

APPENDIX I: IEEE 802.11 RU SAR EXCLUSION

I.1 IEEE 802.11ax RU SAR Exclusion

To make the most efficient use of the additional available subcarriers (data tones), IEEE 802.11ax/be can utilize Orthogonal Frequency-Division Multiple Access (OFDMA) which divides the existing 802.11 channels into smaller subchannels called Resource Units (RUs). Possible RU sizes are: 26T, 52T, 106T, 242T, 484T, 996T and 996Tx2.

Per FCC Guidance, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection. Therefore, SAR tests were not required for 802.11ax/be based on the maximum allowed output powers of OFDM modes and the reported SAR values. Per FCC Guidance, maximum conducted powers were performed for each RU size to demonstrate that the output powers would not be higher than the other OFDM 802.11 modes.

Note: Targets for 6GHz are applicable for both SP and LPI.

I.2 IEEE 802.11ax RU Target Powers

I.2.1 Maximum 802.11ax RU WLAN Output Power – 2.4 GHz WLAN

Tones		SISO (WIFI ANT0/ WIFI ANT1), and SISO in MIMO	
		2.4GHz	
26T	Maximum	12	
		ch 12: 3.0	ch 13: 0.0
	Nominal	11	
		ch 12: 2.0	ch 13: -1.0
52T	Maximum	14	
		ch 12: 3.0	ch 13: 0.0
	Nominal	13	
		ch 12: 2.0	ch 13: -1.0
106T	Maximum	15	
		ch 12: 3.0	ch 13: 0.0
	Nominal	14	
		ch 12: 2.0	ch 13: -1.0
242T	Maximum	15	
		ch 12: 3.0	ch 13: 0.0
	Nominal	14	
		ch 12: 2.0	ch 13: -1.0

I.2.2 Reduced 802.11ax RU WLAN Output Power – 2.4 GHz WLAN

Tones		SISO (WIFI ANT0/ WIFI ANT1), and SISO in MIMO	
		2.4GHz	
26T	Maximum	12	
		ch 12: 3.0	ch 13: 0.0
	Nominal	11	
		ch 12: 2.0	ch 13: -1.0
52T	Maximum	12	
		ch 12: 3.0	ch 13: 0.0
	Nominal	11	
		ch 12: 2.0	ch 13: -1.0
106T	Maximum	12	
		ch 12: 3.0	ch 13: 0.0
	Nominal	11	
		ch 12: 2.0	ch 13: -1.0
242T	Maximum	12	
		ch 12: 3.0	ch 13: 0.0
	Nominal	11	
		ch 12: 2.0	ch 13: -1.0

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I.2.1 Reduced 802.11ax RU WLAN Output Power with RSDB Active – 2.4 GHz WLAN

Tones		SISO (WIFI Ant0/ WIFI Ant1), and SISO in MIMO	
		2.4GHz	
26T	Maximum	11	
		ch 12: 3.0	
	Nominal	10	
		ch 12: 2.0	
52T	Maximum	11	
		ch 12: 3.0	
	Nominal	10	
		ch 12: 2.0	
106T	Maximum	11	
		ch 12: 3.0	
	Nominal	10	
		ch 12: 2.0	
242T	Maximum	11	
		ch 12: 3.0	
	Nominal	10	
		ch 12: 2.0	

I.2.2 Maximum 802.11ax RU WLAN Output Power – 5 GHz WLAN

Tones		SISO (WIFI ANT0/ WIFI ANT1), and SISO in MIMO			
		5GHz/20MHz	5GHz/40MHz	5GHz/80MHz	5GHz/160MHz
26T	Maximum	6	6	6	3.5
	Nominal	5	5	5	2.5
52T	Maximum	6	6	6	6
	Nominal	5	5	5	5
106T	Maximum	6	6	6	6
	Nominal	5	5	5	5
242T	Maximum	11	11	11	11
	Nominal	10	10	10	10
484T	Maximum		11	11	11
	Nominal		10	10	10
996T	Maximum			11	11
	Nominal			10	Ch. 50: 8.5 10 Ch. 50: 7.5
996T*2	Maximum				11 Ch. 50: 10.0
	Nominal				10 Ch. 50: 9.0

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I.2.3 Reduced 802.11ax RU WLAN Output Power with Grip Sensor Active – 5 GHz WLAN

Tones		SISO (WIFI ANT0/ WIFI ANT1), and SISO in MIMO			
		5GHz/20MHz	5GHz/40MHz	5GHz/80MHz	5GHz/160MHz
26T	Maximum	6	6	6	3.5
	Nominal	5	5	5	2.5
52T	Maximum	6	6	6	6
	Nominal	5	5	5	5
106T	Maximum	6	6	6	6
	Nominal	5	5	5	5
242T	Maximum	8	8	8	8
	Nominal	7	7	7	7
484T	Maximum		8	8	8
	Nominal		7	7	7
996T	Maximum			8	8
	Nominal			7	7
996T*2	Maximum				8
	Nominal				7

I.2.4 Reduced 802.11ax RU WLAN Output Power with RSDB Active – 5 GHz WLAN

Tones		SISO (WIFI Ant0/ WIFI Ant1), and SISO in MIMO			
		5GHz/20MHz	5GHz/40MHz	5GHz/80MHz	5GHz/160MHz
26T	Maximum	6	6	6	3.5
	Nominal	5	5	5	2.5
52T	Maximum	6	6	6	6
	Nominal	5	5	5	5
106T	Maximum	6	6	6	6
	Nominal	5	5	5	5
242T	Maximum	6.5	6.5	6.5	6.5
	Nominal	5.5	5.5	5.5	5.5
484T	Maximum		6.5	6.5	6.5
	Nominal		5.5	5.5	5.5
996T	Maximum			6.5	6.5
	Nominal			5.5	5.5
996T *2	Maximum				6.5
	Nominal				5.5

I.2.5 Maximum 802.11ax RU WLAN Output Power - 6 GHz WLAN

Mode		IEEE 802.11ax RU (in dBm)						
		SISO / SISO in MIMO						
		26T	52T	106T	242T	484T	996T	996T*2
6 GHz WIFI (20MHz BW)	Maximum	1.0	4.0	7.0	10.0			
	Nominal	0.0	3.0	6.0	9.0			
6 GHz WIFI (40MHz BW)	Maximum	1.0	4.0	7.0	10.0	10.0		
	Nominal	0.0	3.0	6.0	9.0	9.0		
6 GHz WIFI (80MHz BW)	Maximum	1.0	4.0	7.0	10.0	10.0	10.0	
	Nominal	0.0	3.0	6.0	9.0	9.0	9.0	
6 GHz WIFI (160MHz BW)	Maximum	1.0	4.0	7.0	10.0	10.0	10.0	10.0
	Nominal	0.0	3.0	6.0	9.0	9.0	9.0	9.0

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I.2.6 Reduced 802.11ax RU WLAN Output Power with Grip Sensor Active- 6 GHz WLAN

Mode		IEEE 802.11ax RU (in dBm)						
		SISO / SISO in MIMO						
		26T	52T	106T	242T	484T	996T	996T*2
6 GHz WIFI (20MHz BW)	Maximum	1.0	4.0	6.5	6.5			
	Nominal	0.0	3.0	5.5	5.5			
6 GHz WIFI (40MHz BW)	Maximum	1.0	4.0	6.5	6.5	6.5		
	Nominal	0.0	3.0	5.5	5.5	5.5		
6 GHz WIFI (80MHz BW)	Maximum	1.0	4.0	6.5	6.5	6.5	6.5	
	Nominal	0.0	3.0	5.5	5.5	5.5	5.5	
6 GHz WIFI (160MHz BW)	Maximum	1.0	4.0	6.5	6.5	6.5	6.5	6.5
	Nominal	0.0	3.0	5.5	5.5	5.5	5.5	5.5

I.2.7 Reduced 802.11ax RU WLAN Output Power with RSDB Active - 6 GHz WLAN

Mode		IEEE 802.11ax RU (in dBm)						
		SISO / SISO in MIMO						
		26T	52T	106T	242T	484T	996T	996T*2
6 GHz WIFI (20MHz BW)	Maximum	1.0	2.5	2.5	2.5			
	Nominal	0.0	1.5	1.5	1.5			
6 GHz WIFI (40MHz BW)	Maximum	1.0	2.5	2.5	2.5	2.5		
	Nominal	0.0	1.5	1.5	1.5	1.5		
6 GHz WIFI (80MHz BW)	Maximum	1.0	2.5	2.5	2.5	2.5	2.5	
	Nominal	0.0	1.5	1.5	1.5	1.5	1.5	
6 GHz WIFI (160MHz BW)	Maximum	1.0	2.5	2.5	2.5	2.5	2.5	2.5
	Nominal	0.0	1.5	1.5	1.5	1.5	1.5	1.5

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