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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant: Microsoft Corporation

One Microsoft Way Redmond, WA 98052-6399, U.S.A

Product Name: Portable Computing Device

Brand Name: Microsoft

Model No.: 1979

Model Difference: N/A

Report Number: E2/2020/90089

FCC ID: C3K1979

FCC Rule Part: §15.247, Cat: DTS

Issue Date: Mar. 09, 2021

Date of Test: Sep. 22, 2020 ~ Feb. 23, 2021

Date of EUT Received: Sep. 22, 2020

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 tested as described in this report is in compliance with conducted and radiated emission limits. The test results of this report relate only to the tested sample identified in this report.

Approved By:

Jay Lin / Asst. Supervisor





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Revision History					
Report Number Revision Description Issue Date Remark					
E2/2020/90089	Rev.00	Original.	Mar. 09, 2021	Revised By: Elle Chang	

Note:

1 · Disclaimer

Antenna information is provided by the applicant, the test results of this report are applicable to the sample EUT received.

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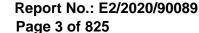




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GENERAL INFORMATION

1.1 Product description

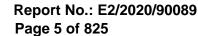
Product Name:	Portable Computing Device
Brand Name:	Microsoft
Model No.:	1979
Model Difference:	N/A
HW Version (Product):	EV2
SW Version (Product):	4.89.137
HW Version (Radio):	N/A
SW Version (Radio):	21.80.2.1
Radio Test Tool & Version:	DRTU: 21.21080.0.0-10722
Power Supply: From Rechargeable Lithium-Ion Polymer Battery or from AC/DC Adapter	

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Wi-Fi 802.11	Frequency Range	Chan- nels	F	Rated Power (dBm)	Modulation Technology
b				24.67	DSSS,
g	2412-2472	13		25.46	
n_HT20 ax_HE20			HE:	27.18 (MIMO)	OFDM/ OFDMA
n_HT40 ax_HE40	2422-2462	9	HT:	27.20 (MIMO)	
Modulation type: 64QAM,				K for DSSS SK, BPSK for OFDM A in 802.11ax only	
802.11 b: 1/2/5.5/11 Mbps 802.11 g: 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 ax_HE20MHz: 8 –286.8 Mbps 802.11 ax_HE40MHz: 16 -573.6 Mbps					

1.2 Antenna Designation

Antenna Type	Chain A / Chain B	Freq. (MHz)	Peak Antenna Gain (dBi)	Worst Antenna Gain
5.5	Chain A	2412-2472	-1.4	
PIFA	Chain B	2412-2472	3.4	V

Note: Investigation has been done to determine the worst case scenario for the above antennas demonstrated with measurements in this report.

For MIMO mode, higher antenna gains are chosen to ensure higher directional gain is evaluated as below.

Transmission Chain	Freq. (MHz)	Peak Antenna Gain (dBi)	Directional Gain (dBi)
Chain A	2412~2472	-1.4	1.63
Chain B	2412~2472	3.4	1.03

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1.3 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247 FCC KDB 558074 D01 15,247 Meas Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 ANSI C63.10:2013

1.4 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702) No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333

FCC Designation number: TW0028

1.5 Special Accessories

There are no special accessories used while test was conducted.

1.6 Equipment Modifications

There was no modification incorporated into the EUT.

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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 Conducted (Antenna Port) Emission Configuration



Fig 2-3 Conduction (AC Power Line) Emission Configuration





Fig 2-2 Radiated Emission



Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	DRTU	Intel	21.21080.0.0-10722	N/A	N/A	N/A

Note: The EUT is tested with all external accessory ports populated.

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SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)	AC Power Line Conducted Emission	Compliant
§15.247(b)(3)	Peak Output Power	Compliant
§15.247(a)(2)	6dB Emission Bandwidth	Compliant
§15.205 §15.209 §15.247(d)	Conducted Band Edge and Spurious Emission	Compliant
§15.205 §15.209 §15.247(d)	Radiated Band Edge and Spurious Emission	Compliant
§15.247€	Power Spectral Density	Compliant
§15.203 §15.247(b)	Antenna Requirement	Compliant

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DESCRIPTION OF TEST MODES

4.1 Operated in 2400 ~ 2483.5MHz Band

13 channels are provided for 802.11b/g/n/ax 20M.

CHANNEL	FREQUENCY
CHANNEL	(MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462
12	2467
13	2472

9 channels are provided for 802.11n/ax 40M

CHANNEL	FREQUENCY (MHz)
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

EUT	Serial Number	Note
Portable Computing Device	3978103657 (Conducted)	
Portable Computing Device	003973603657 (Radiated)	

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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 and receiving 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	Transmission Chain		Single Transmission Spatial	Multiple Transmission Spatial
⊠ 802.11 b	⊠ ChA	⊠ ChB	⊠ 1TX	□ 2TX
⊠ 802.11 g	⊠ ChA	⊠ ChB	⊠ 1TX	□ 2TX
⊠ 802.11 n	⊠ ChA	⊠ ChB	⊠ SISO	⊠ MIMO
⊠ 802.11 ax	⊠ ChA	⊠ ChB	⊠ SISO	⊠ MIMO

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4. Observations have been done for 802.11 ax available RU configurations below and found that the lowest, Highest and Full RU results higher emissions.

Only

one RU	can be			given time.						
8 02.11ax			MHz			8 02.11ax		40MHz		
RU type	26	-tone RU	5	2-tone RU		RU type	26-	tone RU	Į.	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]	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		RU index and subcarrier	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	RU17	N/A	10	06-tone RU			RU17	[218: 243]	1	06-tone RU
and subcarrier	RU18	N/A	RU53	[-122: -17]			RU18	N/A	RU53	[-243: -138]
range	RU19	N/A	RU54	[17: 122]		range	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	2-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		

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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4.3 Radiated Emission Test:

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT						
RADIATED EMISSION TEST (BELOW 1 GHz)											
802.11g	1 to 13	6	OFDM	6	ChA/ChB						
802.11n 20M	1 to 13	6	OFDM	HT 8	MIMO						
802.11n 40M	1 to 11	6	OFDM	HT 0/HT 8	ChA /Ch1/MIMO						
	R/	DIATED EMISS	SION TEST (AB	OVE 1 GHz)							
802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	1	ChA /ChB						
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	6	ChA / ChB						
802.11n 20M	1 to 13	1, 6, 11, 12, 13	OFDM	HT 0/HT 8	ChA / ChB /MIMO						
802.11n 40M	3 to 11	3, 6, 9, 10, 11	OFDM	HT 0/HT 8	ChA / ChB /MIMO						

	RADIATED EMISSION TEST (ABOVE 1 GHz)									
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODU- LATION	RU CONFIGURATION	DATA RATE (Mbps)	ANTENNA PORT				
	1			FULL RU 26/0 52/37 106/53	MCS0	ChA /ChB/MIMO				
802.11ax HE20	1 to 13	6		FULL RU	MCS0	ChA / ChB /MIMO				
		11, 12, 13	OFDMA	FULL RU 26/8 52/40 106/54	MCS0	ChA / ChB /MIMO				
		3		FULL RU 242/61	MCS0	ChA / ChB /MIMO				
802.11ax HE40	3 to 11	6		FULL RU	MCS0	ChA / ChB /MIMO				
		9, 10, 11		FULL RU 242/62	MCS0	ChA / ChB /MIMO				

Note: Observation has been done on all RU configurations, the Full RU configuration yields higher emssions and average output power, and hence the radiated emission results are demonstrated in full RU configuration in this report.

Note:

The field strength of radiation emission was measured for 802.11b/g/n/ax WLAN Transmitter for above tested channel, the worst case NB position was reported.

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4.4 Antenna Port Conducted Mesurement:

CONDUCTED TEST										
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT					
802.11b	1 to 13	1,2,3,4,5,6,7,8,9,10,11,12,13	DSSS	1	ChA / ChB					
802.11g	1 to 13	1,2,3,4,5,6,7,8,9,10,11,12,13	OFDM	6	ChA / ChB					
802.11n 20M	1 to 13	1,2,3,4,5,6,7,8,9,10,11,12,13	OFDM	HT0/ HT8	ChA / ChB /MIMO					
802.11n 40M	3 to 11	3,4,5,6,7,8,9,10,11	OFDM	HT0/ HT8	ChA / ChB /MIMO					

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		CONDUCT	ED TEST					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODU- LATION	RU CONFIG- URATION	DATA RATE (Mbps)	ANTENNA PORT		
Peak Output Power, EIRP								
		1		FULL RU 26/0 52/37 106/53	MCS0	ChA/ChB/MIMO		
802.11ax HE20	1 to 13	2,3,4,5,6,7,8,9,10,12		FULL RU	MCS0	ChA/ChB/MIMO		
		11, 13	OFDMA	FULL RU 26/8 52/40 106/54	MCS0	ChA/ChB/MIMO		
	3 to 11	3		FULL RU 242/61	MCS0	ChA/ChB/MIMO		
802.11ax HE40		4,5,6,7,8,10		FULL RU	MCS0	ChA/ChB/MIMO		
		9,11		FULL RU 242/62	MCS0	ChA/ChB/MIMO		
		Power D	ensity					
		1	•	FULL RU 26/0 52/37 106/53	MCS0	ChA/ChB/MIMO		
802.11ax HE20	1 to 13	6		FULL RU	MCS0	ChA/ChB/MIMO		
		11 12, 13		FULL RU 26/8 52/40 106/54	MCS0	ChA/ChB/MIMO		
		3		FULL RU 242/61	MCS0	ChA/ChB/MIMO		
802.11ax HE40	3 to 11	6		FULL RU	MCS0	ChA/ChB/MIMO		
		9, 10, 11		FULL RU 242/62	MCS0	ChA/ChB/MIMO		

Note: Observation has been done on all RU configurations, the Full RU configuration yields higher ems sions and average output power, and hence the radiated emission results are demonstrated in full RU configuration in this report.

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MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
Peak Output Power	+/- 0.84 dB
6dB Bandwidth	+/- 51.33 Hz
100 KHz Bandwidth Of Frequency Band Edges	+/- 0.84 dB
Peak Power Density	+/- 1.3 dB
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC= +/- 0.2%

Radiated Spurious Emission Measurement Uncertainty						
	9kHz~30MHz: +-2.3dB					
Polarization: Vertical	30MHz – 180MHz: +/- 3.37dB					
	180MHz -417MHz: +/- 3.19dB					
	0.417GHz-1GHz: +/- 3.19dB					
	1GHz – 18GHz: +/- 4.04dB					
	18GHz – 40GHz: +/- 4.04dB					
	9kHz~30MHz: +-2.3dB					
	30MHz – 167MHz: +/- 4.22dB					
Balania dia antherita	167MHz -500MHz: +/- 3.44dB					
Polarization: Horizontal	0.5GHz-1GHz: +/- 3.39dB					
	1GHz – 18GHz: +/- 4.08dB					
	18GHz – 40GHz: +/- 4.08dB					

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

6.1 Standard Applicable

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

Frequency range	Lin dB(nits μV)
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

Conducted Emission Test Site											
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.						
TYPE		NUMBER	NUMBER	CAL.							
LISN	SCHWARZBECK Mess-Elektronik	NSLK8127	974	03/25/2020	03/24/2021						
EMI Test Receiver	R&S	ESCI	101342	04/28/2020	04/27/2021						

6.3 EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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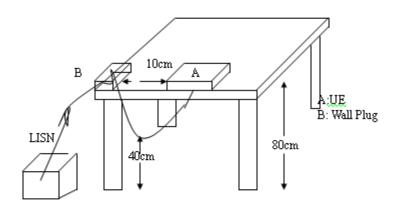
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6.4 Test SET-UP (Block Diagram of Configuration)



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

Note: Refer to next page for measurement data and plots.

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AC POWER LINE CONDUCTED EMISSION TEST DATA

Adapter 1

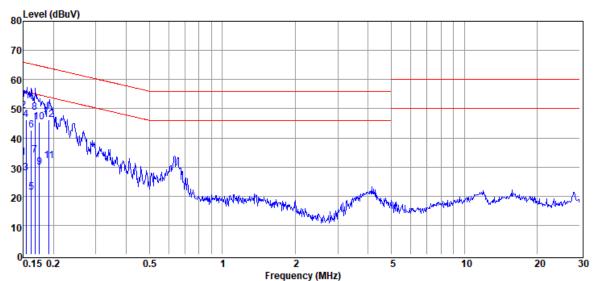
Report Number :E2-2020-90089 Test Site :Conduction Room C

Test Mode :WLAN 2.4G **Test Date** :2020-11-14

:120V/60Hz Temp./Humi. :23.1/73 Power

Probe :L1 Engineer :Ashton Chiu

: Adapter 1 Note:



requests (mile)							
	Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
	MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
							_
	0.15	Average	22.89	10.22	33.11	55.97	-22.86
	0.15	QP	39.06	10.22	49.28	65.97	-16.69
	0.15	Average	17.84	10.22	28.06	55.75	-27.69
	0.15	QP	35.93	10.22	46.15	65.75	-19.60
	0.16	Average	11.02	10.22	21.24	55.34	-34.10
	0.16	QP	32.30	10.22	42.52	65.34	-22.82
	0.17	Average	23.91	10.22	34.13	55.08	-20.95
	0.17	QP	38.56	10.22	48.78	65.08	-16.30
	0.18	Average	19.59	10.22	29.81	54.72	-24.91
	0.18	QP	35.11	10.22	45.33	64.72	-19.39
	0.19	Average	22.02	10.22	32.24	53.93	-21.69
	0.19	QP	35.96	10.22	46.18	63.93	-17.75

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Report Number :E2-2020-90089

Test Mode :WLAN 2.4G

:120V/60Hz Power

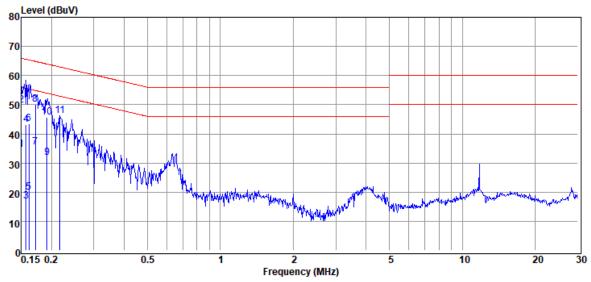
Probe :N

Note: : Adapter 1 Test Site :Conduction Room C

Test Date :2020-11-14

:23.1/73 Temp./Humi.

Engineer :Ashton Chiu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
0.15	Average	24.42	10.21	34.63	56.00	-21.37
0.15	QP	39.52	10.21	49.73	66.00	-16.27
0.16	Average	6.56	10.21	16.77	55.61	-38.84
0.16	QP	32.91	10.21	43.12	65.61	-22.49
0.16	Average	9.80	10.21	20.01	55.36	-35.35
0.16	QP	33.35	10.21	43.56	65.36	-21.80
0.17	Average	25.09	10.21	35.30	54.88	-19.58
0.17	QP	39.97	10.21	50.18	64.88	-14.70
0.19	Average	21.73	10.21	31.94	53.94	-22.00
0.19	QP	35.57	10.21	45.78	63.94	-18.16
0.22	Peak	35.89	10.21	46.10	62.92	-16.82

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Adapter 2

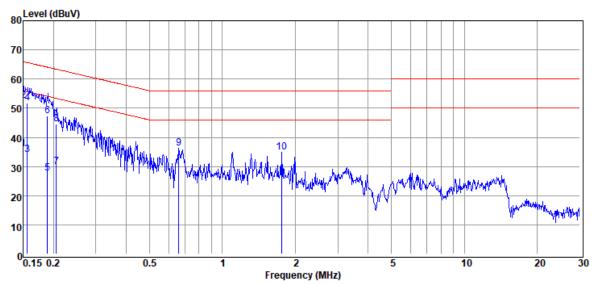
Report Number Test Site :Conduction Room C :E2-2020-90089

Test Mode **Test Date** :2020-11-13 :WLAN 2.4G

Power :120V/60Hz Temp./Humi. :22.9/70

Probe :L1 Engineer :Ashton Chiu

Note: : Adapter 2

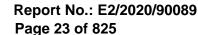


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
0.15	Average	25.71	10.22	35.93	55.99	-20.06
0.15	QP	42.49	10.22	52.71	65.99	-13.28
0.16	Average	23.70	10.22	33.92	55.65	-21.73
0.16	QP	41.56	10.22	51.78	65.65	-13.87
0.19	Average	17.49	10.22	27.71	54.06	-26.35
0.19	QP	37.10	10.22	47.32	64.06	-16.74
0.21	Average	19.74	10.22	29.96	53.36	-23.40
0.21	QP	34.35	10.22	44.57	63.36	-18.79
0.66	Peak	26.07	10.31	36.38	56.00	-19.62
1.76	Peak	24.35	10.45	34.80	56.00	-21.20

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Report Number :E2-2020-90089

Test Mode :WLAN 2.4G

:120V/60Hz Power

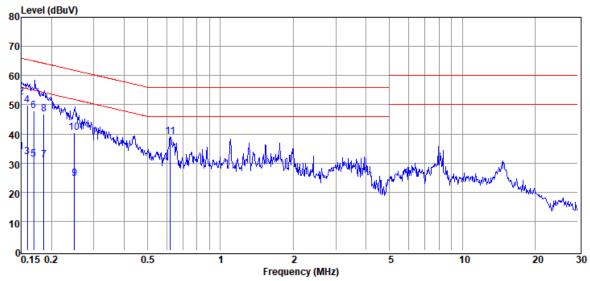
Probe :N

Note: : Adapter 2 Test Site :Conduction Room C

Test Date :2020-11-13

:22.9/70 Temp./Humi.

Engineer :Ashton Chiu



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
0.15	Average	23.47	10.21	33.68	55.99	-22.31
0.15	QP	42.47	10.21	52.68	65.99	-13.31
0.16	Average	22.01	10.21	32.22	55.52	-23.30
0.16	QP	39.74	10.21	49.95	65.52	-15.57
0.17	Average	21.16	10.21	31.37	54.98	-23.61
0.17	QP	37.66	10.21	47.87	64.98	-17.11
0.19	Average	20.67	10.21	30.88	54.20	-23.32
0.19	QP	36.56	10.21	46.77	64.20	-17.43
0.25	Average	14.55	10.21	24.76	51.77	-27.01
0.25	QP	30.25	10.21	40.46	61.77	-21.31
0.62	Peak	28.82	10.28	39.10	56.00	-16.90

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DUTY CYCLE OF 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

7.2 Duty Cycle:

	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11b	97.93	0.09	0.48	1.00
802.11g	97.89	0.09	0.48	1.00
802.11n_20	99.89	0.00	0.03	0.01
802.11n_40	99.77	0.01	0.06	0.01
802.11ax_20	99.78	0.01	0.05	0.01
802.11ax_40	99.51	0.02	0.11	0.01

b = 97.93%, q = 97.89%, n ht 20 = 99.89% n ht 40 = 99.77%

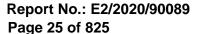
Duty Cycle Factor: $10 * \log(1/0.9793) = 0.09$ Duty Cycle Factor: $10 * \log(1/0.9789) = 0.09$ Duty Cycle Factor: $10 * \log(1/0.9989) = 0$ Duty Cycle Factor: $10 * \log(1/0.9977) = 0.01$

7.3 Duty Cycle test plots

Please refer to next page for test plots.

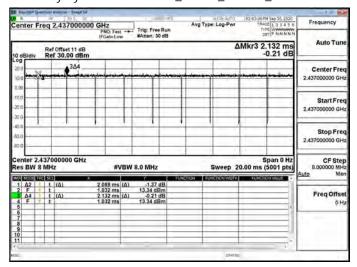
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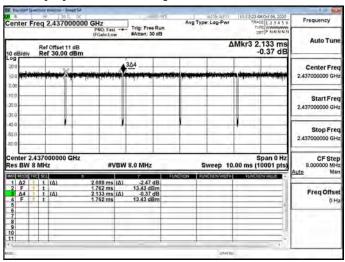




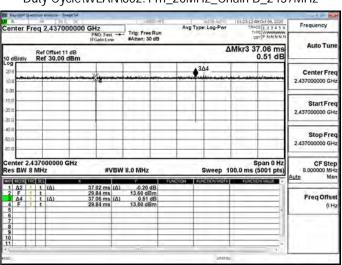
Duty Cycle\WLAN\802.11b_20MHz_Chain B_2437MHz



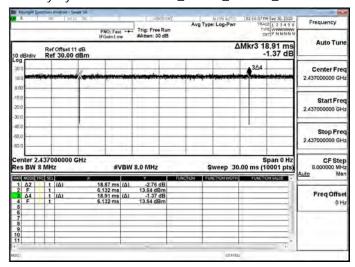
Duty Cycle\WLAN\802.11g_20MHz_Chain B_2437MHz



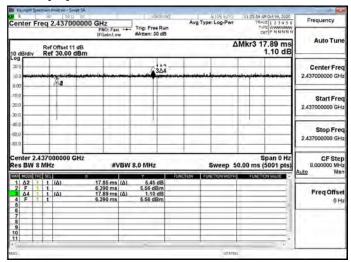
Duty Cycle\WLAN\802.11n_20MHz_Chain B_2437MHz



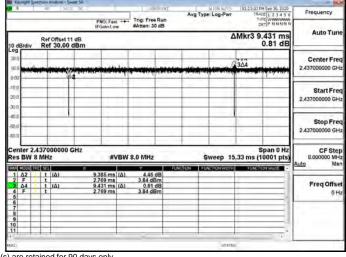
Duty Cycle\WLAN\802.11ax_20MHz_Chain B_2437MHz



Duty Cycle\WLAN\802.11n_40MHz_Chain B_2437MHz



Duty Cycle\WLAN\802.11ax_40MHz_Chain B_2437MHz



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PEAK OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

Note:

As per section F. 2). d). (ii) of FCC KDB 662911 D01

If antenna gains are not equal and each transmit antenna is driven by only one spatial stream, directional gain may be calculated by either of the following formulas.

If all transmit signals are *completely uncorrelated*, then

Directional gain =
$$10 \log[(10^{GI/10} + 10^{G2/10} + ... + 10^{GN/10})/NANT] dBi$$

where

NANT = the total number of antennas

G is the gain in dBi.

The antenna gain is not grater than 6 dBi. Therefore, reduction of limit for power is not required.

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8.2 Measurement Equipment Used

Conducted Emission Test Site							
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.		
Power Meter	Anritsu	ML2496A	1326001	08/05/2020	08/04/2021		
Power Sensor	Anritsu	MA2411B	1315048	08/05/2020	08/04/2021		
Power Sensor	Anritsu	MA2411B	1315049	08/05/2020	08/04/2021		
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/25/2020	06/24/2021		
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021		
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/08/2020	07/07/2021		
Attenuator	Marvelous	MVE2213-10	RF09	11/20/2019	11/19/2020		
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021		
Attenuator	Marvelous	MVE2213-10	RF10	11/20/2019	11/19/2020		
Attenuator	Marvelous	MVE2213-10	RF10	11/19/2020	11/18/2021		
Attenuator	Marvelous	MVE2213-10	RF11	11/20/2019	11/19/2020		
Attenuator	Marvelous	MVE2213-10	RF11	11/19/2020	11/18/2021		
DC Block	PASTERNACK	PE8210	RF151	11/20/2019	11/19/2020		
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021		
IPEX-4 Cable	Woken	00100A1H646 027	N/A	N/A	N/A		

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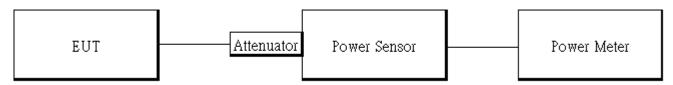
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8.3 Test Set-up

Power Meter:



8.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

Power Meter:

It is used as the auxiliary test equipment to conduct the output power measurement.

- 4. Record the max. Reading as observed from Spectrum or Power Meter.
- * Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.

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8.5 Measurement Result

Mode: Chain A

802.1	1b Chain <i>i</i>	A			
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	24.54	30.00	PASS
2	2417	1	24.61	30.00	PASS
3	2422	1	24.66	30.00	PASS
4	2427	1	24.58	30.00	PASS
5	2432	1	24.50	30.00	PASS
6	2437	1	24.48	30.00	PASS
7	2442	1	24.53	30.00	PASS
8	2447	1	24.61	30.00	PASS
9	2452	1	24.57	30.00	PASS
10	2457	1	24.60	30.00	PASS
11	2462	1	24.67	30.00	PASS
12	2467	1	24.56	30.00	PASS
13	2472	1	22.85	30.00	PASS
802.1	1b Chain <i>i</i>	A			•
			Max. Avg. Output		
СН	Freq.	Data	include tune up	Limit	RESULT
	•	Dutu	merade tarre ap		RESULT
OH	(MHz)	Rate	tolerance Power	(dBm)	RESULT
OH	•		•		
1	•		tolerance Power		PASS
	(MHz)	Rate	tolerance Power (dBm)	(dBm)	
1	(MHz) 2412	Rate 1	tolerance Power (dBm) 19.90	(dBm) 30.00	PASS
1 2	(MHz) 2412 2417	Rate 1 1	tolerance Power (dBm) 19.90	(dBm) 30.00 30.00	PASS PASS
1 2 3	(MHz) 2412 2417 2422	Rate 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98	(dBm) 30.00 30.00 30.00	PASS PASS PASS
1 2 3 4	(MHz) 2412 2417 2422 2427	Rate 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93	(dBm) 30.00 30.00 30.00 30.00	PASS PASS PASS PASS
1 2 3 4 5	2412 2417 2422 2427 2432	Rate 1 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93 19.90	(dBm) 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS
1 2 3 4 5 6	(MHz) 2412 2417 2422 2427 2432 2437	Rate 1 1 1 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93 19.90 19.85	(dBm) 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS
1 2 3 4 5 6 7	2412 2417 2422 2427 2432 2437 2442	Rate 1 1 1 1 1 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93 19.90 19.85 19.97	(dBm) 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS
1 2 3 4 5 6 7 8	2412 2417 2422 2427 2432 2437 2442 2447	Rate 1 1 1 1 1 1 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93 19.90 19.85 19.97 19.88	(dBm) 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS
1 2 3 4 5 6 7 8	2412 2417 2422 2427 2432 2437 2442 2447 2452	Rate 1 1 1 1 1 1 1 1 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93 19.90 19.85 19.97 19.88 20.00	(dBm) 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS
1 2 3 4 5 6 7 8 9	2412 2417 2422 2427 2432 2437 2442 2447 2452 2457	Rate 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93 19.90 19.85 19.97 19.88 20.00 19.99	(dBm) 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS
1 2 3 4 5 6 7 8 9 10	2412 2417 2422 2427 2432 2437 2442 2447 2452 2457 2462	Rate 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tolerance Power (dBm) 19.90 19.96 19.98 19.93 19.90 19.85 19.97 19.88 20.00 19.99 19.87	(dBm) 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS

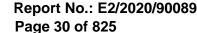
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802.11g Chain A **Peak Output** Freq. Data Limit CH **RESULT** Power (dBm) (MHz) Rate (dBm) PASS 1 2412 6 24.44 30.00 2417 6 24.53 30.00 **PASS** 2 PASS 3 2422 6 24.88 30.00 PASS 4 2427 6 25.38 30.00 6 30.00 **PASS** 5 2432 25.31 **PASS** 6 2437 6 25.39 30.00 2442 25.28 30.00 **PASS** 7 6 PASS 8 2447 6 25.25 30.00 **PASS** 9 2452 6 25.41 30.00 PASS 6 30.00 2457 24.67 10 **PASS** 11 2462 6 24.20 30.00 2467 6 21.92 30.00 **PASS** 12 PASS 6 22.58 30.00 13 2472 802.11g Chain A Max. Avg. Output Freq. Data include tune up Limit CH **RESULT** Rate tolerance Power (dBm) (MHz) (dBm) 19.97 PASS 2412 6 1 30.00 PASS 2 2417 6 19.90 30.00 PASS 3 2422 6 19.94 30.00 **PASS** 4 2427 6 19.85 30.00 **PASS** 5 2432 6 19.90 30.00 PASS 6 19.83 30.00 6 2437 **PASS** 2442 6 19.95 30.00 PASS 8 2447 6 19.88 30.00 **PASS** 9 2452 6 19.90 30.00 PASS 10 2457 6 19.97 30.00 **PASS** 6 19.81 30.00 11 2462 PASS 30.00 12 2467 6 16.98

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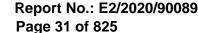
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11.92

30.00

PASS





802.11n_HT20M Chain A **Peak Output** Freq. Data Limit CH **RESULT** Power (dBm) (MHz) Rate (dBm) PASS 1 2412 HT0 24.55 30.00 **PASS** 2417 HT0 24.81 30.00 2 3 PASS 2422 HT0 24.92 30.00 HT0 **PASS** 4 2427 25.06 30.00 HT0 PASS 25.13 5 2432 30.00 PASS 6 2437 HT0 25.11 30.00 **PASS** 7 2442 HT0 25.18 30.00 PASS HT0 8 2447 24.94 30.00 HT0 **PASS** 9 2452 24.80 30.00 HT0 PASS 10 2457 24.39 30.00 11 2462 HT0 24.32 30.00 **PASS** HT0 **PASS** 12 2467 22.01 30.00 HT0 **PASS** 30.00 13 2472 19.66 802.11n_HT20M Chain A Max. Avg. Output Freq. Data include tune up Limit CH **RESULT** Rate (dBm) (MHz) tolerance Power (dBm) PASS HT0 2412 19.96 1 30.00 PASS HT0 2 2417 19.81 30.00 PASS 3 2422 HT0 19.88 30.00 HT0 **PASS** 4 2427 19.83 30.00 HT0 **PASS** 5 2432 19.81 30.00 PASS HT0 19.91 30.00 6 2437 **PASS** 2442 HT0 19.95 30.00 PASS 8 2447 HT0 19.81 30.00 HT0 **PASS** 9 2452 19.72 30.00 HT0 PASS 10 2457 19.90 30.00 HT0 **PASS** 19.23 30.00 11 2462 PASS HT0 30.00 12 2467 16.54

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HT0

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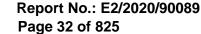
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9.25

30.00

PASS





002.1	1n_HT40N	i Citatii A			
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	HT0	18.84	30.00	PASS
4	2427	HT0	20.40	30.00	PASS
5	2432	HT0	20.49	30.00	PASS
6	2437	HT0	25.17	30.00	PASS
7	2442	HT0	23.14	30.00	PASS
8	2447	HT0	22.62	30.00	PASS
9	2452	HT0	20.19	30.00	PASS
10	2457	HT0	20.51	30.00	PASS
11	2462	HT0	20.27	30.00	PASS
802.1	1n_HT40N	l Chain A			•
СН	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power	Limit (dBm)	RESULT
3	2422	HT0	(dBm) 13.33	30.00	PASS
J	2422				
1	2/127				
4	2427	HT0	14.89	30.00	PASS
5	2432	HT0 HT0	14.89 14.82	30.00 30.00	PASS PASS
5	2432 2437	HTO HTO HTO	14.89 14.82 19.96	30.00 30.00 30.00	PASS PASS PASS
5 6 7	2432 2437 2442	HTO HTO HTO	14.89 14.82 19.96 17.24	30.00 30.00 30.00 30.00	PASS PASS PASS PASS
5 6 7 8	2432 2437 2442 2447	HT0 HT0 HT0 HT0	14.89 14.82 19.96 17.24 16.89	30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS
5 6 7	2432 2437 2442	HTO HTO HTO	14.89 14.82 19.96 17.24	30.00 30.00 30.00 30.00	PASS PASS PASS PASS

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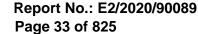
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No. 12.4 **Western Processing

Triving

No. 12.4 **Western

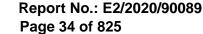
**No. 12.4 **Wester SGS Taiwan Ltd.





802.1	1ax_HE20	M Chair	ı A			
СН	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)	Limit (dBm)	RESULT
	1 2412		full	22.76	30.00	PASS
1		MCS0	26/0	22.88	30.00	PASS
'	2412	IVICSO	52/37	23.84	30.00	PASS
			106/53	23.83	30.00	PASS
2	2417	MCS0	full	23.56	30.00	PASS
3	2422	MCS0	full	24.60	30.00	PASS
4	2427	MCS0	full	25.04	30.00	PASS
5	2432	MCS0	full	25.10	30.00	PASS
6	2437	MCS0	full	25.11	30.00	PASS
7	2442	MCS0	full	25.08	30.00	PASS
8	2447	MCS0	full	25.06	30.00	PASS
9	2452	MCS0	full	25.13	30.00	PASS
10	2457	MCS0	full	25.13	30.00	PASS
			full	23.39	30.00	PASS
11	2462	MCS0	26/8	24.26	30.00	PASS
''	2402	02 101030	52/40	24.13	30.00	PASS
			106/54	23.95	30.00	PASS
12	2467	MCS0	full	21.28	30.00	PASS
			full	21.77	30.00	PASS
13	2472	2472 MCS0	26/8	20.49	30.00	PASS
15	27/2	101030	52/40	20.21	30.00	PASS
			106/54	19.85	30.00	PASS

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802.11	lax_HE20	M Chair	ı A					
СН	Freq. (MHz)	Data Rate	RU Config	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT		
			full	17.45	30.00	PASS		
1	2412	MCS0	26/0	17.89	30.00	PASS		
'	2412	IVICSU	52/37	19.47	30.00	PASS		
			106/53	19.42	30.00	PASS		
2	2417	MCS0	full	18.70	30.00	PASS		
3	2422	MCS0	full	19.89	30.00	PASS		
4	2427	MCS0	full	19.92	30.00	PASS		
5	2432	MCS0	full	19.93	30.00	PASS		
6	2437	MCS0	full	19.95	30.00	PASS		
7	2442	MCS0	full	19.97	30.00	PASS		
8	2447	MCS0	full	19.94	30.00	PASS		
9	2452	MCS0	full	19.94	30.00	PASS		
10	2457	MCS0	full	19.99	30.00	PASS		
			full	18.12	30.00	PASS		
11	2462	MCS0	26/8	19.78	30.00	PASS		
' '	2402	IVICSO	52/40	19.89	30.00	PASS		
			106/54	19.47	30.00	PASS		
12	2467	MCS0	full	16.00	30.00	PASS		
			full	11.37	30.00	PASS		
13	2472	MCS0	26/8	9.10	30.00	PASS		
13	2412	IVICOU	52/40	8.35	30.00	PASS		
					106/54	7.89	30.00	PASS

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No. 12.4 **Western Processing

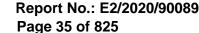
Triving

No. 12.4 **Western

**No. 12.4 **Wester

Nq.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

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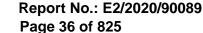




802.11ax HE40M Chain A **Peak Output** Freq. Data RU Limit CH Power **RESULT** (MHz) Rate Config (dBm) (dBm) PASS 22.77 30.00 full MCS0 3 2422 **PASS** 24.30 30.00 242/61 MCS0 30.00 **PASS** 4 2427 21.16 full 5 2432 MCS0 22.10 30.00 **PASS** full MCS0 25.02 30.00 **PASS** 6 2437 full PASS 2442 MCS0 24.65 30.00 7 full 22.25 **PASS** 8 2447 MCS0 30.00 full PASS 20.22 30.00 full 9 MCS0 2452 24.37 30.00 **PASS** 242/62 **PASS** 10 2457 MCS0 19.66 30.00 full **PASS** 20.93 30.00 full 11 2462 MCS0 **PASS** 19.61 30.00 242/62 802.11ax_HE40M Chain A Max. Avg. Output Freq. Data RU include tune up Limit CH **RESULT** Config (dBm) (MHz) Rate tolerance Power (dBm) PASS 17.31 30.00 full MCS0 3 2422 18.67 30.00 **PASS** 242/61 **PASS** 4 2427 MCS₀ 15.25 30.00 full 5 2432 MCS0 15.89 30.00 **PASS** full **PASS** 19.95 6 2437 MCS₀ full 30.00 30.00 2442 MCS0 19.71 **PASS** full PASS 8 2447 MCS0 16.44 30.00 full **PASS** 14.37 30.00 full 9 MCS₀ 2452 **PASS** 19.75 30.00 242/62 **PASS** 2457 MCS0 11.90 30.00 10 full 10.86 30.00 **PASS** full MCS0 11 2462 **PASS** 9.50 30.00 242/62

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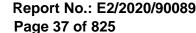


Mode: Chain B

802.1	1b ChainB				
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	23.65	30.00	PASS
2	2417	1	23.58	30.00	PASS
3	2422	1	23.51	30.00	PASS
4	2427	1	23.48	30.00	PASS
5	2432	1	23.56	30.00	PASS
6	2437	1	23.53	30.00	PASS
7	2442	1	23.44	30.00	PASS
8	2447	1	23.54	30.00	PASS
9	2452	1	20.63	30.00	PASS
10	2457	1	20.59	30.00	PASS
11	2462	1	20.57	30.00	PASS
12	2467	1	20.65	30.00	PASS
13	2472	1	21.84	30.00	PASS
302.1	1b ChainB				
			Max. Avg. Output		
СН	Freq.	Freq. Data	include tune up	Limit	RESULT
011	(MHz)	D-1-	tolerance Power	(dBm)	INLOCE
	1 ` ′ 1	Rate	torcrance i ower	(abiii)	
		кате	(dBm)	(dDill)	
1	2412	Rate 1		30.00	PASS
1 2			(dBm)		PASS PASS
	2412	1	(dBm) 19.85	30.00	
2	2412 2417	1 1	(dBm) 19.85 19.80	30.00	PASS
2	2412 2417 2422	1 1 1	(dBm) 19.85 19.80 19.90	30.00 30.00 30.00	PASS PASS
2 3 4	2412 2417 2422 2427	1 1 1 1	(dBm) 19.85 19.80 19.90 19.86	30.00 30.00 30.00 30.00	PASS PASS PASS
2 3 4 5	2412 2417 2422 2427 2432	1 1 1 1	(dBm) 19.85 19.80 19.90 19.86 19.83	30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS
2 3 4 5 6	2412 2417 2422 2427 2432 2437	1 1 1 1 1	(dBm) 19.85 19.80 19.90 19.86 19.83 19.90	30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS
2 3 4 5 6 7	2412 2417 2422 2427 2432 2437 2442	1 1 1 1 1 1	(dBm) 19.85 19.80 19.90 19.86 19.83 19.90 19.87	30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS
2 3 4 5 6 7 8	2412 2417 2422 2427 2432 2437 2442 2447	1 1 1 1 1 1 1	(dBm) 19.85 19.80 19.90 19.86 19.83 19.90 19.87 19.83	30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS
2 3 4 5 6 7 8	2412 2417 2422 2427 2432 2437 2442 2447 2452	1 1 1 1 1 1 1 1	(dBm) 19.85 19.80 19.90 19.86 19.83 19.90 19.87 19.83 19.88	30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS
2 3 4 5 6 7 8 9	2412 2417 2422 2427 2432 2437 2442 2447 2452 2457	1 1 1 1 1 1 1 1	(dBm) 19.85 19.80 19.90 19.86 19.83 19.90 19.87 19.83 19.88 19.90	30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS
2 3 4 5 6 7 8 9 10	2412 2417 2422 2427 2432 2437 2442 2447 2452 2457 2462	1 1 1 1 1 1 1 1 1	(dBm) 19.85 19.80 19.90 19.86 19.83 19.90 19.87 19.83 19.88 19.90 19.97	30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS

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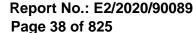


802.11g ChainB **Peak Output** Freq. Data Limit CH **RESULT Power** (dBm) (MHz) Rate (dBm) PASS 1 2412 6 25.46 30.00 2 2417 6 25.34 30.00 **PASS PASS** 3 2422 6 25.40 30.00 **PASS** 4 2427 6 25.39 30.00 5 25.18 30.00 **PASS** 2432 6 **PASS** 6 2437 6 25.43 30.00 2442 6 25.27 30.00 **PASS** 7 **PASS** 8 2447 6 25.44 30.00 **PASS** 9 2452 6 25.38 30.00 25.26 **PASS** 10 2457 6 30.00 **PASS** 11 2462 6 22.90 30.00 **PASS** 12 2467 6 21.61 30.00 6 PASS 13 2472 23.26 30.00 802.11g ChainB Max. Avg. Output Freq. Data include tune up Limit CH **RESULT** Rate tolerance Power (dBm) (MHz) (dBm) PASS 2412 19.83 1 6 30.00 PASS 2 2417 6 19.82 30.00 PASS 3 2422 6 19.83 30.00 **PASS** 4 2427 6 19.79 30.00 **PASS** 5 2432 6 19.80 30.00 PASS 6 19.86 30.00 6 2437 **PASS** 7 2442 6 19.91 30.00 PASS 8 2447 6 19.84 30.00 **PASS** 9 2452 6 19.96 30.00 PASS 10 2457 6 19.95 30.00 6 **PASS** 17.55 30.00 11 2462 **PASS** 12 2467 6 16.82 30.00 13 2472 6 12.96 30.00 **PASS**

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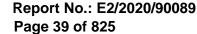




802.11n_HT20M ChainB **Peak Output** Freq. Data Limit CH **RESULT Power** (dBm) (MHz) Rate (dBm) PASS 1 2412 HT0 24.81 30.00 HT0 **PASS** 2417 25.51 30.00 2 HT0 PASS 3 2422 25.47 30.00 HT0 **PASS** 4 2427 25.44 30.00 HT0 PASS 25.36 5 2432 30.00 6 2437 HT0 25.63 30.00 **PASS** HT0 **PASS** 7 2442 25.52 30.00 HT0 PASS 25.55 8 2447 30.00 HT0 **PASS** 9 25.41 2452 30.00 HT0 PASS 10 2457 25.75 30.00 11 2462 HT0 21.88 30.00 **PASS** HT0 **PASS** 12 2467 19.89 30.00 2472 HT0 **PASS** 19.15 30.00 13 802.11n_HT20M ChainB Max. Avg. Output Freq. Data include tune up Limit CH **RESULT** Rate (dBm) (MHz) tolerance Power (dBm) PASS HT0 2412 19.85 1 30.00 PASS HT0 2 2417 19.96 30.00 HT0 PASS 3 2422 19.91 30.00 HT0 **PASS** 4 2427 19.88 30.00 HT0 **PASS** 5 2432 19.82 30.00 PASS HT0 19.93 2437 30.00 6 HT0 30.00 **PASS** 7 2442 19.82 8 2447 HT0 19.91 30.00 **PASS** HT0 **PASS** 9 2452 19.88 30.00 HT0 PASS 19.91 10 2457 30.00 HT0 **PASS** 11 16.82 30.00 2462 HT0 **PASS** 12 2467 14.73 30.00 13 2472 HT0 8.61 30.00 **PASS**

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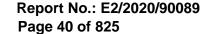
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802.1	1n_HT40N	M ChainB			
СН	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	HT0	23.41	30.00	PASS
4	2427	HT0	22.72	30.00	PASS
5	2432	HT0	23.24	30.00	PASS
6	2437	HT0	25.45	30.00	PASS
7	2442	HT0	23.37	30.00	PASS
8	2447	HT0	23.10	30.00	PASS
9	2452	HT0	22.49	30.00	PASS
10	2457	HT0	21.53	30.00	PASS
11	2462	HT0	22.83	30.00	PASS
802.1	1n_HT40N	M ChainB		-	
			Max. Avg. Output		
СН	Freq.	Data	include tune up	Limit	RESULT
CII	(MHz)	.	1	(-ID)	
		Rate	tolerance Power	(dBm)	KESSET
		Rate	tolerance Power (dBm)	(asm)	RESOLI
3	2422	HT0		(dBm) 30.00	PASS
3	2422 2427		(dBm)	, ,	
		HT0	(dBm) 17.75	30.00	PASS
4	2427	HTO HTO	(dBm) 17.75 17.12	30.00	PASS PASS
4 5	2427 2432	HTO HTO HTO	(dBm) 17.75 17.12 18.00	30.00 30.00 30.00	PASS PASS PASS
4 5 6	2427 2432 2437	HT0 HT0 HT0 HT0	(dBm) 17.75 17.12 18.00 19.89	30.00 30.00 30.00 30.00	PASS PASS PASS PASS
4 5 6 7	2427 2432 2437 2442	HT0 HT0 HT0 HT0 HT0	(dBm) 17.75 17.12 18.00 19.89 17.92	30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS
4 5 6 7 8	2427 2432 2437 2442 2447	HT0 HT0 HT0 HT0 HT0	(dBm) 17.75 17.12 18.00 19.89 17.92 17.45	30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS

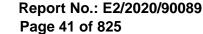
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802.1	802.11ax_HE20M ChainB						
СН	Freq. (MHz)	Data Rate	RU Config	Peak Output Power (dBm)	Limit (dBm)	RESULT	
			full	24.16	30.00	PASS	
1	2412	MCS0	26/0	23.72	30.00	PASS	
'	2412	IVICSO	52/37	23.44	30.00	PASS	
			106/53	23.63	30.00	PASS	
2	2417	MCS0	full	24.38	30.00	PASS	
3	2422	MCS0	full	23.51	30.00	PASS	
4	2427	MCS0	full	24.74	30.00	PASS	
5	2432	MCS0	full	24.75	30.00	PASS	
6	2437	MCS0	full	24.81	30.00	PASS	
7	2442	MCS0	full	24.81	30.00	PASS	
8	2447	MCS0	full	24.82	30.00	PASS	
9	2452	MCS0	full	24.84	30.00	PASS	
10	2457	MCS0	full	24.85	30.00	PASS	
			full	21.93	30.00	PASS	
11	2462	MCS0	26/8	23.96	30.00	PASS	
''	2402	IVICSO	52/40	24.00	30.00	PASS	
			106/54	23.88	30.00	PASS	
12	2467	MCS0	full	19.14	30.00	PASS	
			full	21.96	30.00	PASS	
13	2472	MCS0	26/8	21.48	30.00	PASS	
13	27/2	101030	52/40	21.38	30.00	PASS	
			106/54	20.88	30.00	PASS	

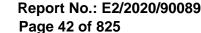
SGS Taiwan Ltd.





802.1	302.11ax_HE20M ChainB					
СН	Freq. (MHz)	Data Rate	RU Config	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
			full	19.12	30.00	PASS
1	2412	MCS0	26/0	18.42	30.00	PASS
'	2412	IVICSU	52/37	18.38	30.00	PASS
			106/53	18.24	30.00	PASS
2	2417	MCS0	full	18.12	30.00	PASS
3	2422	MCS0	full	18.14	30.00	PASS
4	2427	MCS0	full	19.78	30.00	PASS
5	2432	MCS0	full	19.75	30.00	PASS
6	2437	MCS0	full	19.82	30.00	PASS
7	2442	MCS0	full	19.93	30.00	PASS
8	2447	MCS0	full	19.89	30.00	PASS
9	2452	MCS0	full	19.93	30.00	PASS
10	2457	MCS0	full	19.94	30.00	PASS
			full	16.82	30.00	PASS
11	2462	MCS0	26/8	18.92	30.00	PASS
' '	2402	IVICSO	52/40	19.48	30.00	PASS
			106/54	19.49	30.00	PASS
12	2467	MCS0	full	13.72	30.00	PASS
			full	11.72	30.00	PASS
13	2472	MCS0	26/8	8.43	30.00	PASS
13	27/2	INICSU	52/40	8.87	30.00	PASS
			106/54	8.14	30.00	PASS

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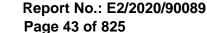




802.11ax HE40M ChainB **Peak Output** Freq. Data RU Limit CH Power **RESULT** (MHz) Rate Config (dBm) (dBm) **PASS** 22.85 30.00 full MCS0 3 2422 **PASS** 23.22 30.00 242/61 22.39 **PASS** 4 2427 MCS0 30.00 full 5 2432 MCS0 23.42 30.00 **PASS** full **PASS** MCS0 6 2437 24.72 30.00 full PASS 2442 MCS0 23.40 30.00 7 full **PASS** 8 2447 MCS₀ 23.03 30.00 full PASS 22.51 30.00 full 9 MCS0 2452 22.25 30.00 **PASS** 242/62 **PASS** 10 2457 MCS0 21.50 30.00 full PASS 22.17 30.00 full 11 2462 MCS0 **PASS** 23.42 30.00 242/62 802.11ax_HE40M ChainB Max. Avg. Output Freq. Data RU Limit include tune up CH **RESULT** (MHz) Config (dBm) Rate tolerance Power (dBm) PASS 17.37 30.00 full MCS0 3 2422 30.00 **PASS** 18.13 242/61 **PASS** 4 2427 MCS0 16.43 30.00 full 5 2432 MCS0 17.96 30.00 **PASS** full PASS 19.81 6 2437 MCS₀ 30.00 full 2442 MCS0 17.83 30.00 **PASS** full 17.47 **PASS** 8 2447 MCS₀ 30.00 full PASS 16.84 30.00 full 9 MCS₀ 2452 **PASS** 16.58 30.00 242/62 13.93 30.00 **PASS** MCS0 10 2457 full 11.96 30.00 **PASS** full MCS₀ 11 2462 **PASS** 10.83 30.00 242/62

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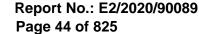


Mode: MIMO

)							
802.1	1n_HT20/	M MIMO					
СН	Freq. (MHz)	Data Rate	Po	Output wer ChainB	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	HT8	23.28	22.90	26.10	30.00	PASS
2	2417	HT8	24.35	23.32	26.88	30.00	PASS
3	2422	HT8	24.24	23.45	26.87	30.00	PASS
4	2427	HT8	24.27	23.36	26.85	30.00	PASS
5	2432	HT8	24.18	23.24	26.75	30.00	PASS
6	2437	HT8	24.15	23.40	26.80	30.00	PASS
7	2442	HT8	24.21	23.31	26.79	30.00	PASS
8	2447	HT8	24.23	23.28	26.79	30.00	PASS
9	2452	HT8	24.29	23.24	26.81	30.00	PASS
10	2457	HT8	24.31	23.05	26.74	30.00	PASS
11	2462	HT8	23.66	22.57	26.16	30.00	PASS
12	2467	HT8	20.24	19.55	22.92	30.00	PASS
13	2472	HT8	19.73	19.20	22.48	30.00	PASS
802.1	1n_HT20	M MIMO					
			Avg. C	Output	Max. Avg. Output		
СН	Freq.	Data	Po	wer	include tune up	Limit	RESULT
011	(MHz)	Rate	•	3m)	tolerance Power	(dBm)	KESSET
			ChainA	ChainB	(dBm)		
1	2412	HT8	18.07	17.42	20.77	30.00	PASS
2	2417	HT8	19.29	18.35	21.86	30.00	PASS
3	2422	HT8	19.27	17.45	21.92	30.00	PASS
4	2427	HT8	19.22	18.49	21.89	30.00	PASS
5	2432	HT8	19.16	18.43	21.83	30.00	PASS
6	2437	HT8	19.29	18.50	21.93	30.00	PASS
7	2442	HT8	19.32	18.34	21.87	30.00	PASS
8	2447	HT8	19.23	18.35	21.83	30.00	PASS
9	2452	HT8	19.27	18.36	21.85	30.00	PASS
10	2457	HT8	19.24	18.32	21.82	30.00	PASS
11	2462	HT8	18.42	17.45	20.98	30.00	PASS
12	2467	HT8	14.36	13.94	17.17	30.00	PASS
13	2472	HT8	9.17	8.73	11.97	30.00	PASS

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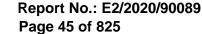




802.1	1n_HT40N	M MIMO					
СН	Freq. (MHz)	Data Rate	Po	Output wer	Total Peak Output Power	Limit (dBm)	RESULT
				ChainB	(dBm)		
3	2422	HT8	20.23	19.29	22.80	30.00	PASS
4	2427	HT8	20.84	20.27	23.57	30.00	PASS
5	2432	HT8	22.04	21.44	24.76	30.00	PASS
6	2437	HT8	24.53	23.81	27.20	30.00	PASS
7	2442	HT8	23.42	22.96	26.21	30.00	PASS
8	2447	HT8	22.18	21.72	24.97	30.00	PASS
9	2452	HT8	21.84	21.01	24.46	30.00	PASS
10	2457	HT8	19.77	19.25	22.53	30.00	PASS
11	2462	HT8	22.50	21.88	25.21	30.00	PASS
802.1	1n_HT40N	M MIMO	•	•			•
			Avg. 0	Output	Max. Avg. Output		
СН	Freq.	Data	Po	wer	include tune up	Limit	RESULT
СП	(MHz)	Rate	(dE	3m)	tolerance Power	(dBm)	KESULI
			ChainA	ChainB	(dBm)		
3	2422	HT8	14.33	13.71	17.05	30.00	PASS
4	2427	HT8	15.20	14.65	17.95	30.00	PASS
5	2432	HT8	16.20	15.70	18.98	30.00	PASS
6	2437	HT8	19.25	18.56	21.94	30.00	PASS
7	2442	HT8	17.99	17.31	20.68	30.00	PASS
8	2447	HT8	16.41	15.98	19.22	30.00	PASS
9	2452	HT8	15.98	15.25	18.65	30.00	PASS
10	2457	HT8	12.32	11.49	14.95	30.00	PASS
11	2462	HT8	12.41	11.89	15.18	30.00	PASS

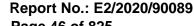
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802.1	1ax_HE20	M MIMC)					
СН	Freq. (MHz)	Data Rate	RU Config	Po	Output wer ChainB	Total Peak Output Power (dBm)	Limit (dBm)	RESULT
			full	23.64	23.49	26.58	30.00	PASS
			26/0	24.34	24.00	27.18	30.00	PASS
1	2412	MCS0						PASS
			52/37	24.22	23.89	27.07	30.00	
			106/53	24.06	23.51	26.80	30.00	PASS
2	2417	MCS0	full	23.61	23.32	26.48	30.00	PASS
3	2422	MCS0	full	24.47	23.50	27.02	30.00	PASS
4	2427	MCS0	full	24.35	23.67	27.03	30.00	PASS
5	2432	MCS0	full	24.40	23.59	27.02	30.00	PASS
6	2437	MCS0	full	24.44	23.72	27.11	30.00	PASS
7	2442	MCS0	full	24.64	23.60	27.16	30.00	PASS
8	2447	MCS0	full	24.38	23.61	27.02	30.00	PASS
9	2452	MCS0	full	24.35	23.66	27.03	30.00	PASS
10	2457	MCS0	full	24.33	23.53	26.96	30.00	PASS
			full	23.31	23.07	26.20	30.00	PASS
11	2462	MCS0	26/8	23.96	23.51	26.75	30.00	PASS
11	2402	IVICSU	52/40	24.14	23.70	26.94	30.00	PASS
			106/54	23.99	23.47	26.75	30.00	PASS
12	2467	MCS0	full	20.48	20.30	23.40	30.00	PASS
			full	22.61	22.39	25.51	30.00	PASS
13	2472	MCS0	26/8	21.49	20.63	24.09	30.00	PASS
13	27/2	101030	52/40	20.74	19.59	23.21	30.00	PASS
			106/54	20.38	19.58	23.01	30.00	PASS

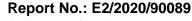




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802.1°	1ax_HE20	M MIMC)					
СН	Freq.	Data	RU	Pov	Output wer	Max. Avg. Output include tune up	Limit	RESULT
	(MHz)	Rate	Config	(dE ChainA	sm) ChainB	tolerance Power (dBm)	(dBm)	
			full	18.09	18.05	21.09	30.00	PASS
1	2412	MCS0	26/0	19.01	18.75	21.90	30.00	PASS
'	2412	IVICSO	52/37	18.77	18.71	21.76	30.00	PASS
			106/53	19.19	18.61	21.93	30.00	PASS
2	2417	MCS0	full	18.27	18.12	21.22	30.00	PASS
3	2422	MCS0	full	19.21	18.57	21.92	30.00	PASS
4	2427	MCS0	full	19.24	18.52	21.91	30.00	PASS
5	2432	MCS0	full	19.10	18.61	21.88	30.00	PASS
6	2437	MCS0	full	19.20	18.56	21.91	30.00	PASS
7	2442	MCS0	full	19.19	18.46	21.86	30.00	PASS
8	2447	MCS0	full	19.17	18.48	21.86	30.00	PASS
9	2452	MCS0	full	19.24	18.54	21.92	30.00	PASS
10	2457	MCS0	full	19.20	18.44	21.86	30.00	PASS
			full	17.64	17.45	20.57	30.00	PASS
11	2462	MCS0	26/8	18.90	18.50	21.72	30.00	PASS
'''	2402	IVICSO	52/40	18.75	18.45	21.62	30.00	PASS
			106/54	19.05	18.72	21.91	30.00	PASS
12	2467	MCS0	full	14.65	14.57	17.63	30.00	PASS
			full	10.65	10.53	13.61	30.00	PASS
13	2472	MCS0	26/8	9.07	8.34	11.74	30.00	PASS
15	2112	101000	52/40	8.25	7.66	10.98	30.00	PASS
			106/54	7.94	7.25	10.63	30.00	PASS

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	1ax_HE40								
СН	Freq. (MHz)	Data Rate	RU Config	Peak C Pov ChainA		Total Peak Output Power (dBm)	Limit (dBm)	RESULT	
3	2422	MCS0	full	20.54	20.34	23.45	30.00	PASS	
3	2422	IVICSU	242/6	23.77	23.55	26.67	30.00	PASS	
4	2427	MCS0	full	20.42	19.91	23.18	30.00	PASS	
5	2432	MCS0	full	21.28	20.81	24.06	30.00	PASS	
6	2437	MCS0	full	24.49	23.83	27.18	30.00	PASS	
7	2442	MCS0	full	23.31	22.97	26.15	30.00	PASS	
8	2447	MCS0	full	22.41	21.85	25.15	30.00	PASS	
9	2452	MCS0	full	19.83	19.68	22.77	30.00	PASS	
7	2432	IVICSU	242/6	24.17	23.75	26.98	30.00	PASS	
10	2457	MCS0	full	19.74	19.65	22.71	30.00	PASS	
11	2462	MCS0	full	22.31	21.76	25.05	30.00	PASS	
	2402	IVICSU	242/6	22.77	22.05	25.44	30.00	PASS	
802.1	1ax_HE40	M MIMC)						
				Avg. C	utput	Max. Avg. Output			
СН	Freq.	Data	RU	Pov	wer	include tune up	Limit	RESULT	
011	(MHz)	Rate	Config	(dBm)		tolerance Power	(dBm)	KLJULI	
				ChainA	ChainB	(dDm)			
3					0	(dBm)			
1	2422	MCS0	full	14.01	13.81	16.94	30.00	PASS	
J	2422	MCS0	full 242/6	14.01 18.88			30.00	PASS PASS	
4	2422 2427	MCS0			13.81	16.94			
			242/6	18.88	13.81 18.53	16.94 21.74	30.00	PASS	
4	2427	MCS0	242/6 full	18.88 13.99	13.81 18.53 13.50	16.94 21.74 16.78	30.00 30.00	PASS PASS PASS	
4 5	2427 2432	MCS0	242/6 full full	18.88 13.99 14.95	13.81 18.53 13.50 14.45	16.94 21.74 16.78 17.74	30.00 30.00 30.00	PASS PASS PASS PASS PASS	
4 5 6	2427 2432 2437	MCS0 MCS0 MCS0	242/6 full full full	18.88 13.99 14.95 18.78	13.81 18.53 13.50 14.45 18.09	16.94 21.74 16.78 17.74 21.48	30.00 30.00 30.00 30.00	PASS PASS PASS	
4 5 6 7 8	2427 2432 2437 2442 2447	MCS0 MCS0 MCS0 MCS0 MCS0	242/6 full full full full	18.88 13.99 14.95 18.78 16.81	13.81 18.53 13.50 14.45 18.09 16.34	16.94 21.74 16.78 17.74 21.48 19.61	30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS	
4 5 6 7	2427 2432 2437 2442	MCS0 MCS0 MCS0 MCS0	242/6 full full full full full	18.88 13.99 14.95 18.78 16.81 15.64	13.81 18.53 13.50 14.45 18.09 16.34 15.21	16.94 21.74 16.78 17.74 21.48 19.61 18.46	30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS	
4 5 6 7 8	2427 2432 2437 2442 2447	MCS0 MCS0 MCS0 MCS0 MCS0	242/6 full full full full full full full	18.88 13.99 14.95 18.78 16.81 15.64 13.21	13.81 18.53 13.50 14.45 18.09 16.34 15.21 13.12	16.94 21.74 16.78 17.74 21.48 19.61 18.46 16.20	30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS	
4 5 6 7 8	2427 2432 2437 2442 2447 2452	MCS0 MCS0 MCS0 MCS0 MCS0	242/6 full full full full full full 242/6	18.88 13.99 14.95 18.78 16.81 15.64 13.21 17.14	13.81 18.53 13.50 14.45 18.09 16.34 15.21 13.12 16.87	16.94 21.74 16.78 17.74 21.48 19.61 18.46 16.20 20.04	30.00 30.00 30.00 30.00 30.00 30.00 30.00	PASS PASS PASS PASS PASS PASS PASS PASS	

^{*} Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.

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6DB BANDWIDTH MEASUREMENT

9.1 Standard Applicable

The minimum 6 dB bandwidth shall be at least 500 kHz.

9.2 Measurement Equipment Used

	Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/25/2020	06/24/2021				
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021				
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/08/2020	07/07/2021				
Attenuator	Marvelous	MVE2213-10	RF09	11/20/2019	11/19/2020				
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021				
DC Block	PASTERNACK	PE8210	RF151	11/20/2019	11/19/2020				
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021				
IPEX-4 Cable	Woken	00100A1H646027	N/A	N/A	N/A				

9.3 Test Set-up



9.4 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- Set the spectrum analyzer as

RBW = 100KHz,

VBW = 3 X RBW.

Span= 1.5 times of the OBW,

Sweep=auto,

Detector = Peak, and Max hold for 6dB Bandwidth test.

- 5. Mark the peak frequency and -6dB (upper and lower) frequency
- Repeat above procedures until all test default channel is completed

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9.5 6dB Bandwidth

Mode: Chain A

002	11h	Chain	Λ

002. I ID CHAIH A								
Freq.	6dB BW	Limit	Result					
(MHz)	(kHz)	(kHz)	Nesuit					
2412	9055.00	> 500	PASS					
2437	9090.00	> 500	PASS					
2462	9100.00	> 500	PASS					
2467	9090.00	> 500	PASS					
2472	9079.00	> 500	PASS					

002 11a Chain A

802. Hg			
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Nesuit
2412	15150.00	> 500	PASS
2437	15150.00	> 500	PASS
2462	15150.00	> 500	PASS
2467	15110.00	> 500	PASS
2472	16390.00	> 500	PASS

802 11 n HT20 Chain A

002.11_11_11120 Onail1 A					
Freq.	6dB BW	Limit	Result		
(MHz)	(kHz)	(kHz)	Nesuit		
2412	15390.00	> 500	PASS		
2437	16310.00	> 500	PASS		
2462	14890.00	> 500	PASS		
2467	13220.00	> 500	PASS		
2472	17630.00	> 500	PASS		

802 11 av HF20 Chain Δ

002. I I_ax_I IL20 CHalli A				
Freq.	RU Config	6dB BW	Limit	Result
(MHz)	ito comig	(kHz)	(kHz)	Result
2412	full	16580.00	> 500	PASS
2412	26/0	2085.00	> 500	PASS
2437	full	18140.00	> 500	PASS
	26/0	2086.00	> 500	PASS
2462	full	17670.00	> 500	PASS
	26/0	2085.00	> 500	PASS
2467	full	18170.00	> 500	PASS
2407	26/0	2088.00	> 500	PASS
2472	full	18750.00	> 500	PASS
2412	26/0	2039.00	> 500	PASS

802.11_n_HT40 Chain A

	<u> </u>		
Freq.	6dB BW	Limit	Result
(MHz)	(kHz)	(kHz)	Result
2422	28530.00	> 500	PASS
2437	32650.00	> 500	PASS
2452	35130.00	> 500	PASS
2457	33800.00	> 500	PASS
2462	36370.00	> 500	PASS

802 11 ax HF40 Chain A

OUZ. I I_AA_I IL40 CHAIH A					
Freq.	RU Config	6dB BW	Limit	Result	
(MHz)	KU CUIIII	(kHz)	(kHz)	Nesuit	
2422	full	35350.00	> 500	PASS	
2437	full	35580.00	> 500	PASS	
2452	full	35970.00	> 500	PASS	
2457	full	36210.00	> 500	PASS	
2462	full	37900.00	> 500	PASS	

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Mode: Chain B

802.11b	802.11b ChainB					
Freq.	6dB BW	Limit	Result			
(MHz)	(kHz)	(kHz)	Result			
2412	9078.00	> 500	PASS			
2437	9066.00	> 500	PASS			
2462	9064.00	> 500	PASS			
2467	9080.00	> 500	PASS			
2472	9072.00	> 500	PASS			

802.11g ChainB					
Freq. (MHz)	6dB BW	Limit	Result		
	(kHz)	(kHz)			
2412	15150.00	> 500	PASS		
2437	15150.00	> 500	PASS		
2462	15160.00	> 500	PASS		
2467	15140.00	> 500	PASS		
2472	16370.00	> 500	PASS		

802.11_n_HT20 ChainB					
Freq.	6dB BW	Limit	Result		
(MHz)	(kHz)	(kHz)	Result		
2412	11560.00	> 500	PASS		
2437	14210.00	> 500	PASS		
2462	13550.00	> 500	PASS		
2467	15030.00	> 500	PASS		
2472	17640.00	> 500	PASS		

802.11_ax_HE20 ChainB				
Freq. (MHz)	RU Config	6dB BW (kHz)	Limit (kHz)	Result
(IVII 12)	full	16970.00	> 500	PASS
2412		10970.00		
	26/0	2083.00	> 500	PASS
2437	full	18190.00	> 500	PASS
2437	26/0	2062.00	> 500	PASS
2462	full	16100.00	> 500	PASS
2402	26/0	2074.00	> 500	PASS
2467	full	17070.00	> 500	PASS
2407	26/0	2084.00	> 500	PASS
2472	full	18580.00	> 500	PASS
2472	26/0	2033.00	> 500	PASS

802.11_n	802.11_n_HT40 ChainB					
Freq.	6dB BW	Limit	Result			
(MHz)	(kHz)	(kHz)	Rosuit			
2422	33880.00	> 500	PASS			
2437	32190.00	> 500	PASS			
2452	33830.00	> 500	PASS			
2457	35150.00	> 500	PASS			
2462	36360.00	> 500	PASS			

802.11_ax_HE40 ChainB					
Freq.	RU Config	6dB BW	Limit	Result	
(MHz)	KU CUIIII	(kHz)	(kHz)	Result	
2422	full	36870.00	> 500	PASS	
2437	full	35080.00	> 500	PASS	
2452	full	35320.00	> 500	PASS	
2457	full	36590.00	> 500	PASS	
2462	full	37920.00	> 500	PASS	

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Mode: MIMO

802.11_n_HT20 ChainA					
Freq.	6dB BW	Limit	Result		
(MHz)	(kHz)	(kHz)	Nesuit		
2412	15130.00	> 500	PASS		
2437	15060.00	> 500	PASS		
2462	14220.00	> 500	PASS		
2467	14450.00	> 500	PASS		
2472	17630.00	> 500	PASS		

802.11_n_HT20 ChainB					
Freq.	6dB BW	Limit	Result		
(MHz)	(kHz)	(kHz)	Result		
2412	15670.00	> 500	PASS		
2437	16930.00	> 500	PASS		
2462	16510.00	> 500	PASS		
2467	16330.00	> 500	PASS		
2472	17650.00	> 500	PASS		

802.11_n_HT40 ChainA				
Freq.	6dB BW	Limit	Result	
(MHz)	(kHz)	(kHz)	Result	
2422	35080.00	> 500	PASS	
2437	32580.00	> 500	PASS	
2452	35110.00	> 500	PASS	
2457	35150.00	> 500	PASS	
2462	36360.00	> 500	PASS	

802.11_n_HT40 ChainB				
Freq.	6dB BW	Limit	Result	
(MHz)	(kHz)	(kHz)	Result	
2422	33850.00	> 500	PASS	
2437	32590.00	> 500	PASS	
2452	35110.00	> 500	PASS	
2457	35120.00	> 500	PASS	
2462	36400.00	> 500	PASS	

802.11_ax_HE20 ChainA				
Freq. (MHz)	RU Config	6dB BW (kHz)	Limit (kHz)	Result
2412	full	16380.00	> 500	PASS
	26/0	2082.00	> 500	PASS
2437	full	17290.00	> 500	PASS
	26/0	2081.00	> 500	PASS
2462	full	16280.00	> 500	PASS
	26/0	2060.00	> 500	PASS
2467	full	15970.00	> 500	PASS
	26/0	2071.00	> 500	PASS
2472	full	18670.00	> 500	PASS
	26/0	2053.00	> 500	PASS

802.11_ax_HE20 ChainB				
Freq. (MHz)	RU Config	6dB BW (kHz)	Limit (kHz)	Result
2412	full	15130.00	> 500	PASS
	26/0	2084.00	> 500	PASS
2437	full	15130.00	> 500	PASS
	26/0	2066.00	> 500	PASS
2462	full	13830.00	> 500	PASS
	26/0	2071.00	> 500	PASS
2467	full	15130.00	> 500	PASS
	26/0	2074.00	> 500	PASS
2472	full	18550.00	> 500	PASS
	26/0	2041.00	> 500	PASS

802.11_ax_HE40 ChainA				
Freq.	RU Config	6dB BW	Limit	Result
(MHz)	KU Culling	(kHz)	(kHz)	Nesuit
2422	full	35100.00	> 500	PASS
2437	full	33910.00	> 500	PASS
2452	full	35060.00	> 500	PASS
2457	full	35090.00	> 500	PASS
2462	full	37630.00	> 500	PASS

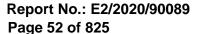
802.11_ax_HE40 ChainB				
Freq.	RU Config	6dB BW	Limit	Result
(MHz)	J	(kHz)	(kHz)	
2422	full	35140.00	> 500	PASS
2437	full	35120.00	> 500	PASS
2452	full	35120.00	> 500	PASS
2457	full	35130.00	> 500	PASS
2462	full	37730.00	> 500	PASS

*Refer to next page for plots

Note: For the test plots, Detector: PEAK, Trace: MAX Hold

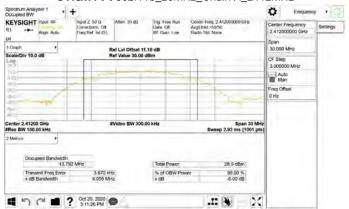
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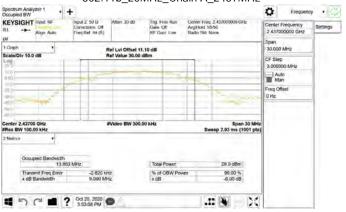
Chain A 802.11b_20MHz_Chain A_2412MHz



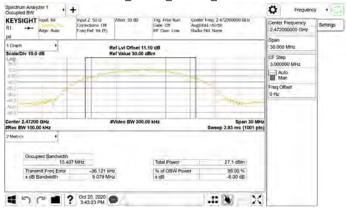
802.11b_20MHz_Chain A_2467MHz



802.11b 20MHz Chain A 2437MHz



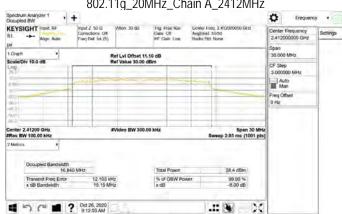
802.11b 20MHz Chain A 2472MHz



802.11b_20MHz_Chain A_2462MHz



802.11g_20MHz_Chain A_2412MHz

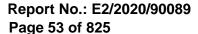


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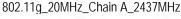
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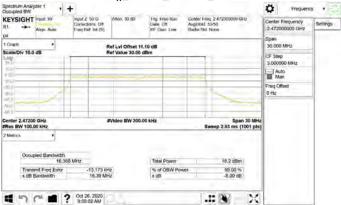








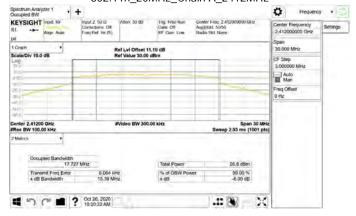
802.11g_20MHz_Chain A_2472MHz



802.11g 20MHz Chain A 2462MHz



802.11n 20MHz Chain A 2412MHz



802.11g_20MHz_Chain A_2467MHz

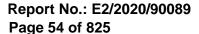


802.11n_20MHz_Chain A_2437MHz

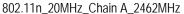


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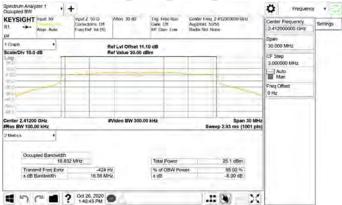




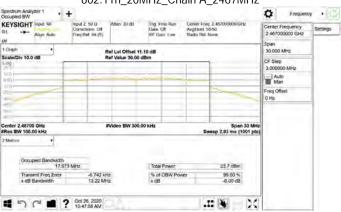




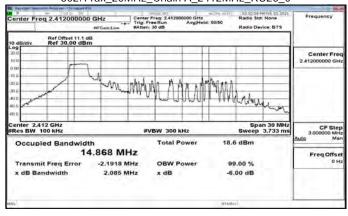
802.11ax_20MHz_Chain A_2412MHz



802.11n 20MHz Chain A 2467MHz



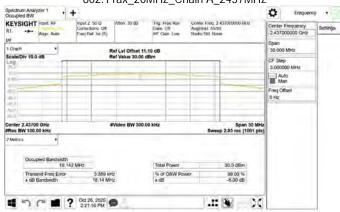
802.11ax 20MHz Chain A 2412MHz RU26 0



802.11n_20MHz_Chain A_2472MHz



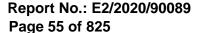
802.11ax_20MHz_Chain A_2437MHz



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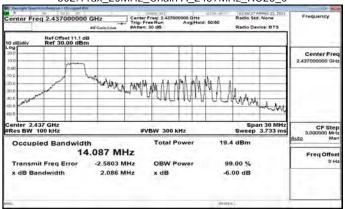
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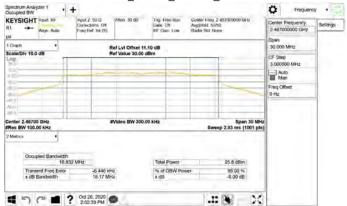




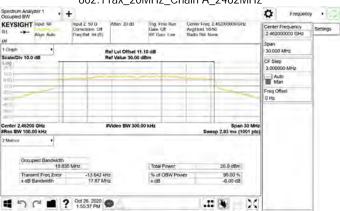
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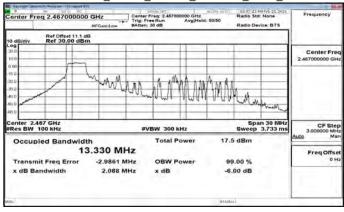
802.11ax_20MHz_Chain A_2467MHz



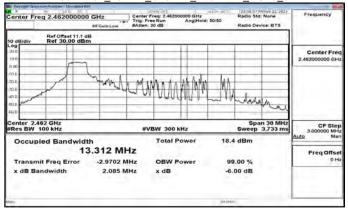
802.11ax 20MHz Chain A 2462MHz



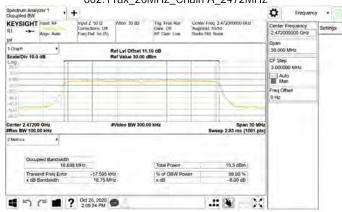
802.11ax 20MHz Chain A 2467MHz RU26 0



802.11ax_20MHz_Chain A_2462MHz_RU26_0

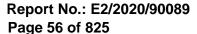


802.11ax_20MHz_Chain A_2472MHz



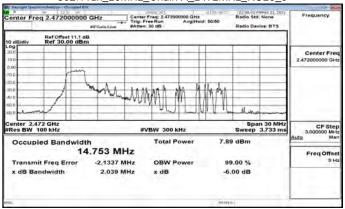
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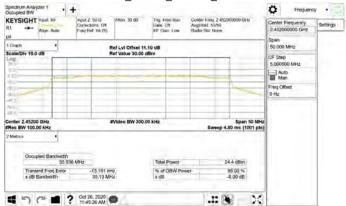




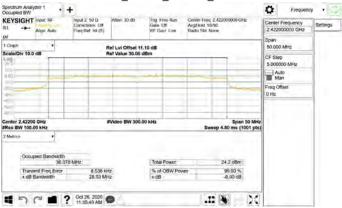
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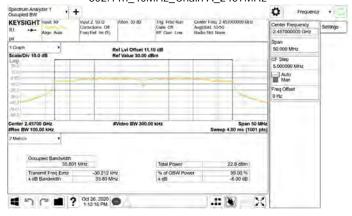
802.11n_40MHz_Chain A_2452MHz



802.11n 40MHz Chain A 2422MHz



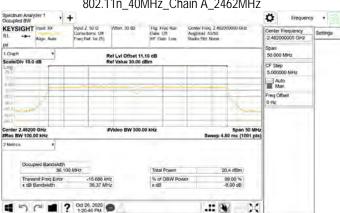
802.11n 40MHz Chain A 2457MHz



802.11n_40MHz_Chain A_2437MHz

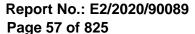


802.11n_40MHz_Chain A_2462MHz



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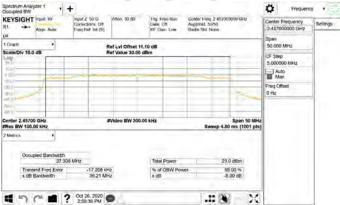




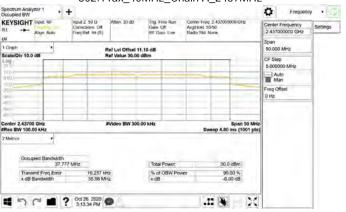
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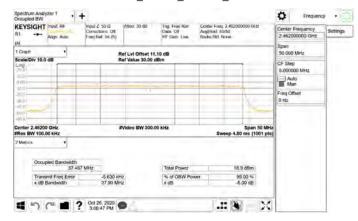
802.11ax_40MHz_Chain A_2457MHz



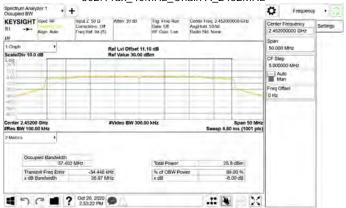
802.11ax 40MHz Chain A 2437MHz



802.11ax 40MHz Chain A 2462MHz

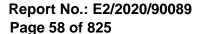


802.11ax_40MHz_Chain A_2452MHz



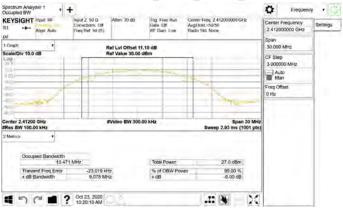
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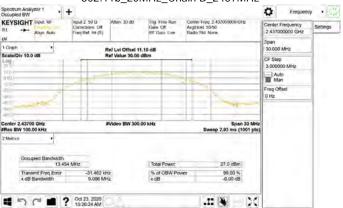
Chain B 802.11b_20MHz_Chain B_2412MHz



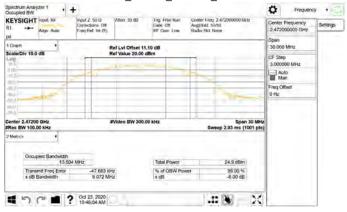
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802.11b 20MHz Chain B 2437MHz



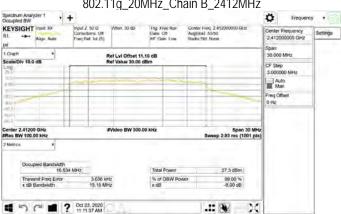
802.11b 20MHz Chain B 2472MHz



802.11b_20MHz_Chain B_2462MHz

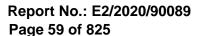


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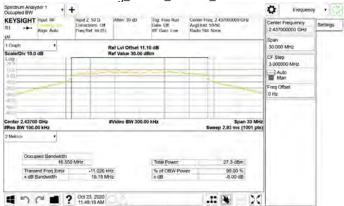
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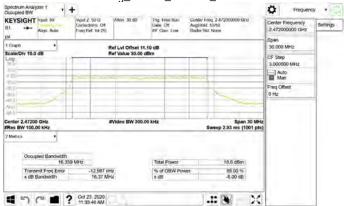




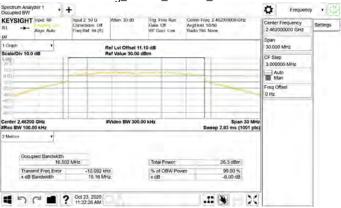




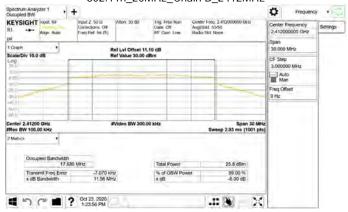
802.11g_20MHz_Chain B_2472MHz



802.11g 20MHz Chain B 2462MHz



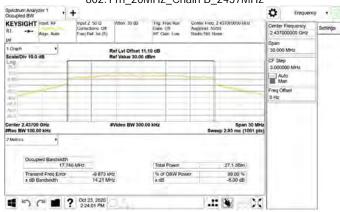
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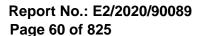
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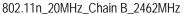
802.11n_20MHz_Chain B_2437MHz



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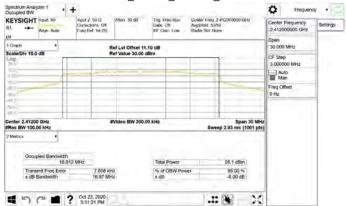




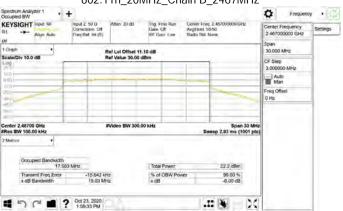




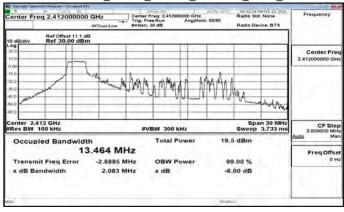
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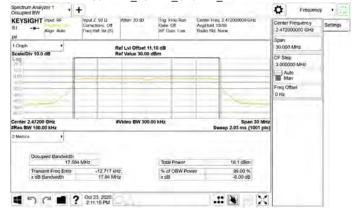
802.11n 20MHz Chain B 2467MHz



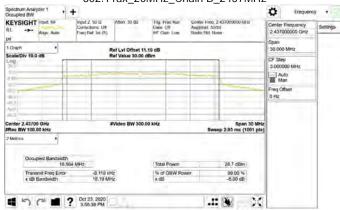
802.11ax 20MHz Chain B 2412MHz RU26 0



802.11n_20MHz_Chain B_2472MHz

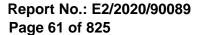


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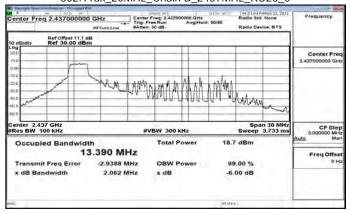
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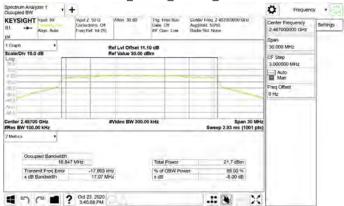




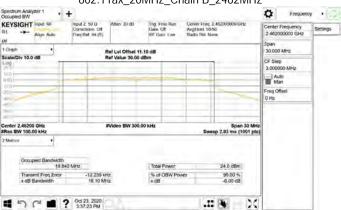
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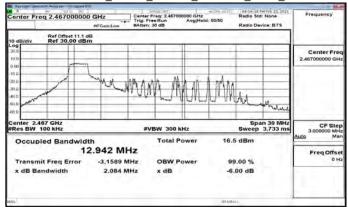
802.11ax_20MHz_Chain B_2467MHz



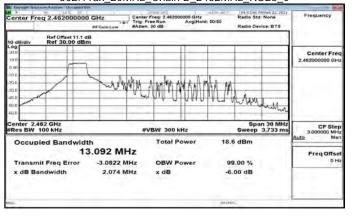
802.11ax 20MHz Chain B 2462MHz



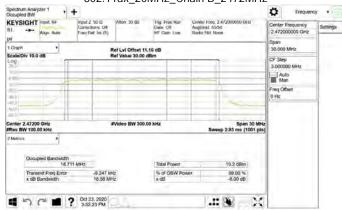
802.11ax 20MHz Chain B 2467MHz RU26 0



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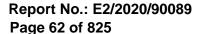


802.11ax_20MHz_Chain B_2472MHz



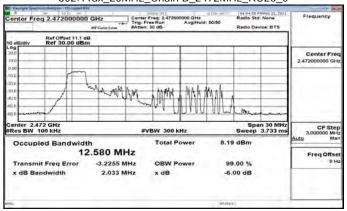
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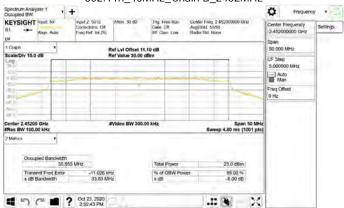




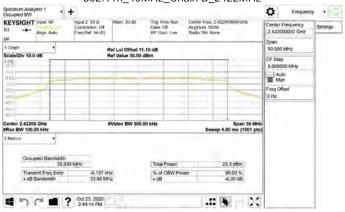
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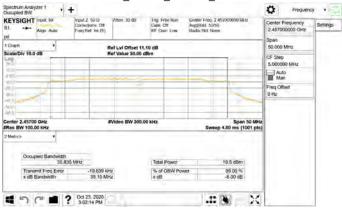
802.11n_40MHz_Chain B_2452MHz



802.11n 40MHz Chain B 2422MHz



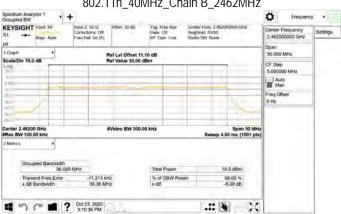
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802.11n_40MHz_Chain B_2437MHz

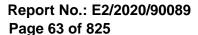


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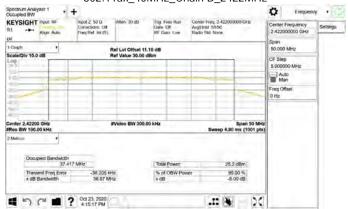
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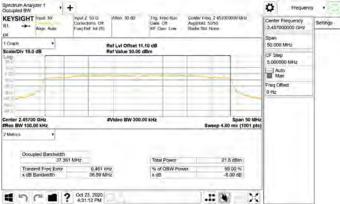




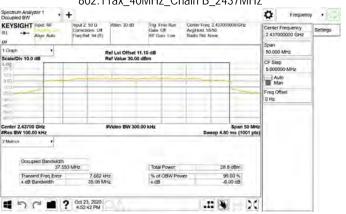
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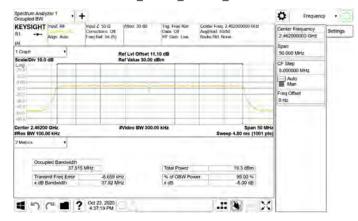
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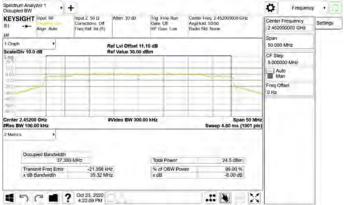
802.11ax 40MHz Chain B 2437MHz



802.11ax 40MHz Chain B 2462MHz

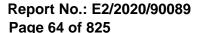


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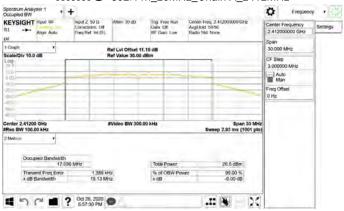
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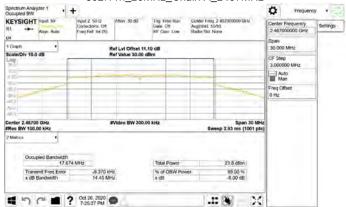




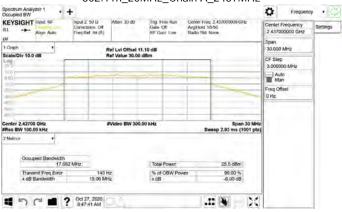
MIMO 802.11n_20MHz_Chain A_2412MHz



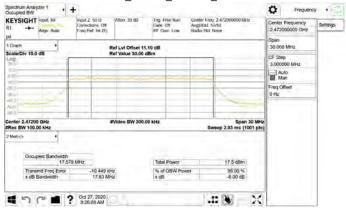
802.11n_20MHz_Chain A_2467MHz



802.11n 20MHz Chain A 2437MHz



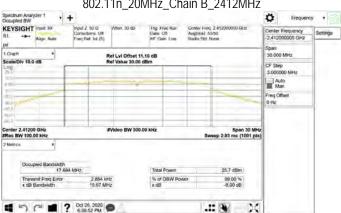
802.11n 20MHz Chain A 2472MHz



802.11n_20MHz_Chain A_2462MHz

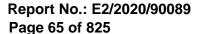


802.11n_20MHz_Chain B_2412MHz



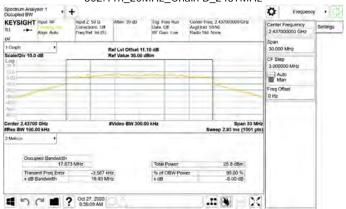
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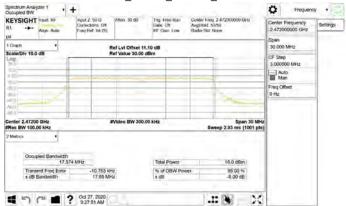




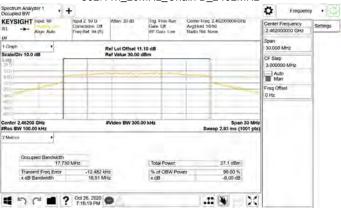
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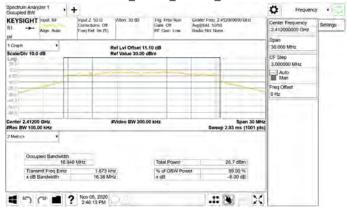
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802.11n 20MHz Chain B 2462MHz



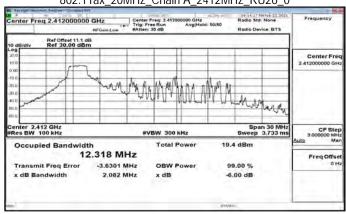
802.11ax 20MHz Chain A 2412MHz



802.11n_20MHz_Chain B_2467MHz

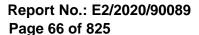


802.11ax 20MHz Chain A 2412MHz RU26 0



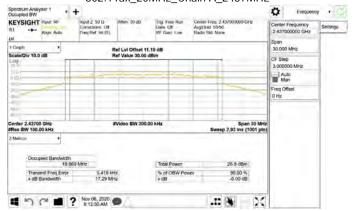
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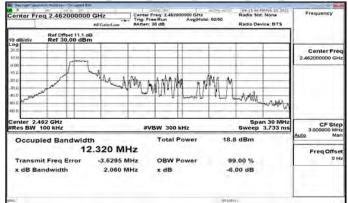




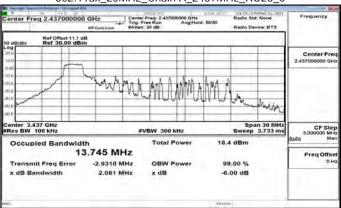
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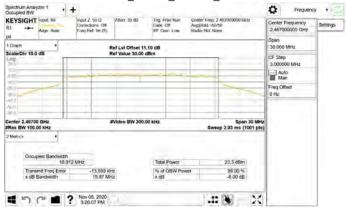
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802.11ax 20MHz Chain A 2437MHz RU26 0



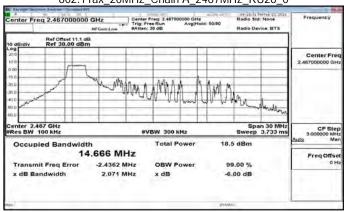
802.11ax 20MHz Chain A 2467MHz



802.11ax_20MHz_Chain A_2462MHz



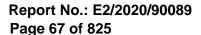
802.11ax_20MHz_Chain A_2467MHz_RU26_0



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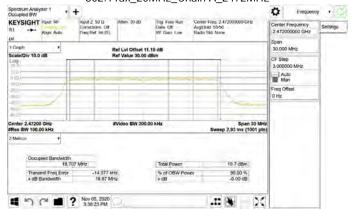
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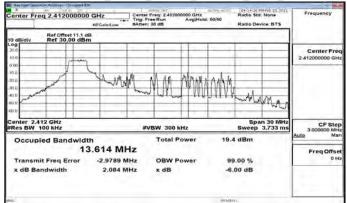




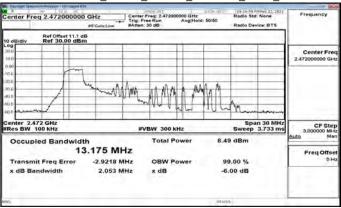
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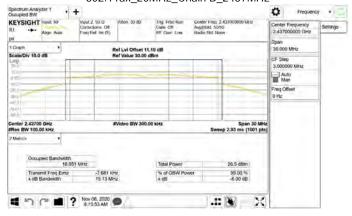
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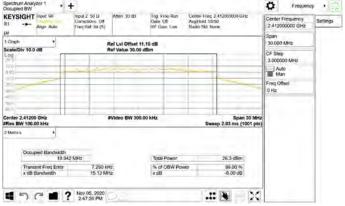
802.11ax 20MHz Chain A 2472MHz RU26 0



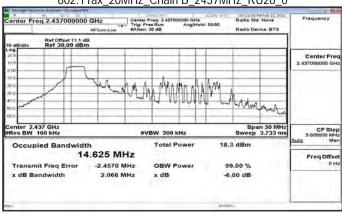
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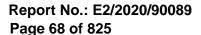


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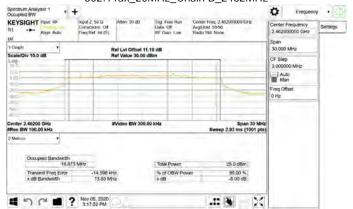
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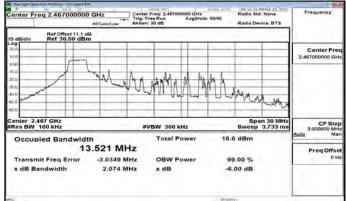




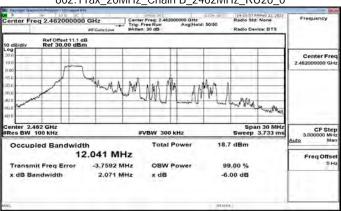
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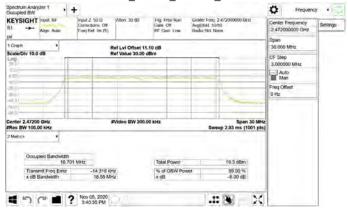
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802.11ax 20MHz Chain B 2462MHz RU26 0



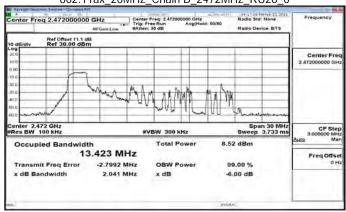
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802.11ax_20MHz_Chain B_2467MHz

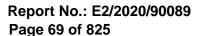


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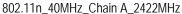


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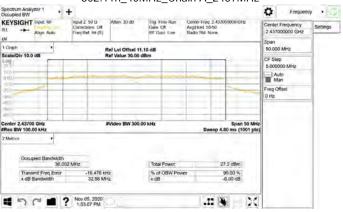




802.11n_40MHz_Chain A_2457MHz



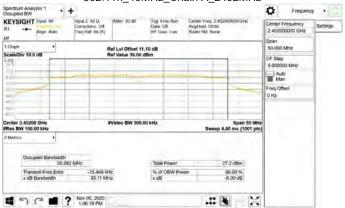
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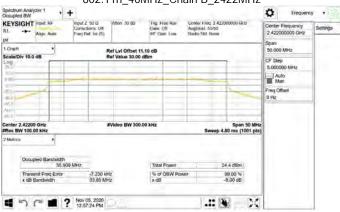
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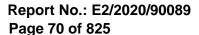


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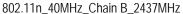


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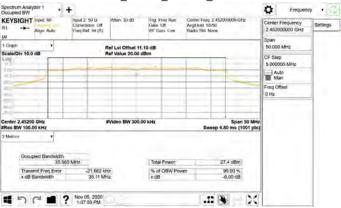




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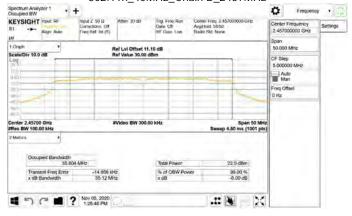
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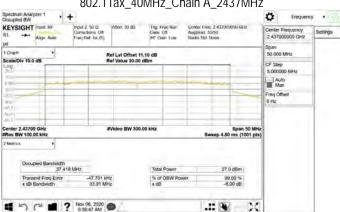
802.11ax 40MHz Chain A 2422MHz



802.11n_40MHz_Chain B_2457MHz

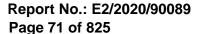


802.11ax_40MHz_Chain A_2437MHz



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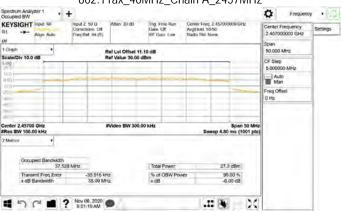




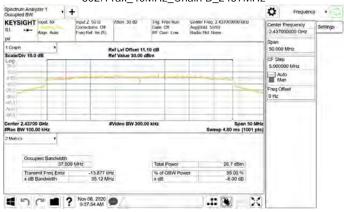
802.11ax_40MHz_Chain B_2422MHz



802.11ax 40MHz Chain A 2457MHz



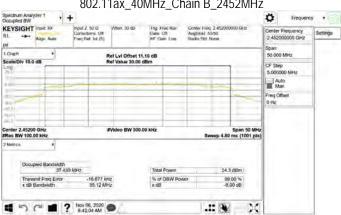
802.11ax 40MHz Chain B 2437MHz



802.11ax_40MHz_Chain A_2462MHz



802.11ax_40MHz_Chain B_2452MHz



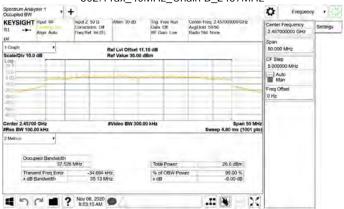
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802.11ax_40MHz_Chain B_2457MHz



802.11ax 40MHz Chain B 2462MHz



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10 CONDUCTED BAND EDGES AND SPURIOUS EMISSION MEASUREMENT

10.1 Standard Applicable

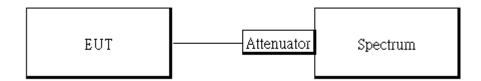
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

10.2 Measurement Equipment Used

Conducted Emission Test Site							
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071570	06/25/2020	06/24/2021		
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	02/20/2020	02/19/2021		
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510568	07/08/2020	07/07/2021		
Attenuator	Marvelous	MVE2213-10	RF09	11/20/2019	11/19/2020		
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021		
DC Block	PASTERNACK	PE8210	RF151	11/20/2019	11/19/2020		
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021		
IPEX-4 Cable	Woken	00100A1H646027	N/A	N/A	N/A		

10.3 Test SET-UP



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10.4 Measurement Procedure

Reference Level of Emission Limit:

- Set analyzer center frequency to DTS channel center frequency.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 3. Set the span to 1.5 times the DTS channel bandwidth.
- Set the RBW = 100kHz & VBW = 300 kHz.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure for MIMO mode. Offset = cable loss + $10 \log (N)$, where N is number of transmitting antenna.

Conducted Band Edge:

- 1. To connect Antenna Port of EUT to Spectrum Analyzer.
- 2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 4. Set start to edge frequency, and stop frequency of spectrum analyzer so as to encompass the spectrum to be examined.
- 5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Detector = Peak, Sweep = auto
- 6. Mark the highest reading of the emission as the reference level measurement.
- 7. Set DL as the limit = reading on marker 1 20dBm
- 8. Marker on frequency, 2.3999GHz and 2.4836GHz, and examine shall 100 kHz immediately outside the authorized (2400~2483.5) be attenuated by 20dB at least relative to the maximum emission of power.
- 9. Repeat above procedures until all default test channel (low, middle, and high) was complete.
- 10. MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna.

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Conducted Spurious Emission:

- 1. To connect Antenna Port of EUT to Spectrum Analyzer.
- The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
- Set RBW = 100 kHz & VBW= 300 kHz, Detector = Peak, Sweep = Auto.
- 4. Allow trace to fully stabilize.
- 5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- Repeat above procedures until all default test channel measured were complete.
- 7. MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure for MIMO mode. Offset = cable loss + $10 \log (N)$, where N is number of transmitting antenna.

Note:

For test of MIMO mode, the highest emission of worst case employing Measure and add 10 log (N) technical is reported on this report after the comparison between CHAIN A Antenna at single transmitting mode and CHAIN B that yields the higher value. The MIMO transmitting mode produces higher value of outcome.

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10.5 Measurement Result

Mode: Chain A

Reference Level of Limit 802.11b mode		Reference Level of Limit 802.11g mode			
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	13.08	-6.92	2412	11.08	-8.92
2437	12.97	-7.03	2437	11.70	-8.30
2462	13.34	-6.66	2462	9.55	-10.45
2467	13.17	-6.83	2467	7.41	-12.59
2472	11.21	-8.79	2472	-0.09	-20.09

Reference Level of Limit 802.11n20 mode		Referen	ce Level o	of Limit 802.11n40 MODE	
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	9.37	-10.63	2422	2.95	-17.05
2437	11.30	-8.70	2437	7.39	-12.61
2462	8.68	-11.32	2452	3.43	-16.57
2467	4.17	-15.83	2457	2.06	-17.94
2472	0.80	-19.20	2462	-0.73	-20.73

Reference	ce Level o	of Limit 802.11ax20 mode	Reference	ce Level o	of Limit 802.11ax40 MODE
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	6.81	-13.19	2422	4.18	-15.82
2437	11.23	-8.77	2437	9.01	-10.99
2462	8.77	-11.23	2452	4.8	-15.20
2467	6.39	-13.61	2457	1.38	-18.62
2472	-0.87	-20.87	2462	-3.18	-23.18

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Mode: Chain B

Reference Level of Limit 802.11b mode		Reference Level of Limit 802.11g mode			
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	11.21	-8.79	2412	9.77	-10.23
2437	11.19	-8.81	2437	10.03	-9.97
2462	11.21	-8.79	2462	9.15	-10.85
2467	11.24	-8.76	2467	5.79	-14.21
2472	9.12	-10.88	2472	0.34	-19.66

Reference Level of Limit 802.11n20 mode		Reference Level of Limit 802.11n40 MODE			
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	8.00	-12.00	2422	3.22	-16.78
2437	9.17	-10.83	2437	6.41	-13.59
2462	4.84	-15.16	2452	2.34	-17.66
2467	4.73	-15.27	2457	-1.34	-21.34
2472	-0.10	-20.10	2462	-3.1	-23.10

Referen	Reference Level of Limit 802.11ax20 mode		Reference	e Level o	f Limit 802.11ax40 MODE
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	10.34	-9.66	2422	4.34	-15.66
2437	10.41	-9.59	2437	7.75	-12.25
2462	6.87	-13.13	2452	3.68	-16.32
2467	3.52	-16.48	2457	0.57	-19.43
2472	-0.13	-20.13	2462	-2.46	-22.46

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Mode: MIMO

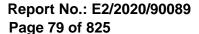
Reference Level of Limit 802.11n20 mode		Referen	ce Level o	of Limit 802.11n40 MODE	
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	11.50	-8.50	2422	6.37	-13.63
2437	11.06	-8.94	2437	9.08	-10.92
2462	12.06	-7.94	2452	9.35	-10.65
2467	9.97	-10.03	2457	3.87	-16.13
2472	2.16	-17.84	2462	8.48	-11.52

Reference	Reference Level of Limit 802.11ax20 mode			e Level o	f Limit 802.11ax40 MODE
Freq.	PSD	Reference Level of Limit	Freq.	PSD	Reference Level of Limit
(MHz)	(dBm)	(dBm)	(MHz)	(dBm)	(dBm)
2412	12.04	-7.96	2422	8.98	-11.02
2437	12.41	-7.59	2437	8.96	-11.04
2462	10.69	-9.31	2452	6.47	-13.53
2467	8.76	-11.24	2457	8.8	-11.20
2472	2.96	-17.04	2462	-1.7	-21.70

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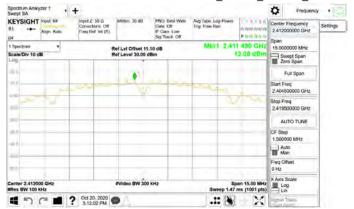
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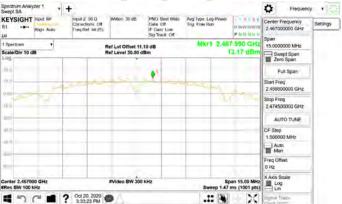




Chain A Reference level 802.11b_20MHz_Chain A_2412MHz



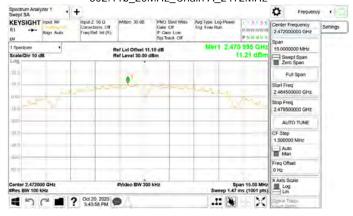
802.11b_20MHz_Chain A_2467MHz



802.11b 20MHz Chain A 2437MHz



802.11b 20MHz Chain A 2472MHz



802.11b_20MHz_Chain A_2462MHz

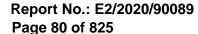


802.11g_20MHz_Chain A_2412MHz



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802.11g_20MHz_Chain A_2437MHz



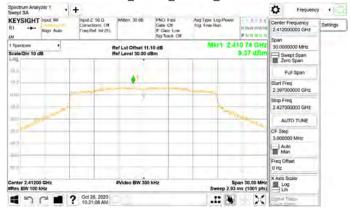
802.11g_20MHz_Chain A_2472MHz



802.11g 20MHz Chain A 2462MHz



802.11n 20MHz Chain A 2412MHz



802.11g_20MHz_Chain A_2467MHz

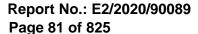


802.11n_20MHz_Chain A_2437MHz



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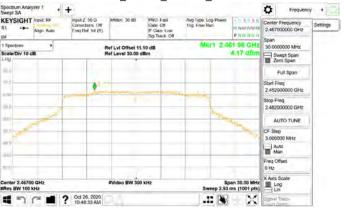
802.11n_20MHz_Chain A_2462MHz



802.11ax_20MHz_Chain A_2412MHz



802.11n 20MHz Chain A 2467MHz



802.11ax_20MHz_Chain A_2437MHz



802.11n_20MHz_Chain A_2472MHz

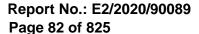


802.11ax_20MHz_Chain A_2462MHz



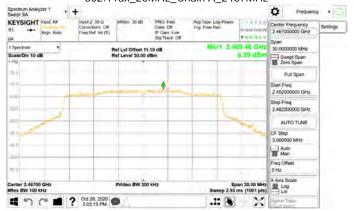
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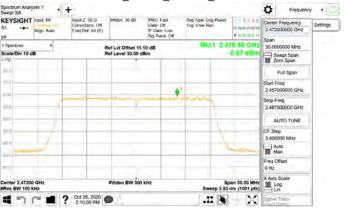
802.11ax_20MHz_Chain A_2467MHz



802.11n_40MHz_Chain A_2437MHz



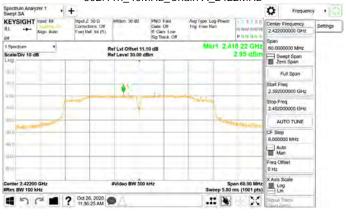
802.11ax 20MHz Chain A 2472MHz



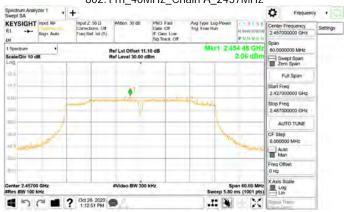
802.11n 40MHz Chain A 2452MHz



802.11n_40MHz_Chain A_2422MHz

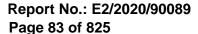


802.11n_40MHz_Chain A_2457MHz



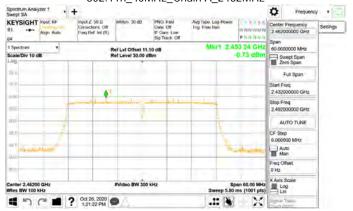
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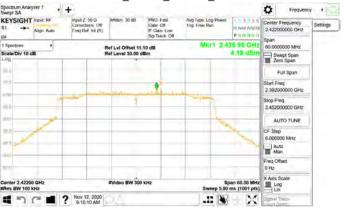
802.11n_40MHz_Chain A_2462MHz



802.11ax_40MHz_Chain A_2452MHz



802.11ax 40MHz Chain A 2422MHz



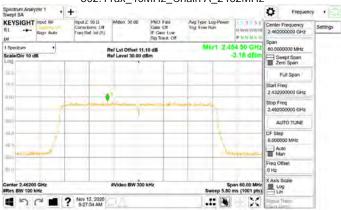
802.11ax_40MHz_Chain A_2457MHz



802.11ax_40MHz_Chain A_2437MHz

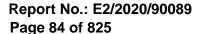


802.11ax_40MHz_Chain A_2462MHz



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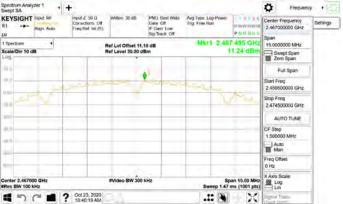




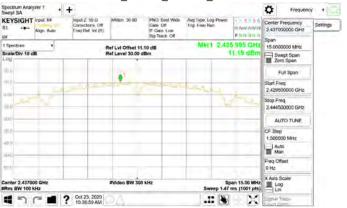
Chain B Reference level 802.11b_20MHz_Chain B_2412MHz



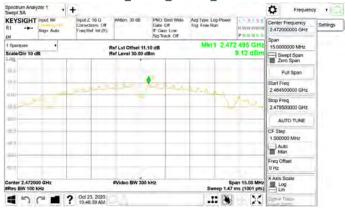
802.11b_20MHz_Chain B_2467MHz



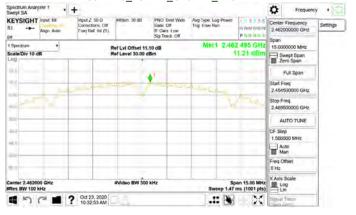
802.11b 20MHz Chain B 2437MHz



802.11b 20MHz Chain B 2472MHz



802.11b_20MHz_Chain B_2462MHz

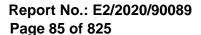


802.11g_20MHz_Chain B_2412MHz



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802.11g_20MHz_Chain B_2437MHz



802.11g_20MHz_Chain B_2472MHz



802.11g 20MHz Chain B 2462MHz



802.11n 20MHz Chain B 2412MHz



802.11g_20MHz_Chain B_2467MHz

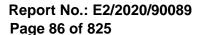


802.11n_20MHz_Chain B_2437MHz



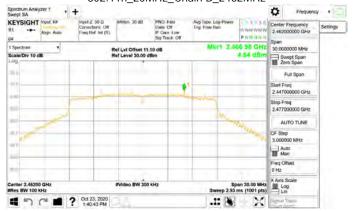
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802.11n_20MHz_Chain B_2462MHz



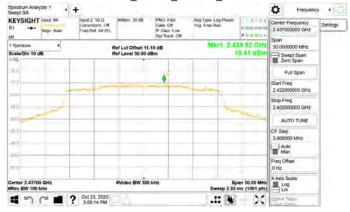
802.11ax_20MHz_Chain B_2412MHz



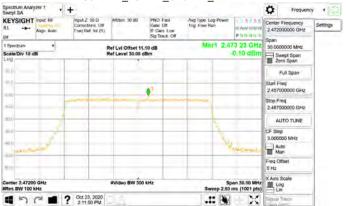
802.11n 20MHz Chain B 2467MHz



802.11ax 20MHz Chain B 2437MHz



802.11n_20MHz_Chain B_2472MHz

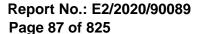


802.11ax_20MHz_Chain B_2462MHz



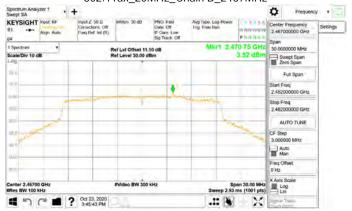
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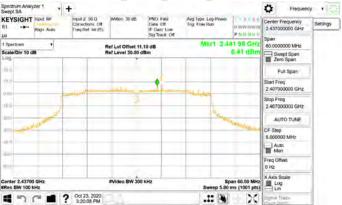




802.11ax_20MHz_Chain B_2467MHz



802.11n_40MHz_Chain B_2437MHz



802.11ax 20MHz Chain B 2472MHz



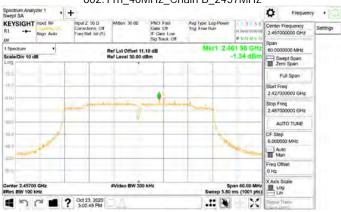
802.11n 40MHz Chain B 2452MHz



802.11n_40MHz_Chain B_2422MHz

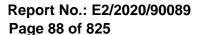


802.11n_40MHz_Chain B_2457MHz



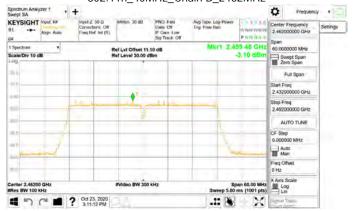
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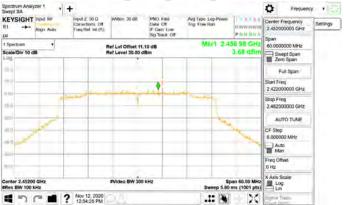




802.11n_40MHz_Chain B_2462MHz



802.11ax_40MHz_Chain B_2452MHz



802.11ax 40MHz Chain B 2422MHz



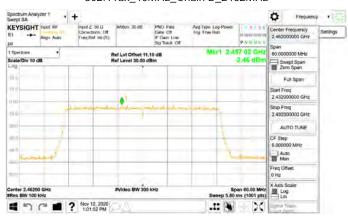
802.11ax 40MHz Chain B 2457MHz



802.11ax_40MHz_Chain B_2437MHz

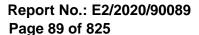


802.11ax_40MHz_Chain B_2462MHz



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MIMO Reference level 802.11n_20MHz_Chain B_2412MHz



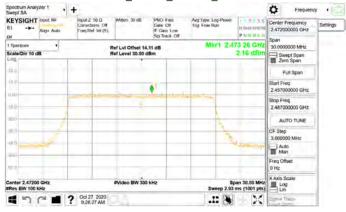
802.11n_20MHz_Chain B_2467MHz



802.11n 20MHz Chain B 2437MHz



802.11n 20MHz Chain B 2472MHz



802.11n_20MHz_Chain B_2462MHz

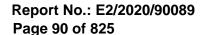


802.11ax_20MHz_Chain B_2412MHz



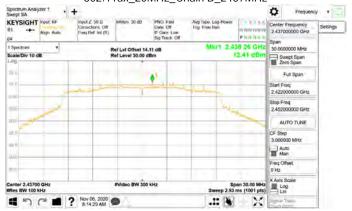
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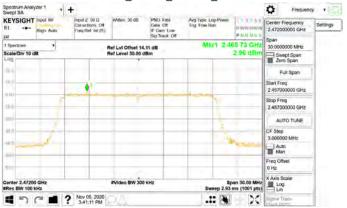




802.11ax_20MHz_Chain B_2437MHz



802.11ax_20MHz_Chain B_2472MHz



802.11ax 20MHz Chain B 2462MHz



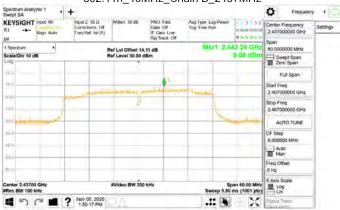
802.11n 40MHz Chain B 2422MHz



802.11ax_20MHz_Chain B_2467MHz

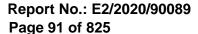


802.11n_40MHz_Chain B_2437MHz



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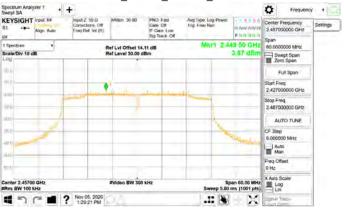
802.11n_40MHz_Chain B_2452MHz



802.11ax_40MHz_Chain B_2422MHz



802.11n 40MHz Chain B 2457MHz



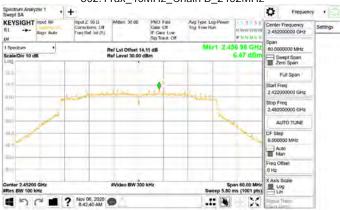
802.11ax 40MHz Chain B 2437MHz



802.11n_40MHz_Chain B_2462MHz

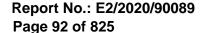


802.11ax_40MHz_Chain B_2452MHz



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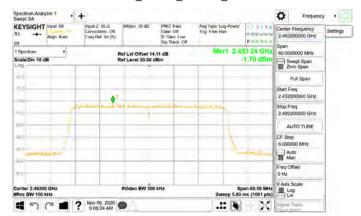
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802.11ax_40MHz_Chain B_2457MHz



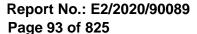
802.11ax 40MHz Chain B 2462MHz



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Chain A Bandedge 802.11b_20MHz_Chain A_2412MHz



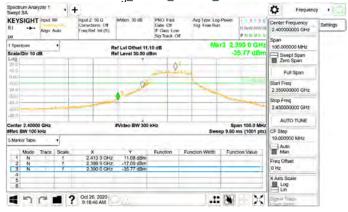
802.11b_20MHz_Chain A_2472MHz



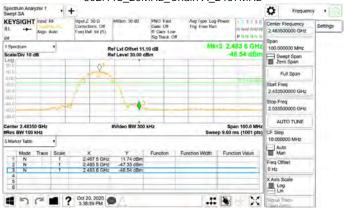
802.11b 20MHz Chain A 2462MHz



802.11g 20MHz Chain A 2412MHz



802.11b_20MHz_Chain A_2467MHz

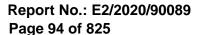


802.11g_20MHz_Chain A_2462MHz



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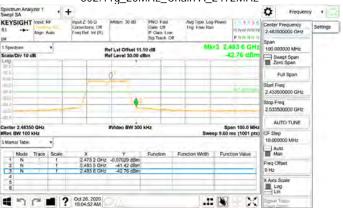




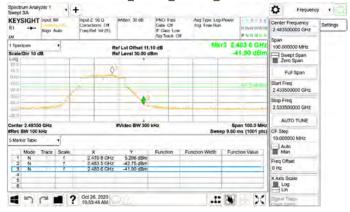
802.11n_20MHz_Chain A_2462MHz



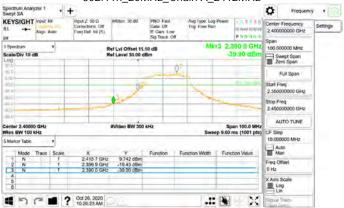
802.11g 20MHz Chain A 2472MHz



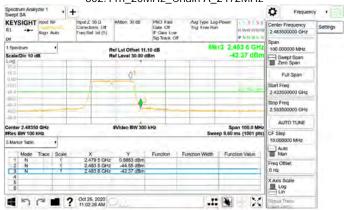
802.11n 20MHz Chain A 2467MHz



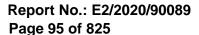
802.11n_20MHz_Chain A_2412MHz



802.11n_20MHz_Chain A_2472MHz

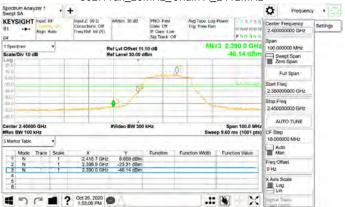


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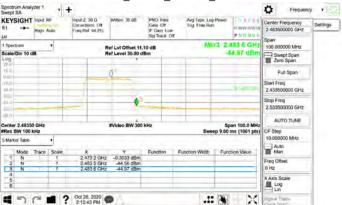








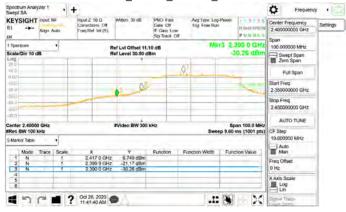
802.11ax_20MHz_Chain A_2472MHz



802.11ax 20MHz Chain A 2462MHz



802.11n 40MHz Chain A 2422MHz



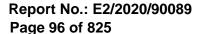
802.11ax_20MHz_Chain A_2467MHz



802.11n_40MHz_Chain A_2452MHz

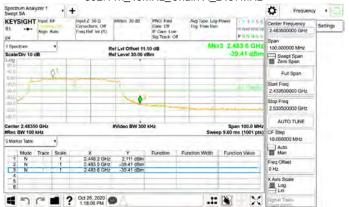


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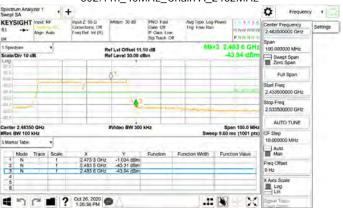




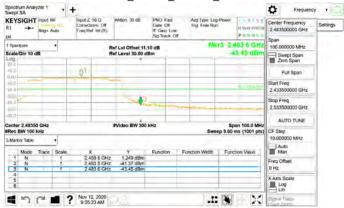
802.11ax_40MHz_Chain A_2452MHz



802.11n 40MHz Chain A 2462MHz



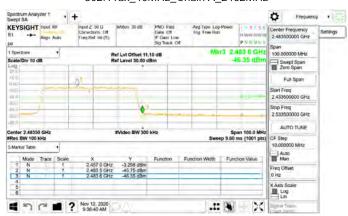
802.11ax_40MHz_Chain A_2457MHz



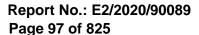
802.11ax_40MHz_Chain A_2422MHz



802.11ax_40MHz_Chain A_2462MHz



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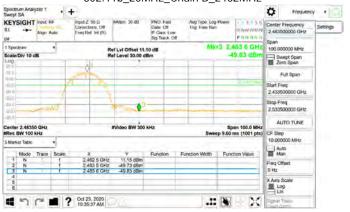
Chain B Bandedge 802.11b_20MHz_Chain B_2412MHz



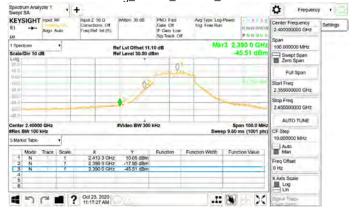
802.11b_20MHz_Chain B_2472MHz



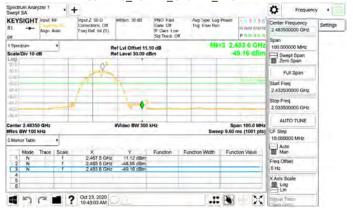
802.11b 20MHz Chain B 2462MHz



802.11g 20MHz Chain B 2412MHz



802.11b_20MHz_Chain B_2467MHz

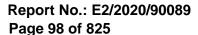


802.11g_20MHz_Chain B_2462MHz



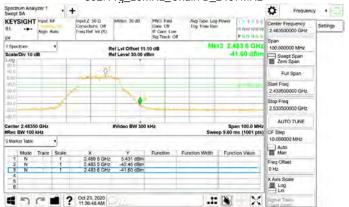
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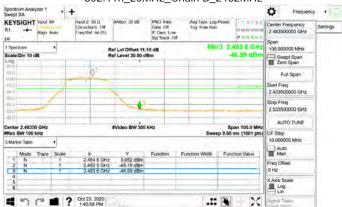




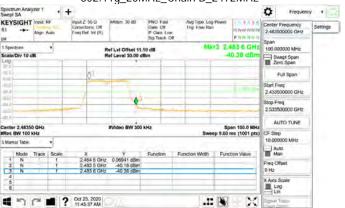




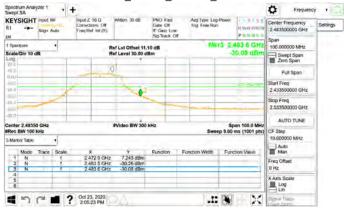
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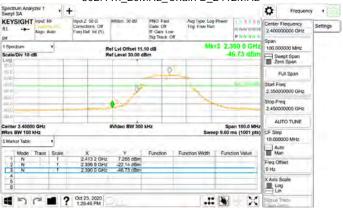
802.11g 20MHz Chain B 2472MHz



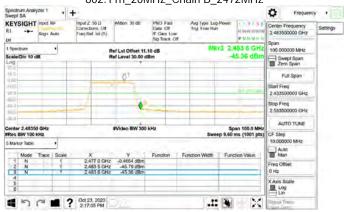
802.11n 20MHz Chain B 2467MHz



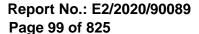
802.11n_20MHz_Chain B_2412MHz



802.11n_20MHz_Chain B_2472MHz

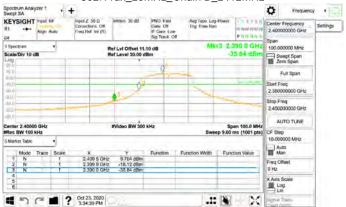


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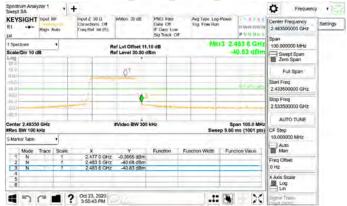








802.11ax_20MHz_Chain B_2472MHz



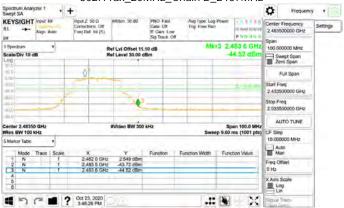
802.11ax 20MHz Chain B 2462MHz



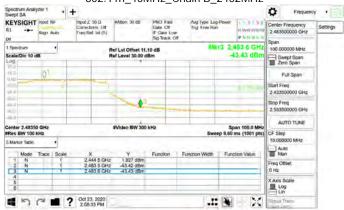
802.11n 40MHz Chain B 2422MHz



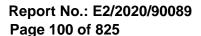
802.11ax_20MHz_Chain B_2467MHz



802.11n_40MHz_Chain B_2452MHz

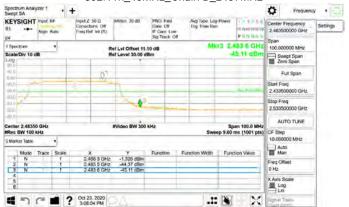


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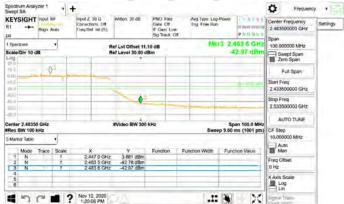




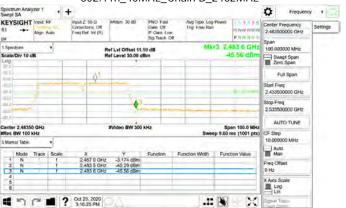




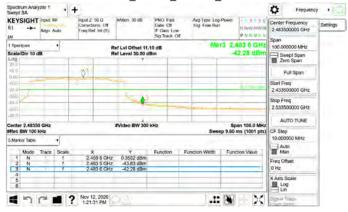
802.11ax_40MHz_Chain B_2452MHz



802.11n 40MHz Chain B 2462MHz



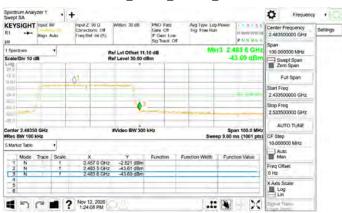
802.11ax 40MHz Chain B 2457MHz



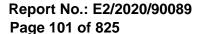
802.11ax_40MHz_Chain B_2422MHz



802.11ax_40MHz_Chain B_2462MHz

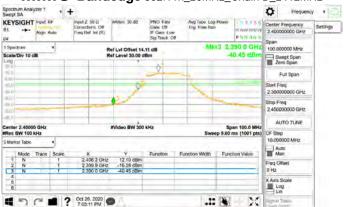


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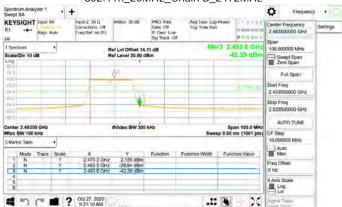




MIMO Bandedge 802.11n_20MHz_Chain B_2412MHz



802.11n_20MHz_Chain B_2472MHz



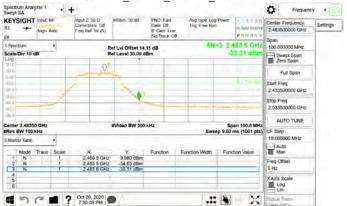
802.11n 20MHz Chain B 2462MHz



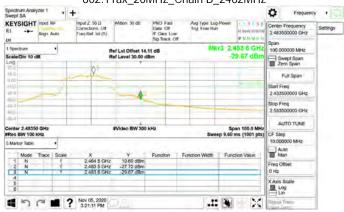
802.11ax 20MHz Chain B 2412MHz



802.11n_20MHz_Chain B_2467MHz

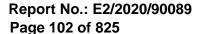


802.11ax_20MHz_Chain B_2462MHz



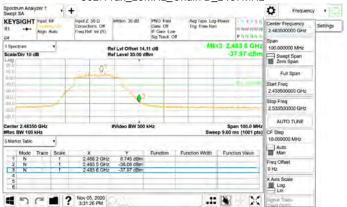
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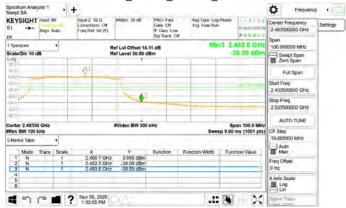
802.11n_40MHz_Chain B_2452MHz



802.11ax 20MHz Chain B 2472MHz



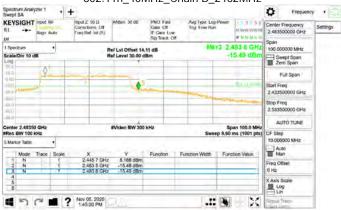
802.11n 40MHz Chain B 2457MHz



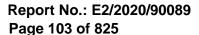
802.11n_40MHz_Chain B_2422MHz



802.11n_40MHz_Chain B_2462MHz

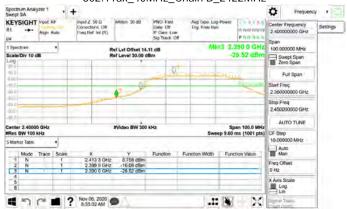


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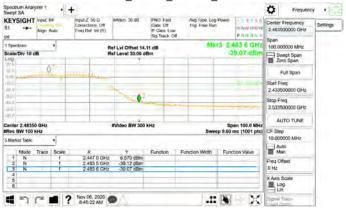
802.11ax_40MHz_Chain B_2422MHz



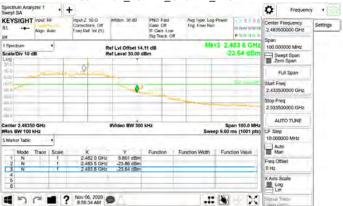
802.11ax_40MHz_Chain B_2462MHz



802.11ax 40MHz Chain B 2452MHz

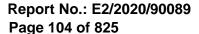


802.11ax_40MHz_Chain B_2457MHz



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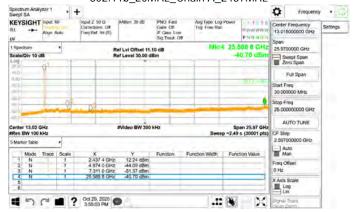




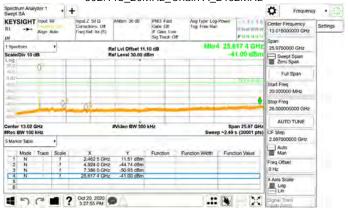
Chain A Spurious Emission 802.11b_20MHz_Chain A_2412MHz



802.11b 20MHz Chain A 2437MHz



802.11b 20MHz Chain A 2462MHz



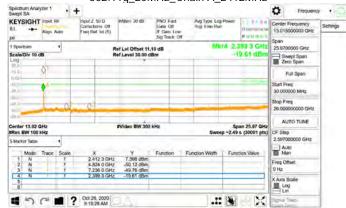
802.11b_20MHz_Chain A_2467MHz



802.11b 20MHz Chain A 2472MHz

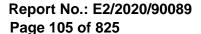


802.11g_20MHz_Chain A_2412MHz



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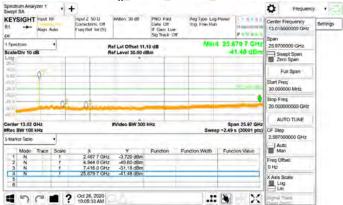
802.11g 20MHz Chain A 2462MHz



802.11g_20MHz_Chain A_2467MHz



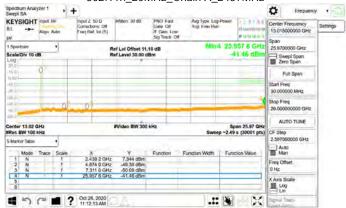
802.11g_20MHz_Chain A_2472MHz



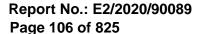
802.11n 20MHz Chain A 2412MHz



802.11n_20MHz_Chain A_2437MHz



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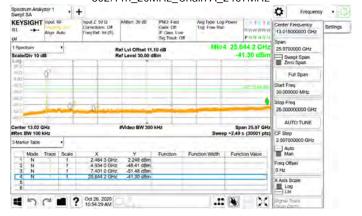




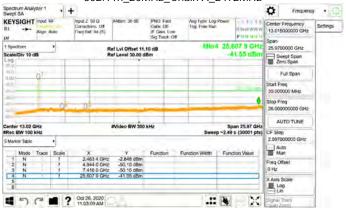
802.11n_20MHz_Chain A_2462MHz



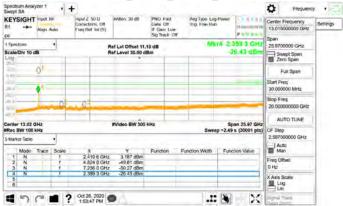
802.11n 20MHz Chain A 2467MHz



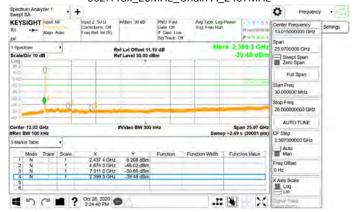
802.11n_20MHz_Chain A_2472MHz



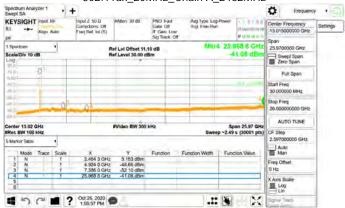
802.11ax_20MHz_Chain A_2412MHz



802.11ax 20MHz Chain A 2437MHz

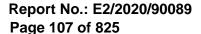


802.11ax_20MHz_Chain A_2462MHz



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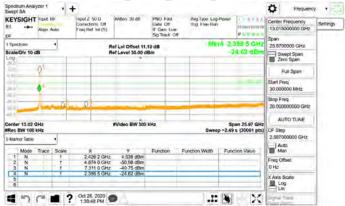
802.11ax 20MHz Chain A 2472MHz



802.11n_40MHz_Chain A_2422MHz



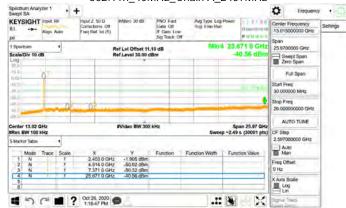
802.11n_40MHz_Chain A_2437MHz



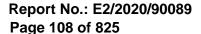
802.11n 40MHz Chain A 2452MHz



802.11n_40MHz_Chain A_2457MHz



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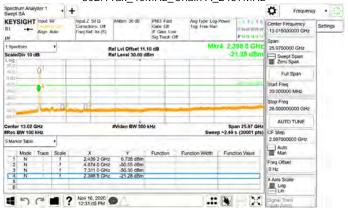
802.11n_40MHz_Chain A_2462MHz



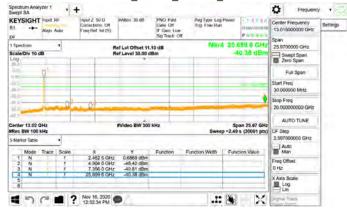
802.11ax 40MHz Chain A 2422MHz



802.11ax_40MHz_Chain A_2437MHz



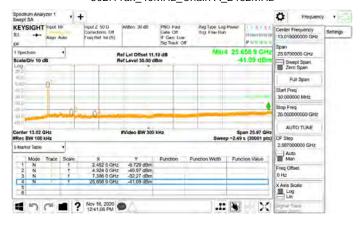
802.11ax_40MHz_Chain A_2452MHz



802.11ax 40MHz Chain A 2457MHz

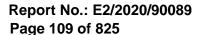


802.11ax_40MHz_Chain A_2462MHz



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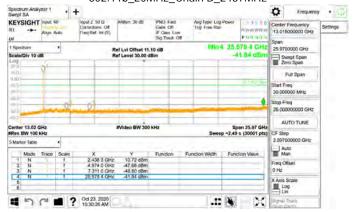




Chain B Spurious Emission 802.11b_20MHz_Chain B_2412MHz



802.11b 20MHz Chain B 2437MHz



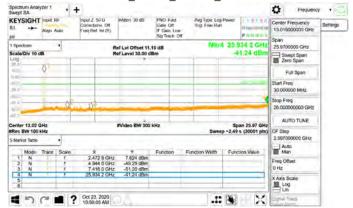
802.11b 20MHz Chain B 2462MHz



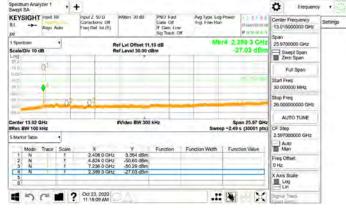
802.11b_20MHz_Chain B_2467MHz



802.11b 20MHz Chain B 2472MHz



802.11g_20MHz_Chain B_2412MHz



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