

MicroIQ Prox MPE Evaluation FCC ID:2BDMF-MIQPROX

RF Exposure Evaluation

This device has been evaluated for Single Transmitter, Stand Alone emissions and found to be under the FCC limit and Industry Canada limit.

The limit for FCC is stated in mW/cm^2 . The limit is $1 \text{ mW}/\text{cm}^2$ for the frequency range of 2.4 GHz to 2.4835 GHz.

The limit for Industry Canada is stated in W/m^2 . The limit is $10 \text{ W}/\text{m}^2$ for the frequency range of 2.4 GHz to 2.4835 GHz.

$$\text{BLE EIRP} = -1.7 \text{ dBm} + 1.5 \text{ dBi} - 0 = -0.2 \text{ dBm} = 0.001 \text{ Watts}$$

The power density from an isotropic source at distance $r = 20\text{cm}$ is defined:

$$\text{PD} = P / (4 * \pi * r^2)$$

Where P is the total power in watts and r is the distance in meters

BLE transmitter

$$\text{PD} = P / (4 * \pi * r^2)$$

PD	P in watts	constant	pi	distance in meters
3.023943918746	0.0009500000000000	4	3.141593	0.005
W/m^2	Peak Power			5mm

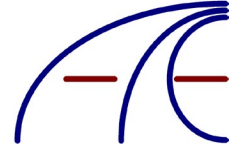
0.302394391875
mW/cm^2

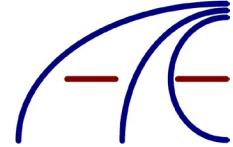
13.56 MHz RFID

PD	P in watts	constant	pi	distance in meters
0.000036923947	0.0000000116000000	4	3.141593	0.005
W/m^2	Peak Power			5mm

0.000003692395
mW/cm^2

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125 kHz NFC

PD	P in watts	constant	pi	distance in meters
0.000144512688	0.0000000454000000	4	3.141593	0.005
W/m ²	Peak Power			5cm

0.000014451269
mW/cm ²

Combined PD = .6655

PD	P in watts	constant	pi	distance in meters
3.023943918746	.00095	4	3.141593	0.005
W/m ²	Peak Power			5cm

0.302394391875
mW/cm ²

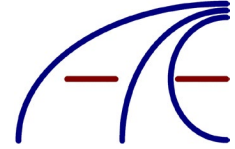
TOTAL MPE Assessment

US MPE Assessment

Power Reported is:	☒ Peak ☐ Average						
Limit Used is:	☒ General Population ☐ Occupational Exposure						
Operating Band MHz	Power dBm	Ant Type/Gain dBi	EIRP dBm	Distance mm	MPE mW/cm ²	Limit mW/cm ²	Comments
2400 – 2483.5	-1.7	1.5	-0.2	5	0.3024	1	Pass

IC MPE Assessment

Power Reported is:	☒ Peak ☐ Average						
Limit Used is:	☒ General Population ☐ Occupational Exposure						
Operating Band MHz	Power dBm	Ant Type/Gain dBi	EIRP dBm	Distance m	MPE W/m ²	Limit W/m ²	Comments
2400 – 2483.5	-1.7	1.5	-0.2	0.005	3.024	10	Pass



Antenna perimeter dimensions = 91mm+/-1.5mm

(125kHz): Coil antenna, 768uH, 125kHz/1V.

125KHz RFID Reader Antenna Coil Specification

- 1) Inductance = 768uH ($\pm 5\%$) – Test Condition = 125KHz/1Volt
- 2) Major Parameter = Inductance
- 3) Winding Direction = CW
- 3) X = 33mm (± 1.0 mm)
- 4) Y = 12.5mm (± 0.5 mm)
- 5) Z = 2.0mm maximum
- 6) T = 1.7mm (± 0.5 mm)
- 6) L1 = 50mm (± 3.0 mm)
- 7) L2 = 15mm (± 2.0 mm)
- 8) R = 1.5
- 9) Connector = JST SHR-02V-S

