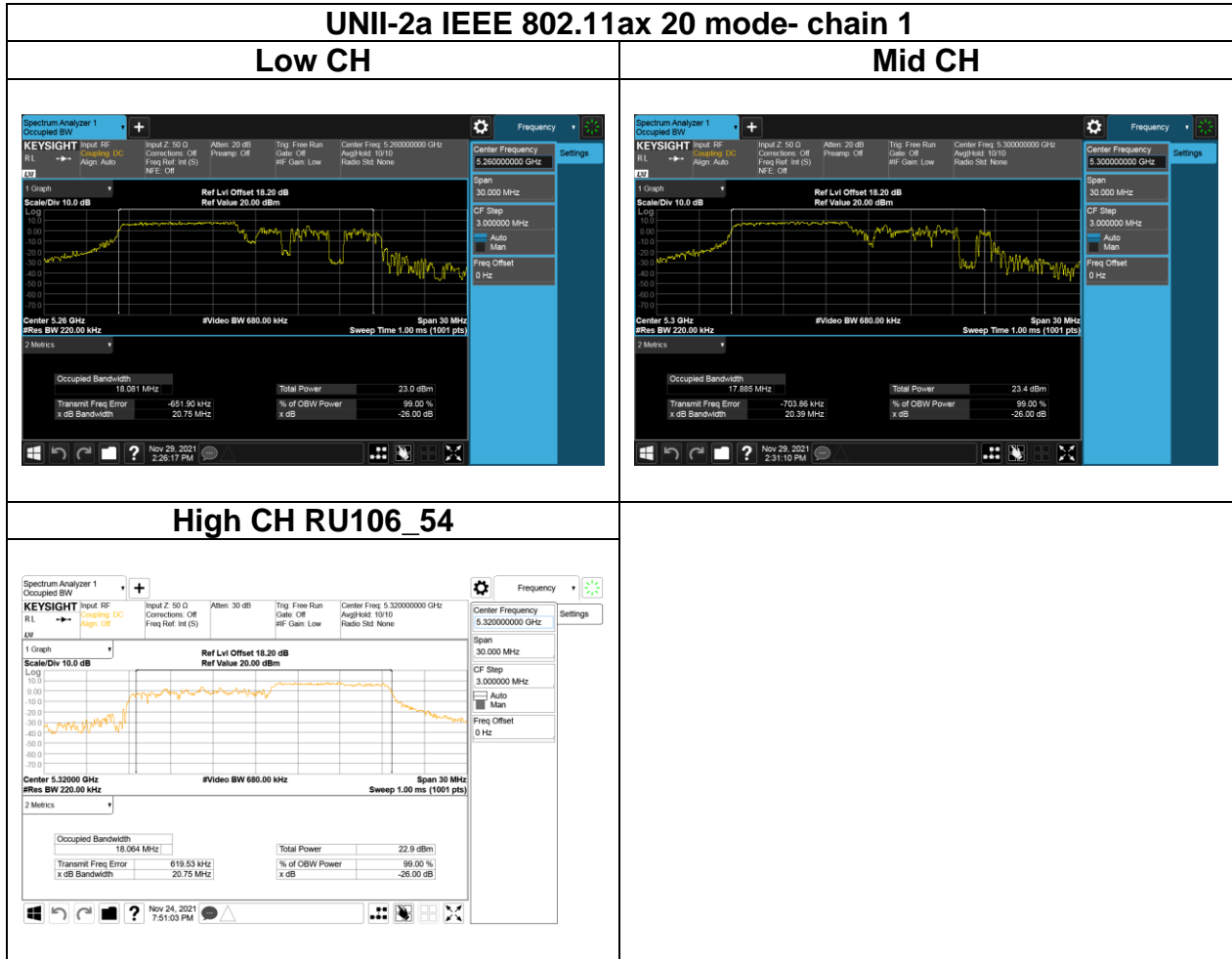
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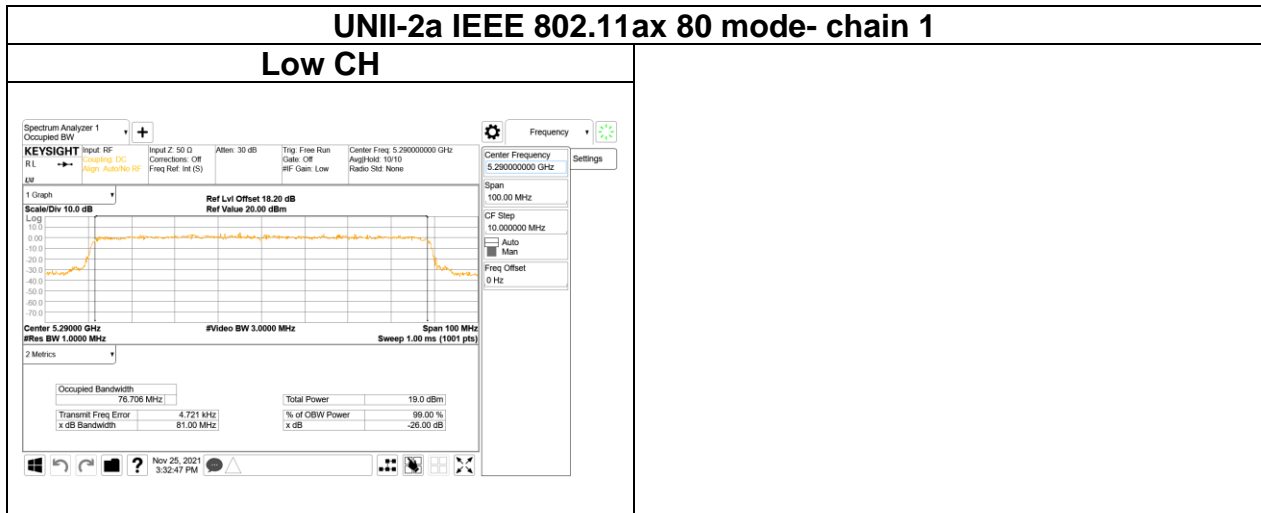
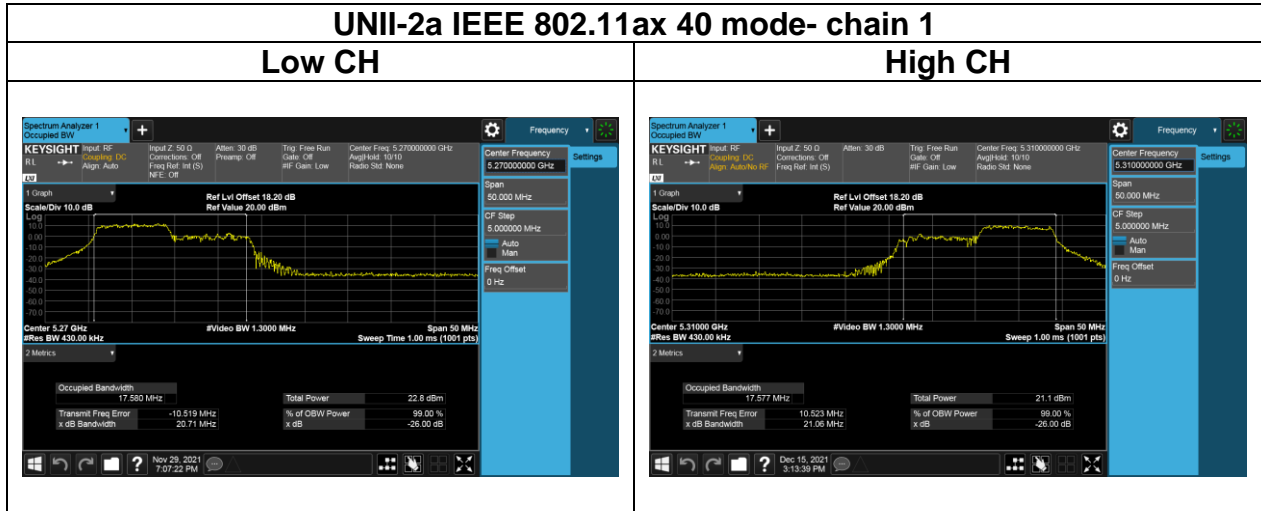
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Report No.: T210319W02-RP2

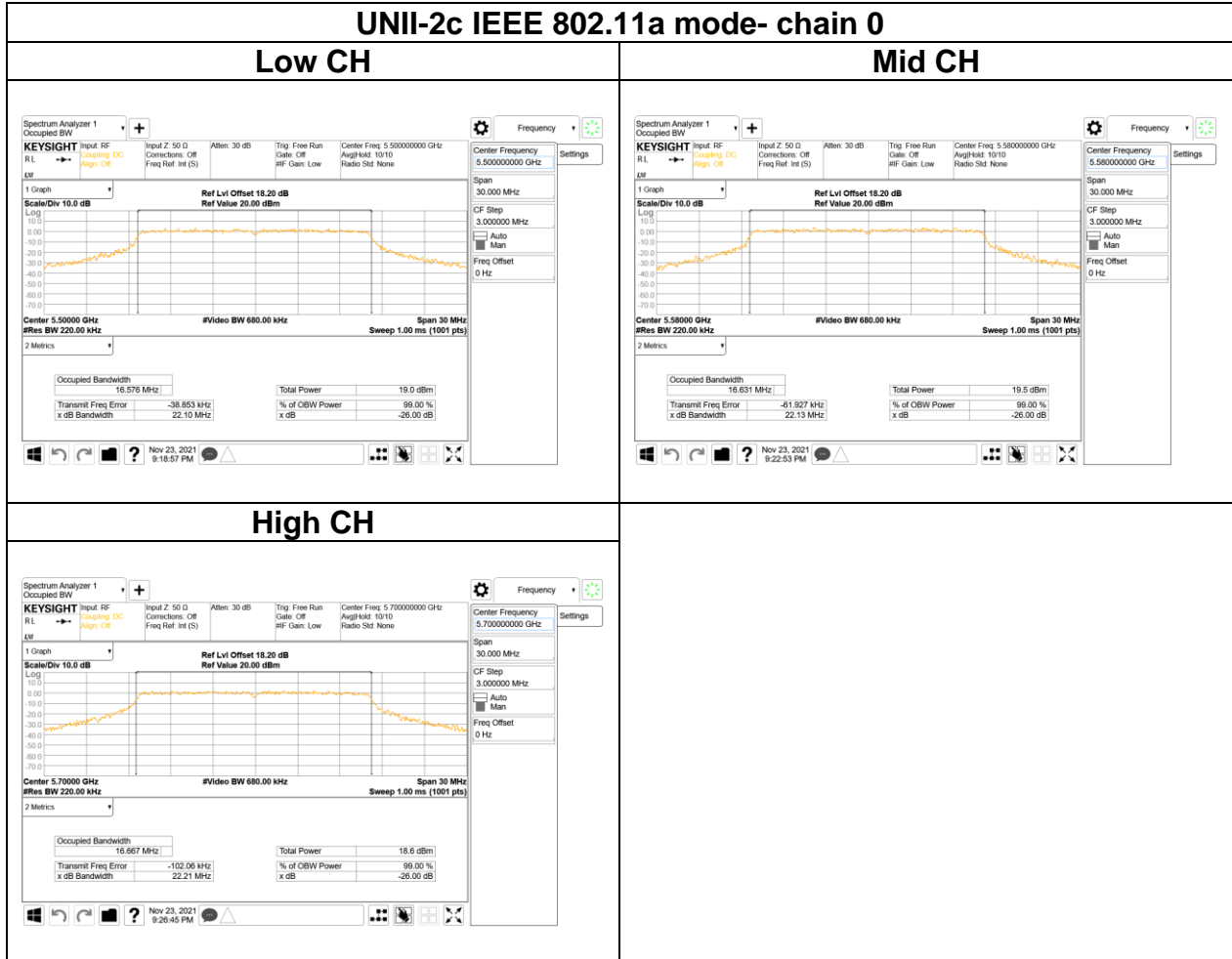


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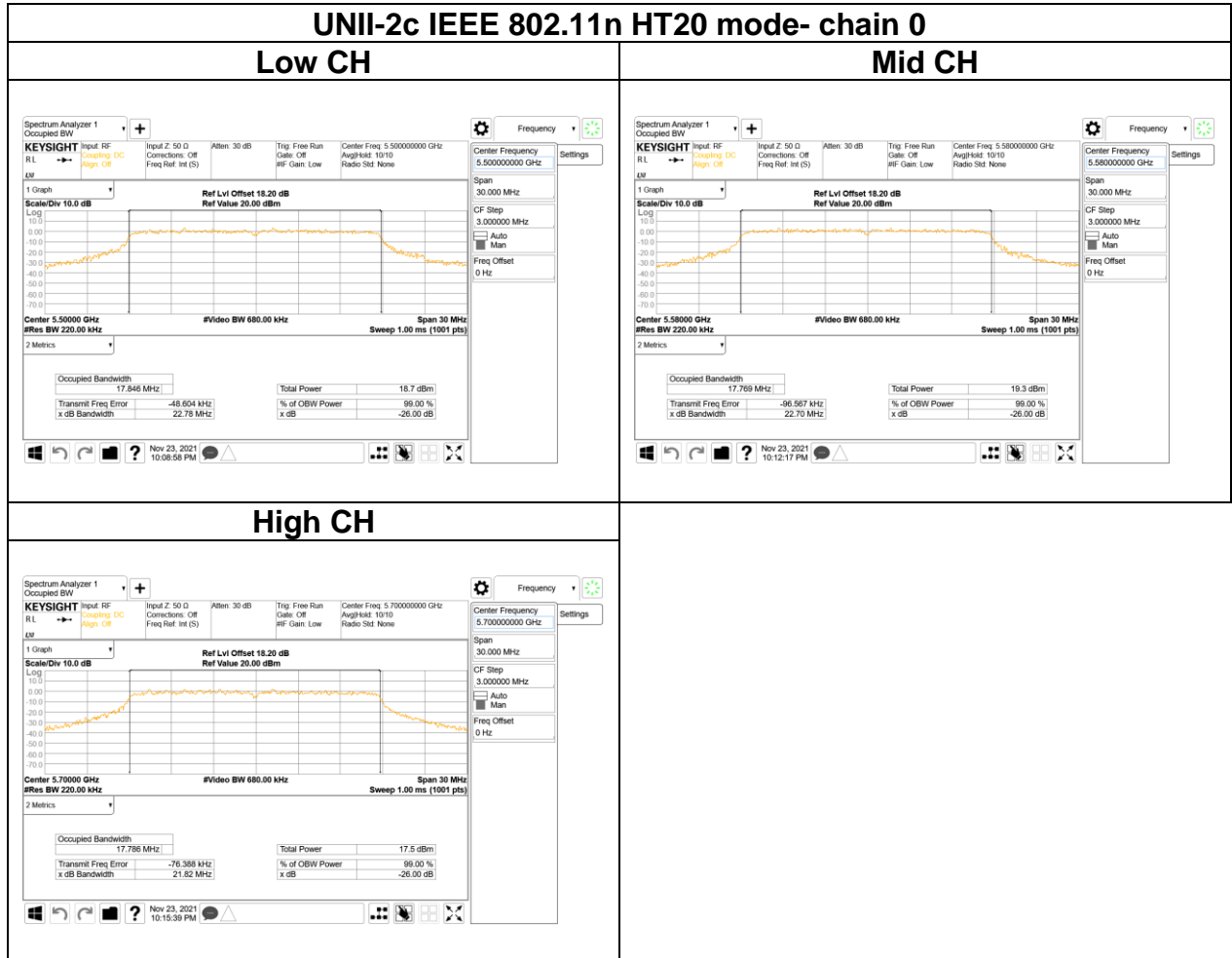


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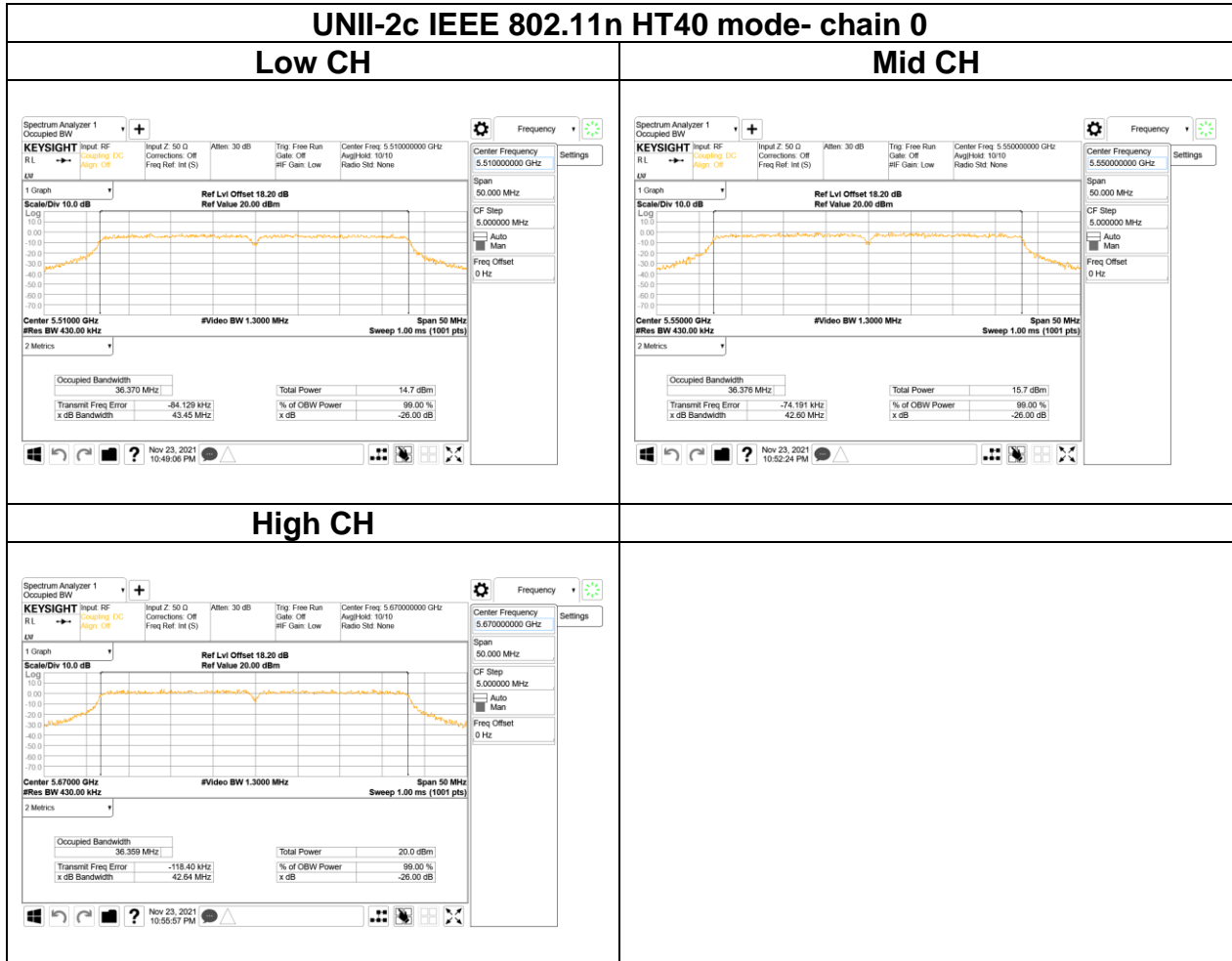
Test Plots (26dB BANDWIDTH)



Report No.: T210319W02-RP2



Report No.: T210319W02-RP2



Report No.: T210319W02-RP2

