

ELECTROMAGNETIC EMISSIONS **COMPLIANCE REPORT**



Applicant:	Axon Enterprise, Inc.
Manufacturer:	17800 N 85th St, Scottsdale, AZ 85255, United States Axon Enterprise, Inc. 17800 N 85th St, Scottsdale, AZ 85255, United States
Product Name:	Fleet Hub
Brand Name:	Axon
Model No.:	AX1033
Model Difference:	N/A
Report Number:	ER/2022/30017
FCC ID	X4GS01405B
Date of EUT Received:	March 7, 2022
Date of Test:	March 17, 2022 ~ March 23, 2022
Issue Date:	April 18, 2022
	Tim Chang
Approved B	V

Jim Chang

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab 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 comply with FCC rule part §15.407.

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

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Revision History						
Report Number	Revision	Description	Issue Date	Revised By	Remark	
ER/2022/30017	00	Original	April 18, 2022	Yuri Tsai		

Note:

- 1 . The remark "*" indicates modification of the report upon requests from certification body.
- 2 · Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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GENERAL INFORMATION 1

1.1 **Product Description**

Product Name:	Fleet Hub
Brand Name:	Axon
Model No.:	AX1033
Model Difference:	N/A
Hardware Version:	X3
Firmware Version:	IG2.DVT.1.2s
EUT Series No.:	X70322224
Power Supply:	12Vdc from Car battery

1.2 Modulation & Data Rate

Modulation type:	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only 1024QAM for OFDMA in 802.11ax only
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 – 300.0Mbps 802.11 ac_20MHz: 6.5 – 173.4Mbps 802.11 ac_40MHz: 13.5 – 400Mbps 802.11 ac_80MHz: 29.3 – 866.7Mbps 802.11 ax_20MHz: 8.6 –286.8 Mbps 802.11 ax_40MHz: 17.2 -573.5 Mbps 802.11 ax_80MHz: 36.0 – 1201 Mbps

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1.3 **Antenna Designation**

				Main	Directional	
Antenna	Antenna Type Supplier	Antenna	Freq.	Antenna	Gain of	
Туре	Supplier	Part No.	(MHz)	Peak	Beamforming	
				Gain (dBi)	(dBi)	
			5150~5250	0.5	3.50	
PIFA	Airgoin	in AP-AXONF3-MMF-Q-MS-BL-15	5250~5350	0.7	3.70	
РІГА	PIFA Airgain		5470~5725	N/A	N/A	
			5725~5850	N/A	N/A	
		rgain AP-AXONF3-GL-WWG-BL-3M -	5150~5250	N/A	N/A	
Dinala	Airgoin		5250~5350	N/A	N/A	
Dipole	Dipole Airgain		5470~5725	1.10	4.10	
			5725~5850	1.30	4.10	
Note: The N/A represents that the Antenna does not available in the specified frequency.						

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FCC 1.4

CDD

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm) (Worst case)	Modulation Technology	
	5150~5250	4	23.29		
	5250~5350	4	22.92		
а	5470~5725	12	22.35	OFDM	
	5725-5850	5	29.09		
	5150~5250	4	HT: 23.15		
n_HT/	5250~5350	4	HT: 23.11		
ac_VHT 20M	5470~5725	12	HT: 22.70	OFDM	
20111	5725-5850	5	HT: 28.95		
	5150~5250	4	23.50		
ax HE	5250~5350	4	23.45		
20M	5470~5725	12	22.89	OFDMA	
	5725-5850	5	29.94		
	5150~5250	2	HT: 23.28		
n_HT/	5250~5350	2	HT: 23.52	05014	
ac_VHT 40M	5470~5725	5	HT: 23.47	OFDM	
	5725-5850	2	HT: 28.09		
	5150~5250	2	23.40		
ax HE	5250~5350	2	23.14		
40M	5470~5725	5	23.13	OFDMA	
	5725-5850	2	28.06		
	5150~5250	1	22.71		
ac VHT	5250~5350	1	21.05		
80M	5470~5725	2	23.32	OFDM	
	5725-5850	1	23.55		
	5150~5250	1	22.10		
ax_HE 80M	5250~5350	1	20.65		
	5470~5725	2	23.48	OFDMA	
	5725-5850	1	23.81		

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Beamforming

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm) (Worst case)	Modulation Technology
	5150~5250	4	HT: 20.52	
n_HT/	5250~5350	4	HT: 20.48	
ac_VHT 20M	5470~5725	12	HT: 19.82	OFDM
2011	5725-5850	5	HT: 26.47	
	5150~5250	4	20.66	
ax_HE	5250~5350	4	20.66	OFDMA
20M	5470~5725	12	19.93	OFDIVIA
	5725-5850	5	27.53	
	5150~5250	2	HT: 20.39	
n_HT/	5250~5350	2	HT: 20.54	OFDM
ac_VHT 40M	5470~5725	5	HT: 20.49	OFDIVI
	5725-5850	2	HT: 24.84	
	5150~5250	2	20.43	
ax_HE	5250~5350	2	20.28	OFDMA
40M	5470~5725	5	20.20	OFDIVIA
	5725-5850	2	24.84	
	5150~5250	1	19.72	
ac_VHT	5250~5350	1	18.23	OFDM
80M	5470~5725	2	20.56	OFDIVI
	5725-5850	1	20.80	
	5150~5250	1	19.27	
ax_HE	5250~5350	1	17.94	OFDMA
80M	5470~5725	2	20.53	
	5725-5850	1	20.74	

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1.5 **Test Methodology of Applied Standards**

FCC Part 15, Subpart E §15.407 FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 ANSI C63.10:2013

Test Facility 1.6

Laboratory	Test Site Address	Test Site Name	FCC Designa- tion number	IC CAB identifier		
		SAC 1				
		SAC 3				
		Conduction 1				
	No.134, Wu Kung Road, New Taipei	Conducted 1				
	Industrial Park, Wuku District, New	Conducted 2	TW0027			
	Taipei City, Taiwan.	Conducted 3	_			
		Conducted 4				
		Conducted 5	_			
SGS Taiwan Ltd.		Conducted 6				
Central RF Lab.		Conduction A		TW3702		
(TAF code 3702)		SAC C				
		SAC D	_			
		SAC G	_			
	No.2, Keji 1st Rd., Guishan District,	Conducted A	_			
	Taoyuan City, Taiwan 333	Conducted B	TW0028			
	habyaan ony, hawan ooo	Conducted C				
		Conducted D	-			
		Conducted E	-			
		Conducted F	-			
Conducted G						
Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.						

1.7 **Special Accessories**

There are no special accessories used while test was conducted.

1.8 **Equipment Modifications**

There was no modification incorporated into the EUT.

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

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.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.3 Radiated Emissions

The EUT is a placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*9m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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2.5 **Configuration of Tested System**

Fig. 2-1 Radiated Emission Configuration



Fig. 2-2 Conducted (Antenna Port) Emission Configuration

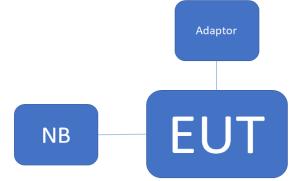


Table 2-1 Equipment Used in Tested System

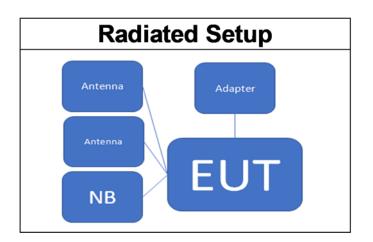
ltem	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L430	R9-XFG0X	N/A	N/A

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SPOT CHECK



Radiated Emission Test Site: SAC 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Test Software	Audix	e3	Ver. 9.210322	N.C.R	N.C.R
Antenna	Airgain	AP-AXONF3- GL-WWG-BL- 3M	N/A	N/A	N/A
Antenna	Airgain	AP-AXONF3- MMF-Q-MS- BL-15	N/A	N/A	N/A
Adapter	FSP Technology Inc.	FSP120- AHAN3	H00000084	N/A	N/A
Notebook	Lenovo	L430	R9-WGNK5	N/A	N/A

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SUMMARY OF TEST RESULT 3

FCC Rules	Description Of Test	Result	Note
§15.207	AC Power Line Conducted Emission	N/A	
§15.407(e)	Emission Bandwidth	Compliant	
§15.407(a)	Maximum Conducted Output Power	Compliant	
§15.407(a)	Power Spectral Density	Compliant	
§15.205 §15.209 §15.407(b)	Undesirable Radiated Emissions	Compliant	S
§15.407(c)	Transmission in case of Absence of Information	Compliant	
§15.203	Antenna Requirement	Compliant	

Note

- 1. N/S Indicates whether item(s) being newly tested [N] or spot checked [S].
- Items other than spot checked [S] are leveraged from test report ER/2021/20085. 2.
- The test data under original FCC ID: X4GS01405 and test report number ER/2021/20085 З. is being referenced in this report.

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DESCRIPTION OF TEST MODES 4

4.1 **Operating in U-NII Bands**

Operated band in

20 M		
СН	Freq (MHz)	
36	5180	
40	5200	
44	5220	
48	5240	

n 5150 MHz ~5250 MHz:					
40 M		8	80 M		
СН	Freq (MHz)	СН	Freq (MHz)		
38	5190	42	5210		
46	5230				

80 M

Operated band in 5250 MHz ~5350 MHz: 40

CH

54 62

20 M			
СН	Freq (MHz)		
52	5260		
56	5280		
60	5300		
64	5320		

Μ	80 M		
Freq MHz)	СН	Freq (MHz)	
5270	58	5290	
5310			

Operated band in 5745 MHz ~5850 MHz:

20 M			
СН	Freq (MHz)		
149	5745		
153	5765		
157	5785		
161	5805		
165	5825		

40 M			
Freq (MHz)			
5755			
159 5795			

0	80 M			
	СН	Freq (MHz)		
	155	5775		

Operated band in 5470 MHz ~5725 MHz:

40 M

Operated ball				
20 M				
Freq (MHz)				
5500				
5520				
5540				
5560				
5580				
5600				
5620				
5640				
5660				
5680				
5700				
5720				
	Freq (MHz) 5500 5520 5540 5560 5580 5600 5620 5620 5640 5660 5680 5680 5700			

СН	Freq (MHz)	СН	Freq (MHz)
102	5510	106	5530
110	5550	122	5610
118	5590	138	5690
126	5630		
134	5670		
142	5710		

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4.2 The Worst Test Modes and Channel Details

- 1. The EUT has been tested under operating condition.
- 2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
- 3. Investigation has been done on all the possible configurations for searching the worst case. The given UE is pre-scanned among below modes.

Modulation	Τι	ansmission Chain			Single Transmission Spatial	Multiple Transmission Spatial
🛛 802.11 a	\boxtimes Ch0	🛛 Ch1	🗆 Ch2	🗆 Ch3	🛛 1TX	🛛 2TX
🛛 802.11 n	\boxtimes Ch0	🛛 Ch1	🗆 Ch2	🗆 Ch3	⊠ SISO	🛛 MIMO
⊠ 802.11 ac	\boxtimes Ch0	🛛 Ch1	🗆 Ch2	🗆 Ch3	⊠ SISO	🛛 MIMO
⊠ 802.11 ax	\boxtimes Ch0	\boxtimes Ch1	🗆 Ch2	🗆 Ch3	⊠ SISO	🛛 MIMO

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4. Observations have been done for 802.11 ax available RU configurations below and found that the lowest, heighest and Full RU results higher emissions. Only one RU can be enabled at any given time.

802.11ax	20MHz		MHz			802.11ax			40MHz	
RU type	26	b-tone RU	5	2-tone RU		RU type	26-	tone RU	ļ	52-tone RU
	RU0	[-121: -96]	RU37	[-121: -70]			RU0	[-243: -218]	RU37	[-243: -192]
	RU1	[-95: -70]	RU38	[-68: -17]			RU1	[-217: -192]	RU38	[-189: -138]
	RU2	[-68: -43]	RU39	[17: 68]			RU2	[-189: -164]	RU39	[-109: -58]
	RU3	[-42: -17]	RU40	[70: 121]			RU3	[-163: -138]	RU40	[-55: -4]
	RU4	[-16: -4, 4: 16]	RU41	N/A			RU4	[-136: -111]	RU41	[4: 55]
	RU5	[17: 42]	RU42	N/A			RU5	[-109: -84]	RU42	[58: 109]
	RU6	[43: 68]	RU43	N/A			RU6	[-83: -58]	RU43	[138: 189]
	RU7	[70: 95]	RU44	N/A			RU7	[-55: -30]	RU44	[192: 243]
	RU8 [96: 121]	[96: 121]	RU45	N/A			RU8	[-29: -4]	RU45	N/A
	RU9	N/A	RU46	N/A			RU9	[4: 29]	RU46	N/A
	RU10	N/A	RU47	N/A			RU10	[30: 55]	RU47	N/A
	RU11	N/A	RU48	N/A			RU11	[58: 83]	RU48	N/A
	RU12	N/A	RU49	N/A			RU12	[84: 109]	RU49	N/A
	RU13	N/A	RU50	N/A			RU13	[111: 136]	RU50	N/A
	RU14	N/A	RU51	N/A			RU14	[138: 163]	RU51	N/A
	RU15	N/A	RU52	N/A			RU15	[164: 189]	RU52	N/A
	RU16 N/A				RU16	[192: 217]				
RU index and	RU17	N/A	106-tone RU			RU index and	RU17	[218: 243]	1	06-tone RU
subcarrier	RU18	N/A	RU53	[-122: -17]		subcarrier range	RU18	N/A	RU53	[-243: -138]
range	RU19	N/A	RU54	[17: 122]			RU19	N/A	RU54	[-109: -4]
	RU20	N/A	RU55	N/A			RU20	N/A	RU55	[4: 109]
	RU21	N/A	RU56	N/A			RU21	N/A	RU56	[138: 243]
	RU22	N/A	RU57	N/A			RU22	N/A	RU57	N/A
	RU23	N/A	RU58	N/A			RU23	N/A	RU58	N/A
	RU24	N/A	RU59	N/A			RU24	N/A	RU59	N/A
	RU25	N/A	RU60	N/A			RU25	N/A	RU60	N/A
	RU26	N/A					RU26	N/A		
	RU27	N/A	24	42-tone RU			RU27	N/A	2	42-tone RU
	RU28	N/A	RU61	[-122: -2, 2:122]			RU28	N/A	RU61	[-244: -3]
	RU29	N/A	RU62	N/A			RU29	N/A	RU62	[3: 244]
	RU30	N/A	RU63	N/A			RU30	N/A	RU63	N/A
	RU31	N/A	RU64	N/A			RU31	N/A	RU64	N/A
	RU32	N/A					RU32	N/A		
	RU33	N/A					RU33	N/A	4	84-tone RU
	RU34	N/A					RU34	N/A	RU65	[-244: -3, 3: 244]
	RU35	N/A					RU35	N/A	RU66	N/A
	RU36	N/A					RU36	N/A		

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802.11ax		80	MHz	
RU type	26	6-tone RU		52-tone RU
	RU0	[-499: -474]	RU37	[-499: -448]
	RU1	[-473: -448]	RU38	[-445: -394]
	RU2	[-445: -420]	RU39	[-365: -314]
	RU3	[-419: -394]	RU40	[-311: -260]
	RU4	[-392: -367]	RU41	[-257: -206]
	RU5	[-365: -340]	RU42	[-203: -152]
	RU6	[-339: -314]	RU43	[-123: -72]
	RU7	[-311: -286]	RU44	[-69: -18]
	RU8	[-285: -260]	RU45	[18: 69]
	RU9	[-257: -232]	RU46	[72: 123]
	RU10	[-231: -206]	RU47	[152: 203]
	RU11	[-203: -178]	RU48	[206: 257]
	RU12	[-177: -152]	RU49	[260: 311]
	RU13	[-150: -125]	RU50	[314: 365]
	RU14	[-123: -98]	RU51	[394: 445]
	RU15	[-97: -72]	RU52	[448: 499]
	RU16	[-69: -44]		06-tone RU
-	RU17	[-03: -44]	RU53	[-499: -394]
RU index and subcarrier	RU18	[-16: -4, 4: 16]	RU54	[-455: -354]
range	RU19	[18: 43]	RU55	[-303: -200]
0	RU20	[16: 43]	RU56	[-123: -18]
	RU21	[44: 09]	RU57	[12310]
	RU21		RU58	[16: 123]
		[98: 123]	RU58	
	RU23	[125: 150]		[260: 365]
	RU24	[152: 177]	RU60	[394: 499]
	RU25	[178: 203]		42-tone RU
	RU26	[206: 231]	RU61	[-500: -259]
	RU27	[232: 257]	RU62	[-258: -17]
	RU28	[260: 285]	RU63	[17: 258]
	RU29	[286: 311]	RU64	[259: 500]
	RU30	[314: 339]		84-tone RU
	RU31	[340: 365]	RU65	[-500: -17]
	RU32	[367: 392]	RU66	[17: 500]
	RU33	[394: 419]		96-tone RU
	RU34	[420: 445]	RU67	[-500: -3, 3: 500]
	RU35	[448: 473]		
	RU36	[474: 499]		
				.

5. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

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4.2.1 RADIATED EMISSION TEST:

CDD

RADIATED EMISSION TEST (BELOW 1 GHz)									
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA			
MODE	BAND (MHz)	CHANNEL	CHANNEL	WODULATION	(Mbps)	PORT			
	5180~5240	36 to 48	44						
802.11a	5260~5320	52 to 64	60	OFDM	6	2ТХ			
002.118	5500~5700	100 to 140	116			217			
	5745~5825	149 to 165	157						
	5190~5230	42	42						
902 11av UE90	5270~5310	58	58		MCS0	MIMO			
802.11ax_HE80	5530~5610	106 to 138	122	OFDMA		UNINIO			
	5775	155	155						

	RADIATED EMISSION TEST (ABOVE 1 GHz)								
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA			
MODE	BAND (MHz)	CHANNEL	CHANNEL	MODULATION	(Mbps)	PORT			
	5180~5240	36 to 48	36,44,48						
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	2TX			
002.11a	5500~5700	100 to 140	100,116,140		0	217			
	5745~5825	149 to 165	149,157,165						
	5180~5240	36 to 48	36,44,48						
000 11n UT20	5260~5320	52 to 64	52,60,64	OFDM	MCS8				
802.11n_HT20	5500~5700	100 to 144	100,116,140,144	OFDIVI		MIMO			
	5745~5825	149 to 165	149,157,165						
	5190~5230	38 to 46	38,46						
002 11n UT40	5270~5310	54 to 62	54,62	OFDM	MOOD	MIMO			
802.11n_HT40	5510~5670	102 to 142	102,110,134,142		MCS8				
	5755~5795	151 to 159	151,159						
	5210	42	42						
002 11co \/UT00	5290	58	58	OFDM	MCS0	МІМО			
802.11ac_VHT80	5530~5610	106 to 138	106,122,138		IVIC SU	UNINIO			
	5775	155	155						

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	RADIATED EMISSION TEST (ABOVE 1 GHz)										
MODE	FRE- QUENCY	AVAILA- BLE	TESTED	MODULA-	RU CONFIGURA-	DATA RATE	AN- TENNA				
	BAND (MHz)	CHANNEL	CHANNEL	HON		(Mbps)	PORT				
	5180~5240	36 to 48	36,44,48		FULL RU						
802.11ax_HE20	5260~5320	52 to 64	52,60,64		26/0,26/8 52/37,52/40	MCS0	MIMO				
	5500~5700	100 to 144	100,116,140,144	OFDIVIA							
	5745~5825	149 to 165	149,157,165		106/53,106/54						
	5190~5230	38 to 46	38,46		FULL RU	MCS0	MIMO				
802.11ax HE40	5270~5310	54 to 62	54,62								
002.11ax_11E40	5510~5670	102 to 142	102,110,134,142	OFDIVIA	242/61,242/62						
	5755~5795	151 to 159	151,159								
	5210	42	42								
002 11 ov UE00	5290	58	58		FULL RU	MCCO					
802.11ax_HE80	5530~5610	106 to 138	106,122,138	ULDINIA	484/65,484/66	MCS0	MIMO				
	5775	155	155								

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Beamforming

RADIATED EMISSION TEST (BELOW 1 GHz)									
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA			
MODE	BAND (MHz)	CHANNEL	CHANNEL	WODULATION	(Mbps)	PORT			
	5180~5240	36 to 48	44						
000 11n UT00	5260~5320	52 to 64	60		MCS8				
802.11n_HT20	5500~5700	100 to 144	116	OFDM		MIMO			
	5745~5825	149 to 165	157						
	5190~5230	42	42						
000 11av UE00	5270~5310	58	58		MCS0				
802.11ax_HE80	5530~5610	106 to 138	122	OFDMA		MIMO			
	5775	155	155						

	RADIATED EMISSION TEST (ABOVE 1 GHz)									
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA				
MODE	BAND (MHz)	CHANNEL	CHANNEL	MODULATION	(Mbps)	PORT				
	5180~5240	36 to 48	36,44,48							
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS8	МІМО				
002.1111_1120	5500~5700	100 to 144	100,116,140,144	OFDIM						
	5745~5825	149 to 165	149,157,165							
	5190~5230	38 to 46	38,46							
000 11n UT40	5270~5310	54 to 62	54,62	OFDM	MCS8	MIMO				
802.11n_HT40	5510~5670	102 to 142	102,110,134,142	OFDIM						
	5755~5795	151 to 159	151,159							
	5210	42	42							
002 11aa V/UT00	5290	58	58	OFDM	MCS0	МІМО				
802.11ac_VHT80	5530~5610	106 to 138	106,122,138		IVIC SU					
	5775	155	155							

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	F	RADIATED	EMISSION TE	ST (ABOVE	1 GHz)		
MODE	FRE- QUENCY	AVAILA- BLE	TESTED	MODULA-	RU CONFIGURA-	DATA RATE	AN- TENNA
	BAND (MHz)	CHANNEL	CHANNEL	TION	TION	(Mbps)	PORT
	5180~5240	36 to 48	36,44,48		FULL RU		
802.11ax_HE20	5260~5320	52 to 64	52,60,64	OFDMA	26/0,26/8 52/37,52/40 106/53,106/54	MCS0	MIMO
	5500~5700	100 to 144	100,116,140,144				
	5745~5825	149 to 165	149,157,165				
	5190~5230	38 to 46	38,46		FULL RU 242/61,242/62	MCS0	MIMO
802.11ax_HE40	5270~5310	54 to 62	54,62	OFDMA			
002.11ax_11L40	5510~5670	102 to 142	102,110,134,142				
	5755~5795	151 to 159	151,159				
	5210	42	42				
802.11ax_HE80	5290	58	58	OFDMA	FULL RU	MCCO	
	5530~5610	106 to 138	106,122,138		484/65,484/66	MCS0	MIMO
	5775	155	155				

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for channel Low, Mid and High, the worst case H position was reported.

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ANTENNA PORT CONDUCTED MEASUREMENT: 4.2.2

CDD

CONDUCTED TEST								
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA		
MODE	BAND (MHz)	CHANNEL	CHANNEL	MODULATION	(Mbps)	PORT		
	5180~5240	36 to 48	36,44,48					
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	2TX		
002.11d	5500~5720	100 to 144	100,116,140,144		0	217		
	5745~5825	149 to 165	149,157,165					
	5180~5240	36 to 48	36,44,48		MCS8			
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM		MIMO		
002.1111_0120	5500~5720	100 to 144	100,116,140,144	OFDIVI				
	5745~5825	149 to 165	149,157,165					
	5190~5230	38 to 46	38,46		MCS8			
802.11n HT40	5270~5310	54 to 62	54,62	OFDM		MIMO		
002.1111_0140	5510~5670	102 to 142	102,110,134,142					
	5755~5795	151 to 159	151,159					
	5210	42	42					
	5290	58	58		14000			
802.11ac_VHT80	5530~5610	106 to 138	106,122,138	OFDM	MCS0	MIMO		
	5775	155	155					

	CONDUCTED TEST								
MODE	FRE- QUENCY	AVAILA- BLE	TESTED	MODULA-	RU CONFIGURA-	DATA RATE	AN- TENNA		
	BAND (MHz)	CHANNEL	CHANNEL	TION	TION	(Mbps)	PORT		
	5180~5240	36 to 48	36,44,48		FULL RU				
802.11ax_HE20	5260~5320	52 to 64	52,60,64	OFDMA	26/0,26/8	MCS0	МІМО		
002.118X_HE20-	5500~5720	100 to 144	100,116,140,144		52/37,52/40 106/53,106/54				
	5745~5825	149 to 165	149,157,165						
	5190~5230	38 to 46	38,46		FULL RU 242/61,242/62	MCS0			
802.11ax_HE40	5270~5310	54 to 62	54,62	OFDMA			MIMO		
002.11ax_11E40	5510~5670	102 to 142	102,110,134,142	OFDIVIA					
	5755~5795	151 to 159	151,159						
	5210	42	42			MOOD			
000 11 ov UE00	5290	58	58	OFDMA	FULL RU		МІМО		
802.11ax_HE80	5530~5610	106 to 138	106,122,138		484/65,484/66	MCS0	UNIN		
	5775	155	155						

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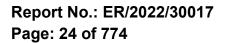


Beamforming

CONDUCTED TEST							
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA	
WODE	BAND (MHz)	CHANNEL	CHANNEL	MODULATION	(Mbps)	PORT	
	5180~5240	36 to 48	36,44,48				
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS8	МІМО	
002.1111_1120	5500~5720	100 to 144	100,116,140,144	OFDIVI	MCS0		
	5745~5825	149 to 165	149,157,165				
	5190~5230	38 to 46	38,46		MCS8		
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM		МІМО	
002.1111_0140	5510~5670	102 to 142	102,110,134,142	OFDIVI			
	5755~5795	151 to 159	151,159				
	5210	42	42				
802.11ac_VHT80	5290	58	58	OFDM	14000	МІМО	
	5530~5610	106 to 138	106,122,138		MCS0		
	5775	155	155				

	CONDUCTED TEST								
MODE	FRE- QUENCY	AVAILA- BLE	TESTED	MODULA-		RU CONFIGURA-	DATA RATE	AN- TENNA	
	BAND (MHz)	CHANNEL	CHANNEL	TION	TION	(Mbps)	PORT		
	5180~5240	36 to 48	36,44,48		FULL RU				
802.11ax_HE20	5260~5320	52 to 64	52,60,64	OFDMA	26/0,26/8	MCS0	MIMO		
002.11ax_ne20-	5500~5720	100 to 144	100,116,140,144	OFDIVIA	52/37,52/40 106/53,106/54	10000			
	5745~5825	149 to 165	149,157,165						
	5190~5230	38 to 46	38,46		FULL RU 242/61,242/62	MCS0	MIMO		
802.11ax HE40	5270~5310	54 to 62	54,62	OFDMA					
002.11ax_11E40	5510~5670	102 to 142	102,110,134,142	OFDIVIA					
	5755~5795	151 to 159	151,159						
	5210	42	42						
802.11ax_HE80	5290	58	58	OFDMA	FULL RU 484/65,484/66	MOOD	МІМО		
	5530~5610	106 to 138	106,122,138			MCS0	UNIN		
	5775	155	155						

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SPOT CHECK

Transmitter Unwanted Emissions Outside the 5 GHz RLAN Bands						
MODE	AVAILABLE	CHANNEL	MODULATION	DATA RATE		
MODE	CHANNEL	CHANNEL	MODULATION	(Mbps)		
802.11a	149 to 165	149	OFDM	6		
802.11n_HT20	149 to 165	149	OFDM	MCS8		
802.11n_HT40	151 to 159	151	OFDM	MCS8		
802.11ac_VHT80	155	155	OFDM	MCS0		
802.11ax_HE20	149 to 165	149	OFDMA	MCS0		
802.11ax_HE40	151 to 159	151	OFDMA	MCS0		
802.11ax_HE80	155	155	OFDMA	MCS0		

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MEASUREMENT UNCERTAINTY 5

Test Items	Un	certain	ty
AC Power Line Conducted Emission	+/-	2.34	dB
Output Power measurement	+/-	1	dB
Emission Bandwidth	+/-	1.53	Hz
Undesignable radiated emission measure- ment	+/-	1.68	dB
Peak Power Density	+/-	1.62	dB
Temperature	+/-	0.4	°C
Humidity	+/-	3.5	%
DC / AC Power Source	+/-	1	%

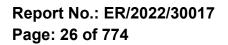
Radiated Spurious Emission Measurement Uncertainty					
	+/-	2.57	dB	9kHz~30MHz	
Polarization: Vertical	+/-	4.85	dB	30MHz - 1000MHz	
	+/-	4.45	dB	1GHz - 18GHz	
	+/-	4.24	dB	18GHz - 40GHz	
	+/-	2.57	dB	9kHz~30MHz	
Polarization: Horizontal	+/-	4.37	dB	30MHz - 1000MHz	
Polarization: Horizontai	+/-	4.45	dB	1GHz - 18GHz	
	+/-	4.24	dB	18GHz - 40GHz	

Note:

- 1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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CONDUCTED EMISSION TEST 6

6.1 Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

Frequency range		nits (uV)
MHz	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
Note		

1. The lower limit shall apply at the transition frequencies

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

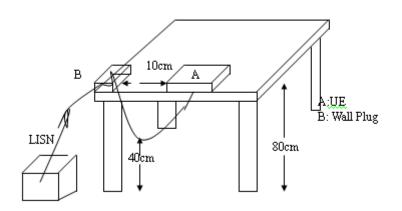
6.2 **Measurement Equipment Used**

N/A

6.3 EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The LISN was connected with 120Vac/60Hz power source.

Test SET-UP 6.4



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			M 1 (000 0			



6.5 **Measurement Procedure**

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all phases of power being supplied by given UE are completed.

6.6 **Measurement Result**

N/A; Powered from Car battery.

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7 DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

7.1 Measurement Procedure:

- 1. Set span = Zero
- 2. RBW = 8MHz
- 3. VBW = 8MHz,
- 4. Detector = Peak

Duty Cycle:

Beamforming Mode

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11n_20	93.00	0.32	0.19	1.00
802.11ac_20	95.00	0.22	0.19	1.00
802.11n_40	93.00	0.32	0.19	1.00
802.11ac_40	95.00	0.22	0.19	1.00
802.11ac_80	91.00	0.41	0.19	1.00
802.11ax_20	95.00	0.22	0.19	1.00
802.11ax_40	95.00	0.22	0.19	1.00
802.11ax_80	95.00	0.22	0.19	1.00

Duty Cycle Factor: 10 * log(1/0.93) = 0.32Duty Cycle Factor: 10 * log(1/0.95) = 0.22Duty Cycle Factor: 10 * log(1/0.93) = 0.32Duty Cycle Factor: 10 * log(1/0.95) = 0.22Duty Cycle Factor: 10 * log(1/0.91) = 0.41Duty Cycle Factor: 10 * log(1/0.95) = 0.22Duty Cycle Factor: 10 * log(1/0.95) = 0.22Duty Cycle Factor: 10 * log(1/0.95) = 0.22

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CDD Mode

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	93.25	0.30	0.65	1.00
802.11n_20	94.93	0.23	0.19	1.00
802.11ac_20	94.62	0.24	0.19	1.00
802.11n_40	93.09	0.31	0.19	1.00
802.11ac_40	91.66	0.38	0.19	1.00
802.11ac_80	93.26	0.30	0.19	1.00
802.11ax_20	95.57	0.20	0.19	1.00
802.11ax_40	94.81	0.23	0.19	1.00
802.11ax_80	94.98	0.22	0.19	1.00

Duty Cycle Factor: 10 * log(1/0.9325) = 0.3
Duty Cycle Factor: 10 * log(1/0.9493) = 0.23
Duty Cycle Factor: 10 * log(1/0.9462) = 0.24
Duty Cycle Factor: 10 * log(1/0.9309) = 0.31
Duty Cycle Factor: 10 * log(1/0.9166) = 0.38
Duty Cycle Factor: 10 * log(1/0.9326) = 0.3
Duty Cycle Factor: 10 * log(1/0.9557) = 0.2
Duty Cycle Factor: 10 * log(1/0.9481) = 0.23
Duty Cycle Factor: 10 * log(1/0.9498) = 0.22

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7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT

AUTO TUNI

CF Step

Auto

8.000000 MH

ep 20.0 ms

Beamforming Mode

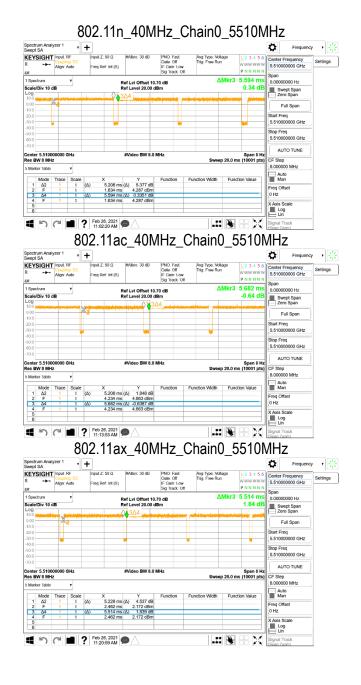
enter 5.50000 los BW 8 MHz

> Mode Trace Sc Δ2 1

3 Δ4 4 F (Δ)

t (Δ)





						· +			pectr wept
V WWWWWW 5.50000000 GHz Setti	tun www.www	Avg Type: Volta Trig: Free Run	PNO. Fast Gate: Off IF Gain: Low Sig Track: O	WAtten: 30 dB	out Z: 50 Ω #/	I DC	Coupling Align: Auto	SIGHT	EYS
5.468 ms 0.00000000 Hz	ΔMkr3 5.468 ms	Δ	70 dB	Ref Lvi Offset 10.	Ref	•		trum:	-
-0.31 dB Swept Span		technication and	IBm	Ref Level 20.00 d			iB	'Div 10 (ale/
Full Span									00
Start Freq 5.50000000 GHz									1.0 1.0
Stop Freq 5.50000000 GHz									1.0 1.0 1.0
Span 0 Hz				#Video BW 8.0			00000 GH		0
	span 0 H2 eep 20.0 ms (10001 pts	Sweep	MHZ	#Video BW 8.0	#V		z	W 8 MH	s B
Auto Man	Function Value	Function Width	Function	Y	x	Scale		Mode	
Freq Offset					5.226 ms (Δ) 1.100 ms	t (Δ)	1	Δ2 F	1
0 Hz				(Δ) -0.3138 dB	5.468 ms (Δ)	t (Δ)	1	Δ4	3
CF Step 8.000000 MHz Auto Man Freq Offset	ep 20.0 ms (10001 pts			Y (Δ) 0.8790 dB 11.99 dBm (Δ) -0.3138 dB	X 5.226 ms (Δ) 1.100 ms	Scale t (Δ) t	z •	W 8 MH or Table Mode Δ2 F	Mark

eo BW 8.0 MH

5.208 ms (Δ) -2.927 dB

454.0 μs 12.19 dBm 5.504 ms (Δ) -0.3028 dB 454.0 μs 12.19 dBm

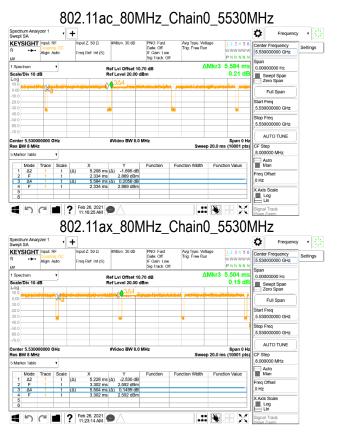
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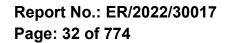
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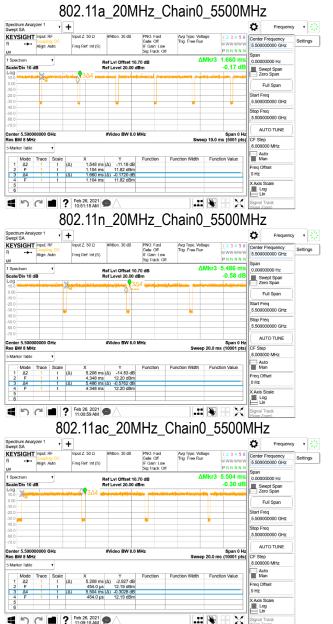
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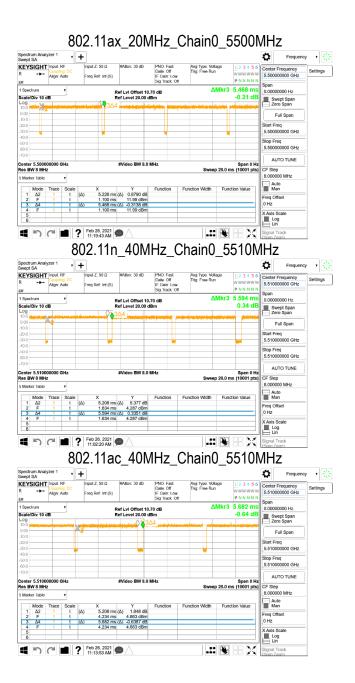
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CDD Mode

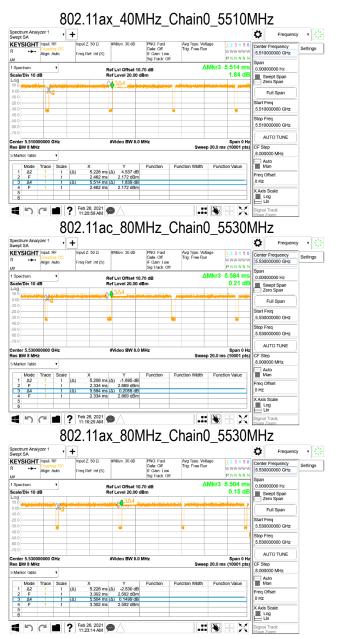




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8 EMISSION BANDWIDTH MEASUREMENT

8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C. The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

8.2 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto,
 Detector = Peak,
 Trace Mode = Max Hold,
 Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
 - 3.b. Mark the peak frequency and -26dB (upper and lower) frequency.
- 4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
- Minimum Emission Bandwidth for the band 5.725-5.850GHz.

 a. Set the spectrum analyzer as
 RBW = 100 kHz,
 VBW = 3*RBW,
 Span = 30M/50MHz,
 Detector=Peak,
 Sweep=auto
 b. Mark the peak frequency and –6dB (upper and lower) frequency.
- 6. Repeat above procedures until all frequency of interest measured was complete.

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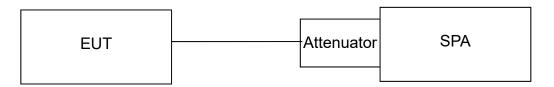
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8.3 **Measurement Equipment Used**

Conducted Emission Test Site: Conducted 2								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUM- BER	LAST CAL.	CAL DUE.			
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY60240503	12/11/2020	12/10/2021			
Attenuator	Mini-Circuit	BW- S10W2+	2	12/16/2020	12/15/2021			
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021			

8.4 **Test Set-up**



8.5 **Beamforming Mode Measurement Result**

8.5.1 FCC 26dB Bandwidth

802.11n_HT20_Ch0			802.11n_HT20_Ch1		
Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	20.14	13.040	5180	19.89	12.990
5220	20.26	13.070	5220	20.12	13.040
5240	19.95	13.000	5240	19.82	12.970
5260	20.11	13.030	5260	19.79	12.960
5300	20.13	13.040	5300	20.23	13.060
5320	20.00	13.010	5320	19.92	12.990
5500	20.45	13.110	5500	19.66	12.940
5580	19.88	12.980	5580	19.61	12.920
5700	20.32	13.080	5700	19.83	12.970
5720(U-NII 2C)	15.02	11.770	5720(U-NII 2C)	14.94	11.740
5720(U-NII 3)	5.02	7.010	5720(U-NII 3)	4.94	6.930

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802.11ax 20 Ch0 802.11ax_20_Ch1 26dB 26dB 10 Log (B) Freq. 10 Log (B) Freq. **RU** config BW **RU** config BW (MHz) (dB) (MHz) (dB) (MHz) (MHz) 5180 20.66 13.150 5180 20.50 13.120 full full 5220 full 20.99 13.220 5220 full 13.250 21.14 5240 full 20.94 13.210 5240 full 20.64 13.150 5260 full 21.25 13.270 5260 full 20.55 13.130 5300 full 20.92 13.210 5300 full 20.87 13.200 5320 full 21.02 13.230 5320 full 21.21 13.270 5500 full 20.67 5500 20.72 13.160 13.150 full 13.160 5580 full 20.82 13.180 5580 full 20.70 20.97 13.220 5700 full 21.28 13.280 5700 full 5720(U-5720(Ufull 15.65 11.950 full 15.27 11.840 NII 2C) NII 2C) 5720(U-5720(Ufull 5.65 7.520 full 5.27 7.220 NII 3) NII 3)

802.11n _HT40_Ch0

802.11n _HT40_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.82	16.000	5190	39.20	15.930
5230	39.42	15.960	5230	39.00	15.910
5270	39.90	16.010	5270	39.07	15.920
5310	40.12	16.030	5310	38.98	15.910
5510	39.79	16.000	5510	39.01	15.910
5550	39.52	15.970	5550	39.23	15.940
5670	39.88	16.010	5670	39.30	15.940
5710(U-NII 2C)	35.17	15.460	5710(U-NII 2C)	34.68	15.400
5710(U-NII 3)	5.17	7.130	5710(U-NII 3)	4.68	6.700

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802.11ax _40_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5190	full	40.41	16.060	5190	full	40.22	16.040
5230	full	40.41	16.060	5230	full	40.59	16.080
5270	full	40.51	16.080	5270	full	40.19	16.040
5310	full	40.32	16.060	5310	full	40.29	16.050
5510	full	39.84	16.000	5510	full	40.39	16.060
5550	full	40.24	16.050	5550	full	40.30	16.050
5670	full	40.31	16.050	5670	full	40.58	16.080
5710(U- NII 2C)	full	35.19	15.460	5710(U- NII 2C)	full	35.03	15.450
5710(U- NII 3)	full	5.19	7.150	5710(U- NII 3)	full	5.03	7.020

802.11ac _VHT80_Ch0

802.11ax _40_Ch0

802.11ac _VHT80_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	80.85	19.080	5210	81.38	19.110
5290	81.91	19.130	5290	80.70	19.070
5530	81.52	19.110	5530	79.79	19.020
5610	80.90	19.080	5610	80.92	19.080
5690(U-NII 2C)	75.48	18.780	5690(U-NII 2C)	75.32	18.770
5690(U-NII 3)	5.48	7.390	5690(U-NII 3)	5.32	7.260

802.11ax _80_Ch0

802.11ax _80_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5210	full	81.63	19.120	5210	full	81.56	19.110
5290	full	81.13	19.090	5290	full	81.64	19.120
5530	full	80.89	19.080	5530	full	81.22	19.100
5610	full	81.01	19.090	5610	full	80.98	19.080
5690(U- NII 2C)	full	75.32	18.770	5690(U- NII 2C)	full	75.81	18.800
5690(U- NII 3)	full	5.32	7.260	5690(U- NII 3)	full	5.81	7.650

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8.5.2 6dB Bandwidth (5725 MHz~ 5850 MHz) measure with Peak detector for FCC

802.11n HT20 Ch0

802 11n HT20 Ch1

802.11II_H120_CII0			802.11II_H120_CIII		
Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	17.62	12.460	5745	17.55	12.440
5785	17.62	12.460	5785	17.20	12.360
5825	16.93	12.290	5825	17.58	12.450

802.11ax_20_Ch0

802.11ax_20_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5745	full	15.09	11.790	5745	full	17.34	12.390
5785	full	19.01	12.790	5785	full	17.42	12.410
5825	full	17.00	12.300	5825	full	19.08	12.810

802.11n_HT40_Ch0

802.11n_HT40_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	32.82	15.160	5755	35.12	15.460
5795	36.31	15.600	5795	36.38	15.610

802.11ax_40_Ch0

802.11ax_40_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5755	full	37.07	15.690	5755	full	37.48	15.740
5795	full	36.73	15.650	5795	full	37.69	15.760

802.11ac _VHT80_Ch0

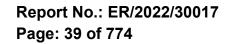
802.11ac _VHT80_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	74.16	18.700	5775	70.78	18.500

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802.11ax _80_Ch0			802.11ax _80_Ch1				
Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5775	full	75.76	18.790	5775	full	75.56	18.780

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BW Verification for DFS Function 8.5.3

802.11n	HT20	Ch0	80

02.11n_HT20_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.78	< 5250	5240	5248.78	< 5250
5745	5736.18	> 5725	5745	5736.19	> 5725

802.11ax 20 Ch0	802.	.11ax	20	Ch0
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802.11ax_20_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5249.45	< 5250	5240	5249.47	< 5250
5745	5735.48	> 5725	5745	5735.50	> 5725

802.11n	HT40	Ch0

802.11n _HT40_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5247.99	< 5250	5230	5247.97	< 5250
5755	5736.95	> 5725	5755	5736.91	> 5725

802.11ax	_40_Ch0

802.11ax _40_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.87	< 5250	5230	5248.82	< 5250
5755	5736.21	> 5725	5755	5736.09	> 5725

802.11ac	VHT80	Ch0	8

02.11ac _VHT80_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.69	< 5250	5210	5247.65	< 5250
5775	5737.20	> 5725	5775	5737.28	> 5725

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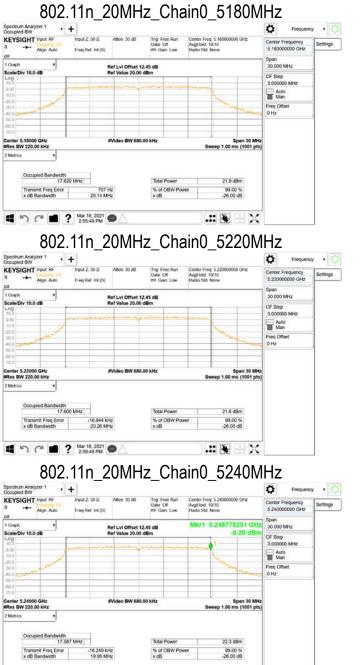
802.11ax _VHT80_Ch0			802.11ax _VHT80_Ch1			
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	
5210	5248.51	< 5250	5210	5248.45	< 5250	
5775	5736.58	> 5725	5775	5736.38	> 5725	

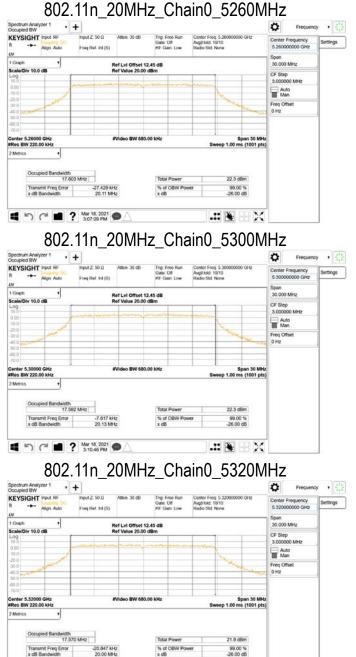
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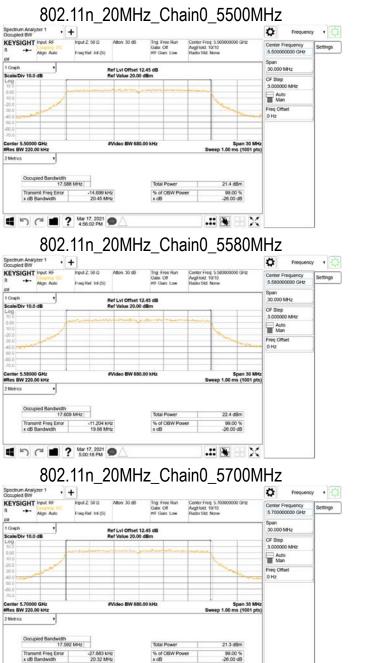
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802.11n 20MHz Chain0 5720MHz Ö Input Z: 50 D Atton: 30 dB KEYSIGHT Input F Trig: Free Run Gate: Off Avg(Hots: 10/10 Refe Std More Center Frequency 5.720000000 GHz Settings Freq Ref. Int (S) LUI . ipan 30.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB CF Step 3.000000 MHz Auto Freq Offsel Center 5.72000 GHz #Res BW 220.00 kHz Span 30 MHz eep 1.00 ms (1001 pts) Occupied Bandwidth 17.596 MHz Total Power 21.9 dBm % of OBW Power x dB Transmit Freq Error x dB Bandwidth -9.181 kHz 99.00 % -26.00 dB ■ つ C ■ ? Mar 17, 2021 ● .:: 🖌 – 🗶 802.11n 20MHz Chain0 5745MHz ø Frequency . • + KEYSIGHT Input RF Input Z: 50 Q Atten: 30 dB Trig: Free Run Gate: Off Center Frequency 5.745000000 GHz Settings + Align Auto Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 30.000 MHz iv 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz enter 5.74500 GHz Res BW 100.00 kHz Span 30 MHz sep 2.93 ms (1001 pts) 2 Metrics Occupied Bandwidth 17.509 MHz Total Pow 29.0 dBm Transmit Freq Error x dB Bandwidth -21.643 kHz 17.62 MHz % of OBW Power x dB 99.00 % -6.00 dB 1 C C 1 ? Mar 17, 2021 .:: 🖌 🛛 🗙 802.11n 20MHz Chain0 5785MHz Spectrum Analyzer 1 Occupied BW KEYSIGHT Input RF R + Algen Auto Fined Bert Let RF Atten 30 dB Ö Trig: Free Run Gate: Ott Center Freq: 5.70 Avg(Hold: 10/10 Center Frequency 5.78500000 GHz ttings ipan 30.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz ar 5.7850 ------Sweep 2.93 ms (1001 pts) Occupied Bandwidth 17.644 MHz Total Powe 29.5 dBm % of OBW Power x dB Transmit Freq Error x dB Bandwidth -34.146 kHz 17.62 MHz 99.00 % -6.00 dB

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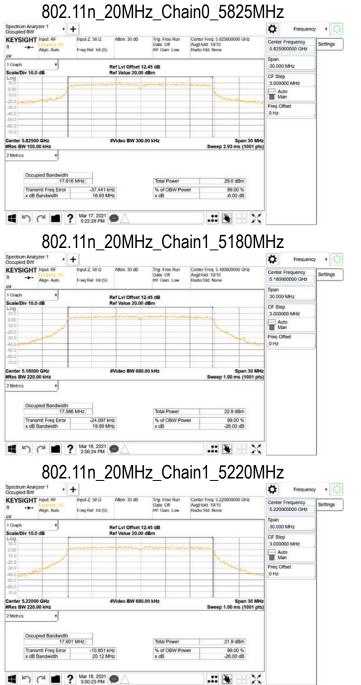
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802.11n 20MHz Chain1 5240MHz Imput Z: 50 D KEYSIGHT Input F Atton: 30 dB Trig: Free Run Gate: Off Center Freq: 5.240 Avg(Hold: 10/10 Rate Fit Settings Center Frequency 5.240000000 GHz Freq Ref. Int (S) LU Span 30.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Scale/Div 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz Center 5.24000 GHz #Res BW 220.00 kHz Span 30 MHz ms (1001 pts) eep 1.00 Occupied Bandwidth 17.583 MHz Total Power 22.6 dBm Transmit Freq Error x dB Bandwidth % of OBW Power x dB -8.166 kHz 19.82 MHz 99.00 % -26.00 dB 4 ら (* ■ ? Mar 18, 2021 ● 3.04.01 PM .:: 🖌 🗄 🗙 802.11n 20MHz Chain1 5260MHz ¢ Frequency . • + KEYSIGHT Input RF Input Z: 50 Q Atten: 30 dB Trig: Free Run Gate: Off Center Freq: 5.2 Avg/Hold: 10/10 Center Frequency Settings + Align Auto Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 30.000 MHz iv 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz Center 5.26000 GHz Res BW 220.00 kHz Span 30 MHz sep 1.00 ms (1001 pts) Occupied Bandwidth 17.605 MHz Total Powe 22.8 dBm % of OBW Power x dB Transmit Freq Error x dB Bandwidth -3.815 kHz 19.79 MHz 99.00 % -26.00 dB 1 C C 1 ? Mar 18, 2021 .:: 🖌 🛛 🗙 802.11n 20MHz Chain1 5300MHz Spectrum Analyzer 1 Occupied BW KEYSIGHT Input RF R + Algen Auto Fined Bert Let RF Atten 30 dB Ö Trig: Free Run Gate: Ott Center Freq: 5 Avg(Hold: 10/1 Center Frequency 5.30000000 GHz ttings Span 30.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz -----ms (1001 pts) tes BW 220.00 kHz eep 1.00 Occupied Bandwidth 17.507 MHz Total Powe 22.9 dBm

% of OBW Power x dB

99.00 %

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Transmit Freq Error x dB Bandwidth

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-21,538 kHz 20,23 MHz

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Trig: Free Run Gate: Off Will Came Line Aug/Hold: 10/10 Partic Came Line

.

Center Frequency 5.70000000 GHz Settings

Ö

802.11n 20MHz Chain1 5700MHz

Input Z: 50 D

Freq Ref. Int (S)

Atton: 30 dB



#Video BW 680.00 kHz

-18.874 kHz 19.61 MHz

Total Power

% of OBW Power x dB

Res BW 220.00 kHz

Occupied Bandwidth 17.505 MHz

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Transmit Freq Error x dB Bandwidth

LU ipan 30.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offsel Center 5.70000 GHz #Res BW 220.00 kHz Span 30 MHz eep 1.00 ms (1001 pts) Occupied Bandwidth 17.609 MHz Total Power 20.3 dBm Transmit Freq Error x dB Bandwidth % of OBW Power x dB -33.225 kHz 19.83 MHz 99.00 % -26.00 dB .:: 🖌 – 🗶 802.11n 20MHz Chain1 5720MHz ¢ Frequency . • + KEYSIGHT Input RF Input Z: 50 Q Atten: 30 dB Trig: Free Run Gate: Off Center Frequency 5.720000000 GHz Settings + Align Auto Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 30.000 MHz Niv 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz Center 5.72000 GHz IRes BW 220.00 kHz Span 30 MHz eep 1.00 ms (1001 pts) 2 Metrics Occupied Bandwidth 17.609 MHz Total Powe 20.7 dBm Transmit Freq Error x dB Bandwidth -26.580 kHz 19.87 MHz % of OBW Power x dB 99.00 % -26.00 dB 1 C C 1 ? Mar 17, 2021 .:: 🖌 🛛 🗙 802.11n 20MHz Chain1 5745MHz spectrum Analyzer 1 Occupied BW KEYSIGHT Input R5 R ++ Alton Ado Not R Atton 30 d6 Ö Trig: Free Run Gate: Ott Center Frequency 5.745000000 GHz ttings Avg(Hold LU Span 30.000 MHz 1 Graph •



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eep 1.00 ms (10

21.2 dBm

99.00 % -26.00 dB

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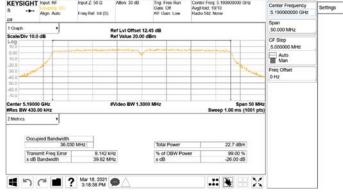
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802.11n 40MHz Chain0 5230MHz Imput Z: 50 D Atton: 30 dB KEYSIGHT Input Trig: Free Run Gate: Off Center Freq: 5.23 Avg(Hold: 10/10 Settings Center Frequency 5.230000000 GHz Freq Ref. Int (S) LU Span 50.000 MHz 5.24 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dE CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz Span 50 MHz eep 1.00 ms (1001 pts) er 5.23000 BW 1 3000 MHz Res BW 430.00 kHz Occupied Bandwidth 36.024 MHz Total Powe 23.1 dBm Transmit Freq Error x dB Bandwidth % of OBW Power x dB -26.446 kHz 39.42 MHz 99.00 % -26.00 dB 4 ら (* ■ ? Mar 18, 2021 ● 322:24 PM .:: 🖌 🗄 🗙 802.11n 40MHz Chain0 5270MHz ¢ Frequency . • + KEYSIGHT Input RF Atten: 30 dB Trig: Free Run Gate: Off Center Frequency 5.270000000 GHz Settings + Align Auto Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 50.000 MHz v 10.0 dB CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz Video BW 1.3000 MHz enter 5.27000 GHz Res BW 430.00 kHz Span 50 MHz ep 1.00 ms (1001 pts) Occupied Bandwidth 36.075 MHz Total Pow 23.0 dBm Transmit Freq Error x dB Bandwidth -11.487 kHz 39.90 MHz % of OBW Power x dB 99.00 % -26.00 dB 1 C C 1 ? Mar 18, 2021 .:: 🖌 🛛 🗙 802.11n 40MHz Chain0 5310MHz

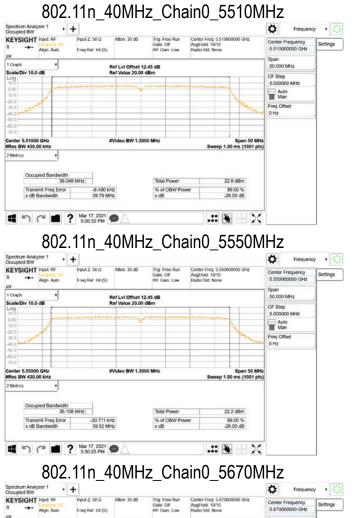


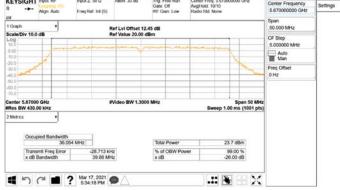
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to BW 300.00 kH

-23.714 kHz 36.31 MHz

Total Powe

% of OBW Power x dB

eep 4.80 ms (1001 pts)

28.3 dBm

99.00 % -6.00 dB

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Occupied Bandwidth 36.118 MHz

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Transmit Freq Error x dB Bandwidth

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802.11n 40MHz Chain1 5310MHz Input Z: 50 D Atton: 30 dB KEYSIGHT Input Trig: Free Run Gate: Off Avg(Hold: 10/10 MtE Cam Line Center Frequency 5.310000000 GHz Settings Freq Ref. Int (S) LU ipan 50.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dE CF Step 5.000000 MHz Auto Man Freq Offsel er 5.31000 BW 1 3000 MHz Span 50 MHz eep 1.00 ms (1001 pts) Res BW 430.00 kHz Occupied Bandwidth 36.038 MHz Total Powe 23.1 dBm Transmit Freq Error x dB Bandwidth % of OBW Power x dB 99.00 % -26.00 dB 4 らで ■ ? Mar 18, 2021 .:: 🖌 – 🗶 802.11n 40MHz Chain1 5510MHz ¢ Frequency . • + KEYSIGHT Input RF Atten: 30 dB Trig: Free Run Gate: Off Center Frequency 5.510000000 GHz Settings + Align Auto Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 50.000 MHz v 10.0 dB CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz eo BW 1.3000 MHz enter 5.51000 GHz Res BW 430.00 kHz Span 50 MHz rep 1.00 ms (1001 pts) Occupied Bandwidth 36.047 MHz Total Pow 22.6 dBm Transmit Freq Error x dB Bandwidth 47.689 kHz 39.01 MHz % of OBW Power x dB 99.00 % -26.00 dB 1 C C 1 ? Mar 17, 2021 .:: 🖌 🛛 🗙 802.11n 40MHz Chain1 5550MHz Spectrum Analyzer 1 • + Cocupied BW KEYSIGHT Input RF R • + Adam Adam Exercise Cocupied Cocu Ö Trig: Free Run Gate: Off Center Freq: 5.5 Avg(Hold: 10/10 Center Frequency 5.550000000 GHz ttings ipan 50.000 MHz 1 Crach Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz 0 BW 1 3000 MH eep 1.00 ms (1001 pts)

Total Powe

% of OBW Power x dB

21.9 dBm

99.00 %

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Occupied Bandwidth 36.112 MHz

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-9.259 kHz 39.23 MHz

Transmit Freq Error x dB Bandwidth

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802.11n 40MHz Chain1 5795MHz Input Z. 50 D Atton: 30 dB KEYSIGHT Input Trig: Free Run Gate: Off Avg(Hold: 10/10 Center Frequency 5.795000000 GHz Settings Freq Ref. Int (S) LU ipan 50.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dE CF Step 5.000000 MHz Auto Man Freq Offsel er 5.79500 Span 50 MHz eep 4.80 ms (1001 pts) #Res BW 100.00 kHz Occupied Bandwidth 36.055 MHz Total Powe 27.3 dBm Transmit Freq Error x dB Bandwidth % of OBW Power x dB -38.753 kHz 36.38 MHz 99.00 % -6.00 dB ■ つ C ■ ? Mar 17, 2021 ● .:: 🖌 🗄 🗙 802.11ac 80MHz Chain0 5210MHz ø Frequency . • + KEYSIGHT Input RF Atten: 30 dB Trig: Free Run Gate: Off Center Frequency 5.210000000 GHz Settings Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 100.00 MHz 10.0 dl CF Step 10.000000 MHz Auto Man Freq Offse 0 Hz Video BW 2.7000 MHz enter 5.21000 GHz Res BW 820.00 kHz Span 100 Mi 1.00 ms (1001 pt Occupied Bandwidth 75.338 MHz Total Pow 22.7 dBm Transmit Freq Error x dB Bandwidth 20.895 kHz 80.85 MHz % of OBW Power x dB 99.00 % -26.00 dB 1 C C 1 ? Mar 18, 2021 .:: 🖌 🛛 🗙 802.11ac 80MHz Chain0 5290MHz Spectrum Analyzer 1 Occupied BW KEYSIGHT Inout RF R + Algen Auto ø Trig: Free Run Gate: Ott Center Freq: 5.2 Avg(Hold: 10/10 Center Frequency 5.29000000 GHz ttings Span 100.00 MHz 1 Crach Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB CF Step 10.000000 MHz Auto Man Freq Offset 0 BW 2 7000 MH eep 1.00 ms (1001 pts) es BW 820.00 kHz Occupied Bandwidth 75.432 MHz Total Powe 21.1 dBm % of OBW Power x dB Transmit Freq Error x dB Bandwidth 61.953 kHz 81.91 MHz 99.00 %

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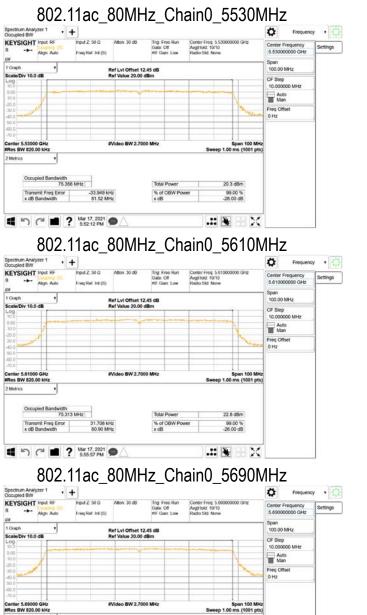


Occupied Bandwidth 75.367 MHz

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-32.960 kHz 80.96 MHz

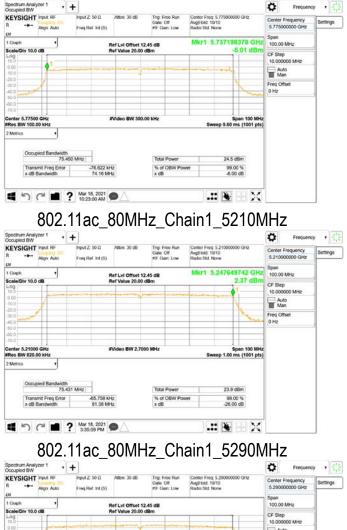
Transmit Freq Error x dB Bandwidth

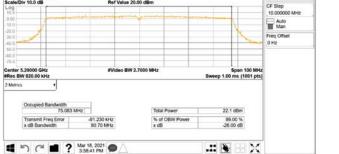


Total Power

% of OBW Power x dB

802.11ac 80MHz Chain0 5775MHz





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24.8 dBm

99.00 % -26.00 dB

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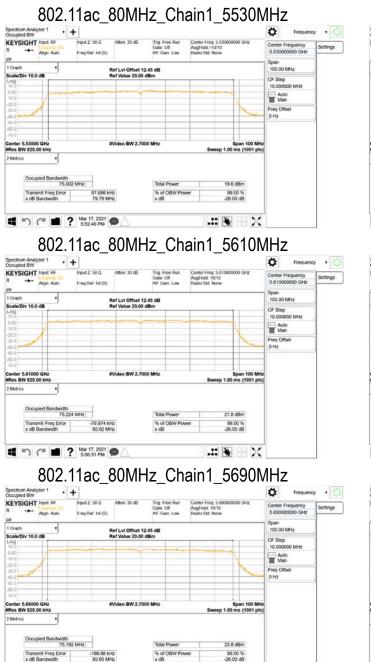


Transmit Freq Error x dB Bandwidth

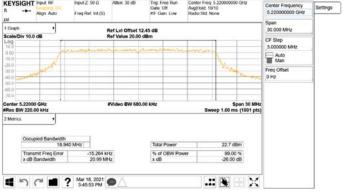
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-186.66 kHz 80.65 MHz

802.11ac 80MHz Chain1 5775MHz



ø Imput Z: 50 D Atton: 30 dB KEYSIGHT Input Trig: Free Run Gate: Off Center Freq: 5.77 Avg(Hold: 10/10 Center Frequency 5.775000000 GHz Settings Freq Ref. Int (S) LU ipan 100.00 MHz 5.73 1 Graph Ref Lvi Offset 12.45 dB Scale/Div 10.0 dl CF Step 10.000000 MHz Auto Man Freq Offset 0 Hz ter 5.77500 Res BW 100.00 kH ep 9.60 ms (1001 pts) Occupied Bandwidth 75.454 MHz Total Powe 22.9 dBm Transmit Freq Error x dB Bandwidth % of OBW Power x dB 7.082 kHz 70.78 MHz 99.00 % -6.00 dB 「 「 」 ? Mar 18, 2021 」 「 」 (」 」 ? Mar 18, 2021 」 」 」 」 」 」 、 .:: 🖌 🗄 🗙 802.11ax 20MHz Chain0 5180MHz Occupied BW KEYSIGHT Input RF R ø Frequency . • + Input Z: 50 Ω Atten: 30 dB Trig: Free Run Gate: Off Center Freq: 5.14 Avg/Hold: 10/10 Center Frequency Settings Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 30.000 MHz iv 10.0 dB CF Step 3.000000 MHz Auto Man Freq Offset D Hz Center 5.18000 GHz #Res BW 220.00 kHz Span 30 MHz ep 1.00 ms (1001 pts Occupied Bandwidth 18.895 MHz Total Pow 23.0 dBm Transmit Freq Error x dB Bandwidth 15.821 kHz 20.66 MHz % of OBW Power x dB 99.00 % -26.00 dB 1 C C 1 ? Mar 18, 2021 .:: 🖌 🛛 🗙 802.11ax 20MHz Chain0 5220MHz Spectrum Analyzer 1 • + Cocupied BW KEYSIGHT Input RF R • + Adam Adam Exercise Cocupied Cocu ø Trig: Free Run Gate: Ott Center Freq: 5.22 Avg(Hold: 10/10



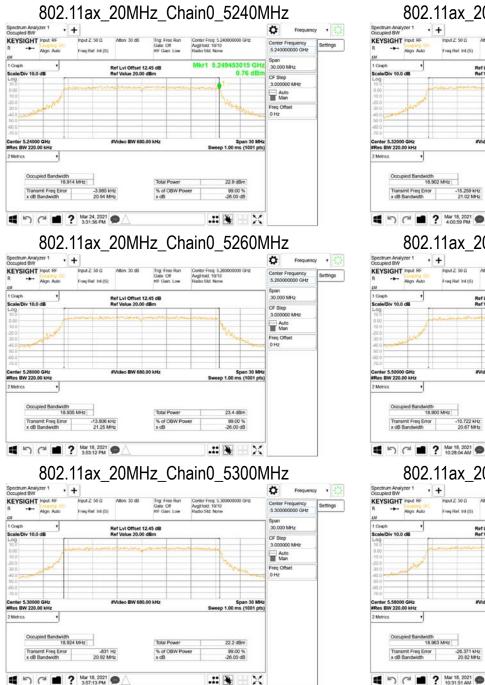
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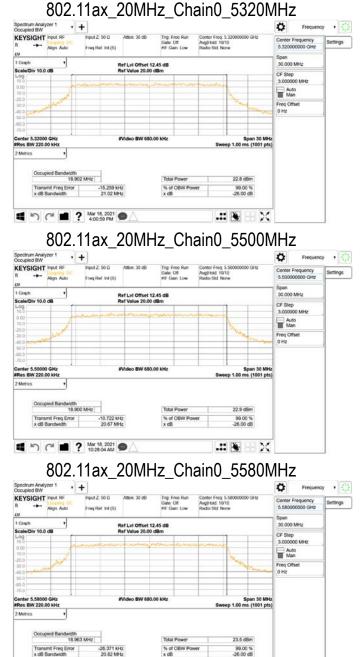
99.00 % -26.00 dB

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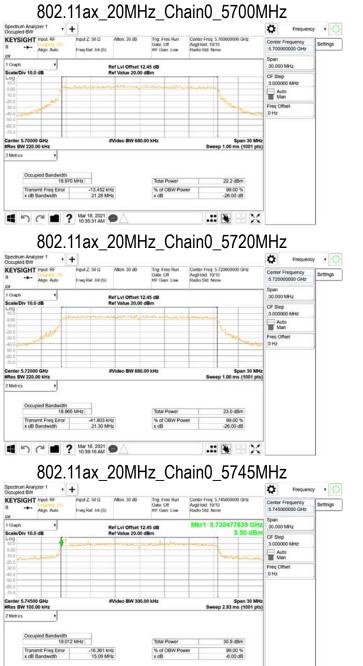
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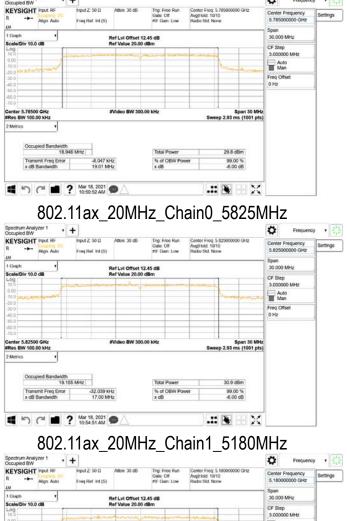
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802.11ax 20MHz Chain0 5785MHz



Auto Man Freq Offset 0 Hz -----eep 1.00 ms (1001 pts) es BW 220.00 kHz Occupied Bandwidth 18.909 MHz Total Powe 23.9 dBm % of OBW Power x dB Transmit Freq Error x dB Bandwidth -13.773 kHz 20.50 MHz 99.00 % ■ つ (~ ■ ? Mar 18, 2021 ● .:: 🕃 🗄 🗙

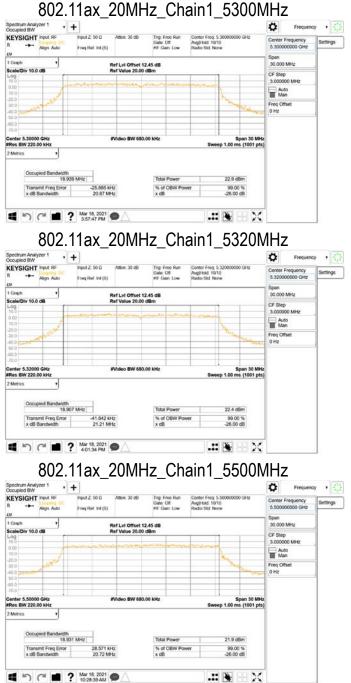
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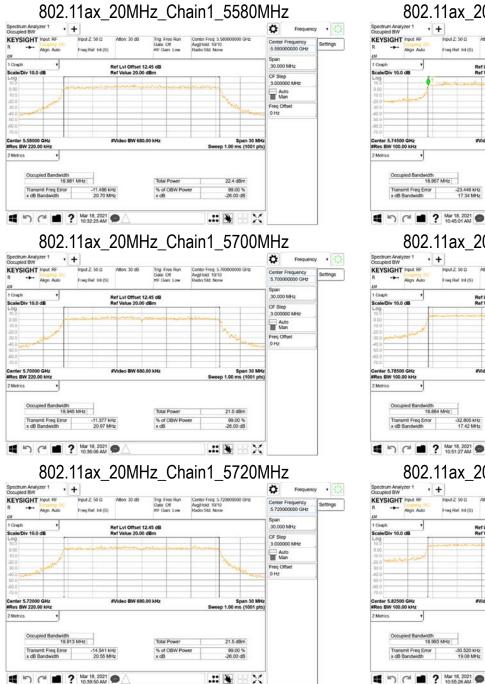


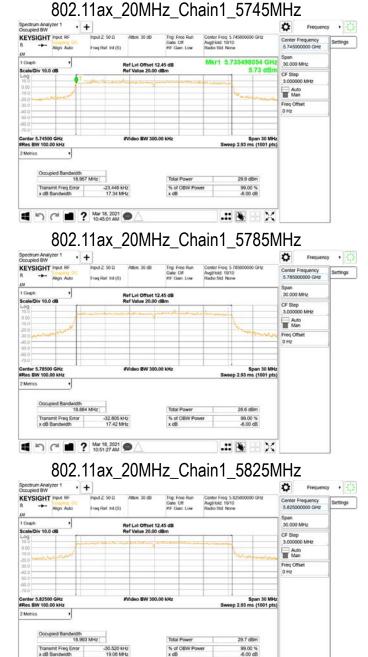


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802.11ax 40MHz Chain0 5310MHz ø Input Z. 50 D Atton: 30 dB KEYSIGHT Input Trig: Free Run Gate: Off Will Came Line Aug/Hold: 10/10 Partic Came Line Center Frequency 5.31000000 GHz Settings Freq Ref. Int (S) LU ipan 50.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dl CF Step 5.000000 MHz Auto Freq Offsel er 5.31000 BW 1 3000 MHz #Res BW 430.00 kHz Span 50 MHz ep 1.00 ms (1001 pts) Occupied Bandwidth 37.681 MHz Total Powe 22.3 dBm Transmit Freq Error x dB Bandwidth % of OBW Power x dB -25.729 kHz 40.32 MHz 99.00 % -26.00 dB 4 ら (* ■ ? Mar 18, 2021 ● 4:16:56 PM .:: 🖌 🗄 🗙 802.11ax 40MHz Chain0 5510MHz ø Frequency . • + KEYSIGHT Input RF Input Z: 50 Q Atten: 30 dB Trig: Free Run Gate: Off #E Date: Long Center Frequency Settings Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 50.000 MHz 10.0 dl CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz Video BW 1.3000 MHz enter 5.51000 GHz Res BW 430.00 kHz Occupied Bandwidth 37.650 MHz Total Pow 22.6 dBm Transmit Freq Error x dB Bandwidth 7.355 kHz 39.84 MHz % of OBW Power x dB 99.00 % -26.00 dB 1 C C 1 ? Mar 18, 2021 .:: 🖌 🛛 🗙 802.11ax 40MHz Chain0 5550MHz Spectrum Analyzer 1 • + Cocupied BW KEYSIGHT Input RF R • + Adam Adam Exercise Cocupied Cocu ø Trig: Free Run Gate: Off Center Freq: 5. Avg(Hold: 10/10 Center Frequency 5.55000000 GHz ttings ipan 50.000 MHz 1 Crach Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB CF Step 5.000000 MHz Auto Man Freq Offsel

0 BW 1 3000 MH rep 1.00 ms (1001 pts) Occupied Bandwidth 37.659 MHz Total Powe 23.6 dBm % of OBW Power x dB Transmit Freq Error x dB Bandwidth -16.591 kHz 40.24 MHz 99.00 % ■) (■ ? Mar 18, 2021 ● .:: 💽 🗄 🗙

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Trig: Free Run Gate: Off Avg(Hold: 10/10 HE Cam Line Date Stat News

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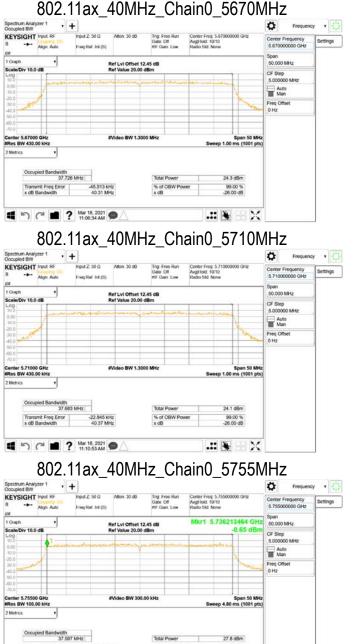
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802.11ax 40MHz Chain0 5795MHz

Input Z. 50 Ω Atten: 30 dB

Freq Ref. Int (S)

KEYSIGHT Input



Total Power

Transmit Freq Error x dB Bandwidth

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11.964 kHz 37.07 MHz

% of OBW Power x dB

802.11ax 40MHz Chain0 5670MHz

Center Frequency 5.79500000 GHz Settings LU ipan 50.000 MHz 1 Graph Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dl CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz ter 5,79500 #Res BW 100.00 kHz span 50 MHz eep 4.80 ms (1001 pts) Occupied Bandwidth 37.642 MHz Total Powe 28.8 dBm Transmit Freq Error 650 Hz x dB Bandwidth 36.73 MHz % of OBW Power x dB 99.00 % -6.00 dB ■ つ C ■ ? Mar 18, 2021 ● .:: 🖌 🗄 🗙 802.11ax 40MHz Chain1 5190MHz ø Frequency . • + KEYSIGHT Input RF Input Z: 50 Q Atten: 30 dB Trig: Free Run Gate: Off Center Frequency Settings Freq Ref. Int (S) Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm 50.000 MHz 10.0 dl CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz Video BW 1.3000 MHz enter 5.19000 GHz Res BW 430.00 kHz Occupied Bandwidth 37.708 MHz Total Pow 23.9 dBm Transmit Freq Error x dB Bandwidth -23.058 kHz 40.22 MHz % of OBW Power x dB 99.00 % -26.00 dB 1 C C 1 ? Mar 18, 2021 .:: 🖌 🛛 🗙 802.11ax 40MHz Chain1 5230MHz Spectrum Analyzer 1 Cocupied BW KEYSIGHT Input R5 R + Alton 30 d6 R + Alton 400 ¢ Trig: Free Run Gate: Off Center Frequency 5.230000000 GHz ttings Avg(Hold ipan 50.000 MH Ref Lvi Offset 12.45 dB Ref Value 20.00 dBm Scale/Div 10.0 dB 3.75 d CF Step 5.000000 MHz Auto Man Freq Offset 0 Hz 0 BW 1 3000 MH rep 1.00 ms (1001 pts) Occupied Bandwidth 37.714 MHz Total Powe 24.6 dBm % of OBW Power x dB Transmit Freq Error x dB Bandwidth 99.00 %

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27.8 dBm

99.00 % -6.00 dB

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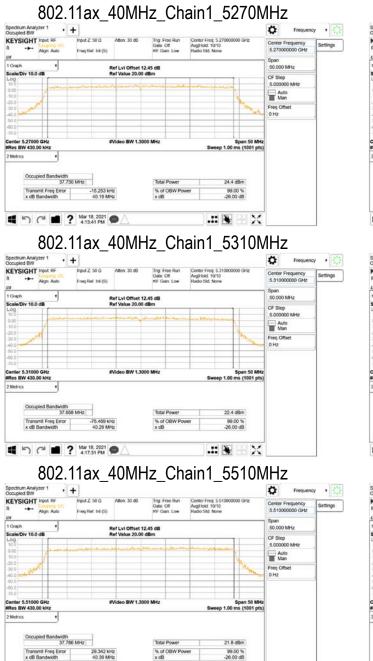
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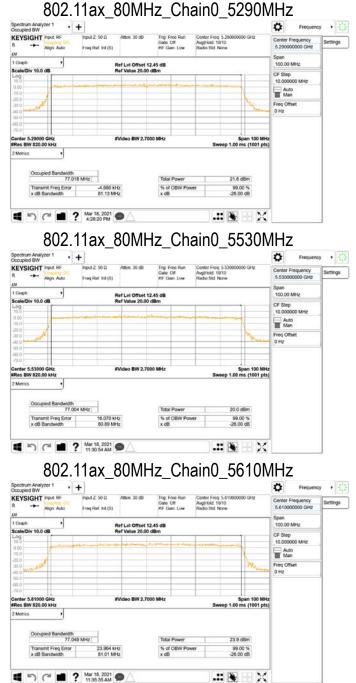
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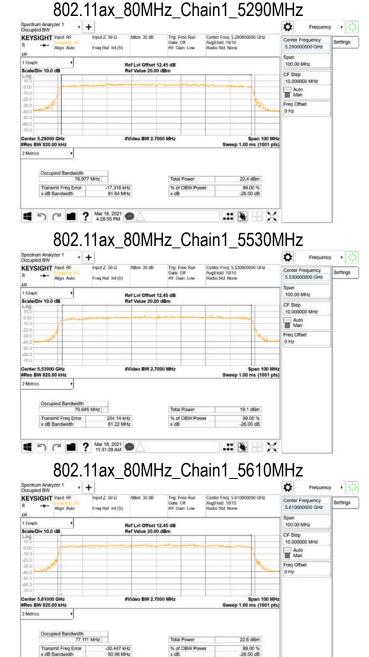




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99.00 %

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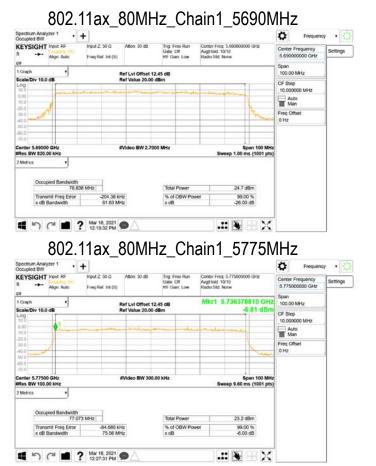
Transmit Freq Error x dB Bandwidth

■ ? Mar 18, 2021

30.447 kHz 80.98 MHz

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8.6 **CDD Mode Measurement Result**

FCC 26dB Bandwidth 8.6.1

802.11a_Ch0			802.11a_Ch1		
Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.13	12.820	5180	19.07	12.800
5220	18.91	12.770	5220	18.88	12.760
5240	19.37	12.870	5240	19.09	12.810
5260	18.92	12.770	5260	18.79	12.740
5300	19.10	12.810	5300	19.11	12.810
5320	18.86	12.760	5320	18.77	12.730
5500	18.92	12.770	5500	18.69	12.720
5580	18.97	12.780	5580	18.93	12.770
5700	19.20	12.830	5700	18.85	12.750
5720(U-NII 2C)	14.47	11.600	5720(U-NII 2C)	14.48	11.610
5720(U-NII 3)	4.47	6.500	5720(U-NII 3)	4.48	6.510

802.11n_HT20_Ch0			802.11n_HT20_Ch1		
Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	20.79	13.180	5180	19.65	12.930
5220	19.90	12.990	5220	19.73	12.950
5240	20.40	13.100	5240	20.00	13.010
5260	20.09	13.030	5260	19.81	12.970
5300	19.94	13.000	5300	19.94	13.000
5320	20.22	13.060	5320	20.02	13.010
5500	19.86	12.980	5500	19.94	13.000
5580	20.18	13.050	5580	20.23	13.060
5700	20.26	13.070	5700	19.91	12.990
5720(U-NII 2C)	15.19	11.820	5720(U-NII 2C)	14.92	11.740
5720(U-NII 3)	5.19	7.160	5720(U-NII 3)	4.92	6.920

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802.11a	x_20_Ch0			802.11ax_20_Ch1			
Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5180	full	20.66	13.150	5180	full	20.78	13.180
5220	full	21.12	13.250	5220	full	20.61	13.140
5240	full	20.91	13.200	5240	full	21.19	13.260
5260	full	20.67	13.150	5260	full	20.70	13.160
5300	full	20.57	13.130	5300	full	20.77	13.170
5320	full	20.51	13.120	5320	full	21.15	13.250
5500	full	20.65	13.150	5500	full	20.83	13.190
5580	full	21.04	13.230	5580	full	20.63	13.140
5700	full	20.85	13.190	5700	full	20.80	13.180
5720(U- NII 2C)	full	15.40	11.870	5720(U- NII 2C)	full	15.37	11.870
5720(U- NII 3)	full	5.40	7.320	5720(U- NII 3)	full	5.37	7.300

802.11n _HT40_Ch0			802.11n _HT40_Ch1		
Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	40.24	16.050	5190	39.16	15.930
5230	39.53	15.970	5230	39.29	15.940
5270	39.73	15.990	5270	39.39	15.950
5310	39.75	15.990	5310	39.44	15.960
5510	39.78	16.000	5510	39.28	15.940
5550	39.87	16.010	5550	39.36	15.950
5670	40.33	16.060	5670	39.41	15.960
5710(U-NII 2C)	34.78	15.410	5710(U-NII 2C)	34.60	15.390
5710(U-NII 3)	4.78	6.800	5710(U-NII 3)	4.60	6.620

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802.11a	x _40_Ch0			802.11ax _40_Ch1			
Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5190	full	40.10	16.030	5190	full	40.68	16.090
5230	full	41.23	16.150	5230	full	40.80	16.110
5270	full	40.37	16.060	5270	full	40.47	16.070
5310	full	40.26	16.050	5310	full	39.69	15.990
5510	full	40.43	16.070	5510	full	40.40	16.060
5550	full	40.37	16.060	5550	full	40.21	16.040
5670	full	39.94	16.010	5670	full	40.65	16.090
5710(U- NII 2C)	full	35.15	15.460	5710(U- NII 2C)	full	35.24	15.470
5710(U- NII 3)	full	5.15	7.120	5710(U- NII 3)	full	5.24	7.200

802.11ac _VHT80_C	h0		802.11ac _VHT80_C		
Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	81.38	19.110	5210	81.38	19.110
5290	81.46	19.110	5290	80.92	19.080
5530	81.00	19.080	5530	80.23	19.040
5610	80.95	19.080	5610	80.58	19.060
5690(U-NII 2C)	75.56	18.780	5690(U-NII 2C)	75.31	18.770
5690(U-NII 3)	5.56	7.450	5690(U-NII 3)	5.31	7.250

802.11a	802.11ax _80_Ch0				802.11ax _80_Ch1			
Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	
5210	full	81.77	19.130	5210	full	80.66	19.070	
5290	full	81.01	19.090	5290	full	80.58	19.060	
5530	full	81.78	19.130	5530	full	80.98	19.080	
5610	full	81.14	19.090	5610	full	81.14	19.090	
5690(U- NII 2C)	full	75.73	18.790	5690(U- NII 2C)	full	75.85	18.800	
5690(U- NII 3)	full	5.73	7.580	5690(U- NII 3)	full	5.85	7.670	

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8.6.2 6dB Bandwidth (5725 MHz~ 5850 MHz) measure with Peak detector for FCC

802.11a_Ch0			802.11a_Ch1			
Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	
5745	16.16	12.080	5745	16.34	12.130	
5785	16.32	12.130	5785	15.68	11.950	
5825	15.78	11.980	5825	16.31	12.120	

802.11n_HT20_Ch0			802.11n_HT20_Ch1			
Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	
5745	17.69	12.480	5745	17.63	12.460	
5785	17.57	12.450	5785	15.72	11.960	
5825	17.58	12.450	5825	17.56	12.450	

802.11ax_20_Ch0				802.11ax_20_Ch1			
Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5745	full	14.99	11.760	5745	full	16.74	12.240
5785	full	17.89	12.530	5785	full	17.17	12.350
5825	full	18.97	12.780	5825	full	19.08	12.810

802.11n_HT40_Ch0			802.11n_HT40_Ch1			
Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	
5755	36.42	15.610	5755	36.42	15.610	
5795	35.72	15.530	5795	35.58	15.510	

802.11ax_40_Ch0				802.11ax_40_Ch1			
Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5755	full	37.80	15.770	5755	full	37.84	15.780
5795	full	37.74	15.770	5795	full	37.39	15.730

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802.11ac _VHT80_Ch0			802.11ac _VHT80_Ch1		
Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	72.04	18.580	5775	68.98	18.390

802.11a	02.11ax _80_Ch0			802.11ax _80_Ch1			
Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5775	full	76.35	18.830	5775	full	72.30	18.590

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BW Verification for DFS Function 8.6.3

802.11a_Ch0			802.11a_Ch1		
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.16	< 5250	5240	5248.17	< 5250
5745	5734.80	> 5725	5745	5736.71	> 5725

802.11n_HT20_Ch0			802.11n_HT20_Ch1			
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	
5240	5248.79	< 5250	5240	5248.79	< 5250	
5745	5735.21	> 5725	5745	5736.11	> 5725	

802.11ax_20_Ch0			802.11ax_20_Ch1		
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5249.45	< 5250	5240	5249.46	< 5250
5745	5733.90	> 5725	5745	5733.38	> 5725

802.11n _HT40_Ch0			802.11n _HT40_Ch1		
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.00	< 5250	5230	5248.02	< 5250
5755	5736.90	> 5725	5755	5736.90	> 5725

802.11ax _40_Ch0			802.11ax _40_Ch1		
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.84	< 5250	5230	5248.88	< 5250
5755	5736.84	> 5725	5755	5736.14	> 5725

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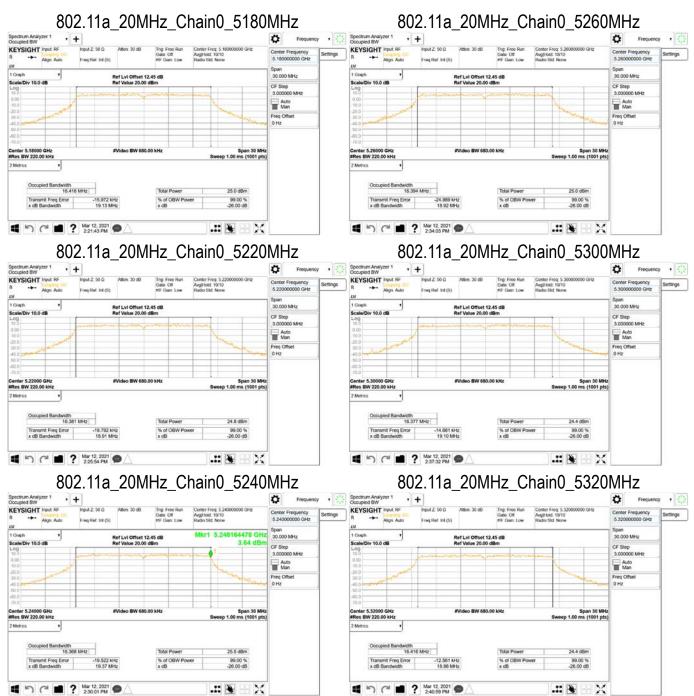


802.11ac _VHT80_Ch0			802.11ac _VHT80_Ch1		
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.73	< 5250	5210	5247.59	< 5250
5775	5737.23	> 5725	5775	5737.28	> 5725

802.11ax _VHT80_Ch0			802.11ax _VHT80_Ch1		
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.50	< 5250	5210	5248.49	< 5250
5775	5736.59	> 5725	5775	5736.39	> 5725

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