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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Applicant: Acer Incorporated

8F., No. 88, Sec. 1, Xintai 5th Rd., Xizhi, New Taipei City 22181,

Taiwan (R.O.C)

Product Name: Tablet Computer acer, AOPEN Model No.: N18Q1, CTB10

Model Difference: For Marketing purpose

 Report Number:
 E2/2019/90023

 FCC ID:
 HLZN18Q1

 IC:
 1754F-N18Q1

FCC Rule Part: §15.407, Cat: NII

ISED RSS: RSS-247 issue 2 Feb. 2017

Issue Date: Feb. 11, 2020

Date of Test: Sep. 19, 2019 ~ Jan. 31, 2020

Date of EUT Re- Sep. 19, 2019

ceived:

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory 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: CHUN-CHIEH, CHEN

Chun Chieh Chen / Supervisor





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Revision History				
Report Number	Revision	Description	Issue Date	Remark
E2/2019/90023	Rev.00	Original.	Feb. 11, 2020	Revised By: Yuri Tsai

Note:

1 Multiple Model numbers or Trademarks
The variant model numbers / trademarks are assessed as identical in hardware and
software to each other, hence all variants are fully covered by the test results in this
test report without further verification test.

2 · Disclaimer

Variant information between model numbers / trademarks 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: Tak		Tablet Cor	Tablet Computer		
Brand Name	:	acer, AOP	EN		
Model No.:		N18Q1, C	TB10		
Model Differe	ence:	For Marke	eting purpose		
Hardware Ve	ersion:	N/A			
Software Ver	sion:	N/A			
			m Rechargeable Li-polymer Battery 5 / 20Vdc from AC/DC Adapter		
Power Suppl	y:	Battery:	ery: Model No.:SQU-1706, Supplier: SMP		
		Adapter:	Model No.: PA-1450-78, Supplier: LITEON		
Modulation ty	/pe		6QAM, QPSK, BPSK for OFDM or OFDM in 802.11ac only		
5150~525 Antenna Designation 5250~535 5470~572		PIFA Anter 5150~525 5250~535 5470~572	,		
Transition Rate:	802.11 n_2	5/9/12/18/2 20MHz: 6.5	4/36/48/54 Mbps 802.11 ac_20MHz: 6.5 –173.3Mbps 802.11 ac_40MHz: 13.5 –400.0Mbps 802.11 ac_80MHz: 29.3 – 866.7Mbps		

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1.2 FCC worst power

worst power				
Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm) (Worst case)	Modulation Technology
	5150~5250	4	16	
	5250~5350	4	17.88	OFDM
а	5470~5725	12	16.98	OFDM
	5725-5850	5	17.97	
	5150~5250	4	HT: 16	
n_HT	5250~5350	4	HT: 16.98	OFDM
ac_VHT 20M	5470~5725	12	HT: 16.50	
	5725-5850	5	HT: 16.98	
	5150~5250	2	HT: 15.89	
n_HT ac VHT	5250~5350	2	HT: 15.87	OFDM
40M	5470~5725	5	HT: 15.84	OFDIVI
	5725-5850	2	HT: 15.82	
ac_VHT 80M	5150~5250	1	12.80	
	5250~5350	1	12.36	OFDM
	5470~5725	2	15.96	OFDIVI
	5725-5850	1	13.39	

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1.3 ISED worst power

Wi-Fi 802.11	Frequency Range	Channels	Avg. or EIRP	Rated Power(dBm) (Worst Case)	Modulation Technology
	5150~5250	4	EIRP	21.28	
11a	5250~5350	4	Avg.	17.88	OFDM
l IIa	5470~5725	12	Avg.	16.98	OFDM
	5725-5850	5	Avg.	17.97	
	5150~5250	4	EIRP	HT: 21.28	
11n_HT /	5250~5350	4	Avg.	HT: 16.98	OFDM
ac_VHT 20M	5470~5725	12	Avg.	HT: 16.50	
20111	5725-5850	5	Avg.	HT: 16.98	
	5150~5250	2	EIRP	HT: 21.17	
11n_HT /	5250~5350	2	Avg.	HT: 15.87	OFDM
ac_VHT 40M	5470~5725	6	Avg.	HT: 15.84	OFDM
+01VI	5725-5850	2	Avg.	HT: 15.82	
11ac VHT80M	5150~5250	1	EIRP	18.08	
	5250~5350	1	Avg.	12.36	OFDM
	5470~5725	2	Avg.	15.96	OFDM
	5725-5850	1	Avg.	13.39	

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1.4 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

1.5 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory (TAF code 0513)

No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333

FCC Designation number: TW0002

ISED CAB identifier: TW0513

1.6 Special Accessories

There are no special accessories used while test was conducted.

1.7 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

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.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration

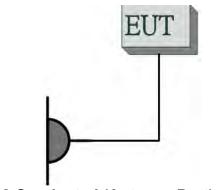


Fig. 2-2 Conducted (Antenna Port) Emission Configuration



Fig. 2-3 Conducted (AC powerline)
Emission Configuration

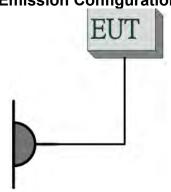


Table 2-1 Equipment Used in Tested System

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	ACER	P1VE6	S2SFT02003 128135D316 01		Unshielded

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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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4 DESCRIPTION OF TEST MODES

4.1802.11a/n/ac operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

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

9	<u>i in 5150 MH</u>		
	40 M		
	СН	Freq	
Ľ	OII	(MHz)	
	38	5190	
	46	5230	

250 MIZ:		
80 M		
СН	Freq	
011	(MHz)	
42	5210	

Operated band in 5250 MHz ~5350 MHz:

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

•	<u> </u>			
	40 M			
	СН	Freq		
	G	(MHz)		
	54	5270		
	62	5310		

0000 1111 12.			
80 M			
СН	Freq (MHz)		
58	5290		

Operated band in 5470 MHz ~5725 MHz:

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				

u	1 111 3470 WIT					
	40 M					
	СН	Freq (MHz)				
	102	5510				
	110	5550				
	118	5590				
	126	5630				
	134	5670				
	142	5710				

)	725 WITZ:				
	80 M				
	СН	Freq			
	СП	(MHz)			
	106	5530			
	122	5610			
	138	5690			

Operated band in 5745 MHz ~5850 MHz:

Operated b				
20 M				
Freq (MHz)				
5745				
5765				
5785				
5805				
5825				

IU	u III 3/43 WII				
	40 M				
	СН	Freq			
		(MHz)			
	151	5755			
	159	5795			

0000	1411 12.		
80 M			
СН	Freq		
GH	(MHz)		
155	5775		

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4.2 The Worst Test Modes and Channel Details

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

The gevin UE is pre-scanned among below modes.

Modulation	Transmission Chain	Multiple Transmission Spatial
⊠ 802.11 a	☐ Ch0 ☐ Ch1 ☐ Ch2 ☐ Ch3	⊠ 2TX
⊠ 802.11 n	☐ Ch0 ☐ Ch1 ☐ Ch2 ☐ Ch3	⊠ MIMO
⊠ 802.11 ac	☐ Ch0 ☐ Ch1 ☐ Ch2 ☐ Ch3	⊠ MIMO

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

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4.2.1RADIATED EMISSION TEST:

1						
	RADIATED EMISSION TEST (BELOW 1 GHz)					
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA
MODE	BAND (MHz)	CHANNEL	CHANNEL	MODULATION	(Mbps)	PORT
	5180~5240	36 to 48	36,44,48			
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	2TX
002.11a	5500~5700	100 to 140	100,116,140,			
	5745~5825	149 to 165	149,157,165			
	5210	42	42	OFDIVI		
802.11ac_VHT80	5290	58	58		MCS0	MIMO
	5530~5610	106 to 122	106,122	- IVICSU	IVIIIVIO	
	5775	155	155			

RADIATED EMISSION TEST (ABOVE 1 GHz)						
MODE	FREQUENCY	AVAILABLE	TESTED	MODULATION	DATA RATE	ANTENNA
MIODE	BAND (MHz)	CHANNEL	CHANNEL	WODULATION	(Mbps)	PORT
	5180~5240	36 to 48	36,44,48			
802.11a	5260~5320	52 to 64	52,60,64		6	2TX
002.118	5500~5700	100 to 140	100,116,140,		O	217
	5745~5825	149 to 165	149,157,165			
	5180~5240	36 to 48	36,44,48			
802.11n HT20	5260~5320	52 to 64	52,60,64	MCS8	MCSS	MIMO
002.1111_1120	5500~5700	100 to 140	100,116,140,		IVIIIVIO	
	5745~5825	149 to 165	149,157,165			
	5190~5230	38 to 46	38,46	OFDM		
802.11n HT40	5270~5310	54 to 62	54,62		MCS8	MIMO
002.1111_1140	5510~5670	102 to 134	102,110,134,			
	5755~5795	151 to 159	151,159			
802.11ac_VHT80	5210	42	42			
	5290	58	58	MCS0		
	5530~5610	106 to 122	106 199 138		MIMO	
	5530~5690	106 to 138				
	5775	155	155			

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n/ac WLAN Transmitter for channel Low, Mid and High, the worst case E2 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)	ANTENNA PORT	
	5180~5240	36 to 48	36,44,48				
	5260~5320	52 to 64	52,60,64				
802.11a	5500~5700	100 to 140	100,116,140,		6	2TX	
	5500~5720	100 to 144	144				
	5745~5825	149 to 165	149,157,165				
	5180~5240	36 to 48	36,44,48				
	5260~5320	52 to 64	52,60,64			MIMO	
802.11n_HT20	5500~5700	100 to 140	100,116,140,		MCS8		
_	5500~5720	100 to 144	144				
	5745~5825	149 to 165	149,157,165	OFDM			
	5190~5230	38 to 46	38,46	OFDIVI			
	5270~5310	54 to 62	54,62				
802.11n_HT40	5510~5670	102 to 134	102,110,134,142	102,110,134,142		MCS8	MIMO
	5510~5710	102 to 142			102,110,134,142		
	5755~5795	151 to 159	151,159				
	5210	42	42				
802.11ac_VHT80	5290	58	58				
	5530~5610	106 to 122	106,122,138		MCS0	MIMO	
	5530~5690	106 to 138					
	5775	155	155				

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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: Vertical	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			
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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CONDUCTED EMISSION TEST

6.1Standard Applicable

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

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

Note

6.2 Measurement Equipment Used

Conducted Emission Test Site						
					CAL DUE.	
LISN	TESEQ	NNB 51		CAL . 02/13/2019	02/12/2020	
EMI Test Receiver	R&S	ESCI	101342	04/26/2019		

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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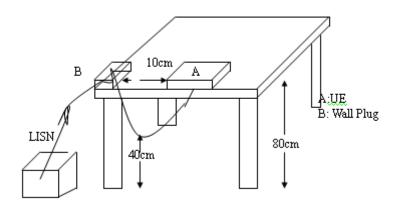
^{1.} The lower limit shall apply at the transition frequencies

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

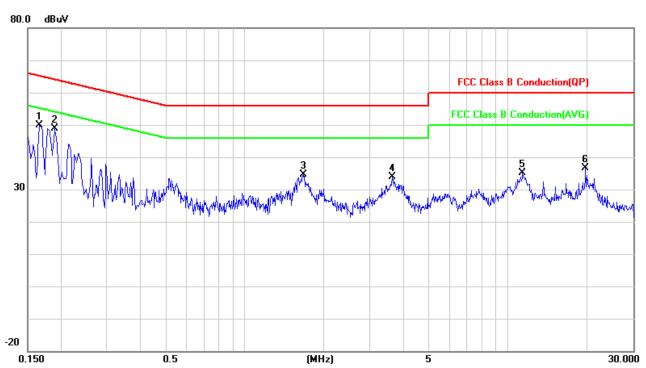
2019/10/16 **Description:** Operation (5G) Date:

Line: Temp.(°C)/Hum.(%): 20.7(°C)/70% L1

Test Voltage: AC 120V/60Hz Test By: Kailin

E2/2019/90023 **Report Number:**

Note: Adapter - A16-045N1A



No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector
		(MHz)	dBuV	(dB)	(dBuV)	(dBuV)	(dB)	
1		0.1660	30.36	19.49	49.85	65.16	-15.31	peak
2	*	0.1900	29.23	19.53	48.76	64.04	-15.28	peak
3		1.6740	14.73	19.91	34.64	56.00	-21.36	peak
4		3.6540	13.97	19.94	33.91	56.00	-22.09	peak
5		11.4100	15.10	19.98	35.08	60.00	-24.92	peak
6		19.7660	16.63	19.99	36.62	60.00	-23.38	peak

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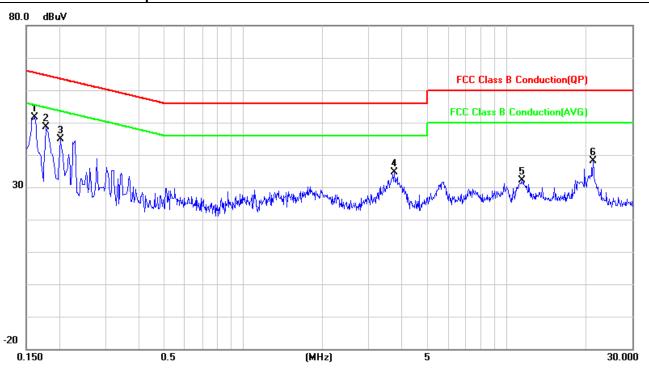
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Description: Operation (5G) 2019/10/16 Date:

Line: Temp.(°C)/Hum.(%): 20.7(°C)/70%

Test Voltage: AC 120V/60Hz Test By: Kailin **Report Number:** E2/2019/90023

Note: Adapter - A16-045N1A



No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector
		(MHz)	dBuV	(dB)	(dBuV)	(dBuV)	(dB)	
1	*	0.1620	31.94	19.71	51.65	65.36	-13.71	peak
2		0.1780	28.84	19.74	48.58	64.58	-16.00	peak
3		0.2020	25.11	19.78	44.89	63.53	-18.64	peak
4		3.7580	14.53	20.16	34.69	56.00	-21.31	peak
5		11.4900	11.88	20.21	32.09	60.00	-27.91	peak
6		21.2740	17.77	20.26	38.03	60.00	-21.97	peak

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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:

Mode	Duty Cycle (%) =Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11a	94.29	0.26	0.48	1.00
802.11n_20	88.68	0.52	1.02	2.00
802.11ac_20	88.86	0.51	1.02	2.00
802.11n_40	73.51	1.34	2.02	3.00
802.11ac_40	74.52	1.28	2.02	3.00
802.11ac_80	79.05	1.02	2.15	3.00

Duty Cycle Factor: 10 * log(1/0.9429) = 0.26 Duty Cycle Factor: 10 * log(1/0.8868) = 0.52 Duty Cycle Factor: 10 * log(1/0.8886) = 0.51 Duty Cycle Factor: 10 * log(1/0.7351) = 1.34 Duty Cycle Factor: 10 * log(1/0.7452) = 1.28 Duty Cycle Factor: 10 * log(1/0.7905) = 1.02

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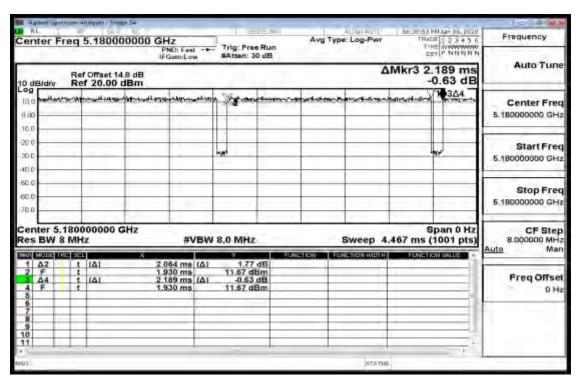
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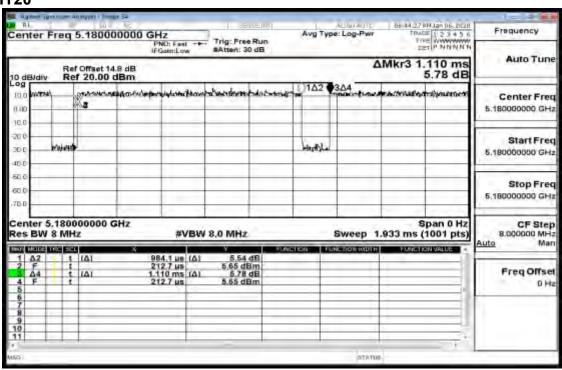


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7.2 DUTY CYCLE TEST SIGNAL MEASUREMENT RESULT 802.11a



802.11n HT20



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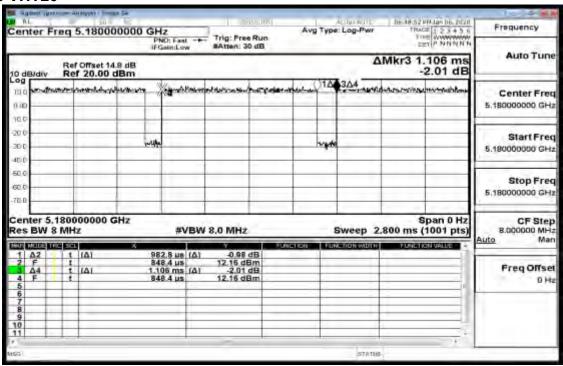
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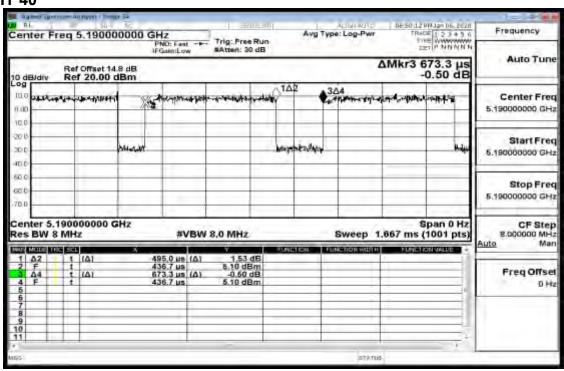


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802.11ac VHT20



802.11n HT 40



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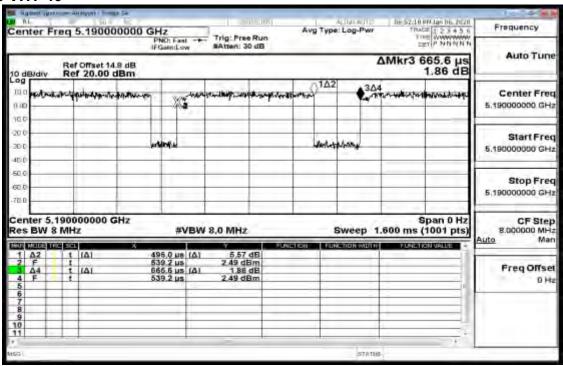
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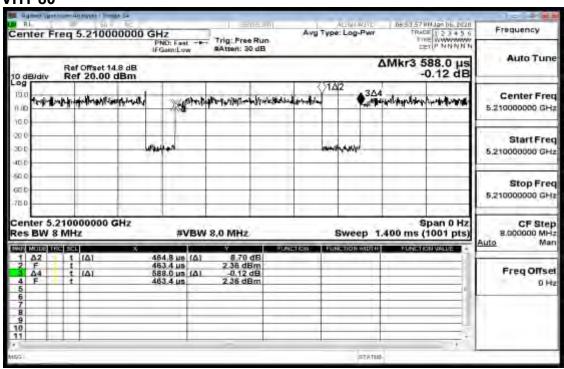


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802.11ac VHT 40



802.11ac VHT 80



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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.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto,

Detector = Peak,

Trace Mode = Max Hold.

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

- 3.b. Mark the peak frequency and -26dB (upper and lower) frequency.
- 4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
- 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.
- 6. 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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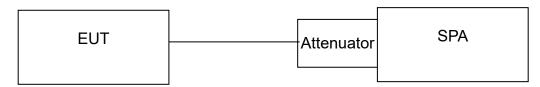


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8.3 Measurement Equipment Used

SGS Conducted Room							
Name of Equip- ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due		
DC Block	PASTERNACK	PE8210	RF32	11/20/2019	11/19/2020		
Spectrum Analyzer	Agilent	N9010A	MY57120200	03/06/2019	03/05/2020		
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/09/2019	07/08/2020		
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020		

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	18.91	12.767	5180	18.55	12.683
5220	18.8	12.742	5220	18.69	12.716
5240	18.81	12.744	5240	20.4	13.096
5260	20.28	13.071	5260	18.7	12.718
5300	19.17	12.826	5300	18.53	12.679
5320	18.94	12.774	5320	18.57	12.688
5500	24.92	13.965	5500	20.13	13.038
5580	18.91	12.767	5580	18.43	12.655
5700	18.75	12.730	5700	19.15	12.822
5720	18.77	12.735	5720	23.56	13.722

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802.11n HT20 Ch0

802.11n HT20 Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	Fre	
5180	19.45	12.889	51	
5220	19.51	12.903	52	
5240	19.46	12.891	52	
5260	19.33	12.862	52	
5300	19.81	12.969	53	
5320	19.67	12.938	53	
5500	19.78	12.962	55	
5580	20.15	13.043	55	
5700	19.48	12.896	57	
5720	19.31	12.858	57	

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5180	19.52	12.905
5220	19.54	12.909
5240	21.24	13.272
5260	19.02	12.792
5300	19.65	12.934
5320	19.92	12.993
5500	27	14.314
5580	19.48	12.896
5700	19.54	12.909
5720	24.81	13.946

802.11n _HT40_Ch0

802.11n _HT40_Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	39.55	15.971
5230	39.87	16.006
5270	42.23	16.256
5310	39.13	15.925
5510	39.27	15.941
5550	44.82	16.515
5670	40	16.021
5710	39.43	15.958

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)
5190	40.95	16.123
5230	45.3	16.561
5270	39.77	15.996
5310	40.23	16.046
5510	40.52	16.077
5550	41.04	16.132
5670	41.32	16.162
5710	43.1	16.345

802.11ac _VHT80_Ch0

802.11ac VHT80 Ch1

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	
5210	81.75	19.125	
5290	80.44	19.055	
5530	80.51	19.058	
5610	83.21	19.202	
5690	80.61	19.064	

Freq. (MHz)	26dB BW (MHz)	10 Log (B) (dB)	
5210	81.75	19.125	
5290	81.27	19.099	
5530	82.89	19.185	
5610	81.88	19.132	
5690	80.59	19.063	

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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)	
5745	14.74	11.685	
5785	15.3	11.847	
5825	16.3	12.122	

<u> </u>					
Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)			
5745	14.47	11.605			
5785	12.3	10.899			
5825	15.93	12.022			

802.11n_HT20_Ch0

802.11n_HT20_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	
5745	15.13	11.798	
5785	14.45	11.599	
5825	16.34	12.133	

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	15.02	11.767
5785	14.06	11.480
5825	15.21	11.821

802.11n_HT40_Ch0

802.11n HT40 Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	
5755	33.83	15.293	
5795	34.99	15.439	

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)	
5755	35.11	15.454	
5795	33.83	15.293	

802.11ac _VHT80_Ch0

802.11ac _VHT80_Ch1

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	75.02	18.752

Freq. (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5775	73.79	18.680

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8.5.3 ISED 99% Bandwidth

802.11a Ch0

802.11a Ch1

002.11a_0110			002.114_0111		
Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5180	16.277	12.116	5180	16.308	12.124
5220	16.311	12.125	5220	16.297	12.121
5240	16.385	12.144	5240	16.358	12.137
5260	16.364	12.139	5260	16.326	12.129
5300	16.312	12.125	5300	16.335	12.131
5320	16.311	12.125	5320	16.276	12.115
5500	16.388	12.145	5500	16.317	12.126
5580	16.301	12.122	5580	16.275	12.115
5700	16.325	12.129	5700	16.291	12.119
5720	16.294	12.120	5720	16.391	12.146

802.11n HT20 Ch0

802.11n HT20 Ch1

002			002:11111_11120_0111			
Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	
5180	17.49	12.428	5180	17.454	12.419	
5220	17.493	12.429	5220	17.505	12.432	
5240	17.464	12.421	5240	17.441	12.416	
5260	17.477	12.425	5260	17.463	12.421	
5300	17.499	12.430	5300	17.433	12.414	
5320	17.452	12.418	5320	17.396	12.404	
5500	17.418	12.410	5500	17.542	12.441	
5580	17.459	12.420	5580	17.458	12.420	
5700	17.482	12.426	5700	17.469	12.423	
5720	17.464	12.421	5720	17.501	12.431	

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802.11n HT40 Ch0

802.11n HT40 Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	
5190	35.781	15.537	5190	35.804	15.539	
5230	35.806	15.540	5230	35.802	15.539	
5270	35.848	15.545	5270	35.759	15.534	
5310	35.856	15.546	5310	35.83	15.542	
5510	35.691	15.526	5510	35.821	15.541	
5550	35.833	15.543	5550	35.737	15.531	
5670	35.764	15.534	5670	35.777	15.536	
5710	35.861	15.546	5710	35.857	15.546	

802.11ac _VHT80_Ch0

802.11ac _VHT80_Ch1

Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	99% BW (MHz)	10 Log (B) (dB)
5210	74.872	18.743	5210	74.856	18.742
5290	74.805	18.739	5290	74.933	18.747
5530	74.781	18.738	5530	74.991	18.750
5610	74.848	18.742	5610	74.832	18.741
5690	74.386	18.715	5690	74.961	18.748

8.5.4 6dB Bandwidth (5725 MHz~ 5850 MHz) measure with sample detector for ISED

802.11a Ch0

802.11a Ch1

002.1.0_00			002u_0		
Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	15.66	11.948	5745	16.12	12.074
5785	15.66	11.948	5785	15.72	11.965
5825	16.15	12.082	5825	16.01	12.044

802.11n_HT20_Ch0

802.11n_HT20_Ch1

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5745	16.41	12.151	5745	16.86	12.269
5785	16.37	12.140	5785	17.12	12.335
5825	16.94	12.289	5825	17	12.304

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802.11n _HT40_Ch0

802.11n _HT40_Ch1

Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)	Frequency (MHz)	6dB BW (MHz)	10 Log (B) (dB)
5755	35.23	15.469	5755	35.31	15.479
5795	35.7	15.527	5795	35.33	15.481

802.11ac VHT80 Ch0

802.11ac VHT80 Ch1

Frequency	6dB	10 Log (B)	Frequency	6dB	10 Log (B)
(MHz)	BW	(dB)	(MHz)	BW	(dB)
5775	(MHz) 74.03	18.694	5775	(MHz) 73.29	18.650

8.5.5 99% BW Verification for DFS Function

802.11a_Ch0

802.11a_Ch1

802.11n_HT20_Ch0

802.11n_HT20_Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5240	5248.14	< 5250	5240	5248.16	< 5250
5745	5736.88	> 5725	5745	5736.81	> 5725

	eq. Hz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
52	40	5248.71	< 5250	5240	5248.74	< 5250
57	45	5736.26	> 5725	5745	5736.29	> 5725

802.11n _HT40_Ch0

802.11n _HT40_Ch1

802.11ac VHT80 Ch0

802.11ac VHT80 Ch1

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5230	5247.92	< 5250	5230	5247.93	< 5250
5755	5737.11	> 5725	5755	5737.11	> 5725

Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)	Freq. (MHz)	Measured Freq. (MHz)	Limit (MHz)
5210	5247.32	< 5250	5210	5247.45	< 5250
5775	5737.56	> 5725	5775	5737.52	> 5725

Please see next page for test plots.

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常野力 別、明 ・ 近根音跡 不僅可例試之体の具質 「同呼近後の理味噌如大 ・ 本根音本版本な可看面評 リ ・ 不可能的模型。
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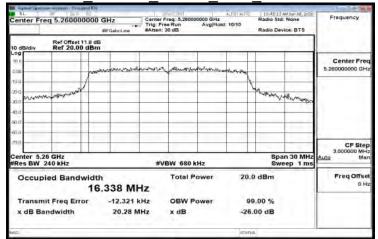


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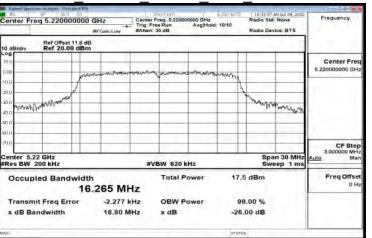
FCC 802.11a 20MHz Main 5180MHz



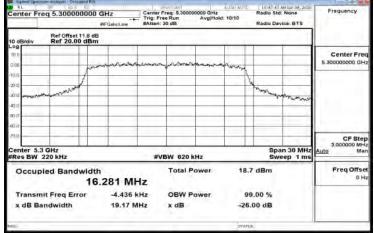
FCC 802.11a 20MHz Main 5260MHz



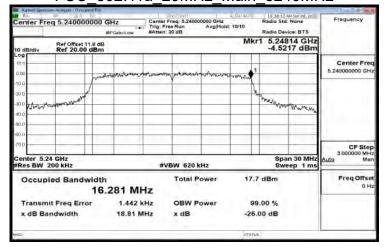
FCC 802.11a 20MHz Main 5220MHz



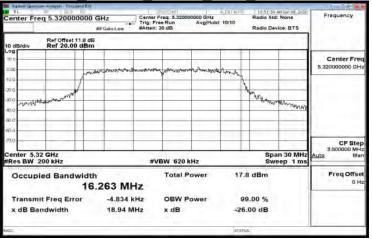
FCC 802.11a 20MHz Main 5300MHz



FCC 802.11a 20MHz Main 5240MHz



FCC 802.11a 20MHz Main 5320MHz



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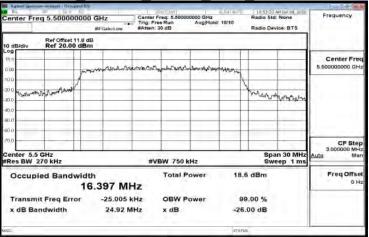
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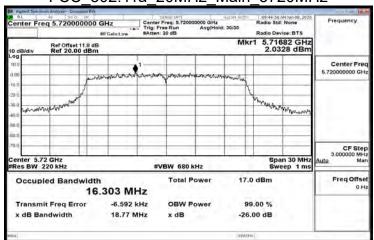


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FCC 802.11a 20MHz Main 5500MHz



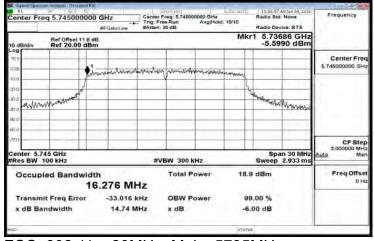
FCC 802.11a 20MHz Main 5720MHz



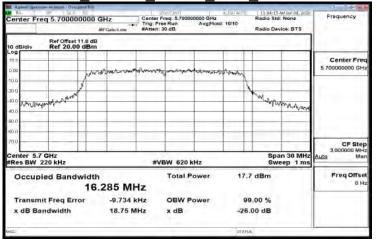
FCC 802.11a 20MHz Main 5580MHz



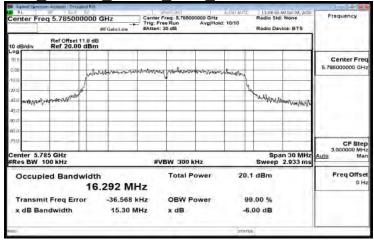
FCC 802.11a 20MHz Main 5745MHz



FCC 802.11a 20MHz Main 5700MHz



FCC 802.11a 20MHz Main 5785MHz



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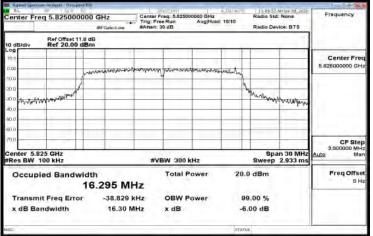
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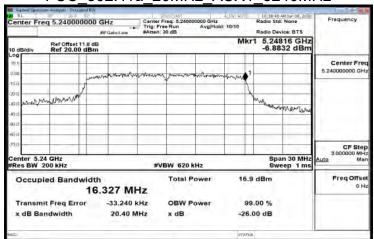


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FCC 802.11a 20MHz Main 5825MHz



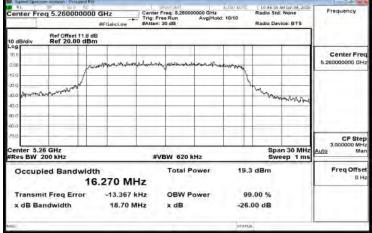
FCC 802.11a 20MHz AUX1 5240MHz



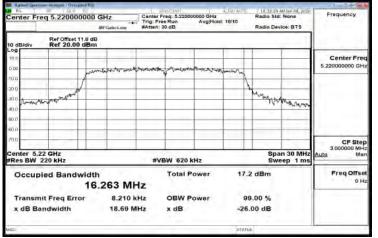
FCC 802.11a 20MHz AUX1 5180MHz



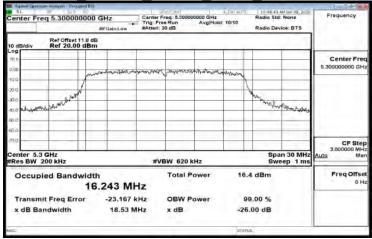
FCC 802.11a 20MHz AUX1



FCC 802.11a 20MHz AUX1 5220MHz



FCC 802.11a 20MHz AUX1 5300MHz



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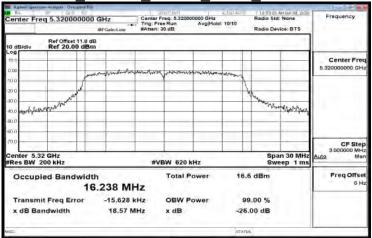
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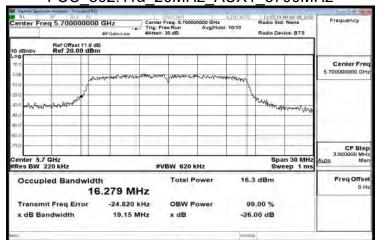


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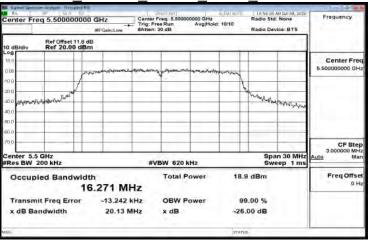
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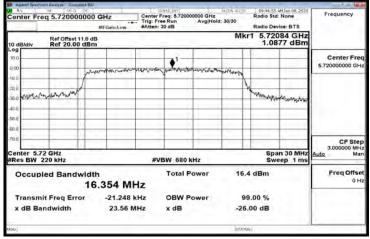
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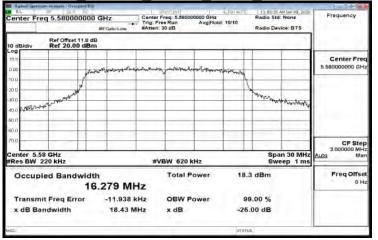
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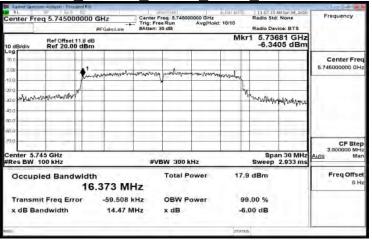
FCC 802.11a 20MHz AUX1 5720MHz



FCC 802.11a 20MHz AUX1 5580MHz



FCC 802.11a 20MHz AUX1 5745MHz



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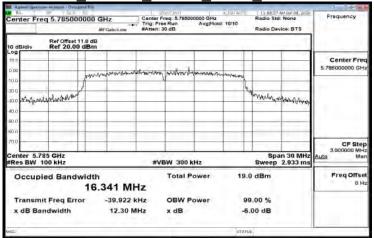
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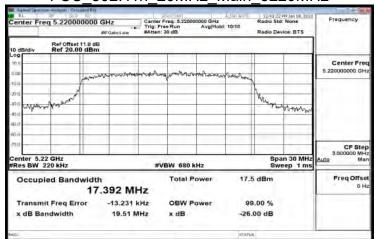


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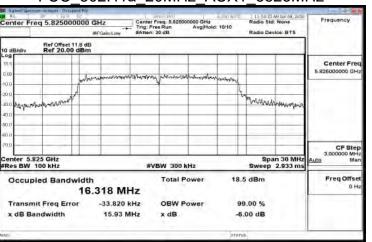
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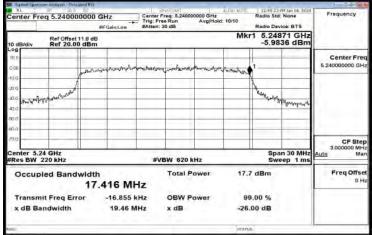
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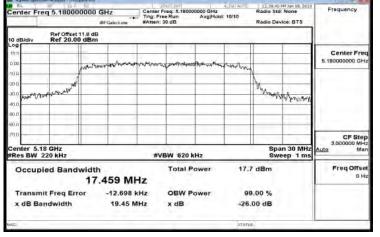
FCC 802.11a 20MHz AUX1 5825MHz



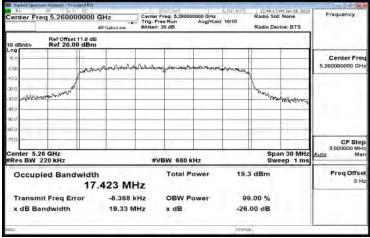
FCC 802.11n 20MHz Main 5240MHz



FCC 802.11n 20MHz Main 5180MHz



FCC 802.11n 20MHz Main 5260MHz



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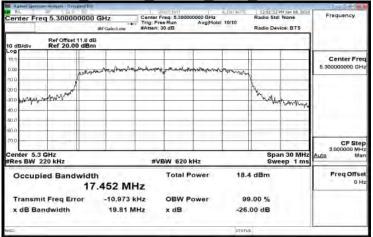
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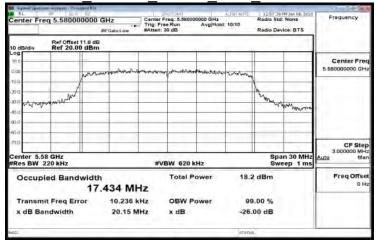


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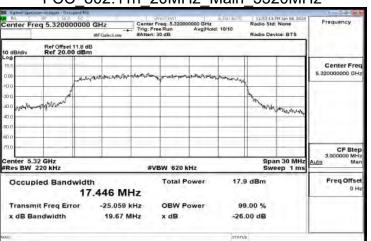
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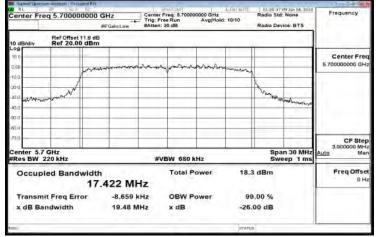
FCC 802.11n 20MHz Main 5580MHz



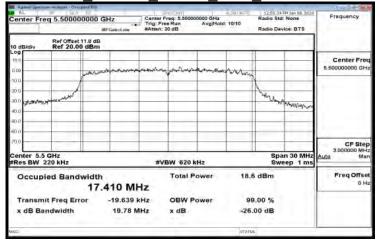
FCC 802.11n 20MHz Main 5320MHz



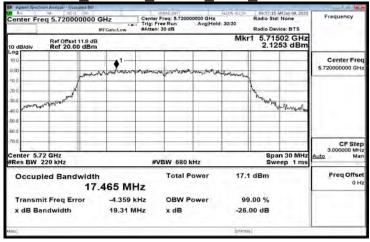
FCC 802.11n 20MHz Main 5700MHz



FCC 802.11n 20MHz Main 5500MHz



FCC 802.11n 20MHz Main 5720MHz



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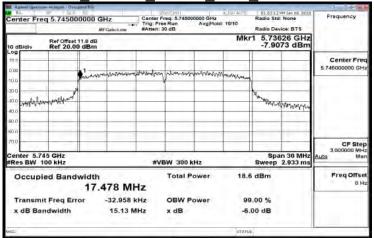
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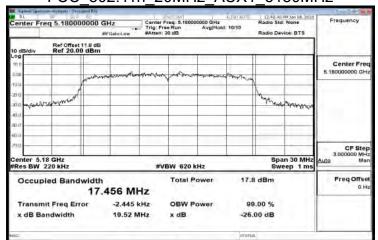


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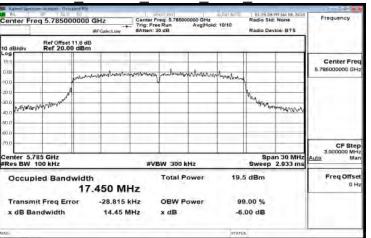
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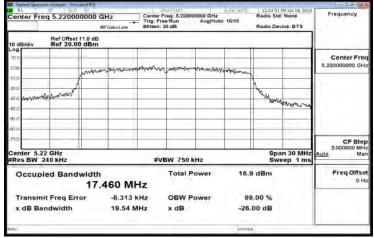
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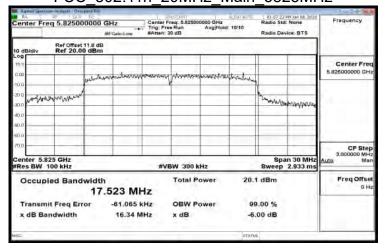
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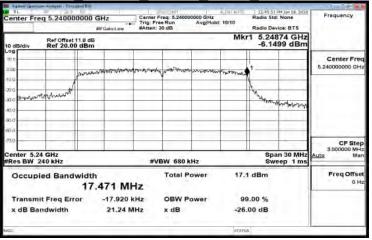
FCC 802.11n 20MHz AUX1 5220MHz



FCC 802.11n 20MHz Main 5825MHz



FCC 802.11n 20MHz AUX1 5240MHz



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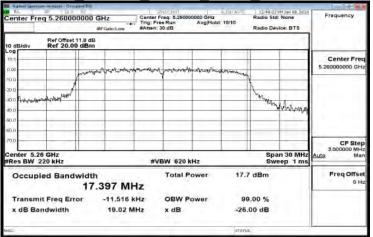
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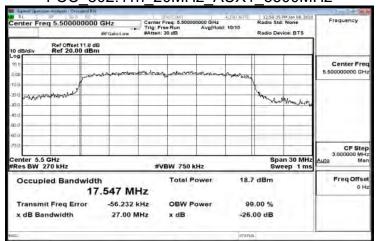


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FCC 802.11n 20MHz AUX1 5260MHz



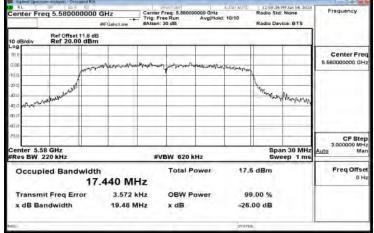
FCC 802.11n 20MHz AUX1 5500MHz



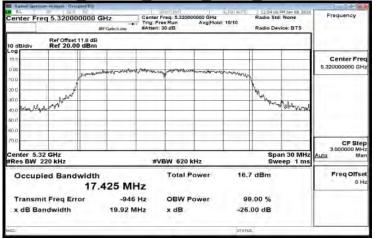
FCC 802.11n 20MHz AUX1 5300MHz



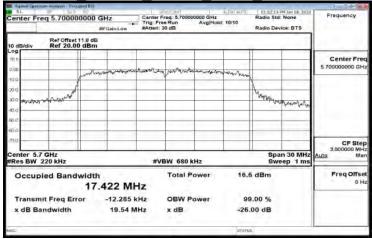
FCC 802.11n 20MHz AUX1 5580MHz



FCC 802.11n 20MHz AUX1 5320MHz



FCC_802.11n_20MHz_AUX1_5700MHz



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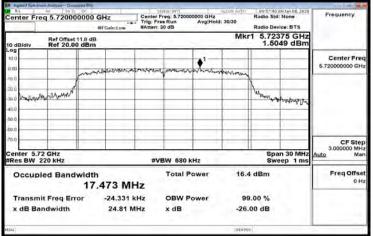
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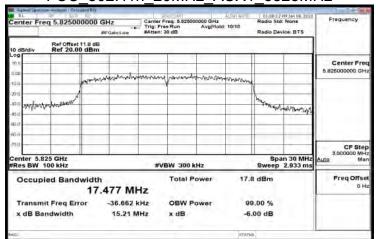


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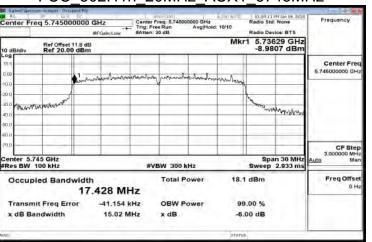
FCC 802.11n 20MHz AUX1 5720MHz



FCC 802.11n 20MHz AUX1 5825MHz



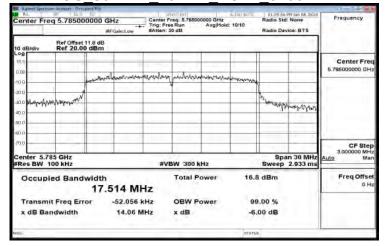
FCC 802.11n 20MHz AUX1 5745MHz



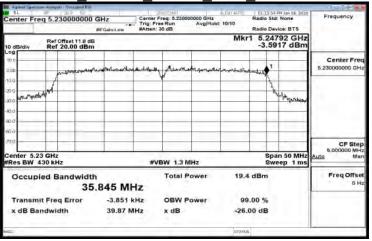
FCC 802.11n 40MHz Main 5190MHz



FCC 802.11n 20MHz AUX1 5785MHz



FCC 802.11n 40MHz Main 5230MHz



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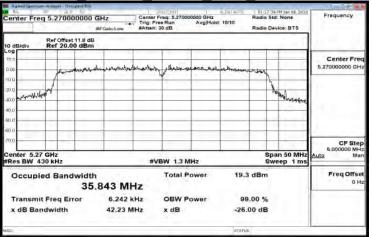
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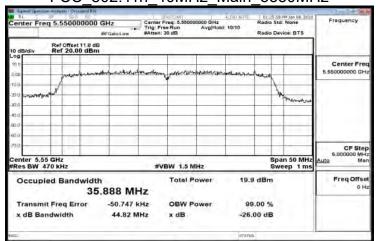


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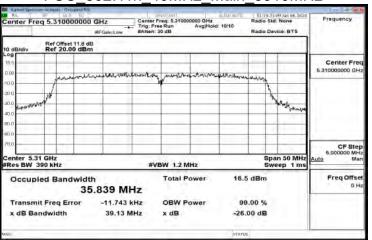
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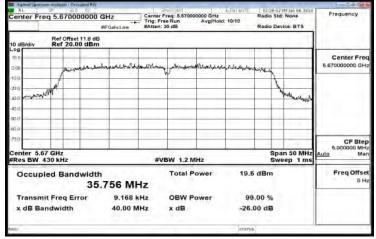
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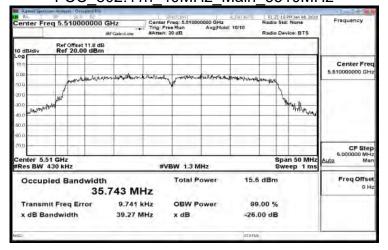
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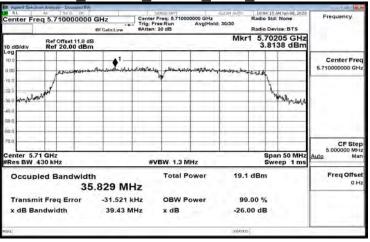
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FCC 802.11n 40MHz Main 5510MHz



FCC 802.11n 40MHz Main 5710MHz



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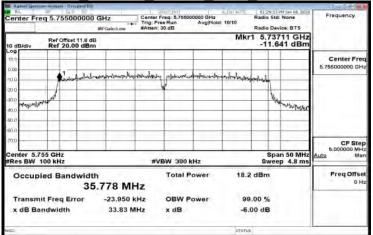
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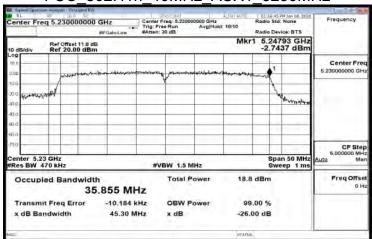


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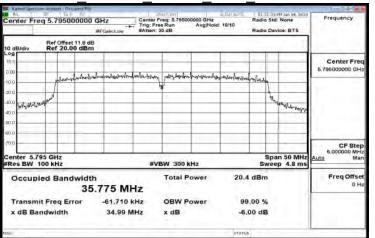
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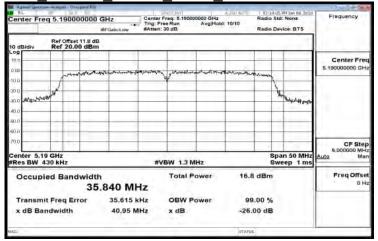
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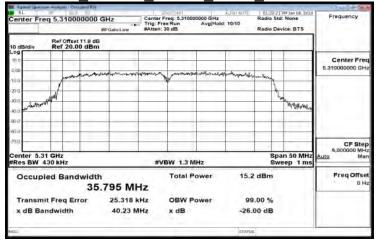
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FCC 802.11n 40MHz AUX1 5190MHz



FCC 802.11n 40MHz AUX1 5310MHz



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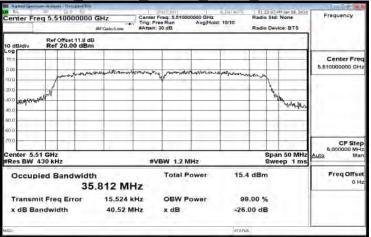
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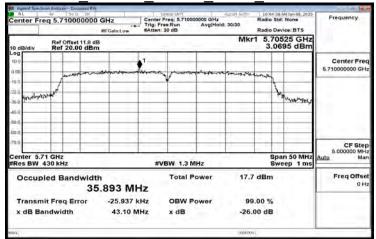


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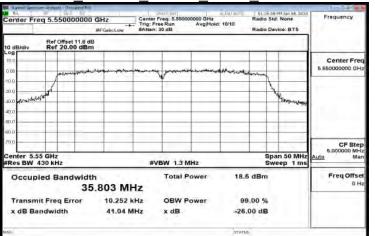
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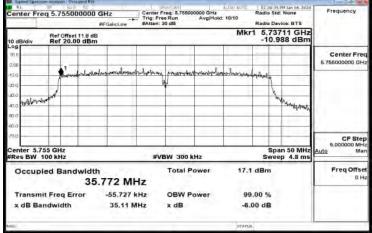
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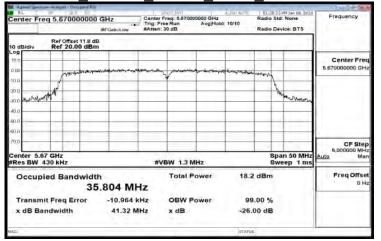
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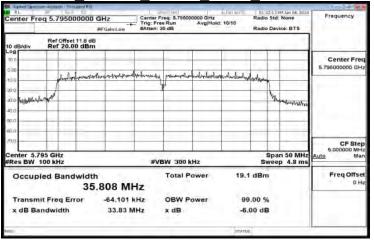
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FCC 802.11n 40MHz AUX1 5670MHz



FCC 802.11n 40MHz AUX1 5795MHz



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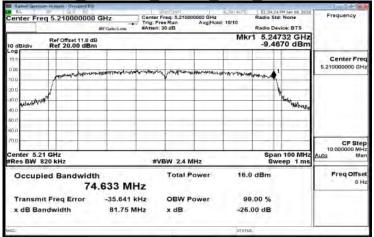
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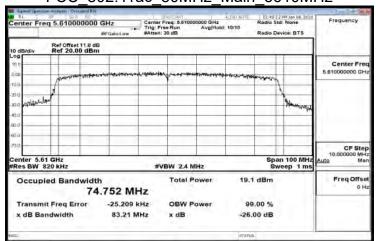


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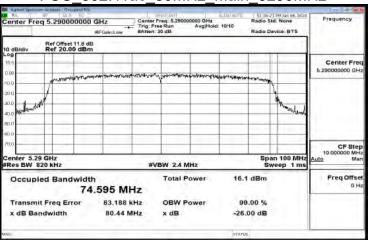
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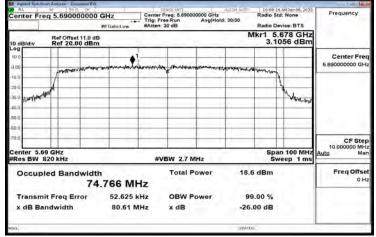
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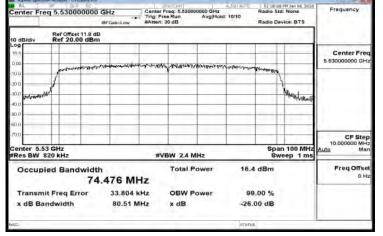
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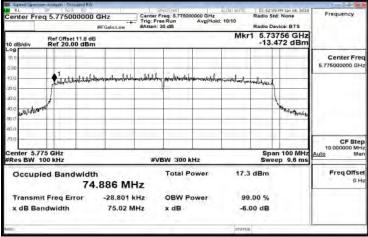
FCC 802.11ac 80MHz Main 5690MHz



FCC 802.11ac 80MHz Main 5530MHz







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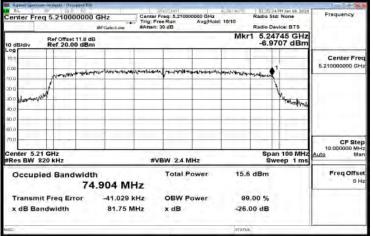
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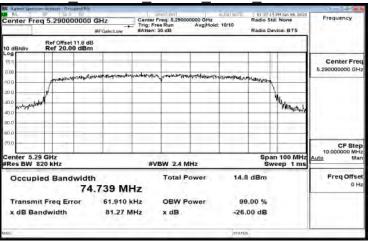
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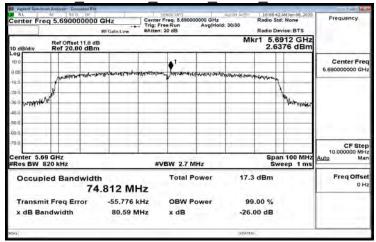
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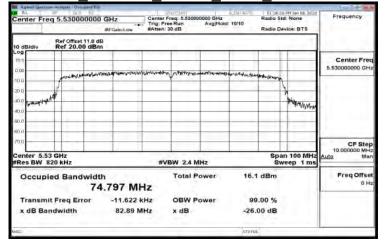
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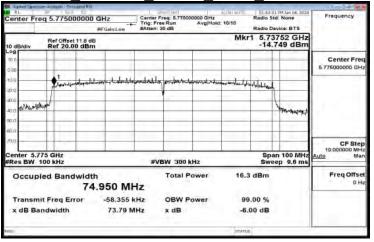
FCC 802.11ac 80MHz AUX1 5690MHz



FCC 802.11ac 80MHz AUX1 5530MHz



FCC 802.11ac 80MHz AUX1 5775MHz



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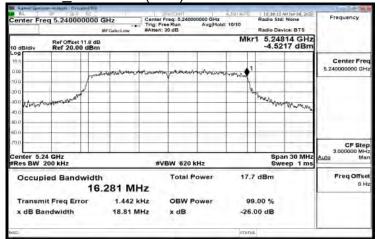
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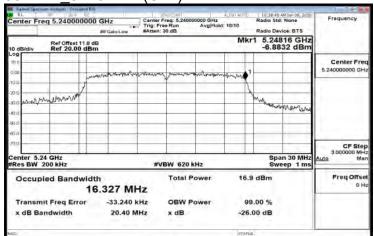


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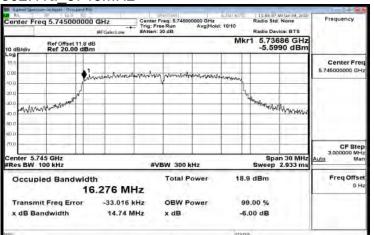
802.11a 5240MHz (Ch0)



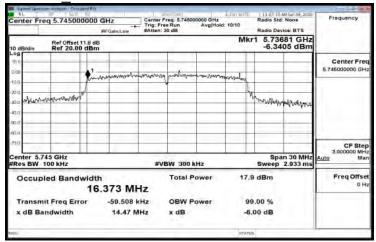
802.11a 5240MHz (Ch1)



802.11a 5745MHz



802.11a 5745MHz



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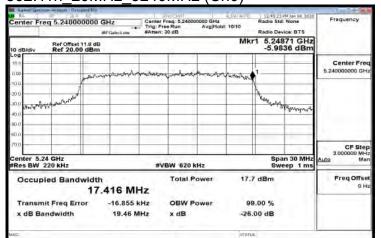
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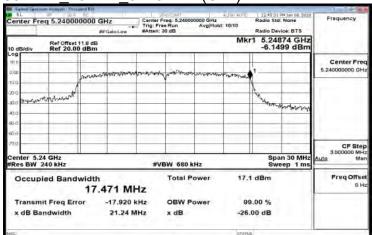


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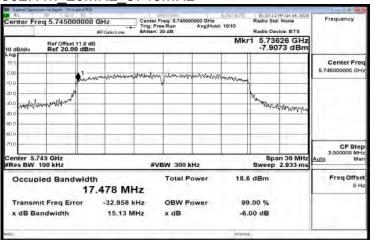
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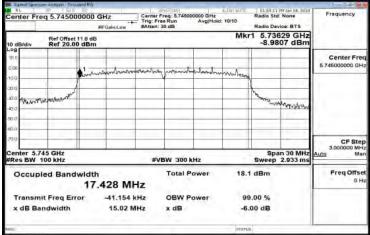
802.11n 20MHz 5240MHz (Ch1)



802.11n 20MHz 5745MHz



802.11n 20MHz 5745MHz



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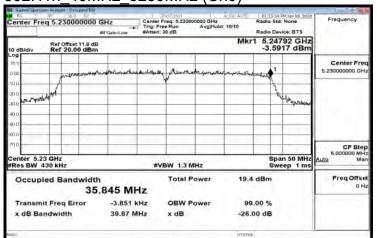
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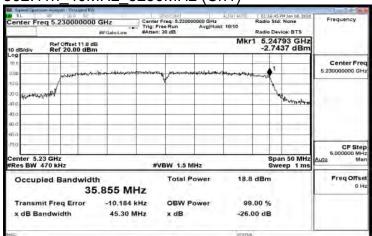


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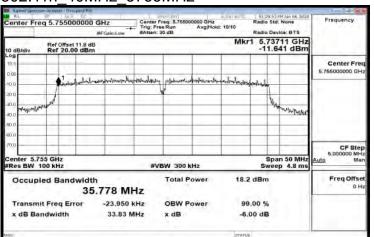
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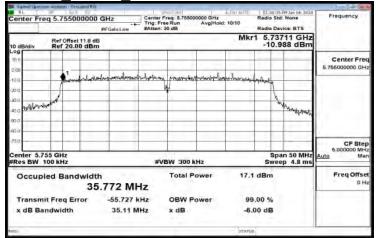
802.11n 40MHz 5230MHz (Ch1)



802.11n 40MHz 5755MHz



802.11n 40MHz 5755MHz



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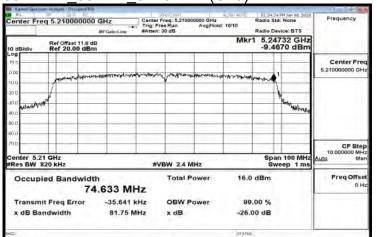
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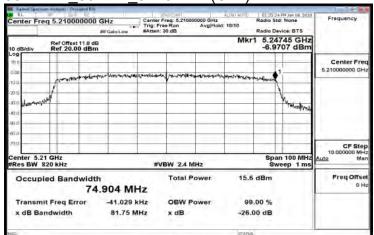


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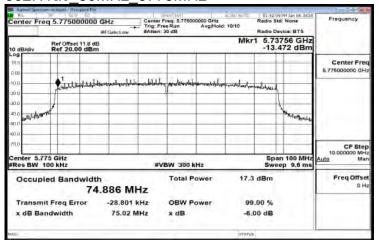
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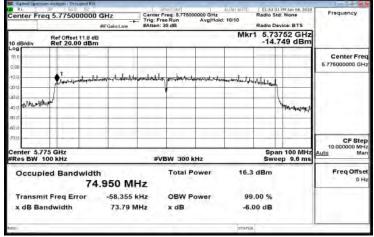
802.11ac 80MHz 5210MHz (Ch1)



802.11ac 80MHz 5775MHz



802.11ac 80MHz 5775MHz



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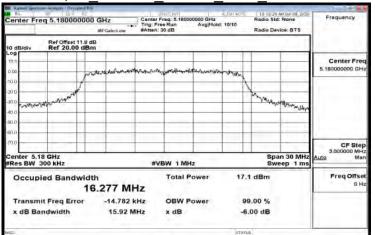
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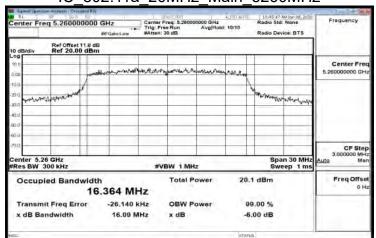


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For 99%, IC 802.11a 20MHz Main 5180MHz



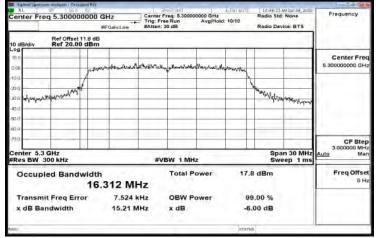
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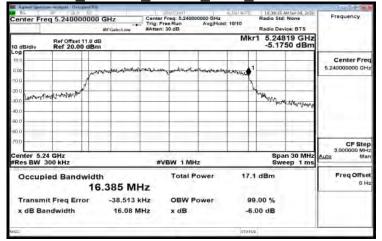
802.11a 20MHz Main 5220MHz



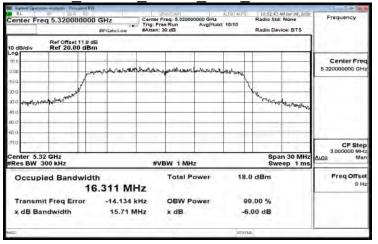
IC 802.11a 20MHz Main 5300MHz



IC 802.11a 20MHz Main 5240MHz



IC 802.11a 20MHz Main 5320MHz



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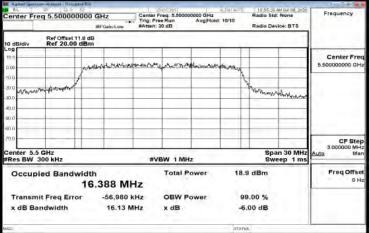
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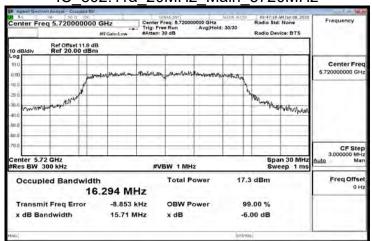


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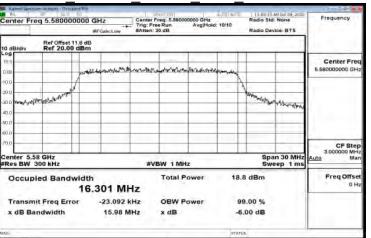
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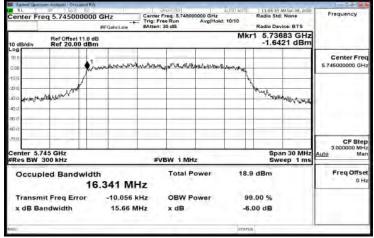
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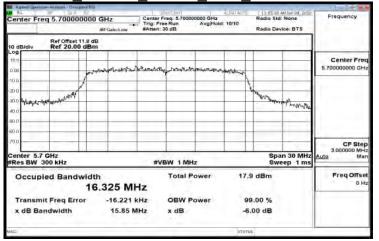
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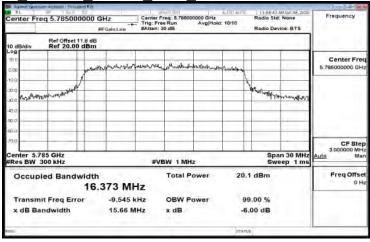
IC 802.11a 20MHz Main



IC 802.11a 20MHz Main 5700MHz



IC 802.11a 20MHz Main 5785MHz



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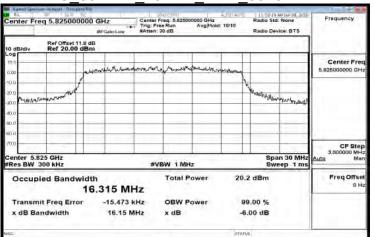
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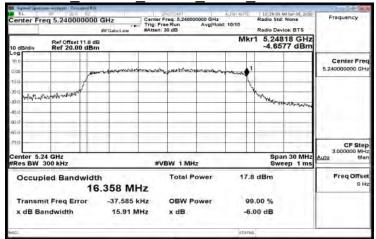


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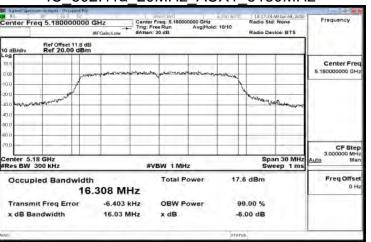
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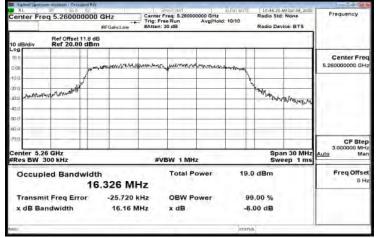
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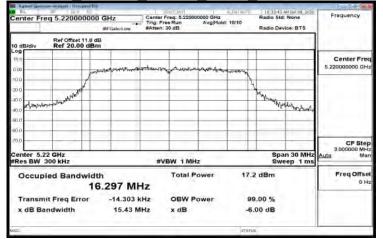
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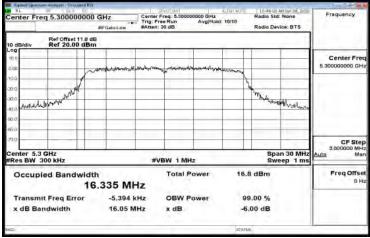
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IC 802.11a 20MHz AUX1 5220MHz



IC 802.11a 20MHz AUX1 5300MHz



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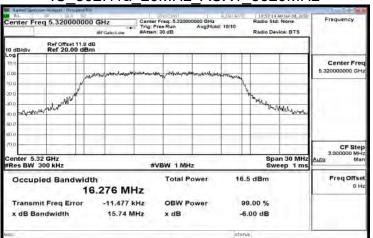
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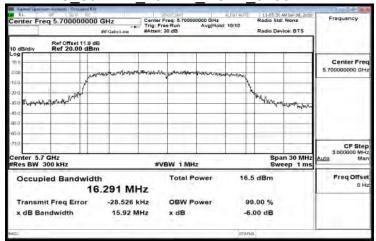


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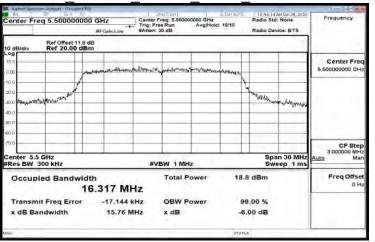
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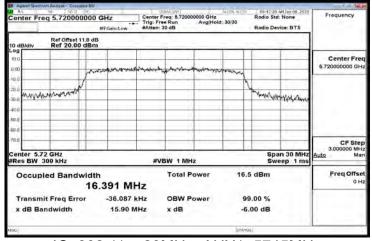
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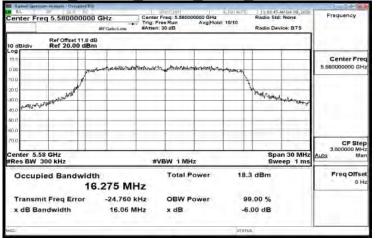
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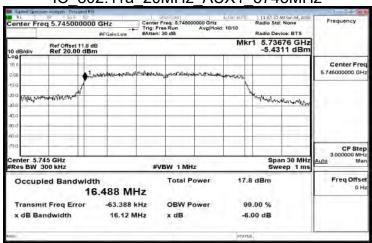
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IC 802.11a 20MHz AUX1 5580MHz



IC 802.11a 20MHz AUX1 5745MHz



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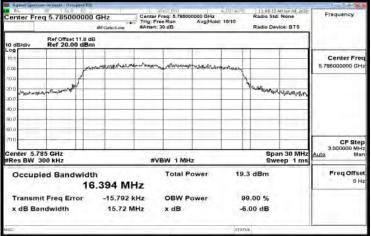
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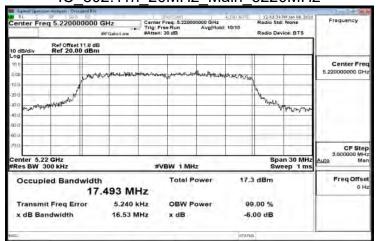


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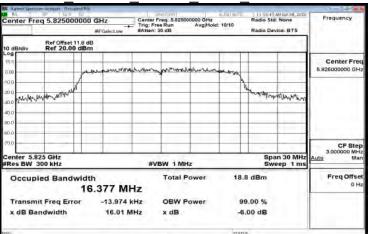
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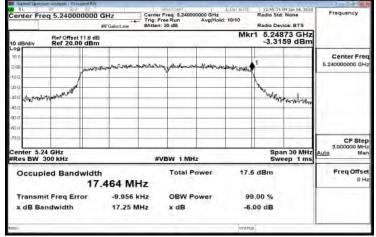
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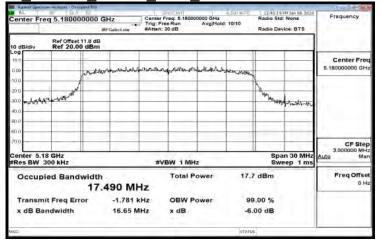
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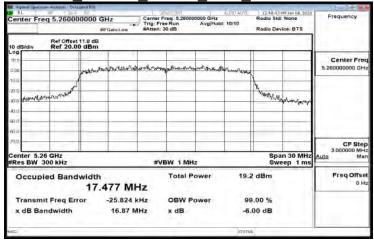
IC 802.11n 20MHz Main



IC 802.11n 20MHz Main 5180MHz



IC 802.11n 20MHz Main 5260MHz



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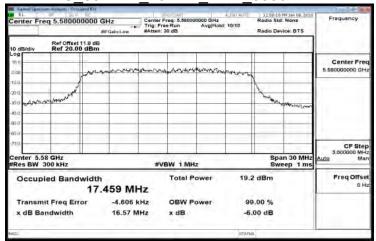


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IC 802.11n 20MHz Main 5300MHz



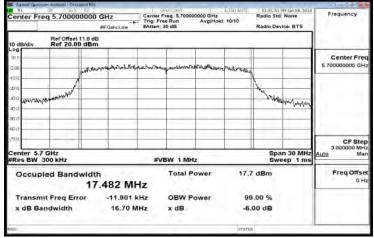
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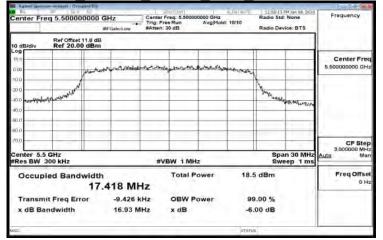
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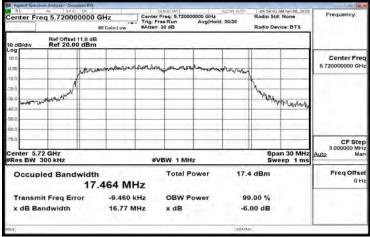
IC 802.11n 20MHz Main 5700MHz



IC 802.11n 20MHz Main 5500MHz



IC 802.11n 20MHz Main 5720MHz



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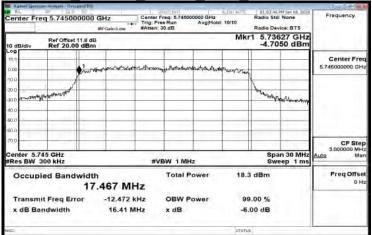
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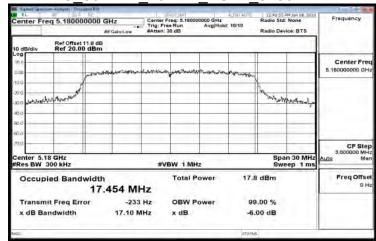


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IC 802.11n 20MHz Main 5745MHz



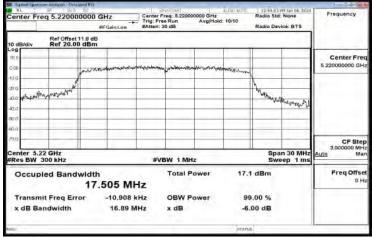
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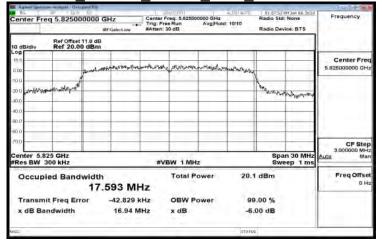
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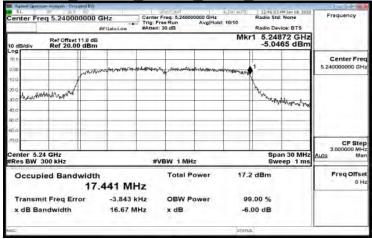
IC 802.11n 20MHz AUX1 5220MHz



IC 802.11n 20MHz Main 5825MHz



IC 802.11n 20MHz AUX1 5240MHz



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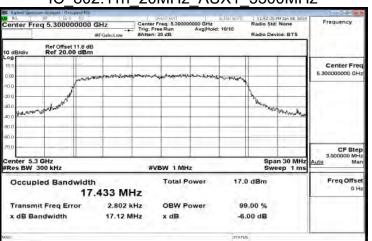
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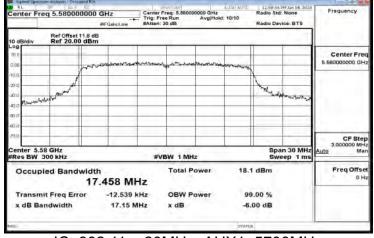
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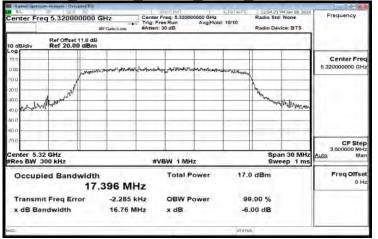
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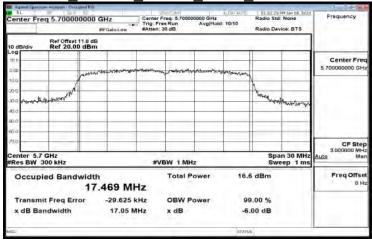
IC 802.11n 20MHz AUX1 5580MHz



IC 802.11n 20MHz AUX1 5320MHz



IC 802.11n 20MHz AUX1 5700MHz



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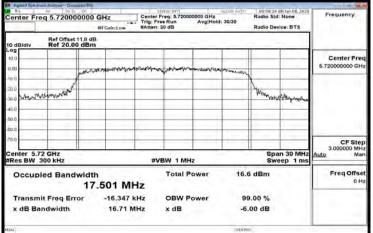
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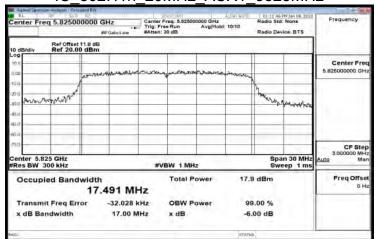


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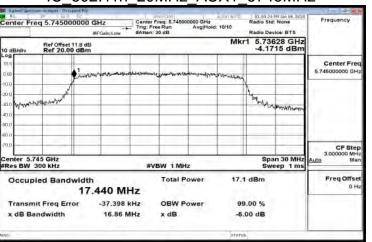
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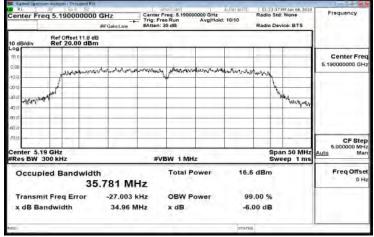
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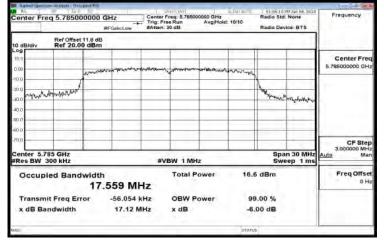
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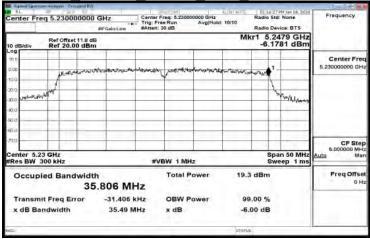
IC 802.11n 40MHz Main 5190MHz



IC 802.11n 20MHz AUX1 5785MHz



IC 802.11n 40MHz Main 5230MHz



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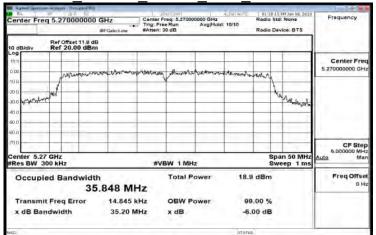
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IC 802.11n 40MHz Main 5270MHz



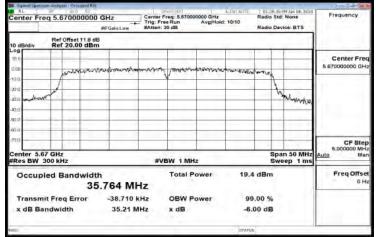
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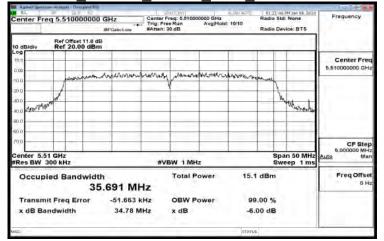
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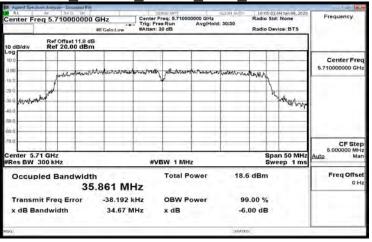
IC 802.11n 40MHz Main 5670MHz



IC 802.11n 40MHz Main 5510MHz



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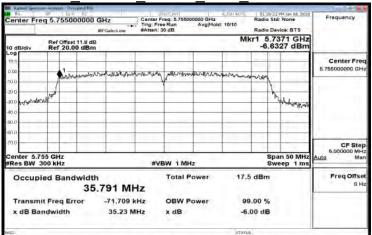
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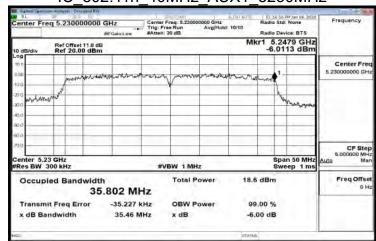


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IC 802.11n 40MHz Main 5755MHz



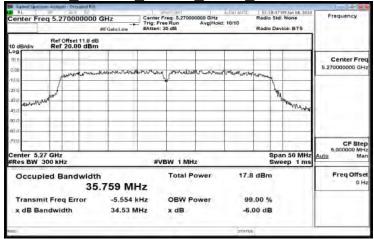
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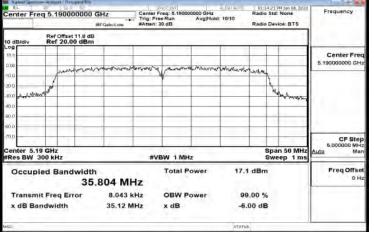
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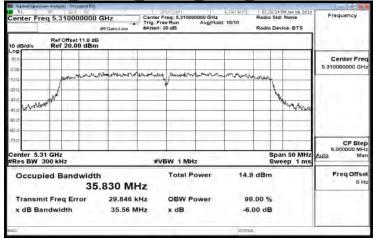
IC 802.11n 40MHz AUX1 5270MHz



5190MHz IC 802.11n 40MHz AUX1



IC 802.11n 40MHz AUX1 5310MHz



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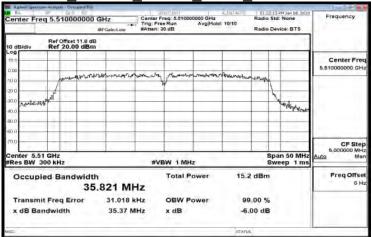
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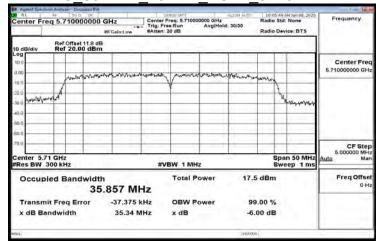


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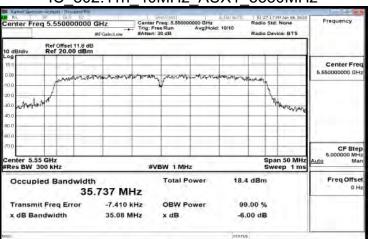
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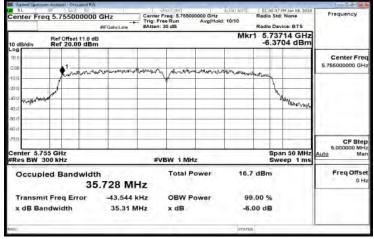
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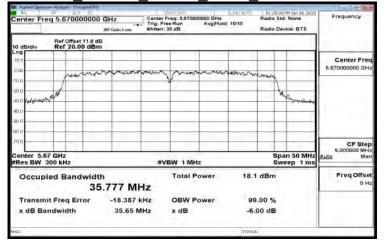
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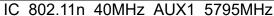


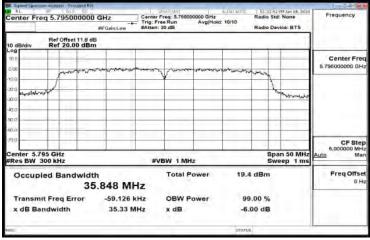
IC 802.11n 40MHz AUX1 5755MHz



IC 802.11n 40MHz AUX1 5670MHz







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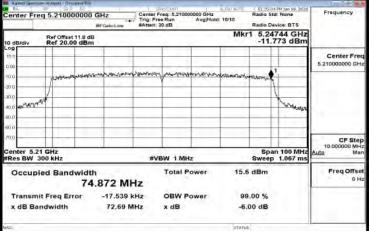
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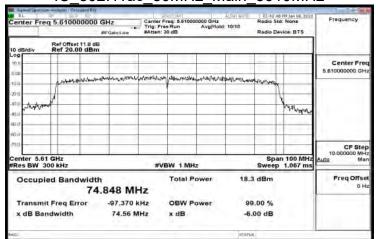


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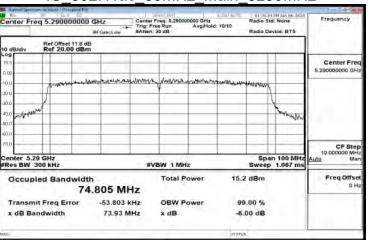
IC 802.11ac 80MHz Main 5210MHz



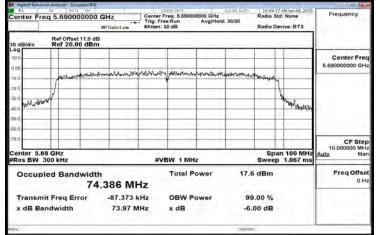
IC 802.11ac 80MHz Main 5610MHz



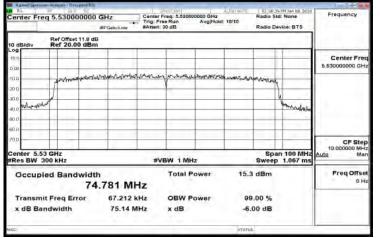
5290MHz IC 802.11ac 80MHz Main



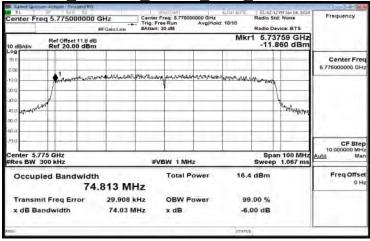
IC 802.11ac 80MHz Main 5690MHz



IC 802.11ac 80MHz Main 5530MHz



IC 802.11ac 80MHz Main 5775MHz



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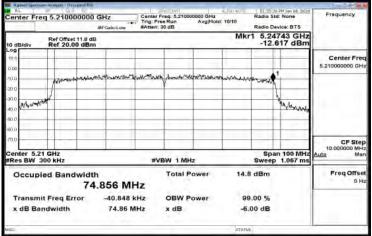
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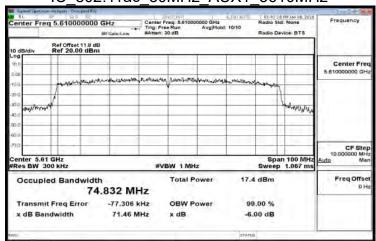


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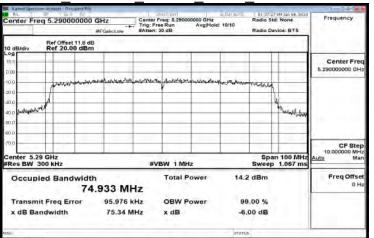
IC 802.11ac 80MHz AUX1 5210MHz



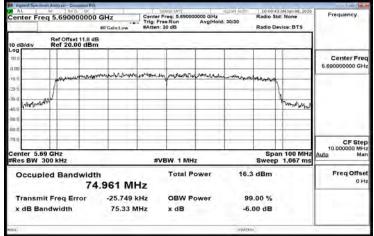
IC 802.11ac 80MHz AUX1 5610MHz



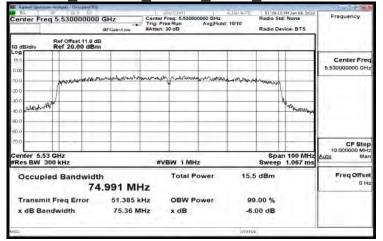
IC 802.11ac 80MHz AUX1 5290MHz



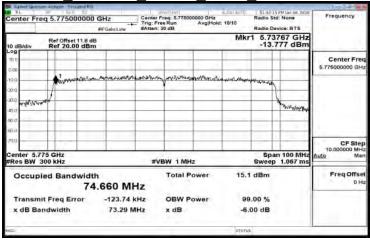
IC 802.11ac 80MHz AUX1 5690MHz



IC 802.11ac 80MHz AUX1 5530MHz



IC 802.11ac 80MHz AUX1 5775MHz



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9 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

9.1 Standard Applicable

FCC

OPERZTION Band		EUT CATEGORY	LIMIT
		Access Point (Master device)	1 Watt(30dBm)
U-NII-1		Fixed point-to-point Access Ponit	1 Watt(30dBm)
		Mobile and portable client device	250mW(23.98dBm)
U-NII-2A			250mW(23.98dBm) or 11dBm+10 log B
U-NII-2C	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-3			1 Watt(30dBm)

If transmitting antennas of directional gain greater than 6 dBi are used, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna exceeds 6 dBi.

ISED

OPERZTION FREQUENCY BAND	LIMIT
5150~5250 MHz	EIRP shall not exceed 200 mW or 10 + 10 log ₁₀ B, dBm
5250~5350 MHz	Conducted output power shall not exceed 250 mW or 11 +10 log ₁₀ B EIRP shall not exceed 1.0 W or 17 + 10 log ₁₀ B, dBm
5470-5600 MHz and 5650-5725 MHz	Conducted output power shall not exceed 250 mW or 11 +10 log ₁₀ B EIRP shall not exceed 1.0 W or 17 + 10 log ₁₀ B, dBm
5725~5850 MHz	Conducted output power shall not exceed 1 W

For equipment operating in the band *5725-5850* MHz, If transmitting antennas of directional gain greater than 6 dBi are used, the Maximum transmit power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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Note:

As per FCC KDB 662911 D01

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ...,

(i) If transmit signals are correlated, then Directional gain

= $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N_{ANT}] dBi$

[Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

The antenna gain is not granter than 6 dBi. Therefore, reduction of power is not required.

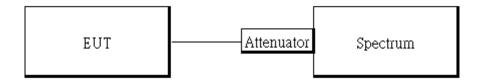
9.2 Measurement Procedure

- Place the EUT on the table and set it in transmitting mode.
- 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 power meter
- Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
- 5. Record the max. reading and add 10 log(1/duty cycle).
- Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

9.3 Measurement Equipment Used

	SGS Conducted Room												
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due								
Power Meter	Anritsu	ML2496A	1804002	03/26/2019	03/25/2020								
Power Sensor	Anritsu	MA2411B	1726105	03/26/2019	03/25/2020								
Power Sensor	Anritsu	MA2411B	1726106	03/26/2019	03/25/2020								
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020								
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/09/2019	07/08/2020								

9.4 Test Set-up



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9.5 Measurement Result

9.5.1Conducted output power (FCC)

802.11a Ch0

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	6	12.46	17.601		23.98		PASS
44	5220	6	12.99	19.885		23.98		PASS
48	5240	6	12.97	19.794		23.98		PASS
52	5260	6	14.92	31.012	23.98	or 11+10log(B) =	24.07	PASS
60	5300	6	13.45	22.107	23.98	or 11+10log(B) =	23.83	PASS
64	5320	6	13.48	22.260	23.98	or 11+10log(B) =	23.77	PASS
100	5500	6	13.97	24.919	23.98	or 11+10log(B) =	24.97	PASS
116	5580	6	13.99	25.034	23.98	or 11+10log(B) =	23.77	PASS
140	5700	6	13.47	22.209	23.98	or 11+10log(B) =	23.73	PASS
144	5720(U-NII 2C)	6	12.82	19.14	23.98	or 11+10log(B) =	23.73	PASS
144	5720 (U-NII 3)	6	7.66	5.83		30		PASS
149	5745	6	13.95	24.805		30		PASS
157	5785	6	14.96	31.299	30			PASS
165	5825	6	14.98	31.444		30		PASS

802 11a Ch1

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
36	5180	6	12.37	17.240		23.98		PASS
44	5220	6	12.91	19.522		23.98		PASS
48	5240	6	12.89	19.433		23.98		PASS
52	5260	6	14.82	30.306	23.98	or 11+10log(B) =	23.72	PASS
60	5300	6	13.35	21.604	23.98	or 11+10log(B) =	23.68	PASS
64	5320	6	13.42	21.955	23.98	or 11+10log(B) =	23.69	PASS
100	5500	6	13.88	24.408	23.98	or 11+10log(B) =	24.04	PASS
116	5580	6	13.89	24.464	23.98	or 11+10log(B) =	23.66	PASS
140	5700	6	13.39	21.804	23.98	or 11+10log(B) =	23.82	PASS
144	5720(U-NII 2C)	6	12.43	17.50	23.98	or 11+10log(B) =	24.72	PASS
144	5720 (U-NII 3)	6	8.50	7.07		30		PASS
149	5745	6	13.86	24.296	30			PASS
157	5785	6	14.86	30.587	30			PASS
165	5825	6	14.90	30.870		30		PASS

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802.11a 2Tx

СН	Frequency	Data	Avg. POW	VER (dBm)	TOTAL	TOTAL		REQUIRED		DECLUT
Сп	(MHz)	Rate	CH 0	CH 1	POWER (dBm)	POWER (mW)		LIMIT (dBm)		RESULT
36	5180	6	12.24	12.05	15.41	34.767		23.98		PASS
44	5220	6	12.98	12.4	15.97	39.494		23.98		PASS
48	5240	6	13.05	12.39	16.00	39.794		23.98		PASS
52	5260	6	15.22	13.91	17.88	61.374	23.98	or 11+10log(B) =	23.72	PASS
60	5300	6	13.52	12.59	16.35	43.107	23.98	or 11+10log(B) =	23.68	PASS
64	5320	6	13.47	12.91	16.46	44.306	23.98	or 11+10log(B) =	23.69	PASS
100	5500	6	13.49	13.93	16.98	49.902	23.98	or 11+10log(B) =	24.04	PASS
116	5580	6	13.62	13.72	16.94	49.385	23.98	or 11+10log(B) =	23.66	PASS
140	5700	6	13.43	12.87	16.42	43.900	23.98	or 11+10log(B) =	23.73	PASS
144	5720(U-NII 2C)	6	12.52	12.10	15.74	37.458	23.98	or 11+10log(B) =	23.73	PASS
144	5720 (U-NII 3)	6	7.37	8.16	10.58	11.418		30		PASS
149	5745	6	13.72	13.62	16.94	49.385		30		PASS
157	5785	6	14.91	14.48	17.97	62.603		30		PASS
165	5825	6	14.96	14.13	17.83	60.680		30		PASS

802.11n HT20 Ch0

	Francisco de la constanta de l	Data	TOTAL	TOTAL		REQUIRED		
CH	Frequency	Data	POWER	POWER		LIMIT		RESULT
	(MHz)	Rate	(dBm)	(mW)		(dBm)		
36	5180	MCS0	12.98	19.869		23.98		PASS
44	5220	MCS0	12.99	19.915		23.98		PASS
48	5240	MCS0	12.96	19.778		23.98		PASS
52	5260	MCS0	13.95	24.841	23.98	or 11+10log(B) =	23.86	PASS
60	5300	MCS0	13.47	22.242	23.98	or 11+10log(B) =	23.97	PASS
64	5320	MCS0	13.48	22.293	23.98	or 11+10log(B) =	23.94	PASS
100	5500	MCS0	13.50	22.396	23.98	or 11+10log(B) =	23.96	PASS
116	5580	MCS0	13.47	22.242	23.98	or 11+10log(B) =	24.04	PASS
140	5700	MCS0	12.96	19.778	23.98	or 11+10log(B) =	23.90	PASS
144	5720(U-NII 2C)	MCS0	12.28	16.92	23.98	or 11+10log(B) =	23.86	PASS
144	5720 (U-NII 3)	MCS0	7.30	5.37		30		PASS
149	5745	MCS0	13.48	22.293	30			PASS
157	5785	MCS0	13.92	24.670	30			PASS
165	5825	MCS0	13.99	25.071		30		PASS

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802.11n HT20 Ch1

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
36	5180	MCS0	12.87	19.372		23.98		PASS
44	5220	MCS0	12.92	19.596		23.98		PASS
48	5240	MCS0	12.86	19.327		23.98		PASS
52	5260	MCS0	13.88	24.444	23.98	or 11+10log(B) =	23.79	PASS
60	5300	MCS0	13.39	21.836	23.98	or 11+10log(B) =	23.93	PASS
64	5320	MCS0	13.38	21.786	23.98 or 11+10log(B) = 23.99			PASS
100	5500	MCS0	13.43	22.038	23.98	or 11+10log(B) =	25.31	PASS
116	5580	MCS0	13.40	21.886	23.98	or 11+10log(B) =	23.90	PASS
140	5700	MCS0	12.89	19.461	23.98	or 11+10log(B) =	23.91	PASS
144	5720(U-NII 2C)	MCS0	11.84	15.28	23.98	or 11+10log(B) =	24.95	PASS
144	5720 (U-NII 3)	MCS0	8.13	6.50	30			PASS
149	5745	MCS0	13.37	21.736	30			PASS
157	5785	MCS0	13.86	24.332	30			PASS
165	5825	MCS0	13.93	24.727		30		PASS

802.11n HT20 MIMO

OU.	Frequency	Data	Avg. POV	VER (dBm)	TOTAL	TOTAL		REQUIRED		DEOLU T
СН	(MHz)	Rate	CH 0	CH 1	POWER (dBm)	POWER (mW)		LIMIT (dBm)		RESULT
36	5180	MCS8	12.54	12.36	15.98	39.655		23.98		PASS
44	5220	MCS8	12.56	12.1	15.87	38.620		23.98		PASS
48	5240	MCS8	12.91	11.98	16.00	39.828		23.98		PASS
52	5260	MCS8	14.05	12.74	16.98	49.845	23.98	or 11+10log(B) =	23.79	PASS
60	5300	MCS8	13.45	12.35	16.47	44.328	23.98	or 11+10log(B) =	23.93	PASS
64	5320	MCS8	13.35	12.51	16.48	44.487	23.98	or 11+10log(B) =	23.94	PASS
100	5500	MCS8	12.66	13.25	16.50	44.638	23.98	or 11+10log(B) =	23.96	PASS
116	5580	MCS8	12.79	12.89	16.37	43.374	23.98	or 11+10log(B) =	23.90	PASS
140	5700	MCS8	12.71	12.17	15.98	39.632	23.98	or 11+10log(B) =	23.90	PASS
144	5720(U-NII 2C)	MCS8	11.67	11.25	15.16	32.842	23.98	or 11+10log(B) =	23.86	PASS
144	5720 (U-NII 3)	MCS8	6.69	7.54	10.18	10.432		30		PASS
149	5745	MCS8	12.91	12.82	16.40	43.624		30		PASS
157	5785	MCS8	13.7	13.17	16.98	49.832		30		PASS
165	5825	MCS8	13.84	13	16.97	49.800		30		PASS

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802.11n HT40 Ch0

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
38	5190	MCS0	10.46	11.108		23.98		PASS
46	5230	MCS0	12.96	19.754		23.98		PASS
54	5270	MCS0	12.98	19.845	23.98	or 11+10log(B) =	27.26	PASS
62	5310	MCS0	10.48	11.160	23.98	or 11+10log(B) =	26.93	PASS
102	5510	MCS0	10.95	12.435	23.98	or 11+10log(B) =	26.94	PASS
110	5550	MCS0	12.99	19.891	23.98	or 11+10log(B) =	27.51	PASS
134	5670	MCS0	12.98	19.845	23.98	or 11+10log(B) =	27.02	PASS
142	5710(U-NII 2C)	MCS0	12.42	17.47	23.98	or 11+10log(B) =	26.96	PASS
142	5710 (U-NII 3)	MCS0	3.75	2.37		30		PASS
151	5755	MCS0	11.49	14.082		30		PASS
159	5795	MCS0	12.99	19.891		30		PASS

802.11n HT40 Ch1

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)			
38	5190	MCS0	10.37	10.881		23.98		PASS	
46	5230	MCS0	12.90	19.483		23.98		PASS	
54	5270	MCS0	12.90	19.483	23.98	or 11+10log(B) =	27.00	PASS	
62	5310	MCS0	10.41	10.981	23.98	or 11+10log(B) =	27.05	PASS	
102	5510	MCS0	10.87	12.208	23.98	or 11+10log(B) =	27.08	PASS	
110	5550	MCS0	12.88	19.393	23.98	or 11+10log(B) =	27.13	PASS	
134	5670	MCS0	12.89	19.438	23.98	or 11+10log(B) =	27.16	PASS	
142	5710(U-NII 2C)	MCS0	12.19	16.56	23.98	or 11+10log(B) =	27.34	PASS	
142	5710 (U-NII 3)	MCS0	4.72	2.97		23.98		PASS	
151	5755	MCS0	11.38	13.729		23.98		PASS	
159	5795	MCS0	12.89	19.438		30		PASS	

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802.11n HT40 MIMO

СН	Frequency	Data	Avg. POV	VER (dBm)	TOTAL POWER	TOTAL POWER		REQUIRED LIMIT		RESULT
Сп	(MHz)	Rate	CH 0	CH 1	(dBm)	(mW)	(dBm)			RESULI
38	5190	MCS8	9.17	8.87	13.37	21.724		23.98		PASS
46	5230	MCS8	11.84	11.22	15.89	38.796		23.98		PASS
54	5270	MCS8	11.93	11.08	15.87	38.660	23.98	or 11+10log(B) =	27.00	PASS
62	5310	MCS8	9.45	8.36	13.29	21.311	23.98	or 11+10log(B) =	26.93	PASS
102	5510	MCS8	9.28	9.64	13.81	24.047	23.98	or 11+10log(B) =	26.94	PASS
110	5550	MCS8	11.41	11.34	15.72	37.342	23.98	or 11+10log(B) =	27.13	PASS
134	5670	MCS8	11.91	11.03	15.84	38.363	23.98	or 11+10log(B) =	27.02	PASS
142	5710(U-NII 2C)	MCS8	11.30	10.28	15.24	33.416	23.98	or 11+10log(B) =	26.96	PASS
142	5720 (U-NII 3)	MCS8	2.63	2.82	6.57	4.539		30		PASS
151	5755	MCS8	10.05	9.88	14.31	26.994		30		PASS
159	5795	MCS8	11.84	11.07	15.82	38.185		30		PASS

802.11ac VHT80 Ch0

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
42	5210	MCS0	9.91	9.797		23.98		PASS
58	5290	MCS0	9.47	8.853	23.98	or 11+10log(B) =	30.05	PASS
106	5530	MCS0	10.47	11.145	23.98	or 11+10log(B) =	30.06	PASS
122	5610	MCS0	12.97	19.820	23.98	or 11+10log(B) =	30.20	PASS
138	5690(U-NII 2C)	MCS0	12.70	18.60	23.98	or 11+10log(B) =	30.06	PASS
138	5690 (U-NII 3)	MCS0	1.17	1.31		30		PASS
155	5775	MCS0	10.46	11.120		30	•	PASS

802.11ac VHT80 Ch1

СН	Frequency (MHz)	Data Rate	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
42	5210	MCS0	9.82	9.596		23.98		PASS
58	5290	MCS0	9.38	8.672	23.98	or 11+10log(B) =	30.10	PASS
106	5530	MCS0	10.36	10.867	23.98	or 11+10log(B) =	30.19	PASS
122	5610	MCS0	12.86	19.324	23.98	or 11+10log(B) =	30.13	PASS
138	5690(U-NII 2C)	MCS0	12.61	18.22	23.98	or 11+10log(B) =	30.06	PASS
138	5690 (U-NII 3)	MCS0	1.08	1.28		23.98		PASS
155	5775	MCS0	10.36	10.867		23.98		PASS

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802.11ac VHT80 MIMO

CII	Frequency	Data	Avg. POWER (dBm)		TOTAL POWER	TOTAL	REQUIRED LIMIT			DECULT.
СН	(MHz)	Rate	CH 0	CH 1	(dBm)	POWER (mW)			RESULT	
42	5210	MCS0	8.92	8.62	12.80	19.072		23.98		PASS
58	5290	MCS0	8.61	8.02	12.36	17.204	23.98	or 11+10log(B) =	30.05	PASS
106	5530	MCS0	9.14	9.53	13.37	21.730	23.98	or 11+10log(B) =	30.06	PASS
122	5610	MCS0	12.25	11.59	15.96	39.480	23.98	or 11+10log(B) =	30.13	PASS
138	5690(U-NII 2C)	MCS0	11.90	11.32	15.66	36.773	23.98	or 11+10log(B) =	30.06	PASS
138	5690 (U-NII 3)	MCS0	0.38	-0.20	4.13	2.591		30		PASS
155	5775	MCS0	9.48	9.24	13.39	21.842		30		PASS

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9.5.2 **ISED EIRP**

802.11a Ch0

CH	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	12.46	1.990	14.45	27.831	23.01	or 10+10log(B)=	22.12	PASS
44	5220	12.99	1.990	14.98	31.444	23.01	or 10+10log(B)=	22.12	PASS
48	5240	12.97	1.990	14.96	31.299	23.01	or 10+10log(B)=	22.14	PASS
52	5260	14.92	1.990	16.91	49.038	30	or 17+10log(B)=	29.14	PASS
60	5300	13.45	1.990	15.44	34.957	30	or 17+10log(B)=	29.13	PASS
64	5320	13.48	1.990	15.47	35.199	30	or 17+10log(B)=	29.12	PASS
100	5500	13.97	1.960	15.93	39.132	30	or 17+10log(B)=	29.15	PASS
116	5580	13.99	1.960	15.95	39.313	30	or 17+10log(B)=	29.12	PASS
140	5700	13.47	1.960	15.43	34.877	30	or 17+10log(B)=	29.13	PASS

802.11a Ch1

002.11a_									
СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	12.37	2.540	14.91	30.941	23.01	or 10+10log(B)=	22.12	PASS
44	5220	12.91	2.540	15.45	35.038	23.01	or 10+10log(B)=	22.12	PASS
48	5240	12.89	2.540	15.43	34.877	23.01	or 10+10log(B)=	22.14	PASS
52	5260	14.82	3.030	17.85	60.888	30	or 17+10log(B)=	29.13	PASS
60	5300	13.35	3.030	16.38	43.404	30	or 17+10log(B)=	29.13	PASS
64	5320	13.42	3.030	16.45	44.110	30	or 17+10log(B)=	29.12	PASS
100	5500	13.88	3.440	17.32	53.893	30	or 17+10log(B)=	29.13	PASS
116	5580	13.89	3.440	17.33	54.017	30	or 17+10log(B)=	29.12	PASS
140	5700	13.39	3.440	16.83	48.143	30	or 17+10log(B)=	29.12	PASS

802.11a_2Tx

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	15.41	5.280	20.69	117.256	23.01	or 10+10log(B)=	22.12	PASS
44	5220	15.97	5.280	21.24	133.198	23.01	or 10+10log(B)=	22.12	PASS
48	5240	16.00	5.280	21.28	134.209	23.01	or 10+10log(B)=	22.14	PASS
52	5260	17.88	5.536	23.42	219.569	30	or 17+10log(B)=	29.13	PASS
60	5300	16.35	5.536	21.88	154.218	30	or 17+10log(B)=	29.13	PASS
64	5320	16.46	5.536	22.00	158.508	30	or 17+10log(B)=	29.12	PASS
100	5500	16.98	5.742	22.72	187.197	30	or 17+10log(B)=	29.13	PASS
116	5580	16.94	5.742	22.68	185.256	30	or 17+10log(B)=	29.12	PASS
140	5700	16.42	5.742	22.17	164.681	30	or 17+10log(B)=	29.12	PASS

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802.11n_HT20_Ch0

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	12.98	1.990	14.97	31.418	23.01	or 10+10log(B)=	22.43	PASS
44	5220	12.99	1.990	14.98	31.490	23.01	or 10+10log(B)=	22.43	PASS
48	5240	12.96	1.990	14.95	31.273	23.01	or 10+10log(B)=	22.42	PASS
52	5260	13.95	1.990	15.94	39.280	30	or 17+10log(B)=	29.42	PASS
60	5300	13.47	1.990	15.46	35.170	30	or 17+10log(B)=	29.43	PASS
64	5320	13.48	1.990	15.47	35.251	30	or 17+10log(B)=	29.42	PASS
100	5500	13.50	1.960	15.46	35.170	30	or 17+10log(B)=	29.41	PASS
116	5580	13.47	1.960	15.43	34.928	30	or 17+10log(B)=	29.42	PASS
140	5700	12.96	1.960	14.92	31.058	30	or 17+10log(B)=	29.43	PASS

802 11n HT20 Ch1

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	12.87	2.540	15.41	34.768	23.01	or 10+10log(B)=	22.42	PASS
44	5220	12.92	2.540	15.46	35.170	23.01	or 10+10log(B)=	22.43	PASS
48	5240	12.86	2.540	15.40	34.688	23.01	or 10+10log(B)=	22.42	PASS
52	5260	13.88	3.030	16.91	49.110	30	or 17+10log(B)=	29.42	PASS
60	5300	13.39	3.030	16.42	43.871	30	or 17+10log(B)=	29.41	PASS
64	5320	13.38	3.030	16.41	43.770	30	or 17+10log(B)=	29.40	PASS
100	5500	13.43	3.440	16.87	48.660	30	or 17+10log(B)=	29.44	PASS
116	5580	13.40	3.440	16.84	48.325	30	or 17+10log(B)=	29.42	PASS
140	5700	12.89	3.440	16.33	42.971	30	or 17+10log(B)=	29.42	PASS

802 11n HT20 MIMO

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СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	15.98	5.280	21.26	133.740	23.01	or 10+10log(B)=	22.42	PASS
44	5220	15.87	5.280	21.15	130.250	23.01	or 10+10log(B)=	22.43	PASS
48	5240	16.00	5.280	21.28	134.324	23.01	or 10+10log(B)=	22.42	PASS
52	5260	16.98	5.536	22.51	178.324	30	or 17+10log(B)=	29.42	PASS
60	5300	16.47	5.536	22.00	158.585	30	or 17+10log(B)=	29.41	PASS
64	5320	16.48	5.536	22.02	159.154	30	or 17+10log(B)=	29.40	PASS
100	5500	16.50	5.742	22.24	167.450	30	or 17+10log(B)=	29.41	PASS
116	5580	16.37	5.742	22.11	162.709	30	or 17+10log(B)=	29.42	PASS
140	5700	15.98	5.742	21.72	148.669	30	or 17+10log(B)=	29.42	PASS

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802.11n HT40 Ch0

СН	Frequency (MHz)	TOTAL POWER	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
38	5190	(dBm) 10.46	1.990	12.45	17.565	23.01	or 10+10log(B)=	25.54	PASS
46	5230	12.96	1.990	14.95	31.236	23.01	or 10+10log(B)=	25.54	PASS
54	5270	12.98	1.990	14.97	31.380	30	or 17+10log(B)=	32.54	PASS
62	5310	10.48	1.990	12.47	17.646	30	or 17+10log(B)=	32.55	PASS
102	5510	10.95	1.960	12.91	19.528	30	or 17+10log(B)=	32.53	PASS
110	5550	12.99	1.960	14.95	31.236	30	or 17+10log(B)=	32.54	PASS
134	5670	12.98	1.960	14.94	31.164	30	or 17+10log(B)=	32.53	PASS

802.11n HT40 Ch1

002.11II_11140_CII1										
СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT	
38	5190	10.37	2.540	12.91	19.528	23.01	or 10+10log(B)=	25.54	PASS	
46	5230	12.90	2.540	15.44	34.967	23.01	or 10+10log(B)=	25.54	PASS	
54	5270	12.90	3.030	15.93	39.143	30	or 17+10log(B)=	32.53	PASS	
62	5310	10.41	3.030	13.44	22.062	30	or 17+10log(B)=	32.54	PASS	
102	5510	10.87	3.440	14.31	26.956	30	or 17+10log(B)=	32.54	PASS	
110	5550	12.88	3.440	16.32	42.821	30	or 17+10log(B)=	32.53	PASS	
134	5670	12.89	3.440	16.33	42.919	30	or 17+10log(B)=	32.54	PASS	

802.11n HT40 MIMO

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
38	5190	13.37	5.280	18.65	73.267	23.01	or 10+10log(B)=	25.54	PASS
46	5230	15.89	5.280	21.17	130.844	23.01	or 10+10log(B)=	25.54	PASS
54	5270	15.87	5.536	21.41	138.307	30	or 17+10log(B)=	32.53	PASS
62	5310	13.29	5.536	18.82	76.239	30	or 17+10log(B)=	32.54	PASS
102	5510	13.81	5.742	19.55	90.206	30	or 17+10log(B)=	32.53	PASS
110	5550	15.72	5.742	21.46	140.080	30	or 17+10log(B)=	32.53	PASS
134	5670	15.84	5.742	21.58	143.909	30	or 17+10log(B)=	32.53	PASS

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802.11ac VHT80 Ch0

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
42	5210	9.91	1.990	11.90	15.492	23.01	or 10+10log(B)=	28.74	PASS
58	5290	9.47	1.990	11.46	13.999	30	or 17+10log(B)=	35.74	PASS
106	5530	10.47	1.960	12.43	17.502	30	or 17+10log(B)=	35.74	PASS

802.11ac_VHT80_Ch1

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
42	5210	9.82	2.540	12.36	17.223	23.01	or 10+10log(B)=	28.74	PASS
58	5290	9.38	3.030	12.41	17.422	30	or 17+10log(B)=	35.75	PASS
106	5530	10.36	3.440	13.80	23.994	30	or 17+10log(B)=	35.75	PASS

802.11ac VHT80 MIMO

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	REQUIRED LIMIT (dBm)			RESULT
42	5210	12.80	5.280	18.08	64.321	23.01	or 10+10log(B)=	28.74	PASS
58	5290	12.36	5.536	17.89	61.548	30	or 17+10log(B)=	35.74	PASS
106	5530	13.37	5.742	19.11	81.516	30	or 17+10log(B)=	35.74	PASS

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Conducted output power (ISED)

802.11a Ch0

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
52	5260	14.92	31.012	23.98	or 11+10log(B) =	23.14	PASS
60	5300	13.45	22.107	23.98	or 11+10log(B) =	23.13	PASS
64	5320	13.48	22.260	23.98	or 11+10log(B) =	23.12	PASS
100	5500	13.97	24.919	23.98	or 11+10log(B) =	23.15	PASS
116	5580	13.99	25.034	23.98	or 11+10log(B) =	23.12	PASS
140	5700	13.47	22.209	23.98	or 11+10log(B) =	23.13	PASS
144	5720(U-NII 2C)	12.82	19.142	23.98	or 11+11log(B) =	23.12	PASS
144	5720 (U-NII 3)	7.66	5.835		30		PASS
149	5745	13.95	24.805		30		PASS
157	5785	14.96	31.299		30		PASS
165	5825	14.98	31.444		30		PASS

802.11a Ch1

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
52	5260	14.82	30.306	23.98	or 11+10log(B) =	23.13	PASS
60	5300	13.35	21.604	23.98	or 11+10log(B) =	23.13	PASS
64	5320	13.42	21.955	23.98	or 11+10log(B) =	23.12	PASS
100	5500	13.88	24.408	23.98	or 11+10log(B) =	23.13	PASS
116	5580	13.89	24.464	23.98	or 11+10log(B) =	23.12	PASS
140	5700	13.39	21.804	23.98	or 11+10log(B) =	23.12	PASS
144	5720(U-NII 2C)	12.43	17.505	23.98	or 11+10log(B) =	23.15	PASS
144	5720 (U-NII 3)	8.50	7.073		30		PASS
149	5745	13.86	24.296		30		PASS
157	5785	14.86	30.587		30		PASS
165	5825	14.90	30.870		30		PASS

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802.11a 2Tx

СН	Frequency		RAGE VER	TOTAL POWER	TOTAL POWER		REQUIRED LIMIT		RESULT
	(MHz)	CH 0	CH 1	(dBm)	(mW)		(dBm)		
52	5260	15.22	13.91	17.88	61.374	23.98	or 11+10log(B) =	23.13	PASS
60	5300	13.52	12.59	16.35	43.107	23.98	or 11+10log(B) =	23.13	PASS
64	5320	13.47	12.91	16.46	44.306	23.98	or 11+10log(B) =	23.12	PASS
100	5500	13.49	13.93	16.98	49.902	23.98	or 11+10log(B) =	23.13	PASS
116	5580	13.62	13.72	16.94	49.385	23.98	or 11+10log(B) =	23.12	PASS
140	5700	13.43	12.87	16.42	43.900	23.98	or 11+10log(B) =	23.12	PASS
144	5720(U-NII 2C)	12.52	12.1	15.74	37.458	23.98	or 11+10log(B) =	23.12	PASS
144	5720 (U-NII 3)	7.365	8.161	10.58	11.418		30		PASS
149	5745	13.72	13.62	16.94	49.385		30		PASS
157	5785	14.91	14.48	17.97	62.603		30		PASS
165	5825	14.96	14.13	17.83	60.680		30		PASS

802.11n HT20 Ch0

	11120_0110						
СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
52	5260	13.95	24.841	23.98	or 11+10log(B) =	23.42	PASS
60	5300	13.47	22.242	23.98	or 11+10log(B) =	23.43	PASS
64	5320	13.48	22.293	23.98	or 11+10log(B) =	23.42	PASS
100	5500	13.50	22.396	23.98	or 11+10log(B) =	23.41	PASS
116	5580	13.47	22.242	23.98	or 11+10log(B) =	23.42	PASS
140	5700	12.96	19.778	23.98	or 11+10log(B) =	23.43	PASS
144	5720(U-NII 2C)	12.28	16.919	23.98	or 11+11log(B) =	23.42	PASS
144	5720 (U-NII 3)	7.30	5.374		30		PASS
149	5745	13.48	22.293		30		PASS
157	5785	13.92	24.670		30		PASS
165	5825	13.99	25.071		30		PASS

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802.11n HT20 Ch1

<u> </u>							
СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
52	5260	13.88	24.444	23.98	or 11+10log(B) =	23.42	PASS
60	5300	13.39	21.836	23.98	or 11+10log(B) =	23.41	PASS
64	5320	13.38	21.786	23.98	or 11+10log(B) =	23.40	PASS
100	5500	13.43	22.038	23.98	or 11+10log(B) =	23.44	PASS
116	5580	13.40	21.886	23.98	or 11+10log(B) =	23.42	PASS
140	5700	12.89	19.461	23.98	or 11+10log(B) =	23.42	PASS
144	5720(U-NII 2C)	11.84	15.283	23.98	or 11+10log(B) =	23.43	PASS
144	5720 (U-NII 3)	8.13	6.502		30		PASS
149	5745	13.37	21.736		30		PASS
157	5785	13.86	24.332		30		PASS
165	5825	13.93	24.727		30		PASS

802.11n_HT20_MIMO

СН	Frequency		RAGE VER	TOTAL POWER	TOTAL POWER		REQUIRED LIMIT		RESULT
	(MHz)	CH 0	CH 1	(dBm)	(mW)		(dBm)		112021
52	5260	14.05	12.74	16.98	49.845	23.98	or 11+10log(B) =	23.42	PASS
60	5300	13.45	12.35	16.47	44.328	23.98	or 11+10log(B) =	23.41	PASS
64	5320	13.35	12.51	16.48	44.487	23.98	or 11+10log(B) =	23.40	PASS
100	5500	12.66	13.25	16.50	44.638	23.98	or 11+10log(B) =	23.41	PASS
116	5580	12.79	12.89	16.37	43.374	23.98	or 11+10log(B) =	23.42	PASS
140	5700	12.71	12.17	15.98	39.632	23.98	or 11+10log(B) =	23.42	PASS
144	5720(U-NII 2C)	11.67	11.25	15.16	32.842	23.98	or 11+10log(B) =	23.42	PASS
144	5720 (U-NII 3)	6.691	7.539	10.18	10.432		30		PASS
149	5745	12.91	12.82	16.40	43.624		30		PASS
157	5785	13.7	13.17	16.98	49.832		30		PASS
165	5825	13.84	13	16.97	49.800		30	-	PASS

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802.11n HT40 Ch0

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)			RESULT
54	5270	12.98	19.845	23.98	or 11+10log(B) =	26.54	PASS
62	5310	10.48	11.160	23.98	or 11+10log(B) =	26.55	PASS
102	5510	10.95	12.435	23.98	or 11+10log(B) =	26.53	PASS
110	5550	12.99	19.891	23.98	or 11+10log(B) =	26.54	PASS
134	5670	12.98	19.845	23.98	or 11+10log(B) =	26.53	PASS
142	5710(U-NII 2C)	12.42	17.472	23.98	or 11+11log(B) =	26.55	PASS
142	5710 (U-NII 3)	3.75	2.373		30		PASS
151	5755	11.49	14.082	30			PASS
159	5795	12.99	19.891		30	•	PASS

802.11n HT40 Ch1

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)			RESULT
54	5270	12.90	19.483	23.98	or 11+10log(B) =	26.53	PASS
62	5310	10.41	10.981	23.98	or 11+10log(B) =	26.54	PASS
102	5510	10.87	12.208	23.98	or 11+10log(B) =	26.54	PASS
110	5550	12.88	19.393	23.98	or 11+10log(B) =	26.53	PASS
134	5670	12.89	19.438	23.98	or 11+10log(B) =	26.54	PASS
142	5710(U-NII 2C)	12.19	16.560	23.98	or 11+10log(B) =	26.55	PASS
142	5710 (U-NII 3)	4.72	2.968		30		
151	5755	11.38	13.729	30			PASS
159	5795	12.89	19.438		30		PASS

802.11n_HT40_MIMO

СН	Frequency	AVERAGE P	OWER (dBm)	TOTAL	TOTAL POWER		REQUIRED LIMIT		RESULT
Сп	(MHz)	CH 0	CH 1	(dBm)	(mW)		(dBm)		RESULI
54	5270	11.93	11.08	15.87	38.660	23.98	or 11+10log(B) =	26.53	PASS
62	5310	9.45	8.36	13.29	21.311	23.98	or 11+10log(B) =	26.54	PASS
102	5510	9.28	9.64	13.81	24.047	23.98	or 11+10log(B) =	26.53	PASS
110	5550	11.41	11.34	15.72	37.342	23.98	or 11+10log(B) =	26.53	PASS
134	5670	11.91	11.03	15.84	38.363	23.98	or 11+10log(B) =	26.53	PASS
142	5710(U-NII 2C)	11.30	10.28	15.24	33.416	23.98	or 11+10log(B) =	26.55	PASS
142	5710 (U-NII 3)	2.63	2.82	6.57	4.539		30		PASS
151	5755	10.05	9.88	14.31	26.994		30		PASS
159	5795	11.84	11.07	15.82	38.185		30		PASS

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802 11ac VHT80 Ch0

002.118C_V11100_C110							
СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
58	5290	9.47	8.853	23.98	or 11+10log(B) =	29.74	PASS
106	5530	10.47	11.145	23.98	or 11+10log(B) =	29.74	PASS
122	5610	12.97	19.820	23.98	or 11+11log(B) =	29.74	PASS
138	5690(U-NII 2C)	12.70	18.601	23.98	or 11+12log(B) =	29.71	PASS
138	5690 (U-NII 3)	1.17	1.310		30		PASS
155	5775	10.46	11.120		30		PASS

802.11ac VHT80 Ch1

	<u>/_ v </u>						
СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		
58	5290	9.38	8.672	23.98	or 11+10log(B) =	29.75	PASS
106	5530	10.36	10.867	23.98	or 11+10log(B) =	29.75	PASS
122	5610	12.86	19.324	23.98	or 11+10log(B) =	29.74	PASS
138	5690(U-NII 2C)	12.61	18.221	23.98	or 11+10log(B) =	29.75	PASS
138	5690 (U-NII 3)	1.08	1.281		30		PASS
155	5775	10.36	10.867		30		PASS

802.11ac VHT80 MIMO

СН	Frequency	AVERAGE P	OWER (dBm)	TOTAL POWER	TOTAL POWER		REQUIRED LIMIT		RESULT	
Сп	(MHz)	CH 0	CH 1	(dBm)	(mW)		(dBm)		RESULT	
58	5290	8.61	8.02	12.36	17.204	23.98	or 11+10log(B) =	29.74	PASS	
106	5530	9.14	9.53	13.37	21.730	23.98	or 11+10log(B) =	29.74	PASS	
122	5610	12.25	11.59	15.96	39.480	23.98	or 11+10log(B) =	29.74	PASS	
138	5690(U-NII 2C)	11.90	11.32	15.66	36.773	23.98	or 11+10log(B) =	29.71	PASS	
138	5690 (U-NII 3)	0.38	-0.20	4.13	2.591		30		PASS	
155	5775	9.48	9.24	13.39	21.842		30		PASS	

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10 MAXIMUM POWER SPECTRAL DENSITY

10.1 Standard Applicable

FCC

OPERZTION Band		EUT CATEGORY	LIMIT
		Access Point (Master device)	17dBm/ MHz
U-NII-1		Fixed point-to-point Access Ponit	17 dBitti/ tvii 12
		Mobile and portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	V		11dBm/ MHz
U-NII-3			30dBm/ 500kHz

If transmitting antennas of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

ISED

OPERZTION FREQUENCY BAND	LIMIT		
5150~5250 MHz	EIRP spectral density 10 dBm / MHz		
5250~5350 MHz	11dBm / MHz		
5470-5600 MHz and 5650-5725 MHz	11dBm / MHz		
5725~5850 MHz	30dBm / 500 kHz		

For equipment operating in the band **5725-5850** MHz, If transmitting antennas of directional gain greater than 6 dBi are used, the Maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note:

As per FCC KDB 662911 D01

Unequal antenna gains, with equal transmit powers. For antenna gains given by G1, G2, ..., GN dBi.

(i) If transmit signals are correlated, then Directional gain

= $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N_{ANT}] dBi$

[Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

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

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10.2 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.

4. For U-NII1, U-NII-2A, U-NII-2C Band:

Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth) For U-NII-3 Band:

Set RBW=500 kHz, VBW≥ 3RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

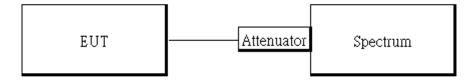
- 5. User the cursor on spectrum to peak search the highest level of trace
- 6. Record the max. reading and add 10 log(1/duty cycle).
- 7. Repeat above procedures until all default test channel (low, middle, and high) was com-
- 8. 802.11n/ac MIMO mode: offset is set following "measure and add 10 Log (N)" on spectrum to measure the PSD for MIMO mode. Offset = cable loss + 10 log (N), where N is number of transmitting antenna. N=3 for this given application.

Note: For the test of PSD at 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 Main Antenna at single transmitting mode and Aux that yields the higher value. The MIMO transmitting mode produces higher value of outcome

10.3 **Measurement Equipment Used**

	SGS Conducted Room								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due				
DC Block	PASTERNACK	PE8210	RF32	11/20/2019	11/19/2020				
Spectrum Ana- lyzer	Agilent	N9010A	MY57120200	03/06/2019	03/05/2020				
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/09/2019	07/08/2020				
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020				

10.4 Test Set-up



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10.5 **Measurement Result**

10.5.1 Power spectral density

_	POWER DE	NSITY 802	.11a MODE	•	
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5180.00	3.77	0.26	4.03	11.00	-6.97
5220.00	4.19	0.26	4.45	11.00	-6.55
5240.00	4.32	0.26	4.58	11.00	-6.42
5260.00	7.28	0.26	7.54	11.00	-3.46
5300.00	4.99	0.26	5.25	11.00	-5.75
5320.00	4.97	0.26	5.23	11.00	-5.77
5500.00	5.87	0.26	6.13	11.00	-4.87
5580.00	5.66	0.26	5.92	11.00	-5.08
5700.00	6.17	0.26	6.43	11.00	-4.57
5720 (U-NII 2C)	5.40	0.26	5.66	11.00	-5.34
5720 (U-NII 3)	1.20	0.26	1.46	30.00	-28.54
5745.00	3.46	0.26	3.72	30.00	-26.28
5785.00	4.38	0.26	4.64	30.00	-25.36
5825.00	4.48	0.26	4.74	30.00	-25.26

	POWER DENS	ITY 802.11	n HT20 MC	DE	
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)
5180	4.03	0.52	4.55	11	-6.45
5220	4.00	0.52	4.52	11	-6.48
5240	4.11	0.52	4.63	11	-6.37
5260	6.00	0.52	6.52	11	-4.48
5300	5.87	0.52	6.39	11	-4.61
5320	5.06	0.52	5.58	11	-5.42
5500	5.40	0.52	5.92	11	-5.08
5580	4.81	0.52	5.33	11	-5.67
5700	5.06	0.52	5.58	11	-5.42
5720 (U-NII 2C)	4.73	0.52	5.25	11	-5.75
5720 (U-NII 3)	0.17	0.52	0.69	30	-29.31
5745	2.57	0.52	3.09	30	-26.91
5785	3.56	0.52	4.08	30	-25.92
5825	4.62	0.52	5.14	30	-24.86

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	POWER DENSITY 802.11n HT40 MODE								
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)				
5190	0.34	1.34	1.68	11	-9.32				
5230	2.88	1.34	4.22	11	-6.78				
5270	2.97	1.34	4.31	11	-6.69				
5310	0.39	1.34	1.73	11	-9.27				
5510	-0.85	1.34	0.49	11	-10.51				
5550	2.75	1.34	4.09	11	-6.91				
5670	2.64	1.34	3.98	11	-7.02				
5710 (U-NII 2C)	2.87	1.34	4.21	11	-6.79				
5710 (U-NII 3)	-3.37	1.34	-2.03	30	-32.03				
5755	-1.40	1.34	-0.06	30	-30.06				
5795	-0.12	1.34	1.22	30	-28.78				

POWER DENSITY 802.11ac VHT80 MODE								
Frequency (MHz)	PSD W/O Duty Factor (dBm)	Duty Factor	PSD With Duty Factor (dBm)	Limit (dBm)	Margin (dB)			
5210	-4.29	1.02	-3.27	11	-14.27			
5290	-4.36	1.02	-3.34	11	-14.34			
5530	-3.99	1.02	-2.97	11	-13.97			
5610	-0.84	1.02	0.18	11	-10.82			
5690 (U-NII 2C)	-1.57	1.02	-0.55	11	-11.55			
5690 (U-NII 3)	-9.51	1.02	-8.49	30	-38.49			
5775	-5.46	1.02	-4.44	30	-34.44			

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10.5.2 EIRP spectral density (ISED)

EIRP spectral density 802.11a MODE							
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP SD (dBm)	Limit (dBm)	Margin (dB)		
5180	4.03	5.28	9.30	10	-0.70		
5220	4.45	5.28	9.72	10	-0.28		
5240	4.58	5.28	9.85	10	-0.15		
EIRP spectral density 802.11n HT20 MODE							
	=IKP spect	rai density	/ 802.11n F	IT20 MODE	E		
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP SD (dBm)	Limit (dBm)	Margin (dB)		
Freq.	PSD	Ant. Gain	EIRP SD	Limit	Margin		
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP SD (dBm)	Limit (dBm)	Margin (dB)		

EIRP spectral density 802.11n HT40 MODE							
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP SD (dBm)	Limit (dBm)	Margin (dB)		
5190	1.68	5.28	6.96	10	-3.04		
5230	4.22	5.28	9.50	10	-0.50		

EIRP spectral density 802.11ac VHT80 MODE							
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP SD (dBm)	Limit (dBm)	Margin (dB)		
5210	-3.27	5.28	2.01	10	-7.99		

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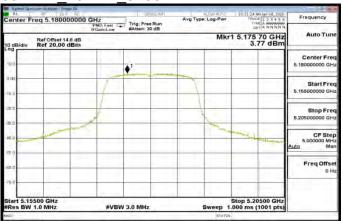
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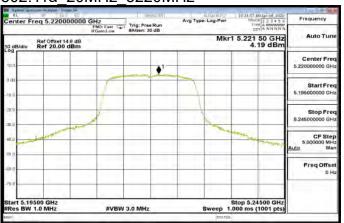


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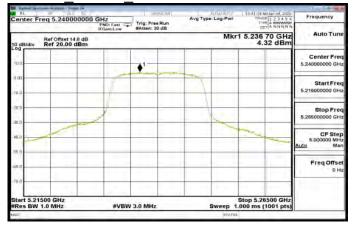
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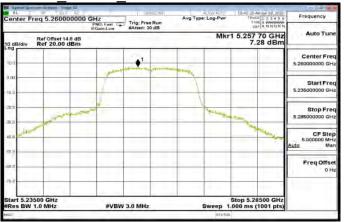
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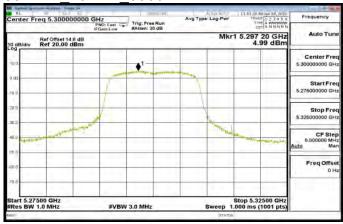
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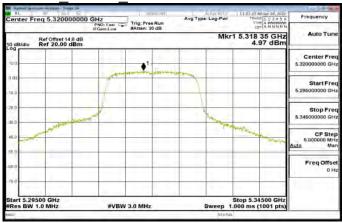
802.11a 20MHz 5260MHz



802.11a 20MHz 5300MHz



802.11a 20MHz 5320MHz



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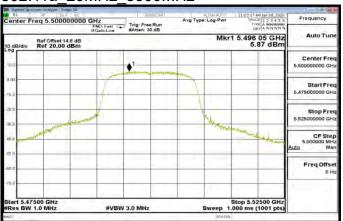
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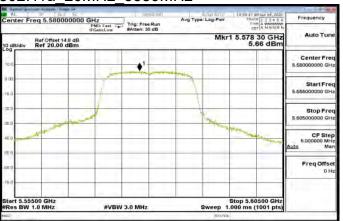


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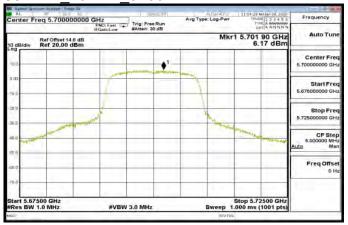
802.11a 20MHz 5500MHz



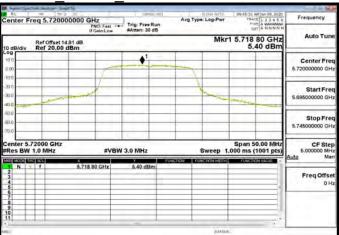
802.11a 20MHz 5580MHz



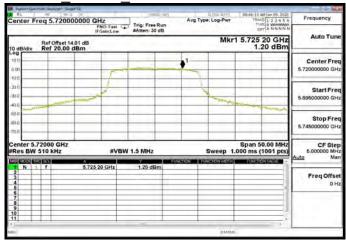
802.11a 20MHz_5700MHz



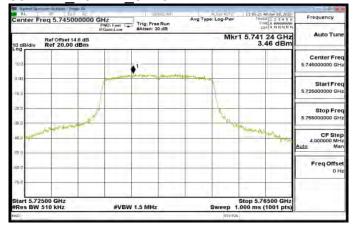
802.11a 20MHz 5720MHz UNII 2C



802.11a 20MHz 5720MHz UNII 3



802.11a 20MHz 5745MHz



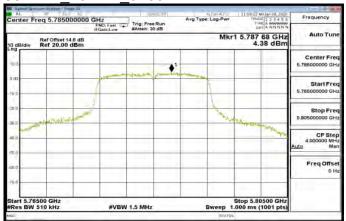
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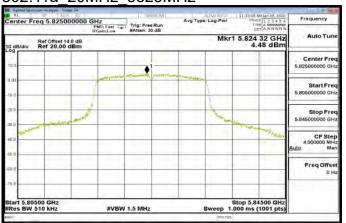


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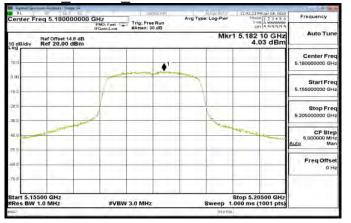
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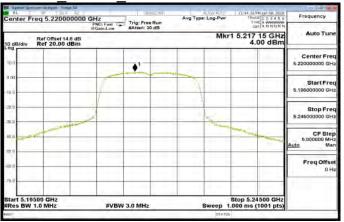
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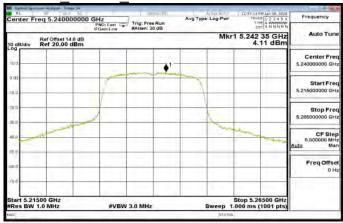
802.11n 20MHz 5180MHz



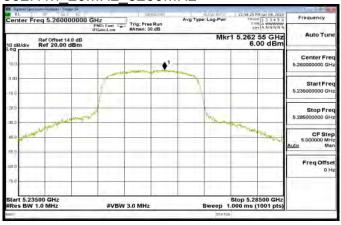
802.11n 20MHz 5220MHz



802.11n 20MHz 5240MHz



802.11n 20MHz 5260MHz



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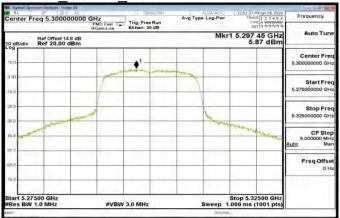
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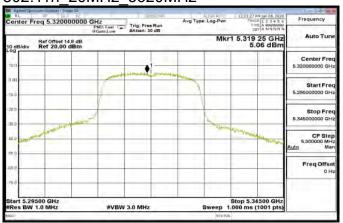


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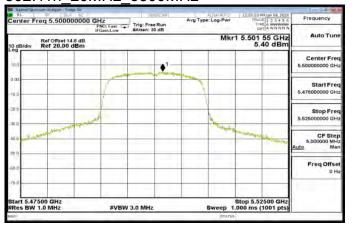
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802.11n 20MHz 5320MHz



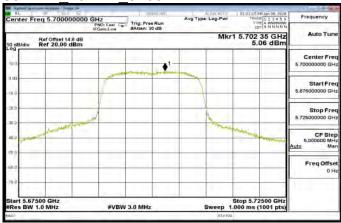
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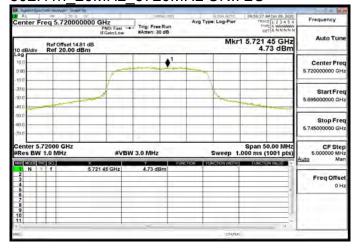
802.11n 20MHz 5580MHz



802.11n 20MHz 5700MHz



802.11n 20MHz 5720MHz UNII 2C



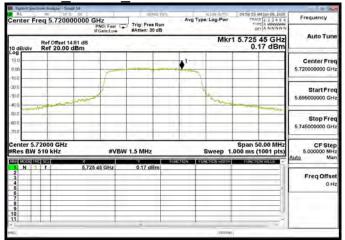
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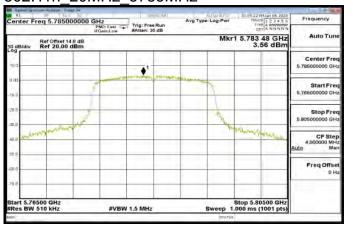
802.11n 20MHz 5720MHz UNII 3



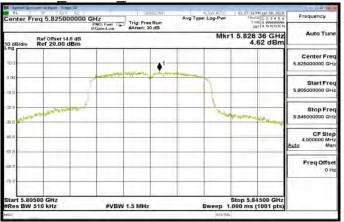
802.11n 20MHz 5745MHz



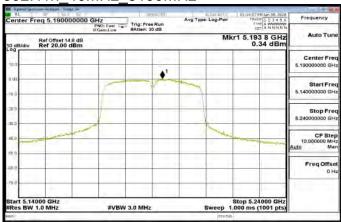
802.11n 20MHz 5785MHz



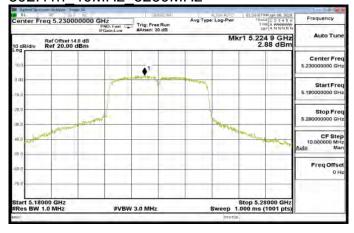
802.11n 20MHz 5825MHz



802.11n 40MHz 5190MHz



802.11n 40MHz 5230MHz



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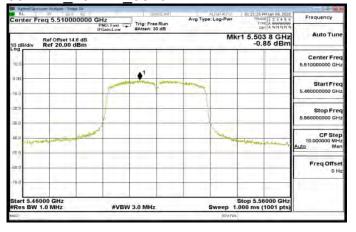
802.11n 40MHz 5270MHz



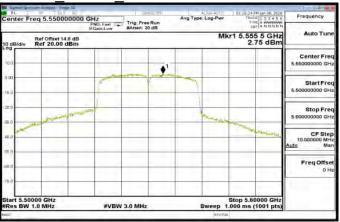
802.11n 40MHz 5310MHz



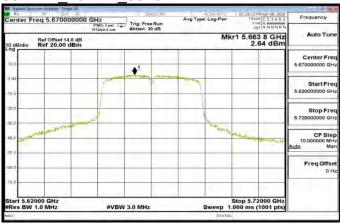
802.11n 40MHz 5510MHz



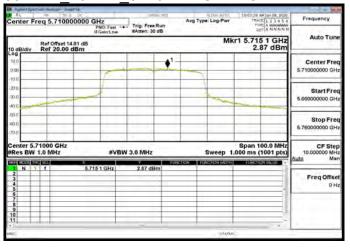
802.11n 40MHz 5550MHz



802.11n 40MHz 5670MHz



802.11n 40MHz_5710MHz UNII 2C



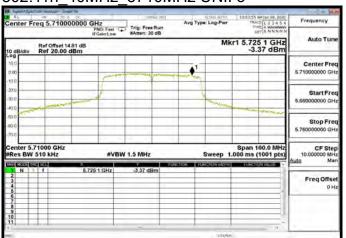
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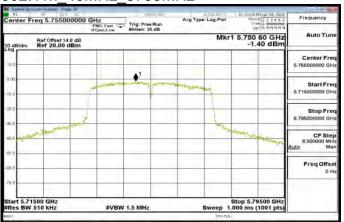


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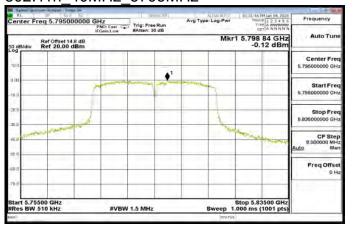
802.11n 40MHz 5710MHz UNII 3



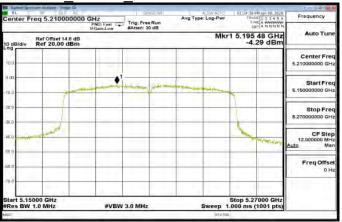
802.11n 40MHz 5755MHz



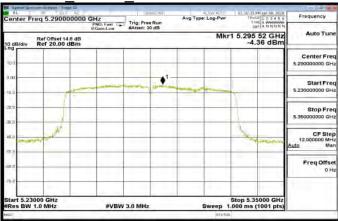
802.11n 40MHz 5795MHz



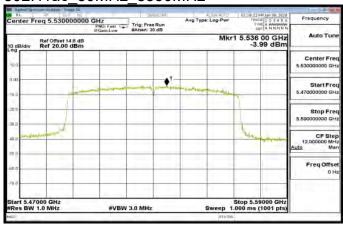
802.11ac 80MHz 5210MHz



802.11ac 80MHz 5290MHz



802.11ac 80MHz 5530MHz



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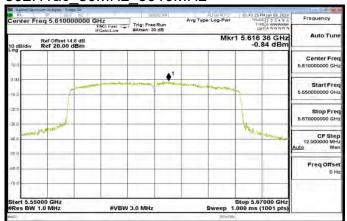
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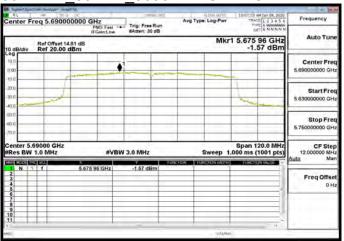


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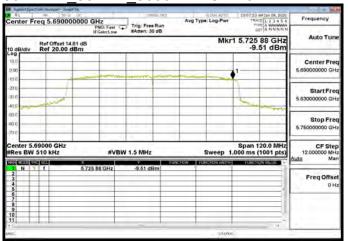
802.11ac 80MHz 5610MHz



802.11ac 80MHz 5690MHz UNII 2C



802.11ac 80MHz 5690MHz UNII 3



802.11ac 80MHz 5775MHz



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11 UNDESIRABLE RADIATED EMISSION MEASUREMENT

11.1 Standard Applicable

11.1.1 Band Edge

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- 1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
- 2. For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

APPLICABLE TO	EIRP LIMIT	FIELD STRENGTH AT 3m	
15.407(b)(1)			
RSS-247 §6.2.1.2	_		
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.3 (dBµV/m)	
RSS-247 §6.2.2.2	(ab.ii/iiii/2)	1 π. σσ.σ (αΣμ ν/ιιι)	
15.407(b)(3)			
RSS-247 §6.2.3.2			
	PK:-27 (dBm/MHz) *1	PK: 68.2(dBµV/m) *1	
15.407(b)(4)(i)	PK:10 (dBm/MHz) *2	PK:105.2 (dBµV/m) *2	
RSS-247 §6.2.4.2	PK:15.6 (dBm/MHz) *3	PK: 110.8(dBµV/m) *3	
	PK:27 (dBm/MHz) *4	PK:122.2 (dBµV/m) *4	

^{*1} beyond 75 MHz or more above of the bandedge.

 $EIRP = ((E^*d)^2) / 30$, where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

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^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



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11.1.2Spurious Emission

Unwanted spurious emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

the radiated ermission minus specified as below table.						
Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)				
0.009-0.490	2400/F(KHz)	300				
0.490-1.705	24000/F(KHz)	30				
1.705-30	30	30				
30-88	100	3				
88-216	150	3				
216-960	200	3				
Above 960	500	3				

Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level $(dB\mu V/m) = 20 \log Emission level (dB\mu V/m)$

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11.2 Measurement Equipment Used

		SGS SAC-III			
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Broadband An- tenna	SCHWAZBECK	VULB 9168	9168-617	10/30/2018	10/29/2019
Horn Antenna	Schwarzbeck	BBHA9170	185	08/07/2019	08/06/2020
Horn Antenna	Schwarzbeck	BBHA9120D	1341	06/12/2019	06/11/2020
Loop Antenna	ETS.LINDGREN	6502	143303	04/25/2019	04/24/2020
3m Site NSA	SGS	966 chamber D	N/A	07/12/2019	07/11/2020
Spectrum Ana- lyzer	KEYSIGHT	N9010A	MY51440113	07/15/2019	07/14/2020
Pre-Amplifier	EMC Instruments	EMC184045B	980135	12/25/2018	12/24/2019
Pre-Amplifier	EMC Instruments	EMC9135	980234	12/25/2018	12/24/2019
Pre-Amplifier	EMC Instruments	EMC12630SE	980271	12/25/2018	12/24/2019
Attenuator	Woken	WATT-218FS-10	RF25	12/25/2018	12/24/2019
High Pass Filter	R&S	F13 HPF 3GHz	RF64	12/25/2018	12/24/2019
Low Pass Filter	EWT	EWT-56-0019	RF46	12/25/2018	12/24/2019
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	12/25/2018	12/24/2019
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	12/25/2018	12/24/2019
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17413/4	12/25/2018	12/24/2019

Name of Equip- ment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Broadband An- tenna	SCHWAZBECK	VULB 9168	9168-617	11/04/2019	11/03/2020

Note: The measurement was taken place with the long duration of the time, and additional equipment list as shown above indicate those equipment of which has been subject to undertake the calibration in intermediate period of time of the measurement.

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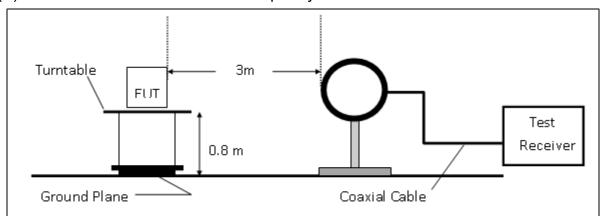
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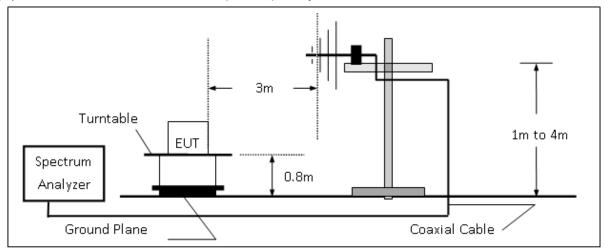
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Test SET-UP 11.3

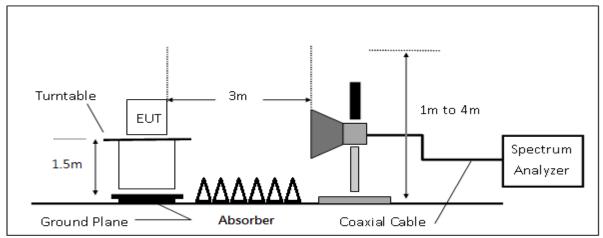
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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11.4 Measurement Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
- 3. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
- 4. 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 emissions.
- Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- 8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 11. Repeat above procedures until all frequency measured were complete.

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11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

The limit of the emission level is expressed in dBuV/m, which converts 20*log(uV/m)

Actual $FS(dB\mu V/m) = SPA$. Reading level(dB μV) + Factor(dB)

 $Factor(dB) = Antenna\ Factor(dB\mu V/m) + Cable\ Loss(dB) - Pre_Amplifier\ Gain(dB)$

11.6 Test Results of Radiated Spurious Emissions form 9 KHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) & RSS-GEN §6.13.2 was not reported.

Pre-scanned was done at frequency 5.47 GHz and 5.85 GHz for bandedge measurement of straddle channels 138, 142 and 144 which was 20dB lower than the limit per 15.31(o) & RSS-GEN §6.13.2 was not reported.

11.7 **Radiated Spurious Emission Measurement Result**

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Below 1GHz Worst-Case Data:

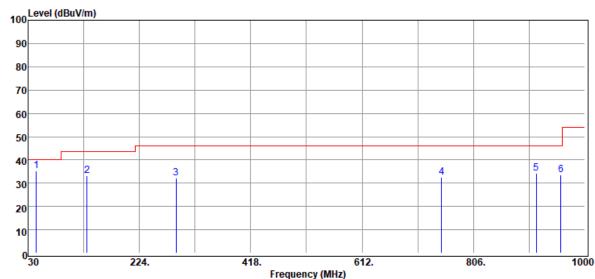
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5220 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



			, (
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
44.55	Peak	52.35	-16.94	35.41	40.00	-4.59
132.82	Peak	50.80	-17.75	33.05	43.50	-10.45
288.02	Peak	47.82	-15.73	32.09	46.00	-13.91
750.71	Peak	39.22	-6.78	32.44	46.00	-13.56
915.61	Peak	38.76	-4.35	34.41	46.00	-11.59
958.29	Peak	37.71	-4.06	33.65	46.00	-12.35

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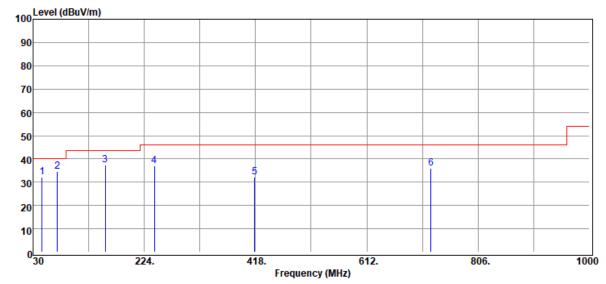
Report Number **Test Date** :2019-11-14 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5220 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
45.52	Peak	48.99	-16.86	32.13	40.00	-7.87
72.68	Peak	54.43	-19.91	34.52	40.00	-5.48
156.10	Peak	53.96	-16.57	37.39	43.50	-6.11
241.46	Peak	54.05	-17.14	36.91	46.00	-9.09
416.06	Peak	44.79	-12.46	32.33	46.00	-13.67
723.55	Peak	43.51	-7.56	35.95	46.00	-10.05

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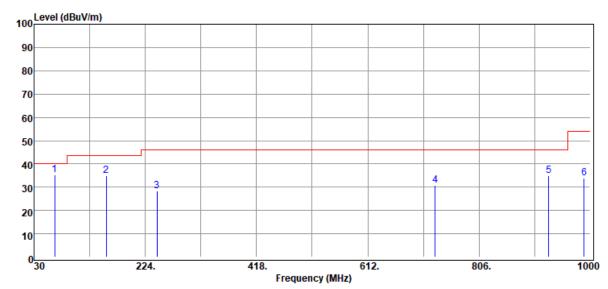
Report Number **Test Date** :2019-11-14 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5300 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
Peak	53.84	-18.58	35.26	40.00	-4.74
Peak	51.37	-16.57	34.80	43.50	-8.70
Peak	45.45	-17.04	28.41	46.00	-17.59
Peak	38.20	-7.25	30.95	46.00	-15.05
Peak	39.20	-4.26	34.94	46.00	-11.06
Peak	37.64	-3.58	34.06	54.00	-19.94
	Mode PK/QP/AV Peak Peak Peak Peak Peak	Mode PK/QP/AV Reading Level dBµV Peak 53.84 Peak 51.37 Peak 45.45 Peak 38.20 Peak 39.20	Mode PK/QP/AV Reading Level dBμV dB Peak 53.84 -18.58 Peak 51.37 -16.57 Peak 45.45 -17.04 Peak 38.20 -7.25 Peak 39.20 -4.26	Mode PK/QP/AV Reading Level dBμV FS dBμV/m Peak 53.84 -18.58 35.26 Peak 51.37 -16.57 34.80 Peak 45.45 -17.04 28.41 Peak 38.20 -7.25 30.95 Peak 39.20 -4.26 34.94	Mode PK/QP/AV Reading Level dBμV FS dBμV/m @3m dBμV/m Peak 53.84 -18.58 35.26 40.00 Peak 51.37 -16.57 34.80 43.50 Peak 45.45 -17.04 28.41 46.00 Peak 38.20 -7.25 30.95 46.00 Peak 39.20 -4.26 34.94 46.00

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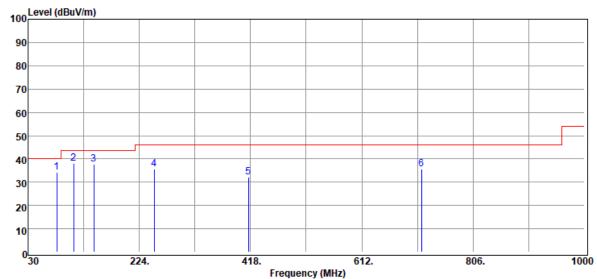
Report Number **Test Date** :2019-11-14 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5300 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



Fred	q. Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MH:	z PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
80.4	4 Peak	55.81	-21.61	34.20	40.00	-5.80
109.5	54 Peak	58.38	-20.35	38.03	43.50	-5.47
144.4	46 Peak	54.40	-16.52	37.88	43.50	-5.62
250.1	19 Peak	52.44	-16.83	35.61	46.00	-10.39
414.1	12 Peak	44.76	-12.47	32.29	46.00	-13.71
715.7	79 Peak	43.30	-7.82	35.48	46.00	-10.52

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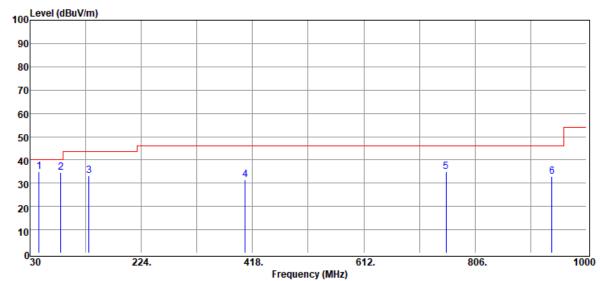
Report Number **Test Date** :2019-11-14 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5580 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB	
45.52	Peak	51.84	-16.86	34.98	40.00	-5.02	
83.35	Peak	56.66	-22.03	34.63	40.00	-5.37	
132.82	Peak	50.83	-17.75	33.08	43.50	-10.42	
405.39	Peak	44.06	-12.69	31.37	46.00	-14.63	
755.56	Peak	41.75	-6.75	35.00	46.00	-11.00	
939.86	Peak	37.25	-4.46	32.79	46.00	-13.21	

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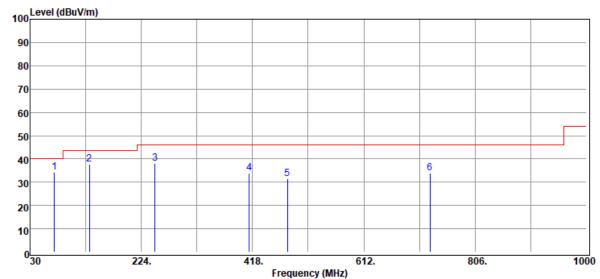
Report Number **Test Date** :2019-11-14 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5580 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



· · · ·							
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
 MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB	
72.68	Peak	54.28	-19.91	34.37	40.00	-5.63	
133.79	Peak	55.45	-17.64	37.81	43.50	-5.69	
248.25	Peak	55.12	-16.90	38.22	46.00	-7.78	
412.18	Peak	46.43	-12.50	33.93	46.00	-12.07	
479.11	Peak	42.60	-11.13	31.47	46.00	-14.53	
727.43	Peak	41.33	-7.35	33.98	46.00	-12.02	

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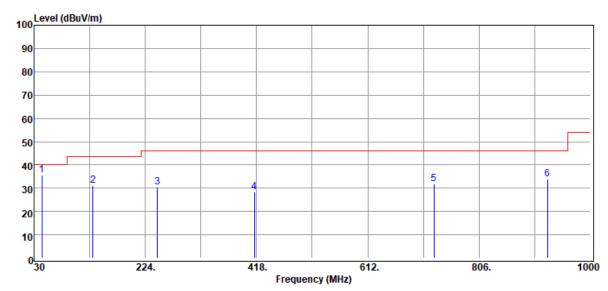
Report Number **Test Date** :2019-11-14 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5785 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
43.58	Peak	52.73	-17.03	35.70	40.00	-4.30
132.82	Peak	49.06	-17.75	31.31	43.50	-12.19
245.34	Peak	47.37	-17.00	30.37	46.00	-15.63
414.12	Peak	40.92	-12.47	28.45	46.00	-17.55
727.43	Peak	39.32	-7.35	31.97	46.00	-14.03
925.31	Peak	38.18	-4.26	33.92	46.00	-12.08

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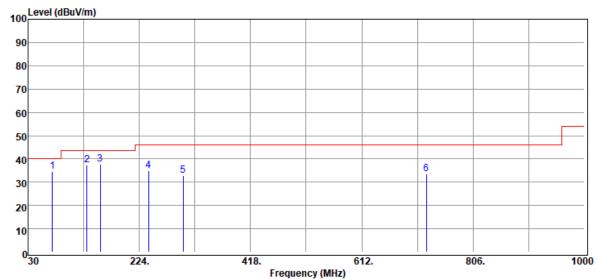
Report Number **Test Date** :2019-11-14 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :23.2/63

Test Channel :5785 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



· · ·							
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin	
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB	
72.68	Peak	54.44	-19.91	34.53	40.00	-5.47	
132.82	Peak	55.01	-17.75	37.26	43.50	-6.24	
156.10	Peak	54.37	-16.57	37.80	43.50	-5.70	
240.49	Peak	52.04	-17.17	34.87	46.00	-11.13	
300.63	Peak	48.09	-15.36	32.73	46.00	-13.27	
724.52	Peak	40.92	-7.49	33.43	46.00	-12.57	

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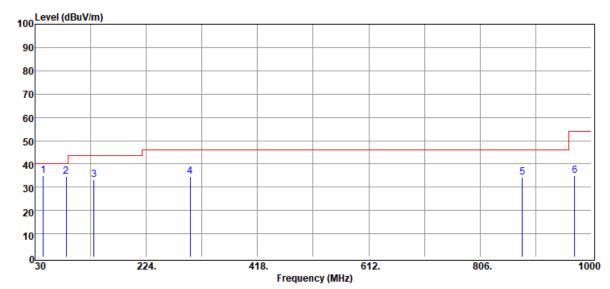
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 1 Temp./Humi. :23.1/64

Test Channel :5210 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
PK/QP/AV	dΒμV	dB	dBµV/m	dBµV/m	dB
Peak	51.73	-16.94	34.79	40.00	-5.21
Peak	56.74	-22.16	34.58	40.00	-5.42
Peak	50.81	-17.75	33.06	43.50	-10.44
Peak	49.97	-15.36	34.61	46.00	-11.39
Peak	39.50	-5.28	34.22	46.00	-11.78
Peak	38.01	-3.13	34.88	54.00	-19.12
	Mode PK/QP/AV Peak Peak Peak Peak Peak	Mode PK/QP/AV Reading Level dBμV Peak 51.73 Peak 56.74 Peak 50.81 Peak 49.97 Peak 39.50	Mode PK/QP/AV Reading Level dBμV dB Peak 51.73 -16.94 Peak 56.74 -22.16 Peak 50.81 -17.75 Peak 49.97 -15.36 Peak 39.50 -5.28	Mode PK/QP/AV Reading Level dBμV FS dBμV/m Peak 51.73 -16.94 34.79 Peak 56.74 -22.16 34.58 Peak 50.81 -17.75 33.06 Peak 49.97 -15.36 34.61 Peak 39.50 -5.28 34.22	Mode PK/QP/AV Reading Level dBμV FS dBμV/m @3m dBμV/m Peak 51.73 -16.94 34.79 40.00 Peak 56.74 -22.16 34.58 40.00 Peak 50.81 -17.75 33.06 43.50 Peak 49.97 -15.36 34.61 46.00 Peak 39.50 -5.28 34.22 46.00

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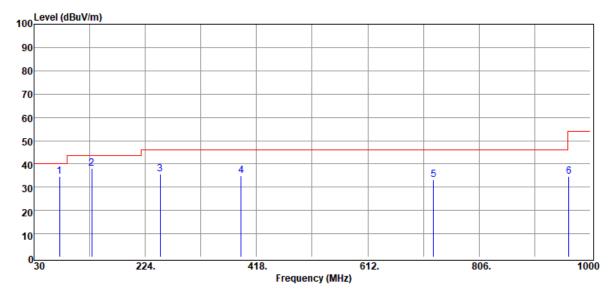
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 1 Temp./Humi. :23.1/64

Test Channel :HORIZONTAL :5210 MHz Antenna Pol.

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
74.62	Peak	55.07	-20.36	34.71	40.00	-5.29
130.88	Peak	55.94	-17.99	37.95	43.50	-5.55
250.19	Peak	52.41	-16.83	35.58	46.00	-10.42
390.84	Peak	47.89	-13.10	34.79	46.00	-11.21
726.46	Peak	40.64	-7.40	33.24	46.00	-12.76
962.17	Peak	38.40	-3.77	34.63	54.00	-19.37

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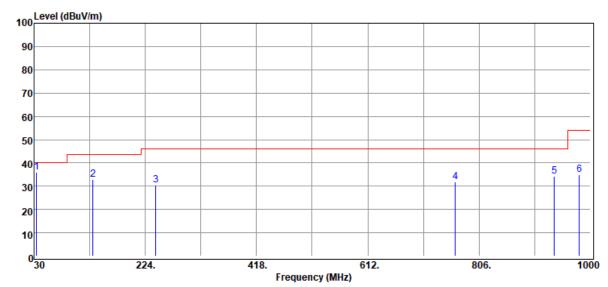
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 2 Temp./Humi. :23.1/64

Test Channel :5290 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH HIGH Engineer :Kailin

EUT Pol :E2 Plan



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBµV/m	dB
34.85	Peak	53.98	-17.96	36.02	40.00	-3.98
132.82	Peak	50.74	-17.75	32.99	43.50	-10.51
242.43	Peak	47.66	-17.11	30.55	46.00	-15.45
764.29	Peak	38.69	-6.75	31.94	46.00	-14.06
936.95	Peak	38.65	-4.39	34.26	46.00	-11.74
980.60	Peak	38.07	-3.27	34.80	54.00	-19.20

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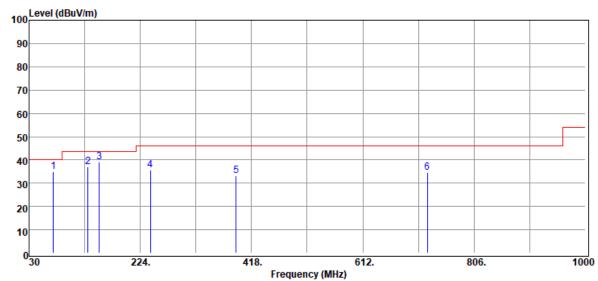
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 2 Temp./Humi. :23.1/64

Test Channel :HORIZONTAL :5290 MHz Antenna Pol.

Test Mode :TX CH HIGH Engineer :Kailin

EUT Pol :E2 Plan



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Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
72.68	Peak	54.73	-19.91	34.82	40.00	-5.18
132.82	Peak	54.80	-17.75	37.05	43.50	-6.45
152.22	Peak	55.29	-16.24	39.05	43.50	-4.45
241.46	Peak	52.84	-17.14	35.70	46.00	-10.30
390.84	Peak	46.39	-13.10	33.29	46.00	-12.71
724.52	Peak	42.07	-7.49	34.58	46.00	-11.42

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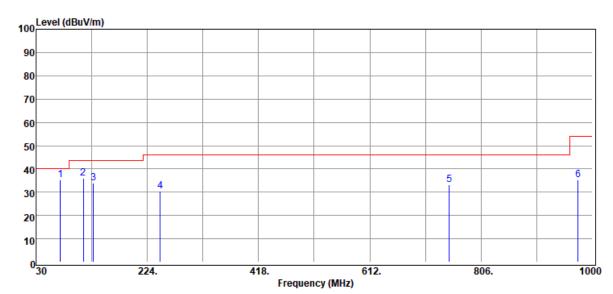
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 3 Temp./Humi. :23.1/64

Test Channel :5610 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
72.68	Peak	55.04	-19.91	35.13	40.00	-4.87
112.45	Peak	55.99	-20.03	35.96	43.50	-7.54
129.91	Peak	52.09	-18.11	33.98	43.50	-9.52
246.31	Peak	47.56	-16.97	30.59	46.00	-15.41
750.71	Peak	40.12	-6.78	33.34	46.00	-12.66
974.78	Peak	38.45	-3.18	35.27	54.00	-18.73

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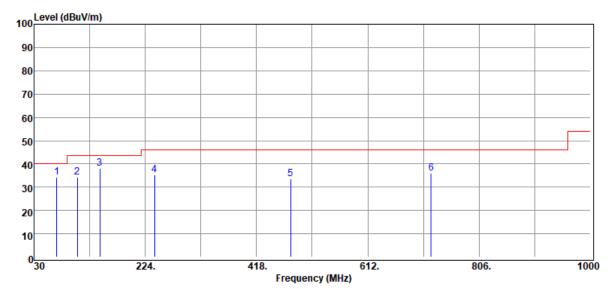
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 3 Temp./Humi. :23.1/64

:HORIZONTAL **Test Channel** :5610 MHz Antenna Pol.

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBuV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
IVITZ	PN/QP/AV	аьμν	uБ	ασμν/π	ασμν/π	uБ
69.77	Peak	53.50	-19.24	34.26	40.00	-5.74
105.66	Peak	54.95	-20.80	34.15	43.50	-9.35
144.46	Peak	54.43	-16.52	37.91	43.50	-5.59
240.49	Peak	52.47	-17.17	35.30	46.00	-10.70
477.17	Peak	44.87	-11.20	33.67	46.00	-12.33
722.58	Peak	43.62	-7.60	36.02	46.00	-9.98

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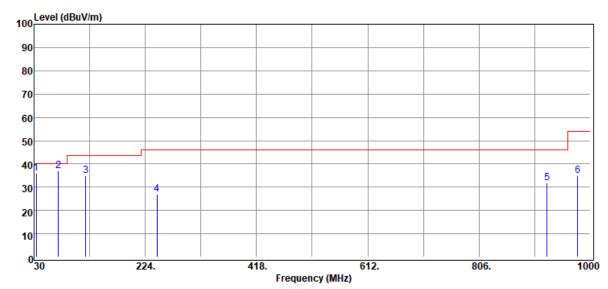
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 4 Temp./Humi. :23.1/64

Test Channel :5775 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



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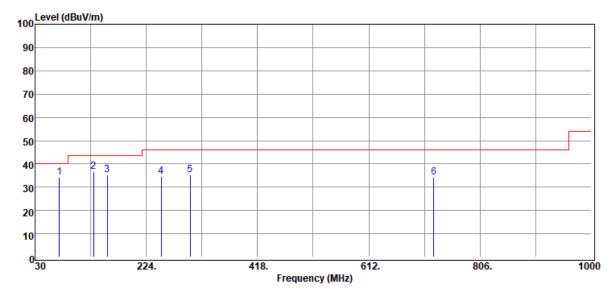
Report Number :E2/2019/90023 **Test Date** :2019-11-14

Operation Mode :802.11ac80 / Band 4 Temp./Humi. :23.1/64

Test Channel :HORIZONTAL :5775 MHz Antenna Pol.

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
72.68	Peak	54.16	-19.91	34.25	40.00	-5.75
131.85	Peak	54.55	-17.87	36.68	43.50	-6.82
156.10	Peak	51.74	-16.57	35.17	43.50	-8.33
250.19	Peak	51.45	-16.83	34.62	46.00	-11.38
300.63	Peak	50.67	-15.36	35.31	46.00	-10.69
725.49	Peak	41.69	-7.45	34.24	46.00	-11.76

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11.7.2 Above 1GHz Worst-Case Data:

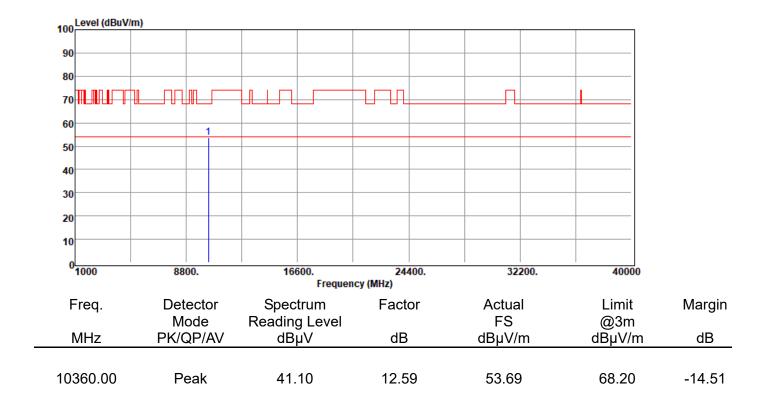
Report Number :E2/2019/90023 **Test Date** :2019-11-13

Operation Mode :802.11a / Band 1 Temp./Humi. :24.5/55

Test Channel :5180 MHz Antenna Pol. :VERTICAL

:Kailin Test Mode :TX CH LOW Engineer

EUT Pol :E2 Plan



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:E2 Plan

EUT Pol

Report No.: E2/2019/90023

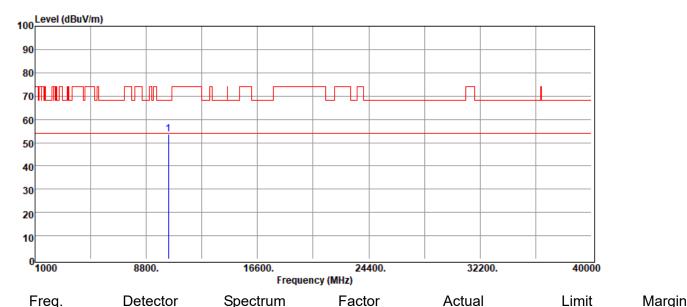
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Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :24.5/55

:HORIZONTAL **Test Channel** :5180 MHz Antenna Pol.

Test Mode :TX CH LOW Engineer :Kailin



r req.	Mode	Reading Level	i actor	FS	@3m	Margin
MHz	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
10360.00	Peak	41.00	12.59	53.59	68.20	-14.61

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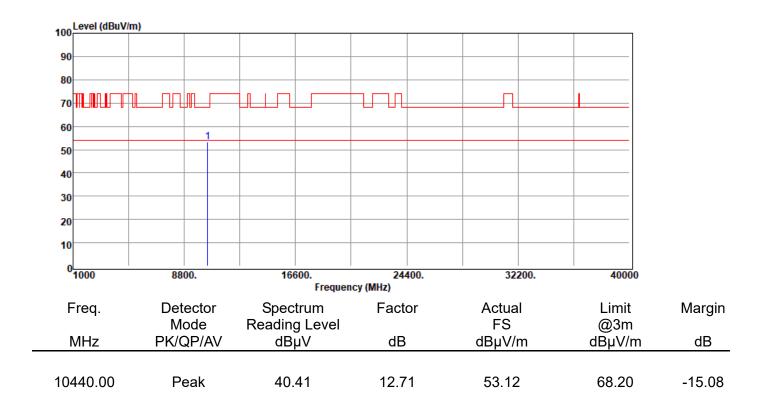
Report Number **Test Date** :2019-10-25 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :22.4/63

Test Channel :5220 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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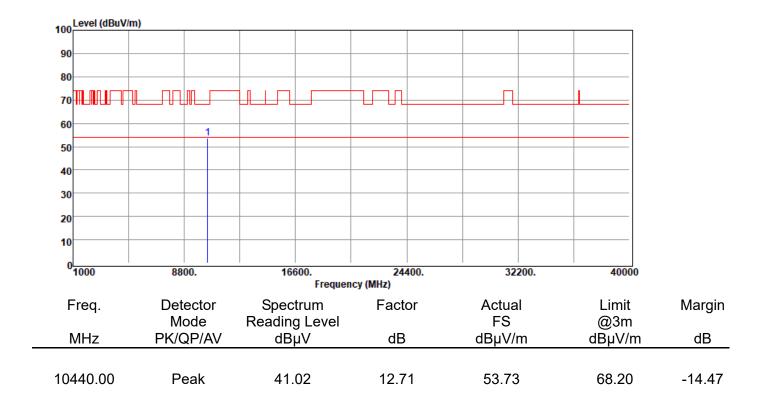
Report Number **Test Date** :2019-10-25 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :22.4/63

Test Channel :5220 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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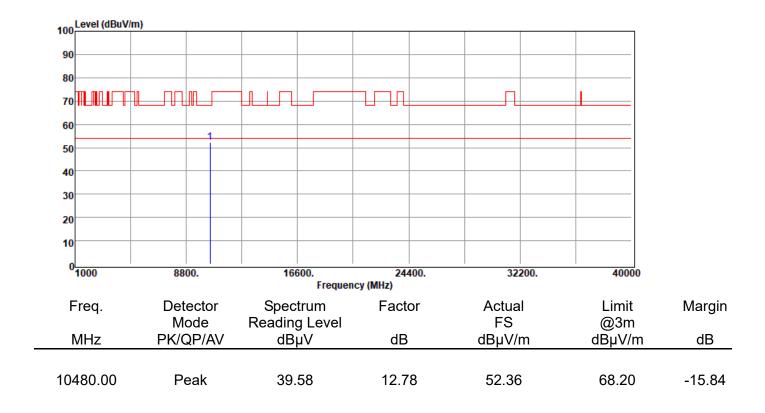
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :24.5/55

Test Channel :5240 MHz Antenna Pol. :VERTICAL

:TX CH HIGH Test Mode Engineer :Kailin

EUT Pol :E2 Plan



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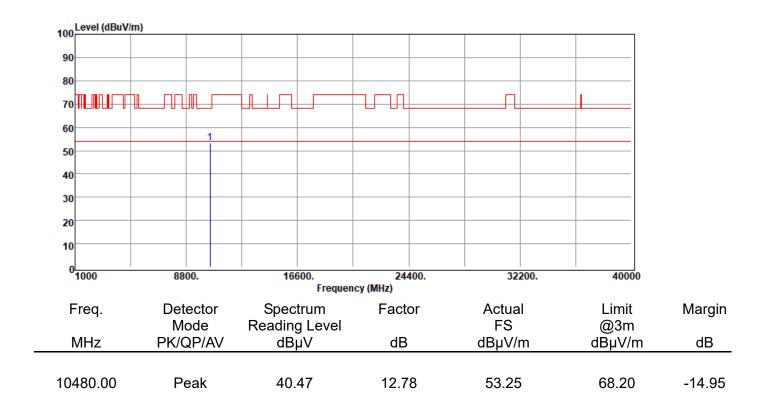
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 1 Temp./Humi. :24.5/55

Test Channel :5240 MHz Antenna Pol. :HORIZONTAL

:TX CH HIGH Test Mode Engineer :Kailin

EUT Pol :E2 Plan



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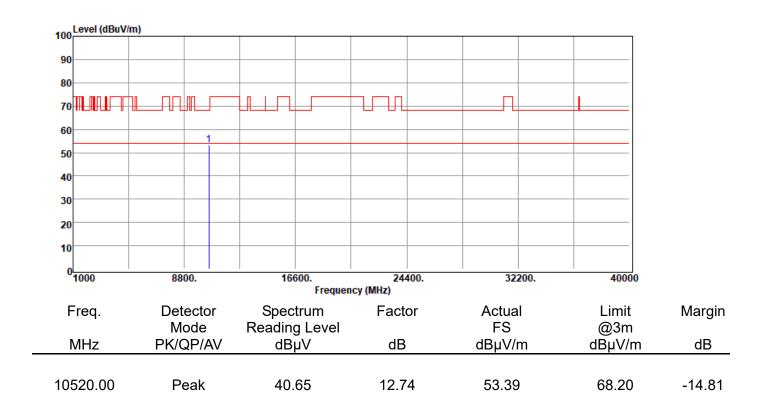
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 2 Temp./Humi. :24.5/55

Test Channel Antenna Pol. :VERTICAL :5260 MHz

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



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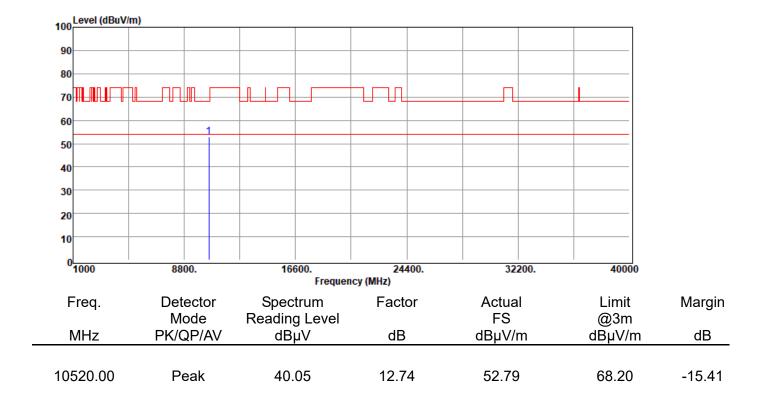
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 2 Temp./Humi. :24.5/55

Test Channel Antenna Pol. :HORIZONTAL :5260 MHz

Test Mode :TX CH LOW Engineer :Kailin





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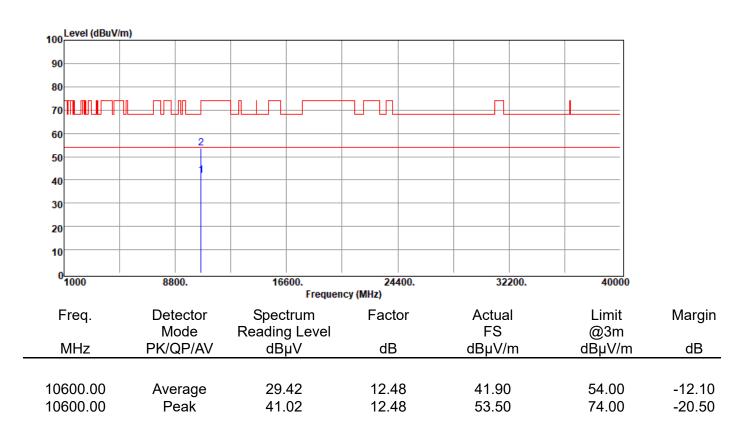
Report Number **Test Date** :2019-10-25 :E2/2019/90023

Operation Mode :802.11a / Band 2 Temp./Humi. :22.4/63

Test Channel :5300 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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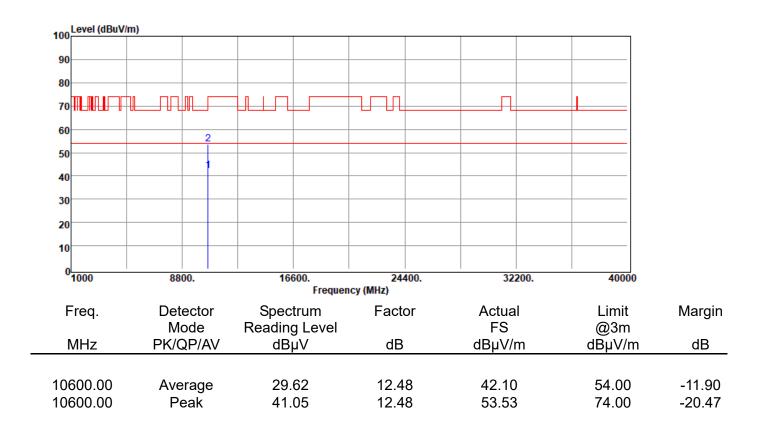
Report Number **Test Date** :2019-10-25 :E2/2019/90023

Operation Mode :802.11a / Band 2 Temp./Humi. :22.4/63

Test Channel :5300 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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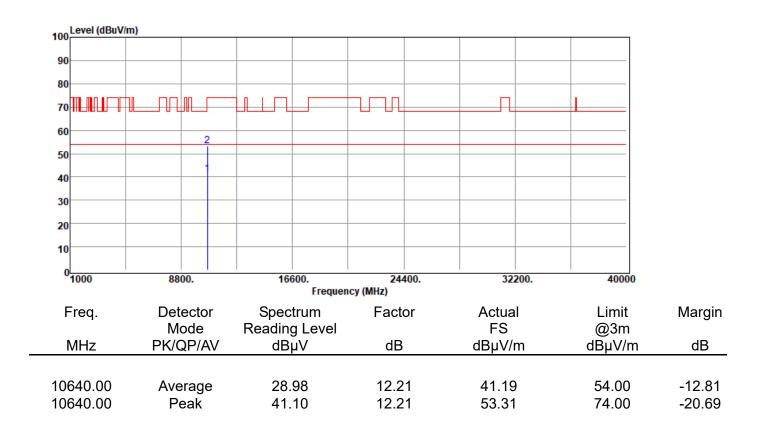
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 2 Temp./Humi. :24.4/56

Test Channel :5320 MHz Antenna Pol. :VERTICAL

:TX CH HIGH Test Mode Engineer :Kailin

EUT Pol :E2 Plan



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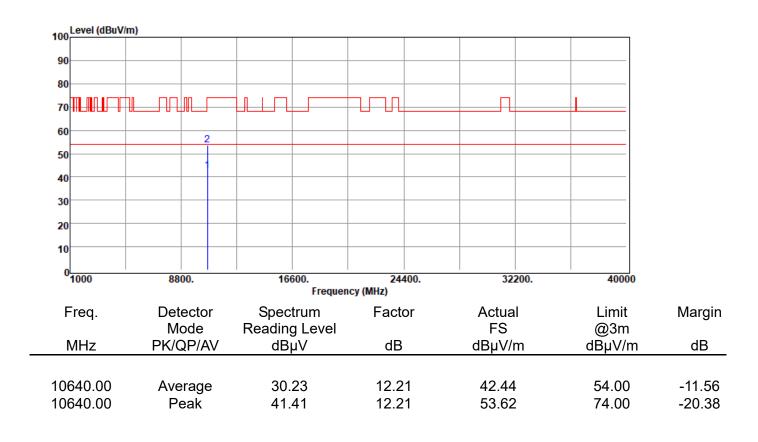
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 2 Temp./Humi. :24.4/56

:HORIZONTAL **Test Channel** Antenna Pol. :5320 MHz

:TX CH HIGH Test Mode Engineer :Kailin

EUT Pol :E2 Plan



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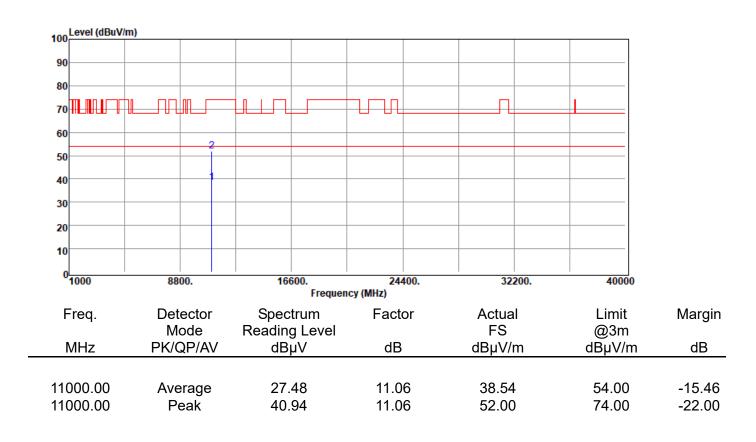
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 3 Temp./Humi. :24.4/55

Test Channel :5500 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



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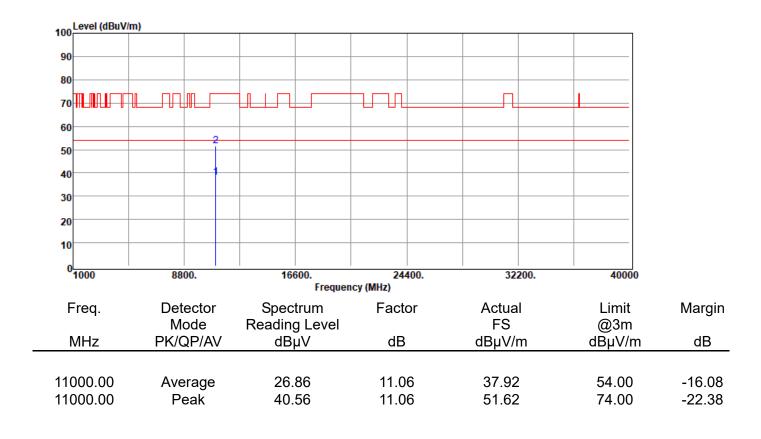
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 3 Temp./Humi. :24.4/55

:HORIZONTAL **Test Channel** :5500 MHz Antenna Pol.

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



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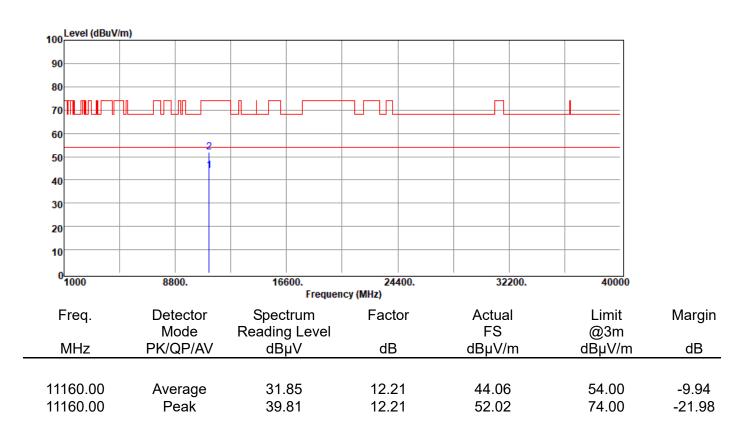
Report Number **Test Date** :2019-10-25 :E2/2019/90023

Operation Mode :802.11a / Band 3 Temp./Humi. :22.4/63

Test Channel :5580 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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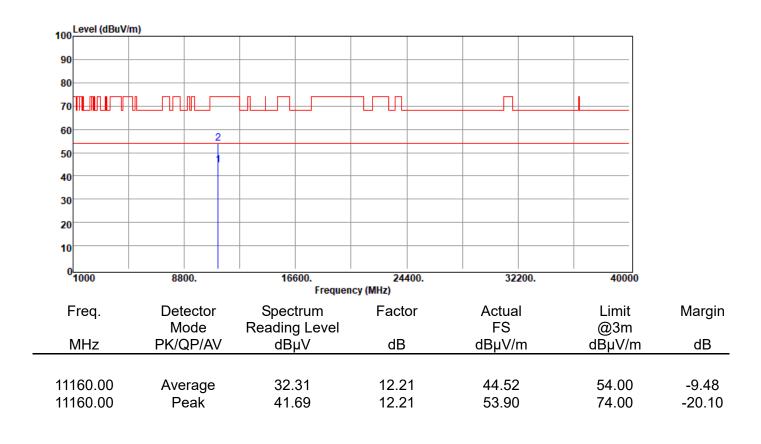
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Operation Mode :802.11a / Band 3 Temp./Humi. :22.4/63

Test Channel :5580 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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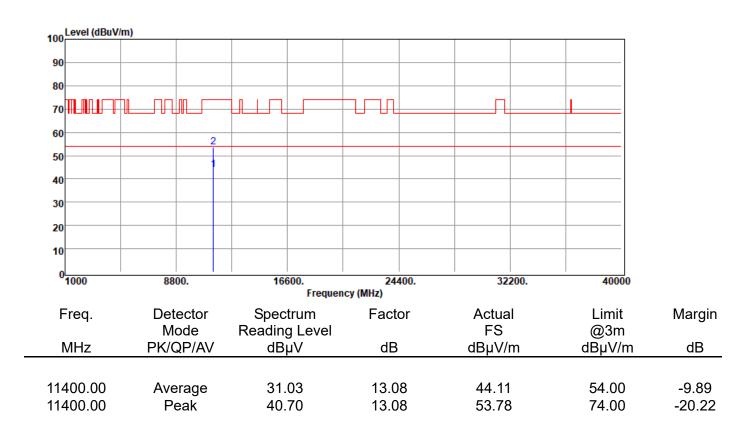
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 3 Temp./Humi. :24.4/55

Test Channel :5700 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH HIGH Engineer :Kailin

EUT Pol :E2 Plan



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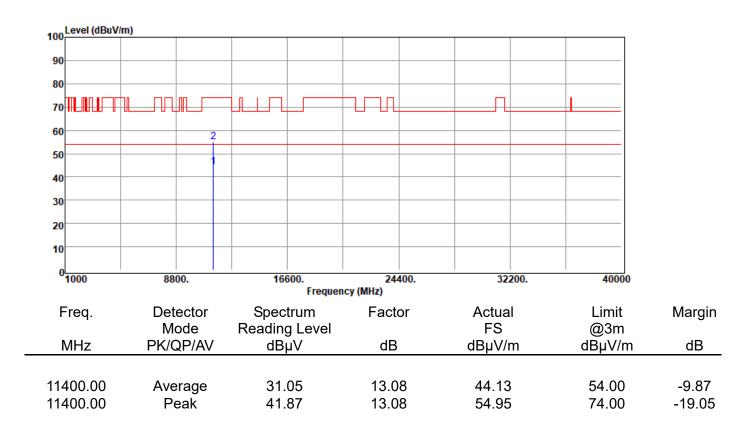
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Operation Mode :802.11a / Band 3 Temp./Humi. :24.4/55

:HORIZONTAL **Test Channel** :5700 MHz Antenna Pol.

Test Mode :TX CH HIGH Engineer :Kailin

EUT Pol :E2 Plan



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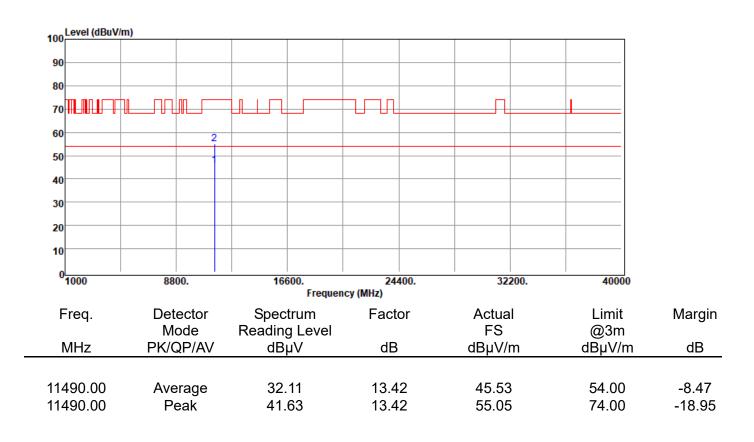
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 4 Temp./Humi. :24.4/56

Test Channel :5745 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



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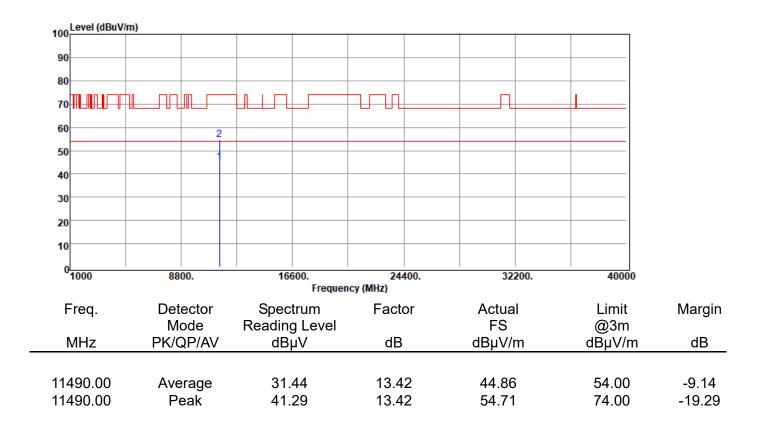
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Operation Mode :802.11a / Band 4 Temp./Humi. :24.4/56

:HORIZONTAL **Test Channel** :5745 MHz Antenna Pol.

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



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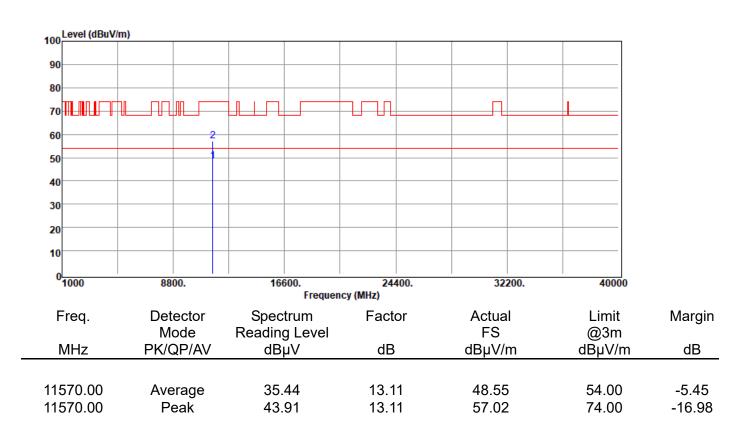
Report Number **Test Date** :2019-10-25 :E2/2019/90023

Operation Mode :802.11a / Band 4 Temp./Humi. :22.4/63

Test Channel :5785 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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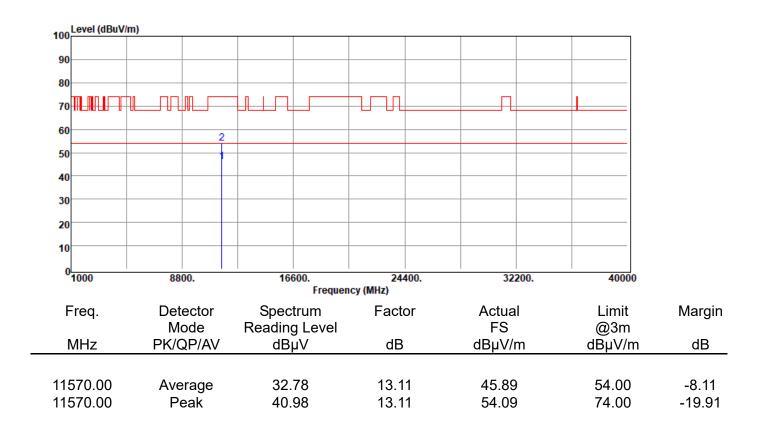
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Operation Mode :802.11a / Band 4 Temp./Humi. :22.4/63

Test Channel :5785 MHz Antenna Pol. :HORIZONTAL

Test Mode :TX CH MID Engineer :Enzo

EUT Pol :E2 Plan



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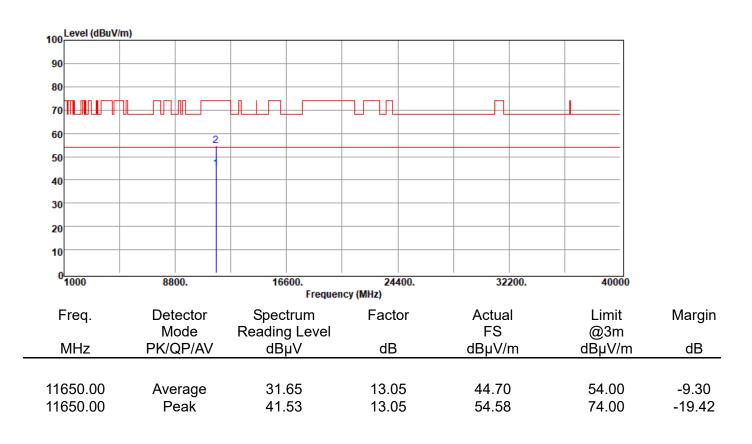
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11a / Band 4 Temp./Humi. :24.4/56

Test Channel :5825 MHz Antenna Pol. :VERTICAL

:TX CH HIGH Test Mode Engineer :Kailin

EUT Pol :E2 Plan



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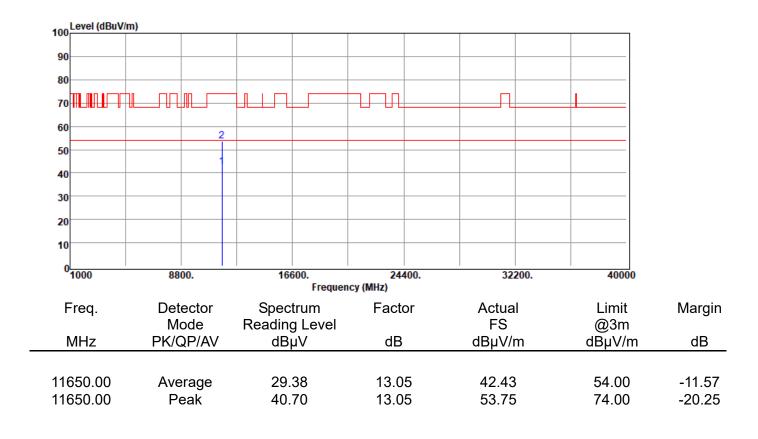
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Operation Mode :802.11a / Band 4 Temp./Humi. :24.4/56

:HORIZONTAL **Test Channel** :5825 MHz Antenna Pol.

:TX CH HIGH Test Mode Engineer :Kailin

EUT Pol :E2 Plan



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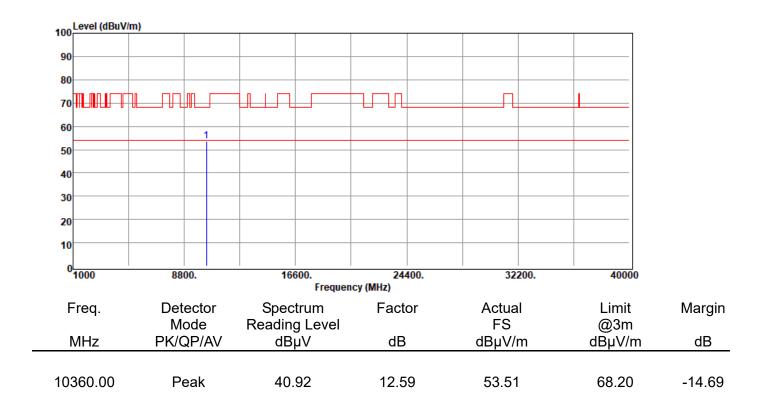
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11n20 / Band 1 Temp./Humi. :24.6/55

Test Channel :5180 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH LOW Engineer :Kailin

EUT Pol :E2 Plan



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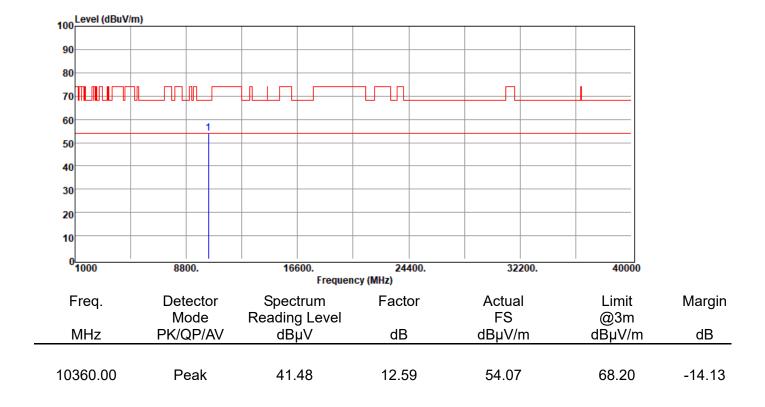
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11n20 / Band 1 Temp./Humi. :24.6/55

:5180 MHz :HORIZONTAL **Test Channel** Antenna Pol.

Test Mode :TX CH LOW Engineer :Kailin





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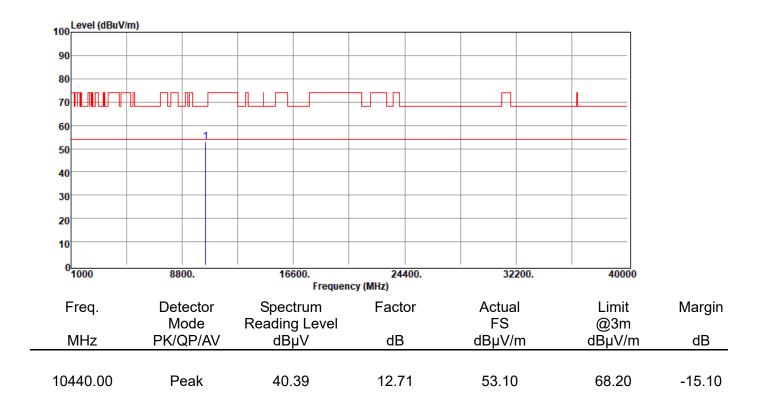
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Operation Mode :802.11n20 / Band 1 Temp./Humi. :24.6/55

Test Channel :5220 MHz Antenna Pol. :VERTICAL

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



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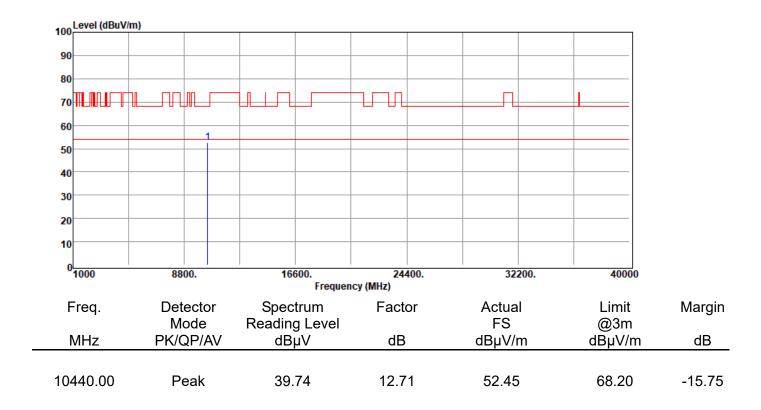
Report Number **Test Date** :2019-11-13 :E2/2019/90023

Operation Mode :802.11n20 / Band 1 Temp./Humi. :24.6/55

:HORIZONTAL **Test Channel** :5220 MHz Antenna Pol.

Test Mode :TX CH MID Engineer :Kailin

EUT Pol :E2 Plan



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