

APPENDIX I: IEEE 802.11 RU SAR EXCLUSION

I.1 IEEE 802.11ax/be 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, 996Tx2, and 996Tx4.

Per FCC Guidance, 802.11ax/be 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.

I.2 IEEE 802.11ax/be RU Target Powers

I.2.1 2.4 GHz WLAN 802.11ax/be RU WLAN Output Power

The below table is applicable in the following conditions:

- Pmax, DSI=0 (Body-worn, Hotspot or Phablet), DSI=1 (Head)

Mode	Band		IEEE 802.11axRU (in dBm)											
			SISO Ant 1 (in dBm)				SISO Ant 2 (in dBm)				Antenna 1 & Antenna 2 in MIMO			
			26T	52T	106T	242T	26T	52T	106T	242T	26T	52T	106T	242T
2.4 GHz WIFI	2.45 GHz	Maximum	14	15	17	18	14	15	17	18	14	15	17	18
			ch.12: 6.0 ch.13: -9.0	ch.12: 6.0 ch.13: -7.5	ch.12: 6.0 ch.13: -4.0	ch.1: 16.5 ch.11: 16.0 ch.12: 6.0 ch.13: -3.0	ch.12: 6.0 ch.13: -9.0	ch.12: 6.0 ch.13: -7.5	ch.12: 6.0 ch.13: -4.0	ch.1: 16.5 ch.11: 16.0 ch.12: 6.0 ch.13: -3.0	ch.12: 6.0 ch.13: -9.0	ch.12: 6.0 ch.13: -7.5	ch.12: 6.0 ch.13: -4.0	ch.1: 16.5 ch.11: 16.0 ch.12: 6.0 ch.13: -3.0
			13	14	16	17	13	14	16	17	13	14	16	17
		Nominal	ch.12: 5.0 ch.13: -10.0	ch.12: 5.0 ch.13: -8.5	ch.12: 5.0 ch.13: -5.0	ch.1: 15.5 ch.11: 15.0 ch.12: 5.0 ch.13: -4.0	ch.12: 5.0 ch.13: -10.0	ch.12: 5.0 ch.13: -8.5	ch.12: 5.0 ch.13: -5.0	ch.1: 15.5 ch.11: 15.0 ch.12: 5.0 ch.13: -4.0	ch.12: 5.0 ch.13: -10.0	ch.12: 5.0 ch.13: -8.5	ch.12: 5.0 ch.13: -5.0	ch.1: 15.5 ch.11: 15.0 ch.12: 5.0 ch.13: -4.0

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I.2.2 5 GHz WLAN 802.11ax/be RU WLAN Output Power

The below table is applicable is applicable in the following conditions:

- P_{max}

Mode	Band		IEEE 802.11ax RU (n dBm)																							
			SSB Antenna 1								SSB Antenna 2								Antenna 1 and Antenna 2 in MIMO							
			Antenna 1				Antenna 2				Antenna 1				Antenna 2				Antenna 1 and Antenna 2 in MIMO							
28T	52T	106T	242T	484T	996T	996T*2	28T	52T	106T	242T	484T	996T	996T*2	28T	52T	106T	242T	484T	996T	996T*2						
5 GHz WiFi (20MHz BW)	Maximum	UNI-1	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	18.0					
		UNI-2A	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0						
		UNI-2C	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0						
		UNI-3	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0						
		UNI-4	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0						
		UNI-1	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
	Normal	UNI-2A	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-2C	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-3	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-4	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-1	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-2A	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
5 GHz WiFi (40MHz BW)	Maximum	UNI-1	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0						
		UNI-2A	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-2C	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-3	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-4	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-1	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
	Normal	UNI-2A	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-2C	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-3	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-4	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-1	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-2A	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
5 GHz WiFi (80MHz BW)	Maximum	UNI-1	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0						
		UNI-2A	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-2C	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-3	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-4	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0	18.0	10.0	13.0	18.0	18.0	18.0							
		UNI-1	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
	Normal	UNI-2A	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-2C	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-3	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-4	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-1	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						
		UNI-2A	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0	9.0	12.0	15.0	17.0	17.0	17.0						

The below table is applicable is applicable in the following conditions:

- DSI=0 (Body-worn, Hotspot or Phablet)

Mode	Band	IEEE 802.11ax RU (in dBm)															
		SSB								SSB							
		Antenna 1								Antenna 2							
5 GHz Wi-Fi (20MHz BW)		26T	52T	106T	242T	484T	966T	996T2	26T	52T	106T	242T	484T	966T	996T2		
	UN1-1	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-3	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-4	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-5	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-6	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-8	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-9	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
5 GHz Wi-Fi (40MHz BW)		26T	52T	106T	242T	484T	966T	996T2	26T	52T	106T	242T	484T	966T	996T2		
	UN1-1	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-3	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-4	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-5	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-6	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-8	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-9	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
5 GHz Wi-Fi (80MHz BW)		26T	52T	106T	242T	484T	966T	996T2	26T	52T	106T	242T	484T	966T	996T2		
	UN1-1	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-3	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-4	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-5	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-6	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-8	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-9	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
5 GHz Wi-Fi (160MHz BW)		26T	52T	106T	242T	484T	966T	996T2	26T	52T	106T	242T	484T	966T	996T2		
	UN1-1	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-2C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-3	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-4	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-5	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-6	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7A	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-7C	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-8	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		
	UN1-9	10.0	13.0	16.0	18.0	20.0	22.0	24.0	10.0	13.0	16.0	18.0	20.0	22.0	24.0		

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- DSI=1 (Head)

I.2.3 6 GHz WLAN Maximum 802.11ax/be RU WLAN Output Power

- P_{max} and $DSI=1$ (Head)

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- DSI=0 (Body-worn, Hotspot or Phablet)

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