



Excellence in Compliance Testing

Certification Exhibit

**FCC ID: HSW-2492
IC: 4492A-2492**

**FCC Rule Part: 15.247
IC Radio Standards Specification: RSS-210**

ACS Project Number: 11-0123

Manufacturer: Cirronet, Inc.
Model: WIT2492

RF Exposure

General Information:

Applicant: RFM / Cirronet
 ACS Project: 11-0123
 Environment: General Population/Uncontrolled Exposure

MPE Calculation – Mobile Exposure Conditions

Operating Parameters:

Maximum Transmitter Conducted Power 17.75dBm / 59.6mW
 Maximum Antenna Gain(Mobile Conditions) 15dBi
 Maximum System EIRP 32.75dBm / 1883.6mW

The Power Density (mW/cm²) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = power density (in appropriate units, e.g. mW/cm²)
 P = power input to the antenna (in appropriate units, e.g., mW)
 G = power gain of the antenna in the direction of interest relative to an isotropic radiator
 R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Calculations were performed on frequencies with the highest output power as determined during testing.

Maximum Permissible Exposure (MPE) General Population/Uncontrolled Exposure							
Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/Cm2)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm ²)
2402.6	17.75	1.00	59.57	15	31.623	20	0.375

Maximum Transmit Duty Cycle / Power Calculation – Portable Exposure Conditions

Operating Parameters:

Maximum Transmitter Conducted Power 17.75dBm / 59.6mW
 Maximum Antenna Gain (Portable Conditions) 2dBi
 Maximum packet length 64 bytes
 Hop time (dwell time) 5 milliseconds

Maximum packet size the radio can transmit on a given hop is:

Maximum data payload + overhead = 74 bytes

The maximum Length of transmission per hop is:

(74*8)/921.6 Kbps = 642.4us

The unit can transmit only once per hop so the resulting transmitter duty cycle is:

642.4us/5ms = 12.85%

Source-Based Time-Averaged Power is: 60mW* 0.1285 * 1.62 = 12.49mW

1. Per KDB 447498(a)(i), a device may be used in portable exposure conditions with no restrictions on host platforms when the source-based time-averaged output power is $\leq 60/f(\text{GHz})\text{mW}$.
 $60/(2.46711) = 24.32\text{mW}$.
2. Per IC Radio Standards Specification RSS-102 Issue 4, March 2010; SAR evaluation is required except when the device operates above 2.2 GHz and up to 3 GHz inclusively, and with output power (i.e. the higher of the conducted or radiated (e.i.r.p.) source-based, time-averaged output power) that is less than or equal to 20mW for general public use.