Quick Start Guide

Model: AAT/ AAT Mini/ AAT Max

Sunsight RF Panel Antenna Alignment System

Issue 2

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The Quick Start Guide and RF Panel Alignment instructions are available for download from:
https://www.sunsight.com/support/aat-xx-support/

Getting Started

The typical use of the **AAT Mini** is for aligning RF cellular panel antennas. It provides higher azimuth accuracy than comparable competing alignment products.

The **AAT** is a higher accuracy device for applications where more accuracy is required or desired.

The **AAT Max** is the most accurate device produced by Sunsight and arguably the most accurate alignment tool of its type available anywhere.

For the purpose of this document, the term "AAT" will imply AAT, AAT Mini, and AAT Max.

- **The AAT is a battery-operated tool that measures azimuth, tilt, roll, height, latitude, and longitude.**
- **The AAT uses GNSS satellites to determine azimuth**
- **The AAT kit has all the essential items to perform most antenna alignment tasks.**
- **The AAT is operated from a handheld device using WiFi or USB-C cable.** For this document, "handheld device" means smartphone, tablet, or laptop.
- <u>**An Android-based handheld device is the highly preferred method to operate the AAT**</u>. The Android devices allow the most functionality from the AAT, including advanced features, when using the Sunsight Android app. The most important feature of the Sunsight Android app is the ability to add pictures to the reports. The Android device can be connected to the AAT using WiFi or USB-C cable. Other devices can be used to operate the AAT but will not be able to access the advanced features.

The remainder of this Quick Start Guide relates to using the AAT with an Android-based handheld device and the Sunsight Android app. Refer to the full user manual for instructions on using the USB-C cable or other handheld device types. There are multiple advanced methods of connection that can be used for unique situations.

The Sunsight Android app is available on the Sunsight website support page:
https://www.sunsight.com/support/aat-support

The AAT can measure and record alignment results in two ways:

1) **Snapshot** mode allows the user to mount the AAT and capture the actual measurements without pre-programming alignment targets. If desired, alignment target values can be added during the snapshot process by entering the target values before capturing the real-time alignment data. The resulting reports will contain 1) the actual measurements at the time of data capture, 2) the date/time of the snapshot, and 3) any target data entered. Other various fields are included in the report.

2) **Target** mode allows the user to pre-program the AAT with target data. Pre-programming

allows a user to enter all the target data, which can be quite extensive, before performing the alignment in the field. A scenario for pre-programming target data would be to program the AAT with a week's worth of target alignment data. Once in the field, the pre-programmed targets can be quickly accessed for use at the time of alignment. This method minimizes field time and minimizes potential hazardous environment time. The resulting reports show both target and captured data.

Reporting

Reports can be generated for a single alignment record (i.e., a single antenna) or a full site record (i.e., where several alignment records create one report). Reports can include pictures if desired. Photos are embedded with alignment results. The AAT can create PDF, CSV, and Google Earth files.

Reports can be viewed and downloaded using the handheld device. Reports can be emailed from the handheld device if a cellular data connection is available.

Using the AAT

1. Secure the RF panel side mount.

It is extremely important that the AAT has a good view of the sky for the best GNSS operation.

- Position the RF panel side mount as **high as possible** on the antenna to be aligned.
- Loop the side mount strap around the antenna
- Feed the strap end into the ratchet buckle and pull slack from the strap.
- Use the ratchet buckle to tighten the strap. 2 – 3 clicks are usually sufficient to secure the mount. ***DO NOT OVERTIGHTEN!***
- Ensure the mount sits square on the back and side of the antenna. Adjust the mount position as necessary to obtain correct contact.

2. Secure the AAT to mount

- Secure the AAT to the mount by positioning the upper groove of the grip plate on the back of the AAT unit onto the upper lip of the mounting rail.
- Rotate the AAT down and onto the mounting rail. The user should feel AAT "click" into position.
- Tighten both thumbscrews securely

- Examine the AAT in the mount to ensure it is seated correctly
- Use the included tool lanyard to secure the AAT and AAT mount safely. Attach the lanyard to the AAT handle, then through the loop in the mounting strap, and then to a stable anchoring point on the structure being aligned.
- Verify that the two black antennas on the top of the AAT have a good view of the sky.

3. *Power on and connect to the AAT using WiFi*

- Press the power button on the front of the AAT, and an LED will light
- After a few seconds, the green LINK LED and the blue azimuth LED will flash. The AAT is ready to connect to the handheld device
- Launch the Sunsight app on the Android-based handheld device.
- If asked, allow camera usage.
- Select "Connect to an AAT" to view available WiFi networks on the handheld device.
- Select the AAT WiFi network from the WiFi network list. The AAT WiFi network is identified by AAT plus the AAT serial number (i.e., AAT 501xxxxx)
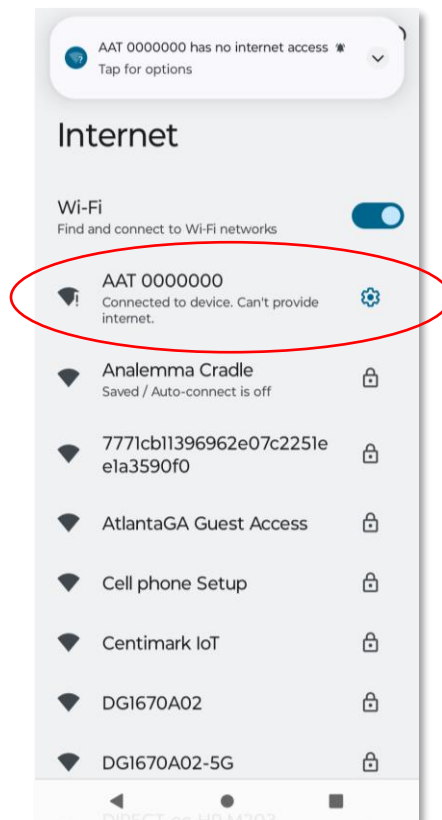
- If asked, opt to allow the device to stay connected without the internet.
- If asked, allow automatic connection to the AAT WiFi network

- Navigate back to the Sunsight app (typically the back arrow) and proceed with connection as directed until the AAT main menu is displayed, as shown below.
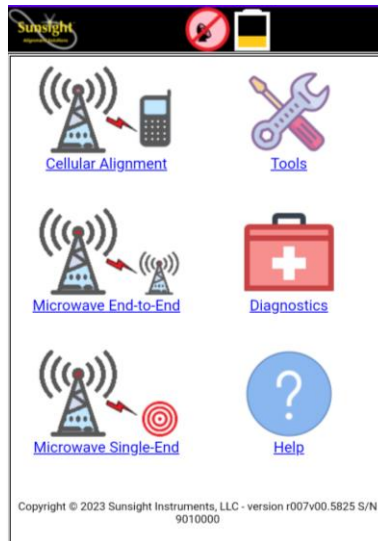
NOTE: If the WiFi device is taken out of range of the AAT WiFi broadcast, the device may automatically attempt to connect to another WiFi network or the cellular network. This feature may be disabled by the user if desired. See device owner's manual for more information.

4. Capturing Alignment Data Using Snapshot Mode

- From the **Main menu,** choose **Cellular Alignment,** then **Snapshot / Measure**

- **Select Orientation**
  Orientation determines how the AAT will report measurements. Select the orientation that matches the mounted AAT when looking out from behind the antenna toward the direction of antenna radiation. The AAT orientation can be front/back/right/left,

depending on how the AAT is mounted.
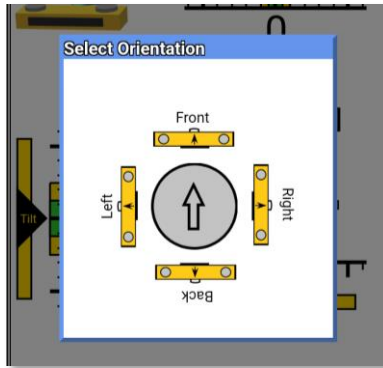

- **View real-time alignment data.**
  The live **Actual** data is displayed in the right column and alongside or under the gauges.

- o Choose to view or hide the visual gauges at the top of the page by pressing the gauge icon at the top of the **Actual** column.
- o Pressing the individual name of a field with hide that field (i.e., Azimuth, Downtilt, etc.) To add them back, press the **refresh** symbol at the top of the **Actual** column.

- Choose to add **Target** data in the left column if desired or take a snapshot without target data.
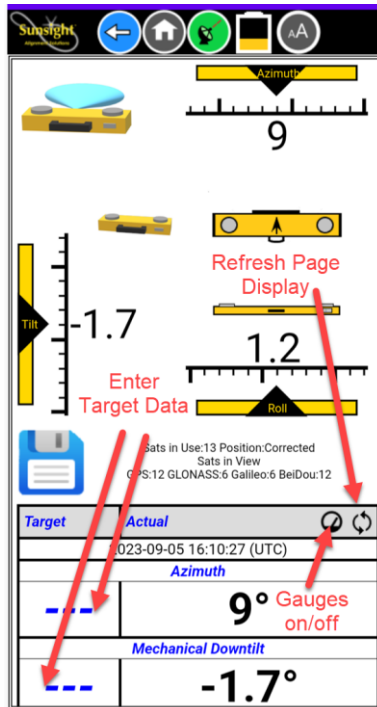
- **Perform Snapshot**
- Select the **Save** (floppy disk) icon to capture the alignment results. After the timer countdown, captured information will be displayed.
- Choose to **Accept** or **Reject** the Snapshot data to continue. Rejecting the data will return to the measuring screen.
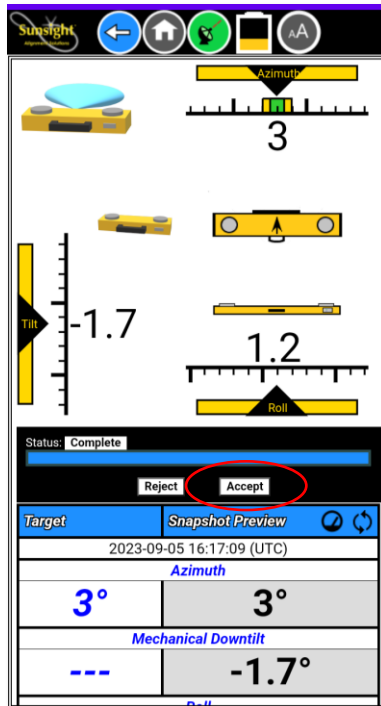
- Once the snapshot data is accepted, Enter the Site Name, Sector, and Antenna Position to continue the save process. All three fields are required.
- Additional fields can be added (optional) to the snapshot data prior to saving.
- Finally, as part of the save process, the user may
  - Add photo(s)
  - Determine data to be embedded in photo(s)
- Once a snapshot is saved, it can be accessed via the **Reports** from the Cellular Alignment page.

5. Using pre-programmed "Target" mode

- From the Cellular Alignment menu, select Add Target.
- Input desired target data provided (e.g., RFDS for the job site)
- Input any desired optional information (antenna S/N, notes, etc.)

* Required fields and target values may not be changed once a profile has been created

** Optional fields may be modified or added after capture

- Select the **Save** icon at the bottom of the page to save the data.
- The AAT will validate and store the information input by the user. The site information will be displayed on-screen.
- To add additional antennas to a job site, select the **Copy** icon, changing Sector, Antenna

Position, and Target data as necessary. In this way, the user can complete all data input for an entire site in a fast and efficient way before climbing.

6. Capture alignment data

- Select **Cellular Alignment** from the main menu and then select **Existing Targets.**
A list of target profiles will be displayed
- Expand the appropriate **Site Name** by selecting the +
- Select the **Measure** icon next to the correct antenna position stored under the Site
- Select **Orientation**
- Choose Left/Right/Back/Front based on the AAT's mounted position.
- **View real-time alignment data.**
The Target data is displayed in the left column, and live **Actual** data is displayed in the right column.
    - Choose to view or hide the visual gauges at the top of the page by pressing the gauge icon at the top of the **Actual** column.
    - Pressing the individual name of a field with hide that field (i.e., Azimuth, Downtilt, etc..) To add them back, press the **refresh** symbol at the top of the **Actual** column.
- Select the **Save** (floppy disk) icon to capture the alignment results. After the timer countdown, captured information will be displayed.
- Choose to **Accept** or **Reject** the Snapshot data to continue. Rejecting the data will return to the measuring screen.
- Finally, as part of the save process, the user may
    - Add photo(s)
    - Determine data to be embedded in photo(s)
- Once a snapshot is saved, it can be accessed via the **Reports** from the Cellular Alignment page.

7. Generate reports

Note: Reports may be generated and emailed directly from the field prior to departure from the job site* if cellular data is available on the handheld device

The AAT can generate full site reports or individual snapshot reports. All reports generated are downloaded onto the wireless device.

- Power on and connect to the AAT. The Reports page lists sites with saved snapshots only. This is helpful when locating saved sites when it is time to generate PDF reports or viewing Google Earth files.
- Locate the Site or individual snapshot for the report to be generated.
- Click the desired report icon (PDF, CSV, Google Earth, etc.) to create a report.

- Choose the reporting options and **Save**. The report will be generated and downloaded to the handheld device.

8. Tools

General Settings

- **Website Colors**
  Choose the website color scheme you prefer to make the website easier to read
- **Height Units**

Choose which units of measure to use for AGL and MSL height
- **WiFi Mode**
  Choose WiFi method for connecting handheld device to the AAT.
  You may also choose to disable the WiFi module and use a USB cable to connect to the AAT if desired.
- **WiFi Channel**
  If you are having trouble communicating with the AAT (high RF interference environment), move the AAT to an area where WiFi connection is possible, connect to the AAT and change the WiFi channel to a number different from the current value. Save the selection, restart the AAT and attempt to reconnect. If WiFi connection is not possible due to local RF interference, the user can use the USB-C wired connection. Most RF interference issues are due to poor PIM performance near the AAT.
- **Latitude and Longitude Display**
  Choose whether you would like latitude and longitude to be displayed in decimal or degrees/minutes/seconds format
- **Owner Information**
  Enter your company's information to be printed on the top right of every report

File Management

File Management is only used for resetting the AAT to defaults (website colors, Lat/long display, Height units, font size, Owner Information, etc. It should be rarely used.

Tilt Roll Calibration

Tilt and Roll calibration affects only the tilt and roll values. The calibration is similar to calibrating a digital level.

Follow the steps on the display to calibrate the tilt/roll sensor. The updated calibration date will be included in all future data snapshots.

Firmware Update

The AAT uses a .bin file to update the internal AAT's firmware. This is separate from the Sunsight app, which is installed on the handheld device.

The firmware version currently installed on your AAT is displayed at the bottom of the page in the Copyright line. Example: (r007v00.XXXX) Where XXXX represents the firmware version. You can check Sunsight.com under the support tab to see if there is a newer version of the firmware and app.

UPDATING THE FIRWMARE ON THE AAT IS A TWO-STEP PROCESS. RECONNECTION TO THE AT FROM THE HANDHELD DEVICE MAY BE REQUIRED.

- Check the Sunsight support website (https://www.sunsight.com/support/aat-xx-support/) to determine if a new firmware load is available.
- If newer firmware is available, download the new files to the handheld device that will be used to connect to the AAT
- Connect to the AAT using the handheld device
- Navigate to the Firmware Update page
- Select Choose File at the bottom of the page and navigate to the new firmware file that was downloaded.
- Follow the on-screen instructions to complete the update.

When updating the AAT, the corresponding Sunsight Android app ending in (.apk) should be downloaded from the Sunsight website and installed on the Android device.

9. Diagnostics

Displays GPS diagnostic information. Any indicator of Poor generally requires repositioning of the AAT for GNSS signal optimization.

Questions? We have answers!

Live technical support is available Monday—Friday, 9:00 AM to 5:30 PM Eastern Time.

After-hours calls and emails will receive a response as quickly as possible, often the same day but no later than the following business day.

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Sunsight Technical Support
www.sunsight.com
support@sunsight.com
+1-321-244-9443 x2

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