## Class 1 Module - iMBTC1P

# Class 1 Module – with Picea Antenna Technical Specifications


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This device complies with part 15 of 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.

In order to comply with FCC RF Exposure requirements, the iMBTC1P must be installed and operated in such a way so as to maintain a minimum 20 cm separation distance between the product and user. Upon installation, the product will no longer move unless uninstalled. If the product will be of a mobile device, it will still maintain a separation of at least 20 cm between the product and user. The maintained distance will be specified in the respected product user manuals. It will be specified that if the maintained distance is not met, evaluation of RF exposure may need to be carried out on the product where the module is installed.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Any changes or modifications not expressly approved by Integrated Magnetics could void the user's authority to operate the equipment.

No special accessories is required.

# 1. Block Diagram

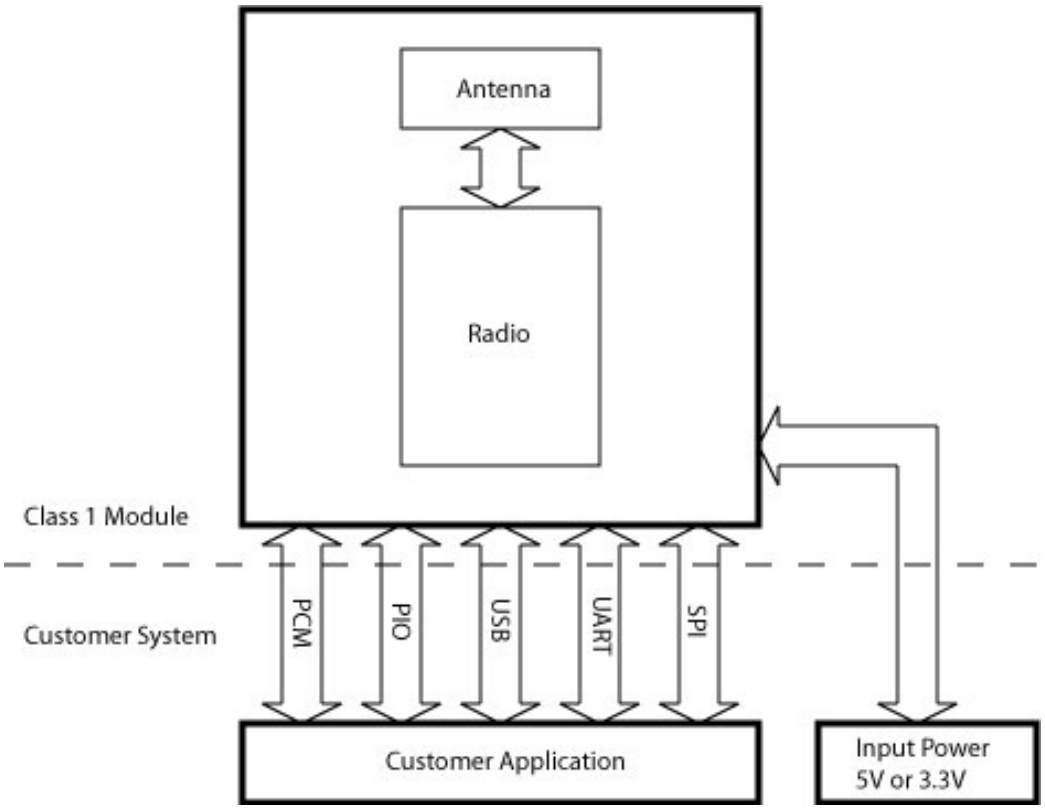


**FIGURE 1:** Block Diagram

## 2. Physical Picture

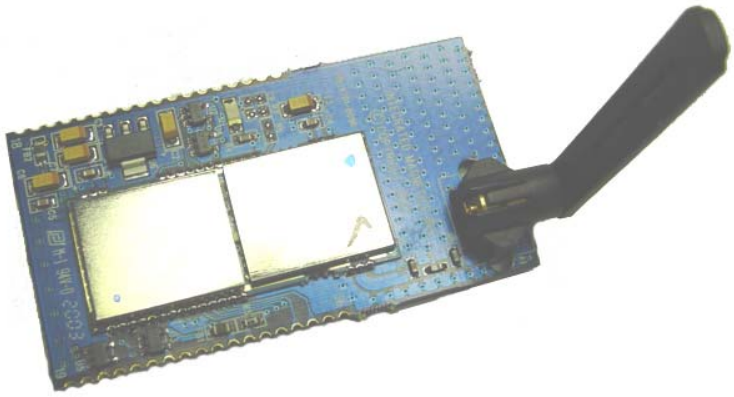

**FIGURE 2:** Picture Top Side

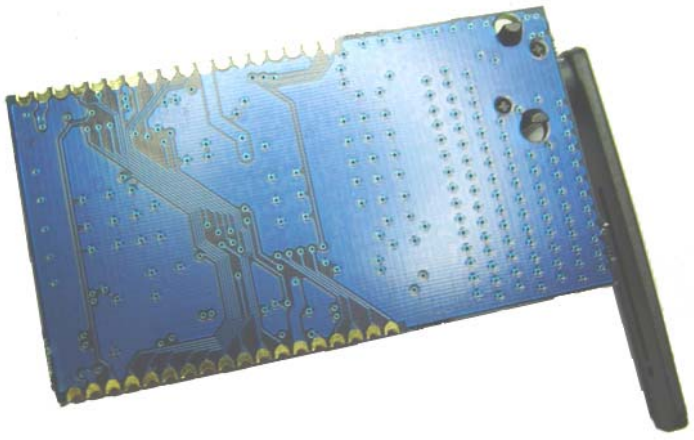

**FIGURE 3:** Picture Bottom Side

## 3. Physical Dimensions

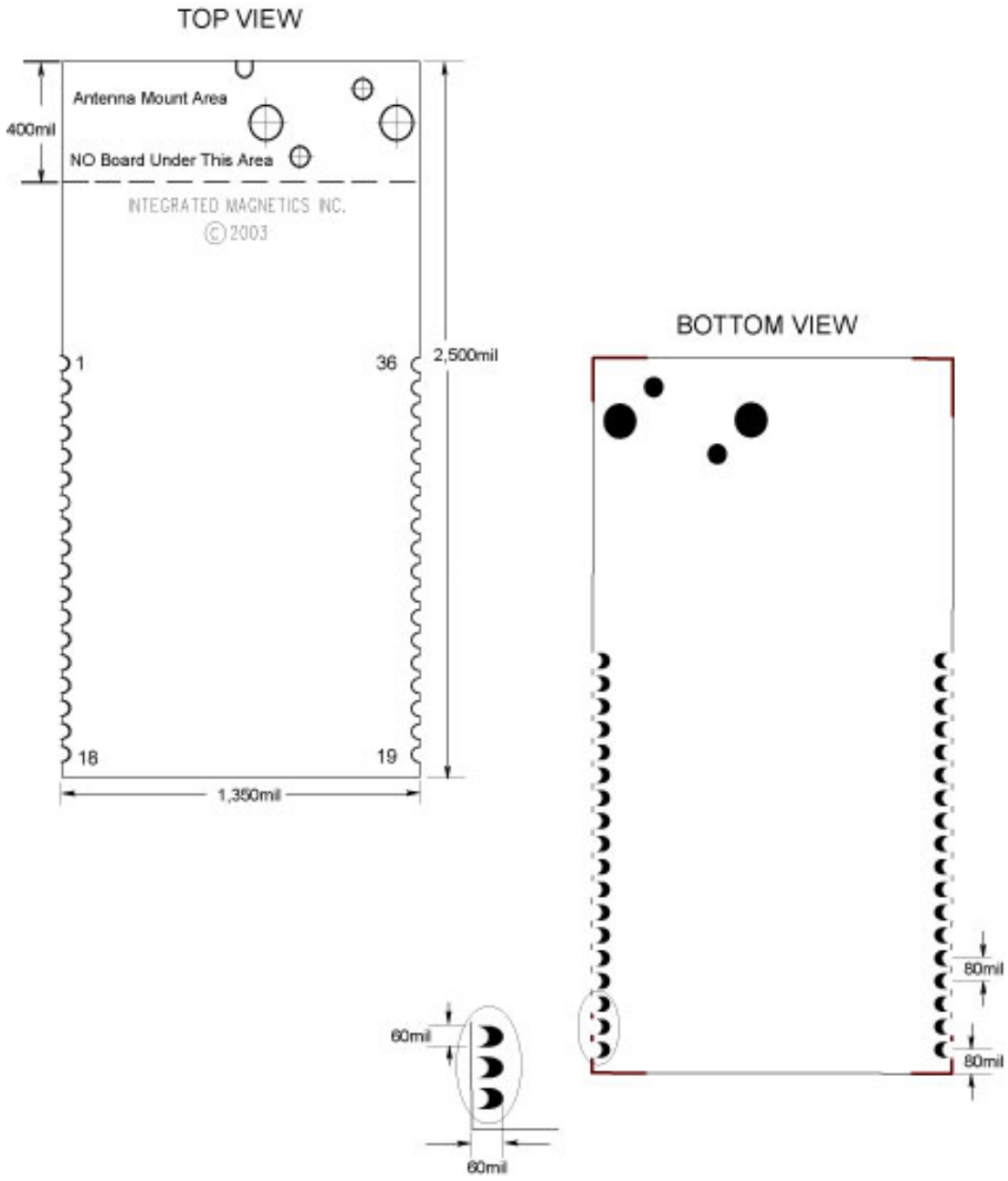


**FIGURE 4:** Board Dimension

## 4. Pin Definitions

| No | Name | Description |
|---|---|---|
| 1 | SPI_MISO | Synchronous serial interface output |
| 2 | SPI_MOSI | Synchronous serial interface input |
| 3 | SPI_CSB | Chip select for synchronous serial interface (active low) |
| 4 | SPI_CLK | Synchronous serial interface clock |
| 5 | GND | Signal Ground |
| 6 | VPA | Power Amplifier Power |
| 7 | PIO7 | Programmable input / output #7 |
| 8 | PIO6 | Programmable input / output #6 |
| 9 | AIO0 | Programmable input / output #0 |
| 10 | AIO1 | Programmable input / output #1 |
| 11 | PCM_CLK | Synchronous data clock |
| 12 | PCM_OUT | Synchronous data output |
| 13 | PCM_SYNC | Synchronous data SYNC |
| 14 | PCM_IN | Synchronous data input |
| 15 | U_RTS | UART request to send (active low) 5.0V |
| 16 | U_CTS | UART clear to send (active low) 5.0V |
| 17 | VCC | 5.0V Power |
| 18 | GND | Signal Ground |
| 19 | GND | Signal Ground |
| 20 | VCC | 5.0V Power |
| 21 | U_RX | UART data input (active high) 5.0V |
| 22 | U_TX | UART data output (active high) 5.0V |
| 23 | UART_RX | UART data input (active high) 3.3V |
| 24 | UART_TX | UART data output (active high) 3.3V |
| 25 | UART_CTS | UART clear to send (active low) 3.3V |
| 26 | UART_RTS | UART request to send (active low) 3.3V |
| 27 | USB_D+ | USB data + |
| 28 | USB_D- | USB data - |
| 29 | VDD | 3.3V power |
| 30 | RESET | Chip Reset (active high) |
| 31 | GND | Signal Ground |
| 32 | GND | Signal Ground |
| 33 | PIO2 | Programmable input / output #2 |
| 34 | PIO3 | Programmable input / output #3 |
| 35 | PIO4 | Programmable input / output #4 |
| 36 | PIO5 | Programmable input / output #5 |

**Table 1:** Pin Definition

## 5. Board Installation

The Class 1 Module is attached to a main board PCB by soldering its edge connector onto pads on the main board PCB. All traces and via holes in the area under the Class 1 module on the main board PCB should be masked so that no connectivity is made between the main board and the Class 1 Module except at the edge connection points. The following is module footprint for the main board PCB.

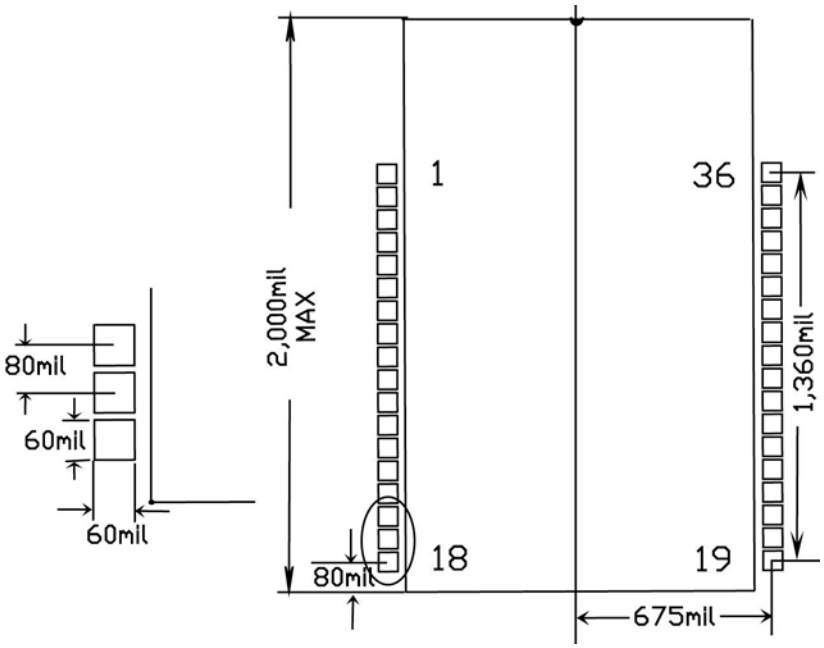


**FIGURE 5:** Model Footprint

## 6. Operational Description

The Class 1 Module (iMBTC1P) transmitter is a low powered module for integration into industrial applications. The transmitter is powered by a 3.3 VDC regulator that can accept inputs of up to 5VDC. It is designed to operate on a spread spectrum of frequencies from 2.402 GHz to 2.480 GHz.

When the Class 1 Module is integrated onto a main PCB design, its physical interface can support a standard host UART interface for data communications.


The controlling device uses a standard UART interface line with TX, RX, RTS, CTS, GNG control. When data is received at the radio, it encodes the data using a GFSK modulation. The radio baseband controls all radio functions from transmission. See the Block Diagram document for more information on the functional blocks of the module.

All tuning and verification are performed by the manufacture and there are no adjustments can be made by user.

## 5. Record of Change

| Date: | Revision | Reason of Change |
|---|---|---|
| 10/30/03 | A | Original Publication |
| 12/17/03 | B | Operational Description |
| 12/17/03 | C | “No special accessories is required” |
| 1/20/04 | D | FCC Declaration Change |
| | | |

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# iMAPP-0044

# January 2004

The material in this document is subject to change without notice.