## 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<sup>2</sup>. The limit is 1 mW/cm<sup>2</sup> for the frequency range of 2.4 GHz to 2.4835 GHz.

The limit for Industry Canada is stated in W/m<sup>2</sup>. The limit is 10 W/m<sup>2</sup> for the frequency range of 2.4 GHz to 2.4835 GHz.

BLE EIRP = -1.7 dBm + 1.5 dBi - 0 = -0.2 dBm = 0.001 Watts

The power density from an isotropic source at distance r = 20cm is defined: PD = P / (4 \* Pi \* r2)

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

#### **BLE transmitter**

W/m²	Peak Power			5mm	
3.023943918746	0.0009500000000000	4	3.141593	0.005	
PD	P in watts	constant	pi	distance in meters	
PD = P / (4 * pi * r^2)					

0.302394391875
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mW/cm<sup>2</sup>

#### **13.56 MHz RFID**

PD	P in watts	constant	pi	distance in meters	
0.000036923947	0.000000116000000	4	3.141593	0.005	
W/m²	Peak Power			5mm	

#### 0.000003692395

mW/cm<sup>2</sup>

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#### 125 kHz NFC

PD	PD P in watts		pi	distance in meters
0.000144512688	0.0000000454000000	4	3.141593	0.005
		-		

W/m<sup>2</sup> Peak Power 5cm

0.000014451269

mW/cm<sup>2</sup>

Combined PD = .6655

PD	P in watts	constant	pi	distance in meters
3.023943918746	.00095		3.141593	0.005
W/m²	Peak Power			5cm

0.302394391875

mW/cm<sup>2</sup>

## **TOTAL MPE Assessment**

### **US MPE Assessment**

Power Reported is:	⊠ Peak □	☑ Peak ☐ Average					
Limit Used is:	☐ General Population ☐ Occupational Exposure						
Operating Band	Power	Ant Type/Gain	EIRP	Distance	MPE	Limit	Comments
MHz	dBm	dBi	dBm	mm	mW/cm <sup>2</sup>	mW/cm <sup>2</sup>	
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	Power	Ant Type/Gain	EIRP	Distance	MPE	Limit	Comments
MHz	dBm	dBi	dBm	m	W/m²	W/m²	
2400 – 2483.5	-1.7	1.5	-0.2	0.005	3.024	10	Pass

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Antenna perimeter dimensions = 91mm+/-1.5mm

# (125kHz): Coil antenna, 768uH, 125kHz/1V. 125KHz RFID Reader Antenna Coil Specification

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



