

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 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 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 RU Target Powers

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

The table below is applicable in the following conditions:

- Pmax

Band		IEEE 802.11ax RU (in dBm)							
		Antenna 5 - SISO (in dBm)				SISO in MIMO (in dBm)			
		26T	52T	106T	242T	26T	52T	106T	242T
2.45 GHz	Maximum	15	16	17	17	15	16	17	17
				ch. 1: 13.0 ch. 2: 15.0 ch. 11: 14.0	ch. 1: 13.0 ch. 11: 13.0			ch. 1: 13.0 ch. 2: 15.0 ch. 11: 14.0	ch. 1: 13.0 ch. 11: 13.0
		14	15	16	16	14	15	16	16
	Nominal			ch. 1: 12.0 ch. 2: 14.0 ch. 11: 13.0	ch. 1: 12.0 ch. 11: 12.0			ch. 1: 12.0 ch. 2: 14.0 ch. 11: 13.0	ch. 1: 12.0 ch. 11: 12.0

The table below is applicable in the following conditions:

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

Band		IEEE 802.11ax RU (in dBm)							
		Antenna 5 - SISO (in dBm)				SISO in MIMO (in dBm)			
		26T	52T	106T	242T	26T	52T	106T	242T
2.45 GHz	Maximum	14	14	14	14	14	14	14	14
				ch. 1: 13.0 ch. 11: 13.0	ch. 1: 13.0 ch. 11: 13.0			ch. 1: 13.0 ch. 11: 13.0	ch. 1: 13.0 ch. 11: 13.0
		13	13	13	13	13	13	13	13
	Nominal			ch. 1: 12.0 ch. 11: 12.0	ch. 1: 12.0 ch. 11: 12.0			ch. 1: 12.0 ch. 11: 12.0	ch. 1: 12.0 ch. 11: 12.0

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

The table below is applicable in the following conditions:

- Pmax

Mode	Band		IEEE 802.11ax RU (in dBm)							
			SISO in MIMO							
			26T	52T	106T	242T	484T	996T	996T*2	
5 GHz WIFI (20MHz BW)	UNII-1/2A/2C	Maximum	11.5	14.0	14.0	16.0				
	UNII-3/4		14.0	14.0	16.0					
	UNII-1/2A/2C	Nominal	10.5	13.0	13.0	15.0				
	UNII-3/4		13.0	13.0	13.0	15.0				
5 GHz WIFI (40MHz BW)	UNII-1	Maximum	11.5	14.0	14.0	15.0	15.0			
	UNII-2C		11.5	14.0	14.0	15.0	ch. 102: 14.0			
	UNII-3/4		14.0	14.0	14.0	15.0	15.0			
	UNII-1	Nominal	10.5	13.0	13.0	14.0	14.0			
	UNII-2A		10.5	13.0	13.0	14.0	14.0			
	UNII-2C		10.5	13.0	13.0	14.0	14.0			ch. 102: 13.0
	UNII-3/4		13.0	13.0	13.0	14.0	14.0			
	UNII-1		5 GHz WIFI (80MHz BW)	11.5	14.0	14.0	15.0			15.0
UNII-2A	11.5	14.0		14.0	15.0	15.0	15.0			
UNII-2C	11.5	14.0		14.0	15.0	ch. 106: 14.0	15.0			
UNII-3/4	14.0	14.0		14.0	15.0	15.0	15.0			
UNII-4	14.0	14.0		14.0	15.0	15.0	15.0			
UNII-1	Nominal	10.5		13.0	13.0	14.0	14.0	14.0		
UNII-2A		10.5		13.0	13.0	14.0	14.0	14.0		
UNII-2C		10.5		13.0	13.0	14.0	14.0	14.0	ch. 106: 13.0	
UNII-3/4		13.0	13.0	13.0	14.0	14.0	14.0			
5 GHz WIFI (160MHz BW)	UNII-1/2A/2C	Maximum	11.5	13.0	13.0	14.0	14.0	14.0	14.0	
	UNII-3/4		13.0	13.0	13.0	14.0	14.0	14.0		
	UNII-1/2A/2C	Nominal	10.5	12.0	12.0	13.0	13.0	13.0	13.0	
	UNII-3/4		12.0	12.0	12.0	13.0	13.0	13.0	13.0	

The table below is applicable in the following conditions:

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

Mode	Band		IEEE 802.11ax RU (in dBm)						
			SISO in MIMO						
			26T	52T	106T	242T	484T	996T	996T*2
5 GHz WIFI (20MHz BW)	UNII-1/2A/2C/3/4	Maximum	11.5	11.5	11.5	11.5			
	UNII-1/2A/2C/3/4	Nominal	10.5	10.5	10.5	10.5			
5 GHz WIFI (40MHz BW)	UNII-1/2A/2C/3/4	Maximum	11.5	11.5	11.5	11.5	11.5		
	UNII-1/2A/2C/3/4	Nominal	10.5	10.5	10.5	10.5	10.5		
5 GHz WIFI (80MHz BW)	UNII-1/2A/2C/3/4	Maximum	11.5	11.5	11.5	11.5	11.5	11.5	
	UNII-1/2A/2C/3/4	Nominal	10.5	10.5	10.5	10.5	10.5	10.5	
5 GHz WIFI (160MHz BW)	UNII-1/2A/2C/3/4	Maximum	11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-1/2A/2C/3/4	Nominal	10.5	10.5	10.5	10.5	10.5	10.5	10.5

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I.2.3 6 GHz WLAN 802.11ax RU WLAN Output Power

The table below is applicable in the following conditions:

- Pmax

Mode	Band		IEEE 802.11ax RU (in dBm)						
			SISO in MIMO						
			26T	52T	106T	242T	484T	996T	996T*2
6 GHz WIFI (20MHz BW) - LPI	UNII-5	Maximum	5.0 ch. 2: 2.0	7.0 ch. 2: 6.0	7.0	10.0			
	UNII-6/7/8		5.0	7.0	7.0	10.0			
	UNII-5	Nominal	4.0 ch. 2: 1.0	6.0 ch. 2: 5.0	6.0	9.0			
	UNII-6/7/8		4.0	6.0	6.0	9.0			
6 GHz WIFI (40MHz BW) - LPI	UNII-5/6/7/8	Maximum	5.0	7.0	7.0	10.0	13.0		
	UNII-5/6/7/8	Nominal	4.0	6.0	6.0	9.0	12.0		
6 GHz WIFI (80MHz BW) - LPI	UNII-5/6/7/8	Maximum	5.0	7.0	7.0	10.0	13.0	15.0	
	UNII-5/6/7/8	Nominal	4.0	6.0	6.0	9.0	12.0	14.0	
6 GHz WIFI (160MHz BW) - LPI	UNII-5/6/7/8	Maximum	5.0	7.0	7.0	10.0	13.0	14.0	14.0
	UNII-5/6/7/8	Nominal	4.0	6.0	6.0	9.0	12.0	13.0	13.0
6 GHz WIFI (20MHz BW) - SP	UNII-5	Maximum	11.0 ch. 2: 2.0	11.0 ch. 2: 6.0	14.0 ch. 2: 8.5	15.5 ch. 2: 10.0			
	UNII-7		14.0	14.0	14.0	16.0			
	UNII-5	Nominal	10.0 ch. 2: 1.0	10.0 ch. 2: 5.0	13.0 ch. 2: 7.5	14.5 ch. 2: 9.0			
	UNII-7		13.0	13.0	13.0	15.0			
6 GHz WIFI (40MHz BW) - SP	UNII-5	Maximum	11.0	11.0	14.0	15.0	15.0		
	UNII-7		14.0	14.0	14.0	15.0	15.0		
	UNII-5	Nominal	10.0	10.0	13.0	14.0	14.0		
	UNII-7		13.0	13.0	13.0	14.0	14.0		
6 GHz WIFI (80MHz BW) - SP	UNII-5	Maximum	11.0	11.0	14.0	15.0	15.0	15.0	
	UNII-7		14.0	14.0	14.0	15.0	15.0	15.0	
	UNII-5	Nominal	10.0	10.0	13.0	14.0	14.0	14.0	
	UNII-7		13.0	13.0	13.0	14.0	14.0	14.0	
6 GHz WIFI (160MHz BW) - SP	UNII-5	Maximum	11.0	11.0	13.0	14.0	14.0	14.0	14.0
	UNII-7		13.0	13.0	13.0	14.0	14.0	14.0	14.0
	UNII-5	Nominal	10.0	10.0	12.0	13.0	13.0	13.0	13.0
	UNII-7		12.0	12.0	12.0	13.0	13.0	13.0	13.0
6 GHz WIFI (20MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0			
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0			
6 GHz WIFI (40MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0	9.0		
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0	8.0		
6 GHz WIFI (80MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0	9.0	12.0	
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0	8.0	11.0	
6 GHz WIFI (160MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0	9.0	12.0	12.0
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0	8.0	11.0	11.0

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

Mode	Band		IEEE 802.11ax RU (in dBm)						
			SISO in MIMO						
			26T	52T	106T	242T	484T	996T	996T*2
6 GHz WIFI (20MHz BW) - LPI	UNII-5	Maximum	5.0	7.0	7.0	10.0			
	UNII-6/7/8		ch. 2: 2.0	ch. 2: 6.0					
	UNII-5	Nominal	4.0	6.0	6.0	9.0			
			ch. 2: 1.0	ch. 2: 5.0					
6 GHz WIFI (40MHz BW) - LPI	UNII-5/6/7/8	Maximum	5.0	7.0	7.0	10.0	11.5		
	UNII-5/6/7/8	Nominal	4.0	6.0	6.0	9.0	10.5		
6 GHz WIFI (80MHz BW) - LPI	UNII-5/6/7/8	Maximum	5.0	7.0	7.0	10.0	11.5	11.5	
	UNII-5/6/7/8	Nominal	4.0	6.0	6.0	9.0	10.5	10.5	
6 GHz WIFI (160MHz BW) - LPI	UNII-5/6/7/8	Maximum	5.0	7.0	7.0	10.0	11.5	11.5	11.5
	UNII-5/6/7/8	Nominal	4.0	6.0	6.0	9.0	10.5	10.5	10.5
6 GHz WIFI (20MHz BW) - SP	UNII-5	Maximum	11.0	11.0	11.5	11.5			
	UNII-7		ch. 2: 2.0	ch. 2: 6.0	ch. 2: 8.5	ch. 2: 10.0			
	UNII-5	Nominal	11.5	11.5	11.5	11.5			
			ch. 2: 1.0	ch. 2: 5.0	ch. 2: 7.5	ch. 2: 9.0			
6 GHz WIFI (40MHz BW) - SP	UNII-5	Maximum	11.0	11.0	11.5	11.5	11.5		
	UNII-7		11.5	11.5	11.5	11.5	11.5		
	UNII-5	Nominal	10.0	10.0	10.5	10.5	10.5		
			10.5	10.5	10.5	10.5	10.5		
6 GHz WIFI (80MHz BW) - SP	UNII-5	Maximum	11.0	11.0	11.5	11.5	11.5	11.5	
	UNII-7		11.5	11.5	11.5	11.5	11.5	11.5	
	UNII-5	Nominal	10.0	10.0	10.5	10.5	10.5	10.5	
			10.5	10.5	10.5	10.5	10.5	10.5	
6 GHz WIFI (160MHz BW) - SP	UNII-5	Maximum	11.0	11.0	11.5	11.5	11.5	11.5	11.5
	UNII-7		11.5	11.5	11.5	11.5	11.5	11.5	11.5
	UNII-5	Nominal	10.0	10.0	10.5	10.5	10.5	10.5	10.5
			10.5	10.5	10.5	10.5	10.5	10.5	10.5
Mode	Band		IEEE 802.11ax RU (in dBm)						
			SISO in MIMO						
			26T	52T	106T	242T	484T	996T	996T*2
6 GHz WIFI (20MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0			
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0			
6 GHz WIFI (40MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0	9.0		
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0	8.0		
6 GHz WIFI (80MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0	9.0	11.5	
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0	8.0	10.5	
6 GHz WIFI (160MHz BW) - VLP	UNII-5/7	Maximum	2.0	4.0	4.0	7.0	9.0	11.5	11.5
	UNII-5/7	Nominal	1.0	3.0	3.0	6.0	8.0	10.5	10.5

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