# ATTI 900 mhz Transceiver Users Manual

**Description**

The ATTI 900 mhz Transceiver module is a frequency hopping spread spectrum transceiver capable of 2 way transportation of message packets in the 900 MHz ISM band. A standard serial interface operating at 3-volt CMOS levels is used to communicate with the host device.

**FCC Compliance**

**Compliance Statement (Part 15.19)**
This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. 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.

**Warning (Part 15.21)**
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**RF Exposure (OET Bulletin 65)**
To comply with FCC's RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

**FCC ID: N3F-ATTI201**
**Canada ID: 4385A-ATTI201**
**S/N: ????????**
**MODEL: ASM-000201-04.**
**Made in USA**

**OEM Responsibility to the FCC Rules and Regulations**

The "ATTI 900 mhz Transceiver" Module has been certified per FCC Part 15 rules for integration into products without further testing or certification. To fulfill the FCC certification requirements the OEM of the "ATTI 900 mhz Transceiver" Module must ensure that the information provided on the "ATTI 900 mhz Transceiver" Label is placed on the outside of the final product.

The "ATTI 900 mhz Transceiver" Module is labeled with its own FCC ID Number. If the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following:

"**Contains Transmitter Module FCC ID: N3F-ATTI201**

**Contains FCC ID: N3F-ATTI201**

The OEM of the “ATTI 900 mhz Transceiver” Module must only use the approved antenna, which has been certified with this module.
The OEM of the “ATTI 900 mhz Transceiver” Module must test their final product configuration to comply with Unintentional Radiator Limits before declaring FCC compliance per Part 15 of the FCC rules.

**Industry Canada Statement per Section 4.0 of RSP-100**

The term "**IC:**" before the certification / registration number only signifies that the Industry Canada technical specifications were met.

**Section 7.1.5 of RSS-GEN**

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**Section 7.1.4 of RSS-GEN**

This device has been designed to operate with an antenna having a maximum gain of [60] dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is [ 50] ohms."

**Section 7.1.5 of RSS-GEN**

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

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**Section 2.6 of RSS-102**

This portable transmitter with its antenna complies with Industry Canada RF Exposure Limits for General Population / Uncontrolled Exposure.

**Antenna Specifications**

Compliance with FCC regulations may only be maintained using the specified antennas. This module is designed for use with ATTI part #G-39223, modified monopole antenna. Use of any other antenna is a violation of FCC rules. The antenna connection uses a reverse polarity SMA connector that is supplied to prevent the use of other types of antennas.

**Electrical/Connection Specifications**

The module should be operated within the electrical limits provided in the section.

Operation outside of the parameters may damage the unit. Power is supplied by the host device through the interface connector and must be in accordance with the following operating voltage and current requirements.

| Parameter | Min | Typ | Max | Units |
|---|---|---|---|---|
| Operating Voltage | 2.70 | 3.00 | 3.60 | VDC |
| Transmit Current | | 750 | 1300 | mA |
| Receive Current | | 20 | | mA |
| Sleep Current | | 5 | 10 | µA |
| Operating Temperature | -40 | +85 | | °C |

Connector Pin Out

| Pin # | Name | Description |
|---|---|---|
| 1 | gnd | Ground |
| 2 | VCC | Power Input |
| 3 | XCVR RX | Receive Data In |
| 4 | XCVR TX | Transmit Data Out |
| 5 | XCVR CTS | CTS input |
| 6 | XCVR RST | Reset In |
| 7 | TCK | Jtag Signal 1 |
| 8 | TMS | Jtag Signal 2 |
| 9 | TPI | Jtag Signal 3 |
| 10 | TDO/TPI | Jtag Signal 4 |

The transmit power of the module is one watt. In some installations there may be traces connected to the communication pins of the module that are long enough to act as antennas at 900 MHz. There is the possibility of inducing enough voltage to false trigger a CMOS input. To avoid this situation it may be necessary to install a 22 pF, 0603 size capacitor from each of the 3 signal lines to ground. The capacitors should be located as close as possible to the connector in the host board. Good RF layout techniques should be observed.

**Mounting Location**

A vertical orientation is required. Mounting is accomplished via the 10 pin 0.1” header along the edge of the board. It is necessary to mount the module in such a way that user is never closer than 20 cm to the antenna. Additionally, the transceiver may not be co-located with any other antenna or transmitter.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.
--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
--Consult the dealer or an experienced ratio/TV technician for help.