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# **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

**Applicant:** ASUSTeK COMPUTER INC.

1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

**Product Name:** ASUS Phone (Mobile Phone)

Brand Name: ASUS

Model No.: ASUS 1003D

Model Difference: N/A

Report Number: ER/2020/30080

**FCC ID**: MSQI003D **IC**: 3568A-I003D

FCC Rule Part: §15.407, Cat: NII

IC RSS: RSS-247 issue 2 Feb. 2017

**Issue Date:** Aug. 17, 2020

**Date of Test:** May 06, 2020 ~ Jun. 29, 2020

Date of EUT Received: May 06, 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:

Jazz Huang / Asst. Supervisor





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Revision History						
Report Number	Revision	Description	Issue Date	Remark		
ER/2020/30080	Rev.00	Original.	Aug. 17, 2020	Revised By: Karen Huang		

### Note:

1 · Disclaimer

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

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# GENERAL INFORMATION

#### 1.1 **Product Description**

Product Name:		ASUS Phone (Mobile Phone)				
Brand Name:		ASUS				
Model No.:		ASUS 10	ASUS 1003D			
Model Differe	ence:	N/A				
Hardware Ve	ersion:	R2.0B				
Software Ver	rsion:	Android (	Q			
AJ dongle:			o.: F370002,			
Fan Dongle:		Model No	Supplier: MEILU  Model No.: 1003, Supplier: ASUS			
USB Cable:		Model No.: LA9U2015-CS-R, Supplier: ASAP				
		3.85Vdc from Rechargeable Li-polymer Battery or 5V / 9V / 12V / 15V / 20V from AC/DC Adapter				
Power Suppl	y:	Battery:	Model No : C11P1903			
		Adapter:	Model No : A200-20015011-US			
		64QAM, 16QAM, QPSK, BPSK for OFDM				
Modulation type		256QAM for OFDM in 802.11ac only 1024QAM for OFDMA in 802.11ax only				
Pate: 802.11 n_2		6/9/12/18/2 20MHz: 6.5	4/36/48/54 Mbps - 144.4Mbps 5 - 300.0Mbps	802.11 ac_20MHz: 6.5 –173.3Mbps 802.11 ac_40MHz: 13.5 –400.0Mbps 802.11 ac_80MHz: 29.3 – 866.7Mbps 802.11 ax_20MHz: 8.6 –286.8 Mbps 802.11 ax_40MHz: 17.2 -573.5 Mbps 802.11 ax_80MHz: 36.0 – 1201 Mbps		

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#### 1.2 **Antenna Designation**

Wi-Fi							
Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Worst An- tenna Gain		
PIFA		Ant4		1.6			
	NI/A	Ant5	E4E0 E0E0	1.7	V		
	N/A	Ant6	5150~5850	3.7	V		
		Ant7		2.0			

Note: Pre-scanned was done on the above 4 antennas, the Ant6 results higher Emission at 5GHz. Therefore, the completed set of measurement was done on the antenna to be presented on this test report.

Below directional gain is used in measurement due to the worse case scenario determined in section 4 of this report designate below antennas for transmissions.

Transmission Chain	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Directional Gain in the worst case senario (dBi)
Chain0	Ant5	5150~5850	1.7	5.77
Chain1	Ant6	3130~3630	3.7	5.77

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#### 1.3 **FCC** worst power

wordt pow	noise ponsi							
Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm) (Worst case)		Modulation Technology			
	5150~5250	4	`	.33				
	5250~5350	4	19	.73	OEDM			
а	5470~5725	12	19	.86	OFDM			
	5725-5850	5	19	.85				
n HT	5150~5250	4	HE:	15.67				
ac_VHT	5250~5350	4	HE:	19.93	OFDM			
ax_HE	5470~5725	12	HE:	19.87	OFDMA			
20M	5725-5850	5	HE:	19.86				
n HT	5150~5250	2	HT:	17.01				
ac_VHT	5250~5350	2	HT:	19.84	OFDM			
ax_HE	5470~5725	5	HT:	19.91	OFDMA			
40M	5725-5850	2	HE:	19.86				
ac_VHT ax_HE 80M	5150~5250	1	VHT:	15.68				
	5250~5350	1	VHT:	15.94	OFDM			
	5470~5725	2	VHT:	19.91	OFDMA			
	5725-5850	1	HE:	19.77				

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### 1.4 ISED worst power

ISED worst power						
Wi-Fi 802.11	Frequency Range	Channels	Avg. or EIRP	Rat Power (Worst	(dBm)	Modulation Technology
	5150~5250	4	EIRP	21.10		
44 -	5250~5350	4	Avg.	19.	73	OFDM
11a	5470~5725	12	Avg.	19.	86	OFDM
	5725-5850	5	Avg.	19.	85	
	5150~5250	4	EIRP	HT:	21.29	
n_HT	5250~5350	4	Avg.	HT:	19.87	OFDM
ac_VHT 20M	5470~5725	12	Avg.	HT:	19.78	OFDM
2011	5725-5850	5	Avg.	HT:	19.76	
	5150~5250	2	EIRP	HT:	22.78	OFDM
n_HT ac VHT	5250~5350	2	Avg.	HT:	19.84	
40M	5470~5725	6	Avg.	HT:	19.91	
	5725-5850	2	Avg.	HT:	19.83	
	5150~5250	1	EIRP	VHT:	21.45	
ac_VHT	5250~5350	1	Avg.	VHT:	15.94	OFDM
80M	5470~5725	2	Avg.	VHT:	19.91	OFDIVI
	5725-5850	1	Avg.	VHT:	19.76	
	5150~5250	4	EIRP	HE:	21.44	
ax_HE	5250~5350	4	Avg.	HE:	19.93	OFDMA
20M	5470~5725	12	Avg.	HE:	19.87	OFDIVIA
	5725-5850	5	Avg.	HE:	19.86	
	5150~5250	2	EIRP	HE:	22.68	
ax_HE	5250~5350	2	Avg.	HE:	19.66	OFDMA
40M	5470~5725	6	Avg.	HE:	19.91	OFDIMA
	5725-5850	2	Avg.	HE:	19.86	
	5150~5250	1	EIRP	HE:	21.40	
ax_HE	5250~5350	1	Avg.	HE:	15.11	OFDMA
80M	5470~5725	2	Avg.	HE:	19.75	OFDIVIA
	5725-5850	1	Avg.	HE:	19.77	

### Note:

As per guidance in presentation 2018-04-10-03 IC Certification updates of April 2018 TCB workshop, Client (Slave mode) devices without active scanning function, but with the cabability of operating in 5600-5650 MHz solely under the control of a certified master device meeting the requirement of RSS-247, are allowed in Canada.

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#### 1.5 **Test Methodology of Applied Standards**

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

RSS-247 issue 2 Feb. 2017

RSS-Gen. issue 5, Amendment 1, March 2019

ANSI C63.10:2013

#### 1.6 **Test Facility**

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)

No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803

FCC Designation number: TW0027

ISED CAB identifier: TW3702

#### 1.7 **Special Accessories**

There are no special accessories used while test was conducted.

#### **Equipment Modifications** 1.8

There was no modification incorporated into the EUT.

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### SYSTEM TEST CONFIGURATION

### **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.

#### **Conducted Test (RF)** 2.3.2

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

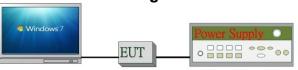
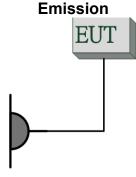


Fig 2-2 Radiated Emission



Fig 2-3 Conduction (AC Power Line) Radiated



**Table 2-1 Equipment Used in Tested System** 

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2	Notebook	Lenovo	L480	PF-1S9NT5	N/A	N/A
3	DC Power Supply	Agilent	E3640A	MY40005907	N/A	N/A

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# SUMMARY OF TEST RESULT

FCC Rules	IC Rules	Description Of Test	Result
§15.207	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	RSS-Gen §6.7 RSS-247 §6.2.4.1	26 dB & 6dB & 99% Emission Bandwidth	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Maximum Conducted Output Power	Compliant
§15.407(a)	RSS-247 §6.2.1~ 4 (1)	Power Spectral Density	Compliant
§15.205 §15.209 §15.407(b)	RSS-247 §6.2.1~ 4 (2)	Undesirable Radiated Emissions	Compliant
§15.407(c)	RSS-247 §6.4	Transmission in case of Absence of Information	Compliant
§15.407(g)	RSS-Gen §6.11	Frequency Stability	Compliant
§15.203 §15.407(a)	RSS- Gen §6.8	Antenna Requirement	Compliant

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# **DESCRIPTION OF TEST MODES**

# 802.11a/n/ac/ax operated in U-NII Bands

റ	perated	band	in	5150	МН	~5250	MHz:
v	polatoa	Dalla		0100	1711 12	0 <u>2</u> 00	1411 12.

Operated b					
20 M					
СН	Freq				
OH	(MHz)				
36	5180				
40	5200				
44	5220				
48	5240				
	·				

Į	III DI DU IVITI					
	40 M					
	СН	Freq				
		(MHz)				
	38	5190				
	46	5230				

5	5 <u>250 MHz:</u>							
	8	0 M						
	СН	Freq (MHz)						
	42	5210						
•								

Operated ba					
20 M					
СН	Freq				
CH	(MHz)				
52	5260				
56	5280				
60 5300					
64	5320				
		•			

10	<u>ı ın 5</u>	250 IVI				
	4	0 M				
	СН	Freq				
	Cii	(MHz)				
	54	5270				
	62	5310				

5350 MHZ:							
80 M							
СН	Freq (MHz)						
58 5290							

# Operated band i

20 M						
СН	Freq (MHz)					
100	5500					
104	5520					
108	5540					
112	5560					
116	5580					
120	5600					
124	5620					
128	5640					
132	5660					
136	5680					
140	5700					
144	5720					

d	<u>in 54</u>	170 MH
	4	0 M
	СН	Freq (MHz)
	102	5510
	110	5550
	118	5590
	126	5630
	134	5670
	142	5710

5	5 <u>725 MHz:</u>						
	80 M						
	СН	Freq					
	OH	(MHz)					
	106	5530					
	122	5610					
	138	5690					

# Operated band in

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

in 5	<u>in 5745 MHz ~5850 MHz:</u>						
4	0 M		8	0 M			
СН	Freq (MHz)			Freq (MHz			
151	5755		155	5775			
159	5795	'					

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### 4.2 The Worst Test Modes and Channel Details

- 1. The EUT is tested under operating condition, test program used to control the EUT for staying in continuous transmitting mode is programmed.
- 2. WiFi signals can be transmitted from 4 antennas with 4 different modes, only one mode is available at any given time.
  - Observations have been done for each mode and found that the Camera Mode generates higher output power and emissions.
  - b. The *Camera Mode* is determined as the worst case scenario and the test results being demonstrated in this test report are based on the *Camera Mode*.
  - c. Spot check has been done on radiated spurious emissions of Calling, Normal and Gaming Mode and demonstrated in section **11.7.4** to **11.7.6** in this test report.

d. Please refer to *Antenna Location* section of this report for antenna details.

Mode	Antenna				
Calling Made	Chain0 is adapted in Ant4				
Calling Mode	Chain1 is adapted in Ant6				
Camara Mada	Chain0 is adapted in Ant6				
Camera Mode	Chain1 is adapted in Ant5				
	Portrait:				
	Chain0 is adapted in Ant4				
Normal Mode	Chain1 is adapted in Ant6				
Normal wode	Landscape:				
	Chain0 is adapted in Ant4				
	Chain1 is adapted in Ant5				
Caming Mode	Chain0 is adapted in Ant4				
Gaming Mode	Chain1 is adapted in Ant7				

3. Investigation has been done on all the possible configurations for searching the worst case. The gevin UE is pre-scanned among below modes.

Modulation	Transmission Chain		Single Transmission Spatial	Multiple Transmission Spatial
⊠ 802.11 a	☐ Ch0 ☐ Ch1 ☐ Ch2 ☐	☐ Ch3	⊠ 1TX	⊠ 2TX
⊠ 802.11 n	☐ Ch0 ☐ Ch1 ☐ Ch2 ☐	☐ Ch3	⊠ SISO	⊠ MIMO
⊠ 802.11 ac	□ Ch0   □ Ch1  □ Ch2 □	☐ Ch3	⊠ SISO	⊠ MIMO
⊠ 802.11 ax	☑ Ch0 ☑ Ch1 ☐ Ch2 ☐	☐ Ch3	⊠ SISO	⊠ MIMO

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 enabled at any given time.

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<b>8</b> 02.11ax		20	MHz			<b>8</b> 02.11ax	40MHz				
RU type	26-tone RU 52-tone RU			RU type	26-	tone RU	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			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	6-tone RU		RU index	RU17	[218: 243]	1	06-tone RU	
and subcarrier	RU18	N/A	RU53	[-122: -17]		and subcarrier range	RU18	N/A	RU53	[-243: -138]	
range	RU19	N/A	RU54	[17: 122]			RU19	N/A	RU54	[-109: -4]	
	RU20	N/A	RU55	N/A			RU20	N/A	RU55	[4: 109]	
	RU21	N/A	RU56	N/A			RU21	N/A	RU56	[138: 243]	
	RU22	N/A	RU57	N/A			RU22	N/A	RU57	N/A	
	RU23	N/A	RU58	N/A			RU23	N/A	RU58	N/A	
	RU24	N/A	RU59	N/A			RU24	N/A	RU59	N/A	
	RU25	N/A	RU60	N/A			RU25	N/A	RU60	N/A	
	RU26	N/A						RU26	N/A		
	RU27	N/A		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		84-tone RU	
	RU34	N/A					RU34	N/A	RU65	[-244: -3, 3: 244]	
	RU35	N/A					RU35	N/A	RU66	N/A	
	RU36	N/A					RU36	N/A			

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<b>8</b> 02.11ax		80MHz				
RU type	26	6-tone RU	5	2-tone RU		
	RU0	[-499: -474]	RU37	[-499: -448]		
	RU1	[-473: -448]	RU38	[-445: -394]		
	RU2	[-445: -420]	RU39	[-365: -314]		
	RU3	[-419: -394]	RU40	[-311: -260]		
	RU4	[-392: -367]	RU41	[-257: -206]		
	RU5	[-365: -340]	RU42	[-203: -152]		
	RU6	[-339: -314]	RU43	[-123: -72]		
	RU7	[-311: -286]	RU44	[-69: -18]		
	RU8	[-285: -260]	RU45	[18: 69]		
	RU9	[-257: -232]	RU46	[72: 123]		
	RU10	[-231: -206]	RU47	[152: 203]		
	RU11	[-203: -178]	RU48	[206: 257]		
	RU12	[-177: -152]	RU49	[260: 311]		
	RU13	[-150: -125]	RU50	[314: 365]		
	RU14	[-123: -98]	RU51	[394: 445]		
	RU15	[-97: -72]	RU52	[448: 499]		
	RU16	[-69: -44]	10	06-tone RU		
RU index	RU17	[-43: -18]	RU53	[-499: -394]		
and subcarrier	RU18	[-16: -4, 4: 16]	RU54	[-365: -260]		
range	RU19	[18: 43]	RU55	[-257: -152]		
	RU20	[44: 69]	RU56	[-123: -18]		
	RU21	[72: 97]	RU57	[18: 123]		
	RU22	[98: 123]	RU58	[152: 257]		
	RU23	[125: 150]	RU59	[260: 365]		
	RU24	[152: 177]	RU60	[394: 499]		
	RU25	[178: 203]	2	42-tone RU		
	RU26	[206: 231]	RU61	[-500: -259]		
	RU27	[232: 257]	RU62	[-258: -17]		
	RU28	[260: 285]	RU63	[17: 258]		
	RU29	[286: 311]	RU64	[259: 500]		
	RU30	[314: 339]	4	84-tone RU		
	RU31	[340: 365]	RU65	[-500: -17]		
	RU32	[367: 392]	RU66	[17: 500]		
	RU33	[394: 419]	9:	96-tone RU		
	RU34	[420: 445]	RU67	[-500: -3, 3: 500]		
	RU35	[448: 473]				
	RU36	[474: 499]				

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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.

#### **RADIATED EMISSION TEST:** 4.2.1

RADIATED EMISSION TEST (BELOW 1 GHz)									
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	AN- TENNA PORT			
	5180~5240	36 to 48	44						
802.11a	5260~5320	52 to 64	60		6	2TX			
002.114	5500~5720	100 to 144	116						
	5745~5825	149 to 165	157	OFDM					
	5210	42	42	OFDIVI					
802.11ac_VHT80	5290	58	58		MCS0	МІМО			
	5530~5690	106 to 138	122		IVICSU	IVIIIVIO			
	5775	155	155						

	RADIATED EMISSION TEST (ABOVE 1 GHz)							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODU- LATION	DATA RATE (Mbps)	AN- TENNA PORT		
	5180~5240	36 to 48	36,44,48					
802.11a	5260~5320	52 to 64	52,60,64		6	2TX		
002.11a	5500~5720	100 to 144	100,116,140, 144		0	217		
	5745~5825	149 to 165	149,157,165					
	5180~5240	36 to 48	36,44,48					
802.11n_	5260~5320	52 to 64	52,60,64		MCS8	MIMO		
HT20	5500~5720	100 to 144	100,116,140, 144		IVICSO	IVIIIVIO		
	5745~5825	149 to 165	149,157,165	OFDM				
	5190~5230	38 to 46	38,46	OFDIVI				
802.11n_	5270~5310	54 to 62	54,62		MCS8	NAINAO		
HT40	5510~5710	102 to 142	102,110,134,142		IVICSO	MIMO		
	5755~5795	151 to 159	151,159					
	5210	42	42					
802.11ac_	5290	58	58		MCS0	MINAC		
VHT80	5530~5690	106 to 138	106,122,138		IVICOU	MIMO		
	5775	155	155					

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	RADIATED EMISSION TEST (ABOVE 1 GHz)								
MODE	FRE- QUENCY BAND (MHz)	AVAILA- BLE CHAN- NEL	TESTED CHANNEL	MODULA- TION	RU CONFIGU- RATION	DATA RATE (Mbps)	AN- TENNA PORT		
	5180~5240	36 to 48	36,44,48						
	5260~5320	52 to 64	52,60,64		FULL RU				
802.11ax_ HE20	5500~5720	100 to 144	100,116,140, 144		26/0 52/37	MCS0	MIMO		
	5745~5825	149 to 165	149,157,165		106/53				
	5190~5230	38 to 46	38,46				MIMO		
	5270~5310	54 to 62	54,62		FULL RU 242/61	MCS0			
802.11ax_ HE40	5510~5710	102 to 142	102,110,134,142	OFDMA					
	5755~5795	151 to 159	151,159						
	5210	42	42						
902 1104	5290	58	58		EIIII DII				
802.11ax_ HE80	5530~5690	106 to 138	106,122,138		FULL RU 484/65	MCSO	MIMO		
	5775	155	155						

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.

	RADIATED EMISSION SPOT CHECK (ABOVE 1 GHz)  Calling Mode, Gaiming Mode, Normal Mode							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODU- LATION		AN- TENNA PORT		
802.11n_ HT40	5510~5710	102 to 142	110	OFDM	MCS8	МІМО		

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RADIATED EMISSION SPOT CHECK (ABOVE 1 GHz)  Calling Mode, Gaiming Mode, Normal Mode								
MODE	FRE- QUENCY BAND (MHz)	AVAILA- BLE CHAN- NEL	TESTED CHANNEL	MODULA- TION	RU CONFIGU- RATION	DATA RATE (Mbps)	AN- TENNA PORT	
802.11ax_ HE20	5260~5320	52 to 64	60	OFDMA	FULL RU	MCS0	MIMO	

### Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac/ax WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

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#### 4.2.2 ANTENNA PORT CONDUCTED MEASUREMENT:

	, =			•		
		(	CONDUCTED TEST			
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	AN- TENNA PORT
	5180~5240	36 to 48	36,44,48			
802.11a	5260~5320	52 to 64	52,60,64		6	Ch0
002.118	5500~5720	100 to 144	100,116,140, 144		0	CHU
	5745~5825	149 to 165	149,157,165			
	5180~5240	36 to 48	36,44,48			
802.11n_	5260~5320	52 to 64	52,60,64		MCS0	MIMO
HT20	5500~5720	100 to 144	100,116,140, 144		IVICOU	IVIIIVIO
	5745~5825	149 to 165	149,157,165	OFDM		
	5190~5230	38 to 46	38,46	OI DIVI		
802.11n_	5270~5310	54 to 62	54,62		MCS0	МІМО
HT40	5510~5710	102 to 142	102,110,134,142		IVICOU	IVIIIVIO
	5755~5795	151 to 159	151,159			
	5210	42	42			
802.11ac_	5290	58	58		MCS0	МІМО
VHT80	5530~5690	106 to 138	106,122,138		IVICOU	IVIIIVIO
	5775	155	155			

	CONDUCTED TEST							
	CONDUCTED TEST							
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULA- TION	RU CONFIGU- RATION	DATA RATE (Mbps	AN- TENNA PORT	
	5180~5240	36 to 48	36,44,48		full			
802.11ax_	5260~5320	52 to 64	52,60,64		26/8	MCS0	МІМО	
HE20	5500~5720	100 to 144	100,116,140, 144		52/40			
	5745~5825	149 to 165	149,157,165		106/54			
	5190~5230	38 to 46	38,46			MCS0 N	MIMO	
802.11ax_	5270~5310	54 to 62	54,62	OFI	full			
HE40	5510~5710	102 to 142	102,110,134,142	DMA	242/61		MIMO	
	5755~5795	151 to 159	151,159	▶				
	5210	42	42					
802.11ax	5290	58	58		full	MOSO	NAINAO	
HE80	5530~5690	106 to 138	106,122,138		484/65	MCS0	MIMO	
	5775	155	155					

Note: EUT serial number is L4AIGF000585XCH.

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# **MEASUREMENT UNCERTAINTY**

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
26dB & 6dB Emission Bandwidth	+/- 123.36 Hz
The Maximum Output Power Meas- urement	+/- 0.96 dB
Peak Power Spectral Density Meas- urement	+/- 1.67 dB
Frequency Stability	+/- 123.36 Hz
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			
	30MHz - 180MHz: +/- 3.37dB			
Polarization: Vortical	180MHz -417MHz: +/- 3.19dB			
Polarization: Vertical	0.417GHz-1GHz: +/- 3.19dB			
	1GHz - 18GHz: +/- 4.04dB			
	18GHz - 40GHz: +/- 4.04dB			
	9kHz~30MHz: +-2.3dB			
	30MHz - 167MHz: +/- 4.22dB			
Polarization: Horizontal	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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### 6 CONDUCTED EMISSION TEST

# 6.1 Standard Applicable

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

Frequency range	Limits dB(uV)				
MHz	Quasi-peak	Average			
0.15 to 0.50	66 to 56	56 to 46			
0.50 to 5	56	46			
5 to 30	60	50			

### Note

# 6.2 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
EMI Test Receiver	R&S	ESCI 7	100759	07/04/2019	07/03/2020			
LISN	SCHWARZBECK	NSLK 8127	8127-465	04/09/2020	04/08/2021			
Coaxial Cables	N/A	Coaxial Cable	161207	12/07/2019	12/06/2020			
Test Software	audix	e3	Ver. 6.11- 20180413	N.C.R	N.C.R			

Note: N.C.R refers to Not Calibrated Required.

### 6.3 EUT Setup

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

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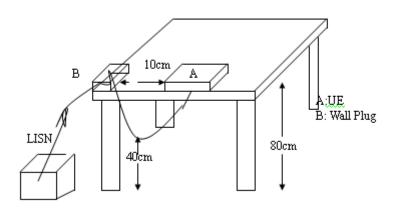
<sup>1.</sup> The lower limit shall apply at the transition frequencies

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



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### 6.4 Test SET-UP



### 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.

Note2: The \* reveals the worst-case results that closet to the limit.

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# AC POWER LINE CONDUCTED EMISSION TEST DATA

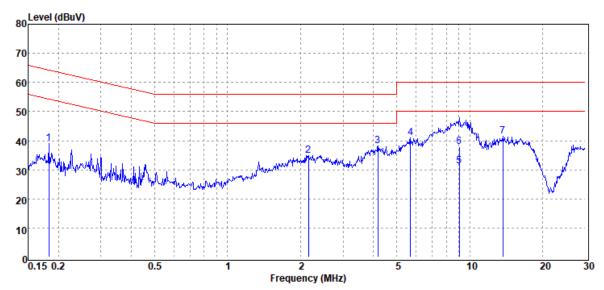
Report Number Test Site :Conduction 6F :ER-2020-30080

**Test Mode** :WLAN 5G **Test Date** :2020-06-19

Power :AC 120V/60Hz Temp./Humi. :25.6/62

Probe :L Engineer :Neo

Note



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
0.18	Peak	36.81	2.14	38.95	64.37	-25.42
2.16	Peak	32.58	2.28	34.86	56.00	-21.14
4.18	Peak	35.78	2.47	38.25	56.00	-17.75
5.68	Peak	38.26	2.60	40.86	60.00	-19.14
9.06	Average	28.50	2.79	31.29	50.00	-18.71
9.06	QP	35.20	2.79	37.99	60.00	-22.01
13.70	Peak	38.63	2.94	41.57	60.00	-18.43

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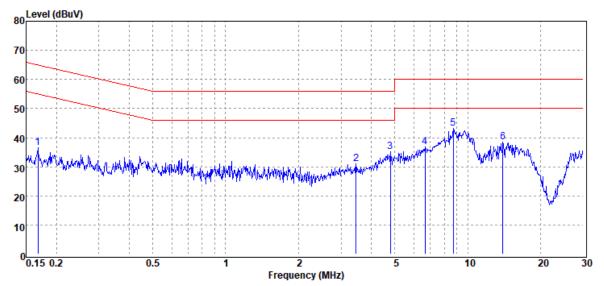
Report Number :ER-2020-30080 **Test Site** :Conduction 6F

**Test Mode** :WLAN 5G :2020-06-19 **Test Date** 

:AC 120V/60Hz Power Temp./Humi. :25.6/62

Probe :N Engineer :Neo

Note



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit	Margin
MHz	PK/QP/AV	dΒμV	dB	dΒμV	dΒμV	dB
0.17	Peak	34.35	2.21	36.56	65.08	-28.52
3.45	Peak	28.66	2.38	31.04	56.00	-24.96
4.80	Peak	32.76	2.46	35.22	56.00	-20.78
6.66	Peak	34.30	2.57	36.87	60.00	-23.13
8.73	Peak	40.65	2.66	43.31	60.00	-16.69
13.99	Peak	35.49	2.88	38.37	60.00	-21.63

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### 7 DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

### 7.1 Measurement Procedure:

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

**Duty Cycle:** 

Jycie.				
Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log ( 1/Duty Cycle )	1/T (kHz)	VBW setting (kHz)
802.11a	99.24	0.03	0.50	0.01
802.11n_20	99.63	0.02	0.18	0.01
802.11ac_20	99.72	0.01	0.18	0.01
802.11n_40	99.72	0.01	0.18	0.01
802.11ac_40	99.57	0.02	0.18	0.01
802.11ac_80	99.72	0.01	0.18	0.01
802.11ax_20	99.57	0.02	0.18	0.01
802.11ax_40	99.72	0.01	0.18	0.01
802.11ax_80	99.57	0.02	0.18	0.01

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### 7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT

### 802.11 a mode



### 802.11n HT20 mode



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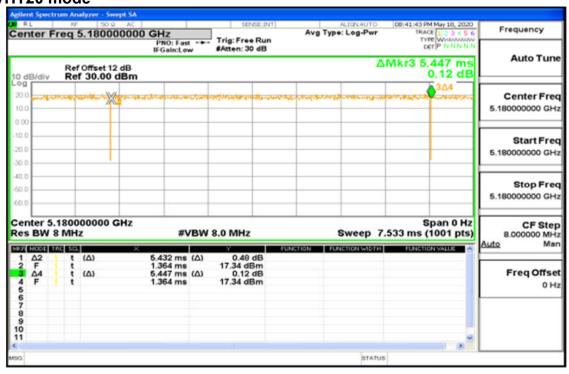


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### 802.11n HT40 mode



### 802.11ac VHT20 mode



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### 802.11ac VHT40 mode



### 802.11ac VHT80 mode



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### 802.11ax HE20 mode



### 802.11ax HE40 mode



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### 802.11ax HE80 mode



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# 8 26DB, 99% &6DB EMISSION BANDWIDTH MEASUREMENT

# 8.1 Standard Applicable

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

### 8.2 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
- Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
  - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto,

Detector = Peak,

Trace Mode = Max Hold,

Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.

- 3.b. Mark the peak frequency and -26dB (upper and lower) frequency.
- 4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
- 5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.

a. Set the spectrum analyzer as

RBW = 100 kHz,

VBW = 3\*RBW,

Span = 30M/50MHz,

Detector=Peak,

Sweep=auto

- b. Mark the peak frequency and -6dB (upper and lower) frequency.
- For 99% Bandwidth: Set the spectrum analyzer as

RBW=1%,

VBW = 3\*RBW.

Span = 30M/50MHz,

Detector=Sample,

Sweep=auto.

- 7. Turn on the 99% bandwidth function, max reading.
- 8. Repeat above procedures until all frequency of interest measured was complete.

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#### 8.3 **Measurement Equipment Used**

SGS Conducted Room									
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.				
EXA Spectrum Ana- lyzer	Agilent	N9010A	MY50420195	05/06/2020	05/05/2021				
DC Power Supply	Agilent	E3640A	MY40005907	10/22/2019	10/21/2020				
Temperature Chamber	TERCHY	MHG-120LF	911009	05/20/2020	05/19/2021				
Attenuator	Mini-Circuit	BW-S10W2+	2	01/02/2020	01/01/2021				
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2020	01/01/2021				

#### 8.4 **Test Set-up**



#### 8.5 **Measurement Result**

#### 8.5.1 FCC 26dB Bandwidth

802.11a\_Ch0

802.11a\_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	25.35	14.040	5180	18.97	12.781
5220	22.69	13.558	5220	19	12.788
5240	21.65	13.355	5240	18.97	12.781
5260	20.4	13.096	5260	19.01	12.790
5300	19	12.788	5300	18.95	12.776
5320	21.34	13.292	5320	18.91	12.767
5500	19.89	12.986	5500	19.02	12.792
5580	20.32	13.079	5580	18.99	12.785
5700	21.01	13.224	5700	19.01	12.790
5720	19.87	12.982	5720	18.95	12.776

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802.11	1n H⊺	Γ20	Ch0

### 802.11n\_HT20\_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	23.09	13.634	5180	20.25	13.064
5220	23.83	13.771	5220	20.16	13.045
5240	22.23	13.469	5240	20.19	13.051
5260	22.94	13.606	5260	20.12	13.036
5300	22.91	13.600	5300	21.08	13.239
5320	20.29	13.073	5320	20.9	13.201
5500	20.87	13.195	5500	20.36	13.088
5580	21.19	13.261	5580	20.26	13.066
5700	21.19	13.261	5700	21.04	13.230
5720	21.96	13.416	5720	20.6	13.139

### 802.11n \_HT40\_Ch0

### 802.11n \_HT40\_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	45.08	16.540	5190	39.54	15.970
5230	49.62	16.957	5230	39.7	15.988
5270	46.46	16.671	5270	39.3	15.944
5310	44.53	16.487	5310	39.67	15.985
5510	44.44	16.478	5510	39.92	16.012
5550	43.92	16.427	5550	39.71	15.989
5670	40.14	16.036	5670	39.84	16.003
5710	39.96	16.016	5710	39.74	15.992

# 802.11ac VHT80 Ch0

### 802.11ac VHT80 Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5210	94.43	19.751	5210	81.79	19.127
5290	94.52	19.755	5290	81.99	19.138
5530	86.84	19.387	5530	81.78	19.126
5610	84.18	19.252	5610	81.69	19.122
5690	82.83	19.182	5690	82.32	19.155

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802.11ax 20	J CNU
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802.11ax\_20\_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5180	full	25.83	14.121	5180	full	21.07	13.237
5220	full	22.45	13.512	5220	full	21.33	13.290
5240	full	24.02	13.806	5240	full	20.87	13.195
5260	full	24.65	13.918	5260	full	21.23	13.269
5300	full	24.45	13.883	5300	full	21.2	13.263
5320	full	22.48	13.518	5320	full	20.96	13.214
5500	full	22.1	13.444	5500	full	21.09	13.241
5580	full	21.81	13.387	5580	full	21.18	13.259
5700	full	21.65	13.355	5700	full	20.9	13.201
5720	full	21.44	13.312	5720	full	21.14	13.251

### 802.11ax \_40\_Ch0

### 802.11ax \_40\_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5190	full	41.04	16.132	5190	full	40.54	16.079
5230	full	43.84	16.419	5230	full	40.27	16.050
5270	full	42.74	16.308	5270	full	40.46	16.070
5310	full	41.71	16.202	5310	full	40.25	16.048
5510	full	40.91	16.118	5510	full	40.74	16.100
5550	full	43.12	16.347	5550	full	40.44	16.068
5670	full	41.35	16.165	5670	full	40.4	16.064
5710	full	40.79	16.106	5710	full	40.43	16.067

# 802.11ax \_80\_Ch0

### 802.11ax \_80\_Ch1

Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	26dB BW (MHz)	10 Log (B) (dB)
5210	full	83.88	19.237	5210	full	82.2	19.149
5290	full	86.83	19.387	5290	full	82.29	19.153
5530	full	83.17	19.200	5530	full	81.54	19.114
5610	full	83.07	19.194	5610	full	81.38	19.105
5690	full	81.65	19.120	5690	full	81.73	19.124

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

802.11a Ch0

802.11a Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)		
5745	15.66	11.948	5745	16.35	12.135		
5785	15.89	12.011	5785	16.33	12.130		
5825	16.06	12.057	5825	16.31	12.125		

802.11n\_HT20\_Ch0

802.11n\_HT20\_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.82	12.258	5745	17.19	12.353
5785	16.93	12.287	5785	17.56	12.445
5825	16.79	12.251	5825	17.3	12.380

802.11n\_HT40\_Ch0

802.11n\_HT40\_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.71	15.528	5755	35.49	15.501
5795	35.49	15.501	5795	35.5	15.502

802.11ac VHT80 Ch0

802.11ac VHT80 Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.26	18.766	5775	75.29	18.767

802.11ax\_20\_Ch0

802.11ax\_20\_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5745	full	17.96	12.543	5745	full	18.59	12.693
5785	full	18.62	12.700	5785	full	18.23	12.608
5825	full	18.5	12.672	5825	full	18.44	12.658

802.11ax\_40\_Ch0

802.11ax\_40\_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5755	full	37.77	15.771	5755	full	37.78	15.773
5795	full	37.43	15.732	5795	full	37.4	15.729

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802.11ax	80	ChO
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### 802.11ax \_80\_Ch1

Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)	Freq. (MHz)	RU config	6dB BW (MHz)	10 Log (B) (dB)
5775	full	77.16	18.874	5775	full	76.23	18.821

#### 8.5.3 26dB BW Verification for DFS Function

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### 802.11a\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.20	< 5250	5240	5248.18	< 5250
5745	5736.83	> 5725	5745	5736.83	> 5725

### 802.11n\_HT20\_Ch0

### 802.11n\_HT20\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.79	< 5250	5240	5248.75	< 5250
5745	5736.21	> 5725	5745	5736.22	> 5725

### 802.11n \_HT40\_Ch0

### 802.11n \_HT40\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.04	< 5250	5230	5247.98	< 5250
5755	5737.03	> 5725	5755	5737.02	> 5725

# 802.11ac \_VHT80\_Ch0

### 802.11ac \_VHT80\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.72	< 5250	5210	5247.64	< 5250
5775	5737.29	> 5725	5775	5737.32	> 5725

### 802.11ax\_20\_Ch0

### 802.11ax 20 Ch1

			<del> </del>				
Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)		
5240	5249.47	< 5250	5240	5249.43	< 5250		
5745	5735.54	> 5725	5745	5735.57	> 5725		

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#### 802.11ax 40 Ch1 802.11ax 40 Ch0

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5248.86	< 5250	5230	5248.83	< 5250
5755	5736.16	> 5725	5755	5736.16	> 5725

#### 802.11ax \_VHT80\_Ch0 802.11ax \_VHT80\_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5248.56	< 5250	5210	5248.52	< 5250
5775	5736.43	> 5725	5775	5736.51	> 5725

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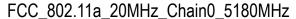
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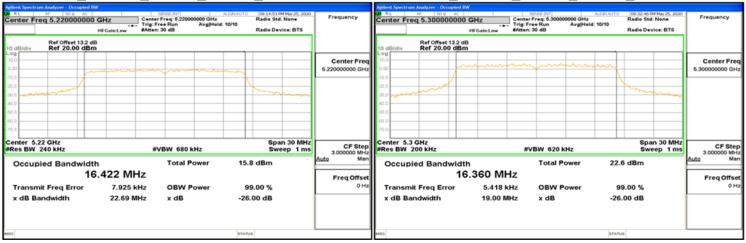


# FCC 802.11a 20MHz Chain0 5260MHz



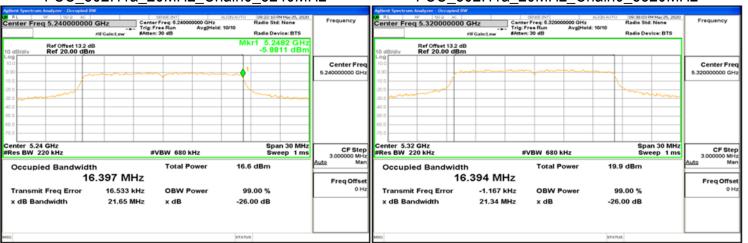
FCC 802.11a 20MHz Chain0 5220MHz

# FCC\_802.11a\_20MHz\_Chain0\_5300MHz



FCC 802.11a 20MHz Chain0 5240MHz

# FCC 802.11a 20MHz Chain0 5320MHz



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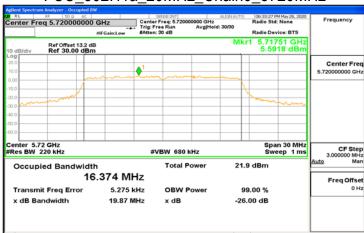


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# FCC\_802.11a\_20MHz\_Chain0\_5500MHz

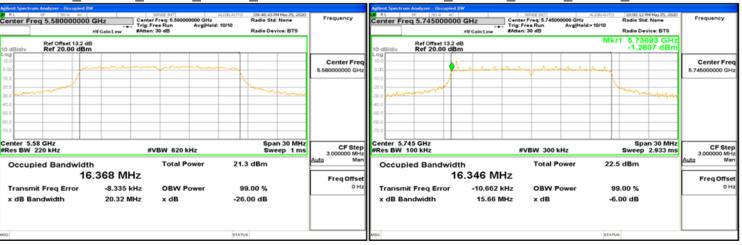
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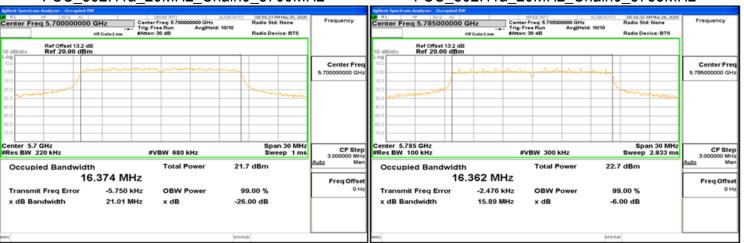
FCC 802.11a 20MHz Chain0 5580MHz

# FCC\_802.11a\_20MHz\_Chain0\_5745MHz



FCC 802.11a 20MHz Chain0 5700MHz

# FCC 802.11a 20MHz Chain0 5785MHz



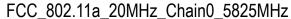
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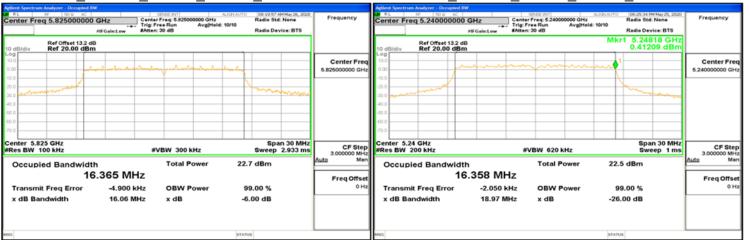
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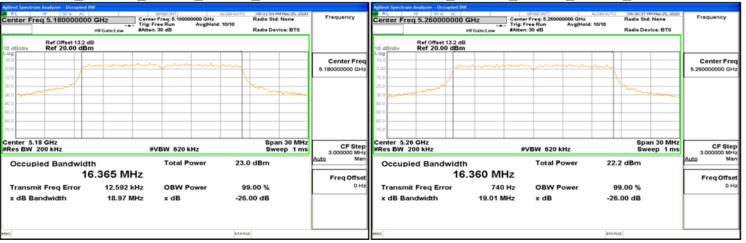


# FCC\_802.11a\_20MHz\_Chain1\_5240MHz



FCC 802.11a 20MHz Chain1 5180MHz

# FCC\_802.11a\_20MHz\_Chain1\_5260MHz



FCC 802.11a 20MHz Chain1 5220MHz

### FCC 802.11a 20MHz Chain1 5300MHz



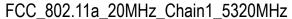
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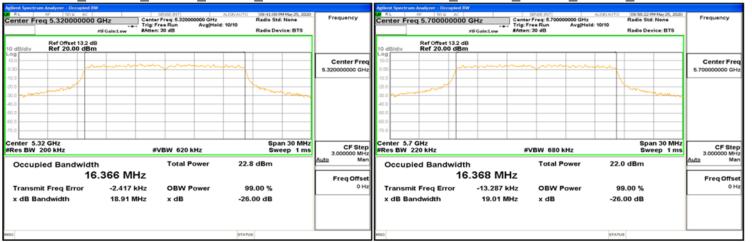
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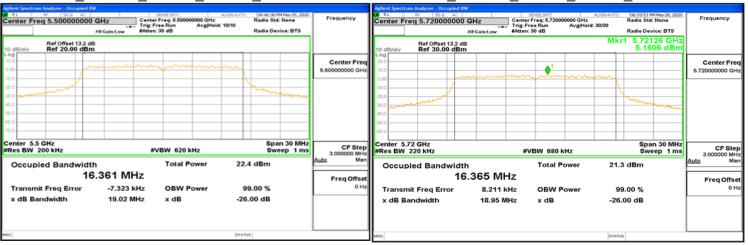


# FCC 802.11a 20MHz Chain1 5700MHz



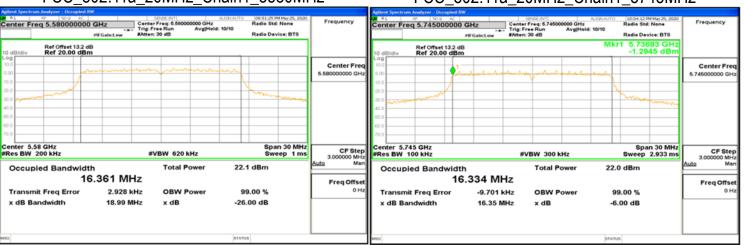
FCC 802.11a 20MHz Chain1 5500MHz

# FCC\_802.11a\_20MHz\_Chain1\_5720MHz



FCC 802.11a 20MHz Chain1 5580MHz

# FCC\_802.11a\_20MHz\_Chain1\_5745MHz



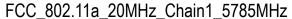
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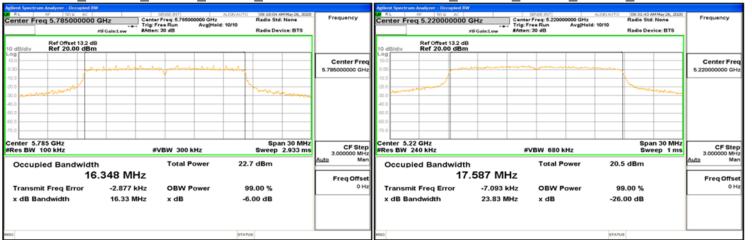
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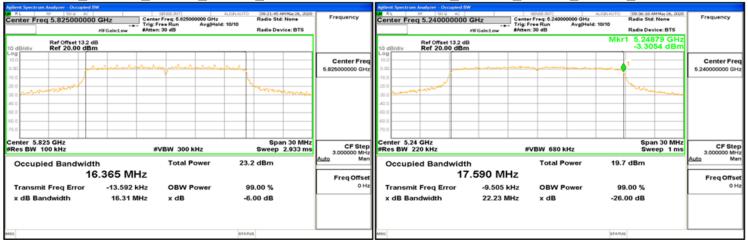


# FCC 802.11n 20MHz Chain0 5220MHz



FCC 802.11a 20MHz Chain1 5825MHz

# FCC\_802.11n\_20MHz\_Chain0\_5240MHz



FCC 802.11n 20MHz Chain0 5180MHz

# FCC 802.11n 20MHz Chain0 5260MHz



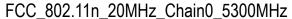
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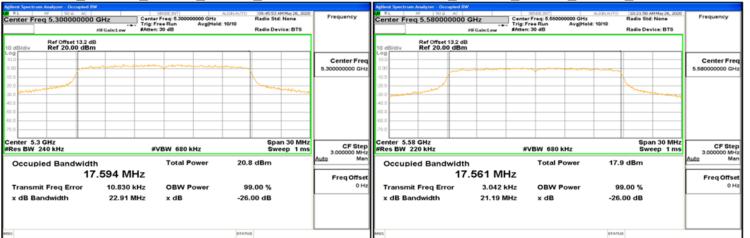
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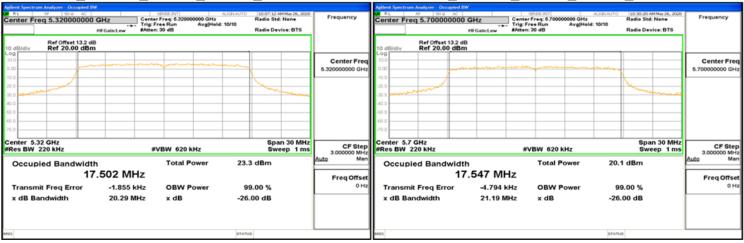


# FCC 802.11n 20MHz Chain0 5580MHz



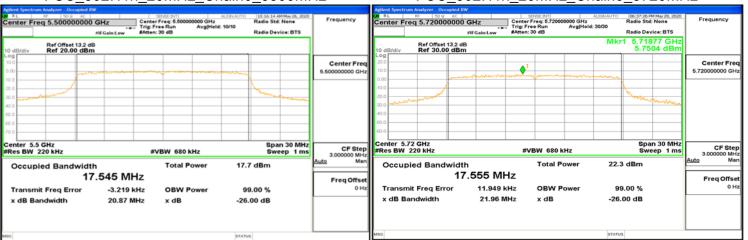
FCC\_802.11n\_20MHz\_Chain0\_5320MHz

# FCC\_802.11n\_20MHz\_Chain0\_5700MHz



FCC 802.11n 20MHz Chain0 5500MHz

# FCC 802.11n 20MHz Chain0 5720MHz



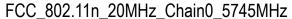
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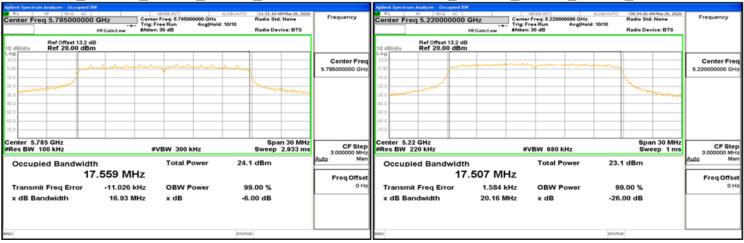


# FCC 802.11n 20MHz Chain1 5180MHz



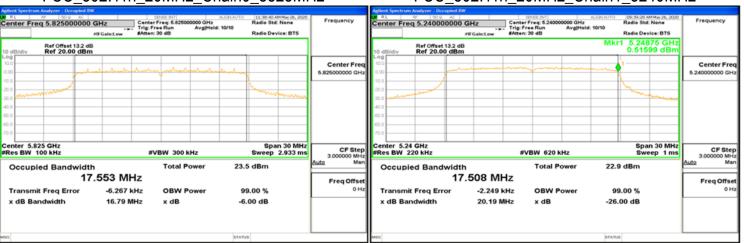
FCC 802.11n 20MHz Chain0 5785MHz

# FCC 802.11n 20MHz Chain1 5220MHz



FCC 802.11n 20MHz Chain0 5825MHz

# FCC 802.11n 20MHz Chain1 5240MHz



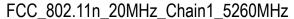
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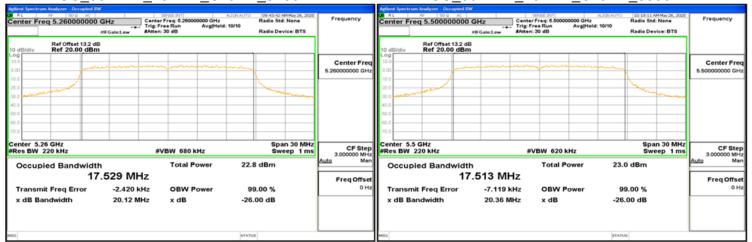
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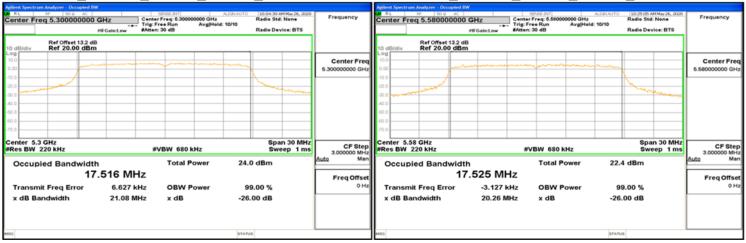


# FCC 802.11n 20MHz Chain1 5500MHz



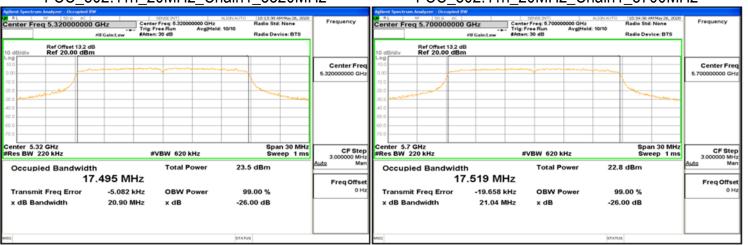
FCC\_802.11n\_20MHz\_Chain1\_5300MHz

# FCC\_802.11n\_20MHz\_Chain1\_5580MHz



FCC 802.11n 20MHz Chain1 5320MHz

# FCC 802.11n 20MHz Chain1 5700MHz



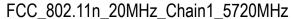
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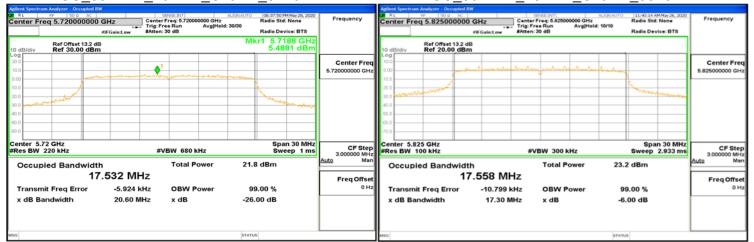
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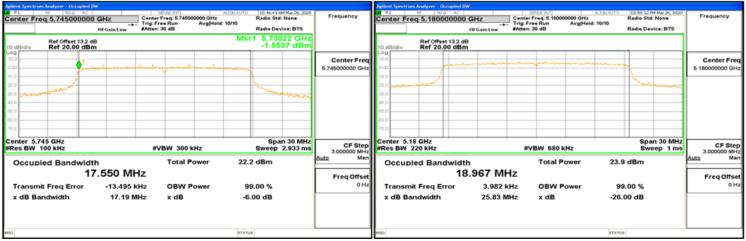


# FCC 802.11n 20MHz Chain1 5825MHz



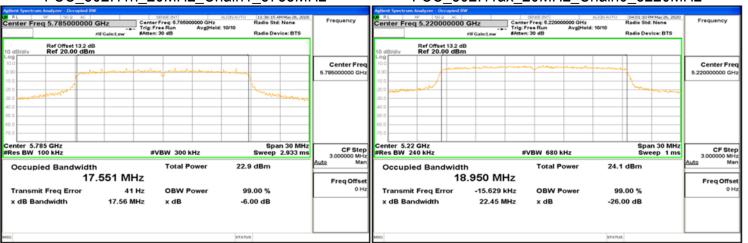
FCC\_802.11n\_20MHz\_Chain1\_5745MHz

# FCC\_802.11ax\_20MHz\_Chain0\_5180MHz



FCC 802.11n 20MHz Chain1 5785MHz

# FCC 802.11ax 20MHz Chain0 5220MHz



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