

RF EXPOSURE EVALUATION

EUT Specification

EUT	WIRELESS FULL DUPLEX INTERCOM
Model Number	HY812
FCC ID	2AXOF-HY812
Antenna gain (Max)	-2.12dBi
Operation Frequency	915MHz
Modulation	GFSK
Input Rating	120Vac, 60Hz
Max. output power	89.85 dBuV/m(-5.45dBm)

Test Requirement:

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
1500-100000	--	--	1	30

11.1 Friis transmission formula: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1416

R = distance between observation point and center of the radiator in cm = 20cm

Under the limit of MPE, $1\text{mW}/\text{cm}^2$. If we know the maximum gain of the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

Antenna gain: -2.12dBi

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
GFSK	915	-5.45	-5 ± 1	-4	0.614	0.000049	0.61

Signature:

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