



FCC Part 15 Certification **Test Report**

2402MHz – 2474MHz
Frequency Hopping Spread Spectrum Transceiver

FCC ID: R2K-IES-SP-BLUE

FCC Rule Part: 15.249

ACS Report Number: 04-0116-15C249

Manufacturer: Industrial Electronics Services
Model: Serial Pup

RF Exposure Information

General Information:

Applicant: Industrial Electronics Services
 ACS Project: 04-0116
 FCC ID: R2K-IES-SP-BLUE
 Device Category: Mobile
 Environment: General Population/Uncontrolled Exposure

Technical Information:

Antenna Type: 2.4GHz Ultra-Compact Chip Antenna
 Antenna Gain: .08
 Transmitter Conducted Power: -6.02dBm
 Maximum System EIRP: -5.22dBm
 Operating Configuration: Connects to a serial port
 Exposure Conditions: Greater than 20 centimeters

MPE Calculation

The minimum separation distance is calculated as follows:

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } P_d = (mW/cm^2) = \frac{E^2}{3770}$$

MPE Distance

| MPE Calculator for 2474MHz Periodic Operated Transmitter Limits for General Population/Uncontrolled Exposure* | | | | | |
|--|-------------------------|---------------------------------------|--------------------------|-----------------------------|----------------------|
| Transmit Freq. (MHz) | Radio Power (dBm) | Power Density Limit (mW/Cm2) | Antenna Gain (dBi) | Antenna Gain (mW eq.) | MPE Distance (cm) |
| 2474 | -6.02 | 1.0 | 0.8 | 1.2 | 0.1547 |

Installation Guidelines

The installation manual contains the following text advising how to install the equipment to maintain compliance with the FCC RF exposure requirements:

"RF Exposure (Intentional Radiators Only)

In accordance with FCC requirements of human exposure to radiofrequency fields, the radiating element shall be installed such that a minimum separation distance of (20cm).

Conclusion

This device complies with the MPE requirements by providing adequate separation between the device, any radiating structure and the general population.