

APPENDIX G: IEEE 802.11 RU SAR EXCLUSION

G.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.

G.2 IEEE 802.11ax/be RU Target Powers

G.2.1 802.11ax/be RU WLAN Output Power

Mode		IEEE 802.11ax RU (in dBm)							
		SISO				MIMO			
		26T	52T	106T	242T	26T	52T	106T	242T
2.4 GHz WIFI	Maximum	10	13	15	16	13	16	18	19
		ch. 13: -2.0	ch. 12: 11.0 ch. 13: -2.0	ch. 12: 11.0 ch. 13: -2.0	ch. 12: 11.0 ch. 13: -2.0	ch. 13: 1.0	ch. 12: 14.0 ch. 13: 1.0	ch. 12: 14.0 ch. 13: 1.0	ch. 12: 14.0 ch. 13: 1.0
	Nominal	9	12	14	15	12	15	17	18
		ch. 13: -3.0	ch. 12: 10.0 ch. 13: -3.0	ch. 12: 10.0 ch. 13: -3.0	ch. 12: 10.0 ch. 13: -3.0	ch. 13: 0.0	ch. 12: 13.0 ch. 13: 0.0	ch. 12: 13.0 ch. 13: 0.0	ch. 12: 13.0 ch. 13: 0.0

Mode	Band		IEEE 802.11ax RU (in dBm)										
			SISO						MIMO				
			Antenna 1 & Antenna 2						26T	52T	106T	242T	484T
5 GHz WIFI (20MHz BW)	Maximum	UNII-1	3.0	6.0	9.0	12.0	15.0	18.0	6.0	9.0	12.0	15.0	18.0
		UNII-2A	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-2C	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-3	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-1	2.0	5.0	8.0	11.0	14.0	17.0	5.0	8.0	11.0	14.0	17.0
		UNII-2A	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
	Nominal	UNII-2C	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
		UNII-3	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
		UNII-1	3.0	6.0	9.0	12.0	15.0	18.0	6.0	9.0	12.0	15.0	18.0
		UNII-2A	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-2C	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-3	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
5 GHz WIFI (40MHz BW)	Maximum	UNII-1	3.0	6.0	9.0	12.0	15.0	18.0	6.0	9.0	12.0	15.0	18.0
		UNII-2A	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-2C	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-3	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-1	2.0	5.0	8.0	11.0	14.0	17.0	5.0	8.0	11.0	14.0	17.0
		UNII-2A	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
	Nominal	UNII-2C	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
		UNII-3	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
		UNII-1	3.0	6.0	9.0	12.0	15.0	18.0	6.0	9.0	12.0	15.0	18.0
		UNII-2A	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-2C	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-3	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
5 GHz WIFI (80MHz BW)	Maximum	UNII-1	3.0	6.0	9.0	12.0	15.0	18.0	6.0	9.0	12.0	15.0	18.0
		UNII-2A	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-2C	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-3	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-1	2.0	5.0	8.0	11.0	14.0	17.0	5.0	8.0	11.0	14.0	17.0
		UNII-2A	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
	Nominal	UNII-2C	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
		UNII-3	6.0	10.0	12.0	14.0	14.0	14.0	9.0	13.0	15.0	17.0	17.0
		UNII-1	3.0	6.0	9.0	12.0	15.0	18.0	6.0	9.0	12.0	15.0	18.0
		UNII-2A	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-2C	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0
		UNII-3	7.0	11.0	13.0	15.0	15.0	15.0	10.0	14.0	16.0	18.0	18.0

FCC ID: A3LSM1610	RF EXPOSURE TEST REPORT	Approved by: Technical Manager
DUT Type: Portable Device		APPENDIX G: Page 1 of 2

Mode	Band		IEEE 802.11ax RU (in dBm)																	
			SISO								MIMO									
			Antenna 1 & Antenna 2																	
			26T	52T	106T	242T	484T	996T	996T*2	996T*4	26T	52T	106T	242T	484T	996T	996T*2	996T*4		
6 GHz WiFi (20MHz BW) - LP	UNIS-5	Maximum	-3.0	0.0	3.0	7.0					0.0	3.0	6.0	10.0						
						ch. 2: -2.0								ch. 2: 1.0						
			-3.0	0.0	3.0	7.0					0.0	3.0	6.0	10.0						
			-3.0	0.0	3.0	7.0					0.0	3.0	6.0	10.0						
	UNIS-8	Normal	-4.0	-1.0	2.0	6.0					-1.0	2.0	5.0	9.0						
						ch. 2: -3.0								ch. 2: 0.0						
			-4.0	-1.0	2.0	6.0					-1.0	2.0	5.0	9.0						
			-4.0	-1.0	2.0	6.0					-1.0	2.0	5.0	9.0						
6 GHz WiFi (40MHz BW) - LP	UNIS-5	Maximum	-3.0	0.0	3.0	7.0	10.0				0.0	3.0	6.0	10.0	13.0					
						ch. 81: 4.0								ch. 81: 7.0						
			-3.0	0.0	3.0	7.0	10.0				0.0	3.0	6.0	10.0	13.0					
			-3.0	0.0	3.0	7.0	10.0				0.0	3.0	6.0	10.0	13.0					
	UNIS-8	Normal	-3.0	0.0	3.0	7.0	10.0				0.0	3.0	6.0	10.0	13.0					
						ch. 81: 3.0					0.0	3.0	6.0	10.0	13.0					
			-4.0	-1.0	2.0	6.0	9.0				-1.0	2.0	5.0	9.0	12.0					
						ch. 81: 6.0								ch. 81: 6.0						
6 GHz WiFi (80MHz BW) - LP	UNIS-5	Maximum	-3.0	0.0	3.0	7.0	10.0	13.0			0.0	3.0	6.0	10.0	13.0	16.0				
						ch. 81: 4.0								ch. 81: 7.0						
			-3.0	0.0	3.0	7.0	10.0	13.0			0.0	3.0	6.0	10.0	13.0	16.0				
			-3.0	0.0	3.0	7.0	10.0	13.0			0.0	3.0	6.0	10.0	13.0	16.0				
	UNIS-8	Normal	-3.0	0.0	3.0	7.0	10.0	13.0	13.0		0.0	3.0	6.0	11.0	13.0	16.0	16.0			
						ch. 79: 1.0					0.0	3.0	6.0	11.0	13.0	16.0	16.0			
			-4.0	-1.0	2.0	6.0	12.0	12.0	12.0		-1.0	2.0	5.0	10.0	12.0	15.0	15.0			
						ch. 79: 3.0								ch. 79: 6.0						
6 GHz WiFi (160MHz BW) - LP	UNIS-5	Maximum	-3.0	0.0	3.0	7.0	10.0	13.0	13.0		0.0	3.0	6.0	11.0	13.0	16.0	16.0			
						ch. 79: 1.0					0.0	3.0	6.0	11.0	13.0	16.0	16.0			
			-3.0	0.0	3.0	7.0	10.0	13.0	13.0		0.0	3.0	6.0	11.0	13.0	16.0	16.0			
			-3.0	0.0	3.0	7.0	10.0	13.0	13.0		0.0	3.0	6.0	11.0	13.0	16.0	16.0			
	UNIS-8	Normal	-3.0	0.0	3.0	7.0	10.0	13.0	13.0	13.0		0.0	3.0	6.0	11.0	13.0	16.0	16.0		
						ch. 79: 3.0					0.0	3.0	6.0	11.0	13.0	16.0	16.0			
			-4.0	-1.0	2.0	6.0	12.0	12.0	12.0	12.0		-1.0	2.0	5.0	10.0	12.0	15.0	15.0		
						ch. 79: 6.0								ch. 79: 6.0						
6 GHz WiFi (320MHz BW) - LP	UNIS-5	Maximum	-3.0	0.0	3.0	7.0	10.0	13.0	13.0	13.0		0.0	3.0	6.0	11.0	13.0	16.0	16.0		
						ch. 79: 1.0					0.0	3.0	6.0	11.0	13.0	16.0	16.0			
			-3.0	0.0	3.0	7.0	10.0	13.0	13.0	13.0	0.0	3.0	6.0	11.0	13.0	16.0	16.0			
			-3.0	0.0	3.0	7.0	10.0	13.0	13.0	13.0	0.0	3.0	6.0	11.0	13.0	16.0	16.0			
	UNIS-8	Normal	-3.0	0.0	3.0	7.0	10.0	13.0	13.0	13.0	13.0		0.0	3.0	6.0	11.0	13.0	16.0	16.0	
						ch. 79: 3.0					0.0	3.0	6.0	11.0	13.0	16.0	16.0			
			-4.0	-1.0	2.0	6.0	12.0	12.0	12.0	12.0	-1.0	2.0	5.0	10.0	12.0	15.0	15.0			
						ch. 79: 6.0								ch. 79: 6.0						
6 GHz WiFi (640MHz BW) - VLP	UNIS-5	Maximum	-4.0	-1.0	2.0	7.0					-1.0	2.0	5.0	10.0						
						ch. 2: -3.0								ch. 2: 0.0						
			-4.0	-1.0	2.0	7.0					-1.0	2.0	5.0	10.0						
			-4.0	-1.0	2.0	7.0					-1.0	2.0	5.0	10.0						
	UNIS-8	Normal	-4.0	-1.0	2.0	7.0					-1.0	2.0	5.0	10.0						
						ch. 2: -3.0								ch. 2: 0.0						
			-4.0	-1.0	2.0	7.0					-1.0	2.0	5.0	10.0						
			-4.0	-1.0	2.0	7.0					-1.0	2.0	5.0	10.0						
6 GHz WiFi (1280MHz BW) - VLP	UNIS-5	Maximum	-5.0	-2.0	1.0	6.0	8.0				-2.0	1.0	4.0	8.0						
						ch. 2: -4.0								ch. 2: 1.0						
			-5.0	-2.0	1.0	6.0	8.0				-2.0	1.0	4.0	8.0						
			-5.0	-2.0	1.0	6.0	8.0				-2.0	1.0	4.0	8.0						
	UNIS-8	Normal	-5.0	-2.0	1.0	6.0	8.0				-2.0	1.0	4.0	8.0						
						ch. 2: -4.0								ch. 2: 1.0						
			-5.0	-2.0	1.0	6.0	8.0				-2.0	1.0	4.0	8.0						
			-5.0	-2.0	1.0	6.0	8.0				-2.0	1.0	4.0	8.0						