

# RADIO TEST REPORT

## FCC 47 CFR PART 15 SUBPART E

### INDUSTRY CANADA RSS-247

<b>Test Standard</b>	<b>FCC Part 15.407+ RSS-247 issue 2 and RSS-GEN issue 5</b>
<b>Product name</b>	<b>Medical Computer</b>
<b>Brand Name</b>	<b>ADVANTECH</b>
<b>FCC Model No.</b>	<b>DMS-SA47, DMS-SA47XXXXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank)</b>
<b>IC Model No.</b>	<b>DMS-SA47</b>
<b>Test Result</b>	<b>Pass</b>
<b>Statements of Conformity</b>	<b>Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.</b>

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:

Shawn Wu  
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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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	February 8, 2023	Initial Issue	ALL	Allison Chen

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Report No.: T210113D03-RP4

## 1. GENERAL INFORMATION

### 1.1 EUT INFORMATION

<b>Applicant</b>	Advantech Co., Ltd. No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114 Taiwan
<b>Manufacturer</b>	Advantech Co., Ltd. No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114 Taiwan
<b>Equipment</b>	Medical Computer
<b>FCC Model No.</b>	DMS-SA47, DMS-SA47XXXXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank)
<b>IC Model No.</b>	DMS-SA47
<b>Model Discrepancy</b>	All the above models are identical except for the designation of model numbers. The suffix of (where "X" may be any alphanumeric character, "-" or blank) on model number is just for marketing purpose only.
<b>Trade Name</b>	ADVANTECH
<b>Received Date</b>	January 13, 2021
<b>Date of Test</b>	April 15 ~ June 30, 2021
<b>Power Supply</b>	EUT Power from adapter. FSP / FSP065-DBCM1 Input: 100-240VAC, 2.0-1.0A, 50-60Hz Output: 19.0VDC, 3.43A, 65.0W
<b>HW Version</b>	A01
<b>SW Version</b>	A01
<b>EUT Serial #</b>	01
<b>Module</b>	Qualcomm / QCNFA364A

**Remark:**

1. For more details, refer to the User's manual of the EUT.
2. Disclaimer: Variant information between/among model numbers / trademarks is provided by the applicant, test results of this report are applicable to the sample EUT received of main test model name.
3. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

## 1.2 EUT CHANNEL INFORMATION

Frequency Range	<b>UNII-1</b>	
	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 80	5210 MHz
	<b>UNII-2a</b>	
	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 80	5290 MHz
	<b>UNII-2c</b>	
	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 80	5530, 5610 MHz
	<b>UNII-3</b>	
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 80	5775 MHz	
Modulation Type	<ol style="list-style-type: none"> <li>1. IEEE 802.11a mode: OFDM</li> <li>2. IEEE 802.11n HT 20 mode: OFDM</li> <li>3. IEEE 802.11n HT 40 mode: OFDM</li> <li>4. IEEE 802.11ac VHT 80 mode: OFDM</li> </ol>	

**Remark:**

1. Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 for test channels.
2. For Canada the EUT Frequency Range 5600~5650MHz will be disabled.
3. MIMO mode covered SISO mode due to MIMO mode with the power equal or higher than SISO modes as worst-case scenario.

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

<b>Antenna Type</b>	<input checked="" type="checkbox"/> PIFA <input type="checkbox"/> PCB <input type="checkbox"/> Dipole <input type="checkbox"/> Coils			
<b>Antenna Gain</b>	WIFI 5GHz	Chain 0 (dBi)	Chain 1 (dBi)	Directional Gain (dBi)
	UNII-1	2.48	2.34	5.42
	UNII-2a	2.48	2.48	5.49
	UNII-2c	3.46	2.61	6.06
	UNII-3	3.96	3.14	6.57
<b>Antenna Connector</b>	IPEX			

**Notes:**

1. Power Directional Gain =  $10 \cdot \log \{ [ 10^{(Ant1/20)} + 10^{(Ant2/20)} + \dots + 10^{(Ant N /20)} ]^2 / N \text{ ANT} \}$  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 / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

**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.

## 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.

No. 12, Ln. 116, Wugong 3rd Rd., Wugu Dist., New Taipei City, Taiwan.

CAB identifier: TW1309

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

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

## 1.6 INSTRUMENT CALIBRATION

3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal Due
Bilog Antenna	Sunol Sciences	JB3	A030105	07/24/2020	07/23/2021
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/24/2021	02/23/2022
Coaxial Cable	EMCI	EMC105	190914+327109/4	09/19/2020	09/18/2021
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/06/2021	01/05/2022
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	09/30/2020	09/29/2021
High Pass Filters	MICRO TRONICS	HPM13195	003	02/08/2021	02/07/2022
Horn Antenna	ETS LINDGREN	3116	00026370	12/11/2020	12/10/2021
Loop Ant	COM-POWER	AL-130	121051	04/07/2021	04/06/2022
Pre-Amplifier	EMEC	EM330	060609	02/24/2021	02/23/2022
Pre-Amplifier	HP	8449B	3008A00965	02/25/2021	02/24/2022
Pre-Amplifier	MITEQ	AMF-6F-18004000-37-8P	985646	09/02/2020	09/01/2021
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	07/24/2020	07/23/2021
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.

AC Power Line Conducted Emission Test Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
CABLE	EMCI	CFD300-NL	CERF	06/29/2020	06/28/2021
EMI Test Receiver	R&S	ESCI	100064	07/17/2020	07/16/2021
LISN	SCHAFFNER	NNB 41	03/10013	02/02/2021	02/01/2022
Software	EZ-EMC(CCS-3A1-CE-WUGU)				

RF Conducted Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2020	09/06/2021
Coaxial Cable	Woken	WC12	CC003	06/29/2020	06/28/2021
Coaxial Cable	Woken	WC12	CC003	06/28/2021	06/27/2022
Coaxial Cable	Woken	WC12	CC001	06/29/2020	06/28/2021
Coaxial Cable	Woken	WC12	CC001	06/28/2021	06/27/2022
Power Meter	Anritsu	ML2495A	1149001	05/24/2021	05/23/2022
Power Seneor	Anritsu	MA2491A	030982	05/24/2021	05/23/2022
Software	Radio Test Software				

**Remark:**

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



## 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
	N/A				

## 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, KDB 905462 D02, RSS-247 Issue 2 and RSS-GEN Issue 5.

## 2. TEST SUMMARY

FCC Standard Sec.	IC Standard Sec.	Chapter	Test Item	Result
15.203	RSS-GEN 6.8	1.3	Antenna Requirement	Pass
15.207	RSS-Gen(8.8)	4.1	AC Conducted Emission	Pass
15.403(i)	-	4.2	26dB Bandwidth	Pass
15.407(e)	RSS-247(6.2.4)	4.2	6dB Bandwidth	Pass
15.403(i)	RSS-Gen (6.7)	4.2	Occupied Bandwidth (99%)	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.2.1) RSS-247(6.2.3.1) RSS-247(6.2.4.1)	4.3	Output Power Measurement	Pass
15.407(a)	RSS-247(6.2.1.1) RSS-247(6.2.2.1) RSS-247(6.2.3.1) RSS-247(6.2.4.1)	4.4	Power Spectral Density	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.2.2) RSS-247(6.2.3.2) RSS-247(6.2.4.2)	4.5	Radiation Band Edge	Pass
15.407(b)	RSS-247(6.2.1.2) RSS-247(6.2.2.2) RSS-247(6.2.3.2) RSS-247(6.2.4.2)	4.5	Radiation Spurious Emission	Pass

### 3. DESCRIPTION OF TEST MODES

#### 3.1 THE EUT CHANNEL NUMBER OF OPERATING CONDITION

<p>Operation mode</p>	<p>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 80 mode: MCS0</p>																																					
<p>Operating Frequency</p>		<table border="1"> <thead> <tr> <th data-bbox="724 788 1054 831">Mode</th> <th data-bbox="1054 788 1401 831">Frequency Range (MHz)</th> </tr> </thead> <tbody> <tr> <td data-bbox="724 831 1054 862">IEEE 802.11a</td> <td data-bbox="1054 831 1401 862">5180, 5220, 5240</td> </tr> <tr> <td data-bbox="724 862 1054 893">IEEE 802.11n HT 20</td> <td data-bbox="1054 862 1401 893">5180, 5220, 5240</td> </tr> <tr> <td data-bbox="724 893 1054 925">IEEE 802.11n HT 40</td> <td data-bbox="1054 893 1401 925">5190, 5230</td> </tr> <tr> <td data-bbox="724 925 1054 956">IEEE 802.11ac VHT 80</td> <td data-bbox="1054 925 1401 956">5210</td> </tr> <tr> <td data-bbox="724 956 1054 987">IEEE 802.11a</td> <td data-bbox="1054 956 1401 987">5260, 5300, 5320</td> </tr> <tr> <td data-bbox="724 987 1054 1019">IEEE 802.11n HT 20</td> <td data-bbox="1054 987 1401 1019">5260, 5300, 5320</td> </tr> <tr> <td data-bbox="724 1019 1054 1050">IEEE 802.11n HT 40</td> <td data-bbox="1054 1019 1401 1050">5270, 5310</td> </tr> <tr> <td data-bbox="724 1050 1054 1081">IEEE 802.11ac VHT 80</td> <td data-bbox="1054 1050 1401 1081">5290</td> </tr> <tr> <td data-bbox="724 1081 1054 1113">IEEE 802.11a</td> <td data-bbox="1054 1081 1401 1113">5500, 5580, 5700</td> </tr> <tr> <td data-bbox="724 1113 1054 1144">IEEE 802.11n HT 20</td> <td data-bbox="1054 1113 1401 1144">5500, 5580, 5700</td> </tr> <tr> <td data-bbox="724 1144 1054 1176">IEEE 802.11n HT 40</td> <td data-bbox="1054 1144 1401 1176">5510, 5550, 5670</td> </tr> <tr> <td data-bbox="724 1176 1054 1207">IEEE 802.11ac VHT 80</td> <td data-bbox="1054 1176 1401 1207">5530, 5610</td> </tr> <tr> <td data-bbox="724 1207 1054 1238">IEEE 802.11a</td> <td data-bbox="1054 1207 1401 1238">5745, 5785, 5825</td> </tr> <tr> <td data-bbox="724 1238 1054 1270">IEEE 802.11n HT 20</td> <td data-bbox="1054 1238 1401 1270">5745, 5785, 5825</td> </tr> <tr> <td data-bbox="724 1270 1054 1301">IEEE 802.11n HT 40</td> <td data-bbox="1054 1270 1401 1301">5755, 5795</td> </tr> <tr> <td data-bbox="724 1301 1054 1332">IEEE 802.11ac VHT 80</td> <td data-bbox="1054 1301 1401 1332">5775</td> </tr> </tbody> </table>	Mode	Frequency Range (MHz)	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 802.11a	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 802.11a	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, 5610	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		
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Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2. For Canada the EUT Frequency Range 5600~5650MHz will be disabled.
3. MIMO mode covered SISO mode due to MIMO mode with the power equal or higher than SISO modes as worst-case scenario.

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### 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 Adapter
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 worse case.

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by adapter. (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 adapter. (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

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## 3.3 EUT DUTY CYCLE

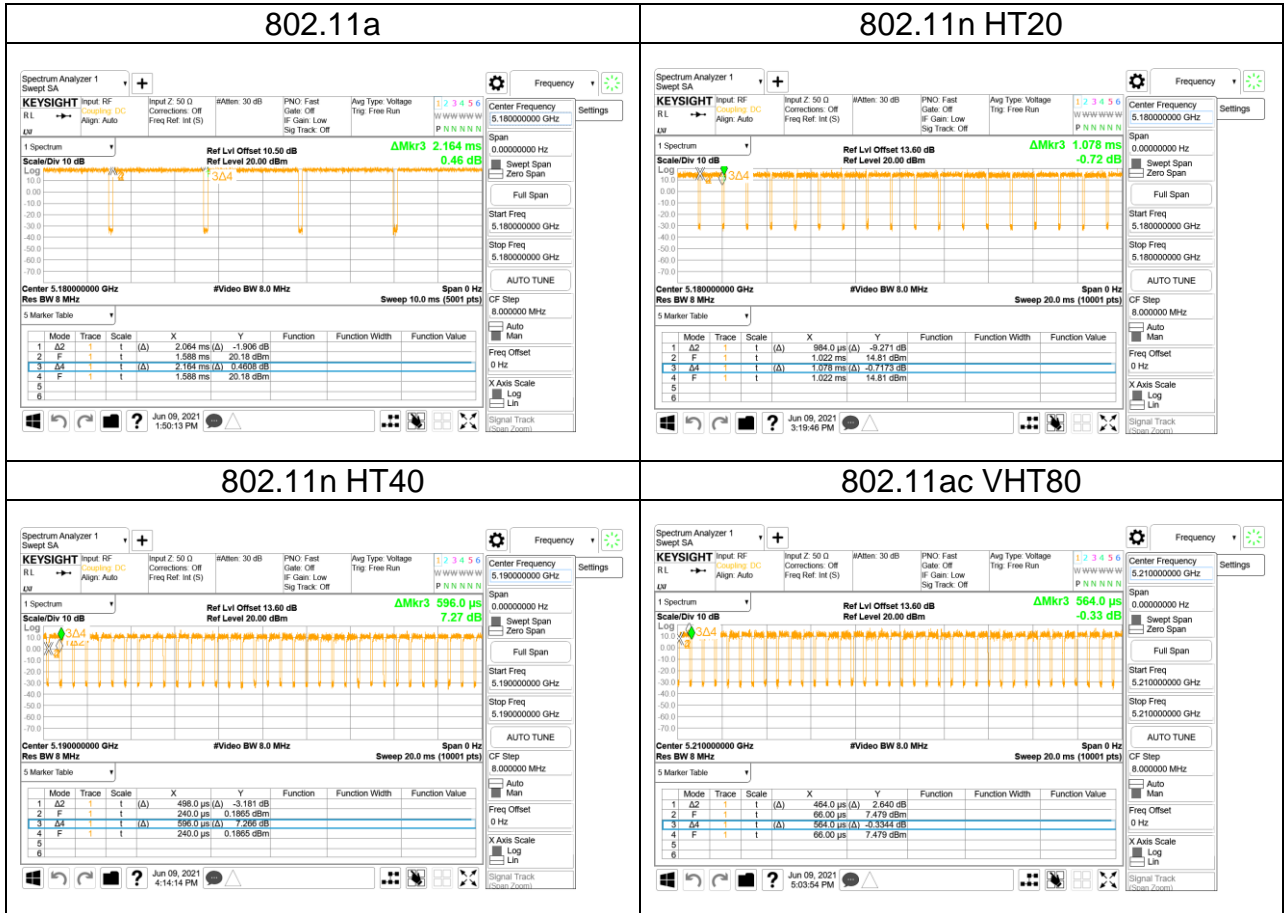
Temperature: 25.8°C

Tested by: Jack Chen

Humidity: 46.3% RH

Test date: June 9, 2021

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	95.00	0.22	0.48	1.00
802.11n HT20	91.00	0.41	1.02	2.00
802.11n HT40	84.00	0.76	2.01	3.00
802.11ac VHT80	82.00	0.86	2.16	3.00



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## 4. TEST RESULT

### 4.1 AC POWER LINE CONDUCTED EMISSION

#### 4.1.1 Test Limit

According to §15.207(a) and RSS-GEN section 8.8,

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

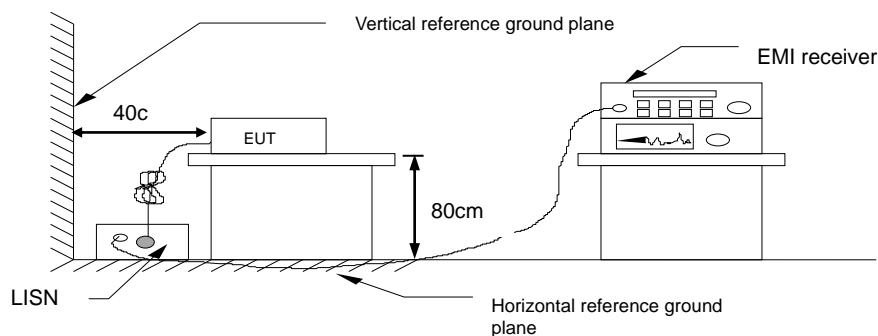
\* Decreases with the logarithm of the frequency.

#### 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

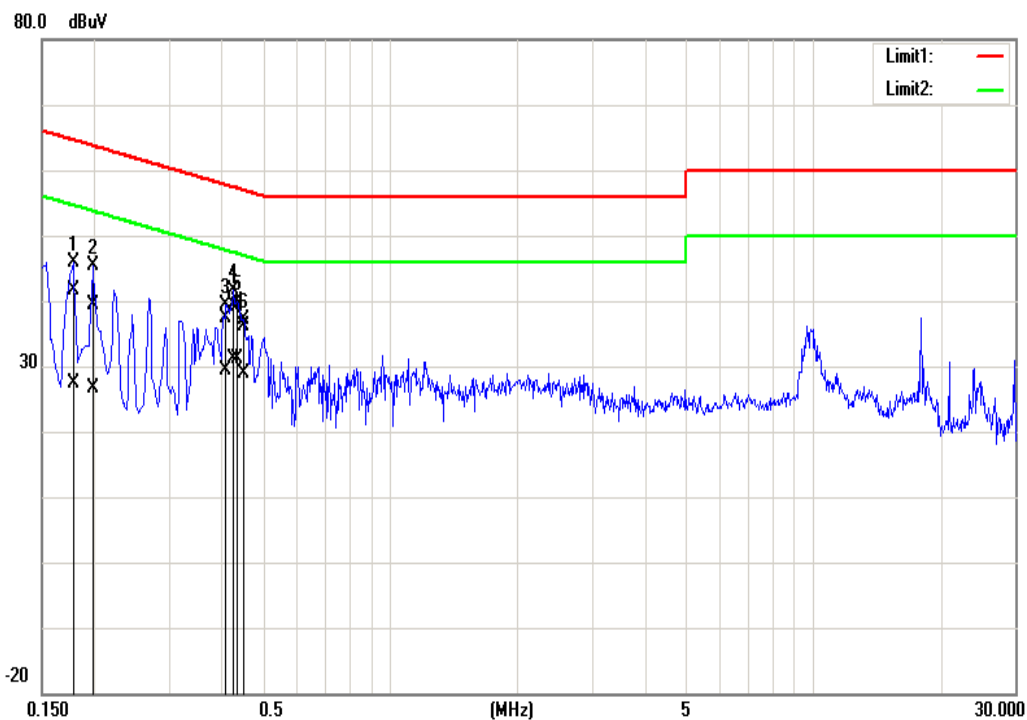


#### 4.1.4 Test Result

**PASS**

## Test Data

Test Mode:	Mode 1	Temp/Hum	24.9(°C)/ 46.7%RH
Phase:	Line	Test Date	June 11, 2021
		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
0.1780	31.29	16.98	10.29	41.58	27.27	64.58	54.58	-23.00	-27.31	Pass
0.1980	29.10	16.34	10.29	39.39	26.63	63.69	53.69	-24.30	-27.06	Pass
0.4100	27.18	19.12	10.29	37.47	29.41	57.65	47.65	-20.18	-18.24	Pass
0.4260	29.13	20.96	10.29	39.42	31.25	57.33	47.33	-17.91	-16.08	Pass
0.4340	28.92	20.91	10.29	39.21	31.20	57.18	47.18	-17.97	-15.98	Pass
0.4500	25.85	18.66	10.29	36.14	28.95	56.88	46.88	-20.74	-17.93	Pass

Note: Correction factor = LISN loss + Cable loss.

Test Mode:	Mode 1	Temp/Hum	24.9(°C)/ 46.7%RH
Phase:	Neutral	Test Date	June 11, 2021
		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
0.1620	33.83	18.00	10.29	44.12	28.29	65.36	55.36	-21.24	-27.07	Pass
0.1860	30.79	21.94	10.29	41.08	32.23	64.21	54.21	-23.13	-21.98	Pass
0.4060	30.46	23.53	10.29	40.75	33.82	57.73	47.73	-16.98	-13.91	Pass
0.4220	29.44	21.94	10.29	39.73	32.23	57.41	47.41	-17.68	-15.18	Pass
0.4340	29.30	21.24	10.29	39.59	31.53	57.18	47.18	-17.59	-15.65	Pass
0.4460	27.71	20.23	10.29	38.00	30.52	56.95	46.95	-18.95	-16.43	Pass

Note: Correction factor = LISN loss + Cable loss.



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## 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. Detector = 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%.

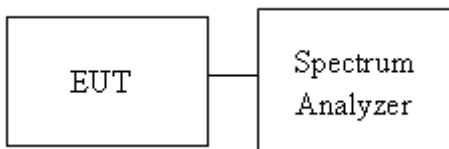
#### 6dB

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. Detector = 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  $\geq 3 \times$ RBW

### 4.2.3 Test Setup



### 4.2.4 Test Result

**Temperature:** 25.8°C                      **Tested by:** Jack Chen  
**Humidity:** 46.3% RH                      **Test date:** June 9, 2021

<b>UNII-1 5150-5250 MHz</b>					
<b>Test mode: IEEE 802.11a mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5180	16.313	-	20.82	-
Mid	5220	16.304	-	21.37	-
High	5240	16.295	-	20.81	-
<b>Test mode: IEEE 802.11n HT20 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5180	17.420	17.400	19.53	19.44
Mid	5220	17.416	17.399	19.14	19.40
High	5240	17.391	17.390	19.65	19.45
<b>Test mode: IEEE 802.11n HT40 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5190	35.814	35.731	39.52	39.60
High	5230	35.825	35.795	39.16	39.98
<b>Test mode: IEEE 802.11ac VHT80 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Mid	5210	75.033	74.847	82.46	82.62

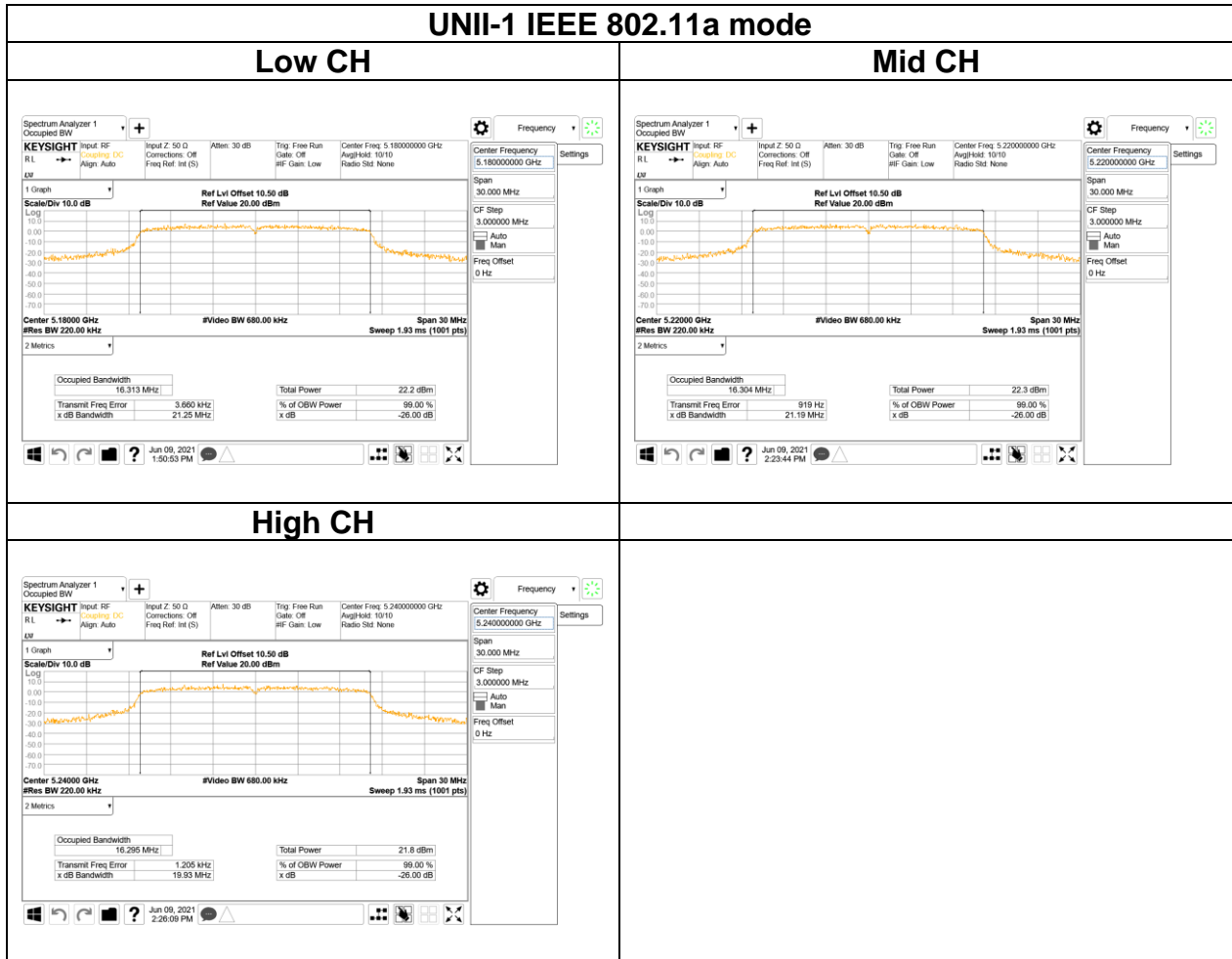
<b>UNII-2a 5250-5350 MHz</b>					
<b>Test mode: IEEE 802.11a mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5260	16.285	-	20.27	-
Mid	5300	16.319	-	21.42	-
High	5320	16.309	-	21.15	-
<b>Test mode: IEEE 802.11n HT20 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5260	17.406	17.402	19.68	19.40
Mid	5300	17.403	17.388	19.41	19.63
High	5320	17.370	17.396	19.45	19.57
<b>Test mode: IEEE 802.11n HT40 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5270	35.843	35.742	39.49	39.81
High	5310	35.790	35.751	39.49	40.22
<b>Test mode: IEEE 802.11ac VHT80 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Mid	5290	75.061	74.952	83.86	82.24

<b>UNII-2c 5475-5725 MHz</b>					
<b>Test mode: IEEE 802.11a mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5500	16.354	-	21.65	-
Mid	5580	16.354	-	25.17	-
High	5700	16.371	-	22.15	-
<b>Test mode: IEEE 802.11n HT20 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5500	17.381	17.402	19.31	19.76
Mid	5580	17.439	17.388	19.25	19.76
High	5700	17.418	17.396	19.66	19.58
<b>Test mode: IEEE 802.11n HT40 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5510	35.851	35.719	39.27	40.13
Mid	5550	35.809	35.826	39.24	39.97
High	5670	35.781	35.731	39.39	40.14
<b>Test mode: IEEE 802.11ac VHT80 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 26dB BW (MHz)</b>	<b>Chain 1 26dB BW (MHz)</b>
Low	5530	75.041	75.063	83.79	80.34
High	5610	75.108	74.967	82.41	80.94

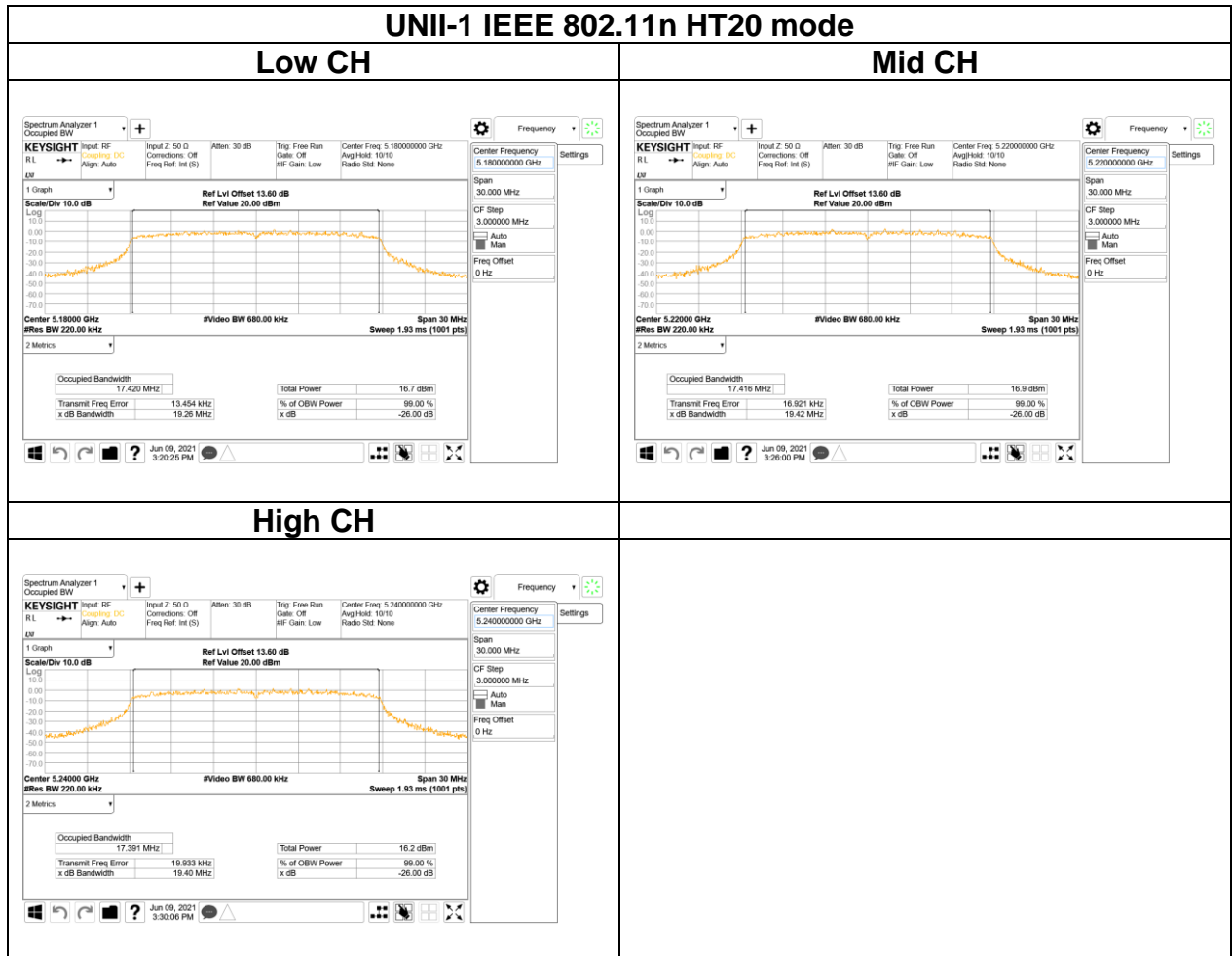
<b>UNII-3 5725-5825MHz</b>					
<b>Test mode: IEEE 802.11a mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 6dB BW (MHz)</b>	<b>Chain 1 6dB BW (MHz)</b>
Low	5745	16.448	-	14.48	-
Mid	5785	16.429	-	13.83	-
High	5825	16.388	-	14.48	-
<b>Test mode: IEEE 802.11n HT20 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 6dB BW (MHz)</b>	<b>Chain 1 6dB BW (MHz)</b>
Low	5745	17.397	17.422	15.73	15.68
Mid	5785	17.415	17.425	14.43	15.15
High	5825	17.407	17.393	14.51	14.16
<b>Test mode: IEEE 802.11n HT40 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 6dB BW (MHz)</b>	<b>Chain 1 6dB BW (MHz)</b>
Low	5755	35.858	35.800	32.64	33.80
High	5795	35.828	35.749	35.05	32.70
<b>Test mode: IEEE 802.11ac VHT80 mode</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 OBW(99%) (MHz)</b>	<b>Chain 1 OBW(99%) (MHz)</b>	<b>Chain 0 6dB BW (MHz)</b>	<b>Chain 1 6dB BW (MHz)</b>
Mid	5775	74.964	75.031	72.67	73.98

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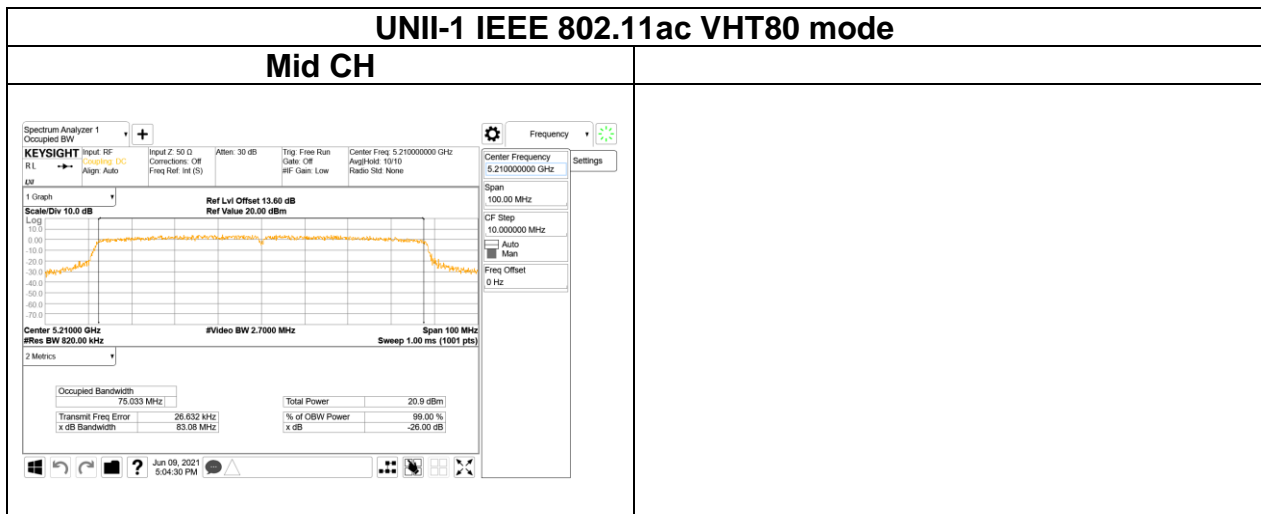
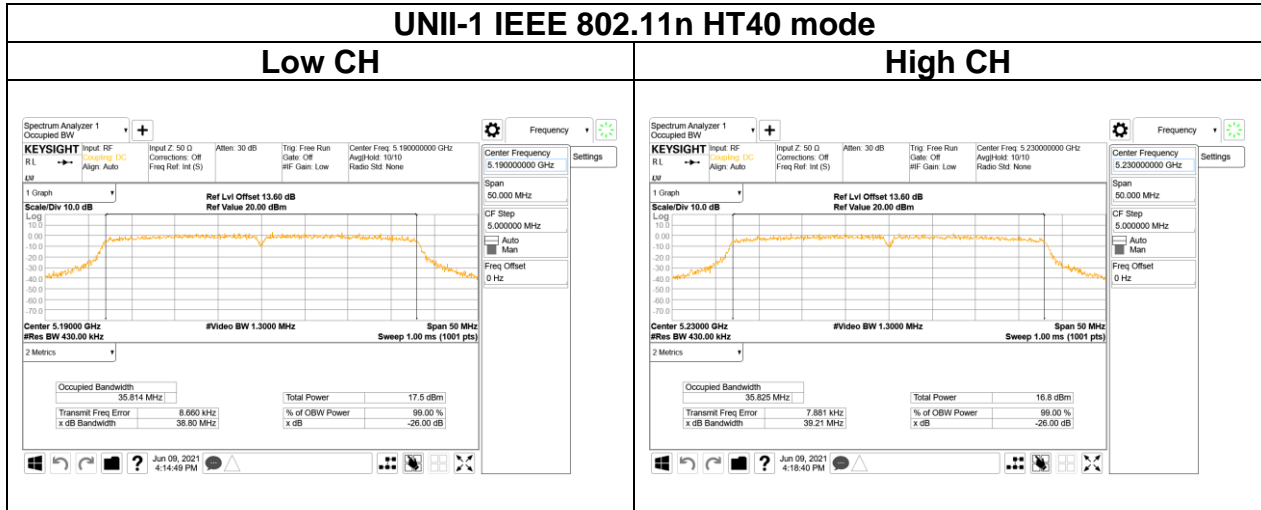
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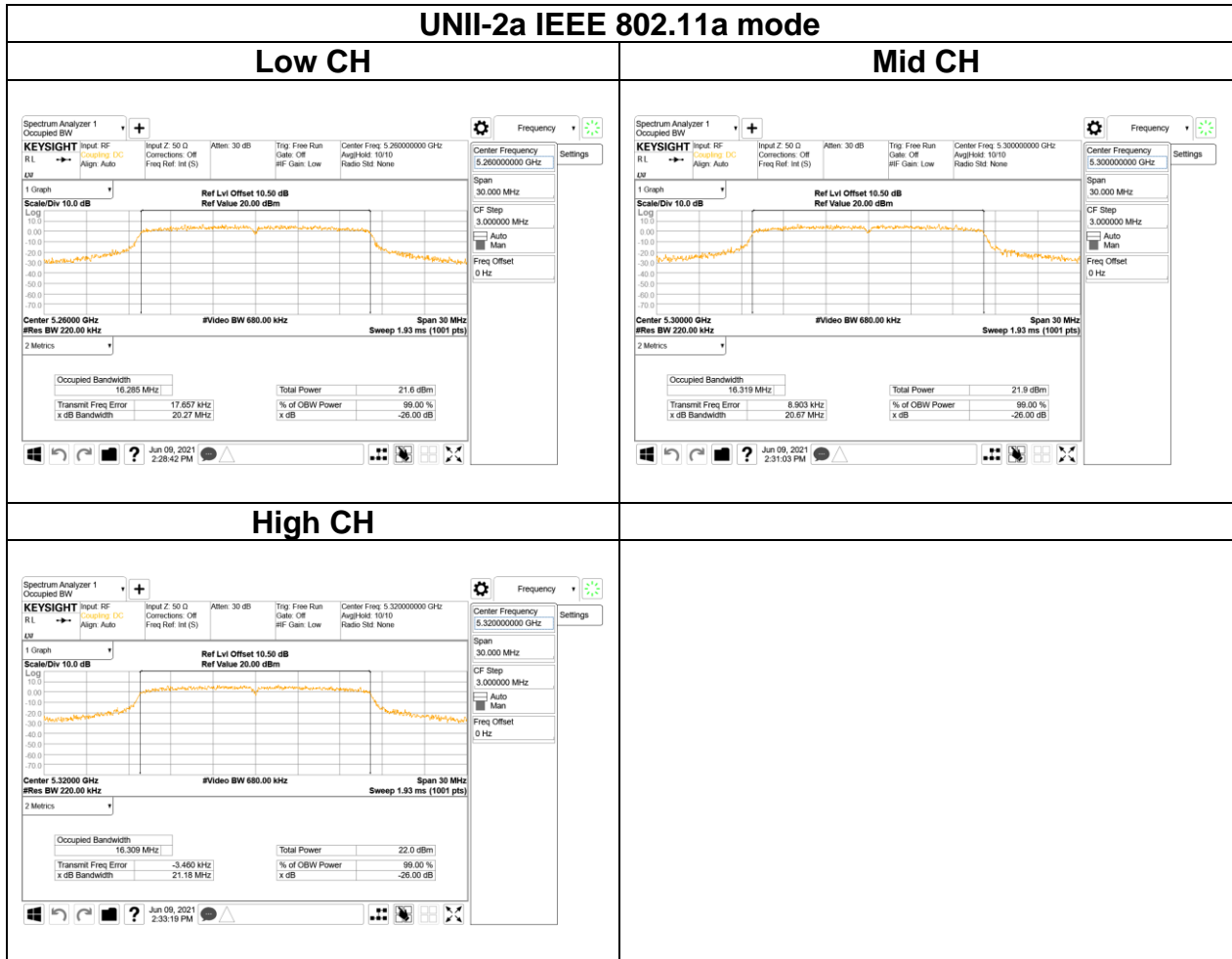


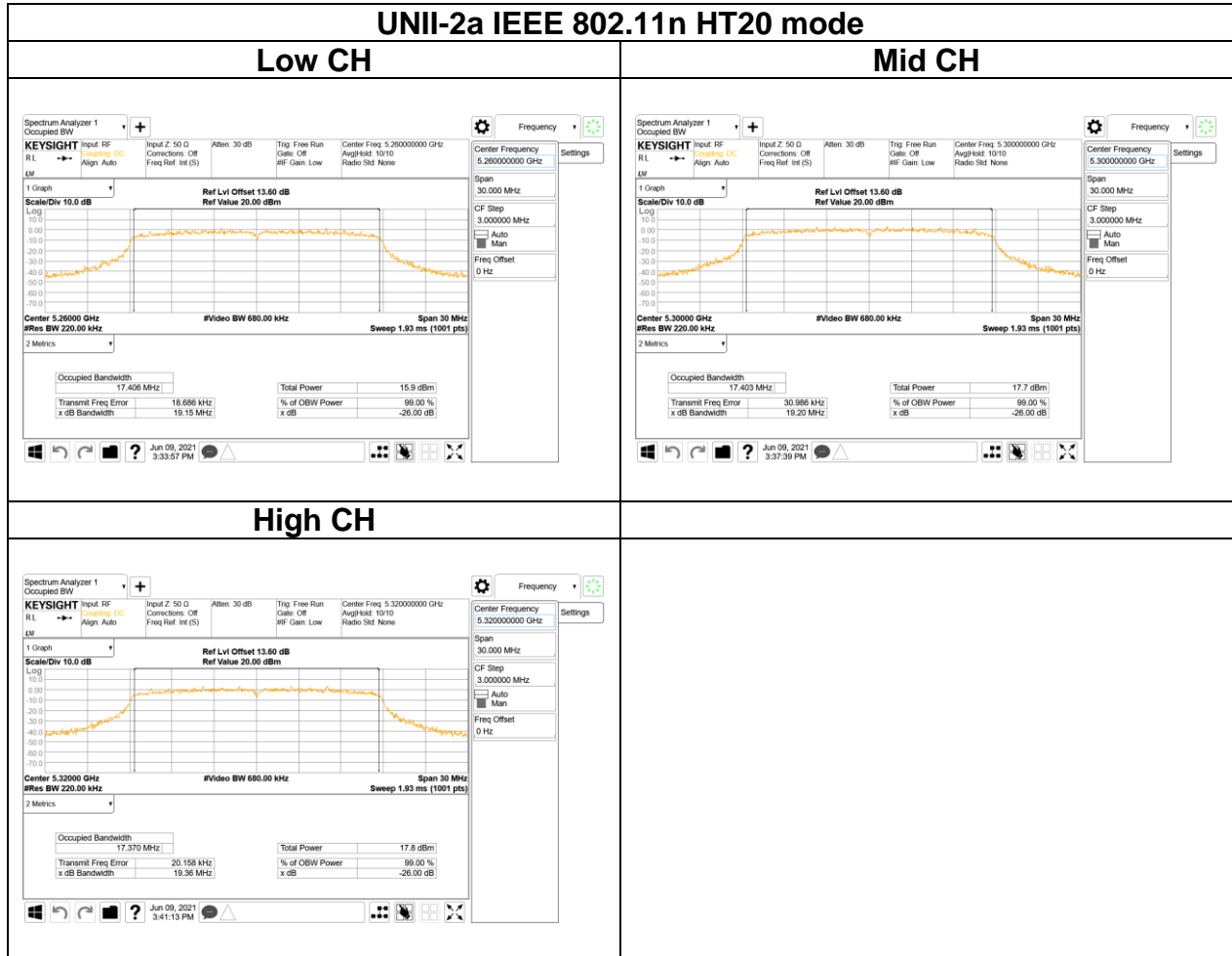




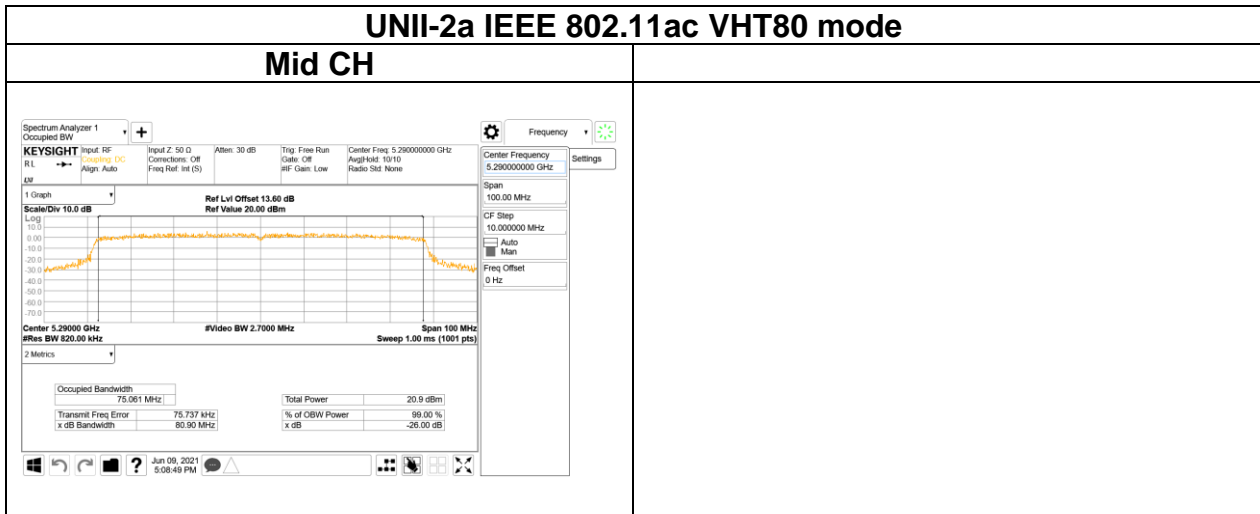
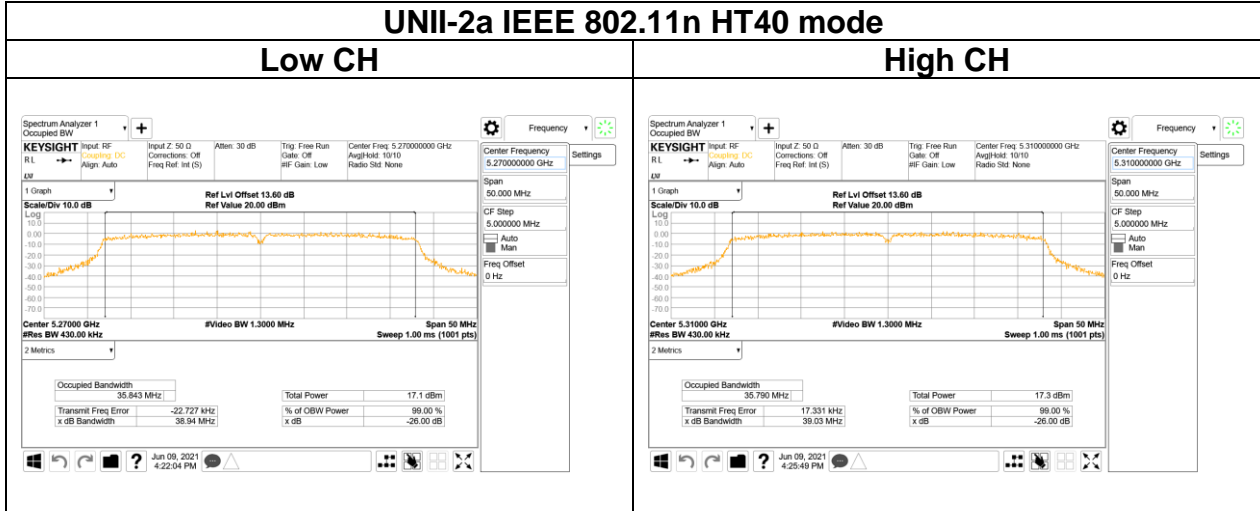
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## Test Data (99% OBW) Chain 0



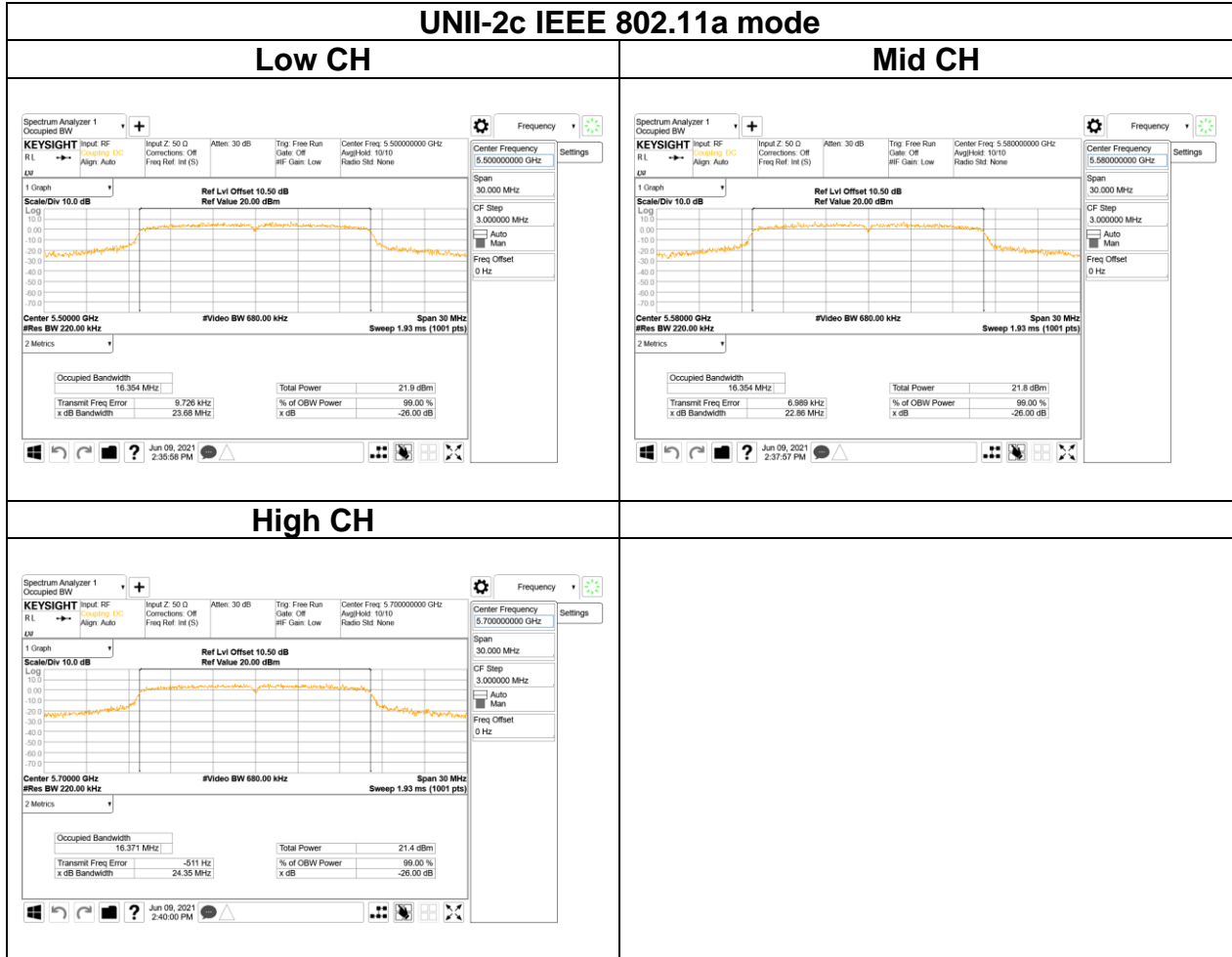


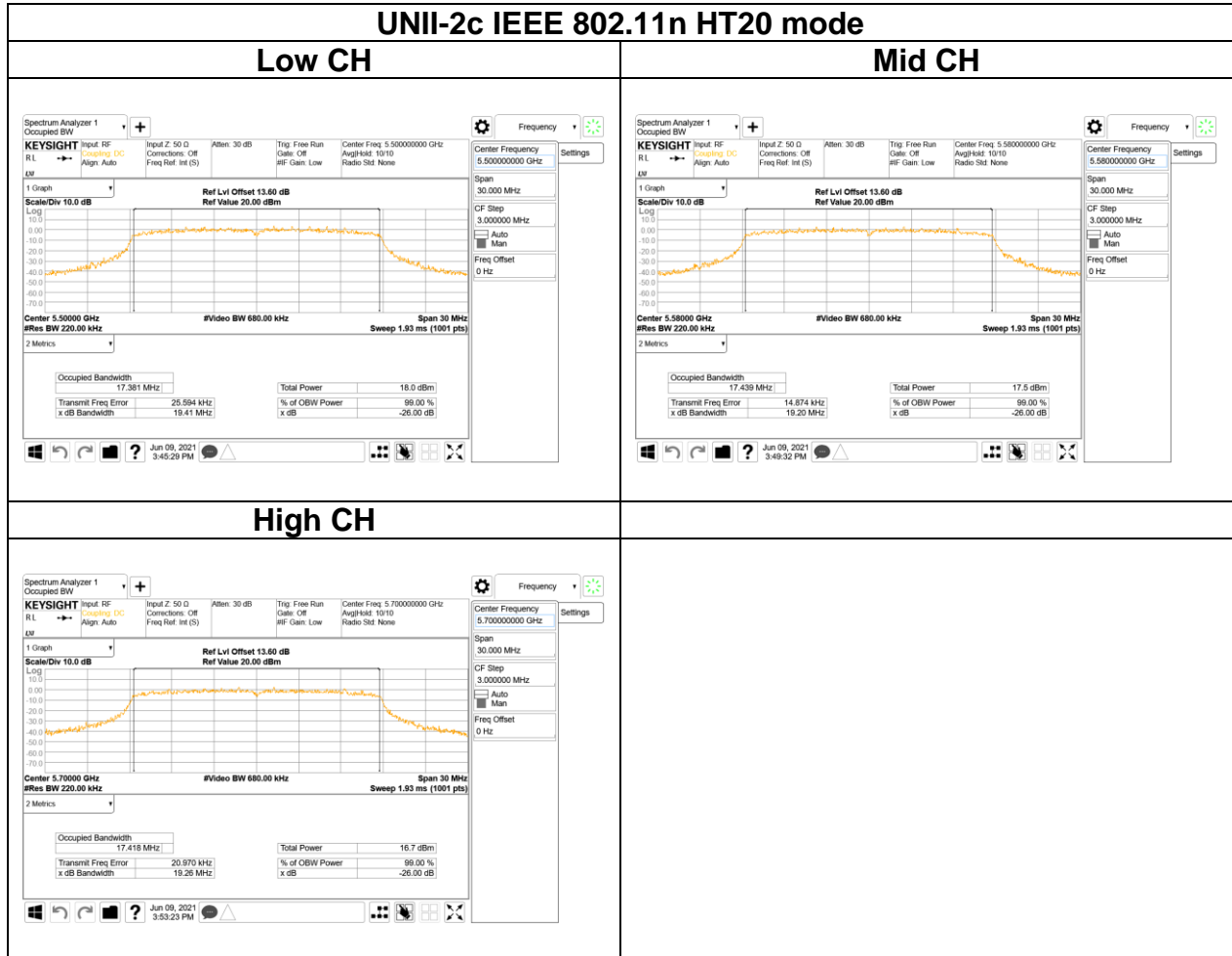
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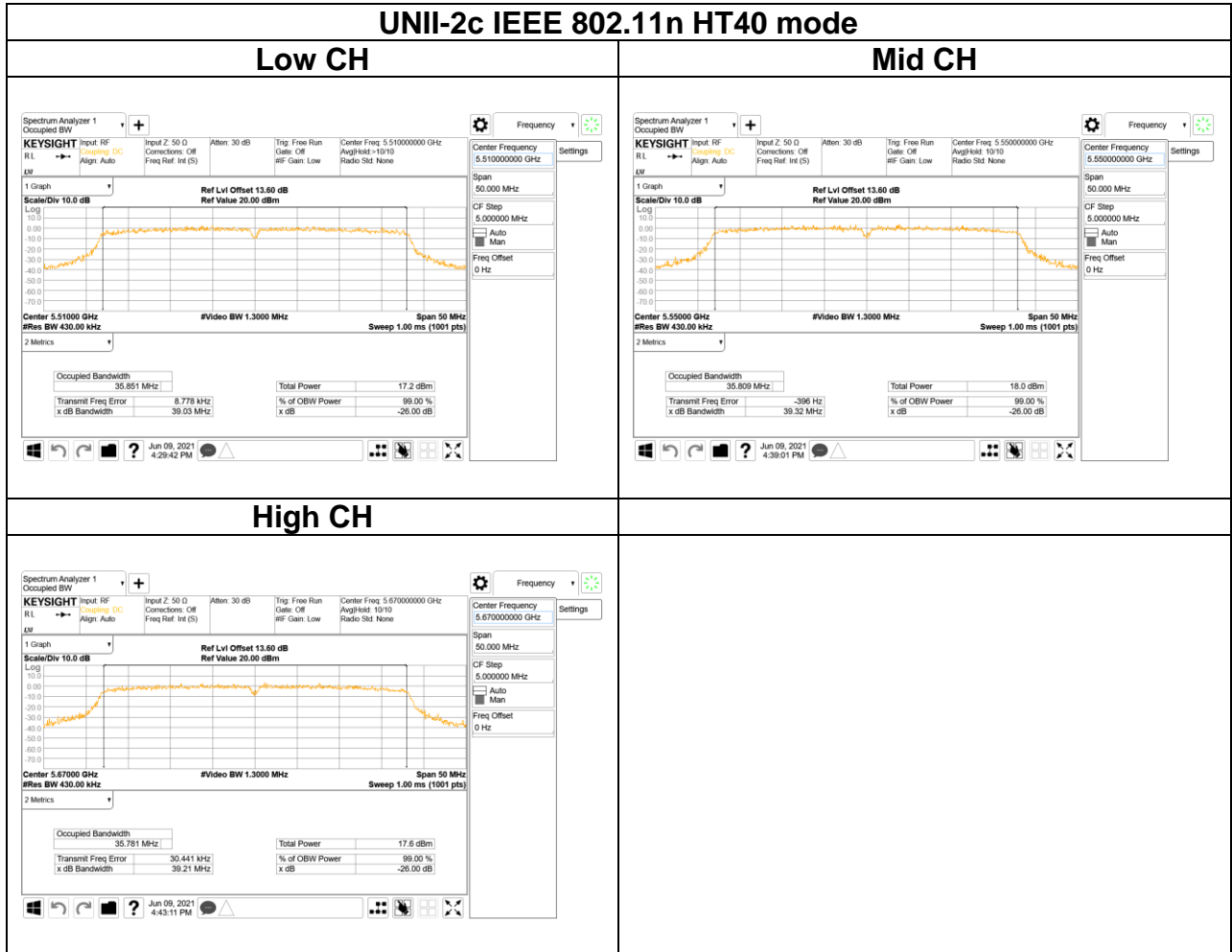


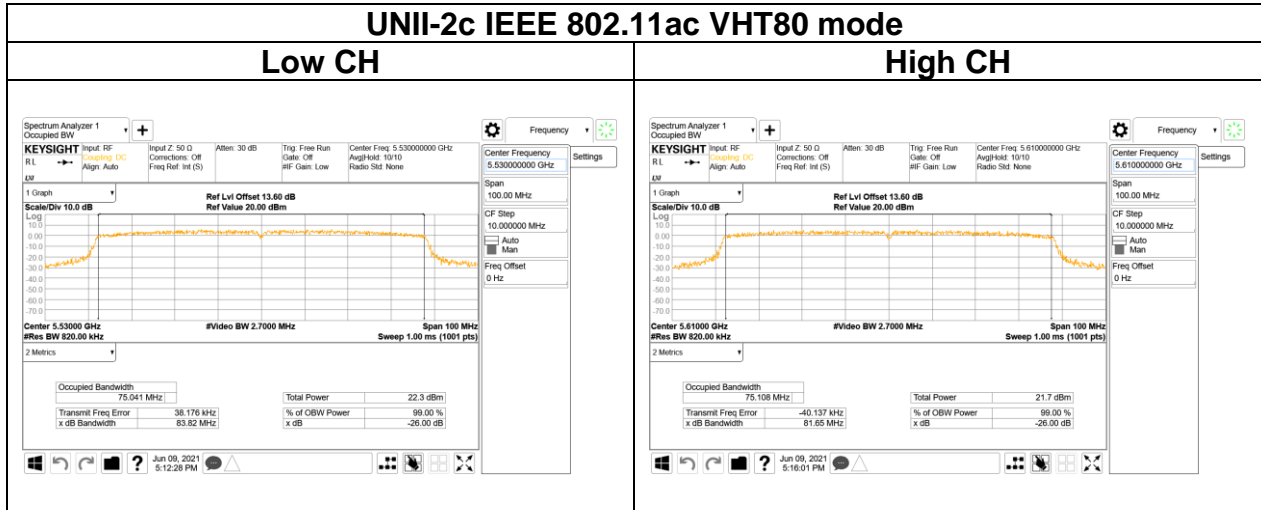
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## Test Data (99% OBW) Chain 0





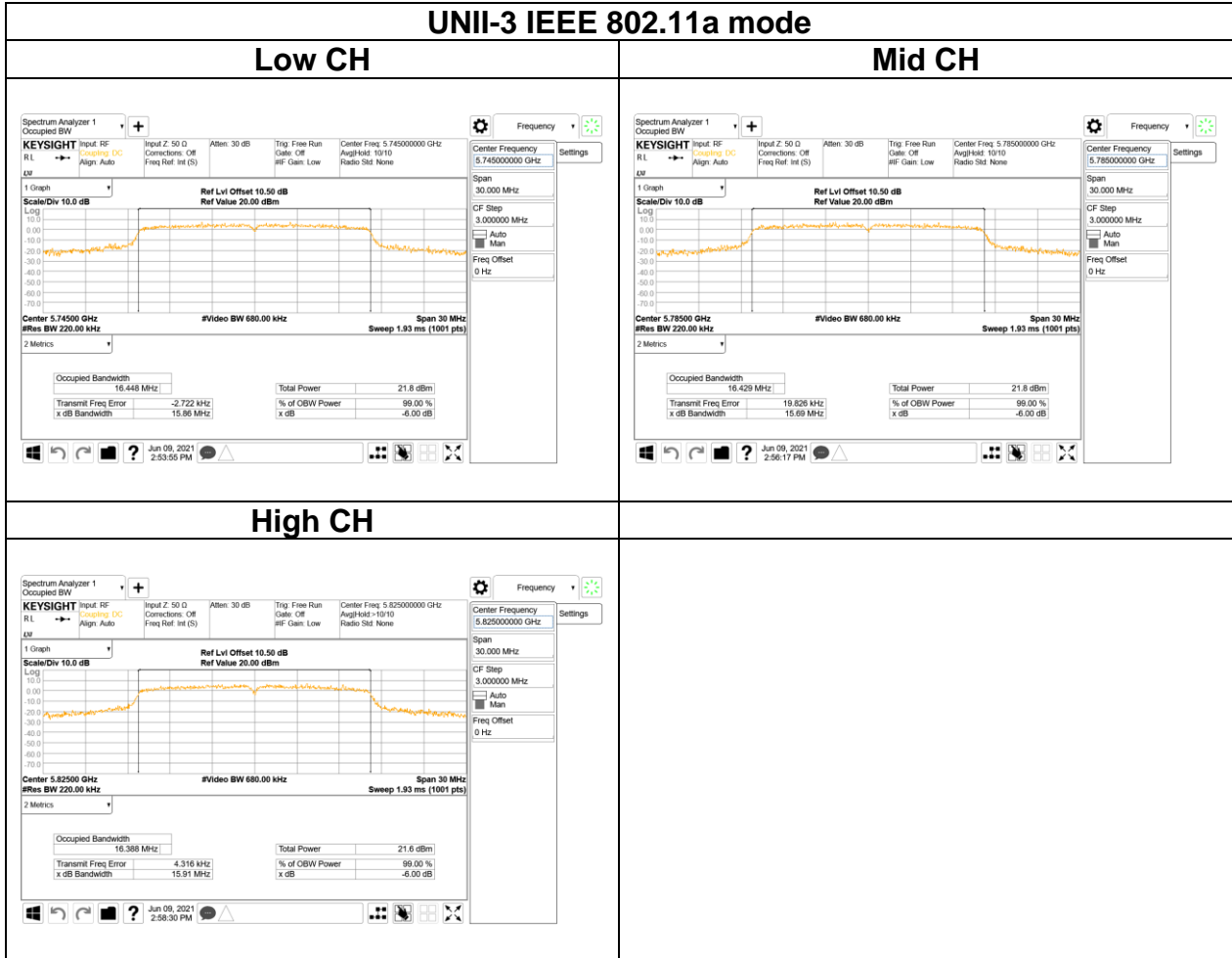




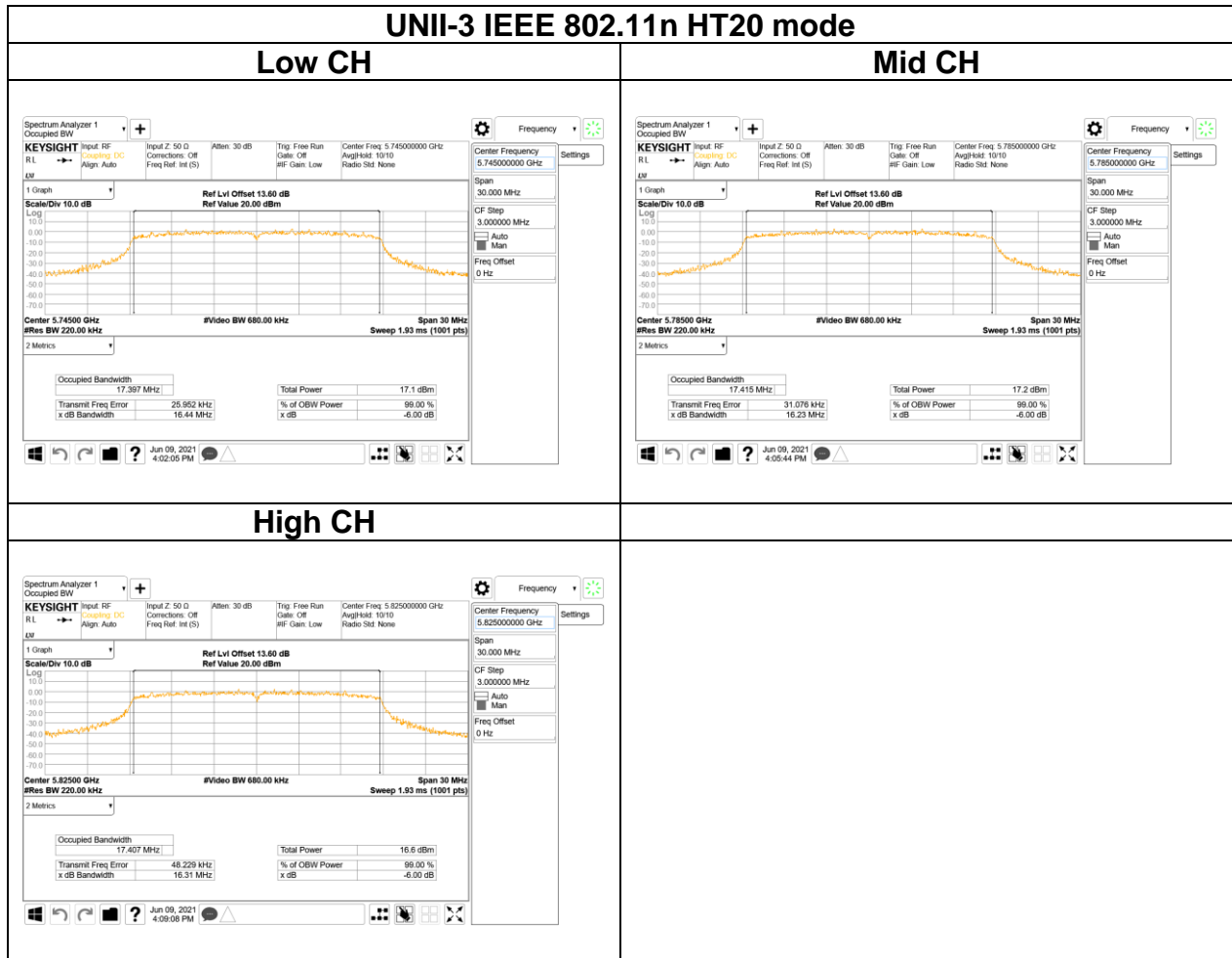


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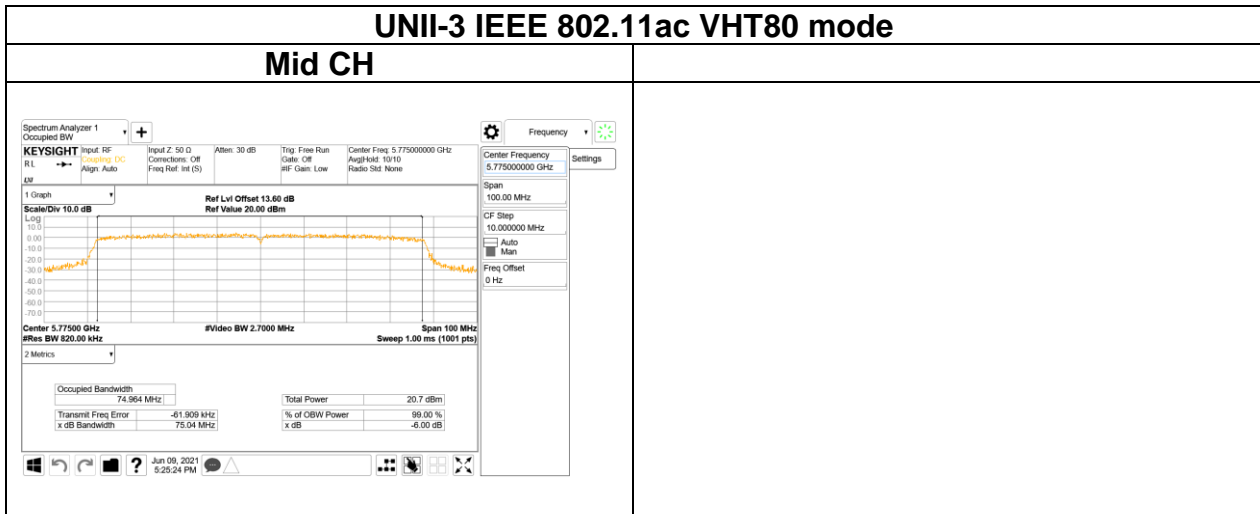
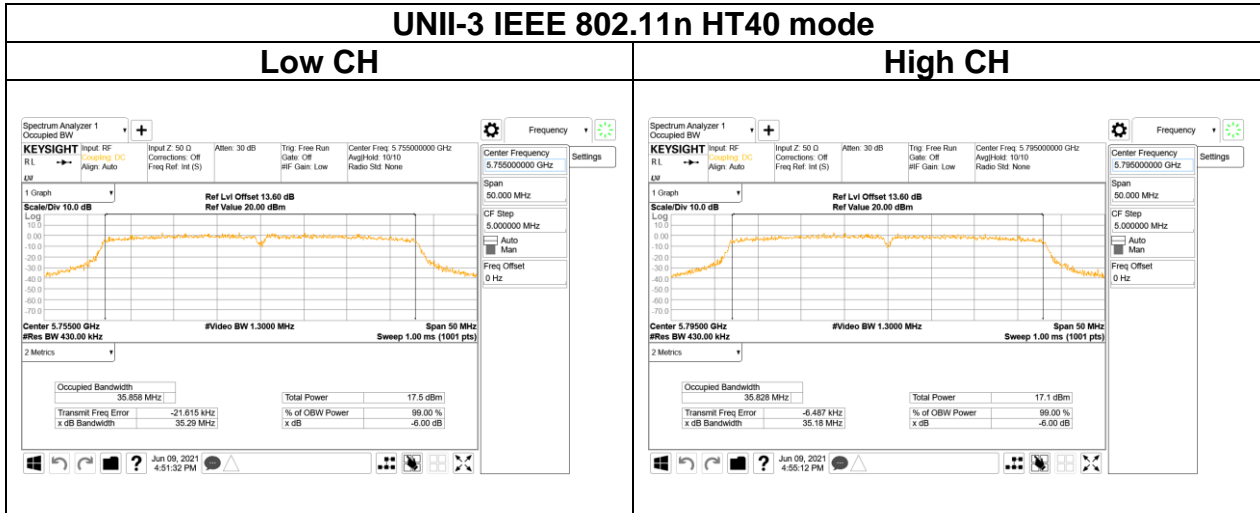
## Test Data (99% OBW) Chain 0



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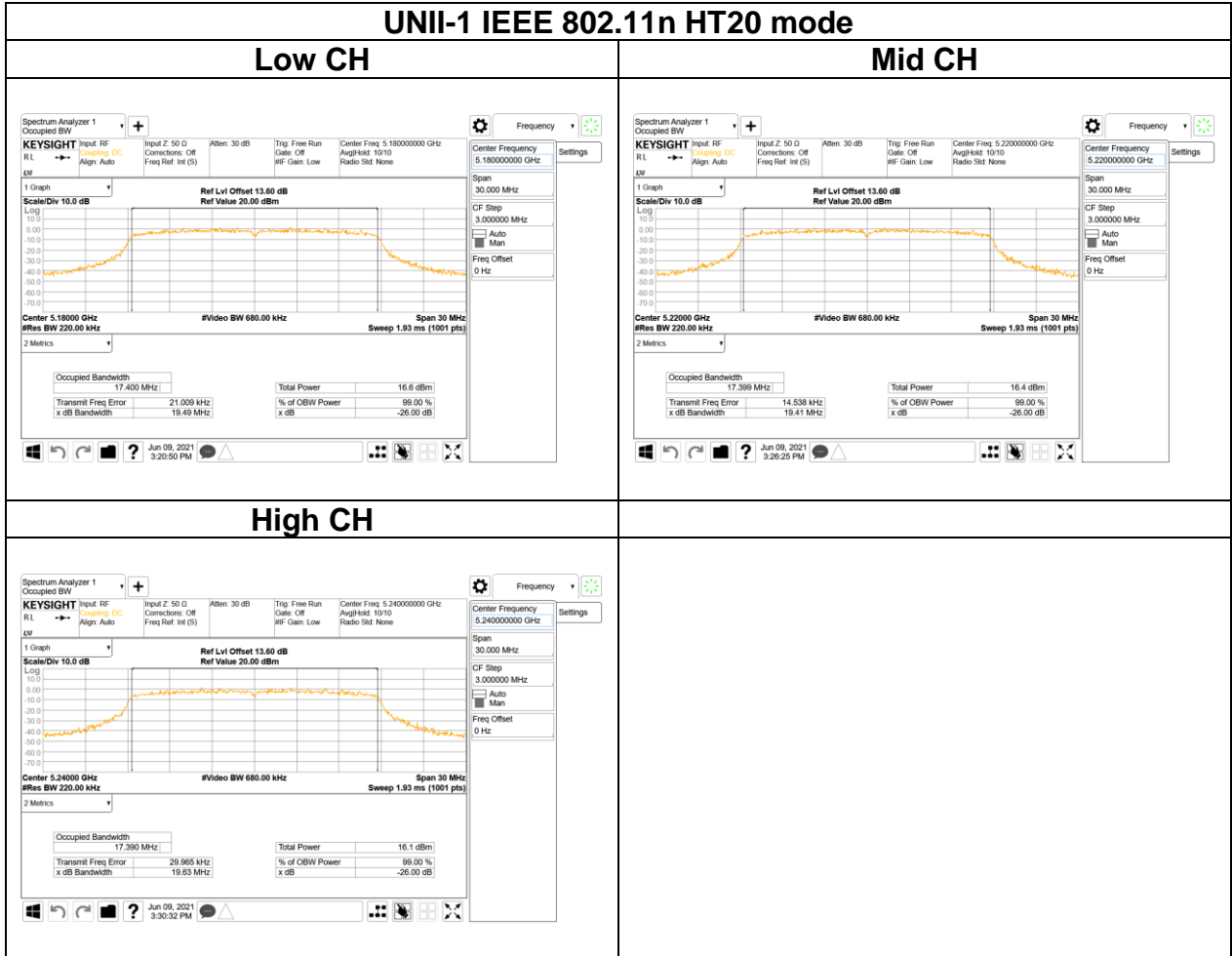


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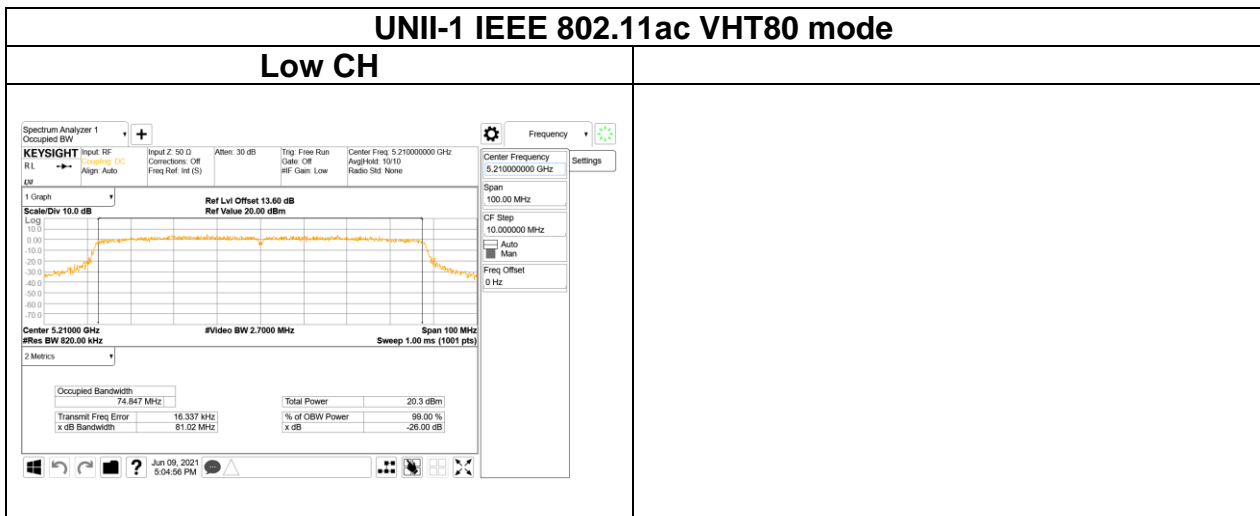
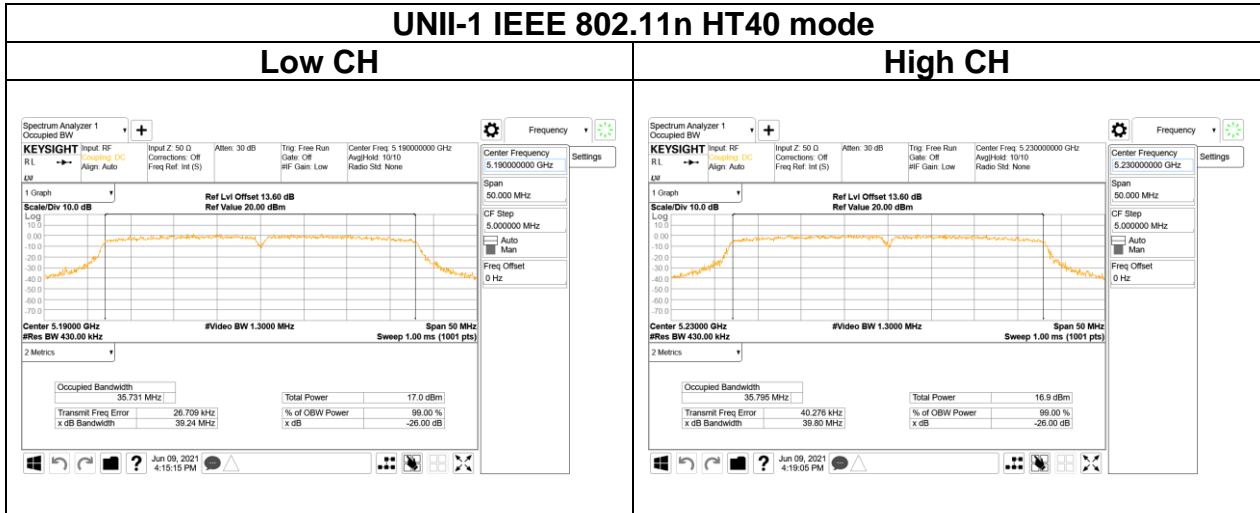


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## Test Data (99% OBW) Chain 1

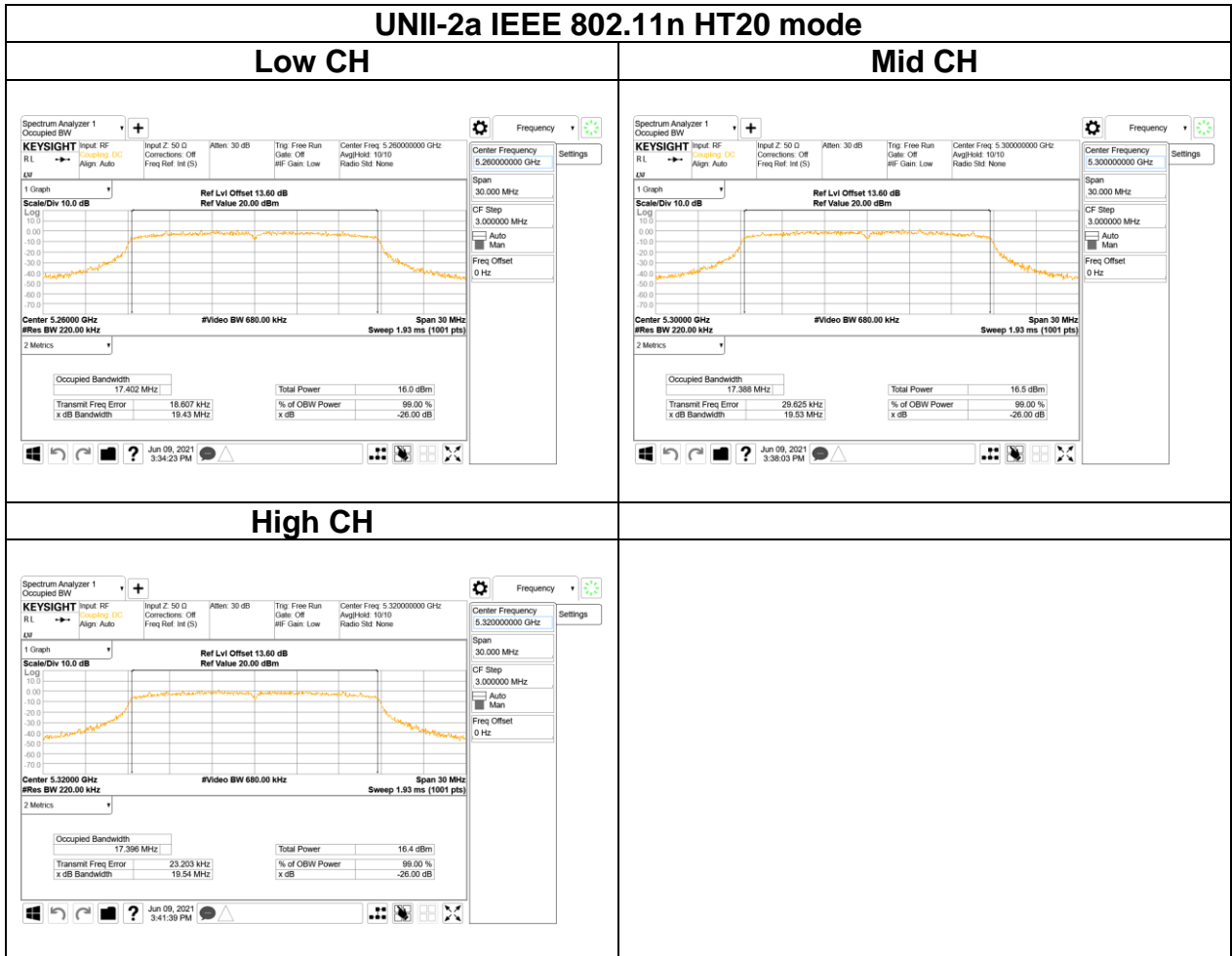


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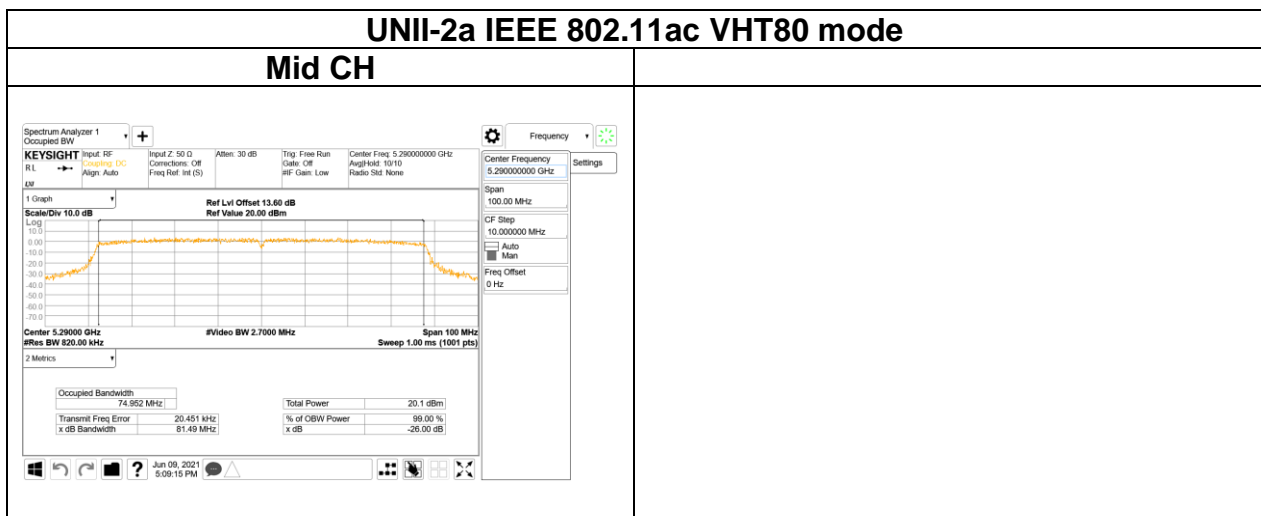
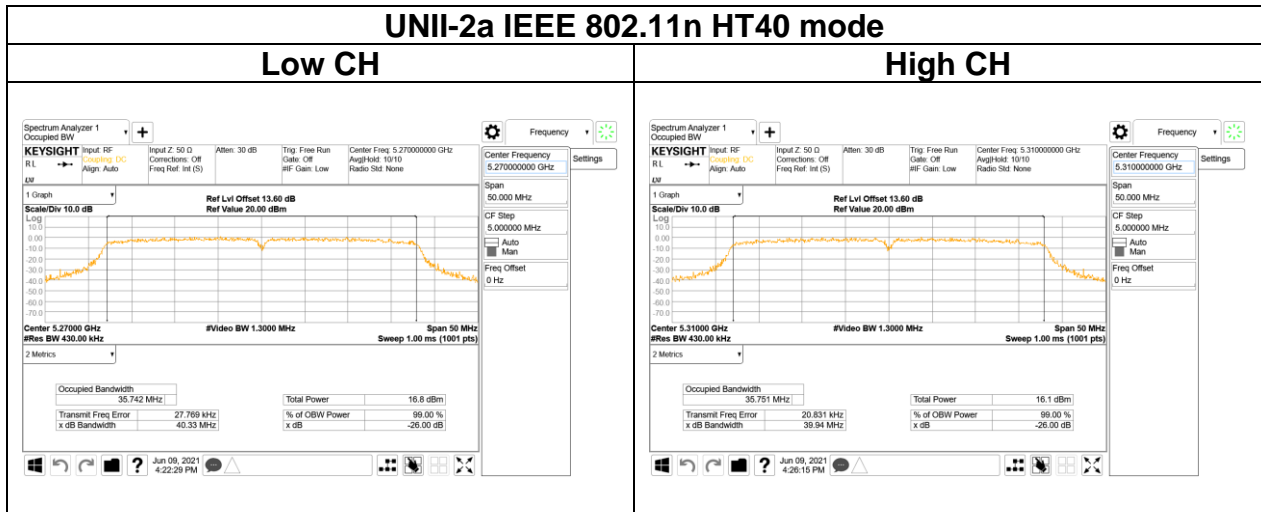


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## Test Data (99% OBW) Chain 1

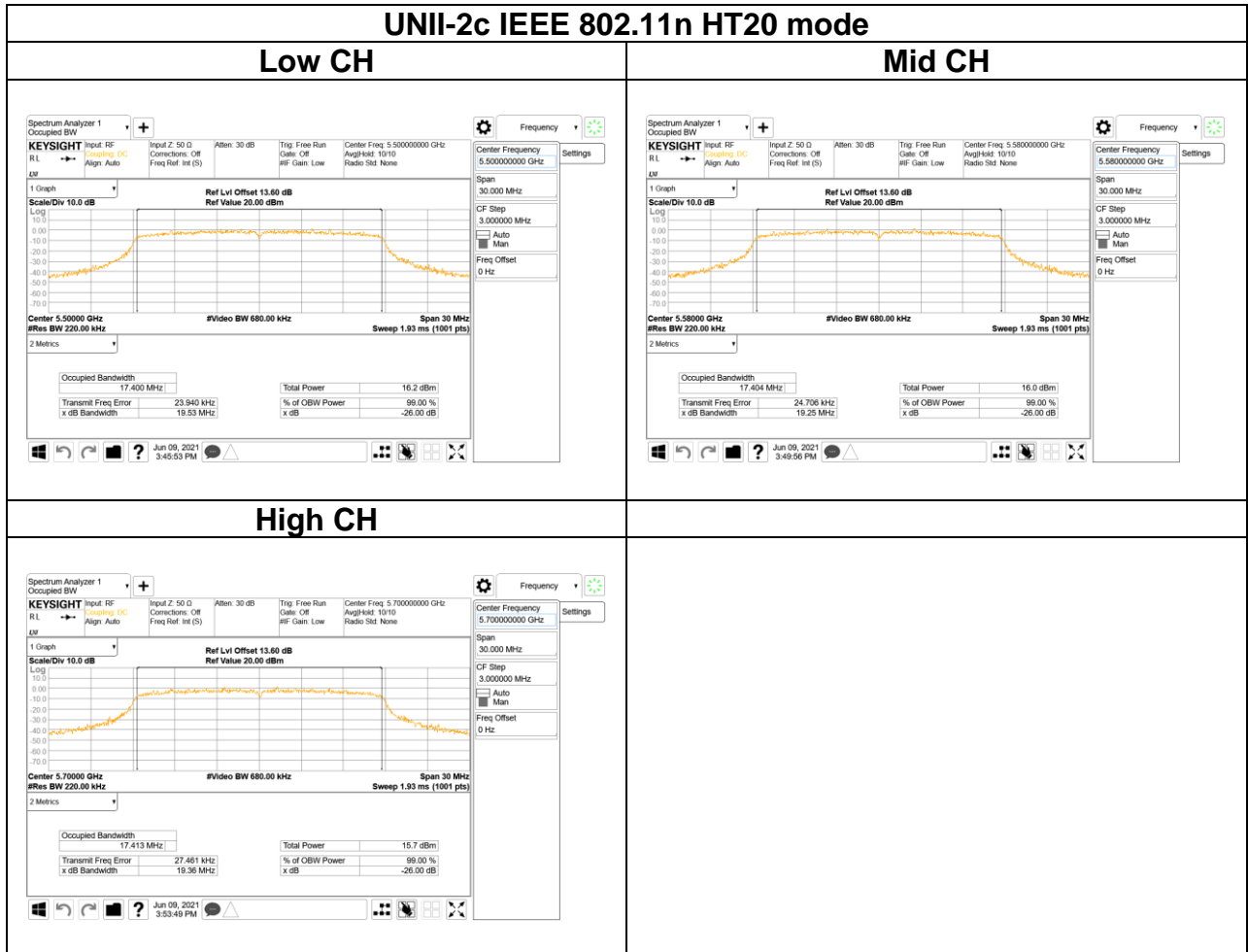


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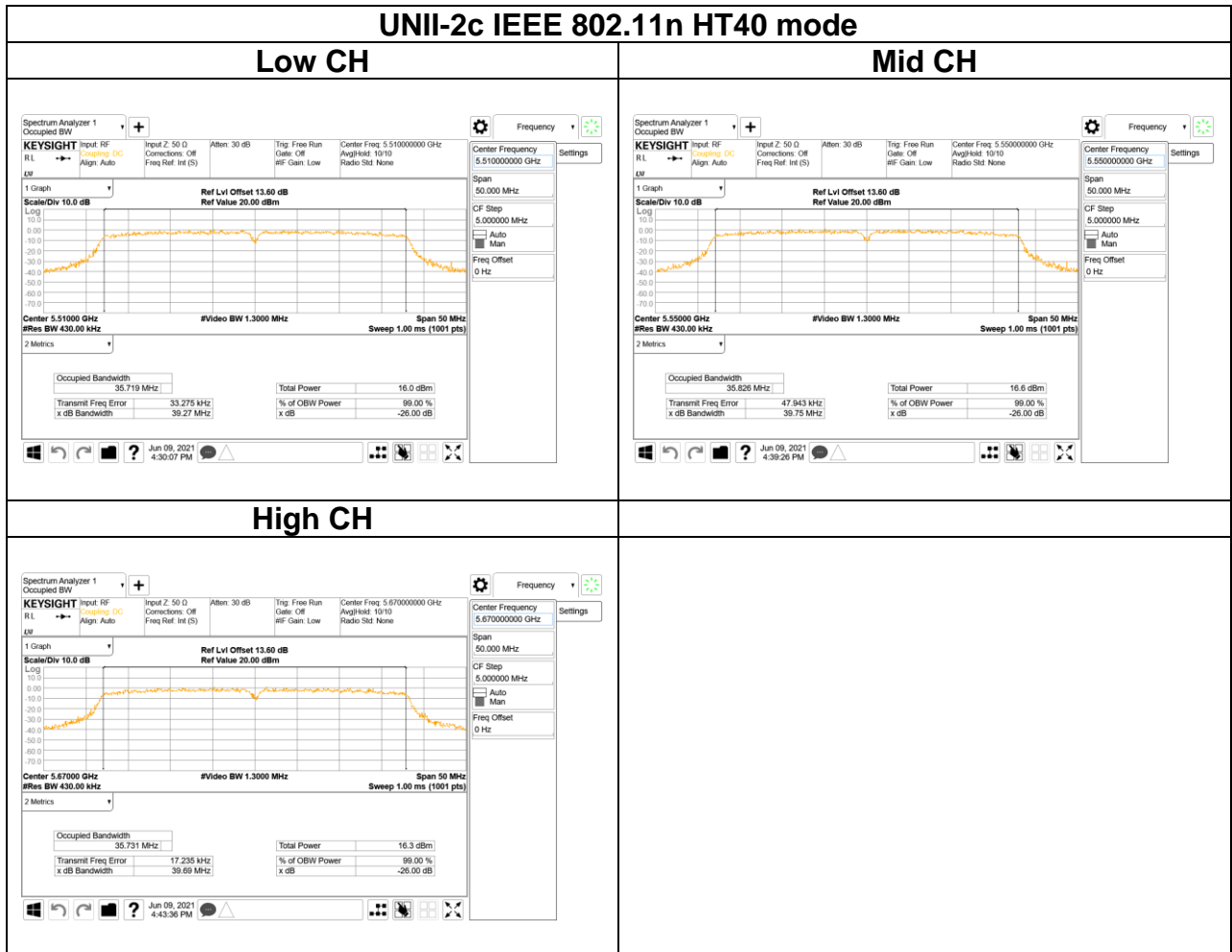
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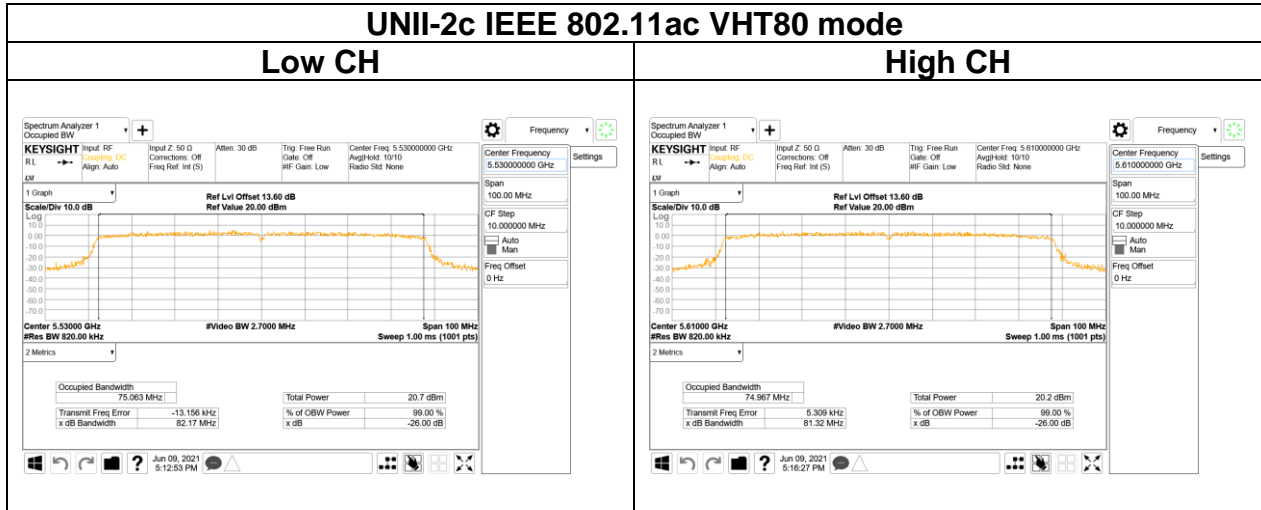
## Test Data (99% OBW) Chain 1





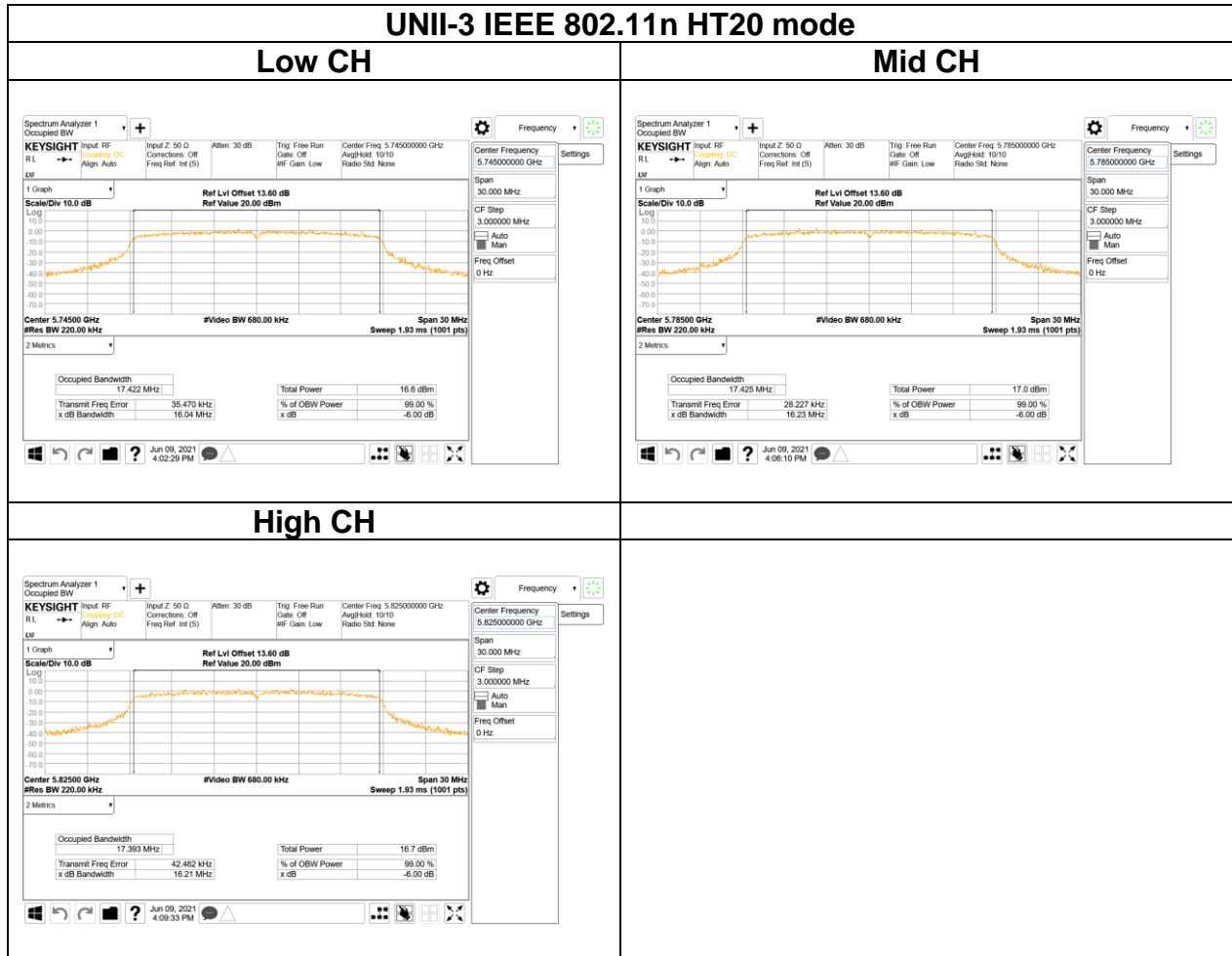
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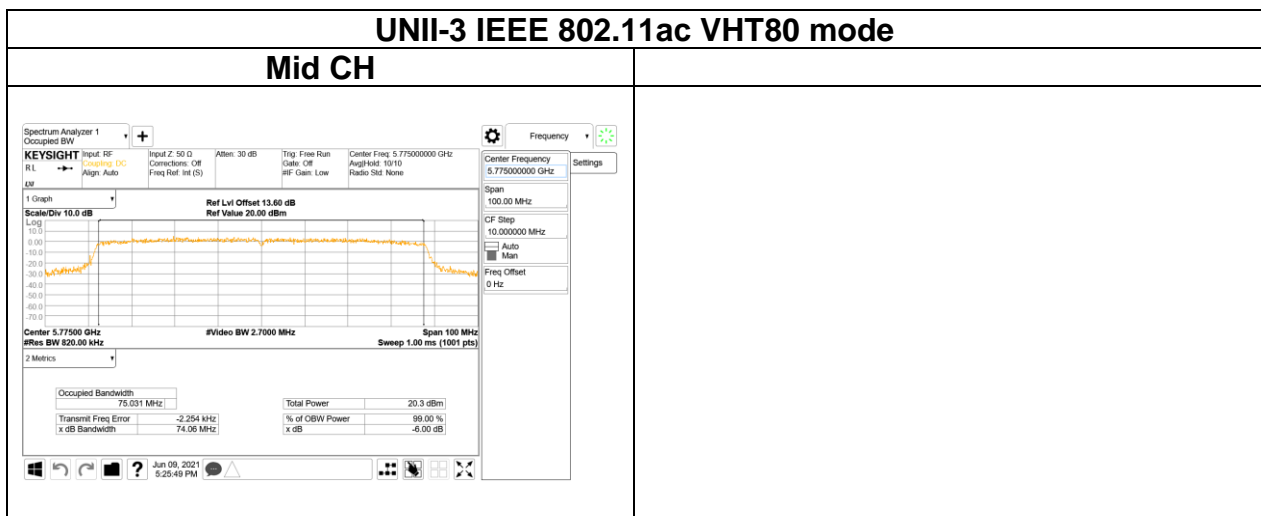
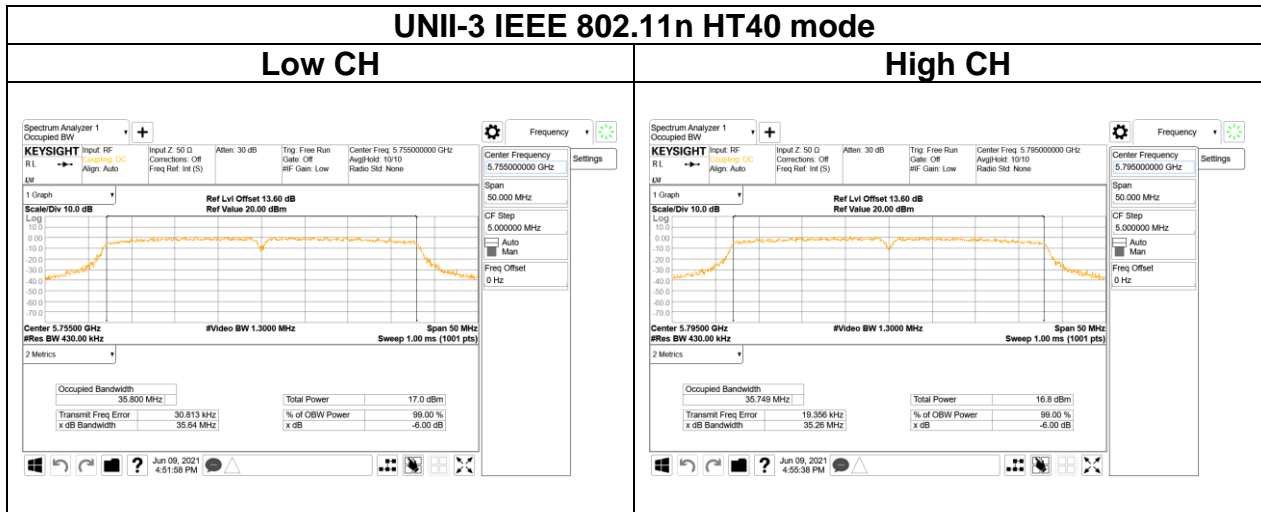




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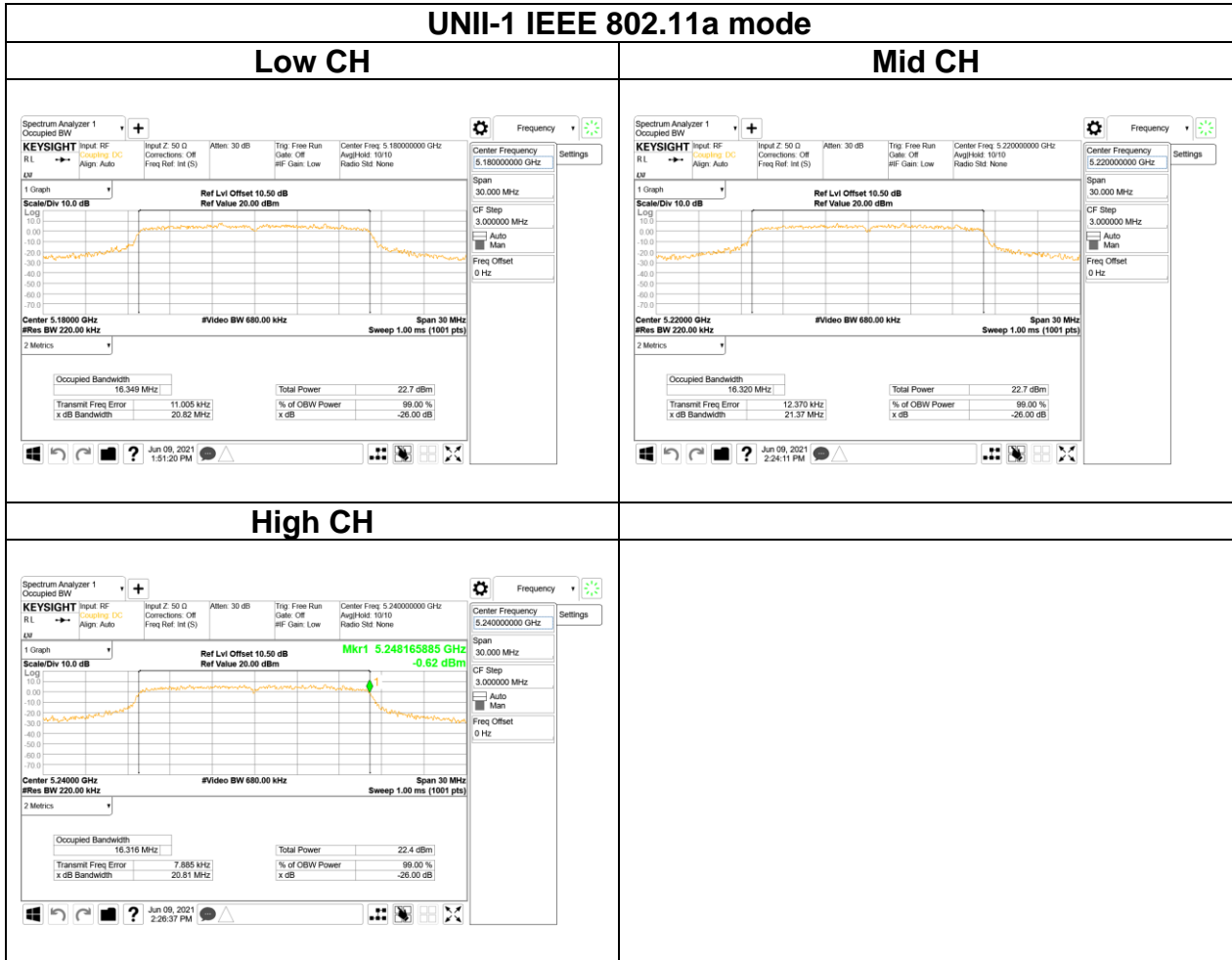
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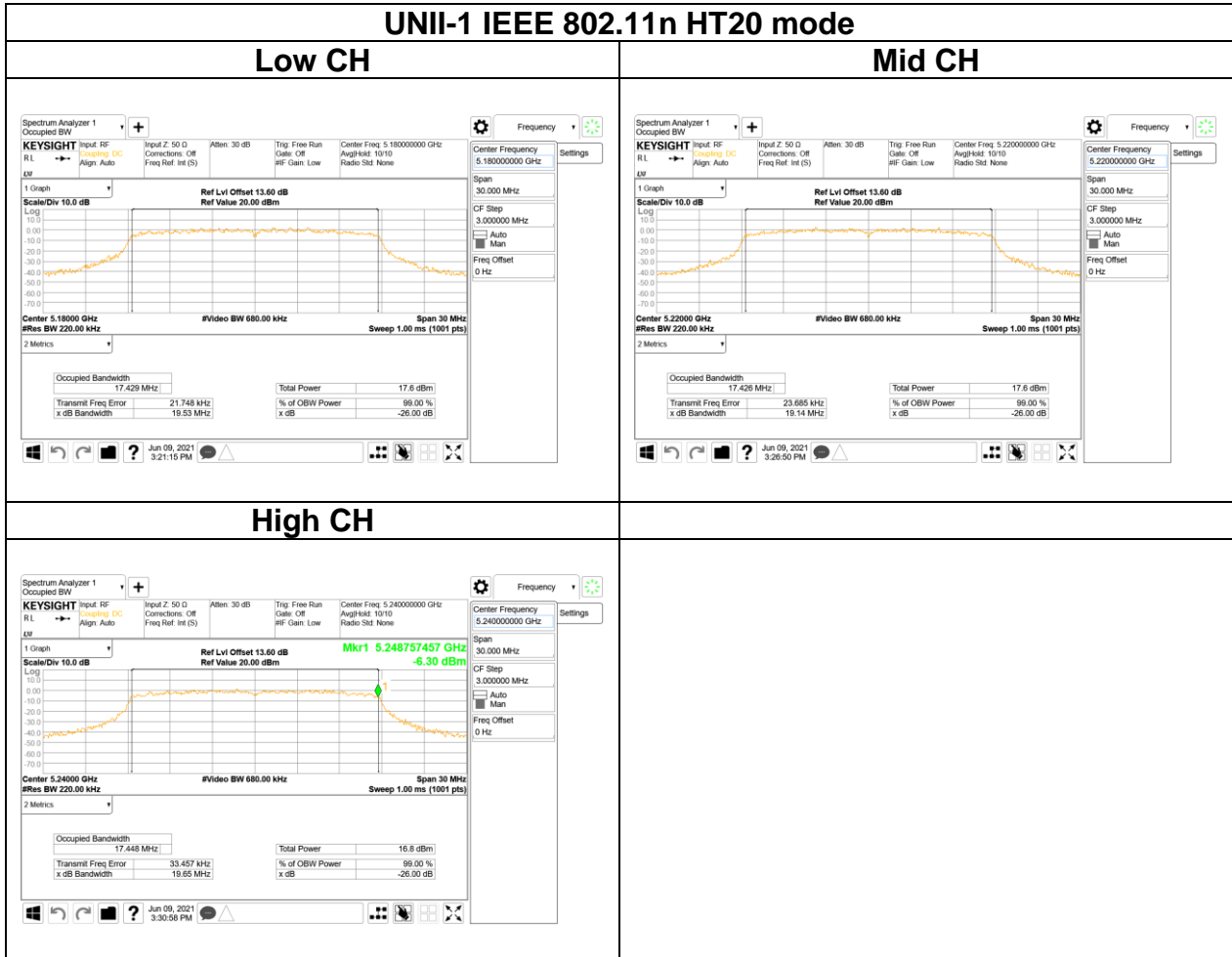


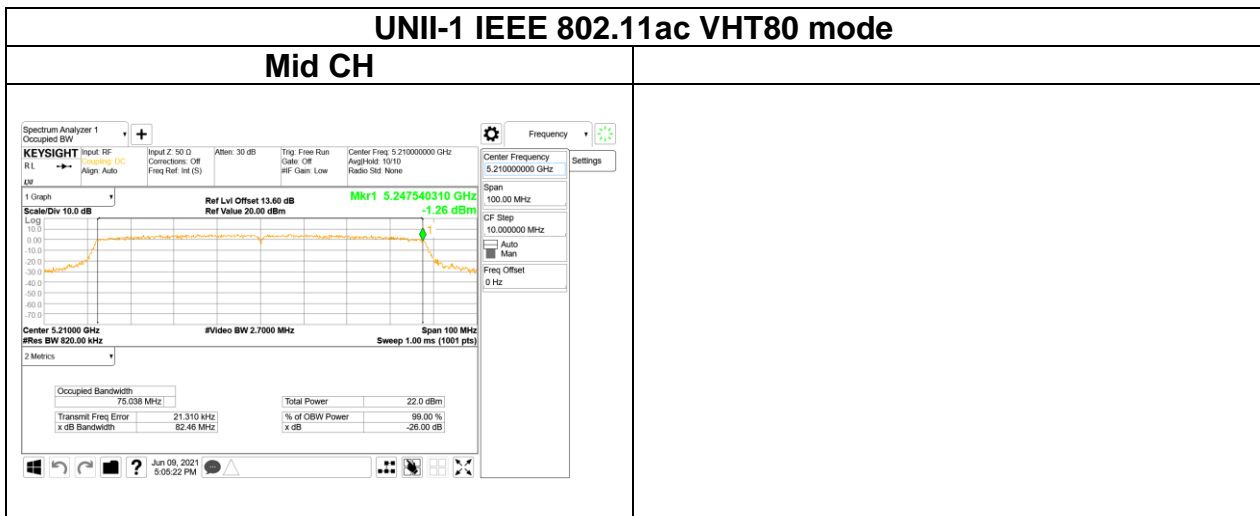
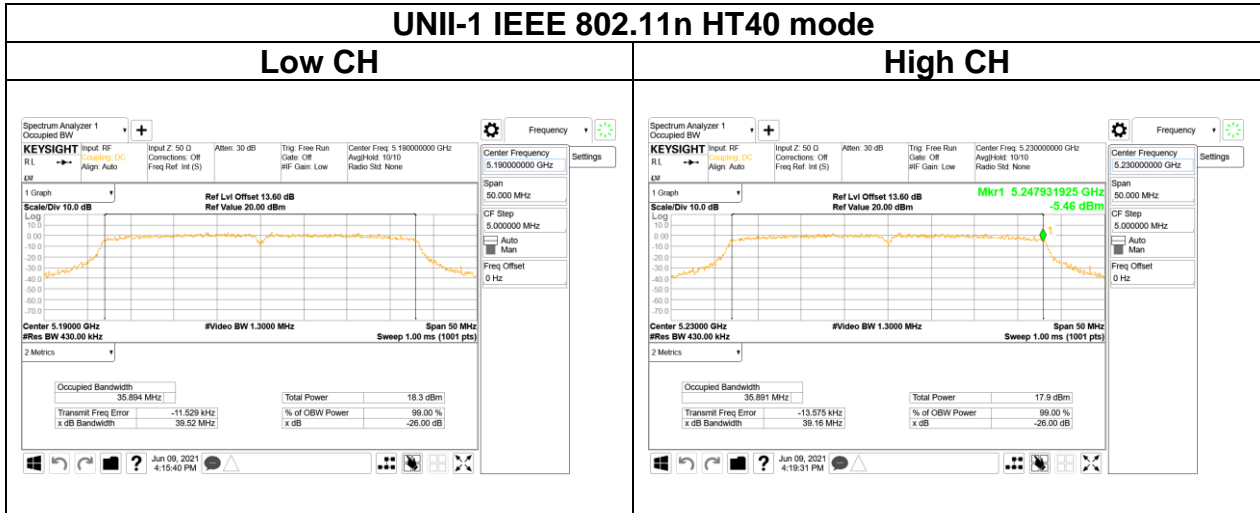


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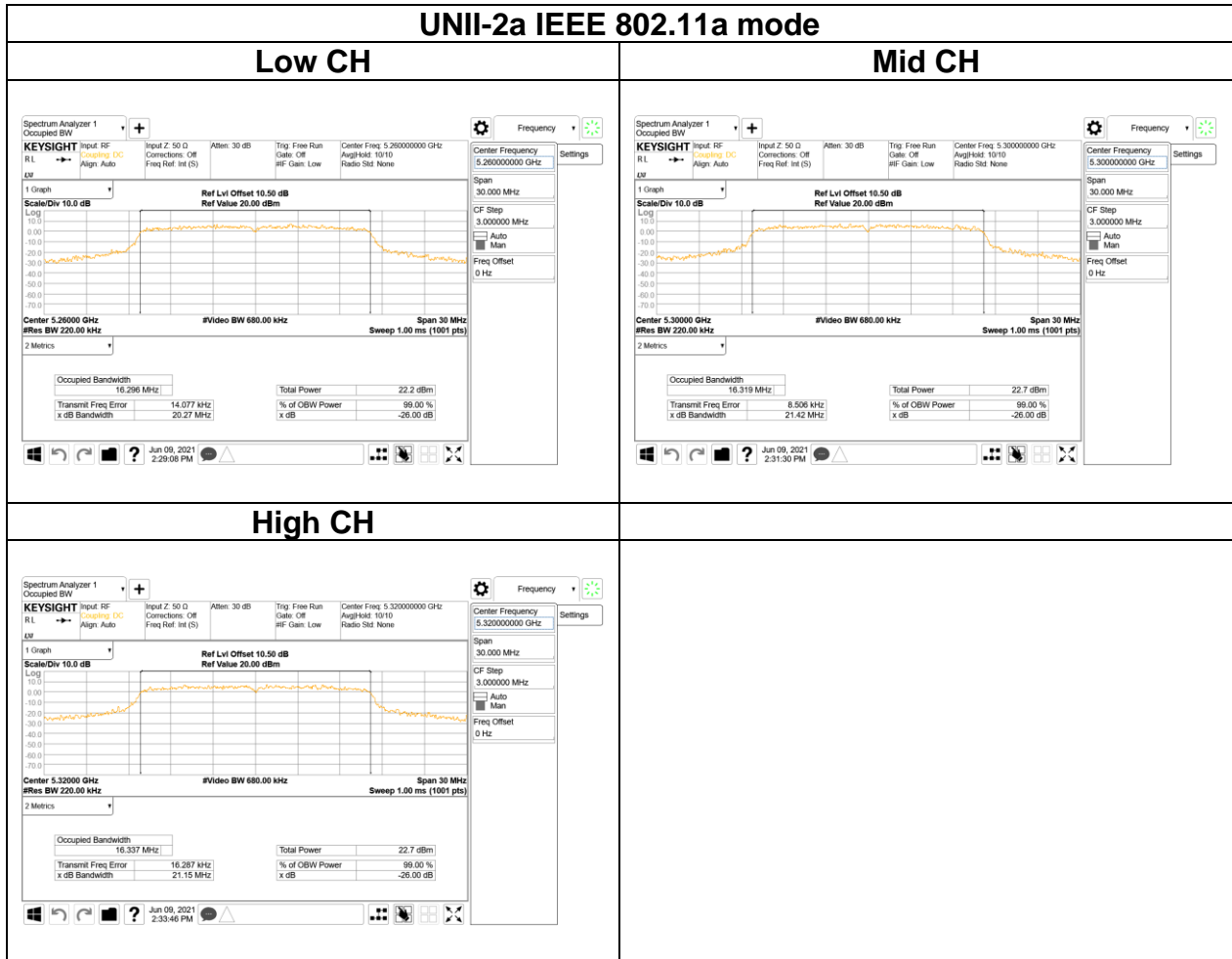
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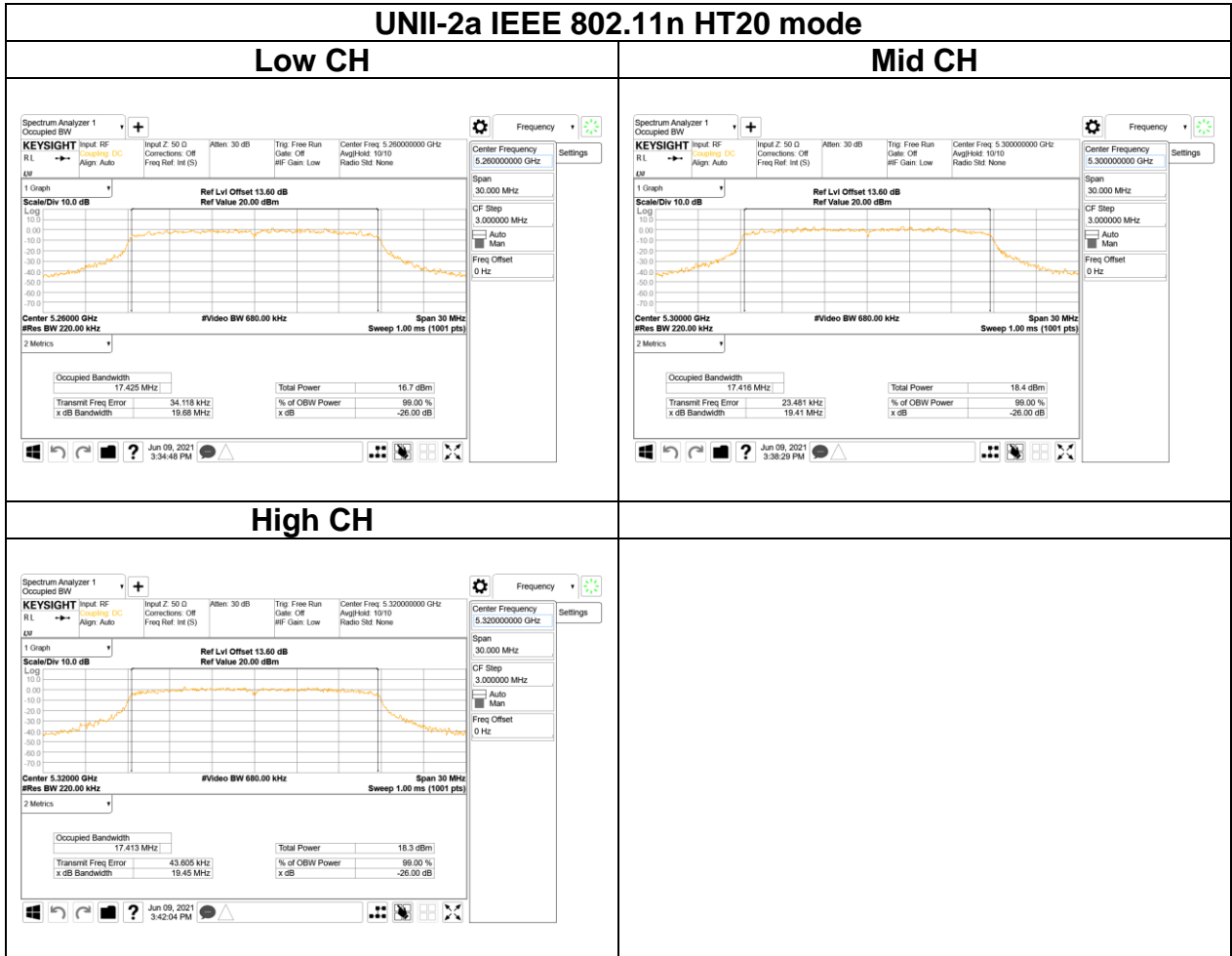




## Test Data (26dB BANDWIDTH) Chain 0







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