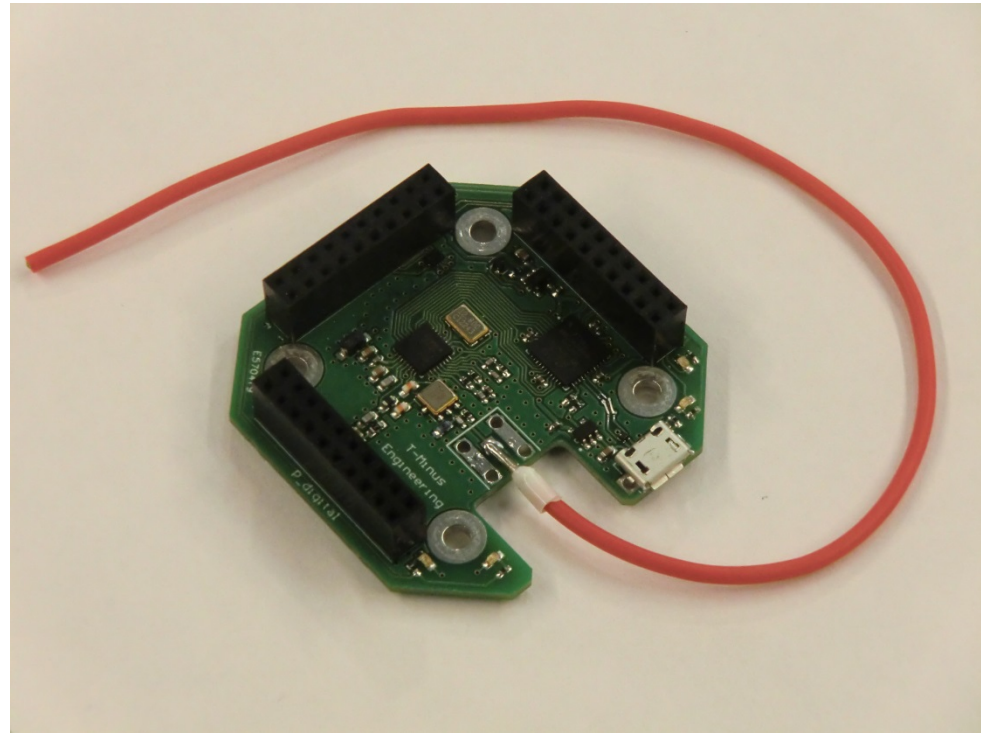


The steps towards a basic CanSat

Going through all this is necessary.

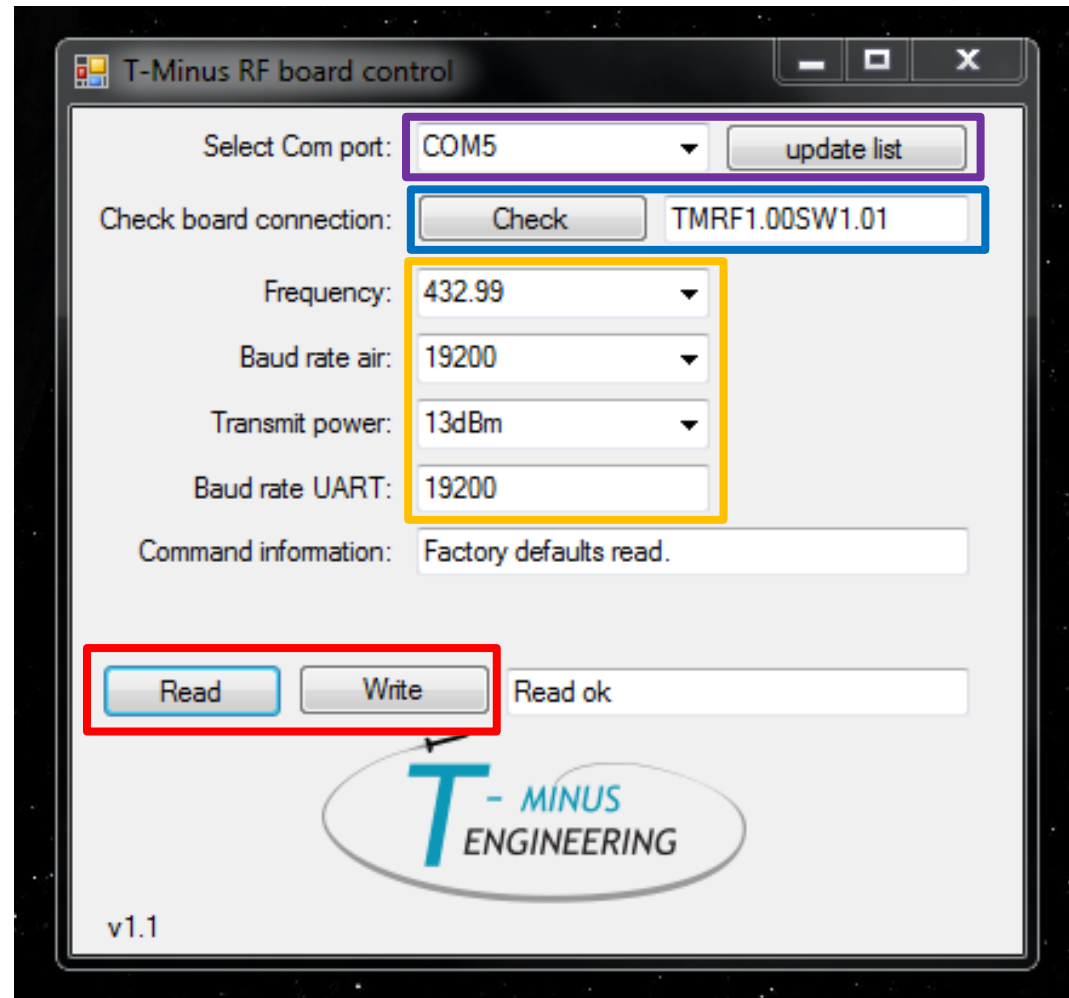
Transceivers

- T-Minus transceiver is part of the kit
 - Frequency 433 – 435 MHz
 - Modulation FSK
 - Power 20mW (13dBm)
 - About 10mW actual transmitted power
- Other are allowed if they:
 - Comply with the law
 - Do not interfere with other CanSat teams



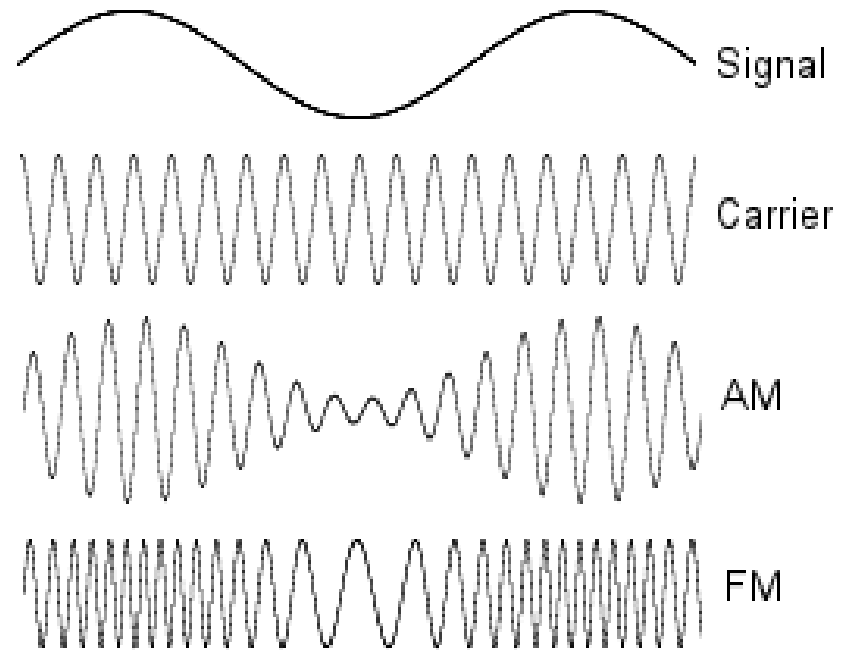
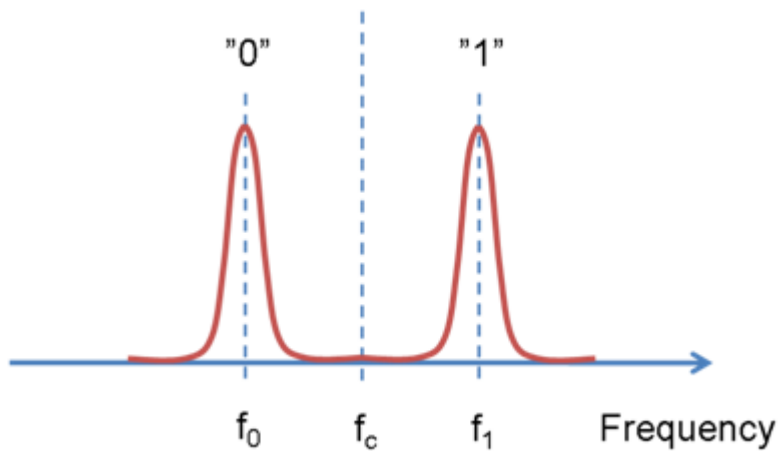
Practical session

- Selecting correct comport (and button to update comport list)
- Check button to confirm board is connected
- Obtaining or changing settings on the board
- Transceiver settings



Transceivers

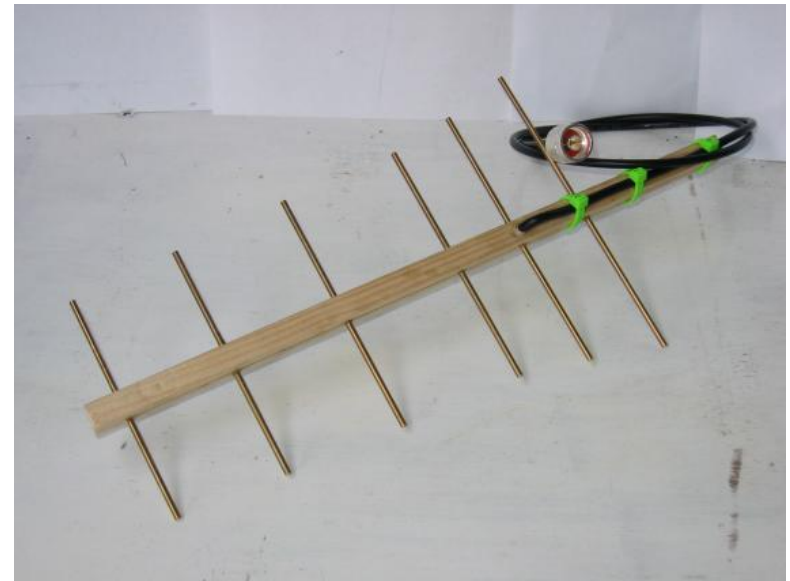
- Frequency shift keying



Transceivers

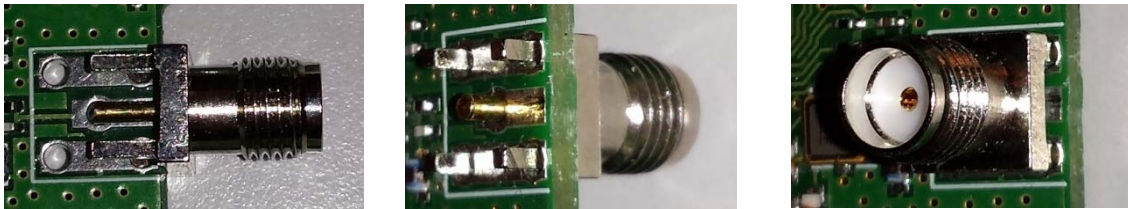
- Increasing receiver sensitivity
- Build your own antenna
- Yagi antenna is advised
 - As it is easy and fun to build
- Operating @ $\pm 434\text{MHz}$

- Google for “Yagi antenna”
- <http://makeprojects.com/Project/Homemade+Yagi+Antenna/623/1>

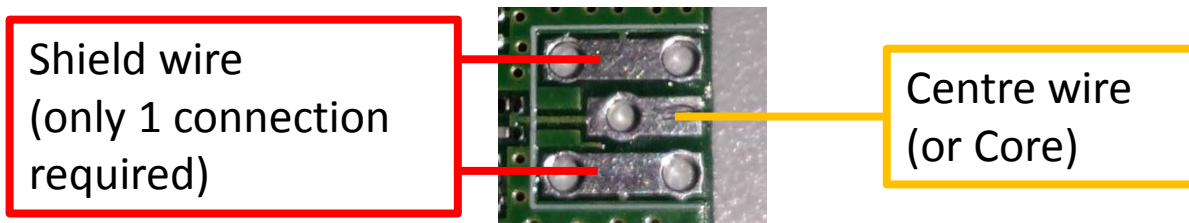


Transceivers

- Two antenna connection options
 - 1. using the supplied SMA connector
 - When using a coaxial cable with an SMA connector



- 2. directly connecting the coaxial cable to the PCB.
 - Connect BOTH inner wire and shield.
 - Keep unshielded part of cable short.



Communication

Using UART

- Setup
 - `Serial.begin(19200);`
 - `Serial1.begin(19200);`
- Use
 - `Serial.print("Hello world");`
 - `Serial.println();`
 - `Serial1.println("Hello world");`

Practical session

Using communications transceiver

- Program
- Disconnect
- Connect receiver
- Open serial monitor
- Connect battery to uC board