

Appendix E: Simultaneous Transmission Analysis

E.1. Introduction

According to FCC KDB Publication 447498 D04v01, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

Table E-1 - Supported Simultaneous Transmission Scenarios

#	Scenario	Body
1	2.4 GHz WIFI_MIMO + 5 GHz WIFI_MIMO	Yes
2	2.4 GHz WIFI_MIMO + 6 GHz WIFI_MIMO	Yes
3	2.4 GHz WIFI_AUX + 5 GHz WIFI_MIMO	Yes
4	2.4 GHz WIFI_AUX + 6 GHz WIFI_MIMO	Yes
5	2.4 GHz WIFI_AUX + 2.4 GHz Bluetooth_MAIN	Yes
6	5 GHz WIFI_MIMO + 2.4 GHz Bluetooth_MAIN	Yes
7	6 GHz WIFI_MIMO + 2.4 GHz Bluetooth_MAIN	Yes
8	5 GHz WIFI_MIMO + 2.4 GHz Bluetooth_AUX	Yes
9	6 GHz WIFI_MIMO + 2.4 GHz Bluetooth_AUX	Yes
10	5 GHz WIFI_MIMO + 2.4 GHz Bluetooth_MIMO	Yes
11	6 GHz WIFI_MIMO + 2.4 GHz Bluetooth_MIMO	Yes
12	2.4 GHz WIFI_AUX + 5 GHz WIFI_MIMO + 2.4 GHz Bluetooth_MAIN	Yes
13	2.4 GHz WIFI_AUX + 6 GHz WIFI_MIMO + 2.4 GHz Bluetooth_MAIN	Yes

E.2. Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D04v01 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific physical test configuration is ≤ 1.6 W/kg. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g.

E.3. Simultaneous Transmission Analysis

Table E-2 – BT/WLAN Simultaneous Transmission Analysis

Exposure Condition	Band/Mode	Ratio to Limit																	
		2.4 GHz WIFI	2.4 GHz WIFI	5 GHz WIFI	5 GHz WIFI	2.4 GHz Bluetooth	2.4 GHz Bluetooth	2.4 GHz Bluetooth	2.4 GHz WIFI_MIMO + 5 GHz WIFI_MIMO	2.4 GHz WIFI_MIMO + 6 GHz WIFI_MIMO	2.4 GHz WIFI_AUX + 5 GHz WIFI_MIMO	2.4 GHz WIFI_AUX + 6 GHz WIFI_MIMO	2.4 GHz Bluetooth_MAIN + 2.4 GHz WIFI_AUX	2.4 GHz Bluetooth_MAIN + 5 GHz WIFI_MIMO	2.4 GHz Bluetooth_MAIN + 6 GHz WIFI_MIMO	2.4 GHz Bluetooth_AUX + 5 GHz WIFI_MIMO	2.4 GHz Bluetooth_AUX + 6 GHz WIFI_MIMO	2.4 GHz Bluetooth_MIMO + 5 GHz WIFI_MIMO	2.4 GHz Bluetooth_MIMO + 6 GHz WIFI_MIMO
	Antenna	AUX	MIMO	MIMO	MIMO	MAIN	AUX	MIMO											
	Position	1	2	3	4	5	6	7	2+3	2+4	1+3	1+4	1+5	3+5	4+5	3+6	4+6	3+7	4+7
Body (1g)	Bottom	0.461	0.582	0.767	0.220	0.311	0.443	0.394	1.349	0.802	1.228	0.681	0.772	1.078	0.531	1.210	0.663	1.161	0.614
																		1.539	0.992

E.4. Conclusion

The above analysis of the simultaneous transmission scenarios is sufficient to show that simultaneous transmission cases will not exceed the SAR limit. Therefore, no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D04v01 and IEEE 1528- 2013 Section 6.3.4.1.