



RF Exposure evaluation

Standard
FCC KDB 447498 D01 General RF Exposure Guidance v06, Appendix B

Per FCC KDB 447498 D01 General RF Exposure Guidance v06, appendix A, the following conditions shall apply for SAR exclusion.

Appendix B SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and > 50 mm

Approximate SAR test exclusion power thresholds at selected frequencies and test separation distances are illustrated in the following table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
100	474	481	487	494	501	507	514	521	527	534	541	547	554	561	567	mW
150	387	397	407	417	427	437	447	457	467	477	487	497	507	517	527	
300	274	294	314	334	354	374	394	414	434	454	474	494	514	534	554	
450	224	254	284	314	344	374	404	434	464	494	524	554	584	614	644	
835	164	220	275	331	387	442	498	554	609	665	721	776	832	888	943	
900	158	218	278	338	398	458	518	578	638	698	758	818	878	938	998	
1500	122	222	322	422	522	622	722	822	922	1022	1122	1222	1322	1422	1522	
1900	109	209	309	409	509	609	709	809	909	1009	1109	1209	1309	1409	1509	
2450	96	196	296	396	496	596	696	796	896	996	1096	1196	1296	1396	1496	
3600	79	179	279	379	479	579	679	779	879	979	1079	1179	1279	1379	1479	
5200	66	166	266	366	466	566	666	766	866	966	1066	1166	1266	1366	1466	
5400	65	165	265	365	465	565	665	765	865	965	1065	1165	1265	1365	1465	
5800	62	162	262	362	462	562	662	762	862	962	1062	1162	1262	1362	1462	

Operational Bands	Frequency (MHz)	Antenna Gain (dBi)	Output Power -conducted (dBm)	Output Power -conducted (mW)	Output Power EIRP (dBm)	Output Power EIRP (mW)
Bluetooth	2480	-1.14	1.30	1.35	0.16	1.04
WLAN 2.4 GHz (Android)	2472	-1.14	13.50	22.39	12.36	17.22
WLAN 2.4 GHz (Linux)	2437	-0.1	18.10	64.57	18	63.1
WLAN 5 GHz (Android)	5180	4.79	7.50	5.62	12.29	16.94
WLAN 5 GHz (Linux)	5785	5.7	7.90	6.17	13.6	22.91

The device has two modules running at the same time.

- Module 1 (Android): BT Classic + WLAN 2.4 GHz + WLAN 5 GHz
- Module 2 (Linux): WLAN 2.4 GHz + WLAN 5 GHz

Possible simultaneous combinations are the following:

- BT (Android) + WLAN 5 (Android) + WLAN 5 (Linux)
- BT (Android) + WLAN 2.4 (Android) + WLAN 5 (Linux)
- BT (Android) + WLAN 5 (Android) + WLAN 2.4 (Linux)
- BT (Android) + WLAN 2.4 (Android) + WLAN 2.4 (Linux)

The worst-case combination is the following:

- BT (Android) + WLAN 2.4 (Android) + WLAN 2.4 (Linux)

	Bluetooth	WLAN 2.4 GHz (Android)	WLAN 2.4 GHz (Linux)
Output Power (mW)	1.04	17.22	63.1
Sum of Output Power (mW)	81.36		
Limit (mW)	162		Limit at 60 mm

Conclusion: The maximum output power of this product is **81.36 mW**. Therefore, this product meets the SAR exclusion thresholds for a separation distance starting from **60 mm** specified in the KDB.

The customer defines 17.5 cm as minimum distance to the human body being the standard use case.

Yours sincerely,

T.S. Sunar

Teoman Soner Sunar