

RF Exposure Evaluation

LIMIT

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

Note: f = frequency in MHz

EVALUATION METHOD

Transmission formula: $Pd = (Pout * G) / (4 * \pi * r^2)$

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

TEST RESULT

☒ **Passed**

☐ **Not Applicable**

MPE WIFI 2.4G:

Radio Type	Frequency range (MHz)	Conducted Average Power (dBm)*	Maximum Tune-up (dBm)	Power Density (mW/cm2)	Limit (mW/cm2)	Result
WIFI	2412~2462	24.87	25.00	0.2810	1.0000	Pass

MPE WIFI 5G:

Radio Type	Frequency range (MHz)	Conducted Average Power (dBm)	Maximum Tune-up (dBm)	Power Density (mW/cm2)	Limit (mW/cm2)	Result
WIFI	5150~5725	16.97	17.50	0.0792	1.0000	Pass

MPE SDR:

Radio Type	Frequency range (MHz)	Conducted Average Power (dBm)	Maximum Tune-up (dBm)	Power Density (mW/cm2)	Limit (mW/cm2)	Result
SDR	2412~2462	10.98	11.00	0.0112	1.0000	Pass
SDR	5737~5850	10.06	11.00	0.0177	1.0000	Pass

MPE LTE:

Radio Type	Frequency range (MHz)	Conducted Average Power (dBm)*	Maximum Tune-up (dBm)	Power Density (mW/cm2)	Limit (mW/cm2)	Result
LTE Band 2	1850.7~1909.3	24.00	24.50	0.0997	1.0000	Pass
LTE Band 12	699.7~715.3	24.00	24.50	0.0706	0.4665	Pass

MPE Total:

Maximum Emissions Level					
MPE WIFI	MPE SDR	MPE LTE	Total MPE	Limit (mW/cm2)	Result
0.2810	0.0177	0.0997	0.3984	1.0000	Pass

Note:

- 1) The maximum antenna gain is 2.4G WIFI:6.5dBi; 5G WIFI:8.5dBi; 2.4G SDR:6.5dBi; 5.8G SDR:8.5dBi; LTE Band2:2.5dBi; LTE Band12:1.0dBi;
- 2) The exposure evaluation safety distance is 20cm.
- 3) *refer to module which FCC ID is N7NEM75 and 2AG87NM-DB-3-R2.
- 4) A 100% duty cycle is used for calculations to present a worse-case analysis.