



# WM150 RFID Module

## Hardware Datasheet

## Product Overview

### 1.1 General Description

The WM150 is a HF RFID read/write module for use with industry standard 13.56MHz RFID tags and smart labels. The WM150 supports ISO14443A/B, ISO15693, ISO18000-3 mode-1 standard protocol. The device can be to a PC or other host system easily. The built in boot-loader enables firmware field upgrades.

### 1.2 Technical Specifications:

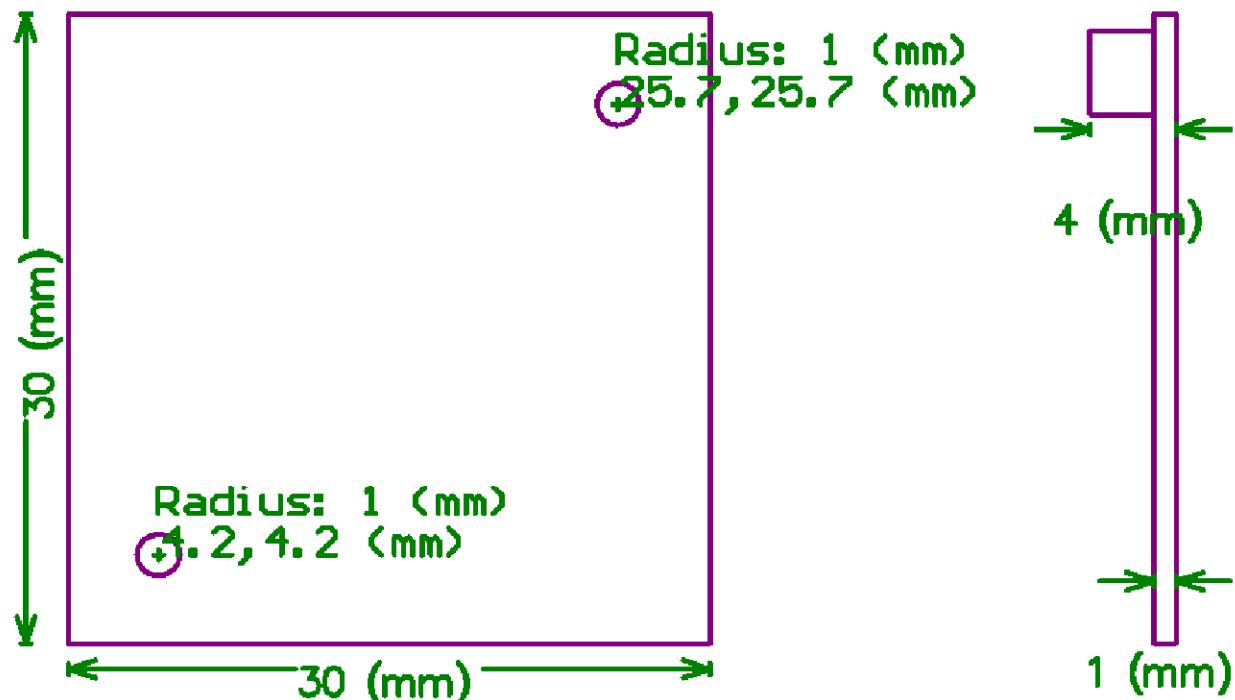
|                            |   |
|----------------------------|---|
| Operating Frequency        | 13.56MHz ±7KHz  |
| Support Protocol           | ISO14443A/B, ISO15693, ISO18000-3 mode-1, NXP Mifare (S50/S70) & SONY Felica Card UID Only  |
| Antenna                    | Integrated  |
| Interface                  | USB or UART   |
| LED indicators             | 2 LED (Green = active, Red = reading)   |
| Operating Distance         | Up to 30mm<br>(depend on the transponder and reader antenna size)   |
| Supply Voltage             | VDC +5V(USB Power or UART Power Source)   |
| Supply Current             | 150mA   |
| Operating Temperature      | 0 °C ~ 50 °C  |
| Storage Temperature        | -10 °C ~ 60 °C  |
| Dimensions                 | 30mm(L) x 30mm(W) x 4mm(H)  |
| Weight                     | 2.5 grams   |
| Operating System Support   | Windows 2000, 2003, XP, Vista   |
| Firmware Boot-Loader       | Supported via USB Interface   |
| Standards / Certifications | RoHS Compliant  |
| Support Tag ICs            | Support ISO14443A <ul style="list-style-type: none"> <li>◆ NXP Mifare Ultralight</li> <li>◆ NXP S50/S70 UID Only</li> </ul>   |
|                            | Support ISO14443B <ul style="list-style-type: none"> <li>◆ ST SRI4K</li> <li>◆ ST SRIX4K</li> <li>◆ Atmel AT88RF020</li> <li>◆ Atmel AT88SC3216CRF</li> </ul>   |
|                            | Support ISO15693 <ul style="list-style-type: none"> <li>◆ NXP I-CODE SLI</li> <li>◆ Tag-it™ HF-I Standard</li> <li>◆ Tag-it™ HF-I Pro</li> <li>◆ Tag-it™ HF-I Plus</li> <li>◆ Fujitsu FerVID™ family MB89R118</li> <li>◆ Fujitsu FerVID™ family MB89R119</li> <li>◆ MStar MSR3200 Lyra</li> </ul> |

## 2. Dimensions Description

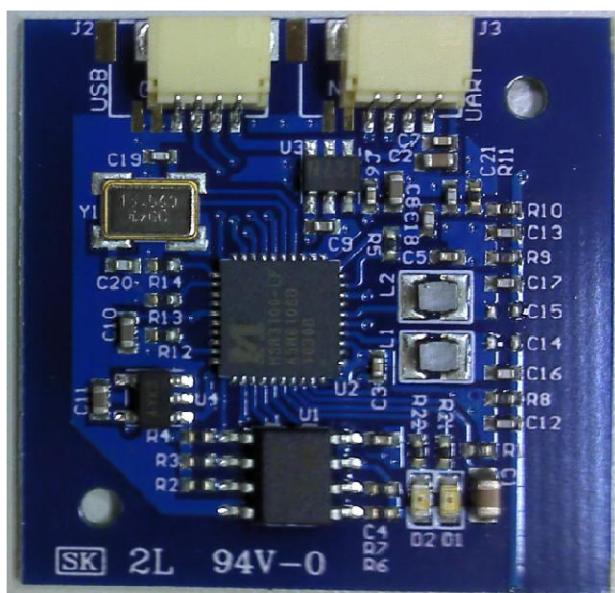
### 2.1 Dimensions

Units : mm

Tolerance :  $\pm 0.3$



### 2.2 Product Photo



Top Layer



Bottom Layer

### 3. Host Interface

USB Specification 2.0 compliant; full-speed (12Mbps) data rates

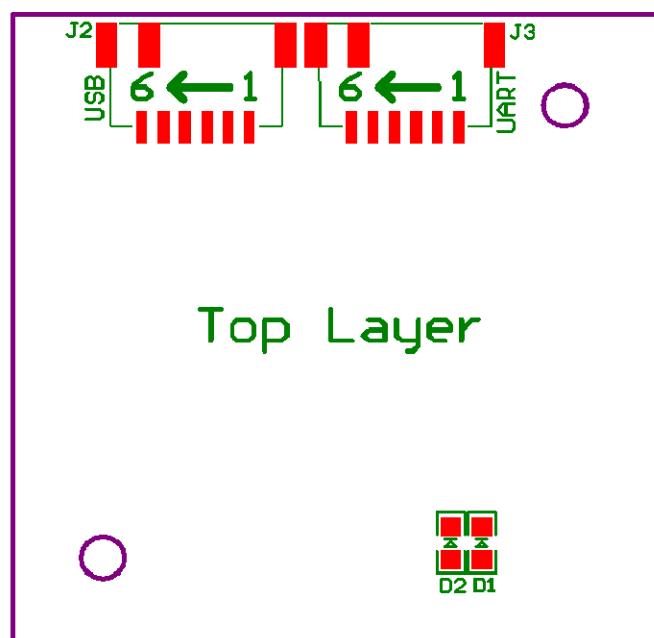
OR

UART

Baud Rates : 115200 bits/sec, N, 8, 1

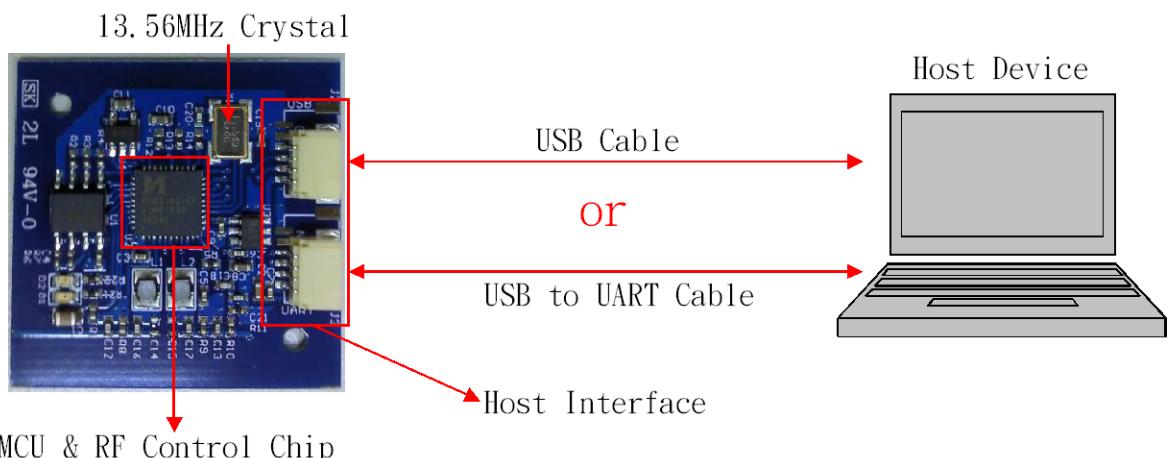
p. s. No Parity Bit, 8 Data Bits, 1 Stop Bit.

### 4. Interface Connector Pin Define



|                      |       |            |                                     |
|----------------------|-------|------------|-------------------------------------|
| J3<br>UART Connector | Pin_1 | Gnd        | Digital Ground                      |
|                      | Pin_2 | VDC +5V    | Digital Power Supply                |
|                      | Pin_3 | Rx         | UART Serial Data Input (TTL Level)  |
|                      | Pin_4 | Tx         | UART Serial Data Output (TTL Level) |
|                      | Pin_5 | NC         | Reserved for future use             |
|                      | Pin_6 | Gnd        | Digital Ground                      |
| J2<br>USB Connector  | Pin_1 | VBus Power | USB Digital Power Supply (VDC +5V)  |
|                      | Pin_2 | DM         | USB D- Data Line                    |
|                      | Pin_3 | DP         | USB D+ Data Line                    |
|                      | Pin_4 |            |                                     |
|                      | Pin_5 | Gnd        | Digital Ground                      |
|                      | Pin_6 |            |                                     |
| LED                  | D1    | Green      | Device Link Success                 |
|                      | D2    | Red        | Device Link Read TAG Success        |

## 5. Block Diagram



### Note :

The buyer of the module who will incorporate this module into his host must submit the final product to the manufacturer of the module, and the MANUFACTURER OF THE MODULE WILL VERIFY that the product is incorporated in the host equipment in a way that is represented by the testing as shown in the test report.

**To OEM installer:**

1. FCC ID label on the final system must be labeled with "**Contains FCC ID: Y4V-WM150**" or "**Contains transmitter module FCC ID: Y4V-WM150**".
2. In the user manual, final system integrator must ensure that there is no instruction provided in the user manual to install or remove the transmitter module.
3. Transmitter module must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

The user manual of the final host system must contain the following statements:

USA-Federal Communication Commission (FCC):

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter, except if installed in compliance with FCC Multi-Transmitter procedures.

To inherit the modular approval, the antennas for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.



## Revision History

| Revision | Date       | Description      | By             |
|----------|------------|------------------|----------------|
| 1. 0     | 2010/12/08 | Initial creation | Ta Hsiang Chen |
| 1. 1     | 2011/01/07 | Block Diagram    | CTH            |