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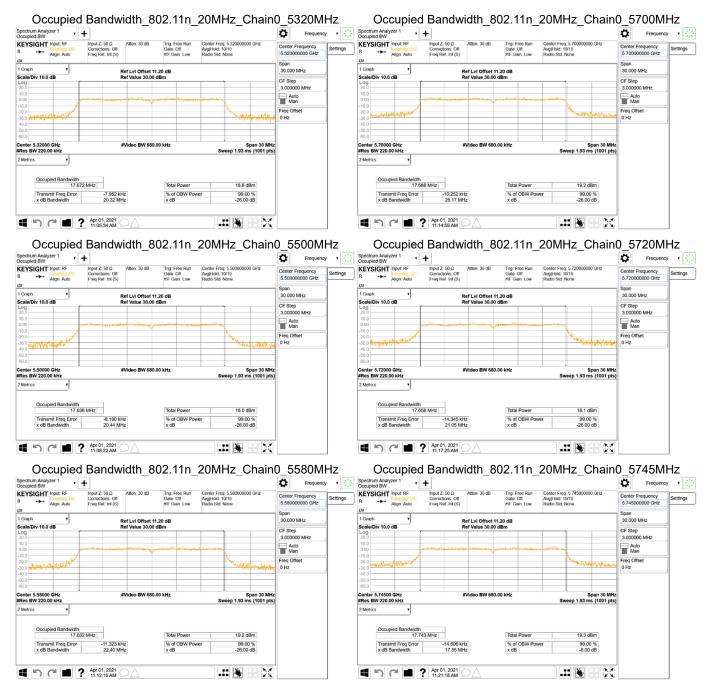
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MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

9.1 Standard Applicable

FCC

				LIMI	IT	
Band	С	EUT ATEGORY	Conducted Output Power	EIRP	TPC	Antenna Directional Gain Requirements
		Fixed point-to-point	1 Watt(30dBm)	Not required	Not required	23dBi
	☐ Out door AP 1 Watt(30dBm)		Elevation angle above 30 degrees 125mW (21dBm)	Not required	6dBi	
	☐ Other 250mW(23.98dB		250mW(23.98dBm)	Not required	Not required	6dBi
U-NII-2A	\boxtimes	Other	250mW(23.98dBm) or 11dBm+10 log B	Not required	When EIRP >500mW	6dBi
U-NII-2C	X	Other	250mW(23.98dBm) or 11dBm+10 log B	Not required	At least 6dB below EIRP 1W (30dBm)	6dBi
	\boxtimes	Other	1 Watt(30dBm)	Not required	Not required	6dBi
U-NII-3		Fixed point-to-point	1 Watt(30dBm)	Not required	Not required	Not required

If transmitting antennas of directional gain greater than the antenna requirements column, the Maximum transmit power shall be reduced by the amount in dB that the direction-al gain of the antenna.

ISED

FREQUENCY		Lim	its of RSS-247 6.	2.1~6.2.4					
BAND (MHz)		EIRP	Conducted Output Power	TPC					
5150~5250	×	200 mW or 10 + 10 log ₁₀ B dBm	N/A	Vehicle use, at least 3dB below 30mW EIRP					
5250~5350		1.0 W or	250 mW or	Vehicle use, at least 3dB below 30mW EIRP or					
5250~5550		17 + 10 log ₁₀ B dBm	11 +10 log ₁₀ B	EIRP >500mW, at least 6dB be low 1W EIRP					
5470-5600 and 5650-5725	×	1.0 W or 17 + 10 log ₁₀ B dBm	250 mW or 11 +10 log ₁₀ B	EIRP >500mW, at least 6dB below 1W EIRP					
5725~5850		N/A	1 W	N/A					
	nas c	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:

The antenna gain is not greater 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.

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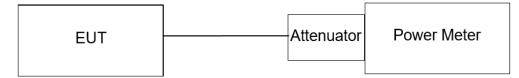


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9.3 **Measurement Equipment Used**

	Conducted I	Emission Test \$	Site: Conducted	A k	
EQUIPMENT TYPE	MFR/BRAND	MODEL NUM- BER	SERIAL NUM- BER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1512003	07/23/2020	07/22/2021
Power Sensor	Anritsu	MA2411B	1339378	07/23/2020	07/22/2021
Power Sensor	Anritsu	MA2411B	1339379	07/23/2020	07/22/2021
DC Power Supply	Agilent	E3640A	MY53130054	09/07/2020	09/06/2021
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021
Attenuator	Marvelous	MVE2213-10	RF10	11/19/2020	11/18/2021

9.4 **Test Set-up**



9.5 **Measurement Result**

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power limits are the lesser of 250 mW (23.98dBm) or 11 dBm + 10 log B and EIRP limits are the lesser of 1.0W (30dBm) or 17 + 10 log B.

- Where B is the 26 dB emission bandwidth in megahertz for FCC compliance. 1.
- And B is the 99% for ISED compliance.

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9.5.1 **Conducted output power (FCC)**

802.11a Ch0

СН	Frequency (MHz)	Data Rate	Power set	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	6	17	15.58	36.121		23.98		PASS
44	5220	6	20	17.90	61.626		23.98		PASS
48	5240	6	19.5	17.50	56.204		23.98		PASS
52	5260	6	19.5	17.58	57.249	23.98	or 11+10log(B) =	25.62	PASS
60	5300	6	20	17.96	62.483	23.98	or 11+10log(B) =	25.77	PASS
64	5320	6	17	15.80	37.998	23.98	or 11+10log(B) =	24.73	PASS
100	5500	6	17	15.95	39.334	23.98	or 11+10log(B) =	24.86	PASS
116	5580	6	18	16.92	49.177	23.98	or 11+10log(B) =	25.55	PASS
140	5700	6	18	16.58	45.474	23.98	or 11+10log(B) =	25.63	PASS
144	5720(U-NII 2C)	6	17	14.37	27.34	23.98	or 11+10log(B) =	22.93	PASS
144	5720 (U-NII 3)	6	17	9.91	9.79		30		PASS
149	5745	6	18	16.63	46.001		30		PASS
157	5785	6	18	16.68	46.533		30		PASS
165	5825	6	18	16.73	47.072		30		PASS

802.11n_HT20_Ch0

	<u> </u>		I _	TOTAL	TOTAL		REQUIRED		
СН	Frequency (MHz)	Data Rate	Power set	POWER (dBm)	POWER (mW)		LIMIT (dBm)		RESULT
36	5180	MCS0	16	14.68	29.405		23.98		PASS
44	5220	MCS0	18	16.68	46.604		23.98		PASS
48	5240	MCS0	18	16.67	46.497		23.98		PASS
52	5260	MCS0	18	16.65	46.284	23.98	or 11+10log(B) =	25.59	PASS
60	5300	MCS0	18	16.64	46.177	23.98	or 11+10log(B) =	25.63	PASS
64	5320	MCS0	16	14.67	29.338	23.98	or 11+10log(B) =	24.09	PASS
100	5500	MCS0	15.5	14.72	29.677	23.98	or 11+10log(B) =	24.07	PASS
116	5580	MCS0	16	15.69	37.105	23.98	or 11+10log(B) =	24.03	PASS
140	5700	MCS0	17	15.66	36.849	23.98	or 11+10log(B) =	25.36	PASS
144	5720(U-NII 2C)	MCS0	16	13.26	21.18	23.98	or 11+10log(B) =	22.90	PASS
144	5720 (U-NII 3)	MCS0	16	8.75	7.49		30		PASS
149	5745	MCS0	17	15.67	36.934		30		PASS
157	5785	MCS0	17	15.75	37.621		30		PASS
165	5825	MCS0	17	15.62	36.511		30		PASS

802 11n HT40 Ch0

002.1111_П	1 10_01.0								
СН	Frequency (MHz)	Data Rate	Power set	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
38	5190	MCS0	15	13.96	24.900		23.98		PASS
46	5230	MCS0	17	15.82	38.212		23.98		PASS
54	5270	MCS0	17	15.95	39.373	23.98	or 11+10log(B) =	27.99	PASS
62	5310	MCS0	15	13.99	25.072	23.98	or 11+10log(B) =	27.08	PASS
102	5510	MCS0	15	13.93	24.728	23.98	or 11+10log(B) =	27.28	PASS
110	5550	MCS0	17	15.92	39.102	23.98	or 11+10log(B) =	27.80	PASS
134	5670	MCS0	17	15.90	38.922	23.98	or 11+10log(B) =	27.93	PASS
142	5710(U-NII 2C)	MCS0	15	13.26	21.18	23.98	or 11+10log(B) =	26.47	PASS
142	5710 (U-NII 3)	MCS0	15	4.99	3.15		30		PASS
151	5755	MCS0	17	15.86	38.565		30		PASS
159	5795	MCS0	17	15.91	39.012		30		PASS

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9.5.2 **ISED EIRP**

802.11a Ch0

00 <u>2. 1 14_</u> 01	1.9								
СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	15.58	4.750	20.33	107.836	23.01	or 10+10log(B)=	22.21	PASS
44	5220	15.72	4.750	20.47	111.429	23.01	or 10+10log(B)=	22.48	PASS
48	5240	15.78	4.750	20.53	112.980	23.01	or 10+10log(B)=	22.27	PASS
52	5260	17.58	4.750	22.33	170.909	30	or 17+10log(B)=	29.28	PASS
60	5300	17.96	4.750	22.71	186.537	30	or 17+10log(B)=	29.48	PASS
64	5320	15.80	4.750	20.55	113.440	30	or 17+10log(B)=	29.21	PASS
100	5500	15.95	4.750	20.70	117.426	30	or 17+10log(B)=	29.21	PASS
116	5580	16.92	4.750	21.67	146.813	30	or 17+10log(B)=	29.23	PASS
140	5700	16.58	4.750	21.33	135.758	30	or 17+10log(B)=	29.22	PASS

802.11n HT20 Ch0

СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
36	5180	14.68	4.750	19.43	87.786	23.01	or 10+10log(B)=	22.46	PASS
44	5220	16.48	4.750	21.23	132.739	23.01	or 10+10log(B)=	22.50	PASS
48	5240	16.03	4.750	20.78	119.674	23.01	or 10+10log(B)=	22.50	PASS
52	5260	16.65	4.750	21.40	138.174	30	or 17+10log(B)=	29.50	PASS
60	5300	16.64	4.750	21.39	137.856	30	or 17+10log(B)=	29.50	PASS
64	5320	14.67	4.750	19.42	87.584	30	or 17+10log(B)=	29.47	PASS
100	5500	14.72	4.750	19.47	88.599	30	or 17+10log(B)=	29.46	PASS
116	5580	15.69	4.750	20.44	110.771	30	or 17+10log(B)=	29.46	PASS
140	5700	15.66	4.750	20.41	110.009	30	or 17+10log(B)=	29.48	PASS

802.11n HT40 Ch0

002.1111_111	· ··-								
СН	Frequency (MHz)	TOTAL POWER (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)		REQUIRED LIMIT (dBm)		RESULT
38	5190	13.96	4.750	18.71	74.335	23.01	or 10+10log(B)=	25.58	PASS
46	5230	15.82	4.750	20.57	114.076	23.01	or 10+10log(B)=	25.59	PASS
54	5270	15.95	4.750	20.70	117.543	30	or 17+10log(B)=	32.59	PASS
62	5310	13.99	4.750	18.74	74.851	30	or 17+10log(B)=	32.59	PASS
102	5510	13.93	4.750	18.68	73.824	30	or 17+10log(B)=	32.58	PASS
110	5550	15.92	4.750	20.67	116.734	30	or 17+10log(B)=	32.59	PASS
134	5670	15.90	4.750	20.65	116.197	30	or 17+10log(B)=	32.59	PASS

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9.5.3 **Conducted output power**

802.11a Ch0

002.11a_C	110						
СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
52	5260	17.58	57.249	23.98	or 11+10log(B) =	23.28	PASS
60	5300	17.96	62.483	23.98	or 11+10log(B) =	23.48	PASS
64	5320	15.80	37.998	23.98	or 11+10log(B) =	23.21	PASS
100	5500	15.95	39.334	23.98	or 11+10log(B) =	23.21	PASS
116	5580	16.92	49.177	23.98	or 11+10log(B) =	23.23	PASS
140	5700	16.58	45.474	23.98	or 11+10log(B) =	23.22	PASS
144	5720(U-NII 2C)	14.37	27.341	23.98	or 11+10log(B) =	23.21	PASS
144	5720 (U-NII 3)	9.91	9.792		30		PASS
149	5745	16.63	46.001		30		PASS
157	5785	16.68	46.533		30		PASS
165	5825	16.73	47.072		30		PASS

802.11n HT20 Ch0

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
52	5260	16.65	46.284	23.98	or 11+10log(B) =	23.50	PASS
60	5300	16.64	46.177	23.98	or 11+10log(B) =	23.5	PASS
64	5320	14.67	29.338	23.98	or 11+10log(B) =	23.47	PASS
100	5500	14.72	29.677	23.98	or 11+10log(B) =	23.46	PASS
116	5580	15.69	37.105	23.98	or 11+10log(B) =	23.46	PASS
140	5700	15.66	36.849	23.98	or 11+10log(B) =	23.48	PASS
144	5720(U-NII 2C)	13.26	21.177	23.98	or 11+10log(B) =	23.47	PASS
144	5720 (U-NII 3)	8.75	7.493		30		PASS
149	5745	15.67	36.934		30		PASS
157	5785	15.75	37.621		30		PASS
165	5825	15.62	36.511		30		PASS

802 11n HT40 Ch0

002:1111_11	· <u> </u>						
СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)		REQUIRED LIMIT (dBm)		RESULT
54	5270	15.95	39.373	23.98	or 11+10log(B) = *	26.59	PASS
62	5310	13.99	25.072	23.98	or 11+10log(B) =	26.59	PASS
102	5510	13.93	24.728	23.98	or 11+10log(B) = *	26.58	PASS
110	5550	15.92	39.102	23.98	or 11+10log(B) = *	26.59	PASS
134	5670	15.90	38.922	23.98	or 11+10log(B) =	26.59	PASS
142	5710(U-NII 2C)	13.26	21.179	23.98	or 11+10log(B) =	26.58	PASS
142	5710 (U-NII 3)	4.99	3.154		30		PASS
151	5755	15.86	38.565		23.98		PASS
159	5795	15.91	39.012		23.98		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	T/UBITI/ IVITIZ
	\boxtimes	Mobile and portable client device	11dBm/ MHz
U-NII-2A	\boxtimes		11dBm/ MHz
U-NII-2C			11dBm/ MHz
U-NII-3	\boxtimes		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.

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

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

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SGS_Tailors Index the Tailors** Index the Tai SGS Taiwan Ltd.



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x, the integration with 26dB EBW bandwidth)

For U-NII-3 Band:

Set RBW= approximately 1% of EBW, VBW≥ 3RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto, detector = RMS or sample, traces 100 sweeps of video averaging.

- 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 complete.

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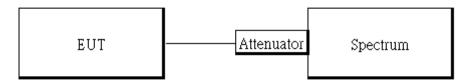


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10.3 **Measurement Equipment Used**

Conducted Emission Test Site: Conducted A								
EQUIPMENT TYPE	MFR/BRAND	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.			
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071573	06/26/2020	06/25/2021			
DC Power Supply	Agilent	E3640A	MY53130054	09/07/2020	09/06/2021			
Attenuator	Marvelous	MVE2213-10	RF09	11/19/2020	11/18/2021			
DC Block	PASTERNACK	PE8210	RF151	11/19/2020	11/18/2021			

10.4 Test Set-up



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10.5 **Measurement Result**

10.5.1 Power spectral density

	POWER DENSITY 802.11a MODE							
Frequency (MHz)	ch0 meas PSD (dBm/MHz)	Duty Factor (dB)	Maxmum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)		
5180.00	4.02	0.26	4.5	28	11.00 dBm/MHz	-6.72		
5220.00	6.02	0.26	6.2	28	11.00 dBm/MHz	-4.73		
5240.00	5.34	0.26	5.0	60	11.00 dBm/MHz	-5.40		
5260.00	5.72	0.26	5.9	98	11.00 dBm/MHz	-5.02		
5300.00	6.29	0.26	6.55		11.00 dBm/MHz	-4.45		
5320.00	3.96	0.26	4.22		11.00 dBm/MHz	-6.78		
5500.00	3.87	0.26	4.13		11.00 dBm/MHz	-6.87		
5580.00	5.16	0.26	5.4	42	11.00 dBm/MHz	-5.58		
5700.00	4.52	0.26	4.	78	11.00 dBm/MHz	-6.22		
5720 (U-NII 2C)	3.35	0.26	3.0	61	11.00 dBm/MHz	-7.39		
Frequency (MHz)	ch0 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maxmum Corr'd PSD (dBm/500kHz)	Limit	Margin (dB)		
5720 (U-NII 3)	-2.21	0.26	2.22	0.27	30.00 dBm/500kHz	-29.73		
5745.00	-0.86	0.26	2.22	1.62	30.00 dBm/500kHz	-28.38		
5785.00	-0.19	0.26	2.22	2.29	30.00 dBm/500kHz	-27.71		
5825.00	-0.45	0.26	2.22	2.03	30.00 dBm/500kHz	-27.97		

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	POWER DENSITY 802.11n HT20 MODE							
Frequency (MHz)	ch0 meas PSD (dBm/MHz)	Duty Factor (dB)	Maxmum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)		
5180.00	3.38	0.27	3.	65	11.00 dBm/MHz	-7.35		
5220.00	4.85	0.27	5.	12	11.00 dBm/MHz	-5.88		
5240.00	4.72	0.27	4.9	99	11.00 dBm/MHz	-6.01		
5260.00	4.96	0.27	5.:	23	11.00 dBm/MHz	-5.77		
5300.00	4.57	0.27	4.8	84	11.00 dBm/MHz	-6.16		
5320.00	2.88	0.27	3.	15	11.00 dBm/MHz	-7.85		
5500.00	2.00	0.27	2.27		11.00 dBm/MHz	-8.73		
5580.00	3.18	0.27	3.4	45	11.00 dBm/MHz	-7.55		
5700.00	3.11	0.27	3.3	38	11.00 dBm/MHz	-7.62		
5720 (U-NII 2C)	2.32	0.27	2.	59	11.00 dBm/MHz	-8.41		
Frequency (MHz)	ch0 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maxmum Corr'd PSD(dBm/500k Hz)	Limit	Margin (dB)		
5720 (U-NII 3)	-2.90	0.27	2.22	-0.41	30.00 dBm/500kHz	-30.41		
5745.00	-1.97	0.27	2.22	0.52	30.00 dBm/500kHz	-29.48		
5785.00	-1.79	0.27	2.22	0.70	30.00 dBm/500kHz	-29.30		
5825.00	-1.52	0.27	2.22	0.97	30.00 dBm/500kHz	-29.03		

	POWER DENSITY 802.11n HT40 MODE								
Frequency (MHz)	ch0 meas PSD (dBm/MHz)	Duty Factor (dB)	Maxmum Corr'd PSD(dBm/MHz)		Limit	Margin (dB)			
5190.00	-1.02	0.51	-0.	51	11.00 dBm/MHz	-11.51			
5230.00	0.84	0.51	1.3	35	11.00 dBm/MHz	-9.66			
5270.00	0.96	0.51	1.4	47	11.00 dBm/MHz	-9.53			
5310.00	-1.40	0.51	-0.89		11.00 dBm/MHz	-11.89			
5510.00	-1.19	0.51	-0.68		11.00 dBm/MHz	-11.68			
5550.00	1.09	0.51	1.0	60	11.00 dBm/MHz	-9.40			
5670.00	0.86	0.51	1.3	37	11.00 dBm/MHz	-9.63			
5710 (U-NII 2C)	-1.31	0.51	-0.	80	11.00 dBm/MHz	-11.80			
Frequency (MHz)	ch0 meas PSD (dBm/300kHz)	Duty Factor (dB)	10log (500kHz/RBW) Factor(dB)	Maxmum Corr'd PSD(dBm/500k Hz)	Limit	Margin (dB)			
5710 (U-NII 3)	-6.52	0.51	2.22	-3.79	30.00 dBm/500kHz	-33.79			
5755.00	-4.69	0.51	2.22	-1.96	30.00 dBm/500kHz	-31.96			
5795.00	-4.69	0.51	2.22	-1.96	30.00 dBm/500kHz	-31.96			

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10.5.2 **EIRP** spectral density

EIRP spectral density 802.11a MODE								
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP PSD (dBm)	Limit (dBm)	Margin (dB)			
5180	4.28	4.75	9.03	10	-0.97			
5220	4.64	4.75	9.39	10	-0.61			
5240	4.57	4.75	9.32	10	-0.68			

EIRP spectral density 802.11n HT20 MODE							
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP SD (dBm)	Limit (dBm)	Margin (dB)		
5180	3.65	4.75	8.40	10	-1.60		
5220	5.12	4.75	9.87	10	-0.13		
5240	4.55	4.75	9.30	10	-0.70		
EIRF	spectral d	ensity 802. <i>′</i>	11n HT40 M	ODE			
Freq. (MHz)	PSD (dBm)	Ant. Gain (dBi)	EIRP SD (dBm)	Limit (dBm)	Margin (dB)		
5190	-0.51	4.75	4.24	10	-5.76		
5230	1.35	4.75	6.10	10	-3.91		

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