

5. Safety Human Exposure

5.1 Radio Frequency Exposure Compliance

5.1.1 Electromagnetic Fields

Result:

Pass

Test Specification

Test standard : FCC 47 CFR Part 2.1091
CFR47 FCC Part 1.1310

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
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
300-1,500			f/300	<6
1,500-100,000			5	<6
(ii) 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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

MPE Calculation:

The power Density (mW / CM^2) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

S=power density (mW / CM^2)

P=power input to the antenna (mW)

G=power input to the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna (CM)

Mode	Maximum Electric Field dBuV/m @3m	MAX E.I.R.P. (mW)	Distance (cm)	Power Density (mW/ cm ²)	Power Density Limit (mW/ cm ²)	Verdict
A	77.59	0.0017	20	3.38×10^{-7}	0.289	Pass
B	N/A	218.27	20	0.043	1.0	Pass

Remark: dBuV/m=dBm-20lg(d)+104.77; data for mode B comes from FCC ID 2AC7Z-ESPWROOM32D

The totla ratio is less than 1.

Conclusion:

EUT is compliance with the RF exposure.