

**According to KDB 447498 D01 General RF Exposure Guidance v06 and part 2.1091****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)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz

Friis transmission formula: $Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

Pd = power density in mW/cm², **Pout** = output power to antenna in mW;

G = gain of antenna in linear scale, **Pi** = 3.1416;

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



Test Result of RF Exposure Evaluation

For 2.4GWIFI

Mode	Output power to antenna (dBm)	Tune UP tolerance (dBm)	Max Tune UP power (dBm)	Max Tune UP power (mW)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b	18.59	18±1	19	79.43	0.032116	1.0	PASS
802.11g	20.96	20±1	21	125.89	0.050901	1.0	PASS
802.11n20	20.76	20±1	21	125.89	0.050901	1.0	PASS
802.11n40	20.378	20±1	21	125.89	0.050901	1.0	PASS
802.11ax20	21.125	21±1	22	158.49	0.064083	1.0	PASS
802.11ax40	20.604	20±1	21	125.89	0.050901	1.0	PASS

Antenna gain for: 2.4G:3.08dB

For 5.8GWIFI

Mode	Output power to antenna (dBm)	Tune UP tolerance (dBm)	Max Tune UP power (dBm)	Max Tune UP power (mW)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11a	16.034	16±1	17	50.12	0.025336	1.0	PASS
802.11n20	13.462	13±1	14	25.12	0.012699	1.0	PASS
802.11n40	15.812	15±1	16	39.81	0.020125	1.0	PASS
802.11ac20	15.391	15±1	16	39.81	0.020125	1.0	PASS
802.11ac40	17.836	17±1	18	63.10	0.031898	1.0	PASS
802.11ax20	17.272	17±1	18	63.10	0.031898	1.0	PASS
802.11ax40	17.844	17±1	18	63.10	0.031898	1.0	PASS

Antenna gain for: 5.8G:4.05dB

So a SAR test is not required