

APPENDIX G: IEEE 802.11AX/BE RU AND MRU SAR EXCLUSION

G.1 IEEE 802.11ax/be RU and MRU 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) and Multi-Resource Units (MRU). Possible RU sizes are: 26T, 52T, 106T, 242T, 484T, 996T, 996T*2, 996T*3 and MRU sizes are 52T+26T, 106T+26T, 484T + 242T, 996T + 484T, 996T + 484T + 242T, 996T*2 + 484T, 996T*3 + 484T.

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.

Please refer to 1M2401250007-04.A3L, 1M2401250007-06.A3L, 1M2401250007-08.A3L for 802.11ax/be RU output powers.

G.2 IEEE 802.11ax/be RU and MRU Target Powers

Mode	Band		IEEE 802.11ax/be RU (in dBm)							
			SISO Ant 1 (in dBm)				MIMO			
			26T	52T, 52T + 26T	106T, 106T + 26T	242T	26T	52T, 52T + 26T	106T, 106T + 26T	242T
2.4 GHz WIFI	2.45 GHz	Maximum	14.5 ch. 12: 6.0 ch. 13: -3.0	14.5 ch. 12: 6.0 ch. 13: -3.0	14.5 ch. 12: 6.0 ch. 13: -3.0	14.5 ch. 12: 6.0 ch. 13: -3.0	17.5 ch. 12: 9.0 ch. 13: 0.0	17.5 ch. 12: 9.0 ch. 13: 0.0	17.5 ch. 12: 9.0 ch. 13: 0.0	17.5 ch. 12: 9.0 ch. 13: 0.0
			13.5 ch. 12: 5.0 ch. 13: -4.0	13.5 ch. 12: 5.0 ch. 13: -4.0	13.5 ch. 12: 5.0 ch. 13: -4.0	13.5 ch. 12: 5.0 ch. 13: -4.0	16.5 ch. 12: 8.0 ch. 13: -1.0	16.5 ch. 12: 8.0 ch. 13: -1.0	16.5 ch. 12: 8.0 ch. 13: -1.0	16.5 ch. 12: 8.0 ch. 13: -1.0
		Nominal								
Mode			IEEE 802.11ax/be RU (in dBm)							
			MIMO							
			26T	52T, 52T + 26T	106T, 106T + 26T	242T	484T, 484T + 242T	996T, 996T + 484T, 996T + 484T + 242T	996T*2, 996T*2 + 484T, 996T*3, 996T*3 + 484T	
5 GHz WIFI (20MHz BW)	Maximum		14.0	17.0	17.0	17.0				
		Nominal	13.0	16.0	16.0	16.0				
5 GHz WIFI (40MHz BW)	Maximum		14.0	17.0	17.0	17.0	17.0			
		Nominal	13.0	16.0	16.0	16.0	16.0			
5 GHz WIFI (80MHz BW)	Maximum		14.0	17.0	17.0	17.0	17.0	17.0		
		Nominal	13.0	16.0	16.0	16.0	16.0	16.0		
5 GHz WIFI (160MHz BW)	Maximum		14.0	17.0	17.0	17.0	17.0	17.0		17.0
		Nominal	13.0	16.0	16.0	16.0	16.0	16.0		16.0
Mode	Band		IEEE 802.11ax/be RU (in dBm)							
			MIMO							
			26T	52T, 52T + 26T	106T, 106T + 26T	242T	484T, 484T + 242T	996T, 996T + 484T, 996T + 484T + 242T	996T*2, 996T*2 + 484T, 996T*3, 996T*3 + 484T	996T*4
6 GHz WIFI (20MHz BW) - LPI	UNII-5/6/7/8	Maximum	2.0 ch. 2: 0.0	6.0 ch. 2: 2.5	9.0 ch. 2: 5.0	11.0 ch. 2: 8.5				
		Nominal	1.0 ch. 2: -1.0	5.0 ch. 2: 1.5	8.0 ch. 2: 4.0	10.0 ch. 2: 7.5				
6 GHz WIFI (40MHz BW) - LPI	UNII-5/6/7/8	Maximum	2.0	6.0	9.0	11.0	13.0			
		Nominal	1.0	5.0	8.0	10.0	12.0			
6 GHz WIFI (80MHz BW) - LPI	UNII-5/6/7/8	Maximum	2.0	6.0	9.0	11.0	13.0	13.0		
		Nominal	1.0	5.0	8.0	10.0	12.0	12.0		
6 GHz WIFI (160MHz BW) - LPI	UNII-5/6/7/8	Maximum	2.0	6.0	9.0	11.0	13.0	13.0	13.0	
		Nominal	1.0	5.0	8.0	10.0	12.0	12.0	12.0	
6 GHz WIFI (320MHz BW) - LPI	UNII-5/6/7/8	Maximum	2.0	6.0	9.0	11.0	13.0	13.0	13.0	13.0
		Nominal	1.0	5.0	8.0	10.0	12.0	12.0	12.0	12.0
6 GHz WIFI (20MHz BW) - SP	UNII-5/7	Maximum	12.0 ch. 2: 0.0	12.0 ch. 2: 2.5	12.0 ch. 2: 5.0	12.0 ch. 2: 8.5				
		Nominal	11.0 ch. 2: -1.0	11.0 ch. 2: 1.5	11.0 ch. 2: 4.0	11.0 ch. 2: 7.5				
6 GHz WIFI (40MHz BW) - SP	UNII-5/7	Maximum	13.0	13.0	13.0	13.0	13.0			
		Nominal	12.0	12.0	12.0	12.0	12.0			
6 GHz WIFI (80MHz BW) - SP	UNII-5/7	Maximum	13.0	13.0	13.0	13.0	13.0	13.0		
		Nominal	12.0	12.0	12.0	12.0	12.0	12.0		
6 GHz WIFI (160MHz BW) - SP	UNII-5/7	Maximum	13.0	13.0	13.0	13.0	13.0	13.0	13.0	
		Nominal	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
6 GHz WIFI (320MHz BW) - SP	UNII-5	Maximum	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
		Nominal	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0

FCC ID: A3LNP960XMA	SAR EVALUATION REPORT	Approved by: Technical Manager
DUT Type: Portable Laptop		APPENDIX G: Page 1 of 1