## 9.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5260	17.624
Mid	5300	17.566
High	5320	17.578



Page 101 of 784

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Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5260	17.570
Mid	5300	17.609
High	5320	17.552



Page 102 of 784

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Channel	Frequency	99% Bandwidth	99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5260	17.575	17.562
Mid	5300	17.579	17.577
High	5320	17.579	17.565

# LOW CHANNEL



**MID CHANNEL** 



Page 103 of 784

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# **HIGH CHANNEL**



Page 104 of 784

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## 9.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5270	35.983
High	5310	36.017



Page 105 of 784

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Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5270	35.958
High	5310	36.027



Page 106 of 784

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Channel Frequency		99% Bandwidth	99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5270	35.993	35.991
High	5310	36.008	36.000

## LOW CHANNEL



# **HIGH CHANNEL**



Page 107 of 784

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## 9.3.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5290	75.478



#### **1TX Antenna 2 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5290	75.332



Page 108 of 784

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Channel Frequency		99% Bandwidth	99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Mid	5290	75.306	75.395

## **MID CHANNEL**



Page 109 of 784

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## 9.3.9. 802.11ac VHT160 MODE IN THE 5.2 & 5.3 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5250	154.030

🔅 Agilent 08:29:40 Aug 13, 2021		L	Measure
Ch Freq 5.25 GHz Occupied Bandwidth	Averages' 20	Trig Free	Meas Off
	Interlagoo. Ee		Channel Power
HP2021.8.11,16080,Conducted H Ref 30 dBm •Atten 30 dB •Peak		<b>~</b>	Occupied BW
10 B/ Dffst 1.2 Hereford and a finite state of the st		-	ACF
Center 5.250 0 GHz	2 MUz Susan 1 G	Span 320 MHz	Multi Carrier Power
Occupied Bandwidth	OCC BW %	Pwr 99.00 % K dB -26.00 dB	Power Stat CCDF
Transmit Freq Error -159.417 kl x dB Bandwidth 162.379 MH	- Hz z		More 1 of 2
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### **1TX Antenna 2 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Mid	5250	154.074



Page 110 of 784

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	Channel	Frequency	99% Bandwidth	99% Bandwidth
			Antenna 1	Antenna 2
		(MHz)	(MHz)	(MHz)
	Mid	5250	153.846	153.939

## **MID CHANNEL**



Page 111 of 784

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## 9.3.10. 802.11a MODE IN THE 5.6 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5500	16.412
Mid	5580	16.385
High	5700	16.412
144	5720	16.408



Page 112 of 784

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Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5500	16.353
Mid	5580	16.375
High	5700	16.382
144	5720	16.373



Page 113 of 784

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Channel	Channel Frequency 99% Bandwidth		99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5500	16.400	16.366
Mid	5580	16.366	16.387
High	5700	16.424	16.412
144	5720	16.402	16.391

# LOW CHANNEL



**MID CHANNEL** 



Page 114 of 784

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### REPORT NO: 13757234-E10V1 FCC ID:2AM5N-ML2M1

# **HIGH CHANNEL**



# **CHANNEL 144**



Page 115 of 784

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## 9.3.11. 802.11n HT20 MODE IN THE 5.6 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5500	17.551
Mid	5580	17.599
High	5700	17.583
144	5720	17.578



Page 116 of 784

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Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5500	17.590
Mid	5580	17.595
High	5700	17.570
144	5720	17.606



Page 117 of 784

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Channel	Channel Frequency 99% Bandwidth		99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5500	17.564	17.585
Mid	5580	17.554	17.575
High	5700	17.555	17.571
144	5720	17.606	17.616

# LOW CHANNEL



**MID CHANNEL** 



Page 118 of 784

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TEL:(510) 319-4000

### REPORT NO: 13757234-E10V1 FCC ID:2AM5N-ML2M1

# **HIGH CHANNEL**



**CHANNEL 144** 



Page 119 of 784

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## 9.3.12. 802.11n HT40 MODE IN THE 5.6 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5510	35.963
Mid	5550	36.014
High	5670	35.940
142	5710	36.014



Page 120 of 784

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TEL:(510) 319-4000

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5510	35.919
Mid	5550	36.030
High	5670	36.003
142	5710	36.015



Page 121 of 784

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FAX:(510) 661-0888

Channel Frequency 99% Bandwidth		99% Bandwidth	
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5510	35.970	35.980
Mid	5550	35.997	35.971
High	5670	35.995	36.020
142	5710	36.015	35.971

# LOW CHANNEL



**MID CHANNEL** 



Page 122 of 784

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### REPORT NO: 13757234-E10V1 FCC ID:2AM5N-ML2M1

# **HIGH CHANNEL**



# **CHANNEL 142**



Page 123 of 784

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## 9.3.13. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5530	75.436
High	5610	75.341
138	5690	75.443



Page 124 of 784

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Channel Frequency		99% Bandwidth
	(MHz)	(MHz)
Low	5530	75.415
High	5610	75.396
138	5690	75.329



Page 125 of 784

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Channel	Frequency	99% Bandwidth	99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5530	75.386	75.425
High	5610	75.270	75.384
138	5690	75.508	75.371

# LOW CHANNEL



**HIGH CHANNEL** 



Page 126 of 784

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## **CHANNEL 138**



Page 127 of 784

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## 9.3.14. 802.11ac VHT160 MODE IN THE 5.6 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5570	154.289



### **1TX Antenna 2 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5570	154.570



Page 128 of 784

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Channel	Frequency	99% Bandwidth	99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5570	154.301	154.221

## LOW CHANNEL



Page 129 of 784

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## 9.3.15. 802.11a MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	16.410
Mid	5785	16.382
High	5825	16.368



Page 130 of 784

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Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	16.393
Mid	5785	16.393
High	5825	16.378



Page 131 of 784

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Channel	Frequency	99% Bandwidth	99% Bandwidth
0.1.0.1		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5745	16.406	16.419
Mid	5785	16.394	16.457
High	5825	16.347	16.406

# LOW CHANNEL



**MID CHANNEL** 



Page 132 of 784

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# **HIGH CHANNEL**



Page 133 of 784

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## 9.3.16. 802.11n HT20 MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	17.555
Mid	5785	17.601
High	5825	17.553



Page 134 of 784

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Channel	Frequency	99% Bandwidth
	(MHz)	(MHz)
Low	5745	17.588
Mid	5785	17.605
High	5825	17.566



Page 135 of 784

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FAX:(510) 661-0888

Channel	Frequency	99% Bandwidth	99% Bandwidth
0.1.0.1		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Low	5745	17.599	16.326
Mid	5785	17.602	16.405
High	5825	16.418	16.451

# LOW CHANNEL



**MID CHANNEL** 



Page 136 of 784

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## **HIGH CHANNEL**



Page 137 of 784

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## 9.3.17. 802.11n HT40 MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth	
	(MHz)	(MHz)	
Low	5755	35.955	
High	5795	36.026	



Page 138 of 784

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#### **1TX Antenna 2 MODE**

Channel	Frequency	99% Bandwidth	
	(MHz)	(MHz)	
Low	5755	35.949	
High	5795	36.021	



Page 139 of 784

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### 2TX Antenna 1 + Antenna 2 CDD MODE

Channel Frequency		99% Bandwidth	99% Bandwidth	
		Antenna 1	Antenna 2	
	(MHz)	(MHz)	(MHz)	
Low	5755	35.921	35.968	
High	5795	35.970	35.941	

## LOW CHANNEL



# HIGH CHANNEL



Page 140 of 784

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## 9.3.18. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	99% Bandwidth	
	(MHz)	(MHz)	
Mid	5775	75.385	



Page 141 of 784

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### 1TX Antenna 2 MODE

Channel	Frequency	99% Bandwidth	
	(MHz)	(MHz)	
Mid	5775	75.384	

★ Agilent 23:59:36 Aug 12, 2021	Measure			
Ch Freq 5.775 GHz Trig Free	Meas Off			
DD2001 0 11 10 407 OF Crudwyd O	Channel Power			
Hr 2021.0.11,19437 Hr, CUNDUCTED H Ref 30 dBm #Atten 30 dB Peak	Occupied Bł			
10 Original Construction of Co	ACF			
dBCenter 5.775 00 GHz Span 160 MHz	Multi Carrier Power			
•Res BW 1 MHz         •VBW 3 MHz         Sweep 1.066 ms (1000 pts)           Occupied Bandwidth         Осс BW % Риг         99.00 %           7С 29.42 MU         x 4B         -26.00 dB	Power Stat CCDF			
Transmit Freq Error -7.599 kHz x dB Bandwidth 80.908 MHz	More 1 of 2			
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Page 142 of 784

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#### 2TX Antenna 1 + Antenna 2 CDD MODE

Channel Frequency		99% Bandwidth	99% Bandwidth
		Antenna 1	Antenna 2
	(MHz)	(MHz)	(MHz)
Mid	5775	75.365	75.428

## MID CHANNEL



Page 143 of 784

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# 9.4. 6 dB BANDWIDTH

## LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

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

### **RESULTS**

Page 144 of 784

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## 9.4.1. 802.11a MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	6 dB BW	Minimum
			Limit
	(MHz)	(MHz)	(MHz)
Low	5745	16.433	0.5
Mid	5785	16.011	0.5
High	5825	16.158	0.5
144	5720	3.122	0.5



Page 145 of 784

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#### **1TX Antenna 2 MODE**

Channel	Frequency	6 dB BW	Minimum
			Limit
	(MHz)	(MHz)	(MHz)
Low	5745	14.760	0.5
Mid	5785	16.378	0.5
High	5825	16.414	0.5
144	5720	3.146	0.5



Page 146 of 784

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### 2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency	requency 6 dB BW		Minimum
		Antenna 1	Antenna 2	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5745	16.439	16.341	0.5
Mid	5785	16.402	16.048	0.5
High	5825	16.317	16.323	0.5
144	5720	3.219	3.189	0.5

# LOW CHANNEL





# **MID CHANNEL**

Page 147 of 784

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## **HIGH CHANNEL**

CHANNEL 144



Page 148 of 784

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## 9.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	6 dB BW	Minimum
			Limit
	(MHz)	(MHz)	(MHz)
Low	5745	17.361	0.5
Mid	5785	17.220	0.5
High	5825	17.641	0.5
144	5720	3.842	0.5



Page 149 of 784

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#### **1TX Antenna 2 MODE**

Channel	Frequency	6 dB BW	Minimum
			Limit
	(MHz)	(MHz)	(MHz)
Low	5745	17.599	0.5
Mid	5785	17.635	0.5
High	5825	17.654	0.5
144	5720	3.842	0.5



Page 150 of 784

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### 2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Antenna 1	Antenna 2	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5745	17.617	16.359	0.5
Mid	5785	17.538	16.115	0.5
High	5825	16.414	16.359	0.5
144	5720	3.775	3.830	0.5

# LOW CHANNEL





# **MID CHANNEL**

Page 151 of 784

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## **HIGH CHANNEL**

**CHANNEL 144** 



Page 152 of 784

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## 9.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel Frequen		6 dB BW	Minimum
			Limit
	(MHz)	(MHz)	(MHz)
Low	5755	36.369	0.5
High	5795	36.394	0.5
142	5710	3.221	0.5



Page 153 of 784

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#### 1TX Antenna 2 MODE

Channel Fre		Frequency	6 dB BW	Minimum	
				Limit	
		(MHz)	(MHz)	(MHz)	
	Low	5755	36.333	0.5	
	High	5795	36.369	0.5	
	142	5710	3.197	0.5	



Page 154 of 784

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### 2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Antenna 1	Antenna 2	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Low	5755	36.394	35.930	0.5
High	5795	36.357	36.369	0.5
142	5710	3.197	3.209	0.5





# **HIGH CHANNEL**



Page 155 of 784

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## CHANNEL 142



Page 156 of 784

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## 9.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

#### **1TX Antenna 1 MODE**

Channel	Frequency	6 dB BW	Minimum	
			Limit	
	(MHz)	(MHz)	(MHz)	
Mid	5775	75.717	0.5	
138	5690	3.200	0.5	



Page 157 of 784

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#### **1TX Antenna 2 MODE**

Channel	Frequency	6 dB BW	Minimum
			Limit
	(MHz)	(MHz)	(MHz)
Mid	5775	71.664	0.5
138	5690	3.127	0.5



Page 158 of 784

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### 2TX Antenna 1 + Antenna 2 CDD MODE

Channel	Frequency	6 dB BW	6 dB BW	Minimum
		Antenna 1	Antenna 2	Limit
	(MHz)	(MHz)	(MHz)	(MHz)
Mid	5775	75.082	76.425	0.5
138	5690	3.200	3.225	0.5

# MID CHANNEL



# CHANNEL 138



Page 159 of 784

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# 9.5. OUTPUT POWER AND PSD

## <u>LIMITS</u>

# FCC §15.407(a)

## Band 5.15-5.25 GHz

(1)(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## (2)Bands 5.25-5.35 GHz and 5.47-5.725 GHz

The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## (3)(i)Band 5.725-5.85 GHz

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

Page 160 of 784

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# **RSS-247**

## Band 5.15-5.25 GHz

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

## Band 5.25-5.35 GHz

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

## Bands 5.47-5.6 GHz and 5.65-5.725 GHz

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

## Band 5.725-5.85 GHz

The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Page 161 of 784

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### TEST PROCEDURE

The measurement method used for output power is KDB 789033 D02 v02r01, Section E.3.b (Method PM-G) and for straddles channels KDB 789033 D02 v02r01, Section E.2.b (Method SA-1) was used.

The measurement method used for power spectral density is KDB 789033 D02 v02r01, Section  ${\sf F}$ 

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

### DIRECTIONAL ANTENNA GAIN

For 1 TX:

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

For 2 TX:

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting CDD in all MIMO modes.

For TxBF, Tx chains are correlated for power and correlated for PSD.

The directional gains are as follows:

	Chain 1	Chain 2	<b>Uncorrelated Chains</b>	<b>Correlated Chains</b>
U-NII	Antenna	Antenna	Directional	Directional
Band	Gain	Gain	Gain	Gain
	(dBi)	(dBi)	(dBi)	(dBi)
UNII-1	3.3	2.5	2.92	5.92
UNII-2A	3.3	2.9	3.10	6.11
UNII-2C	3.5	4.5	4.03	7.02
UNII-3	3.9	4.5	4.21	7.22

Page 162 of 784

### **RESULTS**

# 9.5.1. 802.11a MODE IN THE 5.2 GHz BAND

## 1TX Antenna 1 MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

### Antenna Gain and Limits

Channel	Frequency	Directional	Power	PSD
		Gain	Limit	Limit
	(ML)->	for Power	(dBm)	(dBm/
		(UDI)	(ubili)	1MHz)
Low	5180	3.30	24.00	11.00
Mid	5200	3.30	24.00	11.00
High	5240	3.30	24.00	11.00

0.00

Duty Cycle CF (dB)

Included in Calculations of Corr'd Power & PSD

### **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	14.21	14.21	24.00	-9.79
Mid	5200	14.45	14.45	24.00	-9.55
High	5240	14.36	14.36	24.00	-9.64

#### **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas PSD	Corr'd PSD	Limit	Margin
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/ 1MHz)	(dB)
Low	5180	4.12	4.12	11.00	-6.88
Mid	5200	4.19	4.19	11.00	-6.81
High	5240	4.16	4.16	11.00	-6.84

Page 163 of 784



Page 164 of 784

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### 1TX Antenna 1 MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

### Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Power	Limit	PSD	Limit
		BW		Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)	(dBm/	(dBm/
						1MHz)	1MHz)
Low	5180	16.388	3.30	22.15	18.85	10.00	6.70
Mid	5200	16.427	3.30	22.16	18.86	10.00	6.70
High	5240	16.401	3.30	22.15	18.85	10.00	6.70

 Duty Cycle CF (dB)
 0.00
 Included in Calculations of Corr'd Power & PSD

#### **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	14.21	14.21	18.85	-4.64
Mid	5200	14.45	14.45	18.86	-4.41
High	5240	14.36	14.36	18.85	-4.49

### **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5180	4.12	4.12	6.70	-2.58
Mid	5200	4.19	4.19	6.70	-2.51
High	5240	4.16	4.16	6.70	-2.54

Page 165 of 784

UL VERIFICATION SERVICES 47173 Benicia Street, Fremont, CA 94538; USA



Page 166 of 784

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## 1TX Antenna 2 MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

### Antenna Gain and Limits

Channel	Frequency	Directional	Power	PSD
		Gain	Limit	Limit
		for Power		
	(MHz)	(dBi)	(dBm)	(dBm/
				1MHz)
Low	5180	2.50	24.00	11.00
Mid	5200	2.50	24.00	11.00
High	5240	2.50	24.00	11.00

Duty Cycle CF (dB)0.00Included in Calculations of Corr'd Power & PSD

#### **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	14.12	14.12	24.00	-9.88
Mid	5200	14.05	14.05	24.00	-9.95
High	5240	14.13	14.13	24.00	-9.87

### **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5180	3.66	3.66	11.00	-7.34
Mid	5200	3.90	3.90	11.00	-7.11
High	5240	3.78	3.78	11.00	-7.22

Page 167 of 784

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Page 168 of 784

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### 1TX Antenna 2 MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

### Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Power	Limit	PSD	Limit
		BW		Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)	(dBm/	(dBm/
						1MHz)	1MHz)
Low	5180	16.374	2.50	22.14	19.64	10.00	7.50
Mid	5200	16.380	2.50	22.14	19.64	10.00	7.50
High	5240	16.391	2.50	22.15	19.65	10.00	7.50

Duty Cycle CF (dB)0.00Included in Calculations of Corr'd Power & PSD

### **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	14.12	14.12	19.64	-5.52
Mid	5200	14.05	14.05	19.64	-5.59
High	5240	14.13	14.13	19.65	-5.52

### **PSD** Results

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
	<i>(</i> <b>111</b> )	PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5180	3.66	3.66	7.50	-3.84
Mid	5200	3.90	3.90	7.50	-3.61
High	5240	3.78	3.78	7.50	-3.72

Page 169 of 784



Page 170 of 784

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### 2TX Antenna 1 + Antenna 2 CDD MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

#### Antenna Gain and Limits

Channel	Frequency	Directional	Directional	Power	PSD	
		Gain	Gain	Limit	Limit	
		for Power	for PSD			
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm/	
					1MHz)	
Low	5180	2.92	5.92	24.00	11.00	
Mid	5200	2.92	5.92	24.00	11.00	
High	5240	2.92	5.92	24.00	11.00	

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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#### **Output Power Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	13.45	13.5	16.49	24.00	-7.51
Mid	5200	13.44	13.8	16.63	24.00	-7.37
High	5240	13.89	13.99	16.95	24.00	-7.05

#### **PSD** Results

Channel	Frequency	Antenna 1	Antenna 2	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm/	(dBm/	(dBm/	(dBm/	(dB)
		1MHz)	1MHz)	1MHz)	1MHz)	
Low	5180	3.48	3.31	6.41	11.00	-4.59
Mid	5200	2.79	3.00	5.91	11.00	-5.09
High	5240	3.30	4.02	6.68	11.00	-4.32

Page 171 of 784

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# LOW CHANNEL

# MID CHANNEL



Page 172 of 784

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## **HIGH CHANNEL**

Page 173 of 784

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## 2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

0.00

#### Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Gain	Power	Limit	PSD	Limit
		BW	for Power	for PSD	Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)	(dBm/1MHz)	(dBm/1MHz)
Low	5180	16.437	2.92	5.92	22.16	19.24	10.00	4.08
Mid	5200	16.352	2.92	5.92	22.14	19.22	10.00	4.08
High	5240	16.377	2.92	5.92	22.14	19.22	10.00	4.08

Duty Cycle CF (dB)

Included in Calculations of Corr'd PSD

#### **Output Power Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	9.30	9.87	12.60	19.24	-6.63
Mid	5200	9.46	9.98	12.74	19.22	-6.48
High	5240	9.64	10.06	12.87	19.22	-6.36

#### **PSD Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/1MHz)	(dB)
Low	5180	-0.46	-0.23	2.67	4.08	-1.41
Mid	5200	-0.60	-0.10	2.67	4.08	-1.41
High	5240	-0.42	-0.22	2.69	4.08	-1.39

Page 174 of 784



# LOW CHANNEL

## MID CHANNEL



Page 175 of 784

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## **HIGH CHANNEL**

Page 176 of 784

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## 9.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

## 1TX Antenna 1 MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Antenna Gain and Limits

Channel	Frequency	Directional	Power	PSD
		Gain	Limit	Limit
		for Power		
	(MHz)	(dBi)	(dBm)	(dBm/ 1MHz)
Low	5190	2.20	24.00	11.00
LOW	0016	3.30	24.00	11.00
Mid	5200	3.30	24.00	11.00
High	5240	3.30	24.00	11.00

Duty Cycle CF (dB)0.00Included in Calculations of Corr'd Power & PSD

## **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	14.32	14.32	24.00	-9.68
Mid	5200	14.11	14.11	24.00	-9.89
High	5240	14.05	14.05	24.00	-9.95

## **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5180	3.78	3.78	11.00	-7.22
Mid	5200	4.00	4.00	11.00	-7.00
High	E240	1 00	1 00	11 00	7 00

Page 177 of 784

UL VERIFICATION SERVICES 47173 Benicia Street, Fremont, CA 94538; USA



Page 178 of 784

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## 1TX Antenna 1 MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Power	Limit	PSD	Limit
		BW		Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)	(dBm/	(dBm/
						1MHz)	1MHz)
Low	5180	17.591	3.30	22.45	19.15	10.00	6.70
Mid	5200	17.595	3.30	22.45	19.15	10.00	6.70
High	5240	17.555	3.30	22.44	19.14	10.00	6.70

Duty Cycle CF (dB)0.00Included in Calculations of Corr'd Power & PSD

## **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	14.32	14.32	19.15	-4.83
Mid	5200	14.11	14.11	19.15	-5.04
High	5240	14.05	14.05	19.14	-5.09

## **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd PSD	Limit	Margin
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/ 1MHz)	(dB)
Low	5180	3.78	3.78	6.70	-2.92
Mid	5200	4.00	4.00	6.70	-2.70
High	5240	4.00	4.00	6.70	-2.70

Page 179 of 784



Page 180 of 784

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## 1TX Antenna 2 MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Antenna Gain and Limits

Channel	Frequency	Directional	Power	PSD
		Gain	Limit	Limit
		for Power		
	(MHz)	(dBi)	(dBm)	(dBm/
				1MHz)
Low	5180	2.50	24.00	11.00
Mid	5200	2.50	24.00	11.00
High	5240	2.50	24.00	11.00

Duty Cycle CF (dB)0.00Included in Calculations of Corr'd Power & PSD

### **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	13.92	13.92	24.00	-10.08
Mid	5200	13.75	13.75	24.00	-10.25
High	5240	13.85	13.85	24.00	-10.15

## **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5180	2.90	2.90	11.00	-8.10
Mid	5200	3.67	3.67	11.00	-7.33
High	5240	3.41	3.41	11.00	-7.59

Page 181 of 784

UL VERIFICATION SERVICES 47173 Benicia Street, Fremont, CA 94538; USA



Page 182 of 784

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## 1TX Antenna 2 MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Power	Limit	PSD	Limit
		BW		Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)	(dBm/	(dBm/
						1MHz)	1MHz)
Low	5180	17.581	2.50	22.45	19.95	10.00	7.50
Mid	5200	17.597	2.50	22.45	19.95	10.00	7.50
High	5240	17.547	2.50	22.44	19.94	10.00	7.50

Duty Cycle CF (dB)0.00Included in Calculations of Corr'd Power & PSD

## **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	13.92	13.92	19.95	-6.03
Mid	5200	13.75	13.75	19.95	-6.20
High	5240	13.85	13.85	19.94	-6.09

## **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
	()	(	(	1MHz)	()
Low	5180	2.90	2.90	7.50	-4.60
Mid	5200	3.67	3.67	7.50	-3.83
High	5240	3.41	3.41	7.50	-4.09

Page 183 of 784



Page 184 of 784

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## 2TX Antenna 1 + Antenna 2 CDD MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

#### Antenna Gain and Limits

Channel	Frequency	Directional	Directional	Power	PSD
		Gain	Gain	Limit	Limit
		for Power	for PSD		
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm/
					1MHz)
Low	5180	2.92	5.92	24.00	11.00
Mid	5200	2.92	5.92	24.00	11.00
High	5240	2.92	5.92	24.00	11.00

 Duty Cycle CF (dB)
 0.00
 Included in Calculations of Corr'd Power & PSD

#### **Output Power Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	13.57	13.17	16.38	24.00	-7.62
Mid	5200	13.05	13.36	16.22	24.00	-7.78
High	5240	13.54	13.76	16.66	24.00	-7.34

## **PSD** Results

Channel	Frequency	Antenna 1	Antenna 2	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm/	(dBm/	(dBm/	(dBm/	(dB)
		1MHz)	1MHz)	1MHz)	1MHz)	
Low	5180	2.837	2.828	5.84	11.00	-5.16
Mid	5200	2.651	2.782	5.73	11.00	-5.27
High	5240	3.096	3.357	6.24	11.00	-4.76

Page 185 of 784

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## LOW CHANNEL

## MID CHANNEL



Page 186 of 784

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## **HIGH CHANNEL**

Page 187 of 784

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FAX:(510) 661-0888

## 2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

0.00

#### Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Gain	Power	Limit	PSD	Limit
		BW	for Power	for PSD	Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBi)	(dBm)	(dBm)	(dBm/1MHz)	(dBm/1MHz)
Low	5180	17.594	2.92	5.92	22.45	19.53	10.00	4.08
Mid	5200	17.556	2.92	5.92	22.44	19.52	10.00	4.08
High	5240	17.556	2.92	5.92	22.44	19.52	10.00	4.08

Duty Cycle CF (dB)

Included in Calculations of Corr'd PSD

#### **Output Power Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5180	9.59	10.25	12.94	19.53	-6.59
Mid	5200	9.67	10.22	12.96	19.52	-6.56
High	5240	9.80	10.23	13.03	19.52	-6.49

#### **PSD Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/1MHz)	(dB)
Low	5180	-0.54	-0.30	2.59	4.08	-1.49
Mid	5200	-0.55	-0.23	2.63	4.08	-1.45
High	5240	-0.38	0.01	2.83	4.08	-1.25

Page 188 of 784



# LOW CHANNEL

## MID CHANNEL



Page 189 of 784

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## **HIGH CHANNEL**

Page 190 of 784

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## 9.5.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

## 1TX Antenna 1 MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Antenna Gain and Limits

Channel	Frequency	Directional	Power	PSD
		Gain	Limit	Limit
		for Power		
	(MHz)	(dBi)	(dBm)	(dBm/
				1MHz)
Low	5190	3.30	24.00	11.00
High	5230	3.30	24.00	11.00

Duty Cycle CF (dB) 0.00 Included in Calculations	s of Corr'd Power & PSD
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## **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	14.86	14.86	24.00	-9.14
High	5230	14.76	14.76	24.00	-9.24

## **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5190	1.38	1.38	11.00	-9.62
High	5230	1.21	1.21	11.00	-9.79

Page 191 of 784

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Page 192 of 784

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## 1TX Antenna 1 MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Power	Limit	PSD	Limit
		BW		Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)	(dBm/	(dBm/
						1MHz)	1MHz)
Low	5190	35.971	3.30	23.00	19.70	10.00	6.70
High	5230	35.956	3.30	23.00	19.70	10.00	6.70

Duty C	ycle CF (	dB)	0.00	Included in Calculations of Corr'd Power & PSD
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## **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	14.86	14.86	19.70	-4.84
High	5230	14.76	14.76	19.70	-4.94

## **PSD Results**

Channel	Frequency		Total	PSD	PSD
		Meas PSD	Corr'd PSD	Limit	Margin
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/ 1MHz)	(dB)
Low	5190	1.38	1.38	6.70	-5.32
High	5230	1.21	1.21	6.70	-5.49

Page 193 of 784



Page 194 of 784

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## 1TX Antenna 2 MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Antenna Gain and Limits

Channel	Frequency	Directional	Power	PSD
		Gain	Limit	Limit
		for Power		
	(MHz)	(dBi)	(dBm)	(dBm/
				1MHz)
Low	5190	2.50	24.00	11.00
High	5230	2.50	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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## Output Power Results

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	13.92	13.92	24.00	-10.08
Hiah	5230	13.86	13.86	24.00	-10.14

## PSD Results

Channel	Frequency		Total	PSD	PSD
		Meas	Corr'd	Limit	Margin
		PSD	PSD		
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5190	0.86	0.86	11.00	-10.14
High	5230	0.61	0.61	11.00	-10.39

Page 195 of 784



Page 196 of 784

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## 1TX Antenna 2 MODE (IC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Bandwidth, Antenna Gain, and Limits

Channel	Frequency	Min	Directional	EIRP	Power	EIRP	PSD
		99%	Gain	Power	Limit	PSD	Limit
		BW		Limit		Limit	
	(MHz)	(MHz)	(dBi)	(dBm)	(dBm)	(dBm/	(dBm/
						1MHz)	1MHz)
Low	5190	36.011	2.50	23.00	20.50	10.00	7.50
High	5230	35.959	2.50	23.00	20.50	10.00	7.50

Duty Cycle	CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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## **Output Power Results**

Channel	Frequency		Total	Power	Power
		Meas	Corr'd	Limit	Margin
		Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	13.92	13.92	20.50	-6.58
High	5230	13.86	13.86	20.50	-6.64

## PSD Results

Channel	Frequency		Total	PSD	PSD
		Meas PSD	Corr'd PSD	Limit	Margin
	(MHz)	(dBm/1MHz)	(dBm/1MHz)	(dBm/	(dB)
				1MHz)	
Low	5190	0.86	0.86	7.50	-6.64
High	5230	0.61	0.61	7.50	-6.89

Page 197 of 784



Page 198 of 784

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## 2TX Antenna 1 + Antenna 2 CDD MODE (FCC)

Test Engineer:	16080 ZS
Test Date:	8/17/21

## Antenna Gain and Limits

Channel	Frequency	Directional	Directional	Power	PSD
		Gain for Power	Gain for PSD	Limit	Limit
	(MHz)	(dBi)	(dBi)	(dBm)	(dBm/
	<b>x</b> ,				1MHz)
Low	5190	2.92	5.92	24.00	11.00
High	5230	2.92	5.92	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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### **Output Power Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	Power	Power
		Meas	Meas	Corr'd	Limit	Margin
		Power	Power	Power		
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dB)
Low	5190	13.57	13.96	16.78	24.00	-7.22
High	5230	13.49	13.99	16.76	24.00	-7.24

## **PSD Results**

Channel	Frequency	Antenna 1	Antenna 2	Total	PSD	PSD
		Meas	Meas	Corr'd	Limit	Margin
		PSD	PSD	PSD		
	(MHz)	(dBm/	(dBm/	(dBm/	(dBm/	(dB)
		1MHz)	1MHz)	1MHz)	1MHz)	
Low	5190	-0.10	0.83	3.40	11.00	-7.60
High	5230	-0.02	0.91	3.48	11.00	-7.52

Page 199 of 784



# LOW CHANNEL





Page 200 of 784

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