APPENDIX J: IEEE 802.11AX RU SAR EXCLUSION

J.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, and 996T.

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.

J.2 IEEE 802.11ax RU Target Powers

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

Tones		SISO Ant 2 (in dBm)	MIMO (in dBm)
		2.4GHz	**2.4GHz**
26T	Maximum	14.0 ch12: 6.0 ch13: 0.0	17.0 ch12: 9.0 ch13: 3.0
	Nominal	13.0 ch12: 5.0 ch13: -1.0	16.0 ch12: 8.0 ch13: 2.0
52T	Maximum	15.0 ch12: 6.0 ch13: 0.0	18.0 ch12: 9.0 ch13: 3.0
	Nominal	14.0 ch12: 5.0 ch13: -1.0	17.0 ch12: 8.0 ch13: 2.0
106T	Maximum	16.0 ch12: 6.0 ch13: 0.0	19.0 ch12: 9.0 ch13: 3.0
	Nominal	15.0 ch12: 5.0 ch13: -1.0	18.0 ch12: 8.0 ch13: 2.0
242T	Maximum	17.0 ch12: 6.0 ch13: 0.0	20.0 ch12: 9.0 ch13: 3.0
	Nominal	16.0 ch12: 5.0 ch13: -1.0	19.0 ch12: 8.0 ch13: 2.0

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

The table below is applicable in the following conditions:

- RCV Active
- RCV Active during simultaneous conditions with 5/6 GHz WLAN
- RCV Active during simultaneous conditions with 5G NR
- RCV Active during simultaneous conditions with 5G NR and 5/6 GHz WLAN

Tones		SISO Ant 2 (in dBm)	MIMO (in dBm)
		2.4GHz	**2.4GHz**
26T	Maximum	14.0 ch12: 6.0 ch13: 0.0	17.0 ch12: 9.0 ch13: 3.0
	Nominal	13.0 ch12: 5.0 ch13: -1.0	16.0 ch12: 8.0 ch13: 2.0
52T	Maximum	14.0 ch12: 6.0 ch13: 0.0	17.0 ch12: 9.0 ch13: 3.0
	Nominal	13.0 ch12: 5.0 ch13: -1.0	16.0 ch12: 8.0 ch13: 2.0
106T	Maximum	14.0 ch12: 6.0 ch13: 0.0	17.0 ch12: 9.0 ch13: 3.0
	Nominal	13.0 ch12: 5.0 ch13: -1.0	16.0 ch12: 8.0 ch13: 2.0
242T	Maximum	14.0 ch12: 6.0 ch13: 0.0	17.0 ch12: 9.0 ch13: 3.0
	Nominal	13.0 ch12: 5.0 ch13: -1.0	16.0 ch12: 8.0 ch13: 2.0

J.2.3 Maximum 802.11ax RU WLAN Output Power – 5 GHz WLAN

Tones		MIMO (in dBm)			
		5GHz/20MHz	**5GHz/40MHz**	**5GHz/80MHz**	**5GHz/160MHz**
26T	Maximum	16.0	16.0	16.0	16.0
	Nominal	15.0	15.0	15.0	15.0
52T	Maximum	18.0	18.0	18.0	18.0
	Nominal	17.0	17.0	17.0	17.0
106T	Maximum	19.0	19.0	19.0	19.0
	Nominal	18.0	18.0	18.0	18.0
242T	Maximum	19.0	19.0	18.0	17.0
	Nominal	18.0	18.0	17.0	16.0
484T	Maximum		19.0	18.0	17.0
	Nominal		18.0	17.0	16.0
996T	Maximum			18.0	17.0
	Nominal			17.0	16.0

J.2.4 Reduced 802.11ax RU WLAN Output Power – 5 GHz WLAN

The table below is applicable in the following conditions:

- RCV Active
- RCV Active during simultaneous conditions with 2.4 GHz WLAN
- RCV Active during simultaneous conditions with 5G FR1 NR
- RCV Active during simultaneous conditions with 5G FR1 NR and 2.4 GHz WLAN

Tones		MIMO (in dBm)			
		5GHz/20MHz	**5GHz/40MHz**	**5GHz/80MHz**	**5GHz/160MHz**
26T	Maximum	16	16	16	16
	Nominal	15	15	15	15
52T	Maximum	16	16	16	16
	Nominal	15	15	15	15
106T	Maximum	16	16	16	16
	Nominal	15	15	15	15
242T	Maximum	16	16	16	16
	Nominal	15	15	15	15
484T	Maximum		16	16	16
	Nominal		15	15	15
996T	Maximum			16	16
	Nominal			15	15

J.2.5 Maximum 802.11ax RU WLAN Output Power – 6 GHz WLAN

Tones		MIMO (in dBm)							
		6GHz/20MHz LPI	**6GHz/40MHz LPI**	**6GHz/80MHz LPI**	**6GHz/160MHz LPI**	**6GHz/20MHz SP**	**6GHz/40MHz SP**	**6GHz/80MHz SP**	**6GHz/160MHz SP**
26T	Maximum	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Nominal	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
52T	Maximum	3	3	3	3	3	3	3	3
	Nominal	2	2	2	2	2	2	2	2
106T	Maximum	8	8	8	8	8	8	8	8
	Nominal	7	7	7	7	7	7	7	7
242T	Maximum	11	13	13	13	11	13	13	13
	Nominal	10	12	12	12	10	12	12	12
484T	Maximum		13	13	13		13	13	13
	Nominal		12	12	12		12	12	12
996T	Maximum			13	13			13	13
	Nominal			12	12			12	12