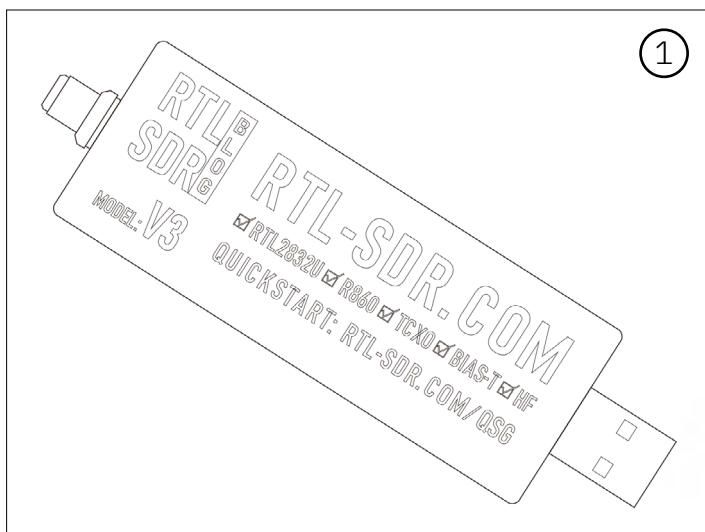
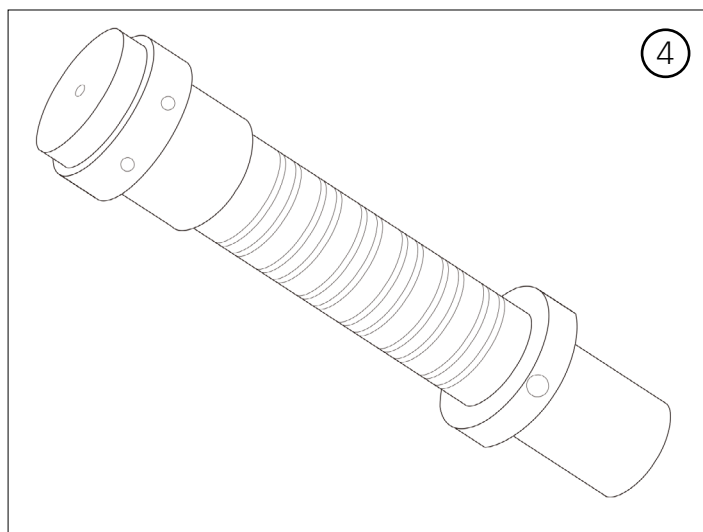


**MANUAL
FOR
HACKING**

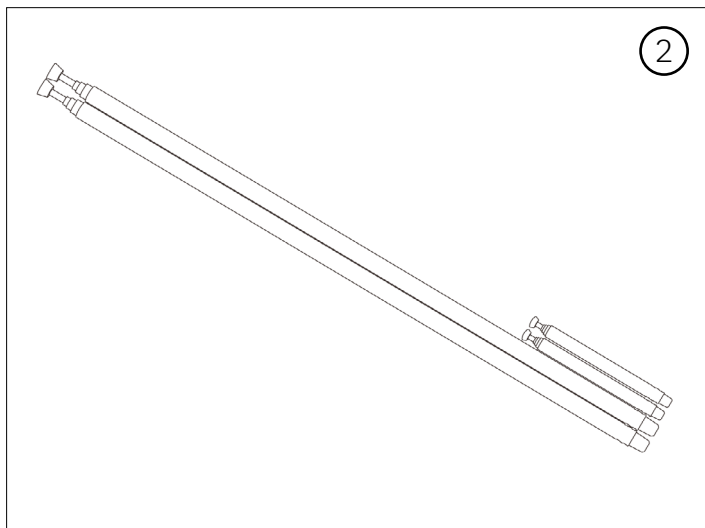
I- Equipment and Software Needed



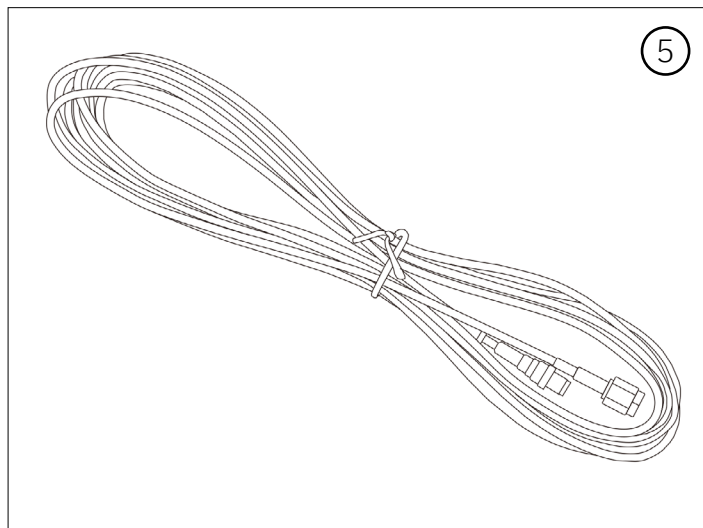
1x RTL-SDR Blog V3 R860 RTL2832U 1PPM TCXO HF Bias Tee SMA Dongle



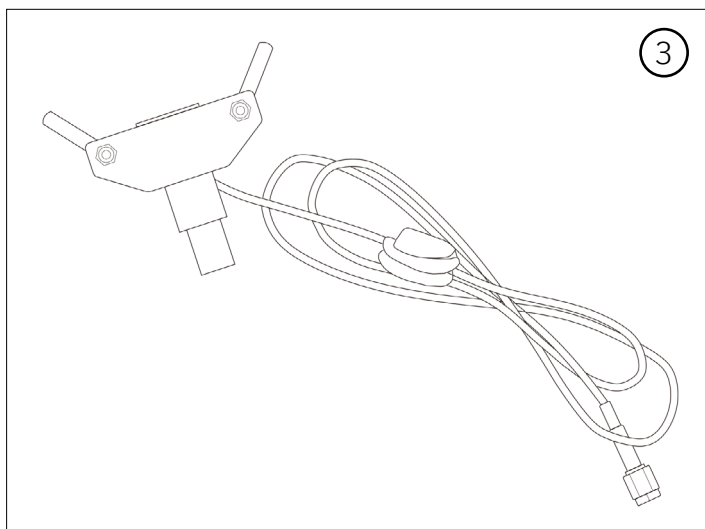
1x Multipurpose Dipole Antenna Kit - Handheld Part



1x Multipurpose Dipole Antenna Kit - Retractable Antenna Set



SDR and Antenna Connection Cables



1x Multipurpose Dipole Antenna Kit - Antenna Connection Components



A computer with Windows, macOS, or Linux**

I- Equipment and Software Needed



SDR# (SDRSharp) or another SDR software

SDR# (SDRSharp) is a software-defined radio (SDR) application for Windows that allows users to turn their SDR hardware into a versatile receiver for listening to a wide range of radio signals.

Download Link : <https://airspy.com/download/>



Satdump

This tool helps decode satellite sound recording files, such as those recorded with SDR# or SDR++. Set the pipeline to NOAA APT as used during the recording. Specify the location of the recording file and the output location. Choose the input level to be the same as the Baseband or Audio_wav that you set during the initial recording.

Download Link : <https://www.satdump.org/>



Audacity

Audacity is a versatile, open-source audio editing software. It allows users to record, edit, and produce audio files on multiple platforms including Windows, macOS, and Linux.

Download Link : <https://www.audacityteam.org/download/>

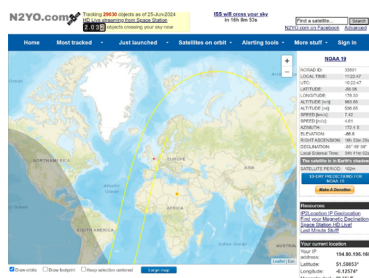
Satellite Tracking



Gpredict

Gpredict is a real-time satellite tracking and orbit prediction software that is highly regarded among amateur radio operators and satellite enthusiasts. It is open-source and runs on various platforms, including Windows, Linux, and Mac OS.

Download Link : <https://oz9aec.dk/gpredict/>



Visit the N2YO website at n2yo.com.

N2YO.com is an online platform that provides real-time data on satellite positions, tracking, and information relevant to both amateur satellite watchers and professionals. The site is particularly useful for tracking Earth-orbiting satellites and offers features like visual and orbital predictions, passes over specific locations, and more.

Notes for Equipment and Software Needed

SDR# (SDRSharp) or Another SDR Software

Usage Tips: To get started, ensure your SDR hardware is properly connected and recognized by your computer. Use the "Select Device" menu to choose your SDR hardware and configure settings such as sample rate and gain for optimal performance.

Additional Resources: For more advanced usage, you can explore the wide range of plugins available for SDR# that can enhance functionality, such as digital mode decoders and additional signal analysis tools.

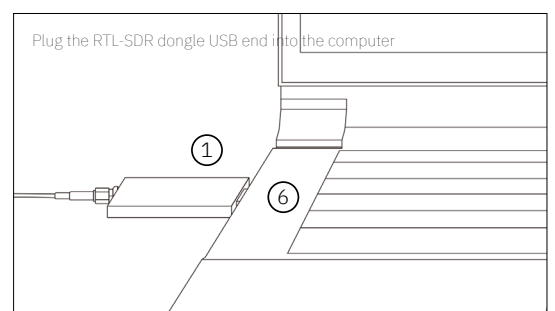
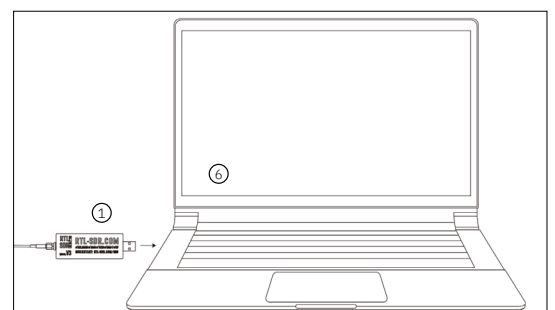
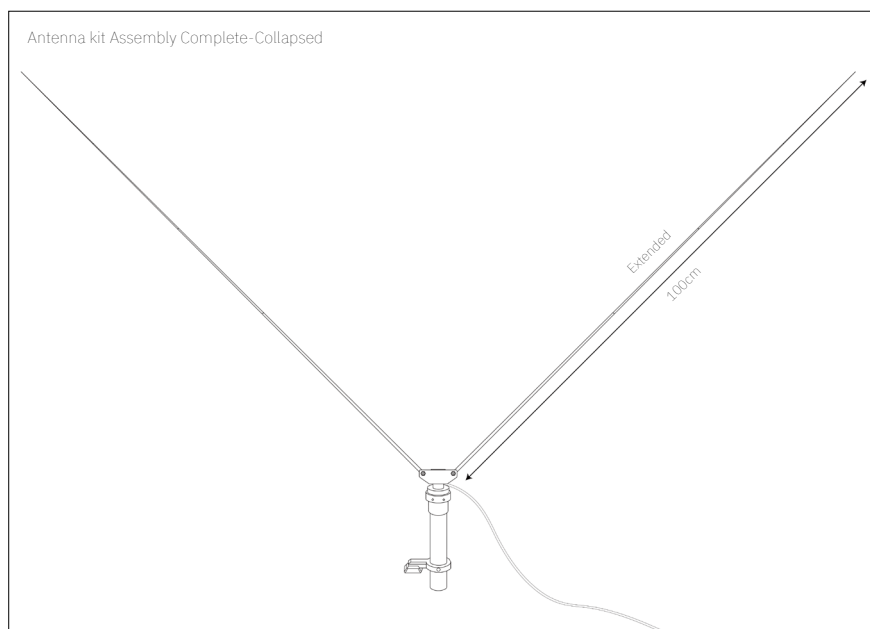
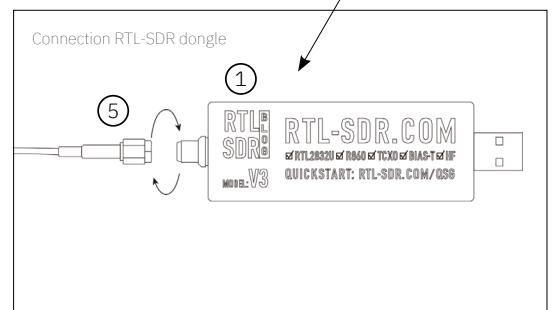
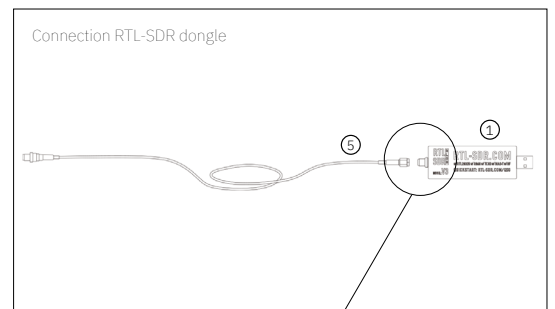
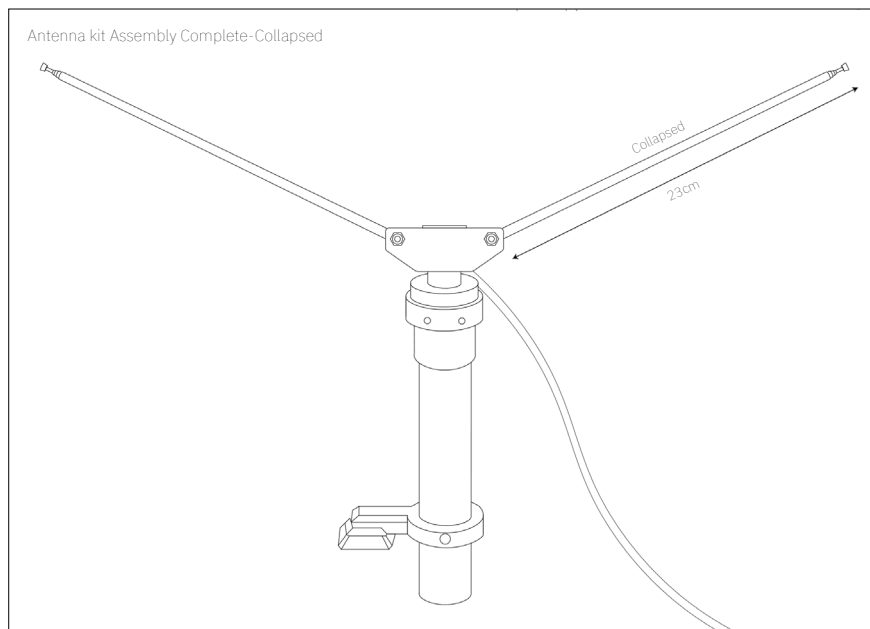
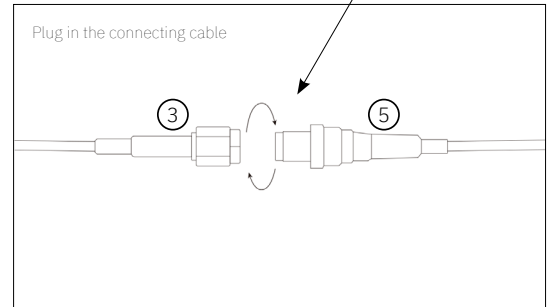
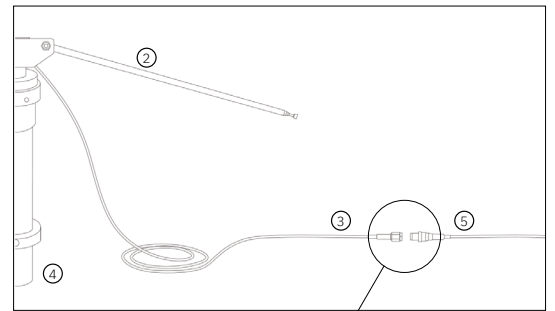
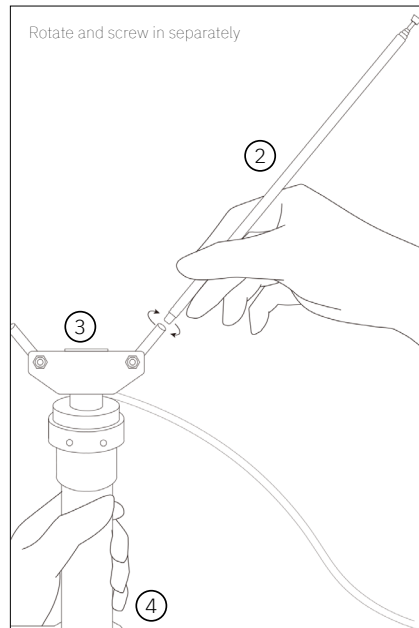
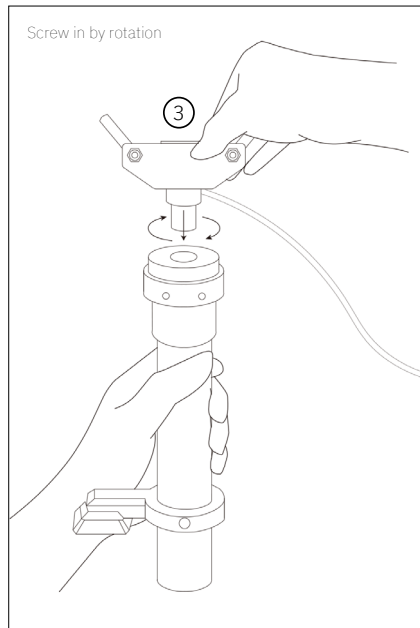
Satdump

Usage Tips: After installing Satdump, familiarize yourself with the command-line interface to efficiently decode satellite sound recordings. You can automate the process by scripting the recording and decoding steps.

Additional Information: Satdump supports various satellite signal formats and can be configured to decode different types of data. Check the official documentation for specific use cases and examples.

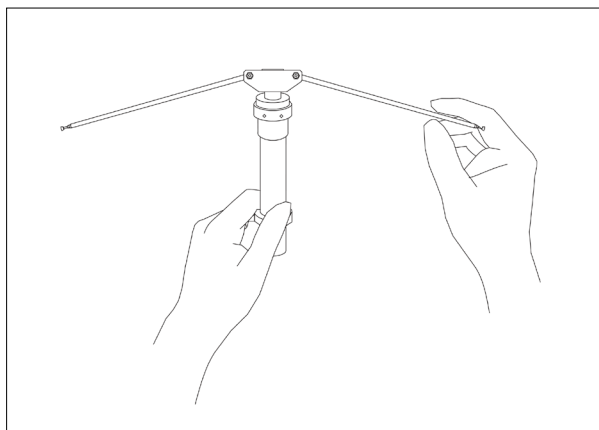
II- Step-by-Step Instructions

Setting Up the Antenna



II- Step-by-Step Instructions

Position the Antenna

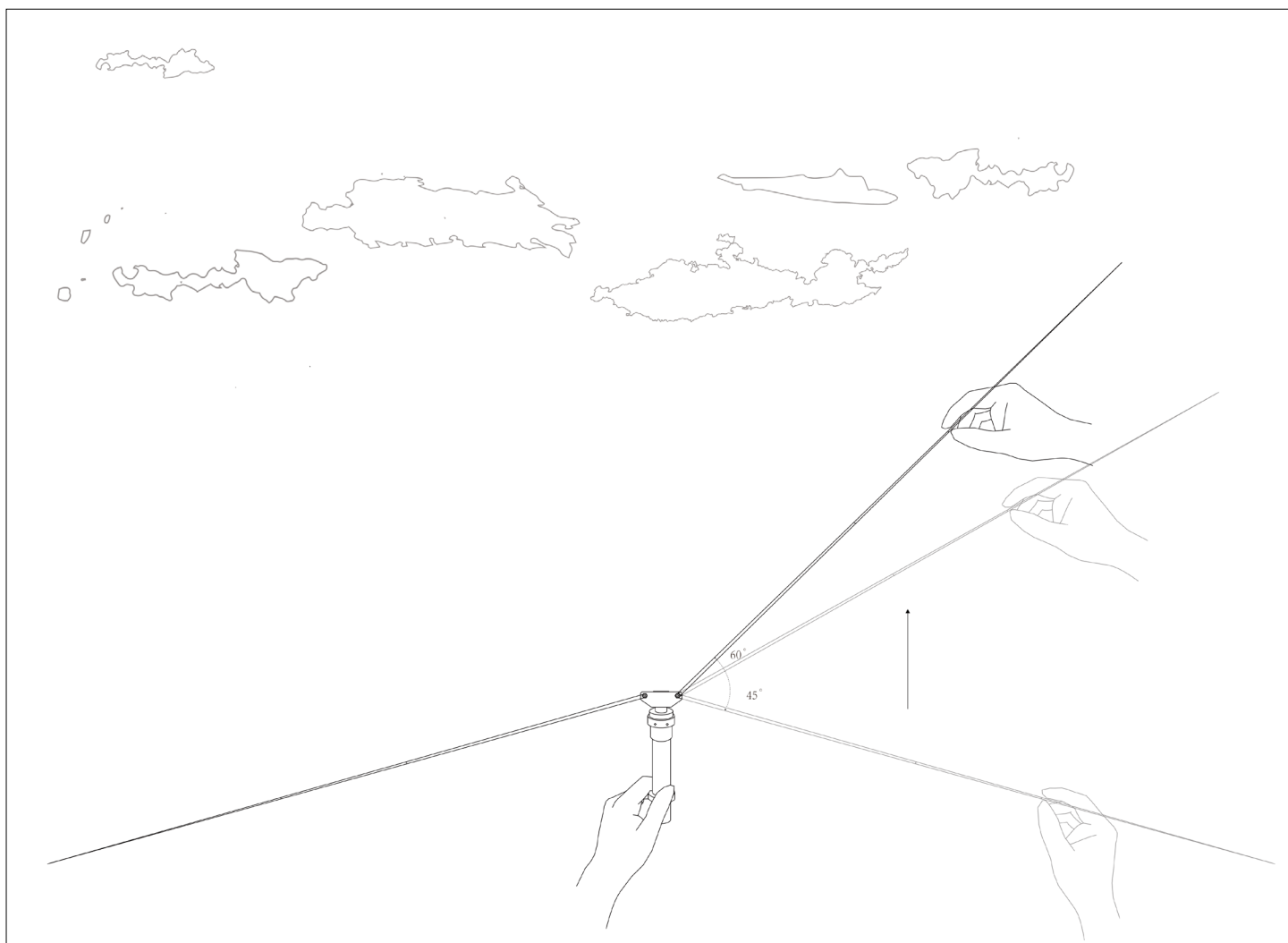
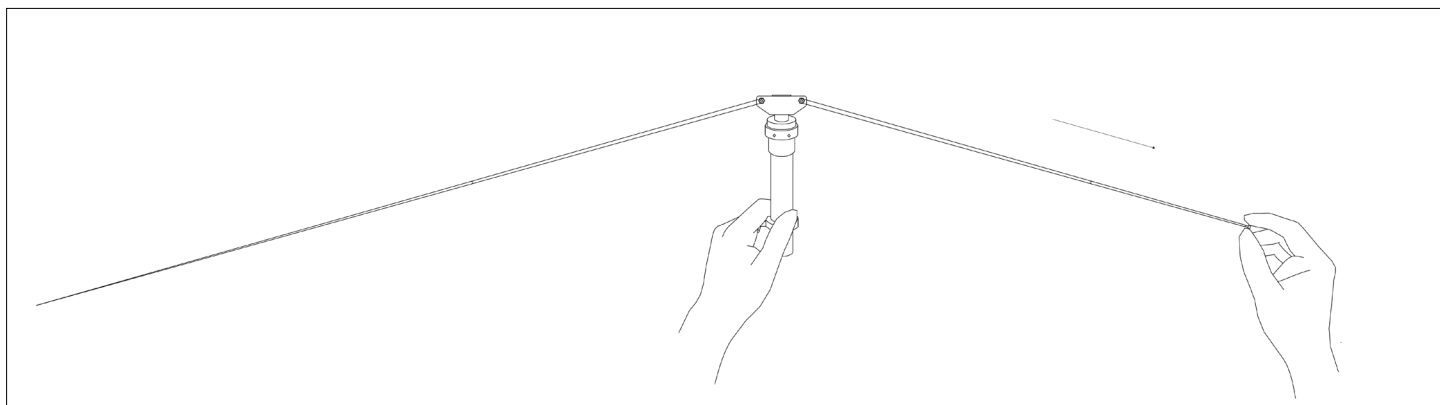


Expand antenna to maximum length

Place the antenna outdoors or near a window with a clear view of the sky

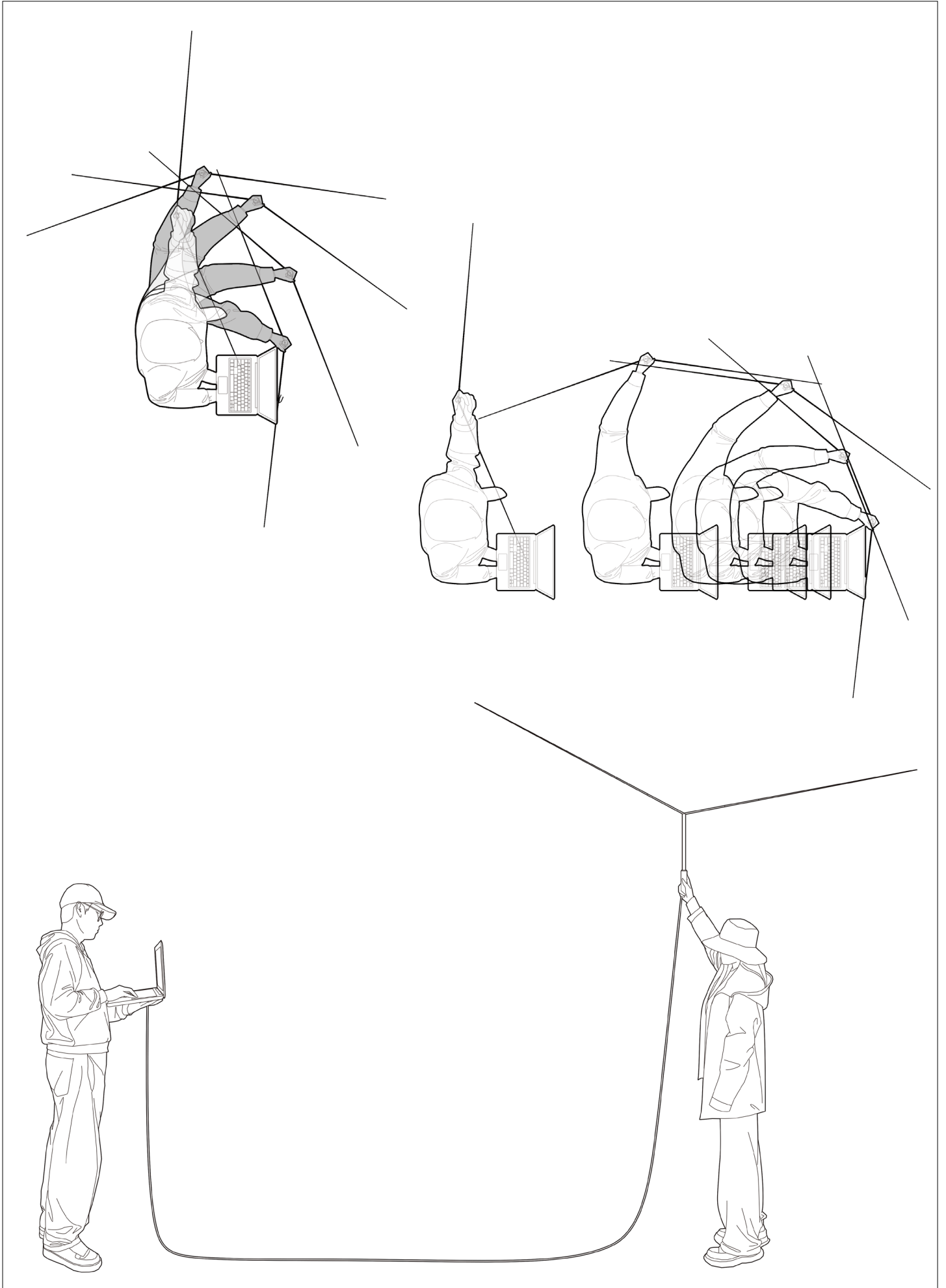
Orient the antenna vertically for optimal reception

Change the angle of the antenna during use to get the best signal, but 90 degrees is the best angle.



II- Step-by-Step Instructions

Position the Antenna



III- Configuring Software

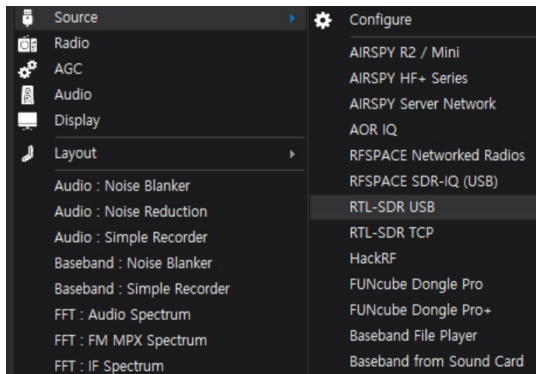
Installing the Software



SDR# (SDRSharp) or another SDR software

1. Open SDR#:

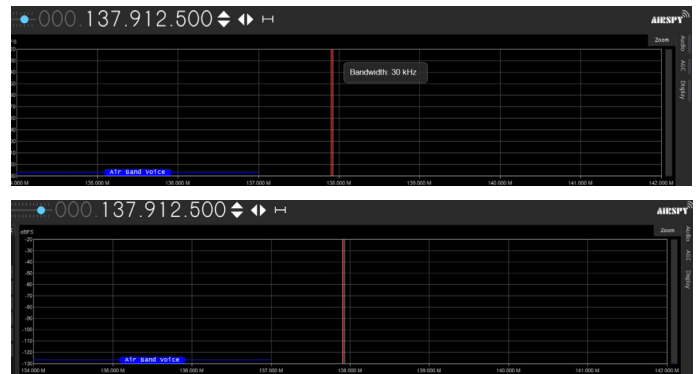
Launch SDR# and select the RTL-SDR USB device from the source dropdown.



2. Configure the Frequency:

Set the center frequency to one of the NOAA satellite frequencies:

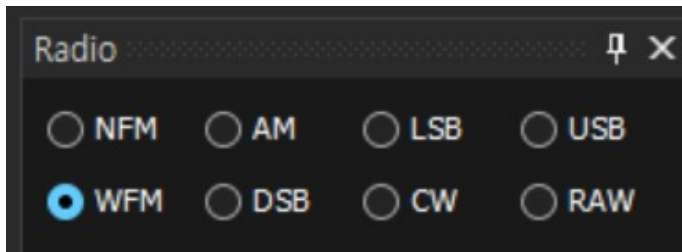
- NOAA 15: 137.620 MHz
- NOAA 18: 137.9125 MHz
- NOAA 19: 137.100 MHz



3. Set the Mode:

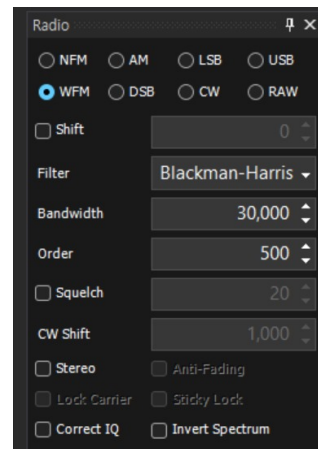
Select the appropriate mode, such as FM, AM, USB, or LSB. Most satellite signals use FM mode.

WFM or NFM



4. Configure the Bandwidth:

Adjust the signal bandwidth to capture the desired signal. Typically, a range of 15 kHz to 30 kHz is used.



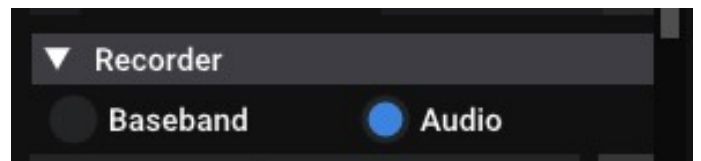
5. Start the SDR:

Click the play button to start receiving the signal.



6. Route the Audio:

Set the audio output to the Virtual Audio Cable.



III- Configuring Software

Installing the Software



Audacity - Resampling APT Signal

1. Loading the APT Signal:

Import the APT Signal: Go to `File` -> `Import` -> `Audio...`, then select the APT signal file (usually in WAV format) you want to resample.

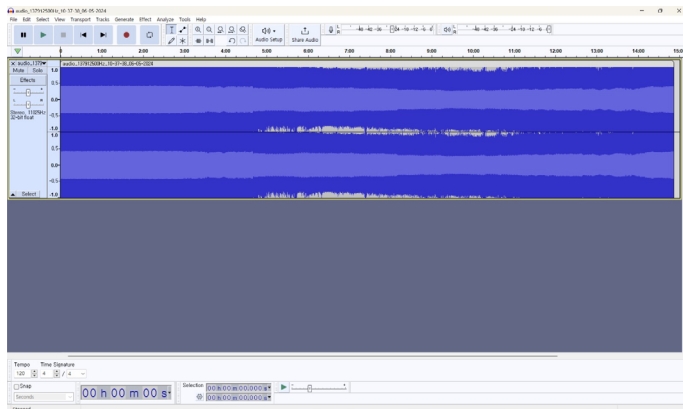
2. Checking the Original Sample Rate:

View Sample Rate: At the bottom-left corner of the Audacity window, check the current sample rate of the imported audio file. This is typically set by the recording settings of your SDR software.

3. Resampling the APT Signal:

At the bottom-left of the window, change the "Project Rate (Hz)" to the desired new sample rate. The recorded sample rate of 44.1 KHz is too fast and needs to be converted to 11.025 KHz.

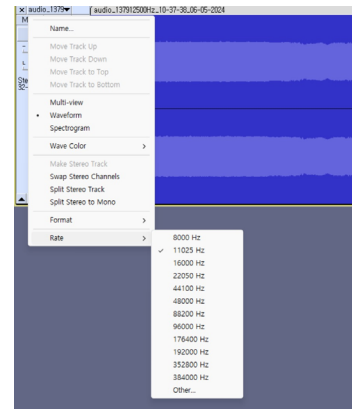
Resample the Track: Go to `Tracks` -> `Resample...` and enter the new sample rate. Click `OK` to apply the resampling.



4. Exporting the Resampled Signal

Export the Audio: After resampling, export the audio to the desired format. Go to `File` -> `Export` -> `Export as WAV...` or select another preferred format.

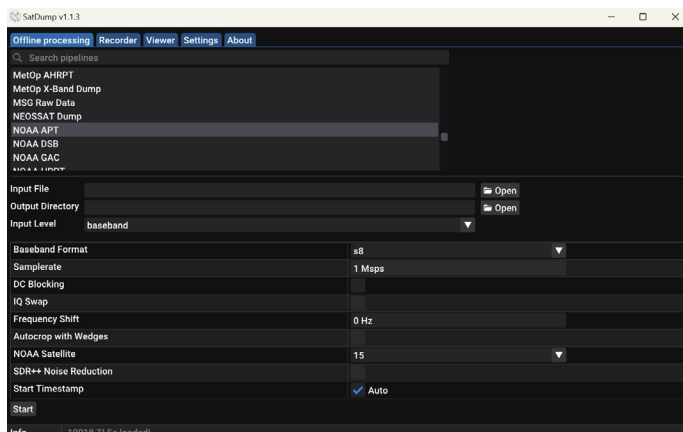
Save the File**: Choose the location and filename for your resampled APT signal and click `Save`.



SatDump - Decoding Program

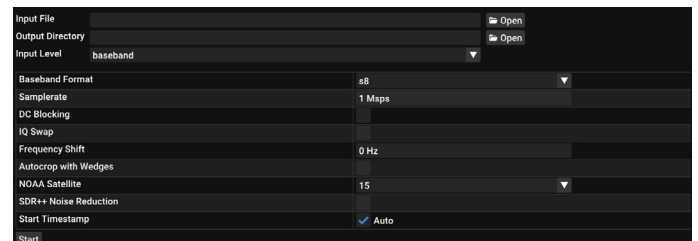
1. Initial Configuration

Set the pipeline to NOAA APT as used during the recording. Specify the location of the recording file and the output location.



2. Decoding Process

Choose the input level to be the same as the Baseband or Audio_wav that you set during the initial recording.



III- Configuring Software

Installing the Software



Satdump - Decoding Program

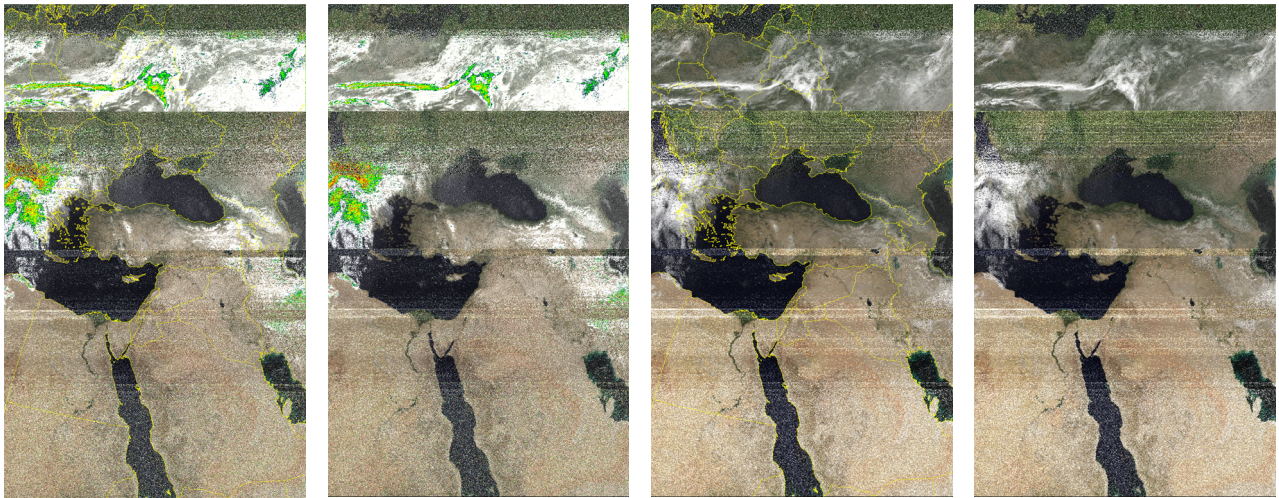
3. Track the Satellite:

Use online tracking tool to determine when the NOAA satellite will pass overhead.

Ensure you start recording a few minutes before the pass and stop a few minutes after the pass. The interceptable duration lasts 15 minutes.

4. Interpreting the Output

Output Formats: The decoded data can be saved in various formats depending on the satellite and signal type. For NOAA APT, the output might be image files showing the received weather images.



IV- Tips

- Antenna Position: Experiment with the antenna placement for the best signal reception.
- Clear Skies: Ensure that there are minimal obstructions (buildings, trees) between the antenna and the sky.
- Software Configuration: Fine-tune the settings in SDR# for optimal performance.

ATTENTION : DO NOT USE THE ANTENNA IN INCLEMENT WEATHER!