

10. RF exposure evaluation

According to FCC 1.1310 : 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)	Average time
(A) Limits for Occupational /Control Exposures				
300 – 1500	--	--	F/300	6
1500 - 100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300 – 1500	--	--	F/1500	6
<u>1500 - 100000</u>	--	--	<u>1</u>	<u>30</u>

10.1 Friis transmission formula : $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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 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 where the MPE limit is reached.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

10.2 Test result of RF exposure evaluation

Test Item : RF Exposure evaluation data

Test Mode : Normal operation

10.2.1 Output power into antenna & RF exposure evaluation distance

Operating mode	Channel	Frequency (MHz)	Peak output power (dBm)	Antenna gain (dBi)	Power density at 20cm (mW/cm ²)	Limit (mW/cm ²)
GFSK	Low	2402	0.14	-0.42	0.00019	1
	Middle	2441	0.68	-0.42	0.00021	
	High	2480	1.07	-0.42	0.00023	
8DPSK	Low	2402	2.85	-0.42	0.00035	1
	Middle	2441	3.10	-0.42	0.00037	
	High	2480	2.99	-0.42	0.00036	

■ Note

The power density Pd (4th column) at a distance of 20cm calculated from the friis transmission formula is far below the limit of 1 mW/ cm².