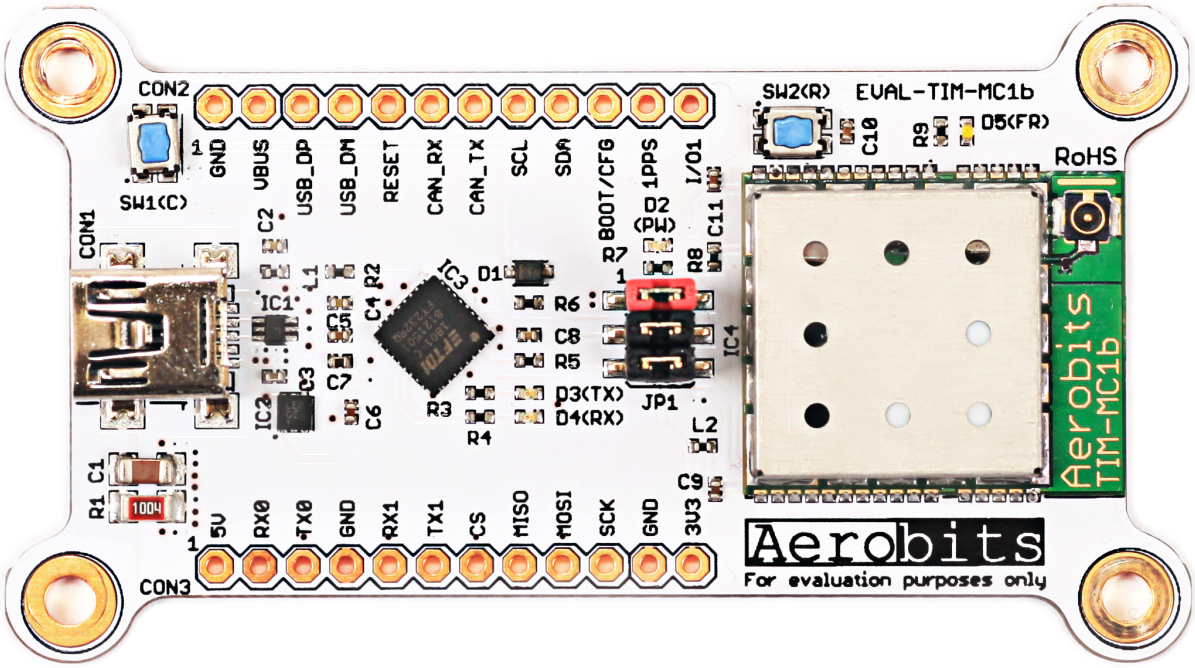
EVAL-TT-MC1 Evaluation board



Introduction

The evaluation kit provides a quick introduction to the TT-MC1 module. It is a high quality 1090MHz band receiver with an integrated ADS-B (Automatic Dependent Surveillance - Broadcast) decoder, conforming to MOPSs specified in TSO-C199. EVAL-TT-MC1 with the dedicated software allows the user to discover the module properties within a short time, paving the way towards quick prototyping. The software allows simple configuration of the module and data visualization in various modes, from raw data, through tabular and 3D views.

Features

- Quick start with the OEM TT-MC1 module
- Designed to be powered by USB or an 5V external supply
- Two LED for USB communication and one LED for internal functions
- Virtual COM port with simple firmware update capability
- Extension header for external power supply and communication
- ESD protection
- All necessary components in the box (antenna, USB cable, etc.)
- Dedicated software available

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1 Evaluation board

The EVAL-TT-MC1 is an easy-to-use development kit dedicated for quick evaluation and prototyping using the OEM TT-MC1 module. The kit includes all elements required to provide a quick introduction to the technology, including the evaluation board, a wideband antenna, an U.fl/SMA adapter and an USB cable. We recommend reading this technical documentation carefully. A significant supplement to this documentation is the datasheet number 180501.

1.1 Hardware and layout

The EVAL-TT-MC1 is designed around the OEM TT-MC1 module. It uses all I/Os, as well as custom I/Os (unused by the standard firmware). The top layer may be found in fig. 1.

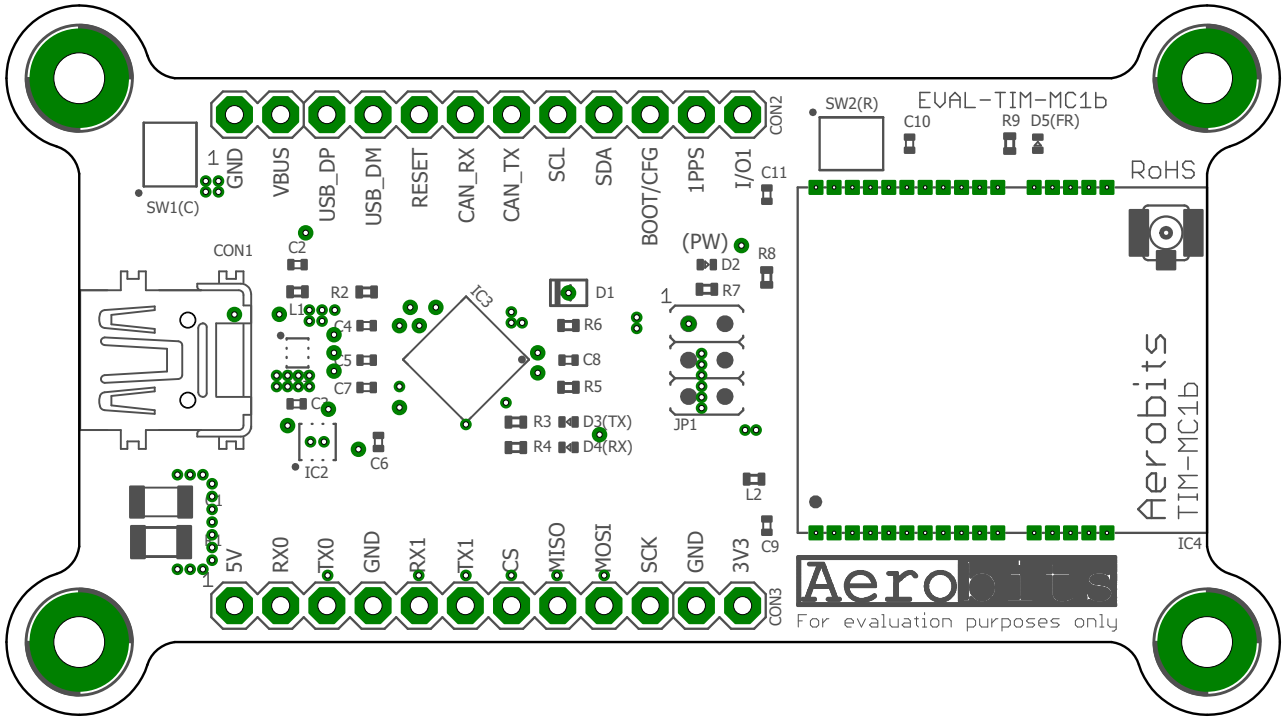

Figure 1: Top view of EVAL-TT-MC1.

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1.2 Most important components of EVAL-TT-MC1

RefNo	Description
CON1	Mini USB connector
CON2	Extensions connector I
CON3	Extensions connector II
JP1	Jumper group
SW1(C)	BOOT/CONFIG switch
SW2(R)	RESET switch
D2	POWER LED
D3	UART TX LED
D4	UART RX LED
D5	I/O1 LED
IC4	TT-MC1 module

Table 1: Most important components.

1.3 Connectors and jumpers

CON2	No.	Marking	Function
	1	GND	Ground
	2	VUSB	Power supply of USB
	3	USB_DP	USB: D+ line
	4	USB_DM	USB: D- line
	5	RESET	Reset signal
	6	CAN_RX	CAN: receive line
	7	CAN_TX	CAN: transmit line
	8	SCL	I2C: clock line
	9	SDA	I2C: data line
	10	BOOT/CFG	BOOT/CONFIG signal
	11	1PPS	GNSS: 1 pulse per second input (time reference)
	12	I/O1	Input / Output 1 (used for D5 LED)

Table 2: Connector CON2 description.

CON3	No.	Marking	Function
	1	5V	5V Power supply
	2	RX0	UART0 – Receive line
	3	TX0	UART0 – Transmit line
	4	GND	Ground
	5	RX1	UART1 – Receive line
	6	TX1	UART1 – Transmit line
	7	CS	SPI – Chip select
	8	MISO	SPI – MISO signal
	9	MOSI	SPI – MOSI signal
	10	SCK	SPI – Serial clock
	11	GND	Ground
	12	3V3	3.3V Power supply

Table 3: Connector CON3 description.

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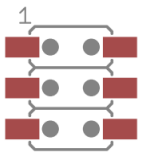
JP1	No.	State	Function
	1	Closed	3.3V power supply provided by on-board regulator (default)
		Open	3.3V power supply provided by CON3 (PIN12)
	2	Closed	UART TX via USB (default)
		Open	UART TX via CON2 (PIN3)
	3	Closed	UART RX via USB (default)
		Open	UART RX via CON2 (PIN2)

Table 4: Jumper group JP1 description.

1.4 LED indicators

LED	Color	Description
D2	Green	ON: Power supply
D3	Red	ON: TT-MC1 transmitting data
D4	Yellow	ON: TT-MC1 receiving data
D5	White	BOOTLOADER state: continuous on CONFIGURATION state: blinking at 5Hz RUN state: 1 blink for every MODE-S frame received

1.5 Layout

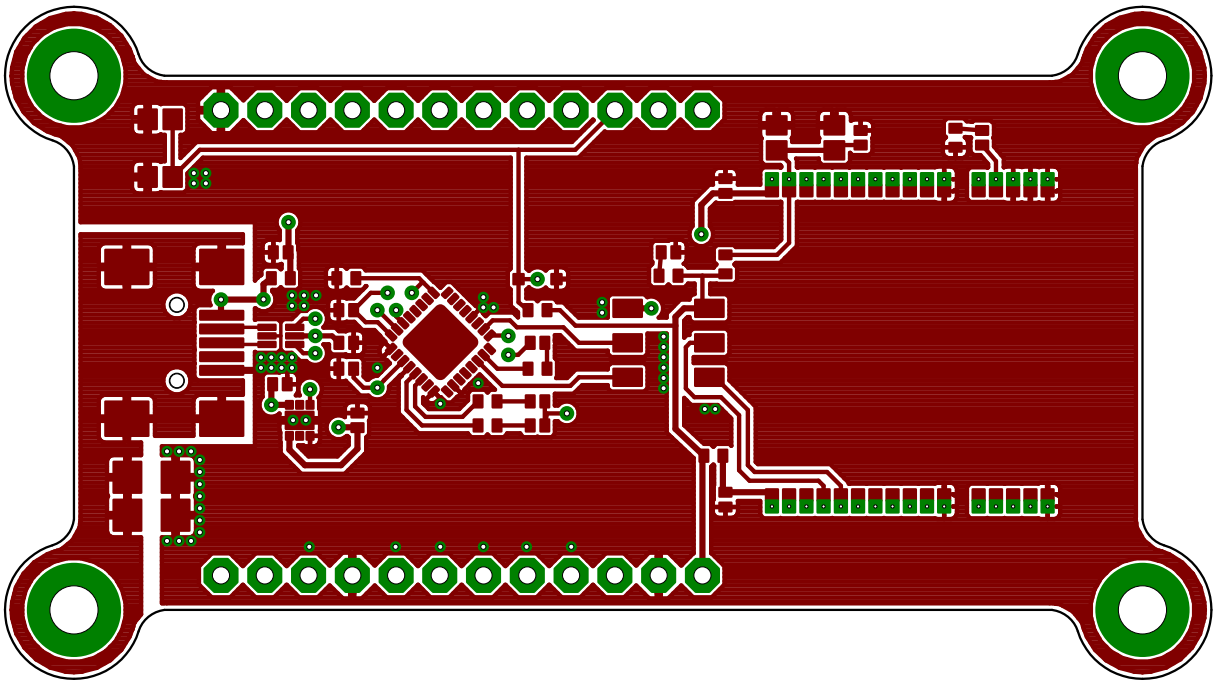


Figure 2: Top copper layer of EVAL-TT-MC1

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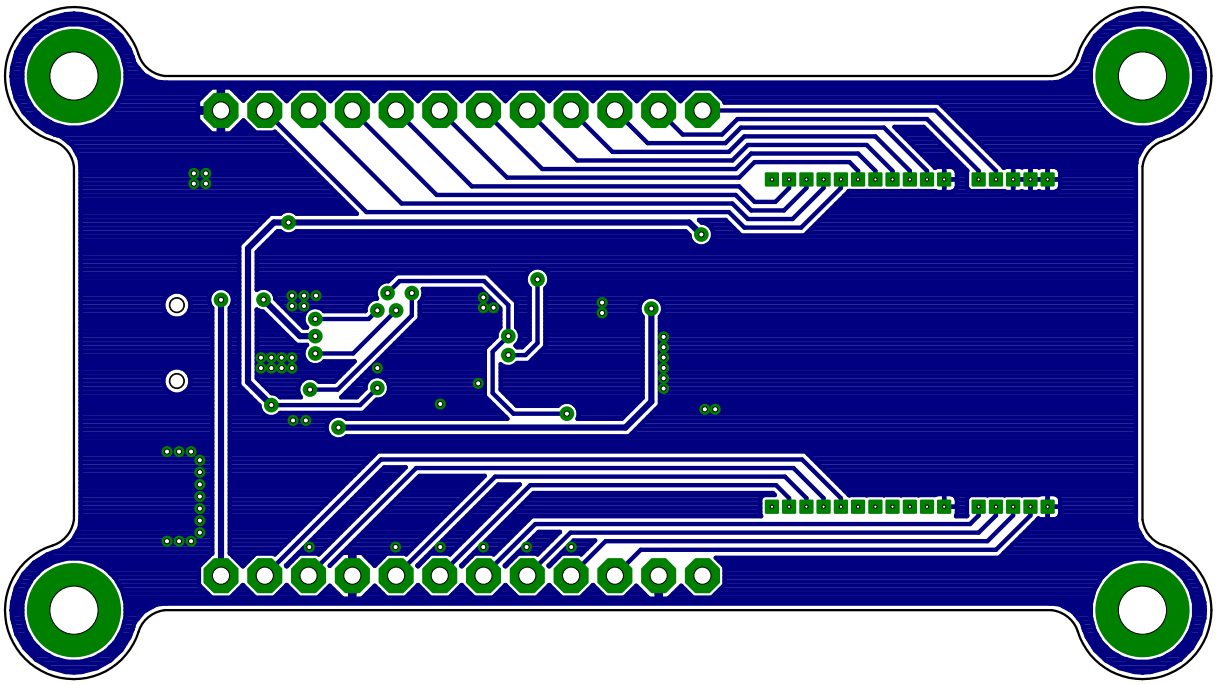

Figure 3: Bottom copper layer of EVAL-TT-MC1

1.6 Mechanical drawing

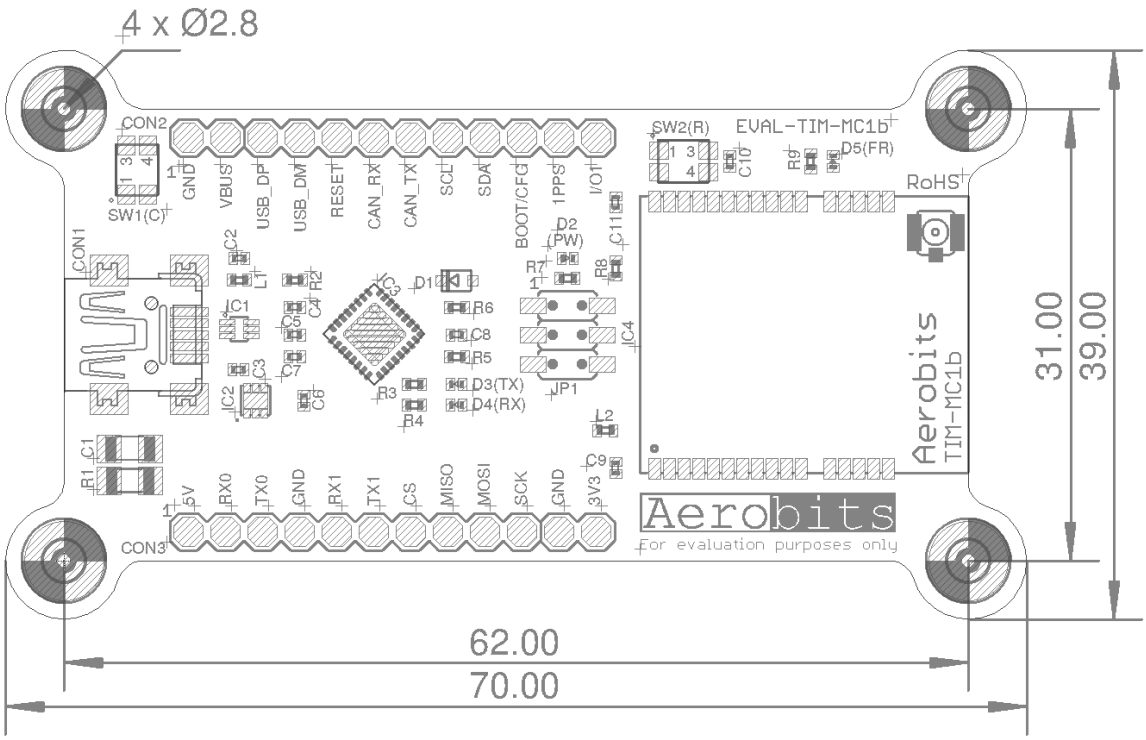

Figure 4: Dimensions of EVAL-TT-MC1

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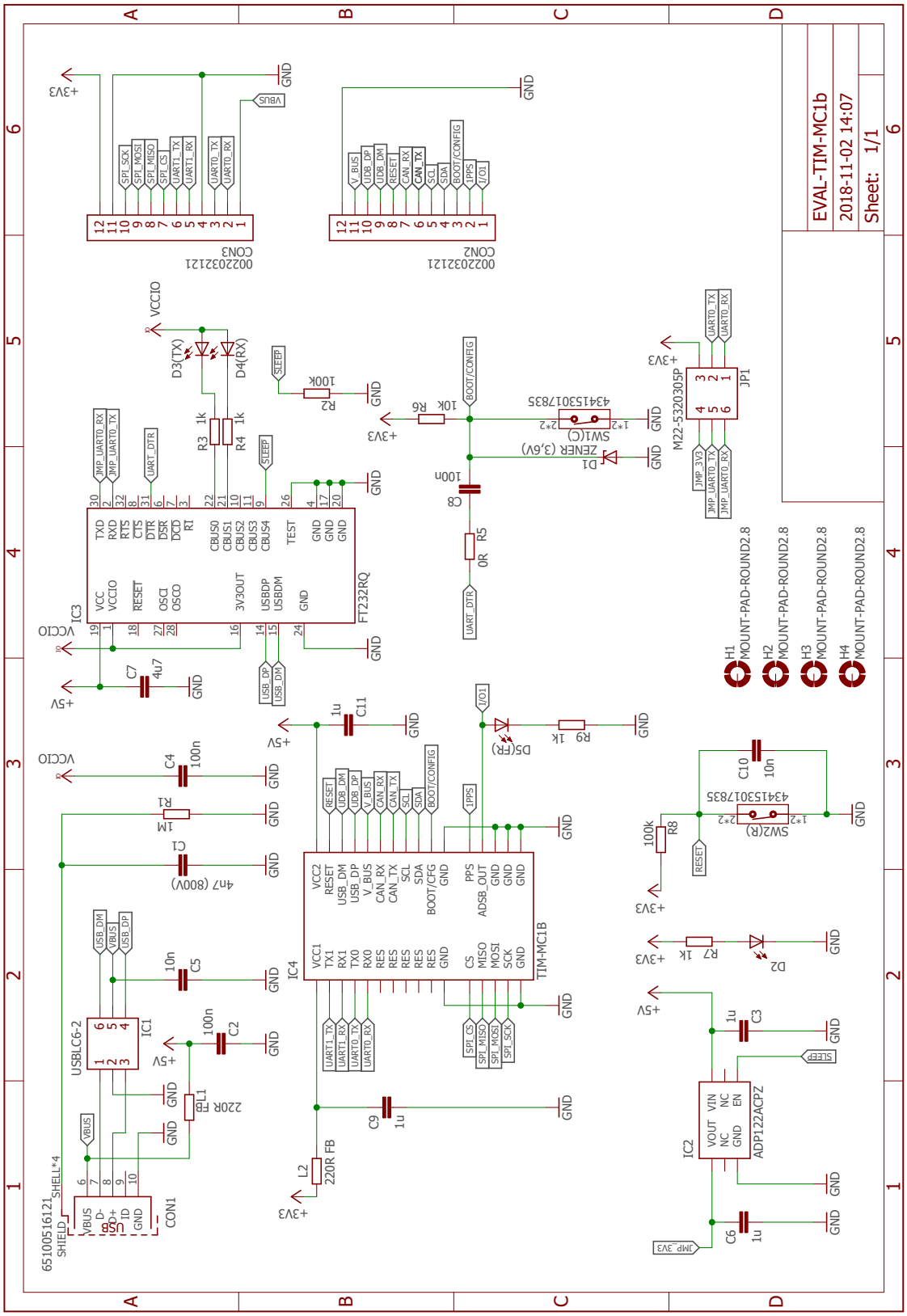
2 Schematic



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3 Related documents

Document	Description
180501	TT-MC1 User Manual

Table 5: Related documents.

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4 Revision history

Date	Revision	Changes
13-July-18	1	Initial release.

Table 6: Document revision history.

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