For FCC Standalone SAR test exclusion considerations

FCC ID: TLZ-CM2XXNF

WIFI Range	
F(GHz) Low	F(GHz) High
2.412	2.462
5.18	5.825
BT Range	
2.402	2.480

According to **KDB 447498 D01 General RF Exposure Guidance v05**

4.3.1 Standalone SAR test exclusion considerations

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√ f(GHz)] ≤ 3.0 for 1-g SAR

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances > 50 mm are determined by:

a) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz

b) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

Based on the Maximum measured transmitter power:

Antenna	Pout Conducted (dBm)	Maximum Antenna Gain (dBi)	Pout EIRP (mW)
2.4GHz WIFI	23.71	2.98	467
5GHz WIFI	17.35	5.16	178
BT	5.63	2.98	7.26

Note: WIFI and BT antenna share the same antenna, so simultaneous transmission is not applied.

The distance between the antenna to the bottom of the device is 184mm.

For 2.4GHz WIFI:

Maximum TX Power is 467 mW EIRP

The Maximum exclusion power at 2.4GHz is 1446mW

Conclusion: 2.4GHz WIFI SAR was not required.

For 5GHz WIFI:
Maximum TX Power is 178 mW EIRP
The Maximum exclusion power at 5GHz is 1412mW
Conclusion: 5GHz WIFI and BT SAR was not required.

For BT:
Maximum TX Power is 7.26 mW EIRP
The Maximum exclusion power at 2.4GHz is 1446mW
Conclusion: BT SAR was not required.

Exclusion distance:
For 2.4GHz WIFI:
Maximum TX Power is 467 mW EIRP
According to the Maximum EIRP, the exclusion distance should be calculate use the formula below:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√ f(GHz)] ≤ 3.0 for 1-g SAR for distance≤50mm
[Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz for distance≥50mm at > 1500 MHz and ≤ 6 GHz
The Maximum exclusion distance at 2.4GHz is 87.09mm.
Conclusion: 2.4GHz WIFI SAR was not required when the distance is higher than 87.09mm.

For 5GHz WIFI:
Maximum TX Power is 178 mW EIRP
According to the Maximum EIRP, the exclusion distance should be calculate use the formula below:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√ f(GHz)] ≤ 3.0 for 1-g SAR for distance≤50mm
[Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz for distance≥50mm at > 1500 MHz and ≤ 6 GHz
The Maximum exclusion distance at 5GHz is 61.56mm.
Conclusion: 5GHz WIFI BT SAR was not required when the distance is higher than 61.56mm.

For BT:
Maximum TX Power is 7.26 mW EIRP
According to the Maximum EIRP, the exclusion distance should be calculate use the formula below:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,

mm)] · [√ f(GHz)] ≤ 3.0 for 1-g SAR for distance≤50mm

[Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz for distance≥50mm at > 1500 MHz and ≤ 6 GHz

The Maximum exclusion distance at BT is 3.81mm, in other words, the BT transmitter always satisfy the SAR exclusion regardless of the distance between the transmitter to user.

Conclusion: BT SAR was not required.