

RF Exposure Evaluation

Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

Test Result of RF Exposure Evaluation

Type	Frequency (MHz)	Antenna Gain (dBi)	Output power (dBm)	ERP (dBm)	ERP (mW)	Limit (mW, d=1.8cm)	Ratio (%)	Result
BT	2402	3.19	0.96	2	1.58	31.7	5	PASS
BLE	2402	3.19	0.87	1.91	1.55	31.7	5	PASS
WIFI 2.4G (SISO)	2462	3.19	9.97	11.01	12.62	31.29	40	PASS
WIFI 5G (SISO)	5500	3.46	8.72	10.03	10.07	20.55	49	PASS
WIFI 5.8G (SISO)	5745	3.84	6.56	8.25	6.68	20.09	33	PASS
WIFI 2.4G (MIMO)	2462	6.2	9.33	13.38	21.78	31.29	70	PASS
WIFI 5G (MIMO)	5320	5.54	8.41	11.8	15.14	20.91	72	PASS
WIFI 5.8G (MIMO)	5745	6.85	6.86	11.56	14.32	20.09	71	PASS

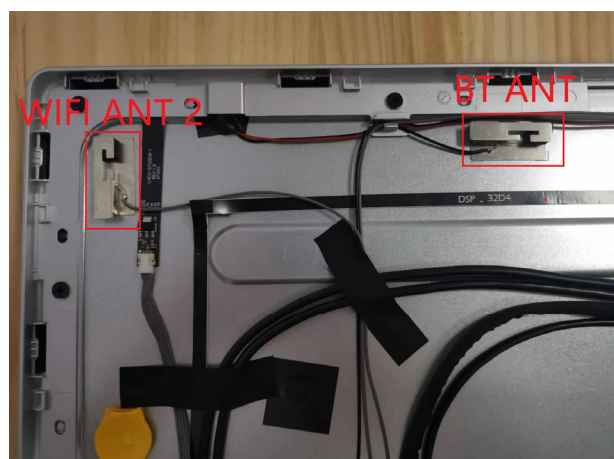
Synchronous transmission:

BT+2.4G WIFI(SISO): $0.45 < 1$

BT+5G WIFI(SISO): $0.54 < 1$

BT+2.4G WIFI(MIMO): $0.75 < 1$

BT+5G WIFI(MIMO): $0.77 < 1$



The max power density is less than MPE exempt limit, so it is compliance.