7.4.24 ISED CDD/SDM Conducted Output Power Measurements (Fully-loaded RU)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Mode	RU Size	RU Index	Data Rate [Mbps]	Conducted Powers [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
							Antenna WF8	Antenna WF7a	Summed						
	5180	36	SDM	242	61	243.8/286.8 (MCS11)	14.43	14.37	17.41	23.98	-6.57	2.50	19.91	22.60	-2.69
	5200	40	SDM	242	61	243.8/286.8 (MCS11)	14.11	14.49	17.31	23.98	-6.67	2.50	19.81	22.60	-2.79
	5240	48	SDM	242	61	243.8/286.8 (MCS11)	14.15	14.47	17.32	23.98	-6.66	2.50	19.82	22.60	-2.78
	5260	52	CDD	242	61	243.8/286.8 (MCS11)	17.81	17.67	20.75	23.64	-2.89	3.10	23.85	29.64	-5.79
	5300	60	CDD	242	61	243.8/286.8 (MCS11)	17.78	17.92	20.86	23.64	-2.78	3.10	23.96	29.64	-5.68
	5320	64	CDD	242	61	243.8/286.8 (MCS11)	15.41	15.13	18.28	23.64	-5.36	3.10	21.38	29.64	-8.26
	5500	100	CDD	242	61	243.8/286.8 (MCS11)	14.37	14.68	17.54	23.65	-6.11	4.60	22.14	29.65	-7.51
	5520	104	SDM	242	61	243.8/286.8 (MCS11)	17.39	17.30	20.36	23.65	-3.29	3.75	24.11	29.65	-5.54
	5540	108	SDM	242	61	243.8/286.8 (MCS11)	17.95	17.83	20.90	23.65	-2.75	3.75	24.65	29.65	-5.00
	5580	116	SDM	242	61	243.8/286.8 (MCS11)	17.82	17.88	20.86	23.65	-2.79	3.75	24.61	29.65	-5.04
	5680	136	SDM	242	61	243.8/286.8 (MCS11)	17.91	17.84	20.88	23.65	-2.77	3.75	24.63	29.65	-5.02
	5700	140	CDD	242	61	243.8/286.8 (MCS11)	13.83	13.80	16.82	23.65	-6.83	4.60	21.42	29.65	-8.23
	5720	144	SDM	242	61	243.8/286.8 (MCS11)	17.87	17.88	20.89	23.65	-2.76	3.75	24.64	29.65	-5.01
	5745	149	CDD	242	61	243.8/286.8 (MCS11)	20.49	20.42	23.46	30.00	-6.54	5.20	28.66	-	-
	5785	157	CDD	242	61	243.8/286.8 (MCS11)	20.34	20.10	23.24	30.00	-6.76	5.20	28.44	-	-
	5825	165	CDD	242	61	243.8/286.8 (MCS11)	20.31	20.38	23.35	30.00	-6.65	5.20	28.55	-	-

Table 7-98. ISED CDD/SDM 20MHz BW (UNII) Maximum Conducted Output Power and Max EIRP (Fully-loaded RU)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Mode	RU Size	RU Index	Data Rate [Mbps]	Conducted Powers [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
							Antenna WF8	Antenna WF7a	Summed						
	5190	38	CDD	484	65	487.5/573.5 (MCS11)	11.74	11.74	14.75	23.98	-9.23	3.50	18.25	22.60	-4.35
	5230	46	SDM	484	65	487.5/573.5 (MCS11)	16.48	16.42	19.46	23.98	-4.52	2.50	21.96	22.60	-0.64
	5270	54	CDD	484	65	487.5/573.5 (MCS11)	18.84	18.75	21.80	23.64	-1.84	3.10	24.90	29.64	-4.74
	5310	62	CDD	484	65	487.5/573.5 (MCS11)	13.77	13.66	16.73	23.64	-6.91	3.10	19.83	29.64	-9.81
	5510	102	CDD	484	65	487.5/573.5 (MCS11)	12.94	12.95	15.96	23.65	-7.69	4.60	20.56	29.65	-9.09
	5550	110	CDD	484	65	487.5/573.5 (MCS11)	17.20	17.48	20.35	23.65	-3.30	4.60	24.95	29.65	-4.70
	5670	134	CDD	484	65	487.5/573.5 (MCS11)	15.21	15.19	18.21	23.65	-5.44	4.60	22.81	29.65	-6.84
	5710	142	SDM	484	65	487.5/573.5 (MCS11)	19.79	19.74	22.77	23.65	-0.88	3.75	26.52	29.65	-3.13
	5755	151	CDD	484	65	487.5/573.5 (MCS11)	20.37	20.34	23.37	30.00	-6.63	5.20	28.57	-	-
	5795	159	CDD	484	65	487.5/573.5 (MCS11)	20.35	20.29	23.33	30.00	-6.67	5.20	28.53	-	-

Table 7-99. ISED CDD/SDM 40MHz BW (UNII) Maximum Conducted Output Power and Max EIRP (Fully-loaded RU)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Mode	RU Size	RU Index	Data Rate [Mbps]	Conducted Powers [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
							Antenna WF8	Antenna WF7a	Summed						
	5210	42	CDD	996	67	1020.8/1201 (MCS11)	11.09	11.45	14.28	23.98	-9.70	3.50	17.78	22.60	-4.82
	5290	58	CDD	996	67	1020.8/1201 (MCS11)	13.70	13.83	16.78	23.64	-6.86	3.10	19.88	29.64	-9.76
	5530	106	CDD	996	67	1020.8/1201 (MCS11)	11.36	11.34	14.36	23.65	-9.29	4.60	18.96	29.65	-10.69
	5690	138	CDD	996	67	1020.8/1201 (MCS11)	19.88	19.91	22.91	23.65	-0.74	4.60	27.51	29.65	-2.14
	5775	155	CDD	996	67	1020.8/1201 (MCS11)	15.81	15.76	18.79	30.00	-11.21	5.20	23.99	-	-

Table 7-100. ISED CDD 80MHz BW (UNII) Maximum Conducted Output Power and Max EIRP (Fully-loaded RU)

5GHz (160MHz Bandwidt	Freq [MHz]	Channel	Mode	RU Size	RU Index	Data Rate [Mbps]	Conducted Powers [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
							Antenna WF8	Antenna WF7a	Summed						
	5250	50	CDD	996x2	68	2041.6/2402 (MCS11)	9.91	9.78	12.86	23.98	-11.12	3.50	16.36	22.60	-6.24

Table 7-101. ISED CDD 160MHz BW (UNII) Maximum Conducted Output Power and Max EIRP (Fully-loaded RU)

Note:

Per ANSI C63.10-2020 and KDB 662911 v02r01 Section E)1), the conducted powers at Antenna WF8 and Antenna WF7a were first measured separately during CDD/SDM transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2020 Subclause 14.6.3, the correlated directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT}, the total number of antennas used.

$$\text{Directional gain} = G_{ANT} + \text{Array Gain dBi}$$

Per ANSI C63.10-2020 Subclause 14.6.3, the uncorrelated directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT}, the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G_1/10} + 10^{G_2/10} + \ldots + 10^{G_N/10}) / N_{ANT}] \text{ dBi}$$

Sample CDD Calculation:

At 5180MHz in 802.11ax (20MHz BW) mode, the average conducted output power was measured to be 5.40 dBm for Antenna WF8 and 5.39 dBm for Antenna WF7a.

Antenna WF8 + Antenna WF7a = CDD/SDM

(5.40 dBm + 5.39 dBm) = (3.467 mW + 3.459 mW) = 6.926 mW = 8.41 dBm

Sample e.i.r.p. Calculation:

At 5180MHz in 802.11ax (20MHz BW, SDM) mode, the average SDM conducted power was calculated to be 8.41 dBm with directional gain of 2.50 dBi.

e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

8.41 dBm + 2.50 dBi = 9.91 dBm

7.5 Maximum Power Spectral Density

§15.407(a.1.iv) §15.407(a.2) §15.407(a.3.i); RSS-247 [6.2]

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2020 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2020 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.15 – 5.25GHz band, the e.i.r.p. spectral density shall not exceed 10 dBm in any 1 MHz band.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

Test Procedure Used

ANSI C63.10-2020 – Section 12.4.2.2
KDB 789033 D02 v02r01 – Section F
ANSI C63.10-2020 – Section 14.5.2.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Set span to encompass the entire 99% OBW of the signal
3. RBW = 1MHz for U-NII 1, U-NII 2A, U-NII 2C; 500kHz for U-NII 3
4. VBW ≥ 3MHz for U-NII 1, U-NII 2A, U-NII 2C; ≥ 3 x RBW for U-NII 3
5. Number of sweep points ≥ 2 x (span/RBW)
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

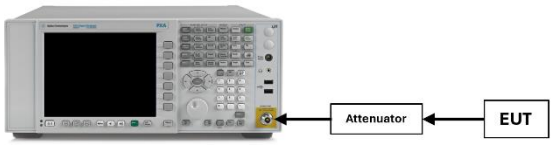


Figure 7-4. Test Instrument & Measurement Setup

Test Notes

1. All of the partially-loaded RU configurations have been investigated for Power Spectral Density measurement and among all partially-loaded RU configurations, the lowest supported RU configuration was found to be the worst case. Therefore, only the RU26, RU52 (Partially-loaded RU) and RU242 (Fully-loaded RU) data are included in this section.
2. Low, mid, and high channels were tested and tabular data has been reported. Only worst case PSD plots have been reported.

7.5.1 Antenna WF8 Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26	0	12.5/14.7 (MCS11)	7.90	11.0	-3.11
				26	4	12.5/14.7 (MCS11)	6.61	11.0	-4.39
				26	8	12.5/14.7 (MCS11)	7.72	11.0	-3.28
	5200	40	ax (20MHz)	26	0	12.5/14.7 (MCS11)	7.28	11.0	-3.72
				26	4	12.5/14.7 (MCS11)	7.01	11.0	-3.99
				26	8	12.5/14.7 (MCS11)	7.87	11.0	-3.13
	5240	48	ax (20MHz)	26	0	12.5/14.7 (MCS11)	8.12	11.0	-2.88
				26	4	12.5/14.7 (MCS11)	7.30	11.0	-3.71
				26	8	12.5/14.7 (MCS11)	8.30	11.0	-2.70
	5190	38	ax (40MHz)	26	0	12.5/14.7 (MCS11)	7.53	11.0	-3.47
				26	8	12.5/14.7 (MCS11)	7.90	11.0	-3.10
				26	17	12.5/14.7 (MCS11)	7.99	11.0	-3.01
	5230	46	ax (40MHz)	26	0	12.5/14.7 (MCS11)	8.27	11.0	-2.73
				26	8	12.5/14.7 (MCS11)	8.11	11.0	-2.89
				26	17	12.5/14.7 (MCS11)	8.05	11.0	-2.95
	5210	42	ax (80MHz)	26	0	12.5/14.7 (MCS11)	7.62	11.0	-3.38
				26	18	12.5/14.7 (MCS11)	6.47	11.0	-4.54
				26	36	12.5/14.7 (MCS11)	8.69	11.0	-2.31

Table 7-102. Bands 1 Power Spectral Density Measurements Antenna WF8 (RU26)

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1/2A	5250	50 (L)	ax (160MHz)	52	37	25/29.4 (MCS11)	3.86	11.0	-7.14
				52	52	25/29.4 (MCS11)	4.42	11.0	-6.58
		50 (U)		52	52	25/29.4 (MCS11)	4.52	11.0	-6.48
Band 2A	5260	52	ax (20MHz)	52	37	25/29.4 (MCS11)	8.23	11.0	-2.78
				52	38	25/29.4 (MCS11)	8.21	11.0	-2.79
				52	40	25/29.4 (MCS11)	8.20	11.0	-2.80
	5280	60	ax (20MHz)	52	37	25/29.4 (MCS11)	8.28	11.0	-2.72
				52	38	25/29.4 (MCS11)	8.40	11.0	-2.60
				52	40	25/29.4 (MCS11)	8.36	11.0	-2.64
	5320	64	ax (20MHz)	52	37	25/29.4 (MCS11)	8.08	11.0	-2.92
				52	38	25/29.4 (MCS11)	8.31	11.0	-2.70
				52	40	25/29.4 (MCS11)	8.38	11.0	-2.62
	5270	54	ax (40MHz)	52	37	25/29.4 (MCS11)	8.33	11.0	-2.67
				52	40	25/29.4 (MCS11)	8.07	11.0	-2.93
				52	44	25/29.4 (MCS11)	8.71	11.0	-2.29
	5310	62	ax (40MHz)	52	37	25/29.4 (MCS11)	7.76	11.0	-3.24
				52	40	25/29.4 (MCS11)	8.69	11.0	-2.31
				52	44	25/29.4 (MCS11)	8.02	11.0	-2.98
	5290	58	ax (80MHz)	52	37	25/29.4 (MCS11)	8.38	11.0	-2.62
				52	44	25/29.4 (MCS11)	8.09	11.0	-2.92
				52	52	25/29.4 (MCS11)	8.55	11.0	-2.45
Band 2C	5500	100	ax (20MHz)	52	37	25/29.4 (MCS11)	8.48	11.0	-2.52
				52	38	25/29.4 (MCS11)	8.82	11.0	-2.18
				52	40	25/29.4 (MCS11)	8.56	11.0	-2.44
	5580	116	ax (20MHz)	52	37	25/29.4 (MCS11)	8.31	11.0	-2.69
				52	38	25/29.4 (MCS11)	9.03	11.0	-1.97
				52	40	25/29.4 (MCS11)	9.04	11.0	-1.97
	5720	144	ax (20MHz)	52	37	25/29.4 (MCS11)	8.80	11.0	-2.21
				52	38	25/29.4 (MCS11)	8.66	11.0	-2.34
				52	40	25/29.4 (MCS11)	8.77	11.0	-2.23
	5510	102	ax (40MHz)	52	37	25/29.4 (MCS11)	8.25	11.0	-2.75
				52	40	25/29.4 (MCS11)	7.62	11.0	-3.38
				52	44	25/29.4 (MCS11)	8.30	11.0	-2.70
	5550	110	ax (40MHz)	52	37	25/29.4 (MCS11)	8.19	11.0	-2.81
				52	40	25/29.4 (MCS11)	8.85	11.0	-2.15
				52	44	25/29.4 (MCS11)	8.15	11.0	-2.85
	*5590	118	ax (40MHz)	52	37	25/29.4 (MCS11)	8.66	11.0	-2.34
				52	40	25/29.4 (MCS11)	8.85	11.0	-2.15
				52	44	25/29.4 (MCS11)	8.89	11.0	-2.11
	5670	134	ax (40MHz)	52	37	25/29.4 (MCS11)	8.06	11.0	-2.94
				52	40	25/29.4 (MCS11)	8.50	11.0	-2.50
				52	44	25/29.4 (MCS11)	8.32	11.0	-2.68
	5710	142	ax (40MHz)	52	37	25/29.4 (MCS11)	8.41	11.0	-2.59
				52	40	25/29.4 (MCS11)	8.76	11.0	-2.25
				52	44	25/29.4 (MCS11)	8.81	11.0	-2.19
	5530	106	ax (80MHz)	52	37	25/29.4 (MCS11)	7.07	11.0	-3.93
				52	44	25/29.4 (MCS11)	6.54	11.0	-4.46
				52	52	25/29.4 (MCS11)	7.29	11.0	-3.72
	*5610	122	ax (80MHz)	52	37	25/29.4 (MCS11)	8.85	11.0	-2.15
				52	44	25/29.4 (MCS11)	8.36	11.0	-2.64
				52	52	25/29.4 (MCS11)	8.82	11.0	-2.18
	5690	138	ax (80MHz)	52	37	25/29.4 (MCS11)	8.75	11.0	-2.25
				52	44	25/29.4 (MCS11)	8.35	11.0	-2.66
				52	52	25/29.4 (MCS11)	8.42	11.0	-2.58
	*5570	114 (L)	ax (160MHz)	52	37	25/29.4 (MCS11)	4.24	11.0	-6.76
				52	52	25/29.4 (MCS11)	4.24	11.0	-6.76
		114 (U)		52	52	25/29.4 (MCS11)	5.07	11.0	-5.93

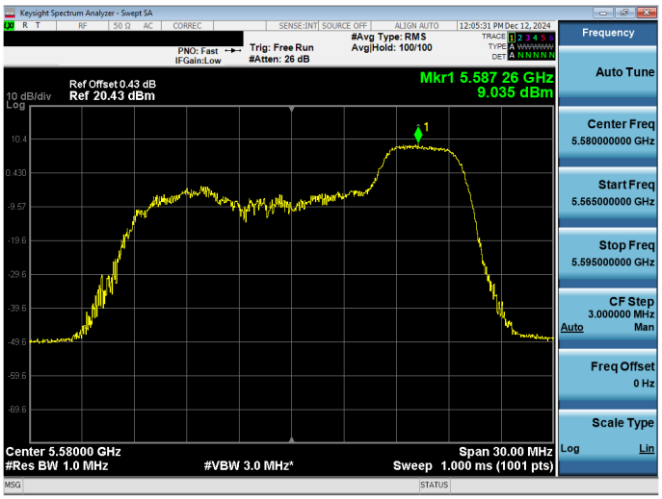
Table 7-103. Bands 1, 2A, 2C Power Spectral Density Measurements Antenna WF8 (RU52)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

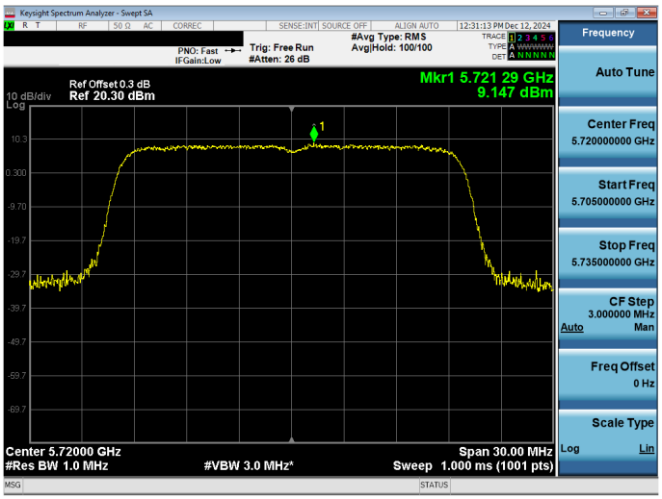
	Frequency [MHz]	Channel	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242	61	121.9/143.4 (MCS11)	3.98	11.0	-7.02
	5200	40	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.57	11.0	-2.43
	5240	48	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.67	11.0	-2.33
	5190	38	ax (40MHz)	484	65	243.8/286.8 (MCS11)	-1.07	11.0	-12.07
	5230	46	ax (40MHz)	484	65	243.8/286.8 (MCS11)	4.64	11.0	-6.36
	5210	42	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-5.16	11.0	-16.16
Band 1/2A	5250	50	ax (160MHz)	996x2	68	1020.8/1201 (MCS11)	-9.04	11.0	-20.04
Band 2A	5260	52	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.76	11.0	-2.24
	5280	60	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.50	11.0	-2.50
	5320	64	ax (20MHz)	242	61	121.9/143.4 (MCS11)	4.10	11.0	-6.90
	5270	54	ax (40MHz)	484	65	243.8/286.8 (MCS11)	5.29	11.0	-5.71
	5310	62	ax (40MHz)	484	65	243.8/286.8 (MCS11)	0.58	11.0	-10.43
	5290	58	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-2.23	11.0	-13.23
Band 2C	5500	100	ax (20MHz)	242	61	121.9/143.4 (MCS11)	3.15	11.0	-7.85
	5580	116	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.72	11.0	-2.28
	5720	144	ax (20MHz)	242	61	121.9/143.4 (MCS11)	9.15	11.0	-1.85
	5510	102	ax (40MHz)	484	65	243.8/286.8 (MCS11)	-0.84	11.0	-11.84
	5550	110	ax (40MHz)	484	65	243.8/286.8 (MCS11)	4.61	11.0	-6.39
	*5590	118	ax (40MHz)	484	65	243.8/286.8 (MCS11)	5.81	11.0	-5.19
	5710	142	ax (40MHz)	484	65	243.8/286.8 (MCS11)	5.74	11.0	-5.26
	5530	106	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-4.52	11.0	-15.52
	*5610	122	ax (80MHz)	996	67	510.4/600.5 (MCS11)	0.53	11.0	-10.48
	5690	138	ax (80MHz)	996	67	510.4/600.5 (MCS11)	2.53	11.0	-8.47
	*5570	114	ax (160MHz)	996x2	68	1020.8/1201 (MCS11)	-9.77	11.0	-20.77

Table 7-104. Bands 1, 2A, 2C Power Spectral Density Measurements Antenna WF8 (Fully-loaded RU)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)



Plot 7-9. PSD Antenna WF8 (20MHz BW 11ax Index 40 – RU52 – Ch.116)



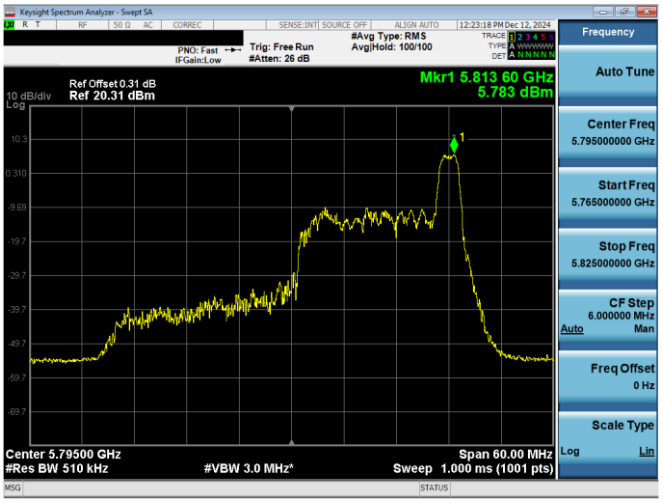
Plot 7-10. PSD Antenna WF8 (20MHz BW 11ax– RU242 – Ch.144)

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	26	0	12.5/14.7 (MCS11)	5.04	30.0	-24.96
				26	4	12.5/14.7 (MCS11)	5.07	30.0	-24.93
				26	8	12.5/14.7 (MCS11)	5.69	30.0	-24.31
	5785	157	ax (20MHz)	26	0	12.5/14.7 (MCS11)	5.32	30.0	-24.68
				26	4	12.5/14.7 (MCS11)	5.23	30.0	-24.77
				26	8	12.5/14.7 (MCS11)	5.59	30.0	-24.41
	5825	165	ax (20MHz)	26	0	12.5/14.7 (MCS11)	5.65	30.0	-24.35
				26	4	12.5/14.7 (MCS11)	5.63	30.0	-24.37
				26	8	12.5/14.7 (MCS11)	5.31	30.0	-24.69
	5755	151	ax (40MHz)	26	0	12.5/14.7 (MCS11)	5.04	30.0	-24.96
				26	8	12.5/14.7 (MCS11)	5.32	30.0	-24.68
				26	17	12.5/14.7 (MCS11)	5.65	30.0	-24.35
	5795	159	ax (40MHz)	26	0	12.5/14.7 (MCS11)	5.25	30.0	-24.75
				26	8	12.5/14.7 (MCS11)	4.91	30.0	-25.09
				26	17	12.5/14.7 (MCS11)	5.78	30.0	-24.22
	5775	155	ax (80MHz)	26	0	12.5/14.7 (MCS11)	5.16	30.0	-24.85
				26	18	12.5/14.7 (MCS11)	4.76	30.0	-25.25
				26	36	12.5/14.7 (MCS11)	5.46	30.0	-24.54

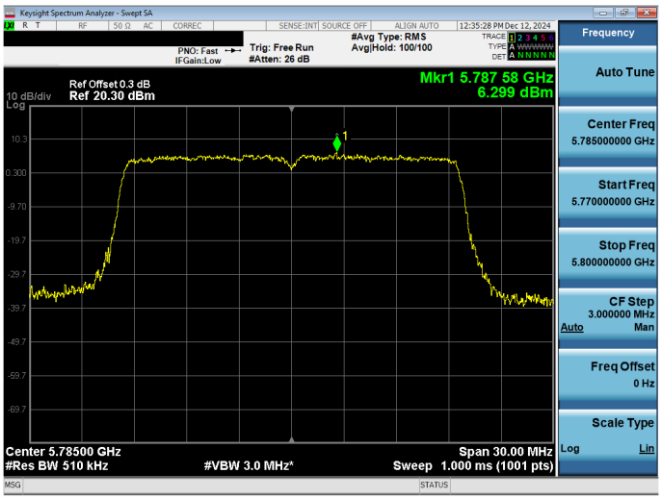
Table 7-105. Band 3 Power Spectral Density Measurements Antenna WF8 (RU26)

	Frequency [MHz]	Channel	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	242	61	121.9/143.4 (MCS11)	6.20	30.0	-23.80
	5785	157	ax (20MHz)	242	61	121.9/143.4 (MCS11)	6.30	30.0	-23.70
	5825	165	ax (20MHz)	242	61	121.9/143.4 (MCS11)	6.07	30.0	-23.93
	5755	151	ax (40MHz)	484	65	243.8/286.8 (MCS11)	3.07	30.0	-26.93
	5795	159	ax (40MHz)	484	65	243.8/286.8 (MCS11)	3.00	30.0	-27.00
	5775	155	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-3.63	30.0	-33.63

Table 7-106. Band 3 Power Spectral Density Measurements Antenna WF8 (Fully-loaded RU)



Plot 7-11. PSD Antenna WF8 (80MHz BW 11ax Index 17 – RU26 – Ch.159



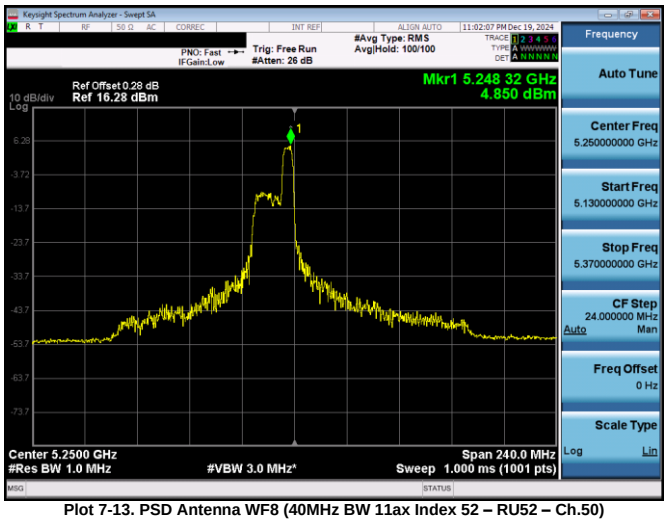
Plot 7-12. PSD Antenna WF8 (20MHz BW 11ax– RU242 – Ch.157)

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26	0	12.5/14.7 (MCS11)	4.39	1.20	5.59	10.0	-4.41
				26	4	12.5/14.7 (MCS11)	3.56	1.20	4.76	10.0	-5.24
				26	8	12.5/14.7 (MCS11)	4.06	1.20	5.26	10.0	-4.74
	5200	40	ax (20MHz)	26	0	12.5/14.7 (MCS11)	4.36	1.20	5.56	10.0	-4.45
				26	4	12.5/14.7 (MCS11)	3.54	1.20	4.74	10.0	-5.26
				26	8	12.5/14.7 (MCS11)	4.56	1.20	5.76	10.0	-4.24
	5240	48	ax (20MHz)	26	0	12.5/14.7 (MCS11)	4.67	1.20	5.87	10.0	-4.13
				26	4	12.5/14.7 (MCS11)	3.55	1.20	4.75	10.0	-5.25
				26	8	12.5/14.7 (MCS11)	4.68	1.20	5.88	10.0	-4.12
	5190	38	ax (40MHz)	26	0	12.5/14.7 (MCS11)	4.33	1.20	5.53	10.0	-4.47
				26	8	12.5/14.7 (MCS11)	3.83	1.20	5.03	10.0	-4.97
				26	17	12.5/14.7 (MCS11)	4.52	1.20	5.72	10.0	-4.28
	5230	46	ax (40MHz)	26	0	12.5/14.7 (MCS11)	4.63	1.20	5.83	10.0	-4.17
				26	8	12.5/14.7 (MCS11)	4.50	1.20	5.70	10.0	-4.31
				26	17	12.5/14.7 (MCS11)	4.23	1.20	5.43	10.0	-4.57
	5210	42	ax (80MHz)	26	0	12.5/14.7 (MCS11)	3.80	1.20	5.00	10.0	-5.00
				26	18	12.5/14.7 (MCS11)	3.65	1.20	4.85	10.0	-5.15
				26	36	12.5/14.7 (MCS11)	4.25	1.20	5.45	10.0	-4.55
	5250	50 (L)	ax (160MHz)	52	37	25/29.4 (MCS11)	4.80	1.20	6.00	10.0	-4.00
				52	52	25/29.4 (MCS11)	4.85	1.20	6.05	10.0	-3.95

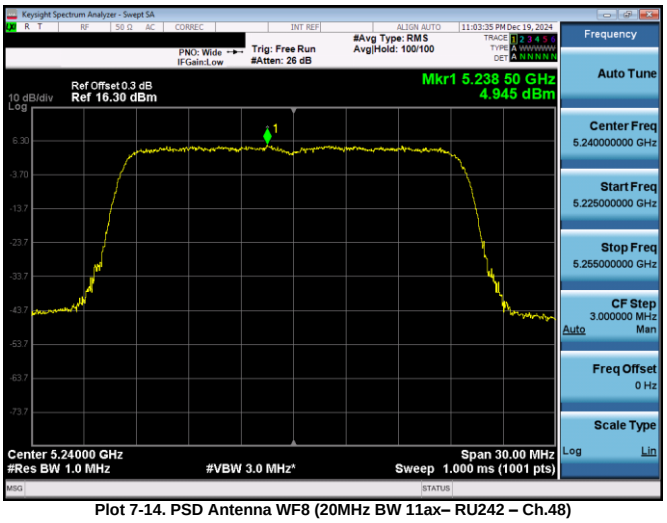
Table 7-107. ISED Band 1 e.i.r.p. Power Spectral Density Measurements Antenna WF8 (RU26/52)

	Frequency [MHz]	Channel	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242	61	121.9/143.4 (MCS11)	4.30	1.20	5.50	10.0	-4.50
	5200	40	ax (20MHz)	242	61	121.9/143.4 (MCS11)	4.92	1.20	6.12	10.0	-3.89
	5240	48	ax (20MHz)	242	61	121.9/143.4 (MCS11)	4.95	1.20	6.15	10.0	-3.86
	5190	38	ax (40MHz)	484	65	243.8/286.8 (MCS11)	-0.27	1.20	0.93	10.0	-9.07
	5230	46	ax (40MHz)	484	65	243.8/286.8 (MCS11)	3.99	1.20	5.19	10.0	-4.81
	5210	42	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-5.32	1.20	-4.12	10.0	-14.12
	5250	50	ax (160MHz)	996x2	68	1020.8/1201 (MCS11)	-8.50	1.20	-7.30	10.0	-17.30

Table 7-108. ISED Band 1 e.i.r.p. Power Spectral Density Measurements Antenna WF8 (Fully-loaded RU)



Plot 7-13. PSD Antenna WF8 (40MHz BW 11ax Index 52 – RU52 – Ch.50)



Plot 7-14. PSD Antenna WF8 (20MHz BW 11ax– RU242 – Ch.48)

7.5.2 Antenna WF7a Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26	0	12.5/14.7 (MCS11)	8.24	11.0	-2.77
				26	4	12.5/14.7 (MCS11)	7.09	11.0	-3.92
				26	8	12.5/14.7 (MCS11)	7.81	11.0	-3.19
	5200	40	ax (20MHz)	26	0	12.5/14.7 (MCS11)	8.02	11.0	-2.98
				26	4	12.5/14.7 (MCS11)	7.08	11.0	-3.92
				26	8	12.5/14.7 (MCS11)	8.00	11.0	-3.01
	5240	48	ax (20MHz)	26	0	12.5/14.7 (MCS11)	8.17	11.0	-2.83
				26	4	12.5/14.7 (MCS11)	8.50	11.0	-2.50
				26	8	12.5/14.7 (MCS11)	8.56	11.0	-2.44
	5190	38	ax (40MHz)	26	0	12.5/14.7 (MCS11)	7.98	11.0	-3.02
				26	8	12.5/14.7 (MCS11)	8.32	11.0	-2.68
				26	17	12.5/14.7 (MCS11)	8.56	11.0	-2.44
	5230	46	ax (40MHz)	26	0	12.5/14.7 (MCS11)	8.15	11.0	-2.85
				26	8	12.5/14.7 (MCS11)	8.78	11.0	-2.22
				26	17	12.5/14.7 (MCS11)	8.55	11.0	-2.46
	5210	42	ax (80MHz)	26	0	12.5/14.7 (MCS11)	8.70	11.0	-2.30
				26	18	12.5/14.7 (MCS11)	7.25	11.0	-3.75
				26	36	12.5/14.7 (MCS11)	8.16	11.0	-2.84

Table 7-109. Bands 1 Power Spectral Density Measurements Antenna WF7a (RU26)

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1/2A	5250	50 (L)	ax (160MHz)	52	37	25/29.4 (MCS11)	5.10	11.0	-5.90
				52	52	25/29.4 (MCS11)	4.53	11.0	-6.47
		50 (U)		52	52	25/29.4 (MCS11)	5.04	11.0	-5.96
Band 2A	5260	52	ax (20MHz)	52	37	25/29.4 (MCS11)	8.21	11.0	-2.80
				52	38	25/29.4 (MCS11)	8.32	11.0	-2.68
				52	40	25/29.4 (MCS11)	8.38	11.0	-2.62
	5280	60	ax (20MHz)	52	37	25/29.4 (MCS11)	8.25	11.0	-2.75
				52	38	25/29.4 (MCS11)	8.04	11.0	-2.96
				52	40	25/29.4 (MCS11)	8.13	11.0	-2.88
	5320	64	ax (20MHz)	52	37	25/29.4 (MCS11)	8.32	11.0	-2.68
				52	38	25/29.4 (MCS11)	8.15	11.0	-2.85
				52	40	25/29.4 (MCS11)	8.37	11.0	-2.63
	5270	54	ax (40MHz)	52	37	25/29.4 (MCS11)	8.41	11.0	-2.59
				52	40	25/29.4 (MCS11)	9.05	11.0	-1.95
				52	44	25/29.4 (MCS11)	8.03	11.0	-2.97
	5310	62	ax (40MHz)	52	37	25/29.4 (MCS11)	8.17	11.0	-2.83
				52	40	25/29.4 (MCS11)	8.27	11.0	-2.73
				52	44	25/29.4 (MCS11)	8.22	11.0	-2.78
	5290	58	ax (80MHz)	52	37	25/29.4 (MCS11)	8.52	11.0	-2.48
				52	44	25/29.4 (MCS11)	7.80	11.0	-3.21
				52	52	25/29.4 (MCS11)	8.41	11.0	-2.60
Band 2C	5500	100	ax (20MHz)	52	37	25/29.4 (MCS11)	8.63	11.0	-2.37
				52	38	25/29.4 (MCS11)	8.79	11.0	-2.21
				52	40	25/29.4 (MCS11)	8.79	11.0	-2.21
	5580	116	ax (20MHz)	52	37	25/29.4 (MCS11)	8.50	11.0	-2.50
				52	38	25/29.4 (MCS11)	8.95	11.0	-2.05
				52	40	25/29.4 (MCS11)	8.94	11.0	-2.06
	5720	144	ax (20MHz)	52	37	25/29.4 (MCS11)	8.57	11.0	-2.43
				52	38	25/29.4 (MCS11)	9.05	11.0	-1.95
				52	40	25/29.4 (MCS11)	9.01	11.0	-2.00
	5510	102	ax (40MHz)	52	37	25/29.4 (MCS11)	7.83	11.0	-3.17
				52	40	25/29.4 (MCS11)	8.35	11.0	-2.65
				52	44	25/29.4 (MCS11)	7.98	11.0	-3.02
	5550	110	ax (40MHz)	52	37	25/29.4 (MCS11)	8.88	11.0	-2.12
				52	40	25/29.4 (MCS11)	8.71	11.0	-2.29
				52	44	25/29.4 (MCS11)	9.16	11.0	-1.84
	*5590	118	ax (40MHz)	52	37	25/29.4 (MCS11)	8.82	11.0	-2.18
				52	40	25/29.4 (MCS11)	9.07	11.0	-1.93
				52	44	25/29.4 (MCS11)	8.51	11.0	-2.49
	5670	134	ax (40MHz)	52	37	25/29.4 (MCS11)	8.86	11.0	-2.14
				52	40	25/29.4 (MCS11)	8.50	11.0	-2.50
				52	44	25/29.4 (MCS11)	8.12	11.0	-2.88
	5710	142	ax (40MHz)	52	37	25/29.4 (MCS11)	8.44	11.0	-2.56
				52	40	25/29.4 (MCS11)	8.67	11.0	-2.33
				52	44	25/29.4 (MCS11)	8.27	11.0	-2.73
	5530	106	ax (80MHz)	52	37	25/29.4 (MCS11)	7.49	11.0	-3.51
				52	44	25/29.4 (MCS11)	7.02	11.0	-3.98
				52	52	25/29.4 (MCS11)	7.58	11.0	-3.42
	*5610	122	ax (80MHz)	52	37	25/29.4 (MCS11)	9.35	11.0	-1.65
				52	44	25/29.4 (MCS11)	8.59	11.0	-2.41
				52	52	25/29.4 (MCS11)	8.95	11.0	-2.05
	5690	138	ax (80MHz)	52	37	25/29.4 (MCS11)	8.88	11.0	-2.12
				52	44	25/29.4 (MCS11)	8.30	11.0	-2.70
				52	52	25/29.4 (MCS11)	8.51	11.0	-2.49
	*5570	114 (L)	ax (160MHz)	52	37	25/29.4 (MCS11)	4.25	11.0	-6.76
				52	52	25/29.4 (MCS11)	3.80	11.0	-7.20
		114 (U)		52	52	25/29.4 (MCS11)	4.52	11.0	-6.48

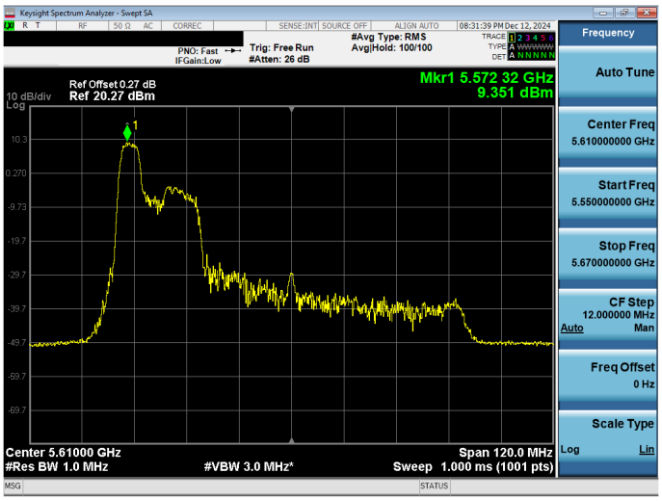
Table 7-110. Bands 1, 2A, 2C Power Spectral Density Measurements Antenna WF7a (RU52)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

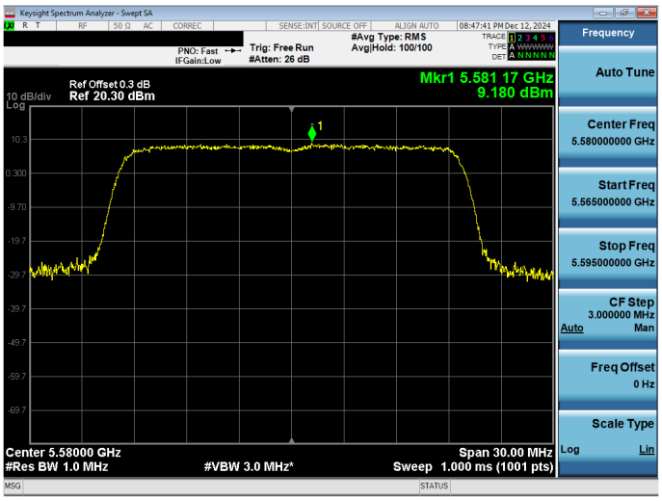
	Frequency [MHz]	Channel	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242	61	121.9/143.4 (MCS11)	3.97	11.0	-7.03
	5200	40	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.41	11.0	-2.59
	5240	48	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.77	11.0	-2.23
	5190	38	ax (40MHz)	484	65	243.8/286.8 (MCS11)	-0.87	11.0	-11.87
	5230	46	ax (40MHz)	484	65	243.8/286.8 (MCS11)	4.83	11.0	-6.17
	5210	42	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-5.34	11.0	-16.34
Band 1/2A	5250	50	ax (160MHz)	996x2	68	1020.8/1201 (MCS11)	-9.27	11.0	-20.27
Band 2A	5260	52	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.86	11.0	-2.14
	5280	60	ax (20MHz)	242	61	121.9/143.4 (MCS11)	9.07	11.0	-1.93
	5320	64	ax (20MHz)	242	61	121.9/143.4 (MCS11)	4.31	11.0	-6.69
	5270	54	ax (40MHz)	484	65	243.8/286.8 (MCS11)	5.73	11.0	-5.27
	5310	62	ax (40MHz)	484	65	243.8/286.8 (MCS11)	0.98	11.0	-10.02
	5290	58	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-1.80	11.0	-12.80
Band 2C	5500	100	ax (20MHz)	242	61	121.9/143.4 (MCS11)	3.48	11.0	-7.52
	5580	116	ax (20MHz)	242	61	121.9/143.4 (MCS11)	9.18	11.0	-1.82
	5720	144	ax (20MHz)	242	61	121.9/143.4 (MCS11)	8.77	11.0	-2.23
	5510	102	ax (40MHz)	484	65	243.8/286.8 (MCS11)	-0.66	11.0	-11.66
	5550	110	ax (40MHz)	484	65	243.8/286.8 (MCS11)	4.97	11.0	-6.03
	*5590	118	ax (40MHz)	484	65	243.8/286.8 (MCS11)	6.26	11.0	-4.74
	5710	142	ax (40MHz)	484	65	243.8/286.8 (MCS11)	6.05	11.0	-4.95
	5530	106	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-4.12	11.0	-15.12
	*5610	122	ax (80MHz)	996	67	510.4/600.5 (MCS11)	0.50	11.0	-10.50
	5690	138	ax (80MHz)	996	67	510.4/600.5 (MCS11)	3.39	11.0	-7.62
	*5570	114	ax (160MHz)	996x2	68	1020.8/1201 (MCS11)	-9.55	11.0	-20.55

Table 7-111. Bands 1, 2A, 2C Power Spectral Density Measurements Antenna WF7a (Fully-loaded RU)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)



Plot 7-15. PSD Antenna WF7a (80MHz BW 11ax Index37 – RU52 – Ch.122)



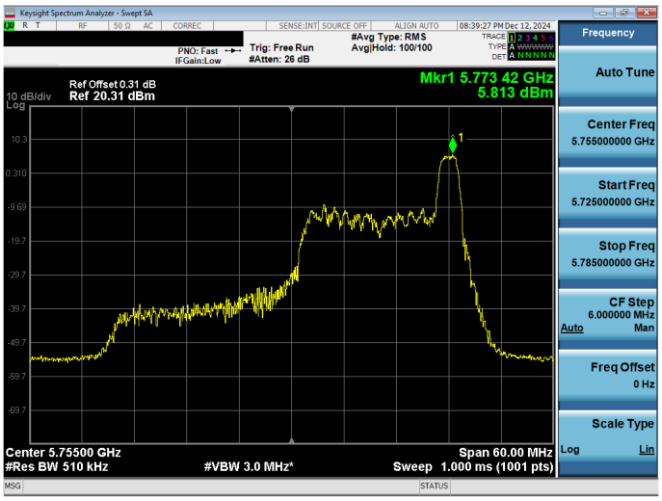
Plot 7-16. PSD Antenna WF7a (20MHz BW 11ax– RU242 – Ch.116)

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	26	0	12.5/14.7 (MCS11)	5.78	30.0	-24.22
				26	4	12.5/14.7 (MCS11)	5.69	30.0	-24.31
				26	8	12.5/14.7 (MCS11)	5.35	30.0	-24.65
	5785	157	ax (20MHz)	26	0	12.5/14.7 (MCS11)	5.73	30.0	-24.27
				26	4	12.5/14.7 (MCS11)	5.43	30.0	-24.57
				26	8	12.5/14.7 (MCS11)	4.95	30.0	-25.05
	5825	165	ax (20MHz)	26	0	12.5/14.7 (MCS11)	5.59	30.0	-24.41
				26	4	12.5/14.7 (MCS11)	5.46	30.0	-24.54
				26	8	12.5/14.7 (MCS11)	5.27	30.0	-24.73
	5755	151	ax (40MHz)	26	0	12.5/14.7 (MCS11)	5.17	30.0	-24.83
				26	8	12.5/14.7 (MCS11)	5.51	30.0	-24.49
				26	17	12.5/14.7 (MCS11)	5.81	30.0	-24.19
	5795	159	ax (40MHz)	26	0	12.5/14.7 (MCS11)	5.74	30.0	-24.26
				26	8	12.5/14.7 (MCS11)	5.41	30.0	-24.59
				26	17	12.5/14.7 (MCS11)	5.64	30.0	-24.36
	5775	155	ax (80MHz)	26	0	12.5/14.7 (MCS11)	5.39	30.0	-24.61
				26	18	12.5/14.7 (MCS11)	4.90	30.0	-25.10
				26	36	12.5/14.7 (MCS11)	5.62	30.0	-24.38

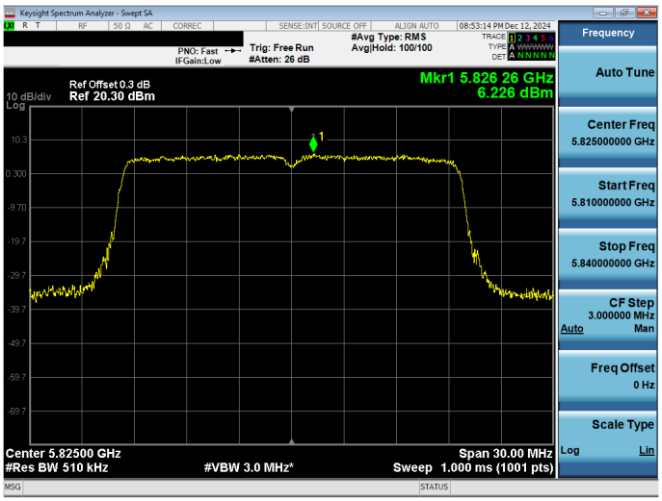
Table 7-112. Band 3 Power Spectral Density Measurements Antenna WF7a (RU26)

	Frequency [MHz]	Channel	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	242	61	121.9/143.4 (MCS11)	5.60	30.0	-24.40
	5785	157	ax (20MHz)	242	61	121.9/143.4 (MCS11)	6.16	30.0	-23.84
	5825	165	ax (20MHz)	242	61	121.9/143.4 (MCS11)	6.23	30.0	-23.77
	5755	151	ax (40MHz)	484	65	243.8/286.8 (MCS11)	2.97	30.0	-27.03
	5795	159	ax (40MHz)	484	65	243.8/286.8 (MCS11)	3.09	30.0	-26.91
	5775	155	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-3.83	30.0	-33.83

Table 7-113. Band 3 Power Spectral Density Measurements Antenna WF7a (Fully-loaded RU)



Plot 7-17. PSD Antenna WF7a (40MHz BW 11ax Index 17 – RU26 – Ch.151)



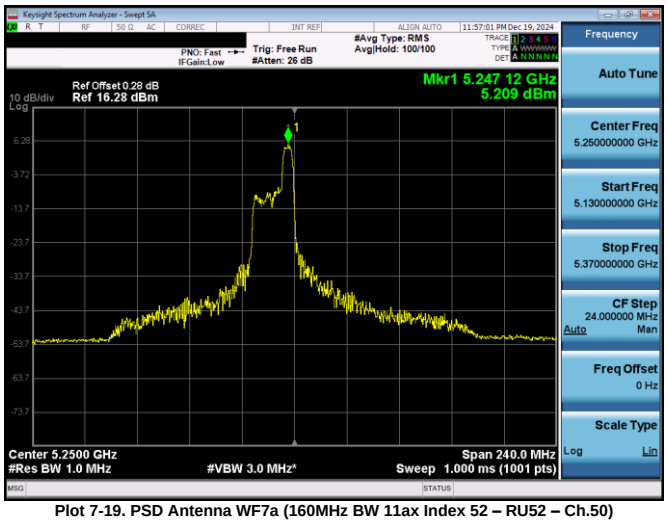
Plot 7-18. PSD Antenna WF7a (20MHz BW 11ax– RU242 – Ch.165)

	Frequency [MHz]	Channel No.	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26	0	12.5/14.7 (MCS11)	4.54	3.50	8.04	10.0	-1.96
				26	4	12.5/14.7 (MCS11)	3.82	3.50	7.32	10.0	-2.68
				26	8	12.5/14.7 (MCS11)	4.57	3.50	8.07	10.0	-1.93
	5200	40	ax (20MHz)	26	0	12.5/14.7 (MCS11)	5.08	3.50	8.58	10.0	-1.42
				26	4	12.5/14.7 (MCS11)	4.32	3.50	7.82	10.0	-2.18
				26	8	12.5/14.7 (MCS11)	5.15	3.50	8.65	10.0	-1.35
	5240	48	ax (20MHz)	26	0	12.5/14.7 (MCS11)	4.87	3.50	8.37	10.0	-1.64
				26	4	12.5/14.7 (MCS11)	4.01	3.50	7.51	10.0	-2.49
				26	8	12.5/14.7 (MCS11)	4.59	3.50	8.09	10.0	-1.91
	5190	38	ax (40MHz)	26	0	12.5/14.7 (MCS11)	4.75	3.50	8.25	10.0	-1.75
				26	8	12.5/14.7 (MCS11)	4.87	3.50	8.37	10.0	-1.63
				26	17	12.5/14.7 (MCS11)	5.07	3.50	8.57	10.0	-1.43
	5230	46	ax (40MHz)	26	0	12.5/14.7 (MCS11)	4.53	3.50	8.03	10.0	-1.97
				26	8	12.5/14.7 (MCS11)	4.63	3.50	8.13	10.0	-1.87
				26	17	12.5/14.7 (MCS11)	4.34	3.50	7.84	10.0	-2.16
	5210	42	ax (80MHz)	26	0	12.5/14.7 (MCS11)	4.38	3.50	7.88	10.0	-2.12
				26	18	12.5/14.7 (MCS11)	3.02	3.50	6.52	10.0	-3.49
				26	36	12.5/14.7 (MCS11)	4.56	3.50	8.06	10.0	-1.94
	5250	50 (L)	ax (160MHz)	52	37	25/29.4 (MCS11)	4.98	3.50	8.48	10.0	-1.52
				52	52	25/29.4 (MCS11)	5.21	3.50	8.71	10.0	-1.29

Table 7-114. ISED Band 1 e.i.r.p. Power Spectral Density Measurements Antenna WF7a (RU26/52)

	Frequency [MHz]	Channel	802.11 MODE	RU Size	RU Index	Data Rate [Mbps]	Measured Power Density [dBm/MHz]	Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242	61	121.9/143.4 (MCS11)	5.05	3.50	8.55	10.0	-1.45
	5200	40	ax (20MHz)	242	61	121.9/143.4 (MCS11)	5.67	3.50	9.17	10.0	-0.83
	5240	48	ax (20MHz)	242	61	121.9/143.4 (MCS11)	5.30	3.50	8.80	10.0	-1.20
	5190	38	ax (40MHz)	484	65	243.8/286.8 (MCS11)	-0.09	3.50	3.41	10.0	-6.59
	5230	46	ax (40MHz)	484	65	243.8/286.8 (MCS11)	4.42	3.50	7.92	10.0	-2.08
	5210	42	ax (80MHz)	996	67	510.4/600.5 (MCS11)	-4.94	3.50	-1.44	10.0	-11.44
	5250	50	ax (160MHz)	996x2	68	1020.8/1201 (MCS11)	-8.45	3.50	-4.95	10.0	-14.95

Table 7-115. ISED Band 1 e.i.r.p. Power Spectral Density Measurements Antenna WF7a (Fully-loaded RU)



Plot 7-19. PSD Antenna WF7a (160MHz BW 11ax Index 52 – RU52 – Ch.50)

Plot 7-20. PSD Antenna WF7a (20MHz BW 11ax– RU242 – Ch.40)

7.5.3 Summed CDD/SDM Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 MODE	Mode	RU Size	RU Index	Data Rate [Mbps]	Antenna WF8 Power Density [dBm/MHz]	Antenna WF7a Power Density [dBm/MHz]	Summed Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	CDD	26	0	25/29.4 (MCS11)	5.09	6.28	8.74	11.0	-2.26
					26	4	25/29.4 (MCS11)	4.27	4.68	7.49	11.0	-3.51
					26	8	25/29.4 (MCS11)	5.28	5.24	8.27	11.0	-2.73
	5200	40	ax (20MHz)	CDD	26	0	25/29.4 (MCS11)	5.14	5.29	8.23	11.0	-2.77
					26	4	25/29.4 (MCS11)	4.20	4.45	7.34	11.0	-3.66
					26	8	25/29.4 (MCS11)	5.36	5.19	8.29	11.0	-2.71
	5240	48	ax (20MHz)	CDD	26	0	25/29.4 (MCS11)	5.83	6.23	9.05	11.0	-1.95
					26	4	25/29.4 (MCS11)	5.25	4.86	8.07	11.0	-2.93
					26	8	25/29.4 (MCS11)	5.79	5.61	8.71	11.0	-2.29
	5190	38	ax (40MHz)	CDD	26	0	25/29.4 (MCS11)	5.31	5.37	8.35	11.0	-2.65
					26	8	25/29.4 (MCS11)	5.38	5.46	8.43	11.0	-2.57
					26	17	25/29.4 (MCS11)	5.66	5.46	8.57	11.0	-2.43
	5230	46	ax (40MHz)	CDD	26	0	25/29.4 (MCS11)	5.44	6.02	8.75	11.0	-2.25
					26	8	25/29.4 (MCS11)	5.54	6.01	8.79	11.0	-2.21
					26	17	25/29.4 (MCS11)	5.94	5.77	8.86	11.0	-2.14
	5210	42	ax (80MHz)	CDD	26	0	25/29.4 (MCS11)	5.11	5.24	8.19	11.0	-2.81
					26	18	25/29.4 (MCS11)	4.50	4.44	7.48	11.0	-3.52
					26	36	25/29.4 (MCS11)	5.64	5.31	8.49	11.0	-2.51

Table 7-116. Bands 1 Power Spectral Density Measurements CDD (RU26)

	Frequency [MHz]	Channel No.	802.11 MODE	Mode	RU Size	RU Index	Data Rate [Mbps]	Antenna WF8 Power Density [dBm/MHz]	Antenna WF7a Power Density [dBm/MHz]	Summed Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1/2A	5250	50 (L)	ax (160MHz)	CDD	52	37	50/58.8 (MCS11)	3.04	3.46	6.27	11.0	-4.73
					52	52	50/58.8 (MCS11)	3.41	3.55	6.49	11.0	-4.51
		50 (U)			52	52	50/58.8 (MCS11)	3.13	3.77	6.47	11.0	-4.53
Band 2A	5260	52	ax (20MHz)	CDD	52	37	50/58.8 (MCS11)	5.39	6.53	9.01	11.0	-1.99
					52	38	50/58.8 (MCS11)	5.52	6.86	9.25	11.0	-1.75
					52	40	50/58.8 (MCS11)	5.64	6.28	8.98	11.0	-2.02
	5280	60	ax (20MHz)	CDD	52	37	50/58.8 (MCS11)	5.78	6.22	9.02	11.0	-1.98
					52	38	50/58.8 (MCS11)	5.65	6.54	9.13	11.0	-1.87
					52	40	50/58.8 (MCS11)	5.92	6.18	9.06	11.0	-1.94
	5320	64	ax (20MHz)	CDD	52	37	50/58.8 (MCS11)	5.80	5.98	8.90	11.0	-2.10
					52	38	50/58.8 (MCS11)	5.65	6.38	9.04	11.0	-1.96
					52	40	50/58.8 (MCS11)	5.68	6.22	8.97	11.0	-2.03
	5270	54	ax (40MHz)	CDD	52	37	50/58.8 (MCS11)	5.51	5.74	8.64	11.0	-2.36
					52	40	50/58.8 (MCS11)	5.86	6.45	9.17	11.0	-1.83
					52	44	50/58.8 (MCS11)	5.43	5.50	8.48	11.0	-2.52
	5310	62	ax (40MHz)	CDD	52	37	50/58.8 (MCS11)	5.27	5.95	8.63	11.0	-2.37
					52	40	50/58.8 (MCS11)	6.05	6.31	9.19	11.0	-1.81
					52	44	50/58.8 (MCS11)	4.99	6.04	8.56	11.0	-2.44
	5290	58	ax (80MHz)	CDD	52	37	50/58.8 (MCS11)	5.87	5.97	8.93	11.0	-2.07
					52	44	50/58.8 (MCS11)	5.09	5.74	8.44	11.0	-2.56
					52	52	50/58.8 (MCS11)	5.10	6.28	8.74	11.0	-2.26
Band 2C	5500	100	ax (20MHz)	SDM	52	37	50/58.8 (MCS11)	6.20	6.23	9.22	11.0	-1.78
					52	38	50/58.8 (MCS11)	6.29	6.30	9.31	11.0	-1.69
					52	40	50/58.8 (MCS11)	5.94	6.22	9.09	11.0	-1.91
	5580	116	ax (20MHz)	SDM	52	37	50/58.8 (MCS11)	5.97	6.39	9.19	11.0	-1.81
					52	38	50/58.8 (MCS11)	5.95	6.27	9.12	11.0	-1.88
					52	40	50/58.8 (MCS11)	6.44	6.41	9.44	11.0	-1.56
	5720	144	ax (20MHz)	SDM	52	37	50/58.8 (MCS11)	5.72	6.49	9.13	11.0	-1.87
					52	38	50/58.8 (MCS11)	6.01	6.37	9.21	11.0	-1.79
					52	40	50/58.8 (MCS11)	6.53	6.46	9.51	11.0	-1.49
	5510	102	ax (40MHz)	SDM	52	37	50/58.8 (MCS11)	5.82	6.29	9.07	11.0	-1.93
					52	40	50/58.8 (MCS11)	5.98	6.17	9.09	11.0	-1.91
					52	44	50/58.8 (MCS11)	5.29	6.39	8.88	11.0	-2.12
	5550	110	ax (40MHz)	SDM	52	37	50/58.8 (MCS11)	6.15	5.63	8.91	11.0	-2.09
					52	40	50/58.8 (MCS11)	6.04	6.33	9.20	11.0	-1.80
					52	44	50/58.8 (MCS11)	6.19	5.82	9.02	11.0	-1.98
	*5590	118	ax (40MHz)	SDM	52	37	50/58.8 (MCS11)	5.73	6.72	9.26	11.0	-1.74
					52	40	50/58.8 (MCS11)	6.10	6.11	9.12	11.0	-1.88
					52	44	50/58.8 (MCS11)	6.18	6.43	9.31	11.0	-1.69
	5670	134	ax (40MHz)	SDM	52	37	50/58.8 (MCS11)	6.39	6.33	9.37	11.0	-1.63
					52	40	50/58.8 (MCS11)	5.84	6.21	9.04	11.0	-1.96
					52	44	50/58.8 (MCS11)	6.40	6.21	9.32	11.0	-1.68
	5710	142	ax (40MHz)	SDM	52	37	50/58.8 (MCS11)	6.11	6.13	9.13	11.0	-1.87
					52	40	50/58.8 (MCS11)	5.94	6.03	9.00	11.0	-2.00
					52	44	50/58.8 (MCS11)	5.96	6.64	9.32	11.0	-1.68
	5530	106	ax (80MHz)	SDM	52	37	50/58.8 (MCS11)	5.80	5.47	8.64	11.0	-2.36
					52	44	50/58.8 (MCS11)	5.38	5.46	8.43	11.0	-2.57
					52	52	50/58.8 (MCS11)	5.61	5.77	8.70	11.0	-2.30
	*5610	122	ax (80MHz)	SDM	52	37	50/58.8 (MCS11)	5.42	6.82	9.18	11.0	-1.82
					52	44	50/58.8 (MCS11)	5.93	5.74	8.85	11.0	-2.15
					52	52	50/58.8 (MCS11)	5.48	5.99	8.75	11.0	-2.25
	5690	138	ax (80MHz)	SDM	52	37	50/58.8 (MCS11)	6.51	6.34	9.44	11.0	-1.56
					52	44	50/58.8 (MCS11)	5.70	5.82	8.77	11.0	-2.23
					52	52	50/58.8 (MCS11)	6.18	6.10	9.15	11.0	-1.85
	*5570	114 (L)	ax (160MHz)	CDD	52	37	50/58.8 (MCS11)	2.80	2.65	5.74	11.0	-5.26
					52	52	50/58.8 (MCS11)	2.81	2.71	5.77	11.0	-5.23
		114 (U)			52	52	50/58.8 (MCS11)	2.55	2.99	5.78	11.0	-5.22

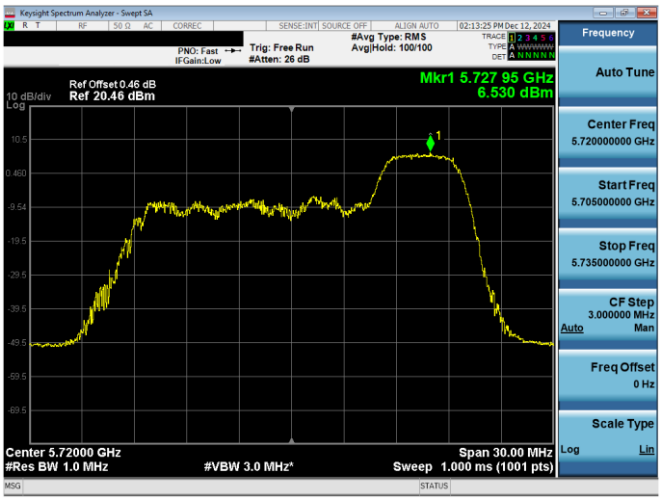
Table 7-117. Bands 1, 2A, 2C Power Spectral Density Measurements CDD/SDM (RU52)

*TDWR channel is not supported for ISED (denoted by a * next to the frequency)

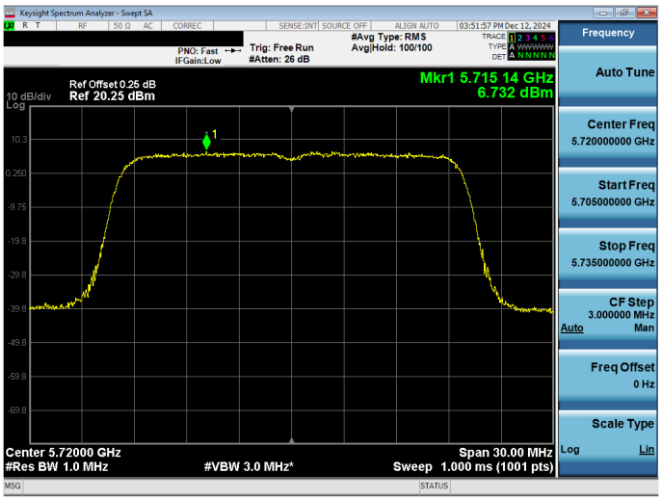
	Frequency [MHz]	Channel	802.11 MODE	Mode	RU Size	RU Index	Data Rate [Mbps]	Antenna WF8 Power Density [dBm/MHz]	Antenna WF7a Power Density [dBm/MHz]	Summed Power Density [dBm/MHz]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	2.99	2.95	5.98	11.0	-5.02
	5200	40	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	6.17	5.77	8.98	11.0	-2.02
	5240	48	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	6.09	6.65	9.39	11.0	-1.61
	5190	38	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	-3.20	-2.79	0.02	11.0	-10.98
	5230	46	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	4.13	4.62	7.40	11.0	-3.60
	5210	42	ax (80MHz)	CDD	996	67	1020.8/1201 (MCS11)	-6.24	-6.10	-3.16	11.0	-14.16
Band 1/2A	5250	50	ax (160MHz)	CDD	996x2	68	2041.6/2402 (MCS11)	-10.27	-10.21	-7.23	11.0	-18.23
Band 2A	5260	52	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	5.75	6.34	9.07	11.0	-1.93
	5280	60	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	6.20	6.49	9.36	11.0	-1.64
	5320	64	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	3.65	3.71	6.69	11.0	-4.31
	5270	54	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	4.07	4.19	7.14	11.0	-3.86
	5310	62	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	-0.57	-1.05	2.20	11.0	-8.80
	5290	58	ax (80MHz)	CDD	996	67	1020.8/1201 (MCS11)	-3.98	-3.17	-0.54	11.0	-11.54
Band 2C	5500	100	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	2.83	3.25	6.05	11.0	-4.95
	5580	116	ax (20MHz)	SDM	242	61	243.8/286.8 (MCS11)	6.45	6.45	9.46	11.0	-1.54
	5720	144	ax (20MHz)	SDM	242	61	243.8/286.8 (MCS11)	6.73	6.49	9.62	11.0	-1.38
	5510	102	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	-1.62	-1.68	1.36	11.0	-9.64
	5550	110	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	2.98	3.17	6.09	11.0	-4.91
	*5590	118	ax (40MHz)	SDM	484	65	487.5/573.5 (MCS11)	5.30	5.67	8.50	11.0	-2.50
	5710	142	ax (40MHz)	SDM	484	65	487.5/573.5 (MCS11)	5.52	5.79	8.67	11.0	-2.33
	5530	106	ax (80MHz)	CDD	996	67	1020.8/1201 (MCS11)	-6.14	-5.54	-2.82	11.0	-13.82
	*5610	122	ax (80MHz)	CDD	996	67	1020.8/1201 (MCS11)	-0.81	-0.22	2.50	11.0	-8.50
	5690	138	ax (80MHz)	CDD	996	67	1020.8/1201 (MCS11)	2.55	2.77	5.67	11.0	-5.33
	*5570	114	ax (160MHz)	CDD	996X2	68	2041.6/2402 (MCS11)	-11.34	-11.05	-8.18	11.0	-19.18

Table 7-118. Bands 1, 2A, 2C Power Spectral Density Measurements CDD/SDM (Fully-loaded RU)

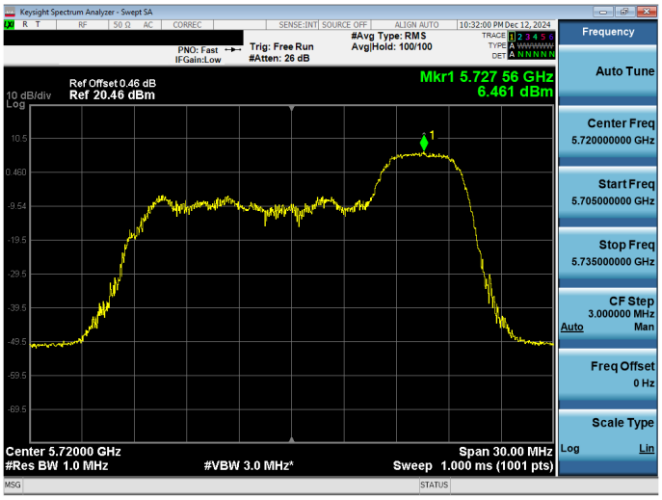
*TDWR channel is not supported for ISED (denoted by a * next to the frequency)



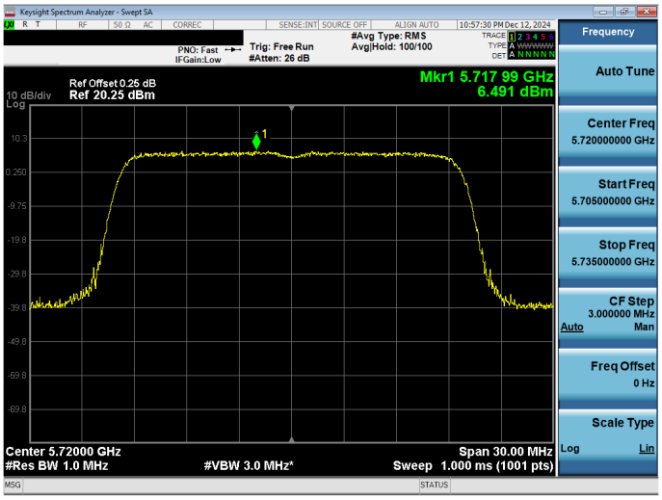
Plot 7-21. PSD SDM Antenna WF8 (20MHz BW 11ax Index 40 – RU52 – Ch.144)



Plot 7-23. PSD SDM Antenna WF8 (20MHz BW 11ax– RU242 – Ch.144)



Plot 7-22. PSD SDM Antenna WF7a (20MHz BW 11ax Index 40 – RU52 – Ch.144)



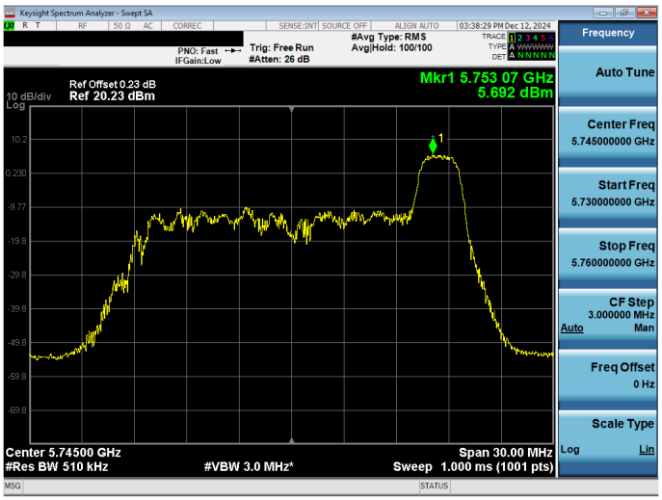
Plot 7-24. PSD SDM Antenna WF7a (20MHz BW 11ax– RU242 – Ch.144

	Frequency [MHz]	Channel No.	802.11 MODE	Mode	RU Size	RU Index	Data Rate [Mbps]	Antenna WF8 Power Density [dBm/500kHz]	Antenna WF7a Power Density [dBm/500kHz]	Summed Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	CDD	26	0	25/29.4 (MCS11)	5.35	5.35	8.36	30.0	-21.64
					26	4	25/29.4 (MCS11)	5.68	5.42	8.56	30.0	-21.44
					26	8	25/29.4 (MCS11)	5.69	5.71	8.71	30.0	-21.29
	5785	157	ax (20MHz)	CDD	26	0	25/29.4 (MCS11)	5.35	5.53	8.45	30.0	-21.55
					26	4	25/29.4 (MCS11)	5.76	5.23	8.51	30.0	-21.49
					26	8	25/29.4 (MCS11)	5.56	5.47	8.52	30.0	-21.48
	5825	165	ax (20MHz)	CDD	26	0	25/29.4 (MCS11)	5.58	5.37	8.49	30.0	-21.51
					26	4	25/29.4 (MCS11)	5.41	5.52	8.48	30.0	-21.52
					26	8	25/29.4 (MCS11)	5.69	4.90	8.32	30.0	-21.68
	5755	151	ax (40MHz)	CDD	26	0	25/29.4 (MCS11)	5.51	5.21	8.37	30.0	-21.63
					26	8	25/29.4 (MCS11)	5.16	6.00	8.61	30.0	-21.39
					26	17	25/29.4 (MCS11)	5.57	5.27	8.43	30.0	-21.57
	5795	159	ax (40MHz)	CDD	26	0	25/29.4 (MCS11)	5.71	5.45	8.59	30.0	-21.41
					26	8	25/29.4 (MCS11)	5.28	5.26	8.28	30.0	-21.72
					26	17	25/29.4 (MCS11)	6.12	5.22	8.70	30.0	-21.30
	5775	155	ax (80MHz)	CDD	26	0	25/29.4 (MCS11)	5.36	5.47	8.42	30.0	-21.58
					26	18	25/29.4 (MCS11)	5.00	5.35	8.19	30.0	-21.81
					26	36	25/29.4 (MCS11)	5.21	5.55	8.39	30.0	-21.61

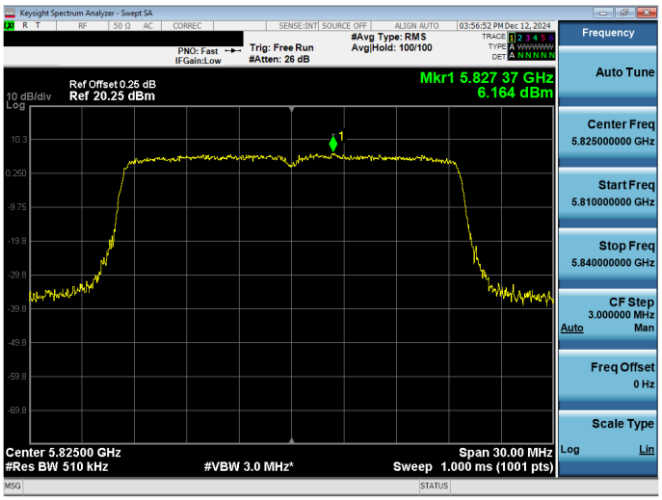
Table 7-119. Band 3 Power Spectral Density Measurements CDD (RU26)

	Frequency [MHz]	Channel	802.11 MODE	Mode	RU Size	RU Index	Data Rate [Mbps]	Antenna WF8 Power Density [dBm/500kHz]	Antenna WF7a Power Density [dBm/500kHz]	Summed Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	6.11	5.67	8.90	30.0	-21.10
	5785	157	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	5.64	5.52	8.59	30.0	-21.41
	5825	165	ax (20MHz)	CDD	242	61	243.8/286.8 (MCS11)	6.16	6.22	9.20	30.0	-20.80
	5755	151	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	3.18	3.00	6.10	30.0	-23.90
	5795	159	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	2.99	3.22	6.12	30.0	-23.88
	5775	155	ax (80MHz)	CDD	996	67	1020.8/1201 (MCS11)	-4.06	-4.23	-1.14	30.0	-31.14

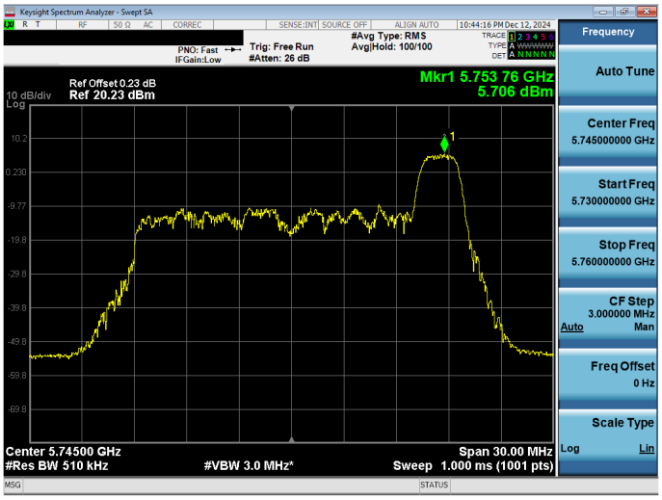
Table 7-120. Band 3 Power Spectral Density Measurements CDD (Fully-loaded RU)



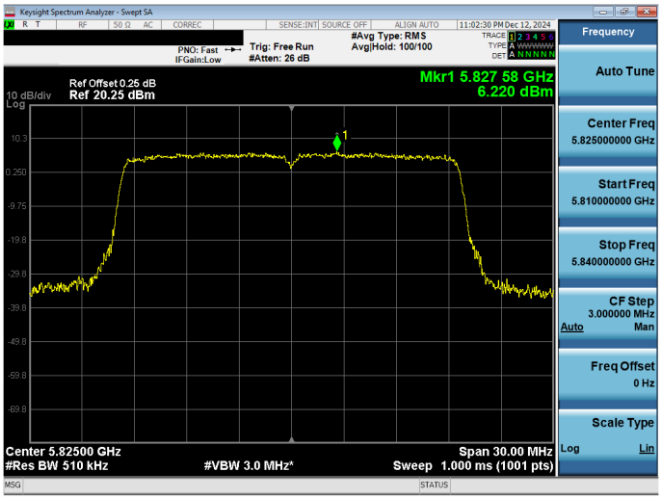
Plot 7-25. PSD CDD Antenna WF8 (20MHz BW 11ax Index 8 – RU26 – Ch.149)



Plot 7-27. PSD CDD Antenna WF8 (20MHz BW 11ax– RU242 – Ch.165)



Plot 7-26. PSD CDD Antenna WF7a (20MHz BW 11ax Index 8 – RU26 – Ch.149)



Plot 7-28. PSD CDD Antenna WF7a (20MHz BW 11ax– RU242 – Ch.165)

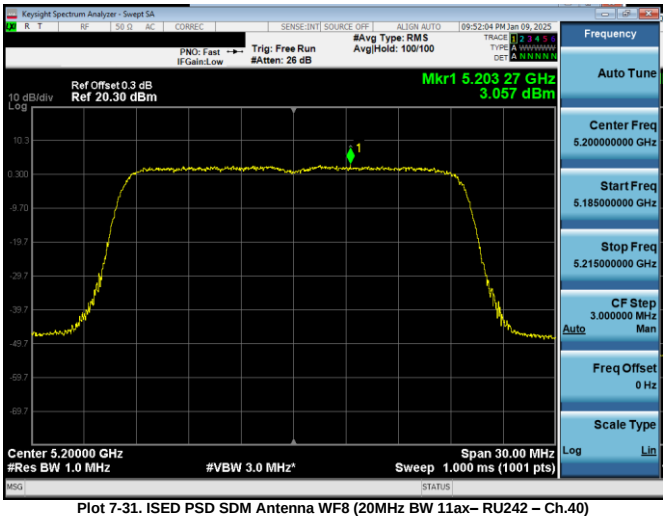
	Frequency [MHz]	Channel No.	802.11 MODE	Mode	RU Size	RU Index	Data Rate [Mbps]	Antenna WF8 Power Density [dBm/MHz]	Antenna WF7a Power Density [dBm/MHz]	Summed Power Density [dBm/MHz]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	SDM	26	0	25/29.4 (MCS11)	2.90	2.95	5.94	2.50	8.44	10.0	-1.56
					26	4	25/29.4 (MCS11)	1.93	2.46	5.21	2.50	7.71	10.0	-2.29
					26	8	25/29.4 (MCS11)	2.96	3.40	6.19	2.50	8.69	10.0	-1.31
	5200	40	ax (20MHz)	SDM	26	0	25/29.4 (MCS11)	2.36	2.92	5.66	2.50	8.16	10.0	-1.84
					26	4	25/29.4 (MCS11)	1.46	2.05	4.77	2.50	7.27	10.0	-2.73
					26	8	25/29.4 (MCS11)	2.50	2.88	5.70	2.50	8.20	10.0	-1.80
	5240	48	ax (20MHz)	SDM	26	0	25/29.4 (MCS11)	2.58	3.36	6.00	2.50	8.50	10.0	-1.50
					26	4	25/29.4 (MCS11)	1.44	1.77	4.62	2.50	7.12	10.0	-2.88
					26	8	25/29.4 (MCS11)	2.40	2.54	5.48	2.50	7.98	10.0	-2.02
	5190	38	ax (40MHz)	SDM	26	0	25/29.4 (MCS11)	2.11	2.50	5.32	2.50	7.82	10.0	-2.18
					26	8	25/29.4 (MCS11)	2.86	3.14	6.02	2.50	8.52	10.0	-1.48
					26	17	25/29.4 (MCS11)	2.34	2.57	5.47	2.50	7.97	10.0	-2.03
	5230	46	ax (40MHz)	SDM	26	0	25/29.4 (MCS11)	2.24	2.60	5.43	2.50	7.93	10.0	-2.07
					26	8	25/29.4 (MCS11)	2.32	3.36	5.88	2.50	8.38	10.0	-1.62
					26	17	25/29.4 (MCS11)	2.08	2.80	5.46	2.50	7.96	10.0	-2.04
	5210	42	ax (80MHz)	SDM	26	0	25/29.4 (MCS11)	2.42	2.76	5.61	2.50	8.11	10.0	-1.89
					26	18	25/29.4 (MCS11)	0.61	1.55	4.12	2.50	6.62	10.0	-3.38
					26	36	25/29.4 (MCS11)	2.92	3.40	6.17	2.50	8.67	10.0	-1.33
	5250	50 (L)	ax (160MHz)	SDM	52	37	50/58.8 (MCS11)	2.83	2.81	5.83	2.50	8.33	10.0	-1.67
					52	52	50/58.8 (MCS11)	2.62	2.87	5.75	2.50	8.26	10.0	-1.74

Table 7-121. ISED Band 1 e.i.r.p. Power Spectral Density Measurements SDM (RU26/52)

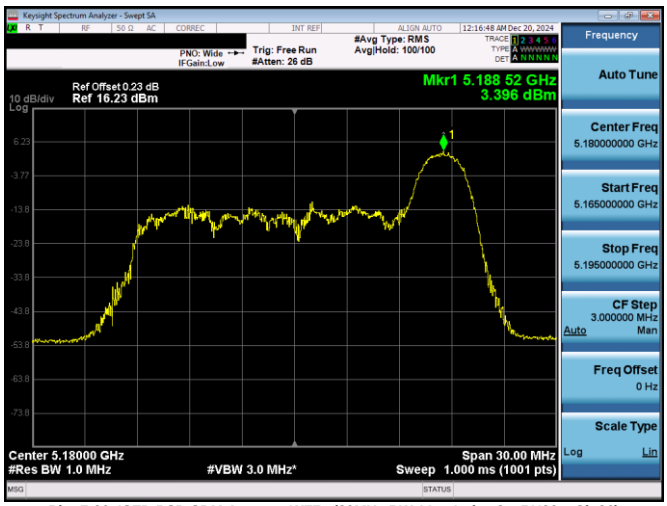
	Frequency [MHz]	Channel	802.11 MODE	Mode	RU Size	RU Index	Data Rate [Mbps]	Antenna WF8 Power Density [dBm/MHz]	Antenna WF7a Power Density [dBm/MHz]	Summed Power Density [dBm/MHz]	Directional Antenna Gain [dBi]	e.i.r.p. Power Density [dBm/MHz]	ISED Max e.i.r.p. Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	SDM	242	61	243.8/286.8 (MCS11)	3.18	3.36	6.28	2.50	8.78	10.0	-1.22
	5200	40	ax (20MHz)	SDM	242	61	243.8/286.8 (MCS11)	3.06	4.01	6.57	2.50	9.07	10.0	-0.93
	5240	48	ax (20MHz)	SDM	242	61	243.8/286.8 (MCS11)	2.98	3.45	6.23	2.50	8.73	10.0	-1.27
	5190	38	ax (40MHz)	CDD	484	65	487.5/573.5 (MCS11)	-2.29	-2.14	0.80	5.44	6.23	10.0	-3.77
	5230	46	ax (40MHz)	SDM	484	65	487.5/573.5 (MCS11)	2.22	2.66	5.46	2.50	7.96	10.0	-2.04
	5210	42	ax (80MHz)	CDD	996	67	1020.8/1201 (MCS11)	-5.61	-5.33	-2.46	5.44	2.98	10.0	-7.02
	5250	50	ax (160MHz)	CDD	996x2	68	2041.6/2402 (MCS11)	-9.63	-9.44	-6.52	5.44	-1.09	10.0	-11.09

Table 7-122. ISED Band 1 e.i.r.p. Power Spectral Density Measurements CDD/SDM (Fully-loaded RU)

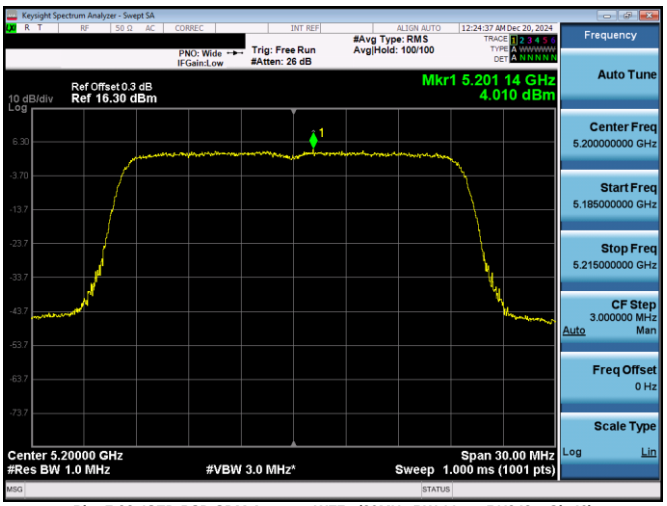
Plot 7-29. ISED PSD SDM Antenna WF8 (20MHz BW 11ax Index 8 – RU26 – Ch.36)



Plot 7-31. ISED PSD SDM Antenna WF8 (20MHz BW 11ax– RU242 – Ch.40)



Plot 7-30. ISED PSD SDM Antenna WF7a (20MHz BW 11ax Index 8 – RU26 – Ch.36)



Plot 7-32. ISED PSD SDM Antenna WF7a (20MHz BW 11ax– RU242 – Ch.40)

Note:

Per ANSI C63.10-2020 Subclause 14.3.2.2 and KDB 662911 v02r01 Section E)2), the power spectral density at Antenna WF8 and Antenna WF7a were first measured separately during CDD/SDM transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Sample Directional Gain Calculation:

For correlated signals, assuming the antenna gain is 1.2 dBi for Antenna WF8 and 3.5 dBi for Antenna WF7a.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \ldots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$
$$= 10 \log[(10^{1.2/20} + 10^{3.5/20} / 2] \text{ dBi}$$
$$= 5.44 \text{ dBi}$$

For uncorrelated signals, assuming the antenna gain is 1.2 dBi for Antenna WF8 and 3.5 dBi for Antenna WF7a.

$$\text{Directional gain} = 10 \log[(10^{G_1/10} + 10^{G_2/10} + \ldots + 10^{G_N/10}) / N_{ANT}] \text{ dBi}$$
$$= 10 \log[(10^{1.2/10} + 10^{3.5/10} / 2] \text{ dBi}$$
$$= 2.50 \text{ dBi}$$

Sample CDD/SDM Calculation:

Assuming the average conducted power spectral density was measured to be 2.90 dBm for Antenna WF8 and 2.95 dBm for Antenna WF7a.

Antenna WF8 + Antenna WF7a = CDD/SDM

(2.90 dBm + 2.95 dBm) = (1.950 mW + 1.972 mW) = 3.922 mW = 5.94 dBm

Sample e.i.r.p Power Spectral Density Calculation:

Assuming the average CDD/SDM power density was calculated to be 5.94 dBm with directional gain of 2.50 dBi.

e.i.r.p. Power Spectral Density(dBm) = Power Spectral Density (dBm) + directional gain (dBi)

5.94 dBm + 2.50 dBi = 8.44 dBm

7.6 Radiated Spurious Emission – Above 1GHz

§15.407(b) §15.205 §15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2020 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. RU26, 52 Tones, RU106, RU242, RU484, RU996 and RU996x2), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

For transmitters operating in the 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of −27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 7 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-123 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [µV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-123. Radiated Limits

Test Procedures Used

ANSI C63.10-2020 – Subclauses 12.7.7, 12.7.6
KDB 789033 D02 v02r01 – Section G

Test Settings

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be ≥ 2 x span/RBW)
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

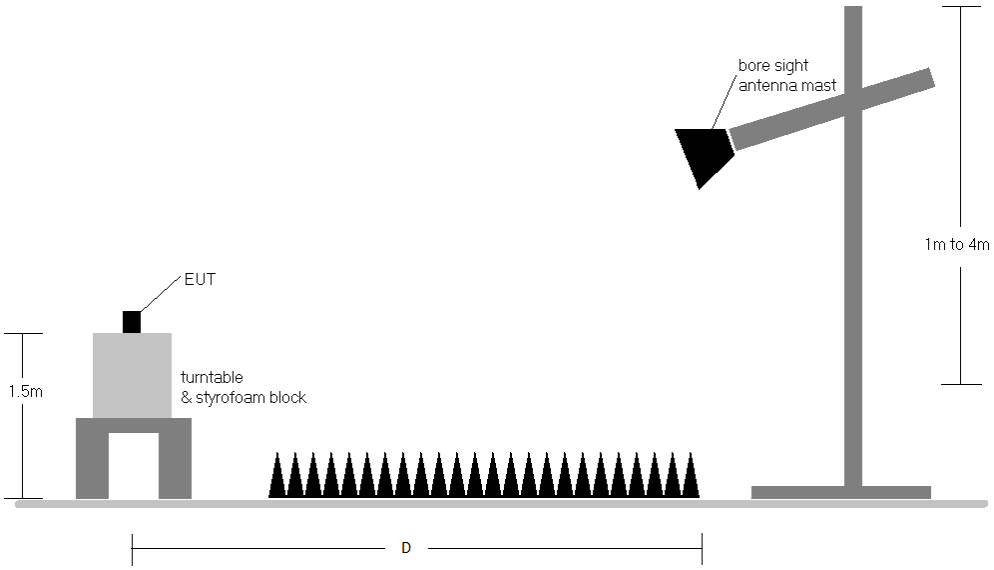


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-123.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-123. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas.
6. D is the measurement test distance and emissions 1-18GHz were measured at a 3 meters test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
9. Per RSS-247 Section 6.2.3, transmission on channels which overlap the 5600-5650 MHz is prohibited. This device operates under these frequencies only under the control of a certified master device and does not support active scanning on these channels. This device does not transmit any beacons or initiate any transmissions in UNII Bands 2A or 2C.
10. For radiated measurements, emissions were investigated for the fully-loaded RU configuration and for all of the partially-loaded RU configurations. Among all of the available partially-loaded RU configurations, only the configuration with the worst case emissions is reported.

Sample Calculations

Determining Spurious Emissions Levels

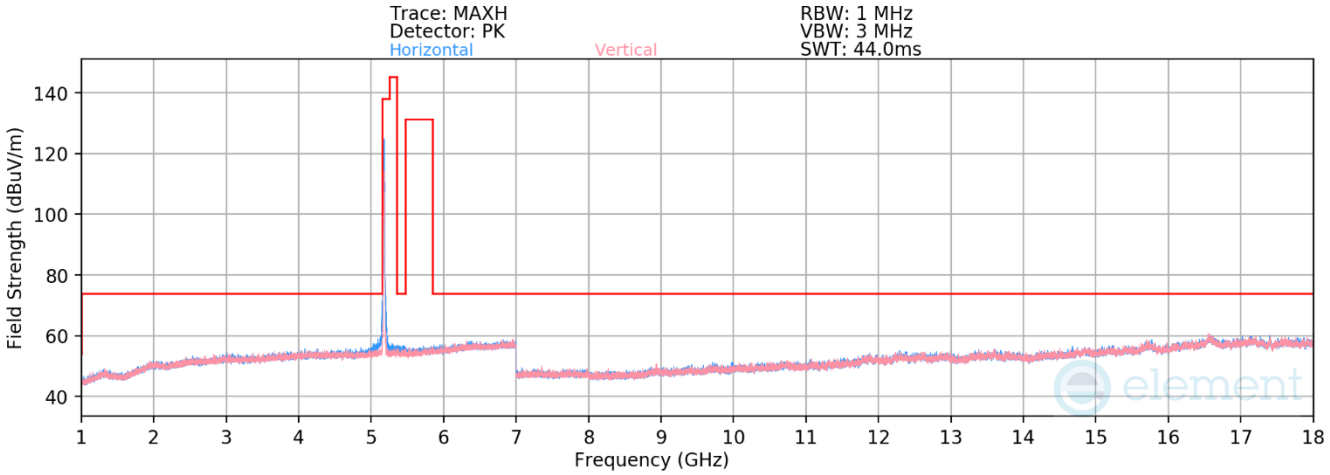
- Field Strength Level $_{[dB\mu V/m]}$ = Analyzer Level $_{[dBm]}$ + 107 + AFCL $_{[dB/m]}$
- AFCL $_{[dB/m]}$ = Antenna Factor $_{[dB/m]}$ + Cable Loss $_{[dB]}$ – Preamplifier Gain $_{[dB]}$
- Margin $_{[dB]}$ = Field Strength Level $_{[dB\mu V/m]}$ – Limit $_{[dB\mu V/m]}$

Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 7.6.2 to 7.6.13 was calculated using the formula:

  Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

7.6.1 CDD Radiated Spurious Emissions RU26

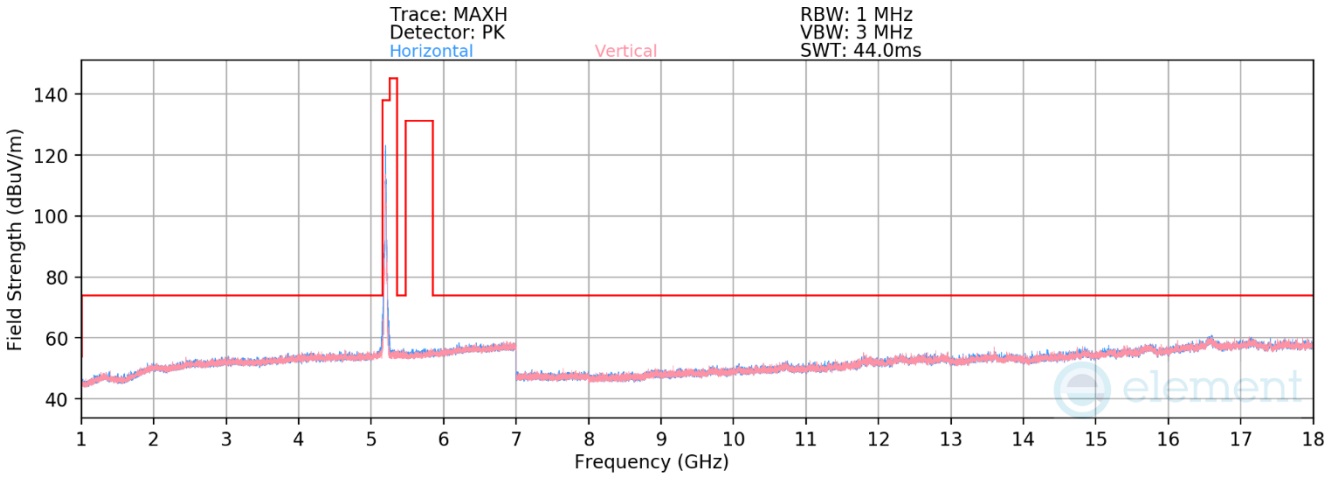


Plot 7-33. RSE above 1GHz CDD (11ax – Ch.36 – RU26)

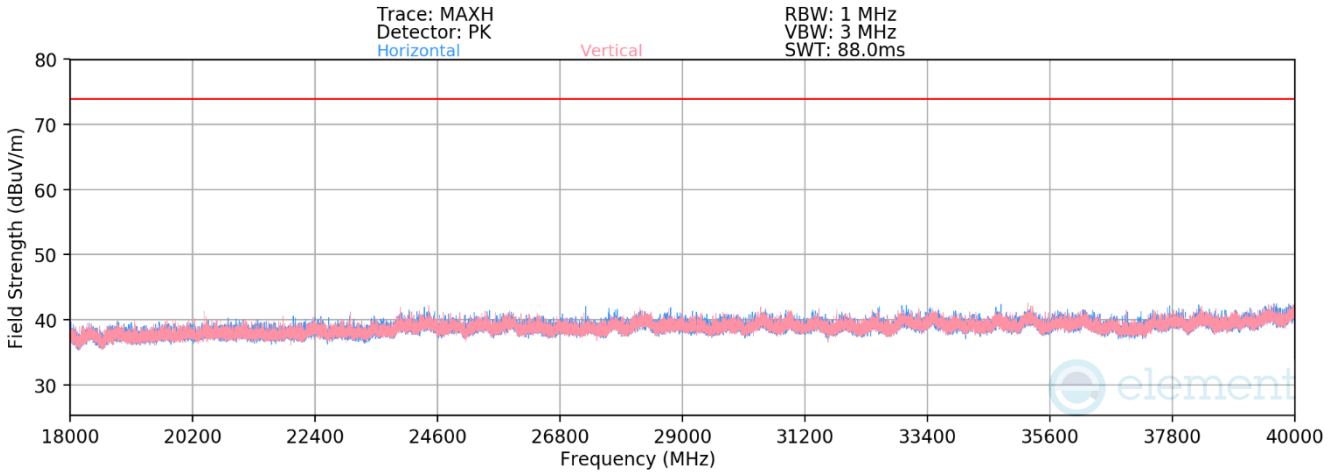
Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	4
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10360.00	Peak	H	-	-	-70.76	15.15	51.39	68.23	-16.84
*	15540.00	Average	V	-	-	-83.87	22.57	45.70	53.98	-8.28
*	15540.00	Peak	V	-	-	-72.65	22.76	57.11	73.98	-16.87

Table 7-124. Radiated Measurements CDD (RU26)



Plot 7-34. RSE above 1GHz CDD (11ax – Ch.40 – RU26)

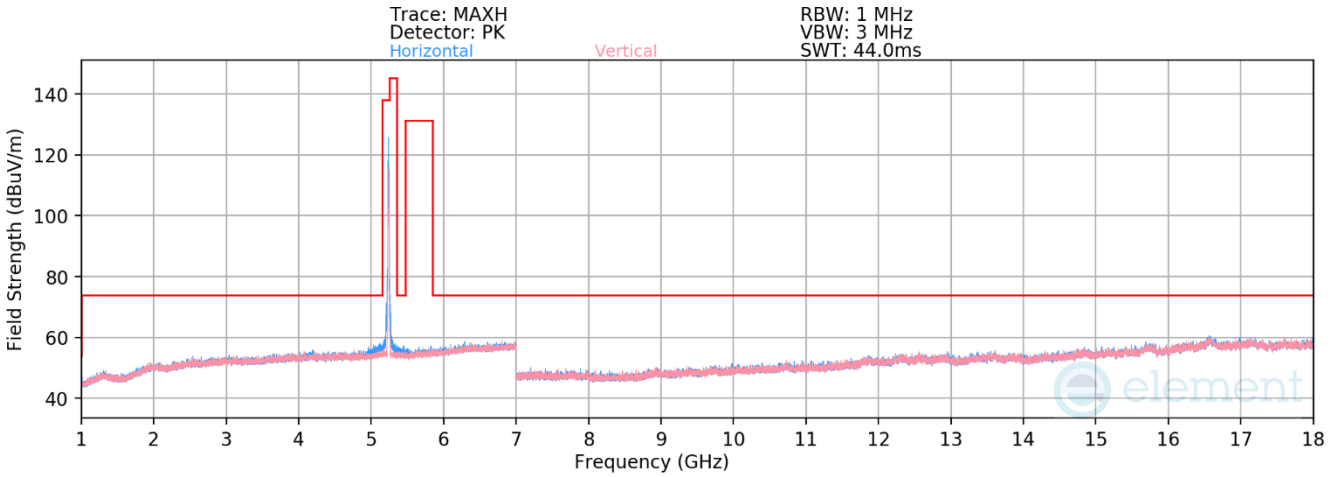


Plot 7-35. RSE 18GHz – 40 GHz CDD (11ax Ch.40 –– RU26)

Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	4
Distance of Measurements:	3 Meters
Operating Frequency:	5200MHz
Channel:	40

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10400.00	Peak	H	-	-	-70.37	15.08	51.70	68.23	-16.53
*	15600.00	Average	H	-	-	-84.55	23.71	46.16	53.98	-7.82
*	15600.00	Peak	H	-	-	-73.21	23.71	57.50	73.98	-16.48

Table 7-125. Radiated Measurements CDD (RU26)

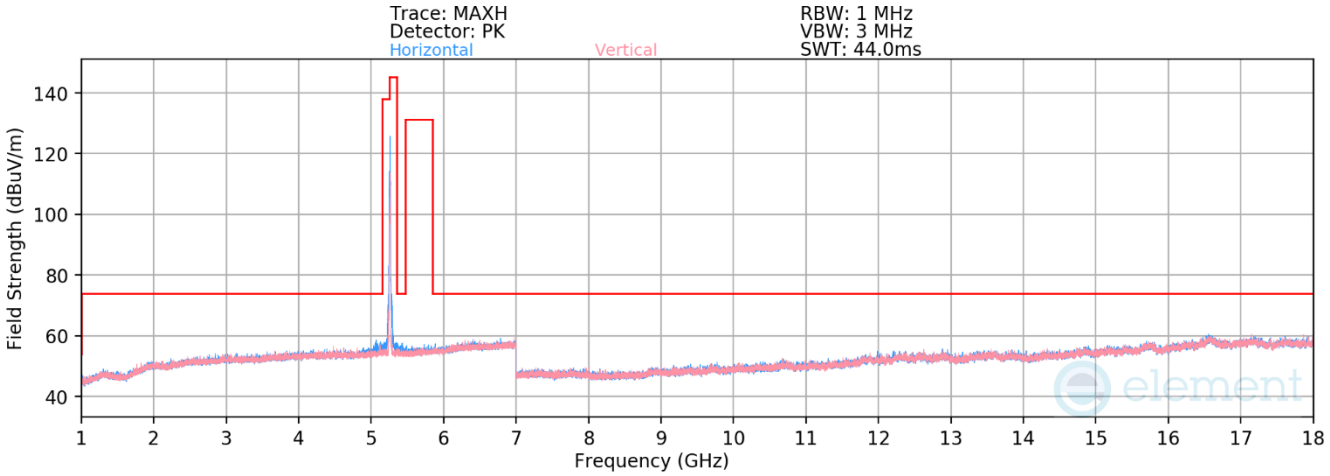


Plot 7-36. RSE above 1GHz CDD (11ax – Ch.48 – RU26)

Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	4
Distance of Measurements:	3 Meters
Operating Frequency:	5240MHz
Channel:	48

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10480.00	Peak	H	-	-	-69.36	14.76	52.40	68.23	-15.83
*	15720.00	Average	V	-	-	-84.67	24.36	46.70	53.98	-7.28
*	15720.00	Peak	V	-	-	-73.15	24.20	58.05	73.98	-15.93

Table 7-126. Radiated Measurements CDD (RU26)

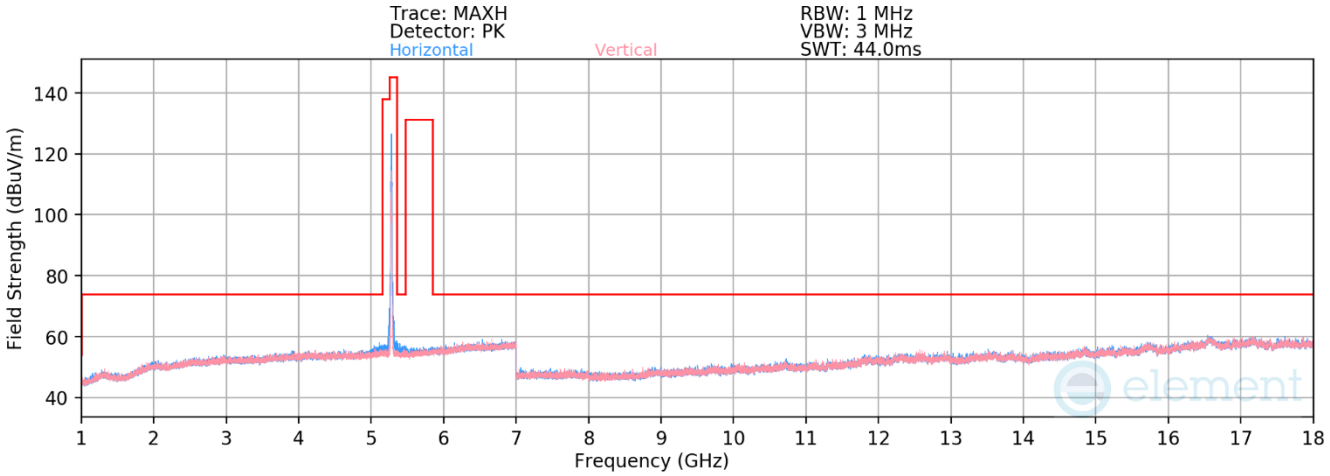


Plot 7-37. RSE above 1GHz CDD (11ax – Ch.52 – RU52)

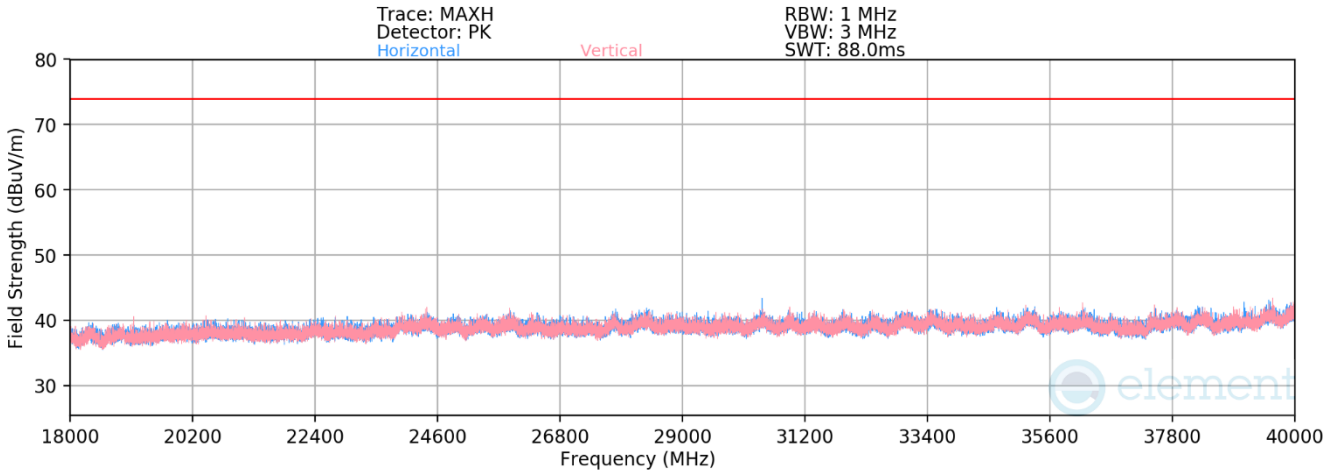
Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	39
Distance of Measurements:	3 Meters
Operating Frequency:	5260MHz
Channel:	52

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10520.00	Peak	V	-	-	-70.09	14.60	51.51	68.23	-16.72
*	15780.00	Average	V	-	-	-85.34	24.99	46.65	53.98	-7.33
*	15780.00	Peak	V	-	-	-74.40	24.99	57.58	73.98	-16.40

Table 7-127. Radiated Measurements CDD (RU52)



Plot 7-38. RSE above 1GHz CDD (11ax – Ch.56 – RU52)

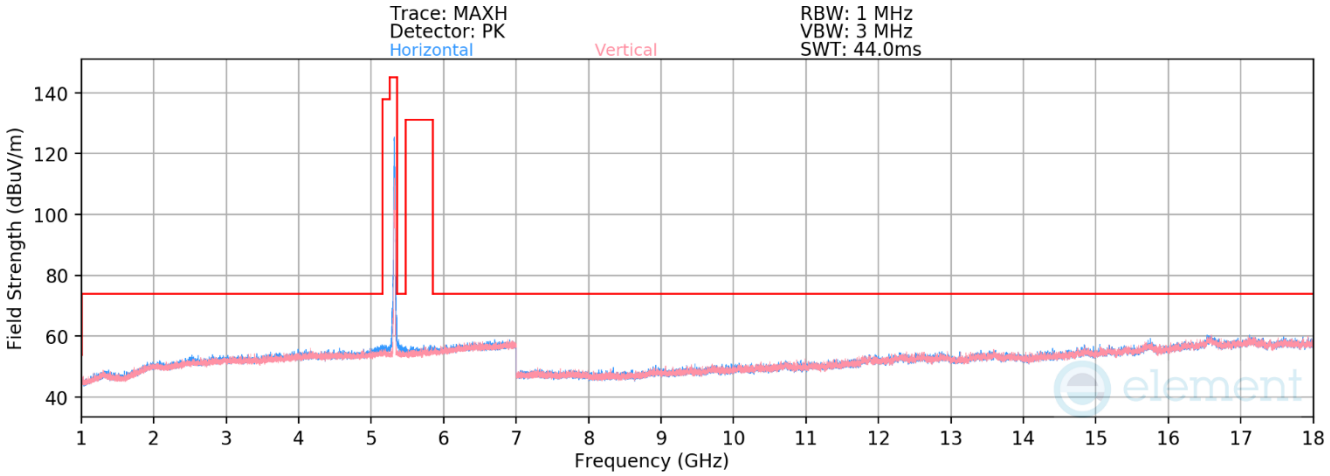


Plot 7-39. RSE 18GHz – 40 GHz CDD (11ax Ch.56 –– RU52)

Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	39
Distance of Measurements:	3 Meters
Operating Frequency:	5280MHz
Channel:	56

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	10560.00	Peak	V	-	-	-70.27	14.82	51.55	68.23	-16.68
*	15840.00	Average	V	-	-	-84.90	24.28	46.37	53.98	-7.61
*	15840.00	Peak	V	-	-	-73.99	24.28	57.28	73.98	-16.70

Table 7-128. Radiated Measurements CDD (RU52)

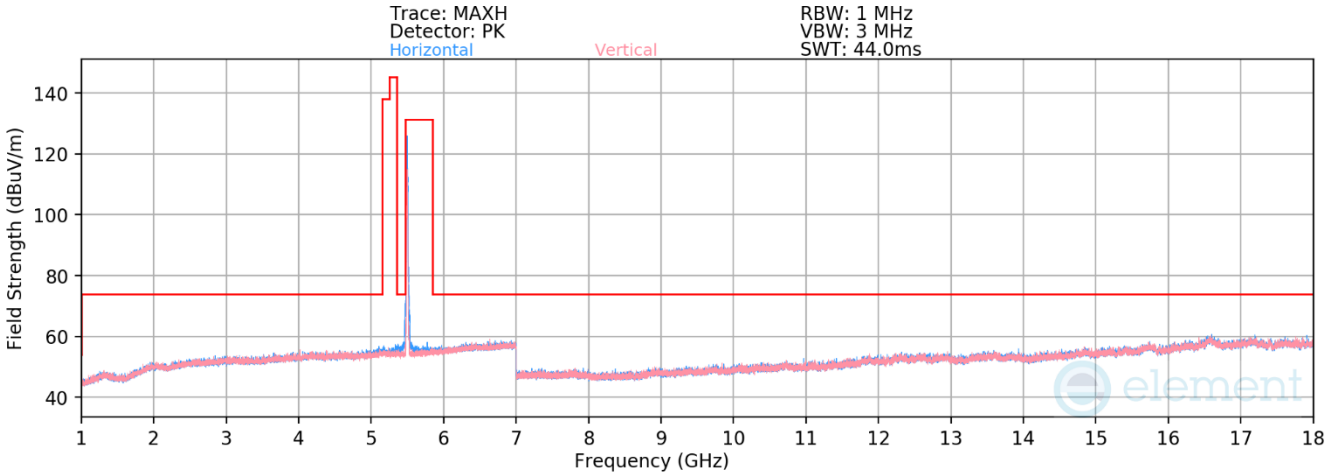


Plot 7-40. RSE above 1GHz CDD (11ax – Ch.64 – RU52)

Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	39
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	10640.00	Average	H	-	-	-81.79	15.82	41.03	53.98	-12.95
*	10640.00	Peak	H	-	-	-70.31	15.31	52.00	73.98	-21.98
*	15960.00	Average	V	-	-	-84.27	23.74	46.47	53.98	-7.51
*	15960.00	Peak	V	-	-	-72.79	23.73	57.94	73.98	-16.04

Table 7-129. Radiated Measurements CDD (RU52)

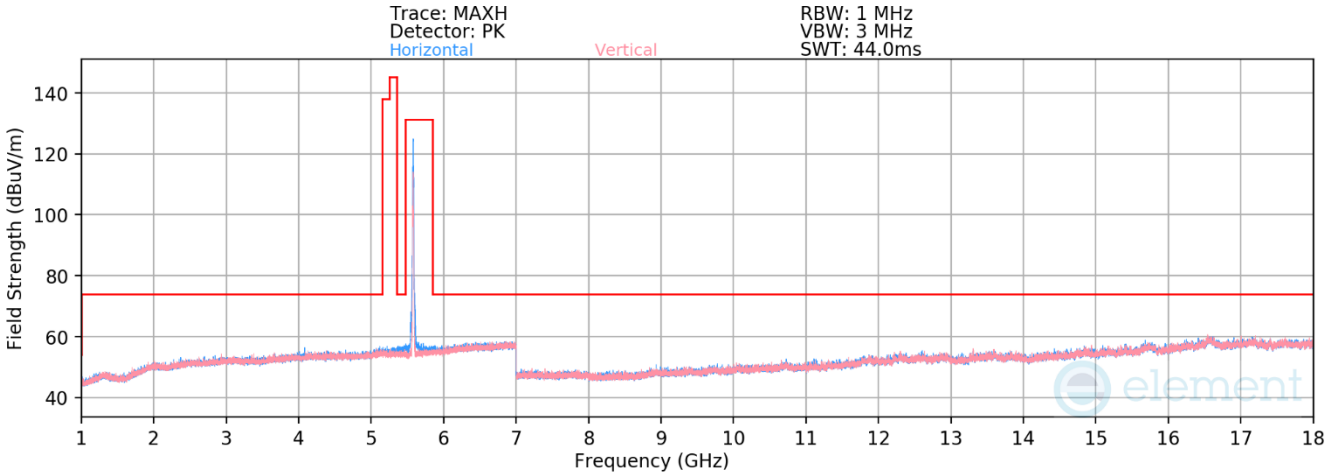


Plot 7-41. RSE above 1GHz CDD (11ax – Ch.100 – RU52)

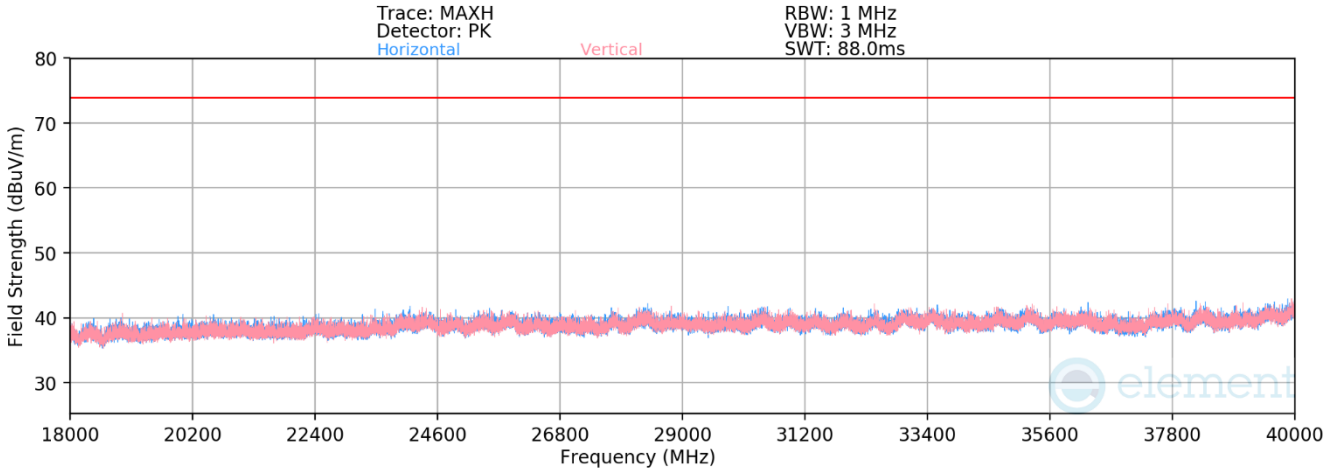
Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	39
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11000.00	Average	V	-	-	-82.15	15.97	40.81	53.98	-13.17
*	11000.00	Peak	V	-	-	-70.04	15.71	52.66	73.98	-21.32
	16500.00	Peak	V	-	-	-72.11	23.34	58.24	68.23	-9.99

Table 7-130. Radiated Measurements CDD (RU52)



Plot 7-42. RSE above 1GHz CDD (11ax – Ch.116 – RU52)

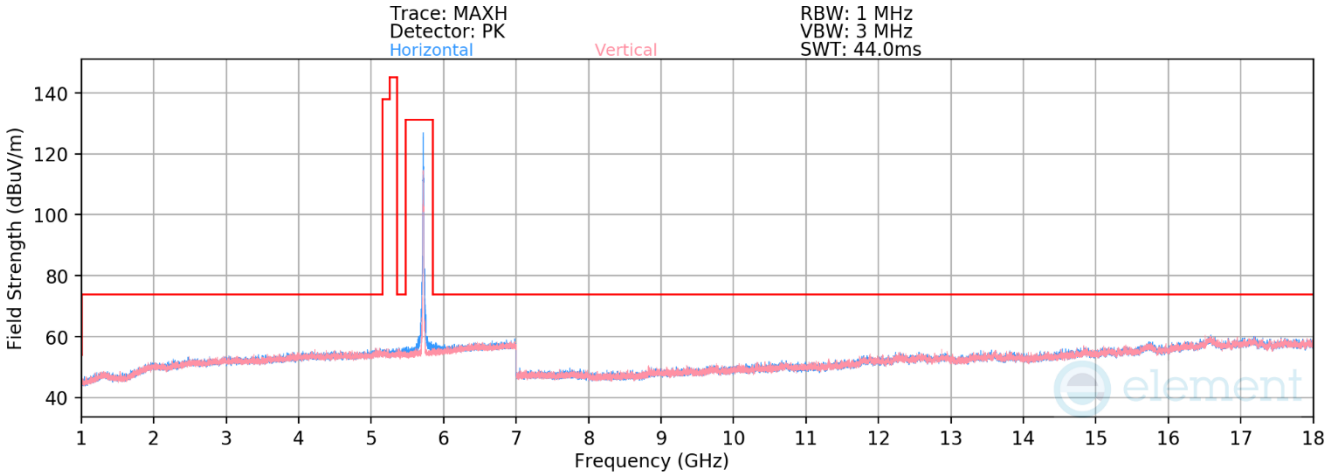


Plot 7-43. RSE 18GHz – 40 GHz CDD (11ax Ch.116 — RU52)

Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	39
Distance of Measurements:	3 Meters
Operating Frequency:	5580MHz
Channel:	116

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11160.00	Average	H	-	-	-81.62	15.92	41.31	53.98	-12.67
*	11160.00	Peak	H	-	-	-70.69	16.32	52.63	73.98	-21.35
	16740.00	Peak	V	-	-	-73.04	24.21	58.17	68.23	-10.06

Table 7-131. Radiated Measurements CDD (RU52)

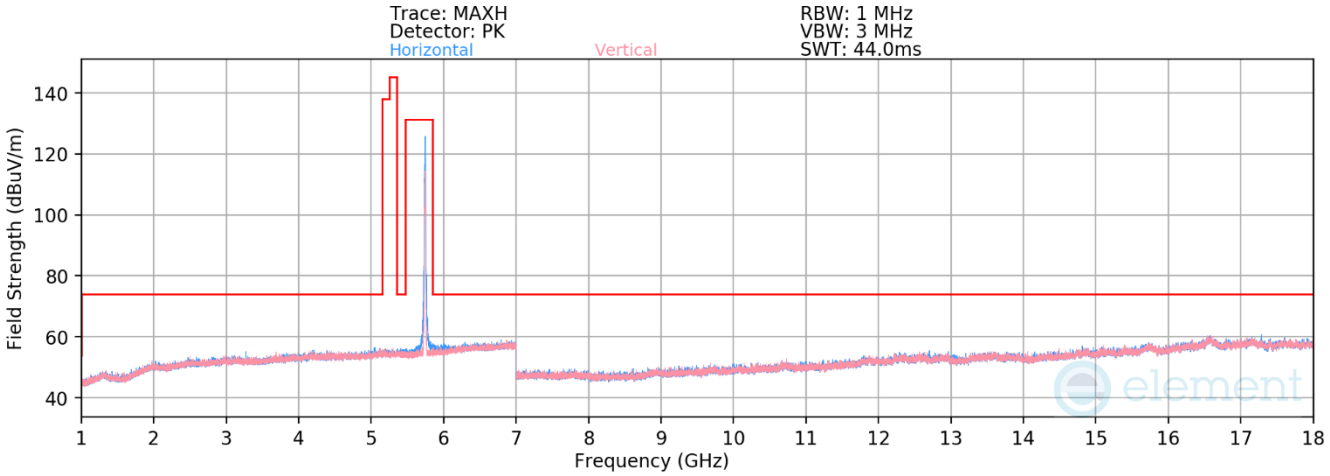


Plot 7-44. RSE above 1GHz CDD (11ax – Ch.144 – RU52)

Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	39
Distance of Measurements:	3 Meters
Operating Frequency:	5720MHz
Channel:	144

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11440.00	Average	V	-	-	-82.43	16.44	41.01	53.98	-12.97
*	11440.00	Peak	V	-	-	-71.45	16.67	52.23	73.98	-21.75
	17160.00	Peak	V	-	-	-72.20	24.26	59.05	68.23	-9.18

Table 7-132. Radiated Measurements CDD (RU52)

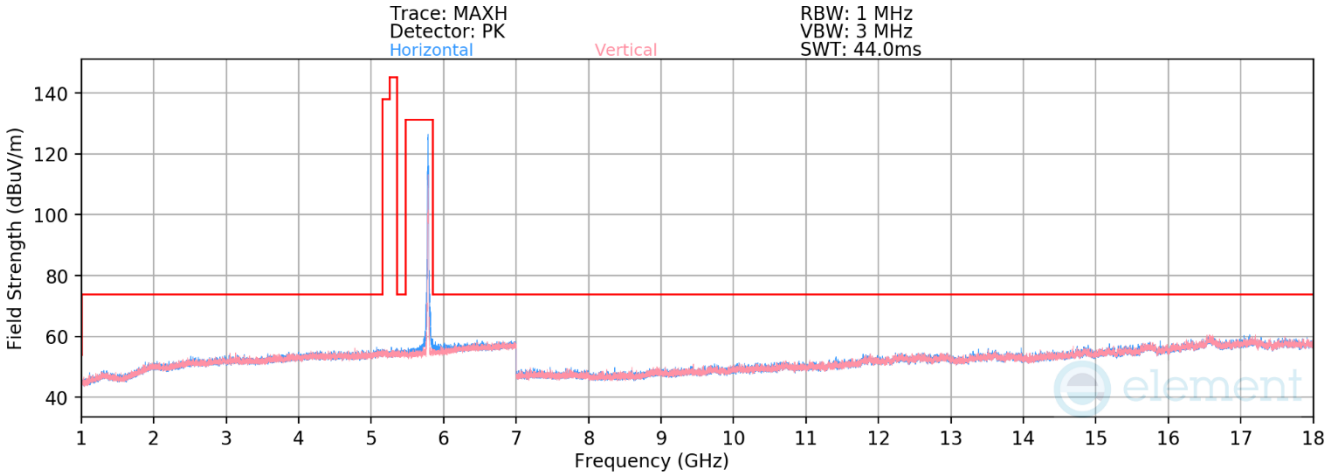


Plot 7-45. RSE above 1GHz CDD (11ax – Ch.149 – RU26)

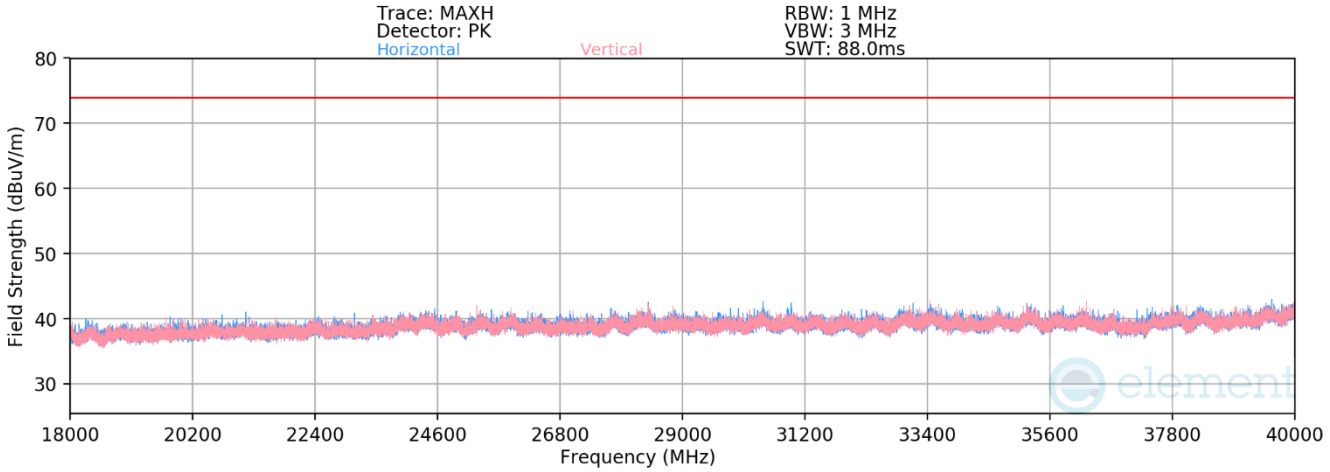
Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	4
Distance of Measurements:	3 Meters
Operating Frequency:	5745MHz
Channel:	149

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11490.00	Average	H	-	-	-82.12	16.31	41.19	53.98	-12.79
*	11490.00	Peak	H	-	-	-70.88	16.31	52.43	73.98	-21.55
	17235.00	Peak	H	-	-	-72.39	24.61	59.22	68.23	-9.01

Table 7-133. Radiated Measurements CDD (RU26)



Plot 7-46. RSE above 1GHz CDD (11ax – Ch.157 – RU26)



Plot 7-47. RSE 18GHz – 40 GHz CDD (11ax Ch.157 — RU26)

Mode:	802.11ax (20MHz BW)
Data Rate:	MCS11
RU Index:	4
Distance of Measurements:	3 Meters
Operating Frequency:	5785MHz
Channel:	157

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11570.00	Average	H	-	-	-82.73	17.32	41.59	53.98	-12.39
*	11570.00	Peak	H	-	-	-71.22	17.32	53.09	73.98	-20.89
	17355.00	Peak	V	-	-	-72.24	24.27	59.03	68.23	-9.20

Table 7-134. Radiated Measurements CDD (RU26)