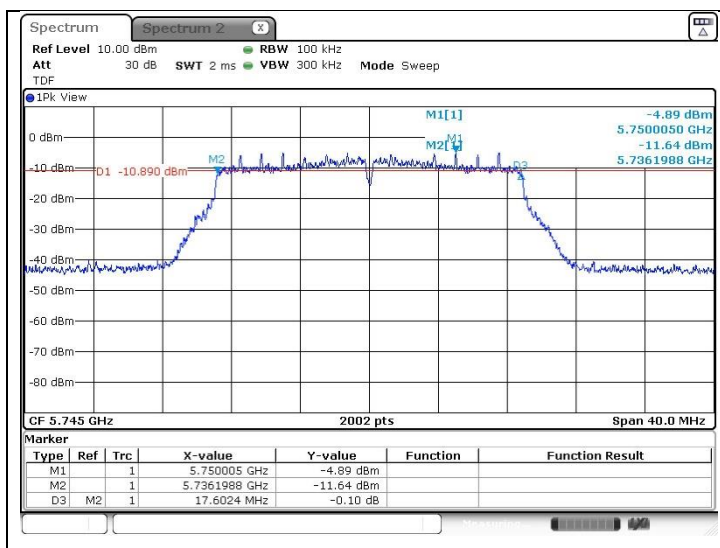
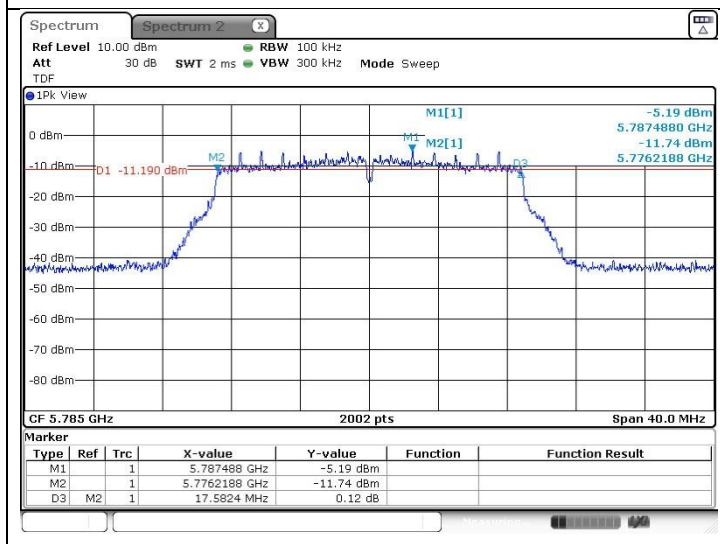


802.11ac_VHT20 (Band 3)

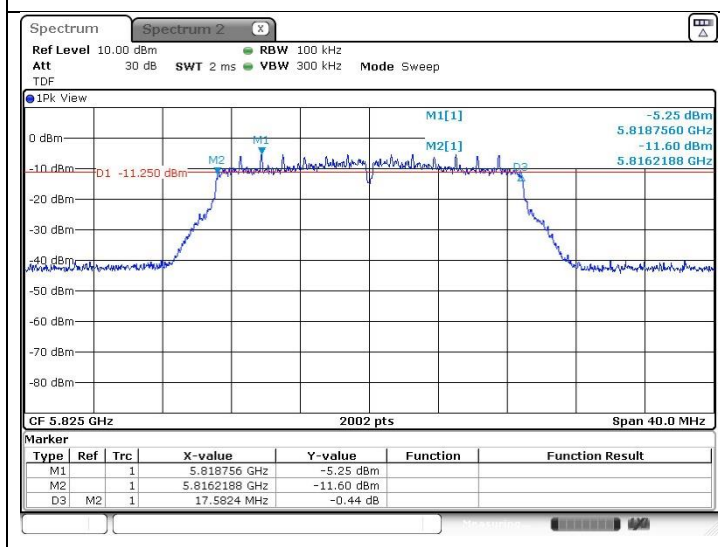
Low Channel
(5 745 MHz)



Middle Channel
(5 785 MHz)

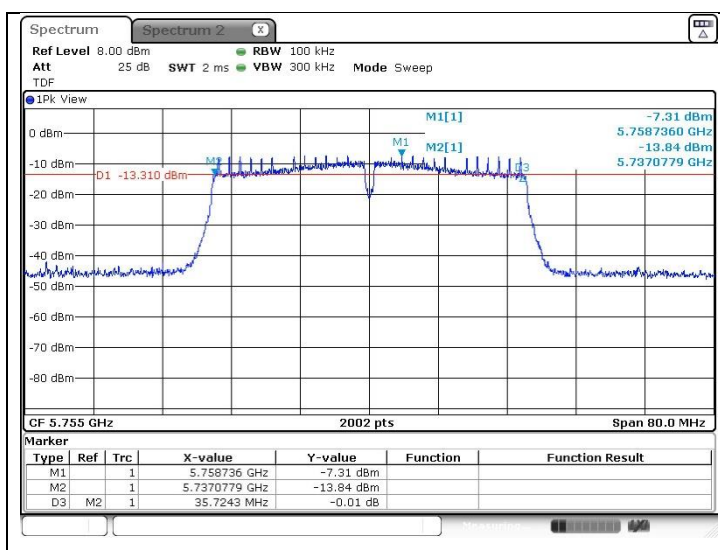


High Channel
(5 825 MHz)

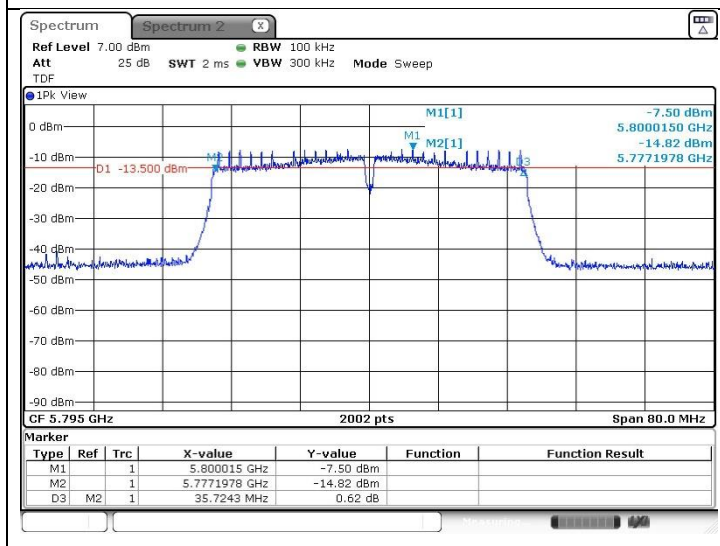


802.11n_HT40 (Band 3)

Low Channel
(5 755 MHz)

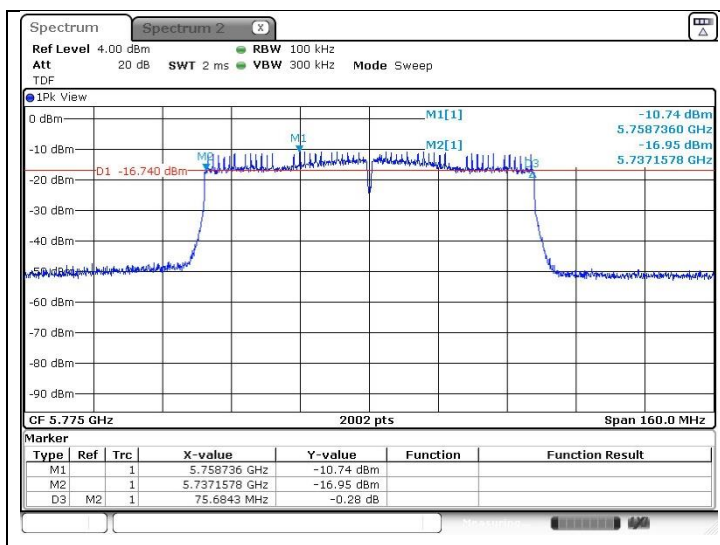


High Channel
(5 795 MHz)



802.11ac_VHT80 (Band 3)

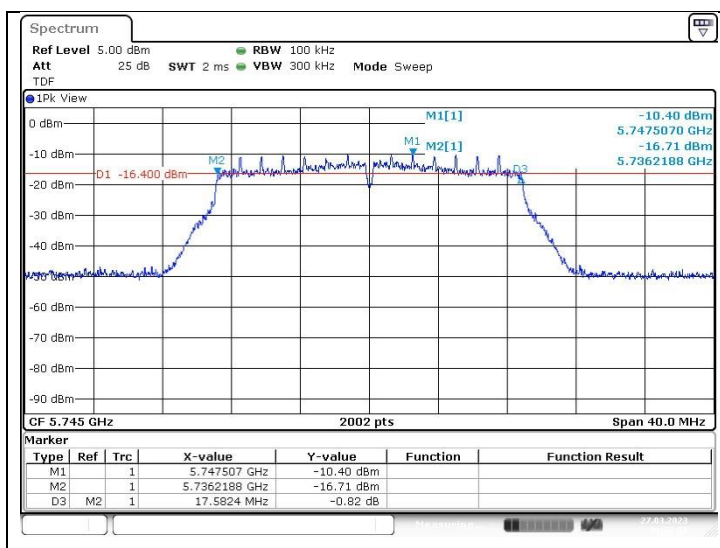
Middle Channel
(5 775 MHz)



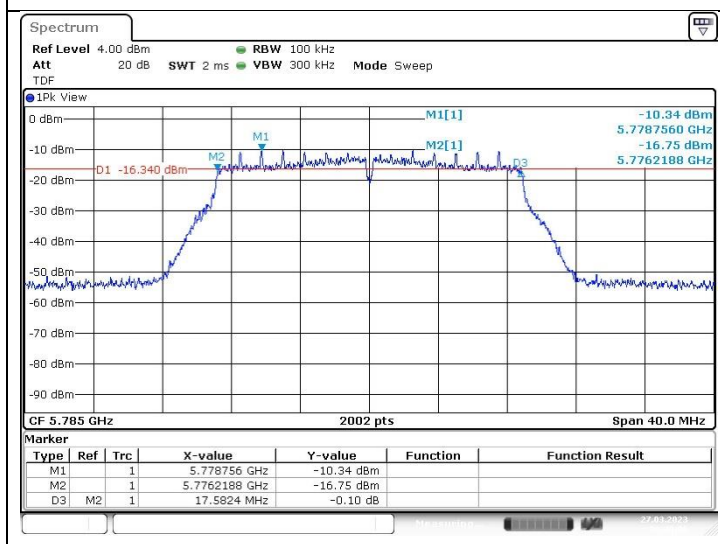
MIMO_Core 0

802.11ac_VHT20 (Band 3)

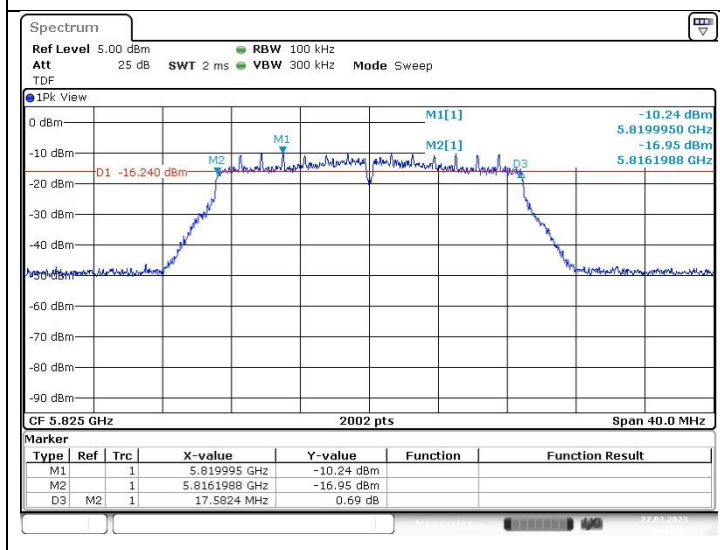
Low Channel
(5 745 MHz)



Middle Channel
(5 785 MHz)

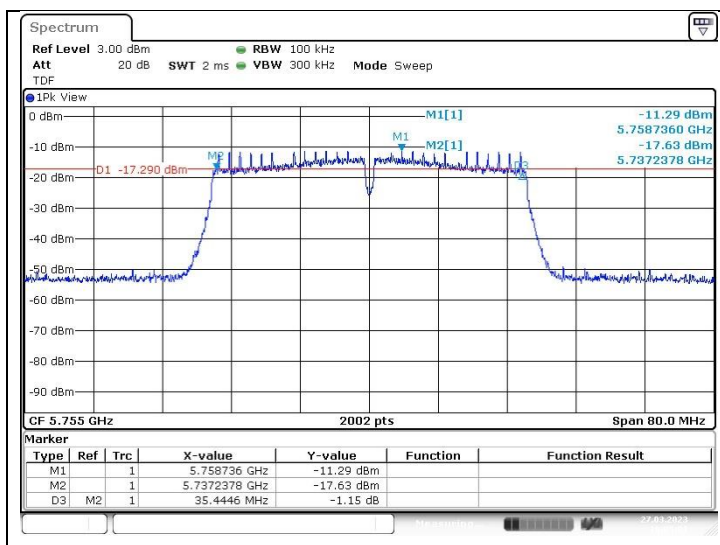


High Channel
(5 825 MHz)

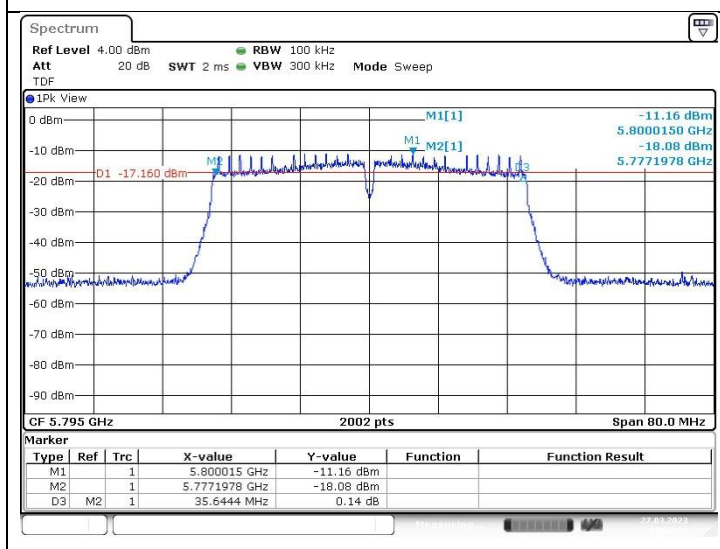


802.11ac_VHT40 (Band 3)

Low Channel
(5 755 MHz)

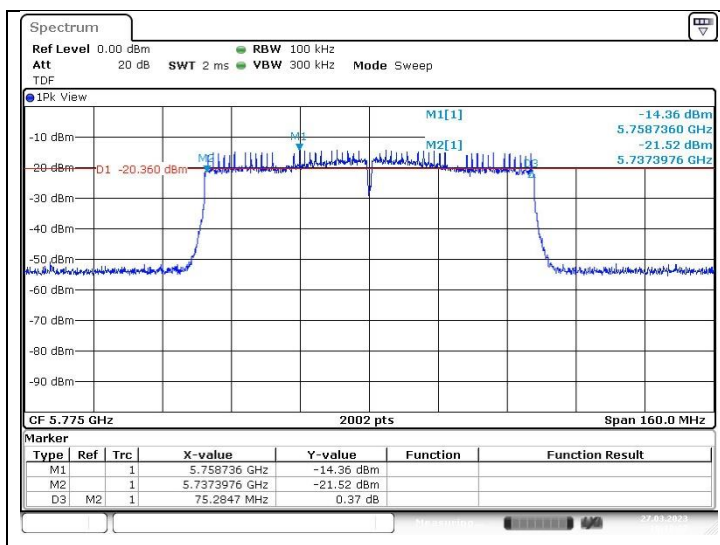


High Channel
(5 795 MHz)



802.11ac_VHT80 (Band 3)

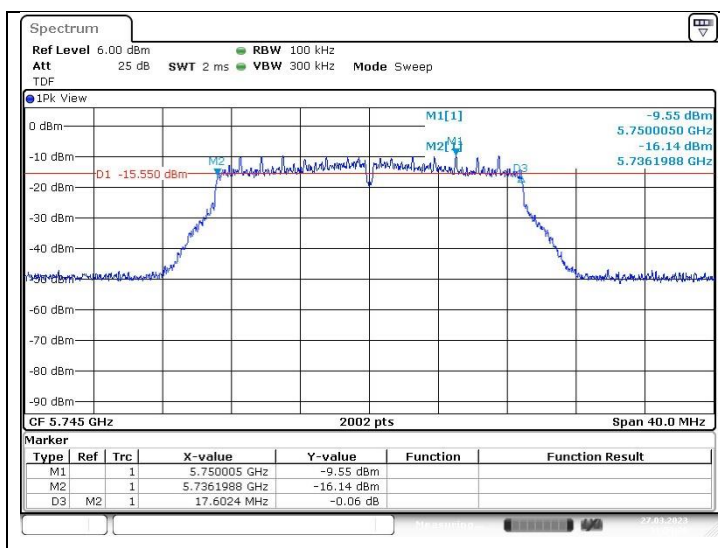
Middle Channel
(5 775 MHz)



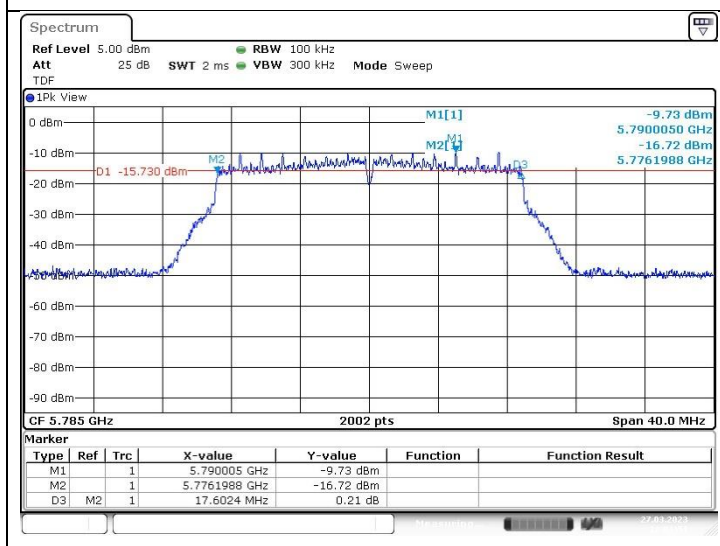
MIMO_Core 1

802.11ac_VHT20 (Band 3)

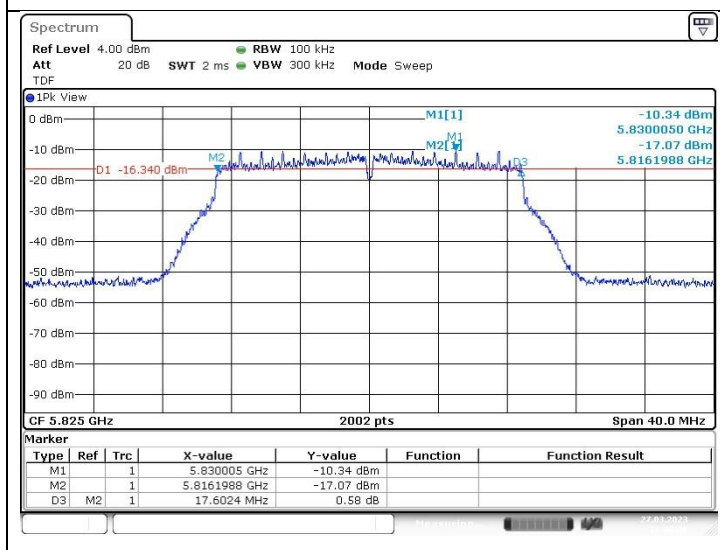
Low Channel
(5 745 MHz)



Middle Channel
(5 785 MHz)

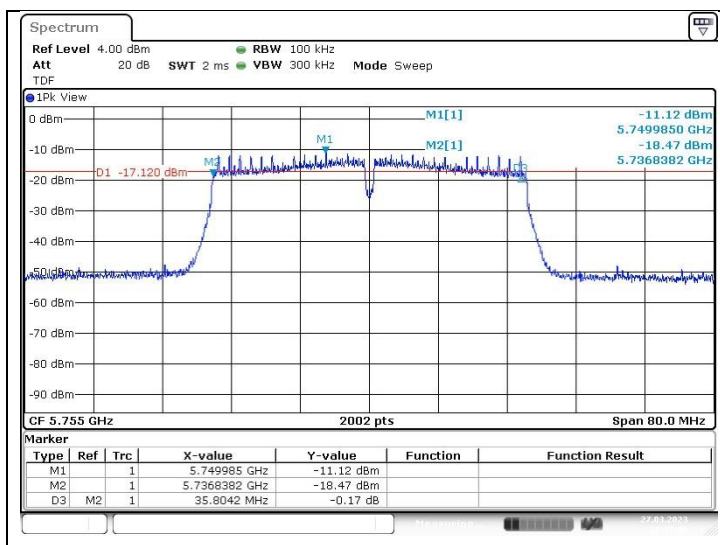


High Channel
(5 825 MHz)

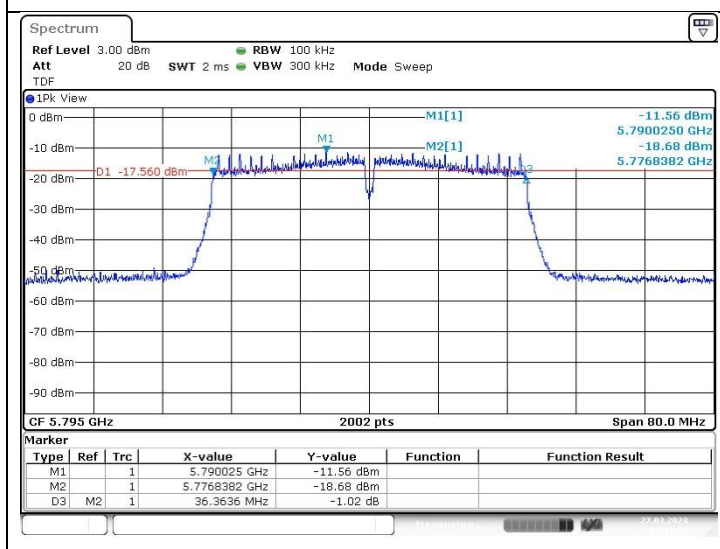


802.11ac_VHT40 (Band 3)

Low Channel
(5 755 MHz)

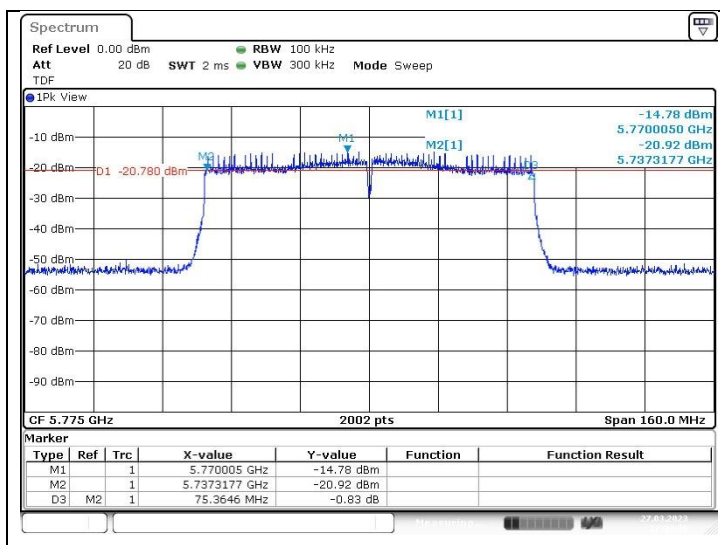


High Channel
(5 795 MHz)



802.11ac_VHT80 (Band 3)

Middle Channel
(5 775 MHz)

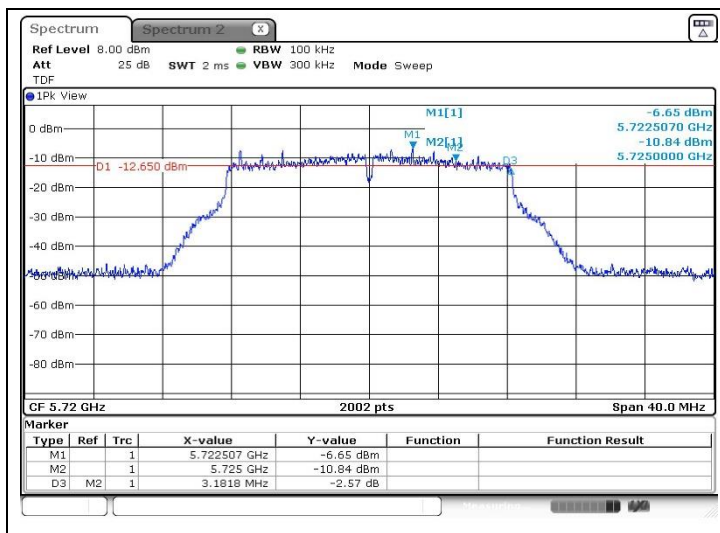


Band-crossing channels

SISO_Core 0

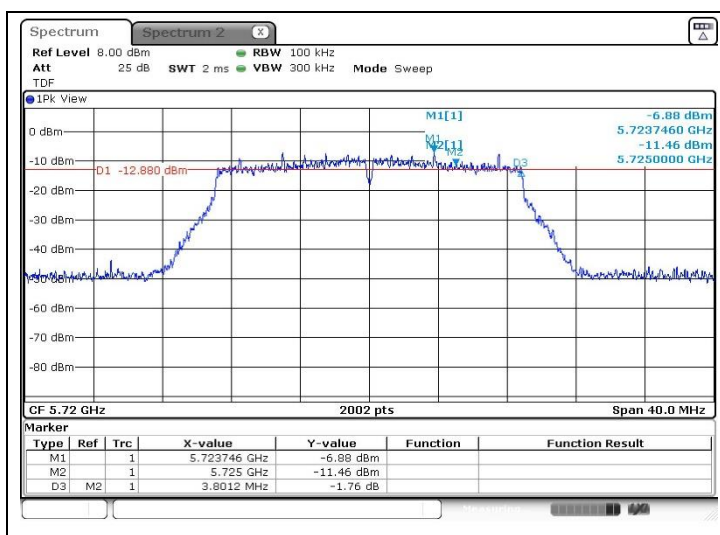
802.11a (Band 3)

High Channel
(5 720 MHz)



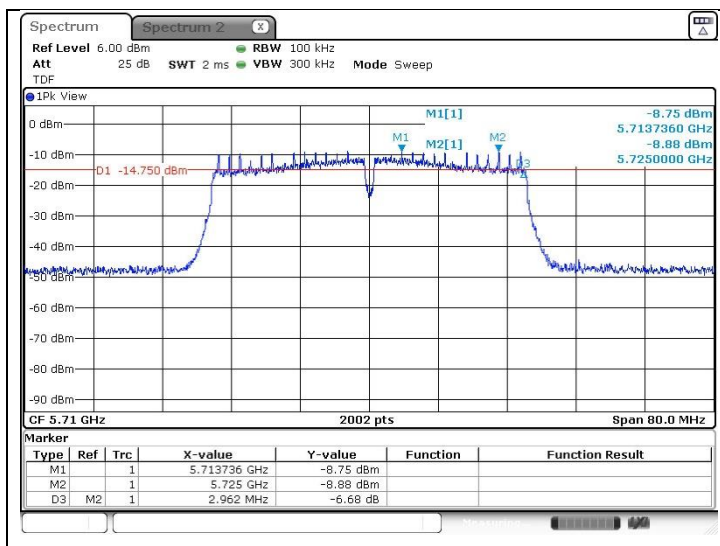
802.11ac_VHT20 (Band 3)

High Channel
(5 720 MHz)



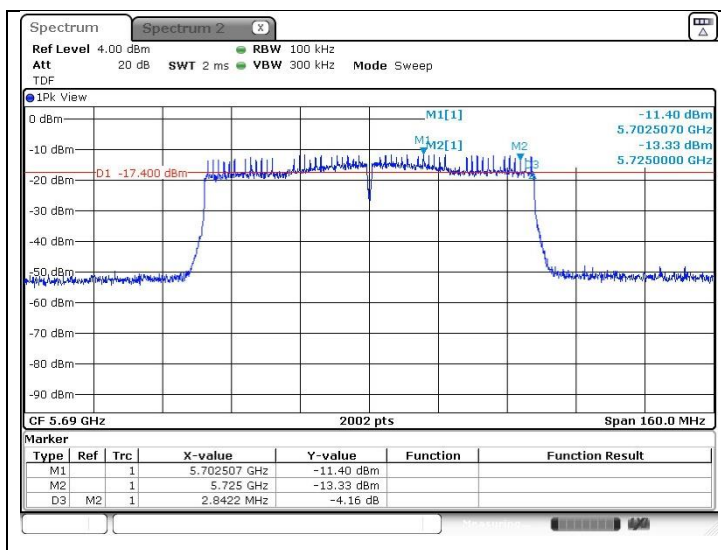
802.11n_HT40 (Band 3)

High Channel
(5 710 MHz)



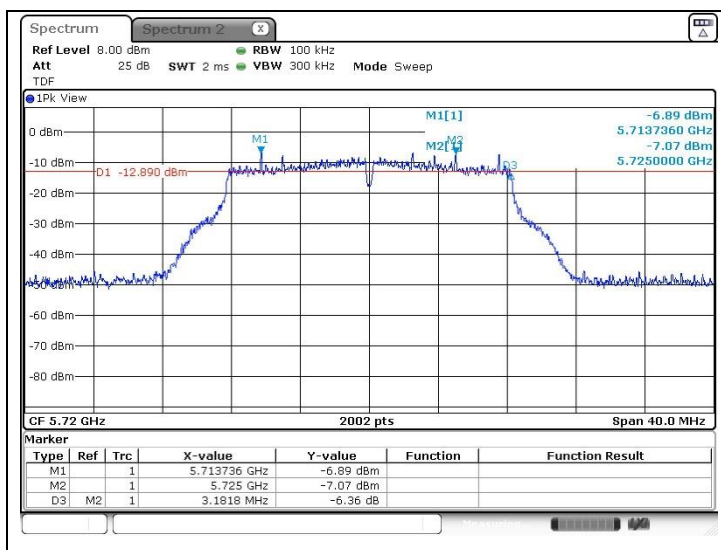
802.11ac_VHT80 (Band 3)

Middle Channel
 (5 690 MHz)

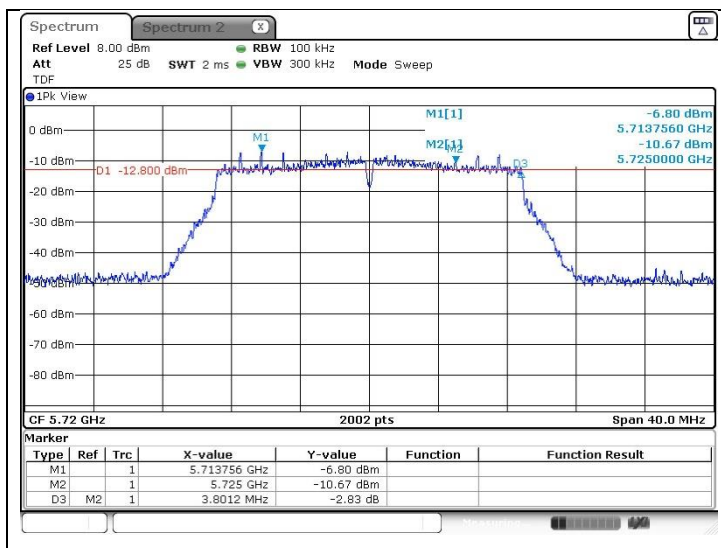


SISO_Core 1 802.11a (Band 3)

High Channel
(5 720 MHz)

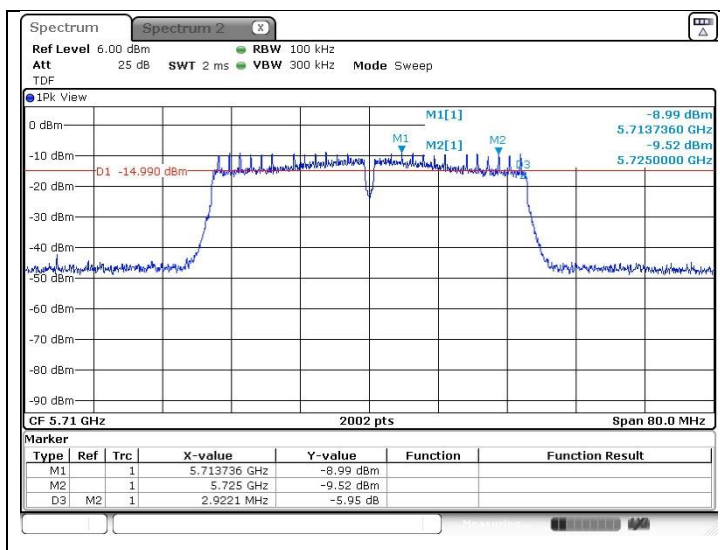


802.11ac_VHT20 (Band 3) High Channel (5 720 MHz)



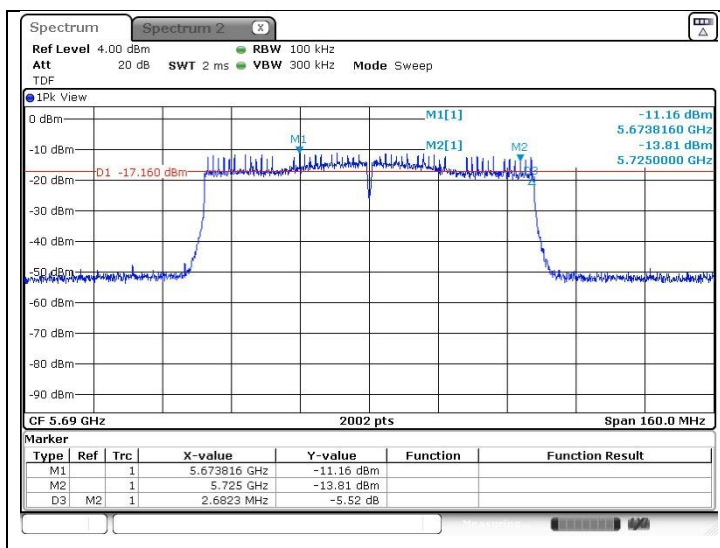
802.11n_HT40 (Band 3)

High Channel
(5 710 MHz)



802.11ac_VHT80 (Band 3)

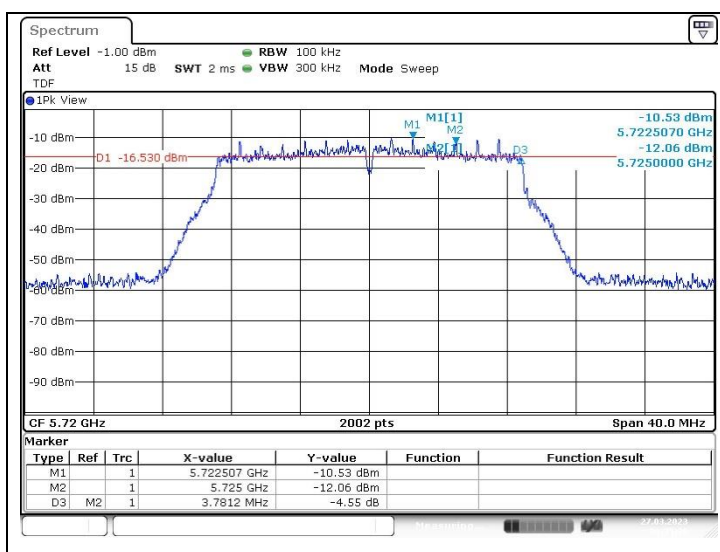
Middle Channel
(5 690 MHz)



MIMO_Core 0

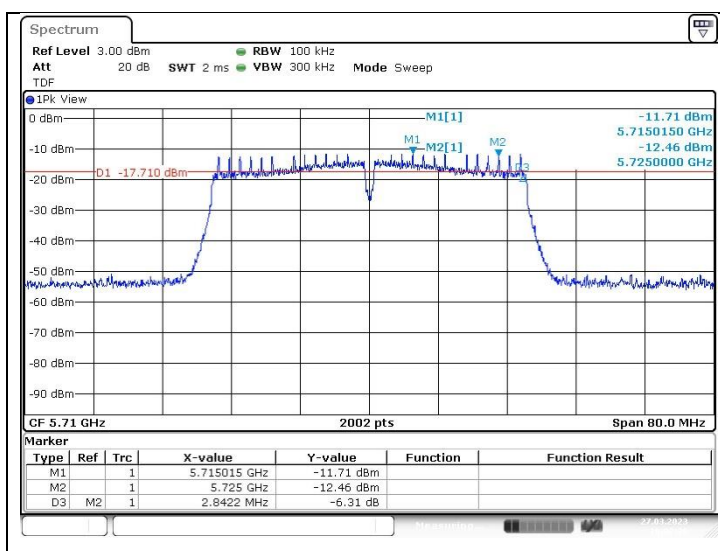
802.11ac_VHT20 (Band 3)

High Channel
(5 720 MHz)



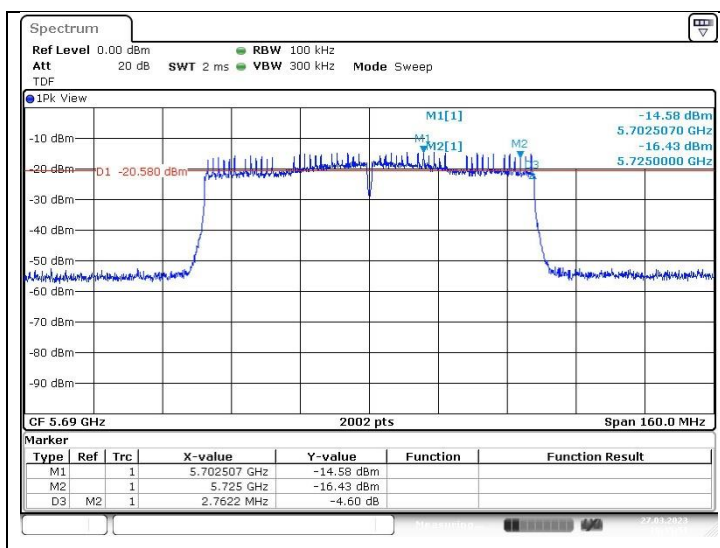
802.11ac_VHT40 (Band 3)

High Channel
(5 710 MHz)



802.11ac_VHT80 (Band 3)

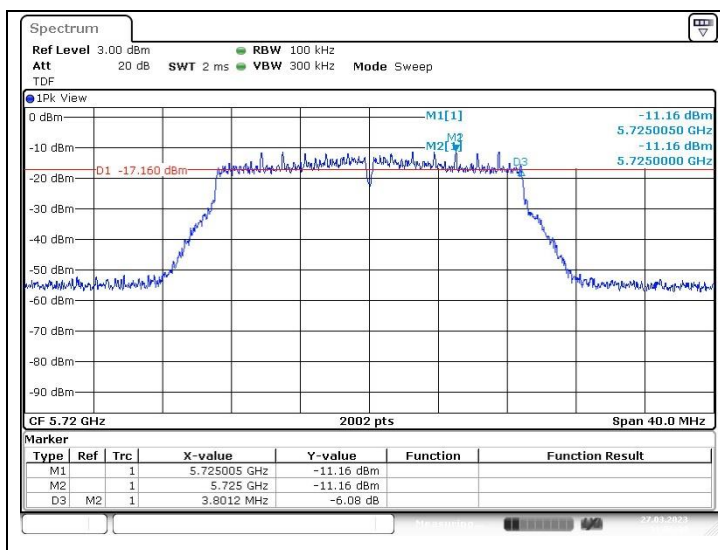
Middle Channel
(5 690 MHz)



MIMO_Core 1

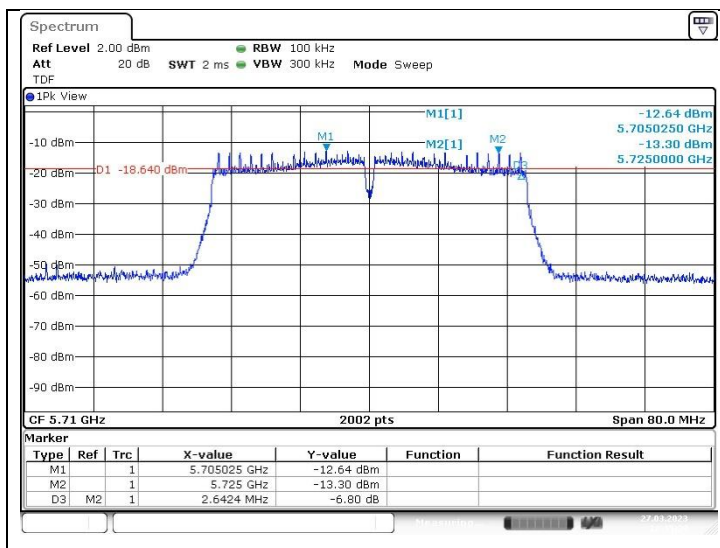
802.11ac_VHT20 (Band 3)

High Channel
(5 720 MHz)



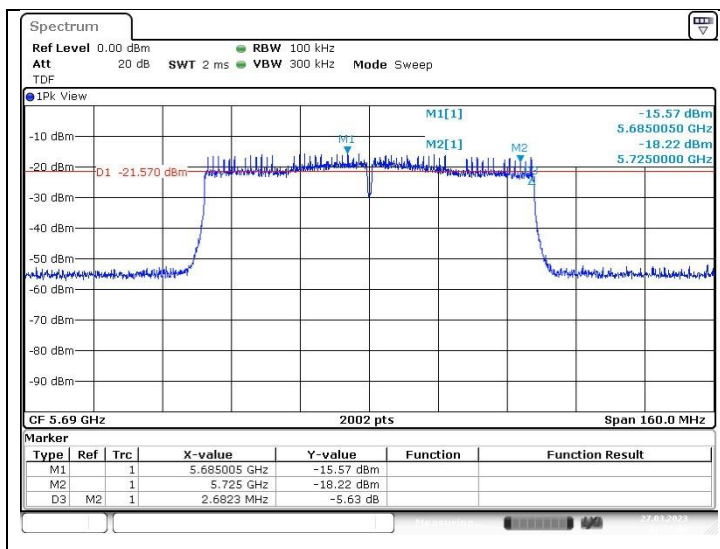
802.11ac_VHT40 (Band 3)

High Channel
(5 710 MHz)



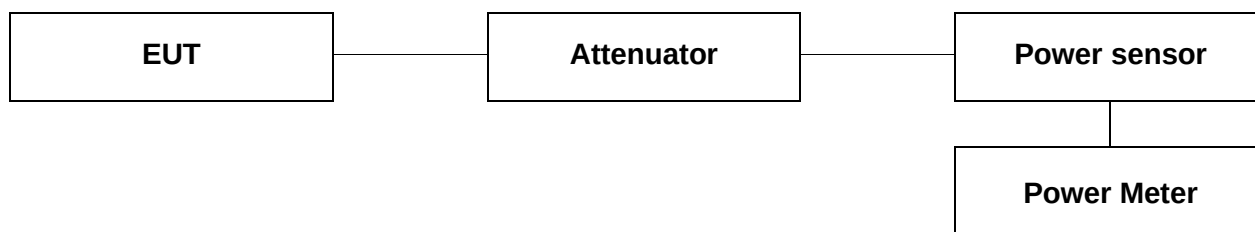
802.11ac_VHT80 (Band 3)

Middle Channel
(5 690 MHz)



5. Maximum Conducted Output Power

5.1. Test Setup



5.2. Limit

According to 15.407(a)(1)(iv)

For 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 dB i. In addition, the maximum power spectral density shall not exceed 11 dB m in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dB i 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 dB i.

According to 15.407(a)(2)

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dB m + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dB m in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dB i 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 dB i.

According to 15.407(a)(3)

For the 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 dB m in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dB i 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 dB i. However, fixed point-to point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dB i 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 colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

5.3. Test Procedure

1. This measurement settings are specified in section II.E.3.a of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied:
 - The EUT is configured to transmit continuously or to transmit with a consistent duty cycle.
 - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
 - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
3. If the transmitter does not transmit continuously, measure the duty cycle, x , of the transmitter output signal as described in section II.B.
4. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
5. Adjust the measurement in dBm by adding $10 \log (1/x)$ where x is the duty cycle (e.g., $10 \log (1/0.25)$ if the duty cycle is 25 %).
6. In case of band crossing channels 138, 142 and 144, the measurement is complied with section III.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

5.4. Test Result

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

- SISO_Core 0

Test mode: 11a

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 180	6 Mbps	7.74	0.29	8.03
	5 220		7.41		7.70
	5 240		7.31		7.60
U-NII 2A	5 260		7.73		8.02
	5 300		7.75		8.04
	5 320		7.59		7.88
U-NII 2C	5 500		6.40		6.69
	5 580		6.31		6.60
	5 700		6.38		6.67
U-NII 3	5 745		4.96		5.25
	5 785		5.16		5.45
	5 825		6.17		6.46

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	23.98			1.68	23.98
	5 220					
	5 240					
U-NII 2A	5 260		20.899	24.20	1.68	
	5 300		21.099	24.24		
	5 320		21.179	24.26		
U-NII 2C	5 500		20.939	24.21	2.38	
	5 580		21.219	24.27		
	5 700		21.059	24.23		
U-NII 3	5 745	30			3.04	30
	5 785					
	5 825					

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT20

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 180	MCS0	7.30	0.31	7.61
	5 220		7.47		7.78
	5 240		7.29		7.60
U-NII 2A	5 260		6.67		6.98
	5 300		6.81		7.12
	5 320		6.66		6.97
U-NII 2C	5 500		6.39		6.70
	5 580		6.00		6.31
	5 700		5.78		6.09
U-NII 3	5 745		6.71		7.02
	5 785		6.71		7.02
	5 825		6.83		7.14

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	23.98			1.68	23.98
	5 220					
	5 240					
U-NII 2A	5 260		21.379	24.30	1.68	
	5 300		21.259	24.28		
	5 320		21.539	24.33		
U-NII 2C	5 500		21.738	24.37	2.38	
	5 580		21.578	24.34		
	5 700		21.379	24.30		
U-NII 3	5 745	30			3.04	30
	5 785					
	5 825					

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11n_HT40

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 190	MCS0	6.31	0.61	6.92
	5 230		6.26		6.87
U-NII 2A	5 270		7.09		7.70
	5 310		7.07		7.68
U-NII 2C	5 510		5.42		6.03
	5 550		5.25		5.86
	5 670		4.72		5.33
U-NII 3	5 755		3.96		4.57
	5 795		4.42		5.03

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 190	23.98			1.68	23.98
	5 230					
U-NII 2A	5 270		40.360	27.06	1.68	
	5 310		40.200	27.04		
U-NII 2C	5 510		40.120	27.03	2.38	
	5 550		40.360	27.06		
	5 670		40.360	27.06		
U-NII 3	5 755	30			3.04	30
	5 795					

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT80

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 210	MCS0	5.14	1.16	6.30
U-NII 2A	5 290		5.21		6.37
U-NII 2C	5 530		5.58		6.74
U-NII 3	5 775		5.88		7.04

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 210	23.98			1.68	23.98
U-NII 2A	5 290		82.797	30.18	1.68	
U-NII 2C	5 530		82.637	30.17	2.38	
U-NII 3	5 775	30			3.04	30

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Band-crossing channels

Mode	Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
11a	U-NII 2C	5 720	6 Mbps	3.81	0.29	4.10
	U-NII 3			-3.40		-3.11
11ac_VHT20	U-NII 2C	5 720	MCS0	3.44	0.31	3.75
	U-NII 3			-3.20		-2.89
11n_HT40	U-NII 2C	5 710	MCS0	4.04	0.61	4.65
	U-NII 3			-7.35		-6.74
11ac_VHT80	U-NII 2C	5 690	MCS0	3.61	1.16	4.77
	U-NII 3			-11.16		-10.00

Mode	Band	Limit					
		Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
11a	U-NII 2C	5 720	23.98	15.470	22.89	5.99	22.89
	U-NII 3		30			6.19	30
11ac_VHT20	U-NII 2C	5 720	23.98	15.629	22.94	5.99	22.94
	U-NII 3		30			6.19	30
11n_HT40	U-NII 2C	5 710	23.98	35.140	26.46	5.99	23.98
	U-NII 3		30			6.19	30
11ac_VHT80	U-NII 2C	5 690	23.98	75.919	29.80	5.99	23.98
	U-NII 3		30			6.19	30

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

- SISO_Core 1

Test mode: 11a

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 180	6 Mbps	6.11	0.27	6.38
	5 220		5.96		6.23
	5 240		5.97		6.24
U-NII 2A	5 260		5.93		6.20
	5 300		5.90		6.17
	5 320		5.68		5.95
U-NII 2C	5 500		7.41		7.68
	5 580		7.76		8.03
	5 700		6.89		7.16
U-NII 3	5 745		7.13		7.40
	5 785		6.84		7.11
	5 825		6.68		6.95

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	23.98			1.90	23.98
	5 220					
	5 240					
U-NII 2A	5 260		21.179	24.26	2.92	
	5 300		21.259	24.28		
	5 320		21.139	24.25		
U-NII 2C	5 500		21.099	24.24	3.55	
	5 580		20.979	24.22		
	5 700		21.019	24.23		
U-NII 3	5 745	30			3.32	30
	5 785					
	5 825					

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT20

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 180	MCS0	5.74	0.31	6.05
	5 220		4.96		5.27
	5 240		4.67		4.98
U-NII 2A	5 260		5.74		6.05
	5 300		5.80		6.11
	5 320		5.62		5.93
U-NII 2C	5 500		7.25		7.56
	5 580		7.38		7.69
	5 700		6.55		6.86
U-NII 3	5 745		6.30		6.61
	5 785		5.91		6.22
	5 825		5.58		5.89

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	23.98			1.90	23.98
	5 220					
	5 240					
U-NII 2A	5 260		21.419	24.31	2.92	
	5 300		21.339	24.29		
	5 320		21.578	24.34		
U-NII 2C	5 500		21.459	24.32	3.55	
	5 580		21.539	24.33		
	5 700		21.539	24.33		
U-NII 3	5 745	30			3.32	30
	5 785					
	5 825					

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11n_HT40

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 190	MCS0	5.64	0.59	6.23
	5 230		5.58		6.17
U-NII 2A	5 270		5.65		6.24
	5 310		5.43		6.02
U-NII 2C	5 510		5.94		6.53
	5 550		5.96		6.55
	5 670		5.83		6.42
U-NII 3	5 755		6.24		6.83
	5 795		6.32		6.91

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 190	23.98			1.90	23.98
	5 230					
U-NII 2A	5 270		40.440	27.07	2.92	
	5 310		40.520	27.08		
U-NII 2C	5 510		40.440	27.07	3.55	
	5 550		40.280	27.05		
	5 670		40.520	27.08		
U-NII 3	5 755	30			3.32	30
	5 795					

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT80

Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 210	MCS0	3.80	1.16	4.96
U-NII 2A	5 290		3.88		5.04
U-NII 2C	5 530		5.72		6.88
U-NII 3	5 775		4.78		5.94

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 210	23.98			1.90	23.98
U-NII 2A	5 290		82.318	30.15	2.92	
U-NII 2C	5 530		82.318	30.15	3.55	
U-NII 3	5 775	30			3.32	30

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

Band-crossing channels

Mode	Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
11a	U-NII 2C	5 720	6 Mbps	3.85	0.27	4.12
	U-NII 3			-3.54		-3.27
11ac_VHT20	U-NII 2C	5 720	MCS0	3.65	0.31	3.96
	U-NII 3			-3.08		-2.77
11n_HT40	U-NII 2C	5 710	MCS0	4.04	0.59	4.63
	U-NII 3			-7.87		-7.28
11ac_VHT80	U-NII 2C	5 690	MCS0	4.09	1.16	5.25
	U-NII 3			-11.04		-9.88

Mode	Band	Limit					
		Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
11a	U-NII 2C	5 720	23.98	15.589	22.93	3.55	22.93
	U-NII 3		30			3.32	30
11ac_VHT20	U-NII 2C	5 720	23.98	15.869	23.01	3.55	23.01
	U-NII 3		30			3.32	30
11n_HT40	U-NII 2C	5 710	23.98	35.220	26.47	3.55	23.98
	U-NII 3		30			3.32	30
11ac_VHT80	U-NII 2C	5 690	23.98	76.399	29.83	3.55	23.98
	U-NII 3		30			3.32	30

Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

- MIMO

Mode	Band	Data Rate (Mbps)	Channel	Frequency (MHz)	Average Power (dB m)		
					Core 0	Core 1	Core 0 + Core 1
11ac_VHT20	U-NII 1	MCS0	Low	5 180	3.94	0.83	5.67
			Middle	5 220	3.99	0.66	5.65
			High	5 240	3.99	0.63	5.64
	U-NII 2A		Low	5 260	3.17	2.56	5.89
			Middle	5 300	3.31	2.51	5.94
			High	5 320	3.18	2.25	5.75
	U-NII 2C		Low	5 500	1.26	0.98	4.13
			Middle	5 580	0.65	0.85	3.76
			High	5 700	0.54	0.88	3.72
	U-NII 3		Low	5 745	1.49	1.51	4.51
			Middle	5 785	1.07	1.01	4.05
			High	5 825	0.73	0.73	3.74

Mode	Band	Data Rate (Mbps)	Channel	Frequency (MHz)	Core 0 + Core 1 Average Power (dB m)	Duty Cycle Correction Factor (dB)	Core 0 + Core 1 Average Power Result (dB m)
11ac_VHT20	U-NII 1	MCS0	Low	5 180	5.67	0.31	5.98
			Middle	5 220	5.65		5.96
			High	5 240	5.64		5.95
	U-NII 2A		Low	5 260	5.89		6.20
			Middle	5 300	5.94		6.25
			High	5 320	5.75		6.06
	U-NII 2C		Low	5 500	4.13		4.44
			Middle	5 580	3.76		4.07
			High	5 700	3.72		4.03
	U-NII 3		Low	5 745	4.51		4.82
			Middle	5 785	4.05		4.36
			High	5 825	3.74		4.05

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 180	23.98			4.80	23.98
	5 220					
	5 240					
U-NII 2A	5 260		21.179	24.26	5.33	
	5 300		21.139	24.25		
	5 320		21.299	24.28		
U-NII 2C	5 500		21.179	24.26	5.99	
	5 580		21.259	24.28		
	5 700		21.299	24.28		
U-NII 3	5 745	30			6.19	30
	5 785					
	5 825					

Remark;

1. According to KDB 662911, Average power of each port and antenna gain was combined by using below calculation.

- Average power: $10 \log \{10^{(\text{Ant.1 power} / 10)} + 10^{(\text{Ant.2 power} / 10)}\}$

- Unequal antenna gains, with equal transmit powers. For antenna gains given by $G_1, G_2, \dots, G_N$ dB i

(i) If transmit signals are correlated, then

Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}]$ dB i [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.]

Mode	Band	Data Rate (Mbps)	Channel	Frequency (MHz)	Average Power (dB m)		
					Core 0	Core 1	Core 0 + Core 1
11ac_VHT40	U-NII 1	MCS0	Low	5 190	1.52	1.87	4.71
			High	5 230	1.43	1.82	4.64
	U-NII 2A		Low	5 270	1.31	2.81	5.13
			High	5 310	1.36	2.50	4.98
	U-NII 2C		Low	5 510	1.77	1.30	4.55
			Middle	5 550	1.33	1.26	4.31
			High	5 670	0.44	0.72	3.59
	U-NII 3		Low	5 755	0.38	1.54	4.01
			High	5 795	0.37	1.18	3.80

Mode	Band	Data Rate (Mbps)	Channel	Frequency (MHz)	Core 0 + Core 1 Average Power (dB m)	Duty Cycle Correction Factor (dB)	Core 0 + Core 1 Average Power Result (dB m)
11ac_VHT40	U-NII 1	MCS0	Low	5 190	4.71	0.61	5.32
			High	5 230	4.64		5.25
	U-NII 2A		Low	5 270	5.13		5.74
			High	5 310	4.98		5.59
	U-NII 2C		Low	5 510	4.55		5.16
			Middle	5 550	4.31		4.92
			High	5 670	3.59		4.20
	U-NII 3		Low	5 755	4.01		4.62
			High	5 795	3.80		4.41

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 190	23.98			4.80	23.98
	5 230					
U-NII 2A	5 270		39.321	26.95	5.33	
	5 310		39.640	26.98		
U-NII 2C	5 510		39.800	27.00	5.99	
	5 590		39.560	26.97		
	5 670		39.720	26.99		
U-NII 3	5 755	30			6.19	30
	5 795					

Remark;

1. According to KDB 662911, Average power of each port and antenna gain was combined by using below calculation.

- Average power: $10 \log \{10^{(\text{Ant.1 power} / 10)} + 10^{(\text{Ant.2 power} / 10)}\}$

- Unequal antenna gains, with equal transmit powers. For antenna gains given by $G_1, G_2, \dots, G_N$ dB i

(i) If transmit signals are correlated, then

Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}]$ dB i [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.]

Mode	Band	Data Rate (Mbps)	Channel	Frequency (MHz)	Average Power (dB m)		
					Core 0	Core 1	Core 0 + Core 1
11ac_VHT80	U-NII 1	MCS0	Middle	5 210	0.35	1.03	3.71
	U-NII 2A		Middle	5 290	0.27	1.97	4.21
	U-NII 2C		Low	5 530	0.43	0.70	3.58
	U-NII 3		Middle	5 775	-0.58	0.55	3.03

Mode	Band	Data Rate (Mbps)	Channel	Frequency (MHz)	Core 0 + Core 1 Average Power (dB m)	Duty Cycle Correction Factor (dB)	Core 0 + Core 1 Average Power Result (dB m)
11ac_VHT80	U-NII 1	MCS0	Middle	5 210	3.71	1.16	4.87
	U-NII 2A		Middle	5 290	4.21		5.37
	U-NII 2C		Low	5 530	3.58		4.74
	U-NII 3		Middle	5 775	3.03		4.19

Band	Limit					
	Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
U-NII 1	5 210	23.98			4.80	23.98
U-NII 2A	5 290		81.678	30.12	5.33	
U-NII 2C	5 530		81.359	30.10	5.99	
U-NII 3	5 775	30			6.19	30

Remark;

1. According to KDB 662911, Average power of each port and antenna gain was combined by using below calculation.

- Average power: $10 \log \{10^{(\text{Ant.1 power} / 10)} + 10^{(\text{Ant.2 power} / 10)}\}$

- Unequal antenna gains, with equal transmit powers. For antenna gains given by $G_1, G_2, \dots, G_N$ dB i

(i) If transmit signals are correlated, then

Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}]$ dB i [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.]

- Band-crossing channels

Mode	Band	Frequency (MHz)	Data Rate (Mbps)	Average Power (dB m)		
				Core 0	Core 1	Core 0 + Core 1
11ac_VHT20	U-NII 2C	5 720	MCS0	-1.03	-0.82	2.09
	U-NII 3			-7.53	-7.59	-4.55
11ac_VHT40	U-NII 2C	5 710	MCS0	-0.10	0.12	3.02
	U-NII 3			-11.30	-11.49	-8.38
11ac_VHT80	U-NII 2C	5 690	MCS0	-0.95	-0.72	2.18
	U-NII 3			-14.74	-15.58	-12.13

Mode	Band	Frequency (MHz)	Data Rate (Mbps)	Core 0 + Core 1 Average Power (dB m)	Duty Cycle Correction Factor (dB)	Core 0 + Core 1 Average Power Result (dB m)
11ac_VHT20	U-NII 2C	5 720	MCS0	2.09	0.31	2.40
	U-NII 3			-4.55		-4.24
11ac_VHT40	U-NII 2C	5 710	MCS0	3.02	0.61	3.63
	U-NII 3			-8.38		-7.77
11ac_VHT80	U-NII 2C	5 690	MCS0	2.18	1.16	3.34
	U-NII 3			-12.13		-10.97

Mode	Band	Limit					
		Frequency (MHz)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)
11ac_VHT20	U-NII 2C	5 720	23.98	15.589	22.93	5.99	22.93
	U-NII 3		30			6.19	30
11ac_VHT40	U-NII 2C	5 710	23.98	34.820	26.42	5.99	23.98
	U-NII 3		30			6.19	30
11ac_VHT80	U-NII 2C	5 690	23.98	75.759	29.79	5.99	23.98
	U-NII 3		30			6.19	30

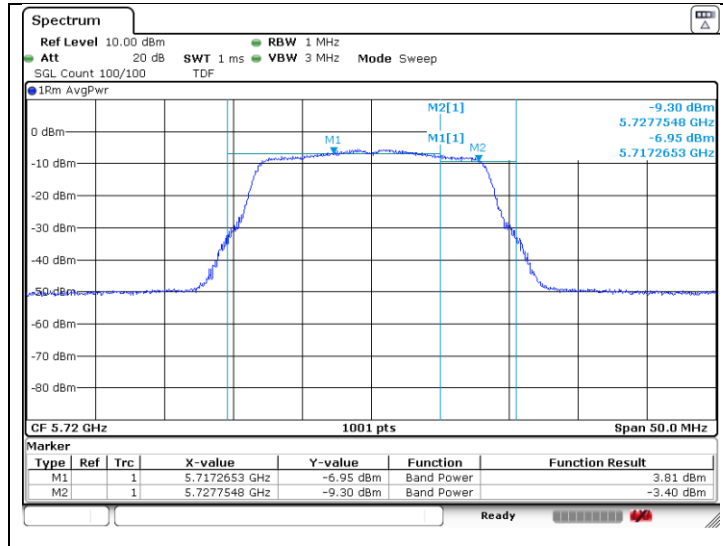
- Test plots

Band-crossing channels

SISO_Core 0

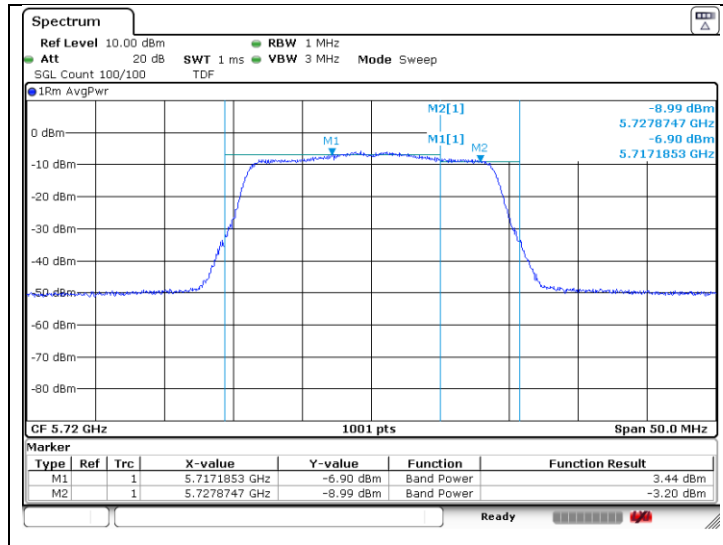
802.11a (Band 2C&3)

High Channel
(5 720 MHz)



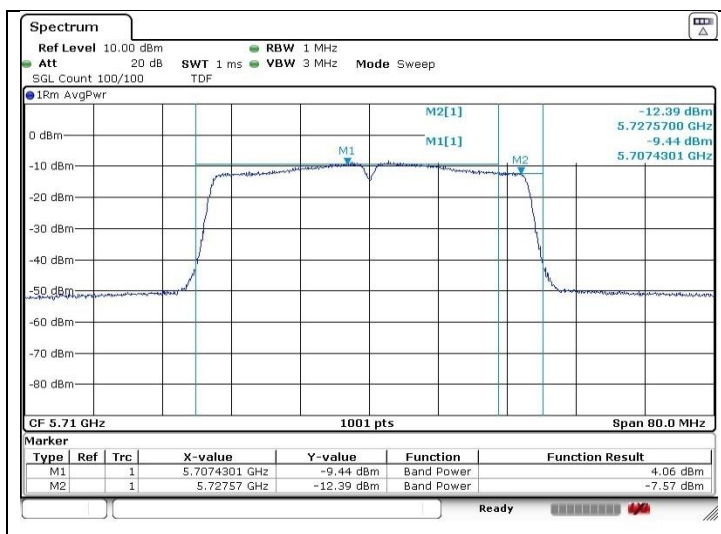
802.11ac_VHT20 (Band 2C&3)

High Channel
(5 720 MHz)



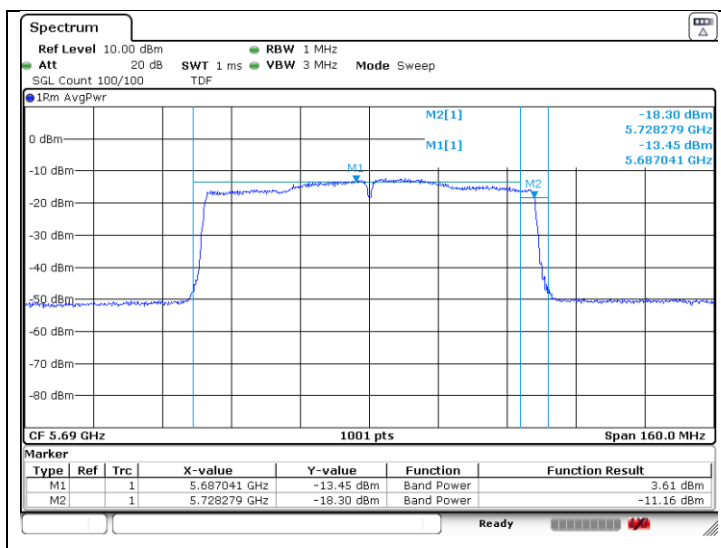
802.11n_HT40 (Band 2C&3)

High Channel
(5 710 MHz)



802.11ac_VHT80 (Band 2C&3)

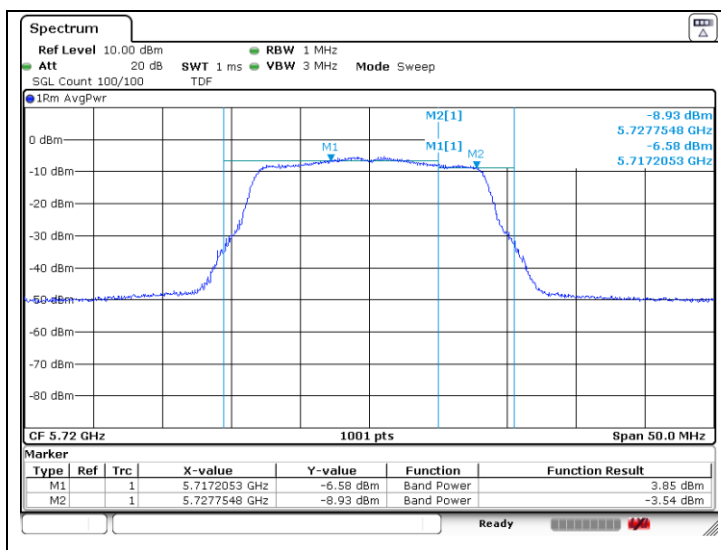
Middle Channel
(5 690 MHz)



SISO_Core 1

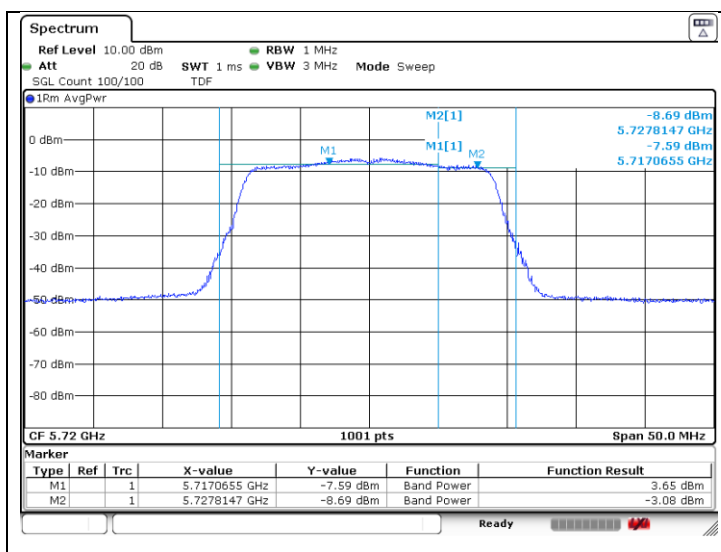
802.11a (Band 2C&3)

High Channel
(5 720 MHz)



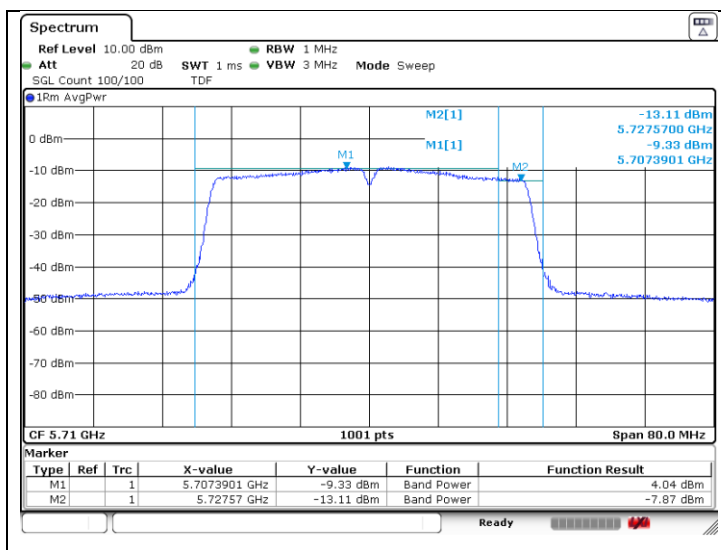
802.11ac_VHT20 (Band 2C&3)

High Channel
(5 720 MHz)



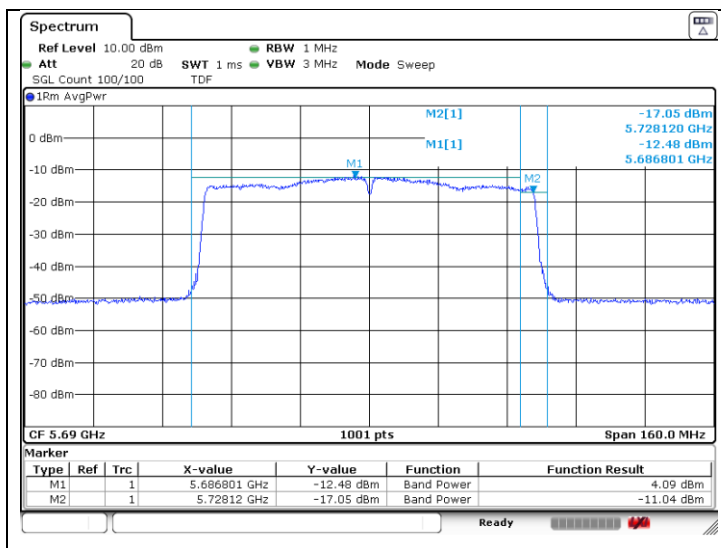
802.11n_HT40 (Band 2C&3)

High Channel
 (5 710 MHz)



802.11ac_VHT80 (Band 2C&3)

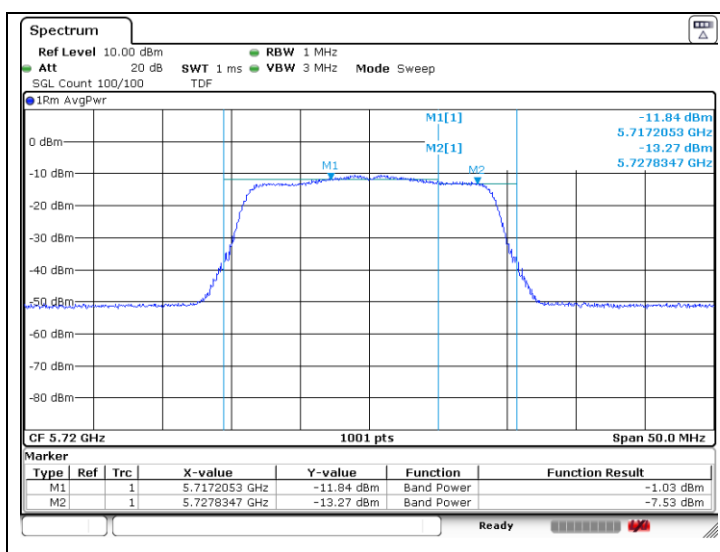
Middle Channel
 (5 690 MHz)



MIMO_Core 0

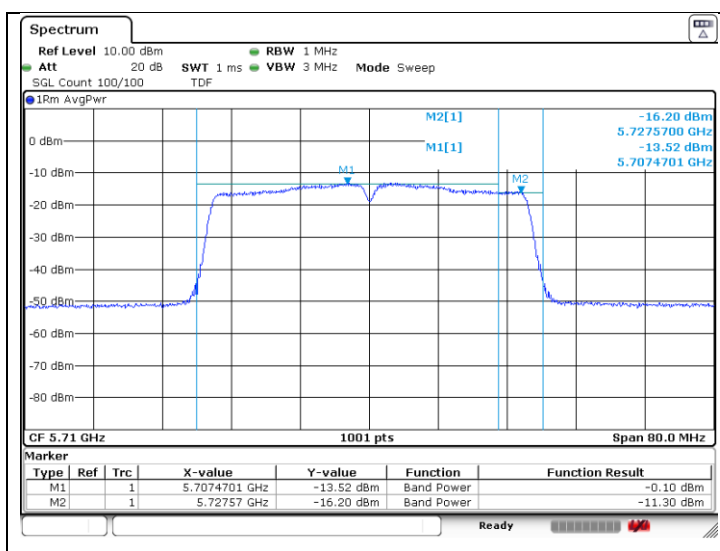
802.11ac_VHT20 (Band 2C&3)

High Channel
(5 720 MHz)



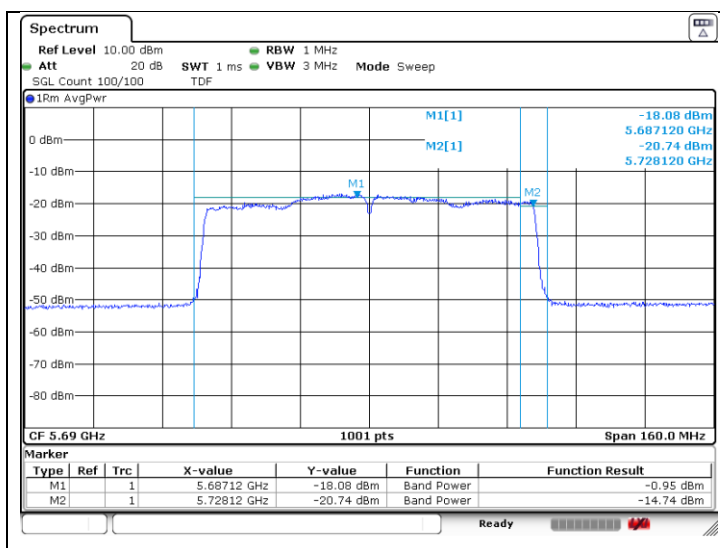
802.11ac_VHT40 (Band 2C&3)

High Channel
(5 710 MHz)



802.11ac_VHT80 (Band 2C&3)

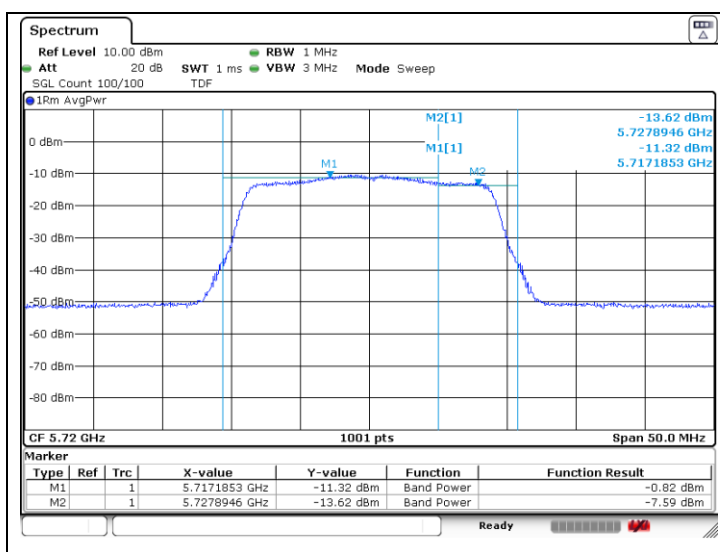
Middle Channel
(5 690 MHz)



MIMO_Core 1

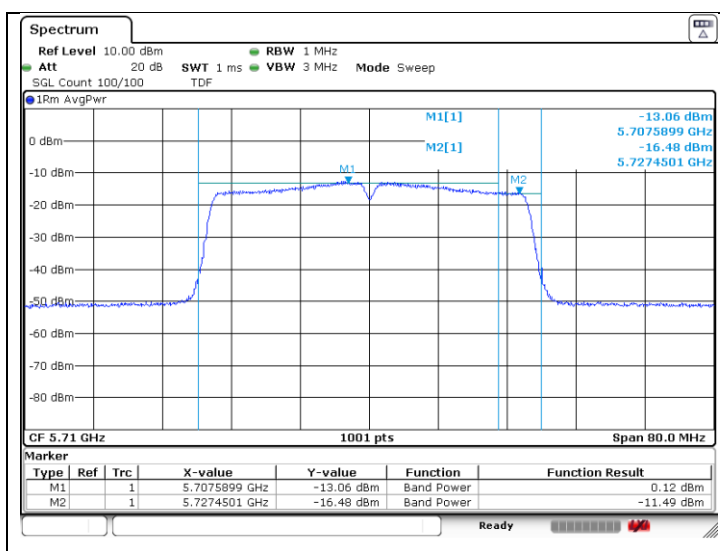
802.11ac_VHT20 (Band 2C&3)

High Channel
(5 720 MHz)



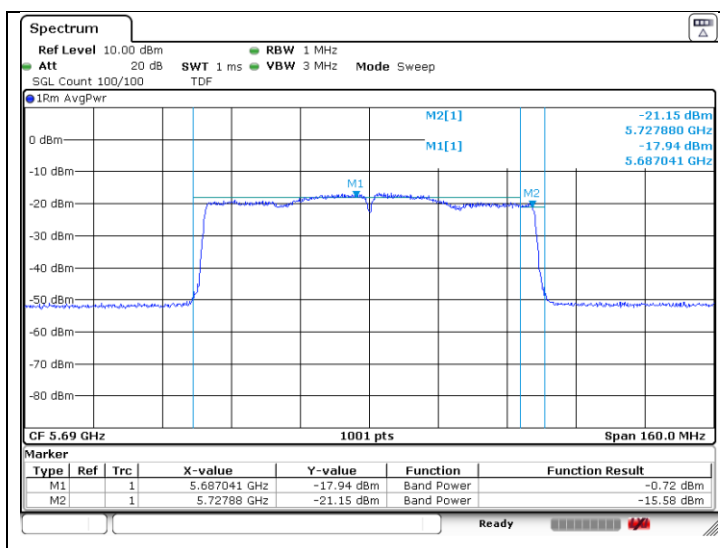
802.11ac_VHT40 (Band 2C&3)

High Channel
(5 710 MHz)



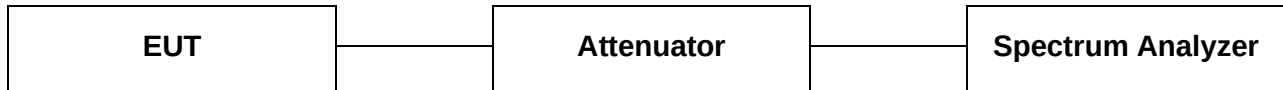
802.11ac_VHT80 (Band 2C&3)

Middle Channel
(5 690 MHz)



6. Peak Power Spectral Density

6.1. Test Setup



6.2. Limit

According to 15.407(a)(1)(iv)

For 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.

According to 15.407(a)(2)

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, 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.

According to 15.407(a)(3)

For the 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. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

6.3. Test Procedure

1. This measurement settings are specified in section II.F of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...". (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
3. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
4. Make the following adjustments to the peak value of the spectrum, if applicable:
 - a) **If Method SA-2 or SA-2 Alternative was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum.**
 - b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
5. The result is the Maximum PSD over 1 MHz reference bandwidth.
6. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (*i.e.*, 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth ($< 1 \text{ MHz}$, or $< 500 \text{ kHz}$) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:
 - a) Set $\text{RBW} \geq 1/T$, where T is defined in section II.B.1.a).
 - b) Set $\text{VBW} \geq 3 \text{ RBW}$.
 - c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log(500 \text{ kHz}/\text{RBW})$ to the measured result, whereas $\text{RBW} (< 500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
 - d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log(1 \text{ MHz}/\text{RBW})$ to the measured result, whereas $\text{RBW} (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
 - e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.
7. In case of band crossing channels 138, 142 and 144, the measurement is complied with section III.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

6.4. Test Result

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

- SISO_Core 0

Test mode: 11a

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 180	36	6	-3.58	0.29	-3.29	11
	5 220	44		-3.55		-3.26	
	5 240	48		-3.35		-3.06	
U-NII 2A	5 260	52		-3.98		-3.69	
	5 300	60		-4.03		-3.74	
	5 320	64		-3.98		-3.69	
U-NII 2C	5 500	100		-4.78		-4.49	
	5 580	116		-5.12		-4.83	
	5 700	140		-5.34		-5.05	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/500 MHz)
U-NII 3	5 745	149	6	-6.11	0.29	-5.82	30
	5 785	157		-6.00		-5.71	
	5 825	165		-5.90		-5.61	

Remark;

- Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT20

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 180	36	MCS0	-3.88	0.31	-3.57	11
	5 220	44		-4.10		-3.79	
	5 240	48		-4.02		-3.71	
U-NII 2A	5 260	52		-4.34		-4.03	
	5 300	60		-4.86		-4.55	
	5 320	64		-4.48		-4.17	
U-NII 2C	5 500	100		-4.83		-4.52	
	5 580	116		-5.43		-5.12	
	5 700	140		-5.68		-5.37	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 745	149	MCS0	-6.23	0.31	-5.92	30
	5 785	157		-6.16		-5.85	
	5 825	165		-6.05		-5.74	

Remark;

- Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11n_HT40

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 190	38	MCS0	-7.95	0.61	-7.34	11
	5 230	46		-8.29		-7.68	
U-NII 2A	5 270	54		-8.11		-7.50	
	5 310	62		-8.08		-7.47	
U-NII 2C	5 510	102		-7.25		-6.64	
	5 550	110		-7.95		-7.34	
	5 670	134		-8.53		-7.92	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 755	151	MCS0	-9.16	0.61	-8.55	30
	5 795	159		-9.29		-8.68	

Remark;

- Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT80

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 210	42	MCS0	-11.64	1.16	-10.48	11
U-NII 2A	5 290	58		-11.73		-10.57	
U-NII 2C	5 530	106		-11.71		-10.55	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 775	155	MCS0	-12.89	1.16	-11.73	30

Remark;

- Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

Band-crossing channels

Mode	Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz or dB m/500 kHz)
11a	U-NII 2C	5 720	144	6	-5.30	0.29	-5.01	11
	U-NII 3				-10.26		-9.97	30
11ac_VHT20	U-NII 2C	5 720	144	MCS0	-5.53	0.31	-5.22	11
	U-NII 3				-10.68		-10.37	30
11n_HT40	U-NII 2C	5 710	142	MCS0	-8.35	0.61	-7.74	11
	U-NII 3				-13.75		-13.14	30
11ac_VHT80	U-NII 2C	5 690	138	MCS0	-11.72	1.16	-10.56	11
	U-NII 3				-16.71		-15.55	30

Remark;

1. Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

- SISO_Core 1

Test mode: 11a

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 180	36	6	-5.64	0.27	-5.37	11
	5 220	44		-5.71		-5.44	
	5 240	48		-5.72		-5.45	
U-NII 2A	5 260	52		-4.61		-4.34	
	5 300	60		-4.44		-4.17	
	5 320	64		-4.76		-4.49	
U-NII 2C	5 500	100		-4.24		-3.97	
	5 580	116		-4.61		-4.34	
	5 700	140		-4.96		-4.69	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 745	149	6	-5.72	0.27	-5.45	30
	5 785	157		-5.71		-5.44	
	5 825	165		-6.08		-5.81	

Remark;

- Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT20

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 180	36	MCS0	-5.85	0.31	-5.54	11
	5 220	44		-6.20		-5.89	
	5 240	48		-6.10		-5.79	
U-NII 2A	5 260	52		-4.86		-4.55	
	5 300	60		-4.81		-4.50	
	5 320	64		-4.97		-4.66	
U-NII 2C	5 500	100		-4.49		-4.18	
	5 580	116		-4.79		-4.48	
	5 700	140		-5.54		-5.23	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 745	149	MCS0	-5.65	0.31	-5.34	30
	5 785	157		-6.19		-5.88	
	5 825	165		-6.25		-5.94	

Remark;

- Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11n_HT40

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 190	38	MCS0	-7.89	0.59	-7.30	11
	5 230	46		-7.86		-7.27	
U-NII 2A	5 270	54		-6.97		-6.38	
	5 310	62		-6.96		-6.37	
U-NII 2C	5 510	102		-7.57		-6.98	
	5 550	110		-7.32		-6.73	
	5 670	134		-8.21		-7.62	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 755	151	MCS0	-9.12	0.59	-8.53	30
	5 795	159		-9.42		-8.83	

Remark;

- Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

Test mode: 11ac_VHT80

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSP (dB m)	Duty Cycle Correction Factor (dB)	Final PPSP (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 210	42	MCS0	-11.14	1.16	-9.98	11
U-NII 2A	5 290	58		-10.53		-9.37	
U-NII 2C	5 530	106		-10.89		-9.73	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSP (dB m)	Duty Cycle Correction Factor (dB)	Final PPSP (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 775	155	MCS0	-12.65	1.16	-11.49	30

Remark;

- Final PPSP (dB m) = Measured PPSP (dB m) + Duty Cycle Correction Factor (dB)

Band-crossing channels

Mode	Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Measured PPSD (dB m)	Duty Cycle Correction Factor (dB)	Final PPSD (dB m)	Limit (dB m/1 MHz or dB m/500 kHz)
11a	U-NII 2C	5 720	144	6	-5.39	0.27	-5.12	11
	U-NII 3				-10.37		-10.10	30
11ac_VHT20	U-NII 2C	5 720	144	MCS0	-5.65	0.31	-5.34	11
	U-NII 3				-10.88		-10.57	30
11n_HT40	U-NII 2C	5 710	142	MCS0	-7.91	0.59	-7.32	11
	U-NII 3				-14.52		-13.93	30
11ac_VHT80	U-NII 2C	5 690	138	MCS0	-11.58	1.16	-10.42	11
	U-NII 3				-17.81		-16.65	30

Remark;

1. Final PPSD (dB m) = Measured PPSD (dB m) + Duty Cycle Correction Factor (dB)

- MIMO

Test mode: 11ac_VHT20

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Core 0 Measured PPSD (dB m)	Core 1 Measured PPSD (dB m)	Core 0 + Core 1 PPSD (dB m)
U-NII 1	5 180	36	MCS0	-6.89	-9.22	-4.89
	5 220	44		-6.68	-9.95	-5.00
	5 240	48		-6.39	-9.64	-4.71
U-NII 2A	5 260	52		-6.97	-7.75	-4.33
	5 300	60		-7.34	-8.01	-4.65
	5 320	64		-7.50	-8.17	-4.81
U-NII 2C	5 500	100		-9.13	-9.49	-6.30
	5 580	116		-9.71	-9.57	-6.63
	5 700	140		-10.54	-9.42	-6.93
U-NII 3	5 745	149		-11.73	-10.61	-8.12
	5 785	157		-11.79	-10.93	-8.33
	5 825	165		-11.99	-11.32	-8.63

Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Core 0 + Core 1 PPSD (dB m)	Duty Cycle Correction Factor (dB)	Core 0 + Core 1 Final PPSD (dB m)	Limit (dB m/1 MHz)
U-NII 1	5 180	36	MCS0	-4.89	0.31	-4.58	11
	5 220	44		-5.00		-4.69	
	5 240	48		-4.71		-4.40	
U-NII 2A	5 260	52		-4.33		-4.02	
	5 300	60		-4.65		-4.34	
	5 320	64		-4.81		-4.50	
U-NII 2C	5 500	100		-6.30		-5.99	
	5 580	116		-6.63		-6.32	
	5 700	140		-6.93		-6.62	
Band	Frequency (MHz)	Ch.	Data Rate (Mbps)	Core 0 + Core 1 PPSD (dB m)	Duty Cycle Correction Factor (dB)	Core 0 + Core 1 Final PPSD (dB m)	Limit (dB m/500 kHz)
U-NII 3	5 745	149	MCS0	-8.12	0.31	-7.81	30
	5 785	157		-8.33		-8.02	
	5 825	165		-8.63		-8.32	

Remark;

1. According to KDB 662911 D01 v02r01, power spectral density of each port (Ant. 1+Ant. 2) was combined by using below calculation.
2. PPSD: $10 \log \{10^{(\text{Ant. 1 PSD} / 10)} + 10^{(\text{Ant. 2 PSD} / 10)}\}$
3. Final PPSD (dB m) = PPSD (dB m) + Duty Correction Correction Factor (dB)