

Webinar: 3Z RF Vision Antenna

Thank you for joining us. We will begin shortly

NOTE: This presentation includes Q&A. We will be taking questions during the presentation with answers at the end using the questions section of your control panel.



Agenda

- Welcome and Introductions
 - Lindsay Welch
- TRS-RenTelco: Test & Measurement Solutions
 - Michael Andreoli, Regional Sales Director
- VIAVI: 3Z RF Vision
 - Steve Gale/TJ Ford
- TRS-RenTelco: Equipment & Special Promotions
 - Michael Andreoli, Regional Sales Director
- Q&A – Joint TRS and VIAVI

We provide comprehensive Test & Measurement solutions delivering equipment-as-a-service.

Plan, acquire, and efficiently utilize instruments to maximize return on investment.

- End-to-end fulfillment from our Dallas, TX headquarters
- 5,000+ configurable models available, valued at over \$500MM
- In-House Financing and flexible procurement programs to Rent, Lease, or Buy
- State-of-the-Art 20,000 sq ft Calibration Lab on site
- Same-Day-Shipping with Next Day Delivery Available



A proud member of the
McGrath Family of Businesses



Why Do Customers Choose TRS-RenTelco?



Customer Service Excellence

Talk with a **Live Person** when you call

24/7/365 Technical Support

Late-Order processing

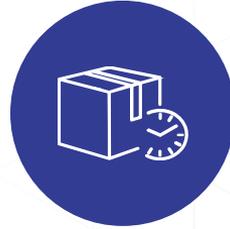


Comprehensive Solutions

Customized **In-house Financing**

Deep and wide **Inventory**

Equipment ships **Ready To Use**



Fulfillment Accuracy & Speed

Same-day Shipping

80% of Calibrations Performed In-house

99.72% Customer-Scored Equipment Quality Ranking



Reliable Expertise

Strategic singular focus on the rental market

Top-tier rental partner to all major manufacturers

Financially Secure publicly traded company

VIAVI - Building on Innovation

ACTERNA created by merger of WWG and TTC, combining the world's 2nd and 3rd largest T&M companies

ACTERNA acquired

AGILENT NETWORK SOLUTIONS DIVISION: adds mobile LTE test

GENCOMM: adds wireless base station test

DYAPTIVE SYSTEMS: adds wireless capacity test

TRENDIUM: adds mobile assurance solutions for 4G/LTE networks

ARIESO: adds location aware software solutions for 2G/3G/4G

RPC PHOTONICS: light-shaping optics

COBHAM: adds AvComm and Wireless businesses

NORDIASOFT: provides test instruments for software-defined radio market

3Z TELECOM: adds antenna alignment

EXPANDIUM: expands portfolio for cloud-native virtualization

1948

2000 to 2005

2010 to 2013

2018 to 2023



1923

2006 to 2009

2014 to 2017

TEST-UM: enter home networking test market

INNOCOR: expands portfolio for NEMS

CASABYTE: enter wireless service assurance

CIRCADIANT: adds stress test

WESTOVER SCIENTIFIC: adds fiber inspection and cleaning

FINISAR NETWORK TOOLS: adds Storage Network Test

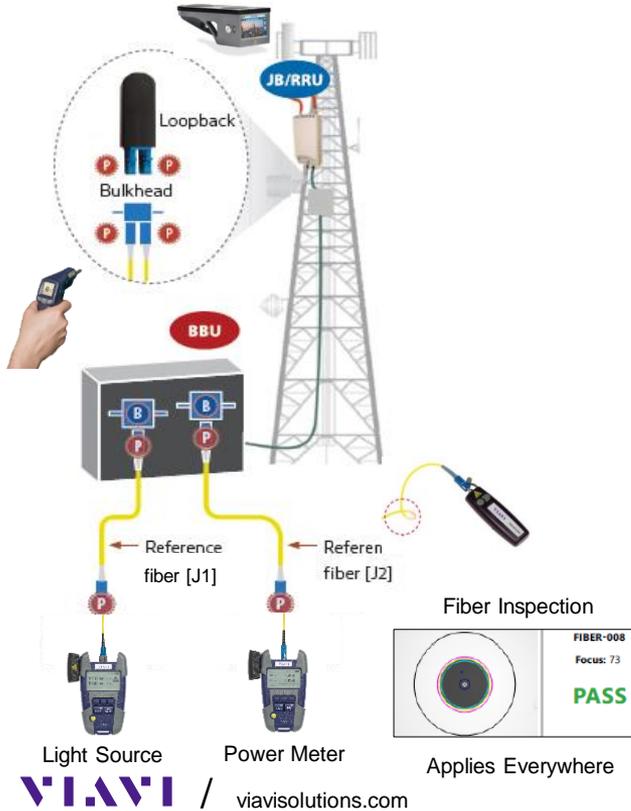
NETWORK INSTRUMENTS: adds optimization for enterprise networks

TRILITHIC: adds home leakage detection and emergency alert systems

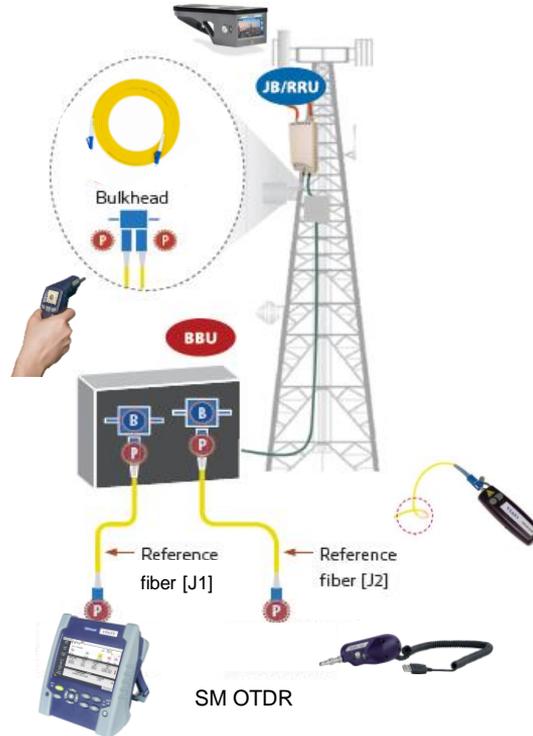


Cell Site Construction Applications – Fiber, Coax and Antenna

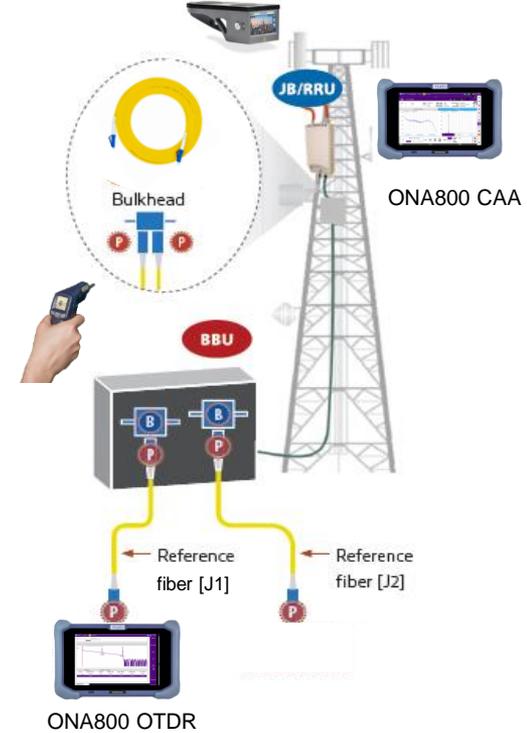
Basic Fiber test: OMK-WLS-PRO + RF Vision



Fiber Troubleshooting: Fiber Inspection, OTDR, Antenna Alignment



All in One: Fiber Inspection, CAA, OTDR, Antenna Alignment



The RF Vision Value Prop

The RF Vision ensures accurate alignment of antennas as per a site's RF Design intent during site installation and maintenance activities



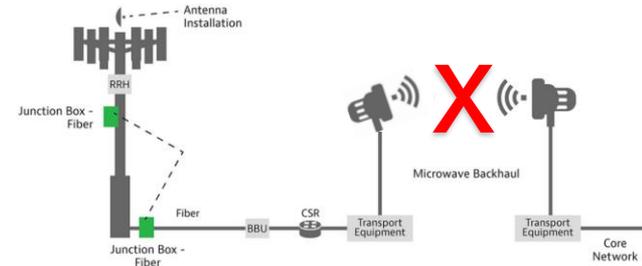
- Incorrectly aligned Panel Antennas can result in:

- RF coverage gaps, overlaps and interferences
- Reduced capacity for the antenna / site
- Increased Hand Over errors
- Increased Subscriber Drop Rate
- Increased potential for repeat site visits



- Accurate Alignment of Microwave Links is fundamental to Service Quality and Customer Satisfaction. Poorly aligned links can easily cause:

- Increased sensitivity to wind/vibration
- Degraded link capacity and reliability
- Service outage and revenue interruptions
- Loss of link redundancy
- Customer churn and revenue loss



3Z RF Vision Antenna Alignment Tool

Contents of standard bundle



3Z RF Vision Antenna Alignment Tool

Description

Mechanically aligned HD camera



GNSS Antennas

Rubber Bumper

Rugged construction

Smaller size

Multi-frequency satellite antennas



Carabiner tie-off point

Waterproof power indicator & button

2-in-1 data & charging port

5" LCD Touch Screen

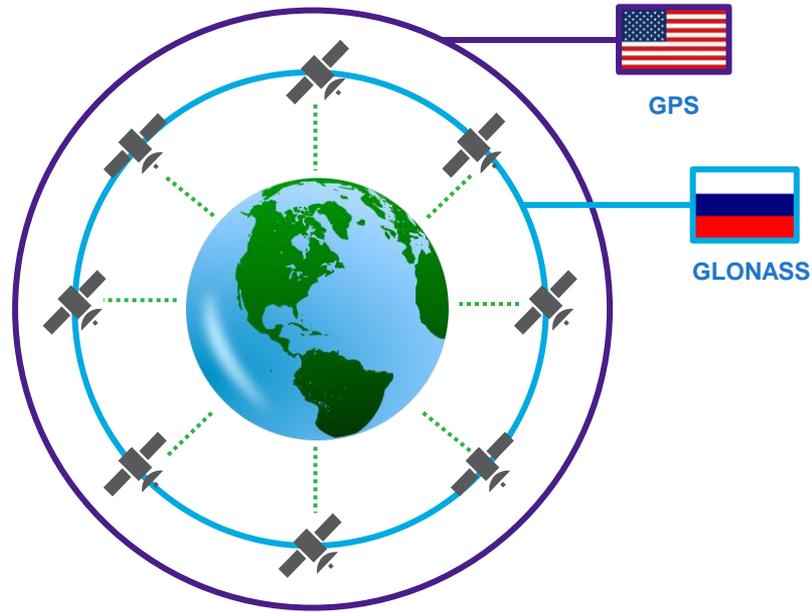


Strap Clamp mounting screw

Chemically strengthened glass display

3Z RF Vision

How It Works

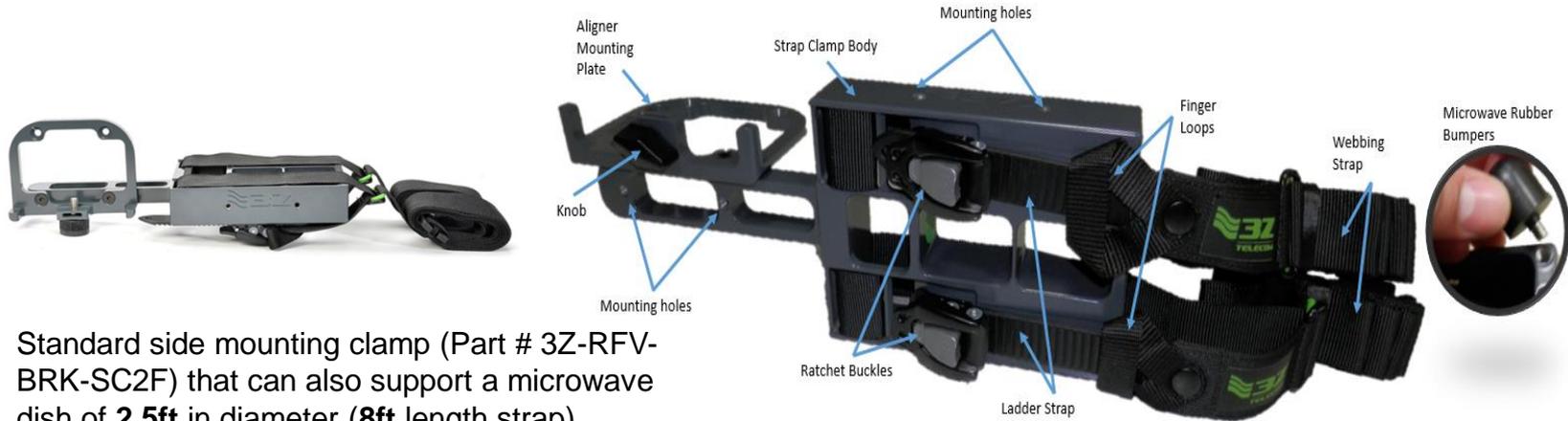


- Dual-Frequency (L1 & L5)
- Improved Accuracy
- Improved Multipath Rejection
- Faster Satellite Tracking

The 3Z RF Vision requires a minimum of 5 satellites to calculate a valid azimuth.

RF Vision Universal Strap Clamp

Description



Standard side mounting clamp (Part # 3Z-RFV-BRK-SC2F) that can also support a microwave dish of **2.5ft** in diameter (**8ft** length strap)

Standard Webbing

Supports dish antennas 2.5FT in diameter

Longer webbing available

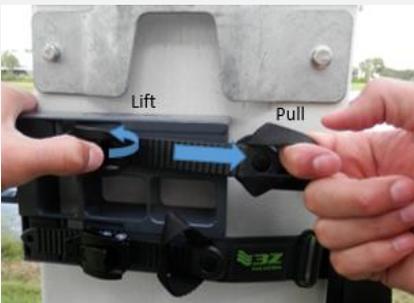
Part # 3Z-RFV-WB6 supports dish antennas up to 6ft in diameter

Part # 3Z-RFV-WB10 supports dish antennas up to 10ft in diameter

Part # 3Z-RFV-WB12 supports dish antennas up to 12ft in diameter

RF Vision Universal Strap Clamp Installation

Cellular Antenna Quick Start Guide

Step 1	Step 2	Step 3	Step 4
 <p>Remove ladder straps from ratchet buckles by lifting up on the release latch and pulling back on loop.</p>	 <p>Position strap clamp body toward the top of the antenna on the edge. Wrap webbing strap around antenna.</p>	 <p>Insert ladder strap on the ratchet buckle just enough to engage, approximately 1".</p>	 <p>Pull excess webbing strap so that it is snug on the antenna.</p>
Step 5	Step 6	Step 7	
 <p>Ratchet the ladder strap through the buckle until webbing is tight on the antenna. Repeat steps for second webbing strap to secure the clamp.</p>	 <p>Once Strap Clamp is secured, attach the 3Z RF Aligner and perform alignment. Remove Aligner upon completion.</p>	 <p>To remove the Strap Clamp, lift the release latch and pull on the loop.</p>	

RF Vision Universal Strap Clamp Installation

Microwave Antenna Quick Start Guide

Step 1



Remove ladder straps from ratchet buckles by lifting up on the release latch and pulling back on the loop.

Step 2



Position strap clamp body with rubber bumpers on the drum antenna. Wrap webbing strap around antenna.

Step 3



Insert ladder strap into the ratchet buckle just enough to engage, approximately 1".

Step 4



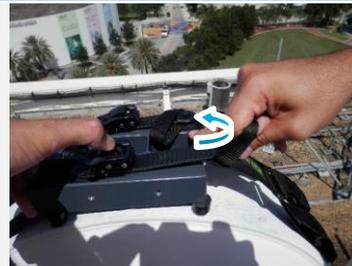
Pull excess webbing strap so that it is snug on the antenna.

Step 5



Ratchet the ladder strap through the buckle until webbing is tight on the antenna. Repeat steps for second webbing strap to secure the clamp.

Step 6



To remove the Strap Clamp, lift the release latch and pull on the loop.

RF Vision Universal Strap Clamp Installation

Video

[Click here to access the video](#)



RF Vision Lip Clamp

Quick Start Installation Guide

Step 1



Twist the big knob to adjust the lip clamp to the antenna surface. Make sure the lip clamp is firm enough on the antenna before mounting the RF Vision.

Step 2



Mount the RF Vision on the mounting plate and secure using the small knob. Note: use lanyard (not included) to secure the RF Vision through the carabiner tie-off point.

RF Vision

5G Antenna Alignment Examples

Air 5121



Air 3246



3Z RF Vision

5G Antenna Alignment

AAFIA



AEUF



NOKIA

3Z RF Vision

5G Antenna Alignment

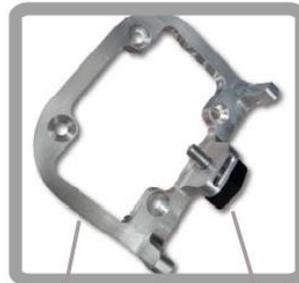


SAMSUNG



3Z RF Vision AIR Mount Installation

Ericsson Air Antennas



Aligner Mounting Plate

Knob



Vertical Posts

Adapter Plate

Compatible with
ERICSSON AIR
21 and AIR 32
Antennas



1 Tighten Aligner Mounting Plate to the Adapter Plate.



2 Line up AIR Mount vertical posts with existing M60 bolts.



3 Turn posts simultaneously so that they thread evenly onto M60 bolts.

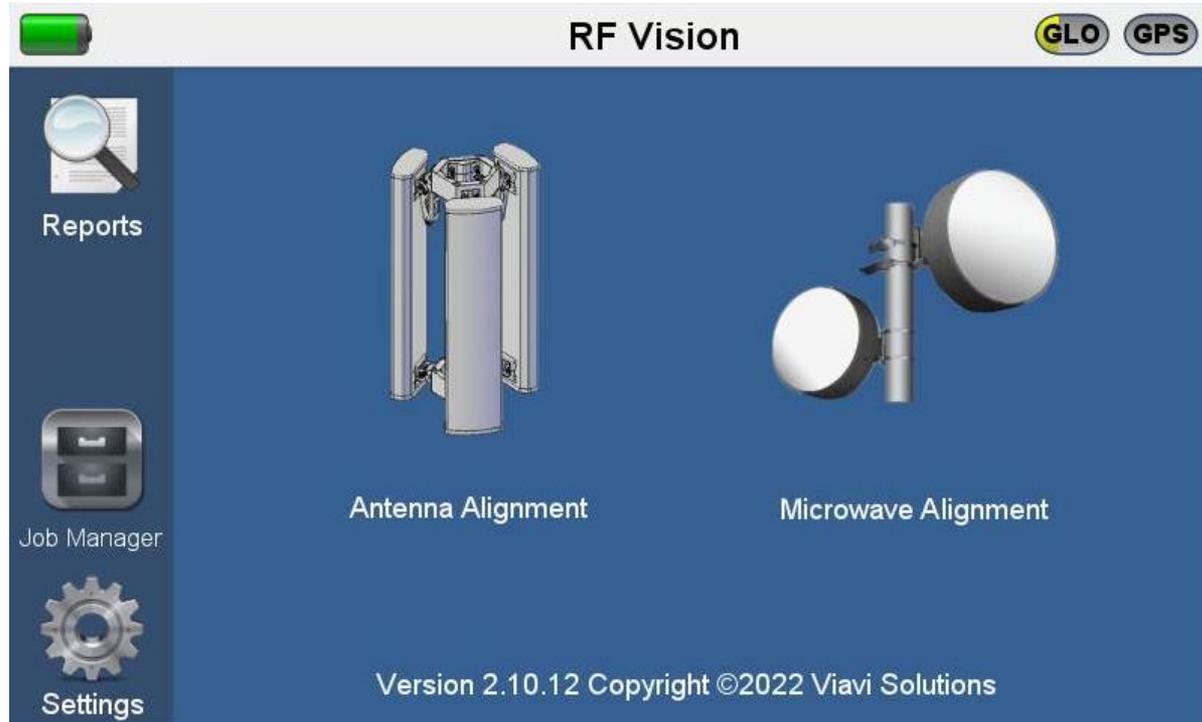


4 Once AIR Mount is secured onto antenna, install RF Aligner on mounting plate and tighten knob to secure the Aligner.

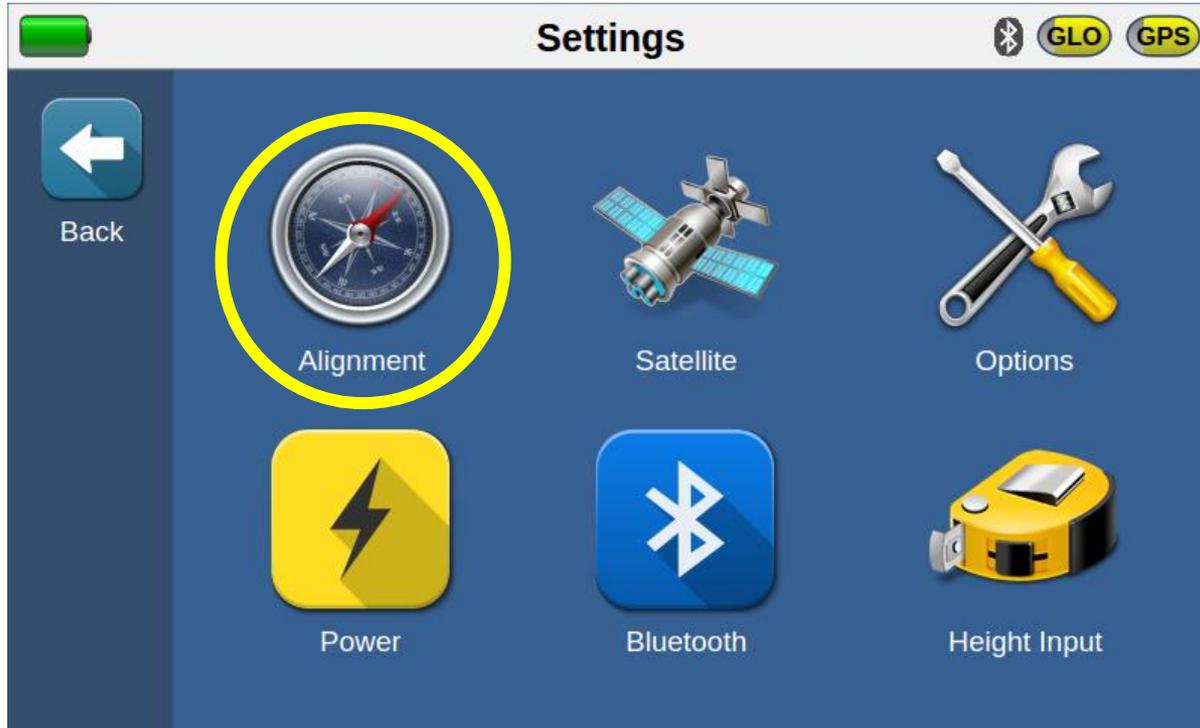


5 Begin Alignment

3Z RF Vision Main Screen

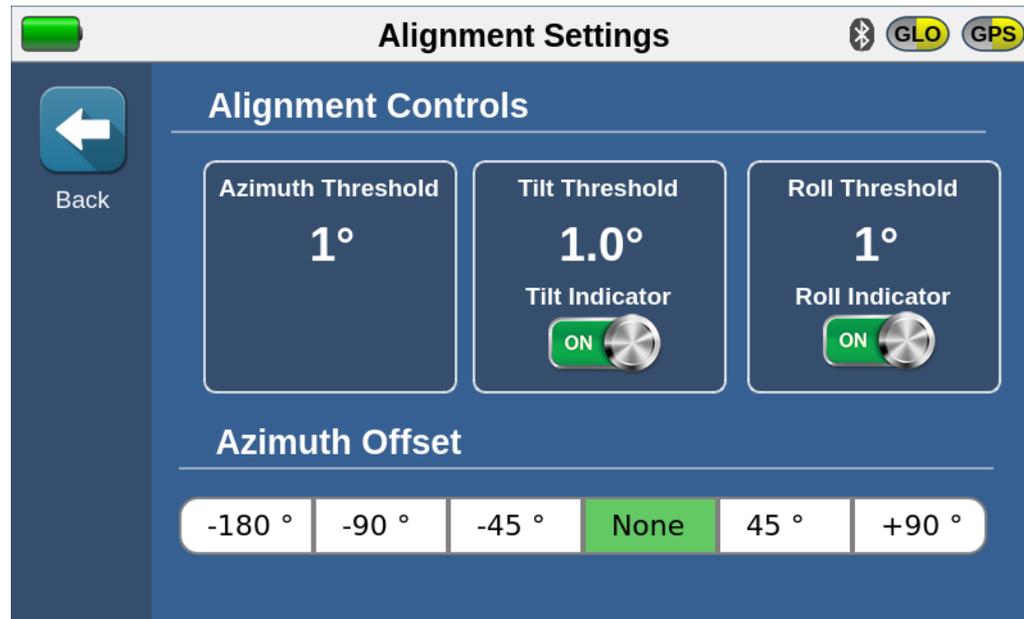


3Z RF Vision Setting Screen



3Z RF Vision Alignment Settings Screen

Alignment threshold are usually carrier/customer defined and represent the tolerance accepted for each of the measurements. It's the allowable threshold to change bullseye from red to green.



Azimuth offset is most useful when working on a shroud/stealth panel wall.

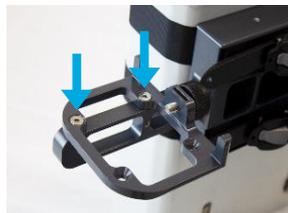
Strap Clamp Offset Configurations: +/- 90deg and 180deg



Remove M6 bolts from mounting plate to reconfigure bracket.



Rotate the mounting plate to desired offset (i.e. -90deg).



Fasten M6 bolt until flush with mounting plate.



Install RF Vision, adjust offset in "Alignment Settings" and perform measurement.

Other Configurations:



The Strap clamp can also be configured at 180 deg. offset.



180 deg offset.



+90deg offset.

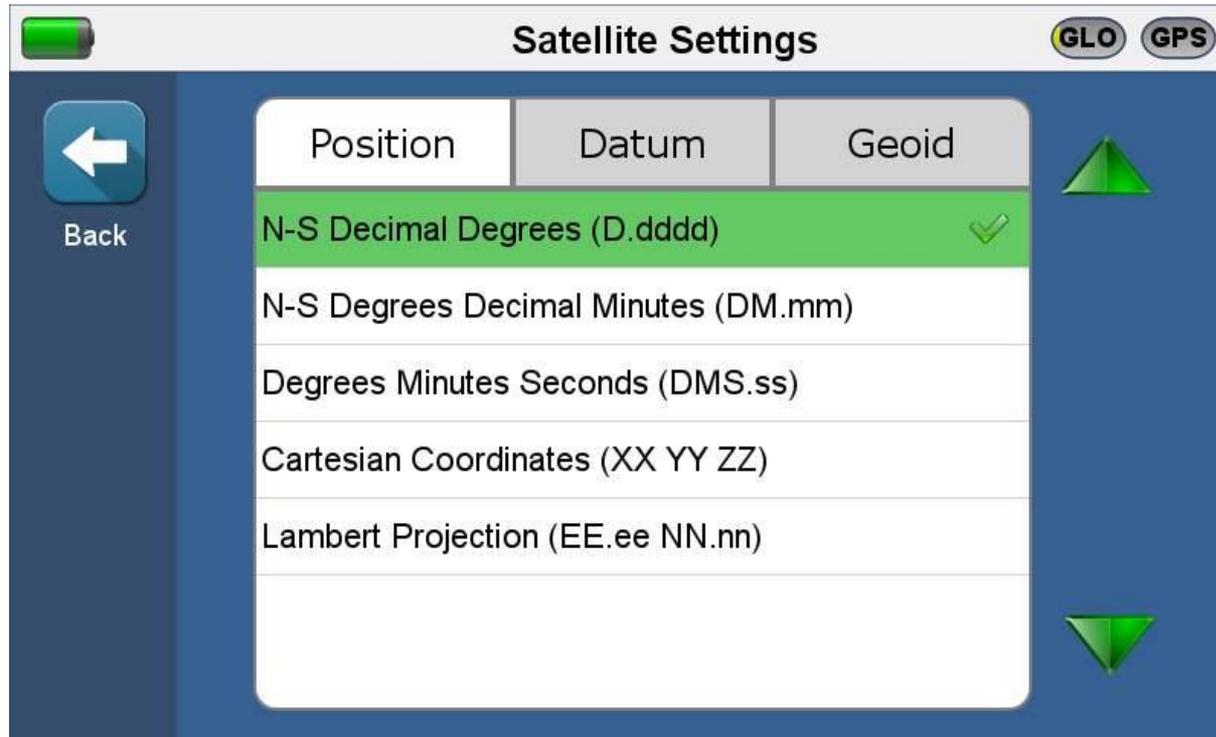


If RF Vision is installed with an offset, Navigate to Alignment settings and set associated offset.

3Z RF Vision Settings Screen

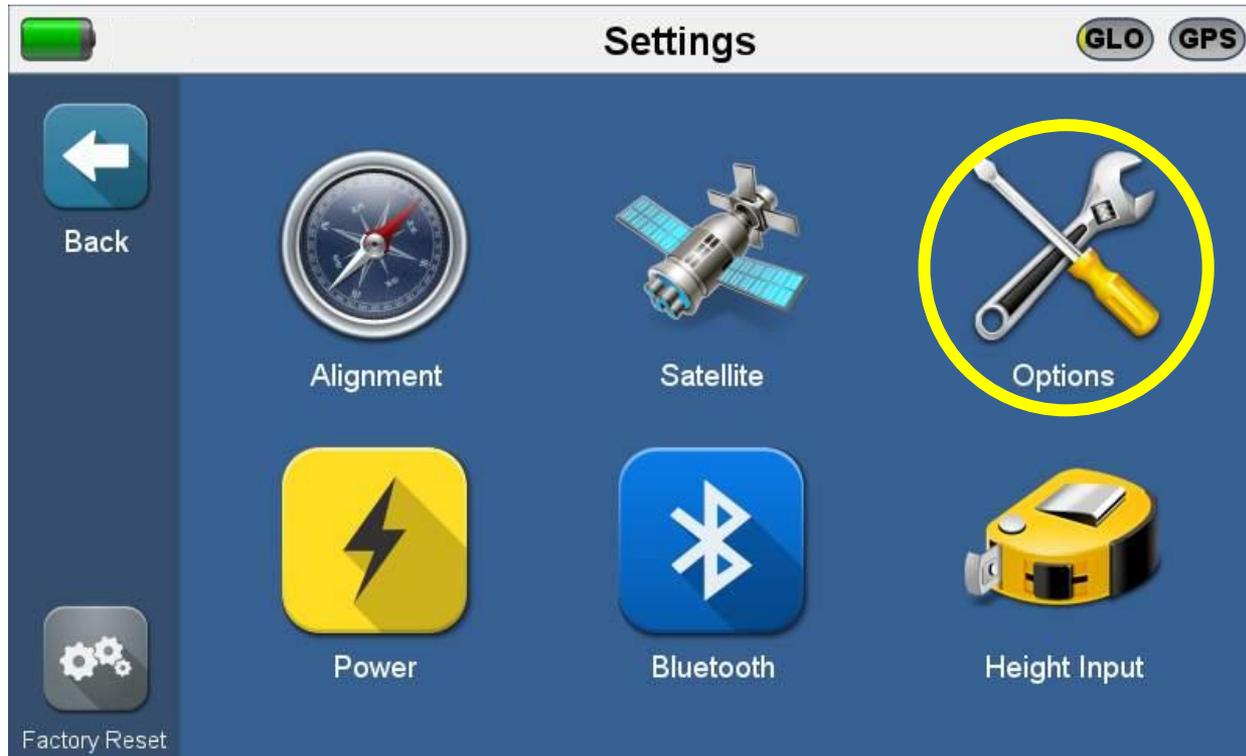


3Z RF Vision Satellite Settings Screen



The 3Z RF Vision can only measure azimuths outdoors.

3Z RF Vision Settings Screen



3Z RF Vision Options Screen

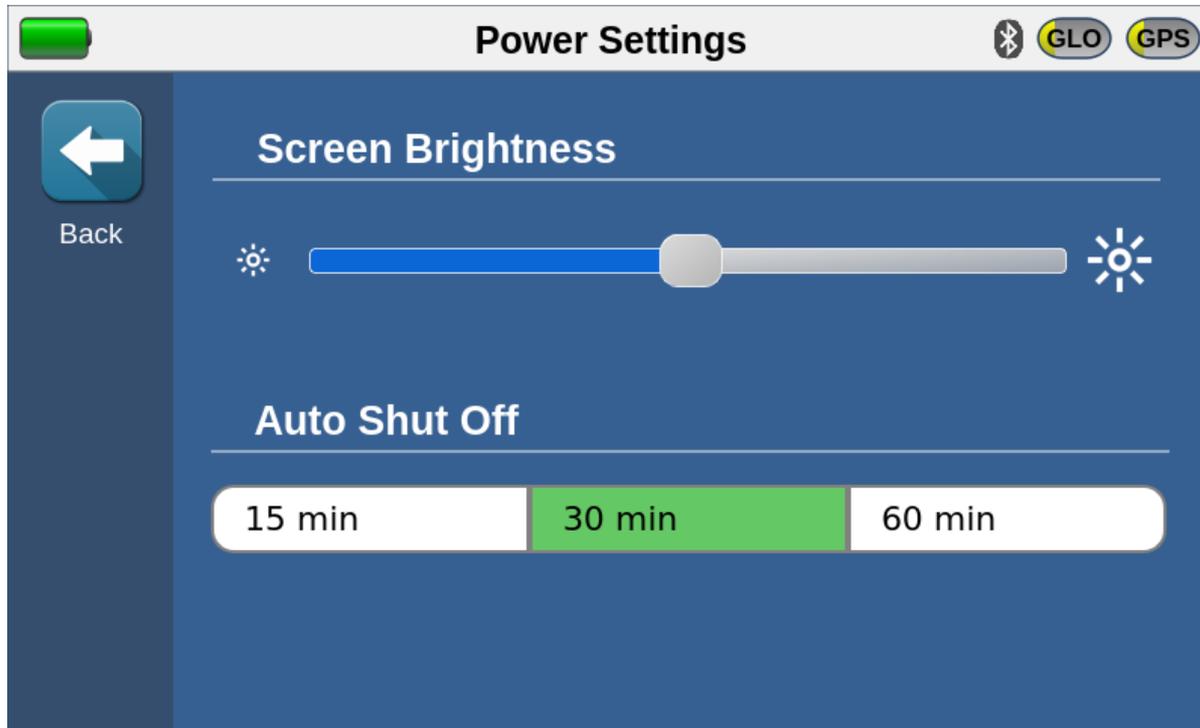


Select units / formats, perform tilt calibration, upgrade the firmware, set the time zone, turn the sound on/off, and set up the RF Vision camera license.

3Z RF Vision Settings Screen



3Z RF Vision Power Settings Screen

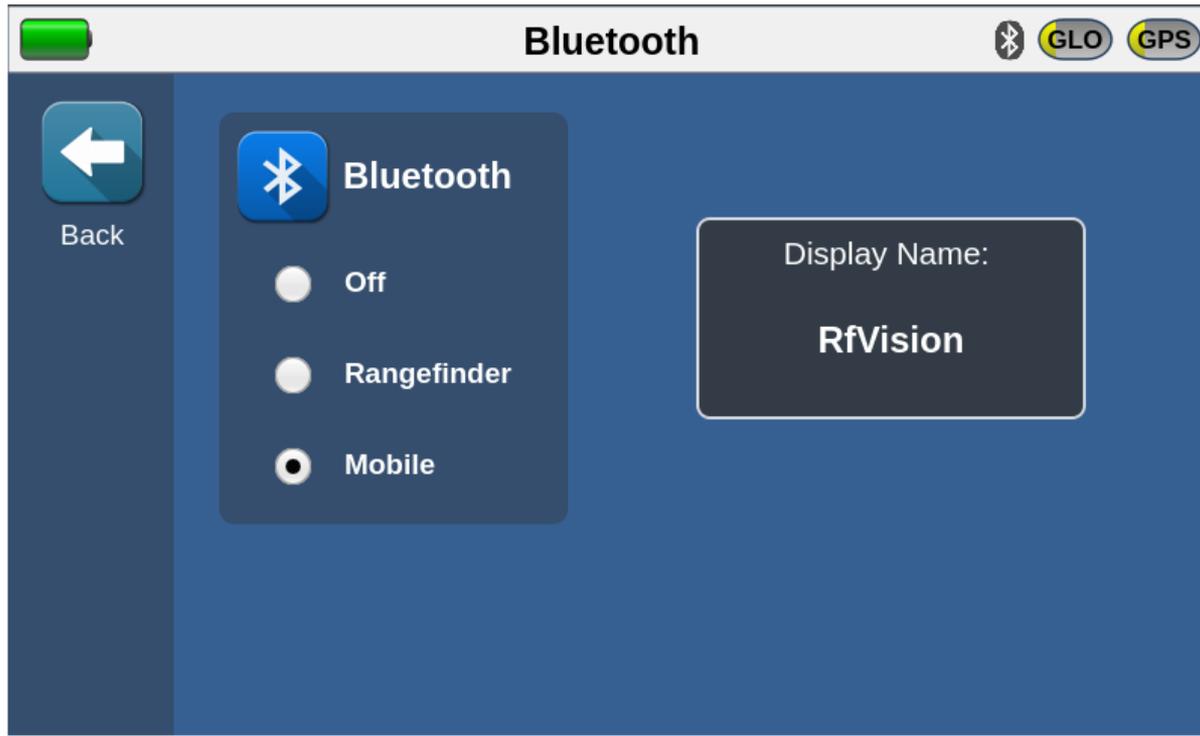


3Z RF Vision Settings Screen



3Z RF Vision Bluetooth Settings Screen

Pair Laser Range Finder / Mobile App



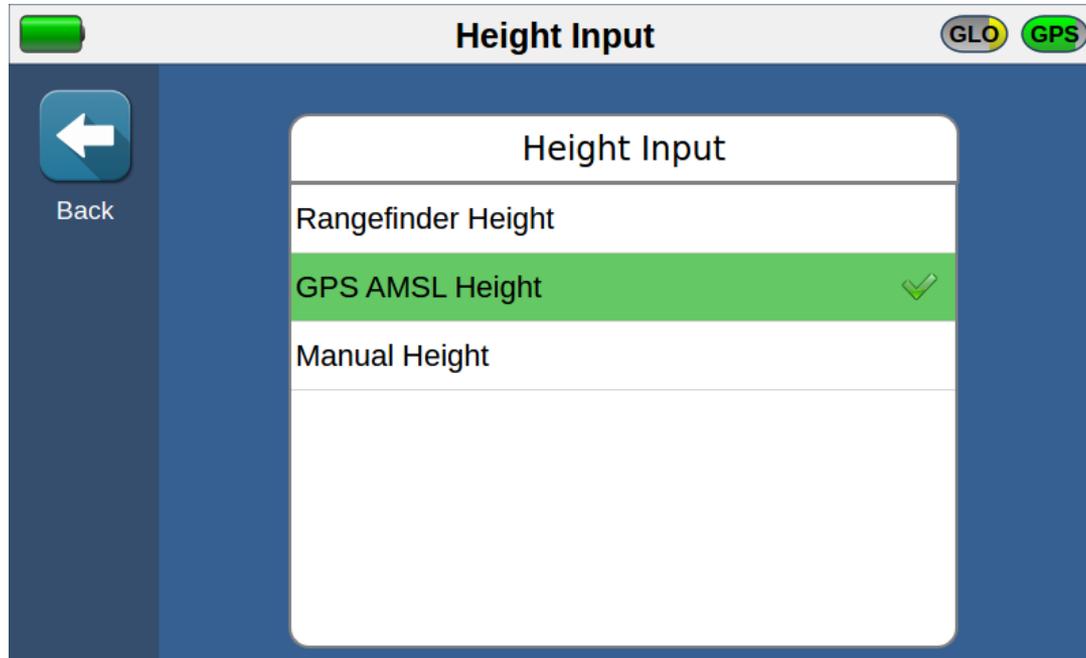
Enable Bluetooth connection based on application, only one can be activated at a time

3Z RF Vision Settings Screen



3Z RF Vision Site Height Input Screen

By default, the 3Z RF Vision will calculate the Antenna Height based on GPS AMSL Height. When setting the 3Z RF Vision to Rangefinder Height, make sure the Laser Range Finder (optional device) is paired with the 3Z RF Vision through the Bluetooth configuration.



3Z RF Vision Laser Range Finder (Optional Device)

Add on Laser Range Finder for Additional Height Measurements

The Laser Range Finder integrates fast, precise measurements with photo documentation. Measuring range up to 200m with accuracy of $\pm 1\text{mm}$.



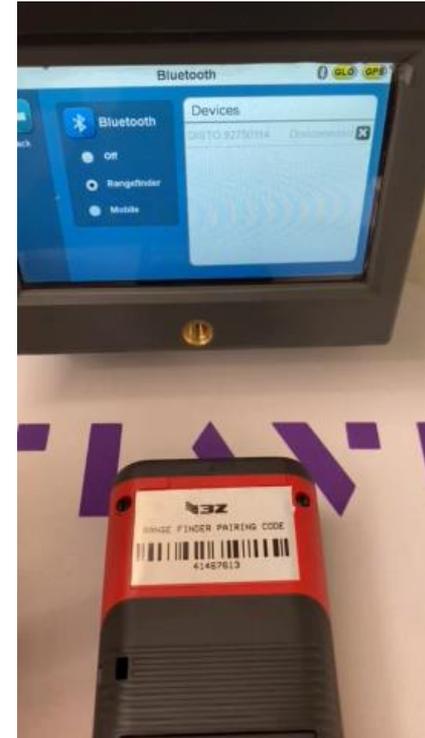
Bluetooth
Measurement
Transfer



Pairing 3Z RF Vision with Laser Rangefinder via Bluetooth

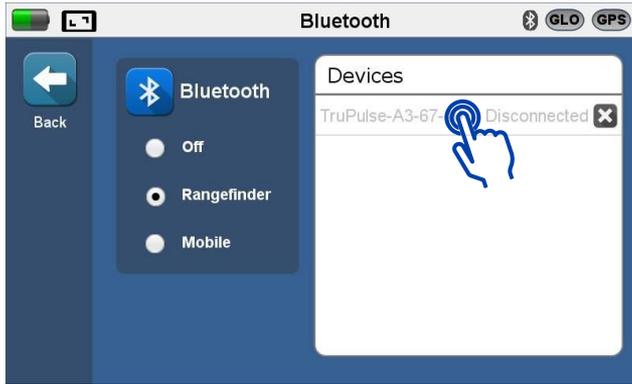
The Leica Laser Rangefinder sold by VIAVI contains the necessary SW to communicate via Bluetooth the measurement results to the 3Z RF Vision. To pair both units, check the license and SN of the Laser Range finder. Make sure the Device turns green on the 3Z RF Vision screen, the Bluetooth icon turns blue.

1. After activating the Bluetooth on the Laser Rangefinder, Select Range Finder on the 3Z RF Vision Bluetooth Setting
2. Check the Serial Number correspond to the Leica (DISTO that you want to pair, in this example 5392750114, it will automatically show on the 3Z RF Vision)
3. Introduce the Rangefinder License (shown on 3Z pairing code information, if you are missing this info, call VIAVI support at +1 954-581-6565 to requested)



LTI TruPulse 200 Rangefinder Support

Version 2.10.12



1

Navigate to the Bluetooth Settings screen and Select "Rangefinder" mode

2

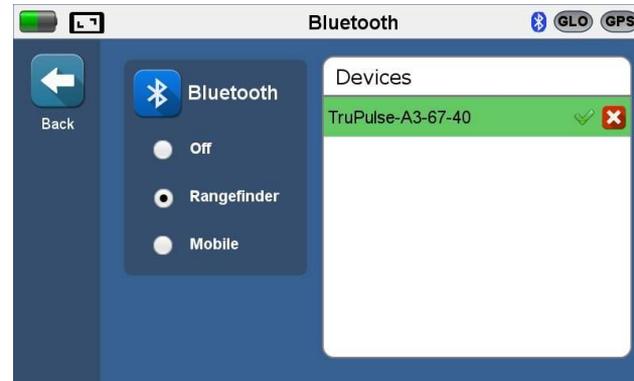
Turn on TruPulse 200 and select it from the Devices list when it appears

3



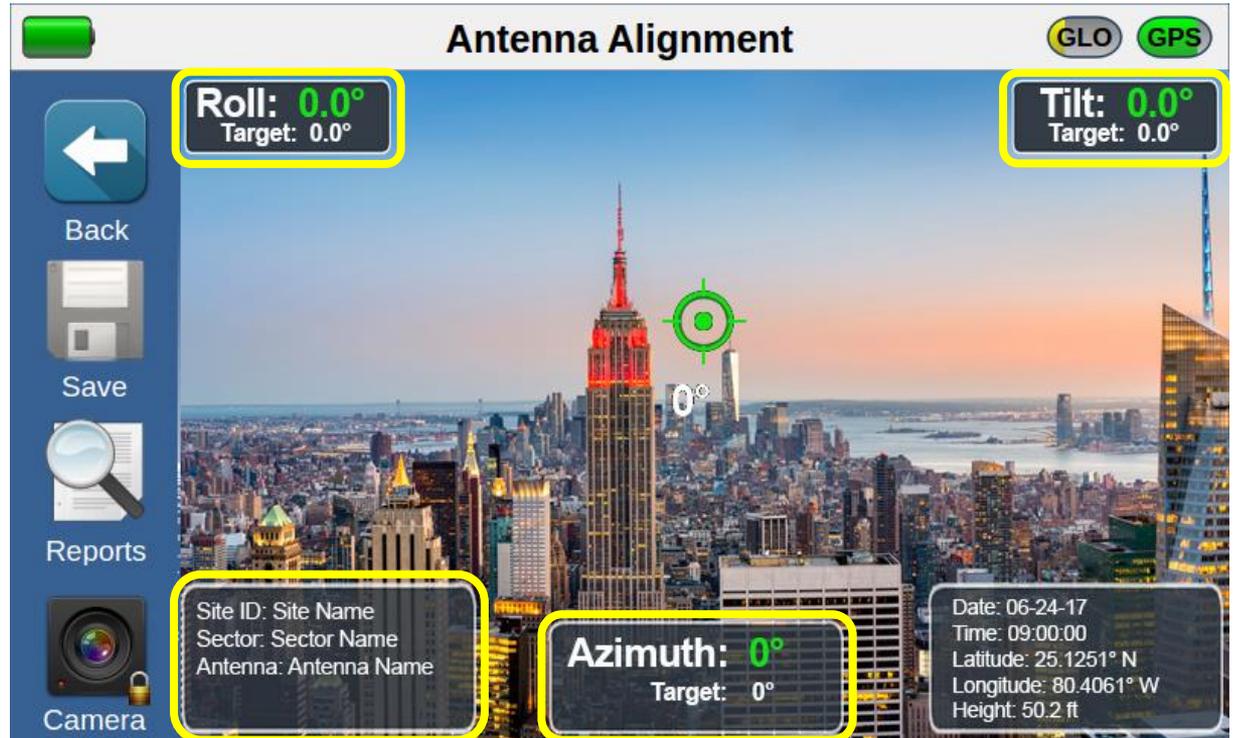
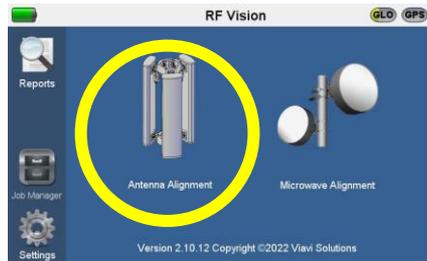
Enter SW License code (specific to your unit S/N) and press "Accept"

4



The TruPulse 200 is connected and ready for use

3Z RF Vision Site Information Screen



Click on any of the following [icons](#) to access Site Information Screen.

3Z RF Vision Site Information Screen

Site Information GLO GPS

Site ID: Site1 Azimuth: 0

Sector: Sector Tilt: 0.0

Antenna: Antenna Roll: 0.0

Cancel Accept

Q W E R T Y U I O P

A S D F G H J K L

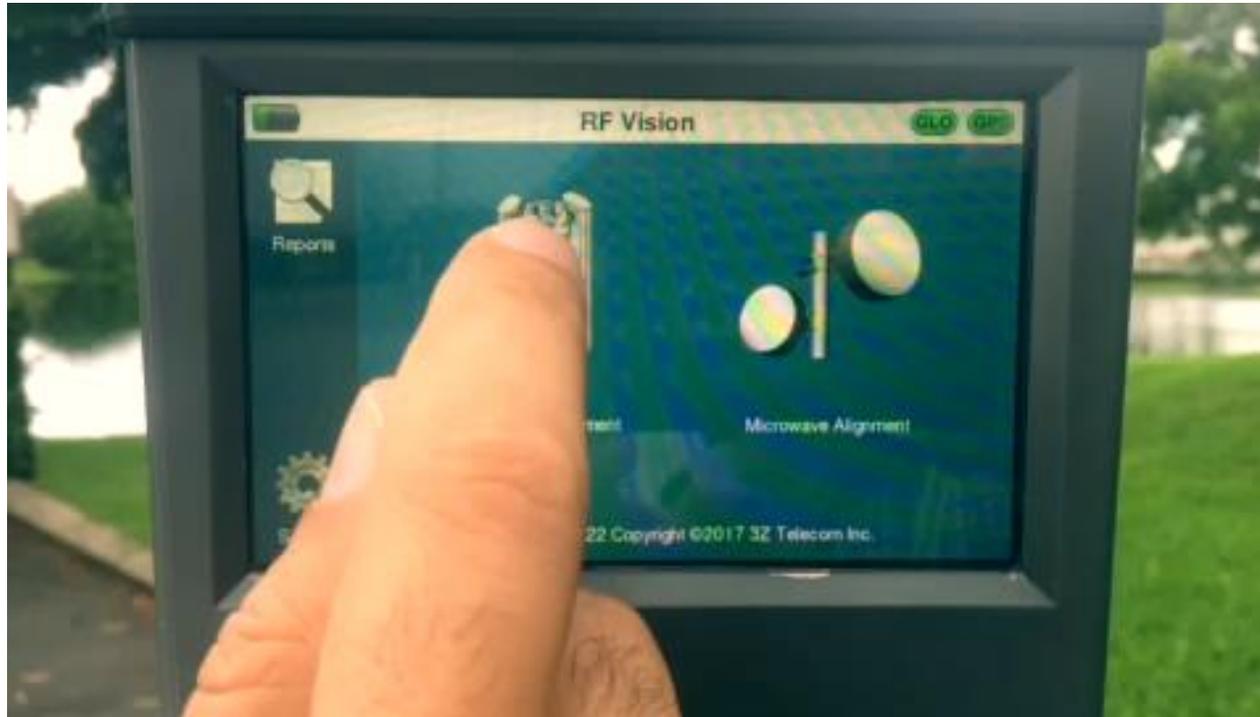
↓ Z X C V B N M

123 SPACE Done

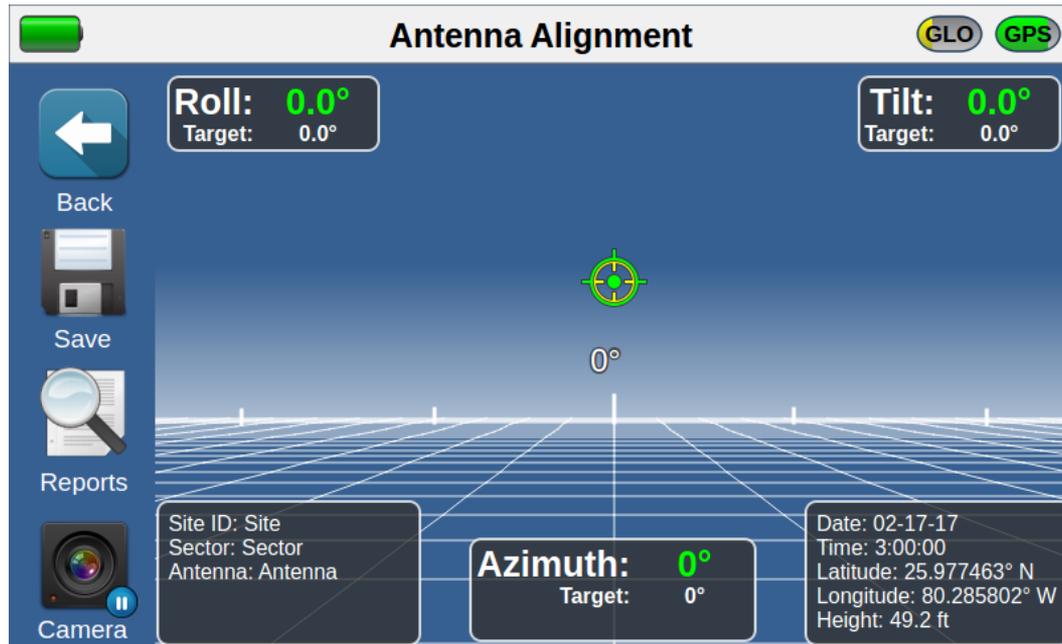
Site ID	Site name i.e. DF380. A report will be crated per Site ID, where each sector will be appended on this file
Sector	Alpha, Beta, or 1, 2, this is based on customer's configuration.
Antenna	1, 2, or LTE, GSM, UMTS, or Serial number of the Antenna, this is based on customer's configuration.
Azimuth	Antenna orientation value in degrees specified by the customer for antenna being measured.
Tilt	Antenna mechanical tilt value in degrees specified by the customer for antenna being measured.
Roll	Antenna mechanical roll value in degrees specified by the customer for antenna being measured.

RF Vision Antenna Alignment Tool Operation Video

[Click Here To Watch Video](#)



3Z RF Vision Camera Feature Off Screen



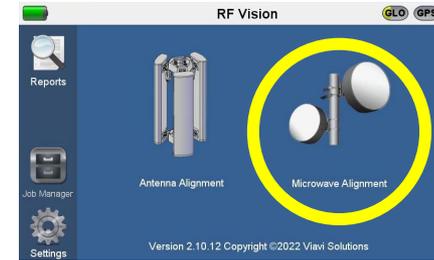
Identify which direction the bullseye is and move the antenna (crosshairs) so it aligns with bullseye (target). Match measure to target azimuth (measurement will turn green).

3Z RF Vision Camera Screen



Azimuth reading will appear once there are enough satellites.

3Z RF Vision Microwave Alignment Mode



Standard Webbing

Supports dish antennas 2.5FT in diameter

Longer webbing available

Part # 3Z-RFV-WB6 supports dish antennas up to **6ft** in diameter

Part # 3Z-RFV-WB10 supports dish antennas up to **10ft** in diameter

Part # 3Z-RFV-WB12 supports dish antennas up to **12ft** in diameter

3Z RF Vision Microwave Alignment Mode

Click to enter Path ID information.

Latitude, Longitude and Height (AMSL) of remote antenna (information being measured on remote antenna). Use decimal format.

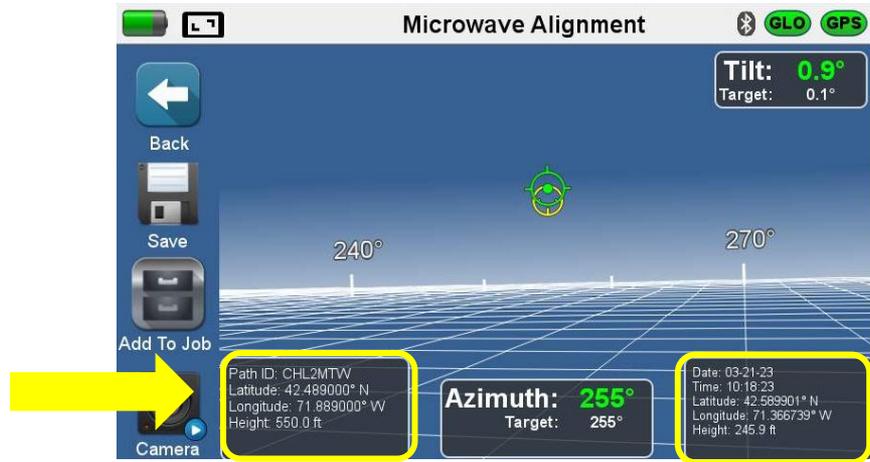
Note: for N Latitude use positive value

for S Latitude use negative value

for W Longitude use positive value

for E Longitude use negative value

Setting incorrect values will create a false target azimuth and tilt, failing the alignment process



Information of antenna being measured.

Provide Latitude, Longitude and Height (AMSL) to tower technician on remote antenna.

3Z RF Vision will calculate target azimuth and tilt based on Path ID, latitude, longitude and height information entered. Align microwave dish on both ends until measured azimuth and tilt match target azimuth and tilt.

3Z RF Vision Report Navigation

Path Information   

Path ID:

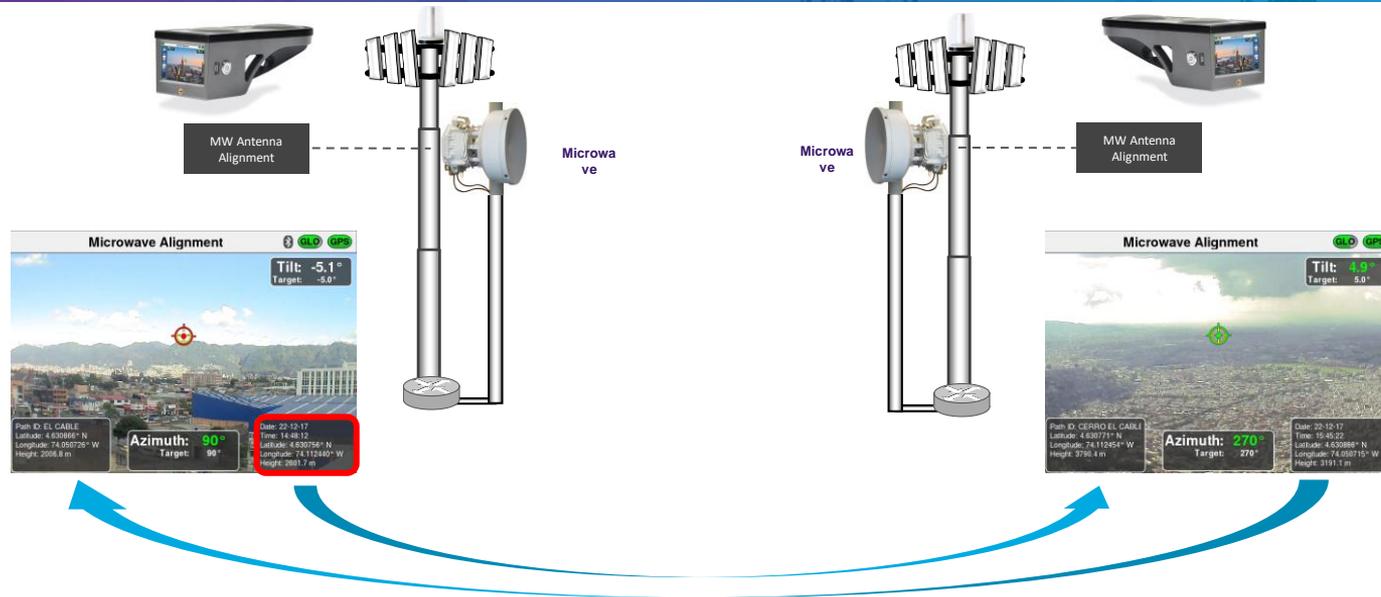
 Latitude: Height: ft 

Longitude:

Cancel Accept

Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	
↓	Z	X	C	V	B	N	M	⌫	
123	SPACE						Done		

3Z RF Vision Microwave Alignment Mode



Setting an RF Vision on each side of the link will expedite the alignment process.

In case there is only one RF Vision kit available, follow the steps below:

1. Place RF Vision on top of Side A Antenna, introduce Lat/Long and AMSL values of remote antenna based on microwave link design values. Proceed to physically align the antenna on Side A. Save report.
2. Take the RF Vision to Side B Antenna, you will introduce the values from Lat/Long and height saved during Side A alignment. Proceed to physically align the antenna on Side B. Save report.
3. Re-visit Side A and redo the alignment introducing saved values obtained during Side B alignment.

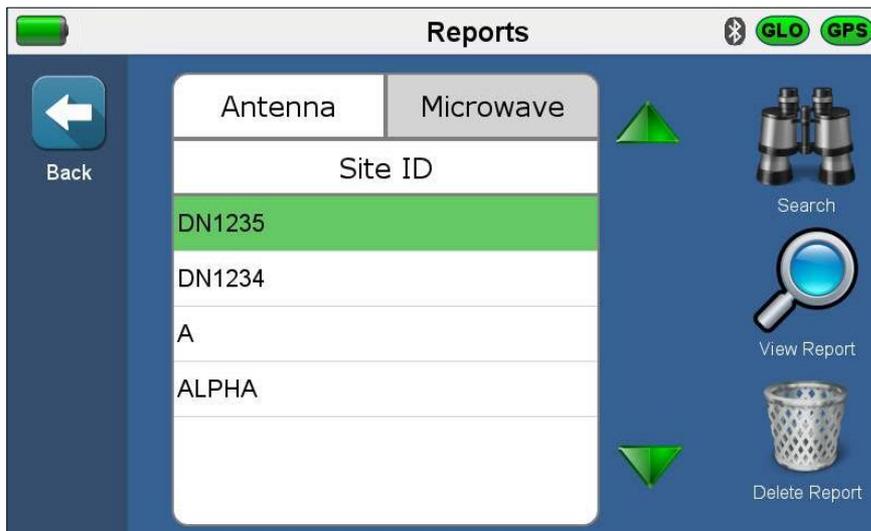
3Z RF Vision Report Navigation



Once the antenna has been aligned and Azimuth, Tilt and Roll are within **target**, click Save Report to capture Antenna Alignment. Reports are generated automatically.



Click to review Antenna or Microwave reports. Under Site ID, select the site and sector you want to check. Recommendation: check the report after finishing alignment and before proceeding to the next antenna. You can review or delete reports from here. Reports generate automatically.



3Z RF Vision Report View

Report Table [Bluetooth] [GLO] [GPS]

DN1235, ALPHA, 1 (1 of 3)

Antenna	Target Azimuth	Target Tilt	Target Roll	Measured Azimuth	Measured Tilt	Measured Roll
1	0	0.0	0	0	0.9	0

Height	Height Type	Latitude	Longitude	Date	Time	Image Name
226.9 ft	GPS AMSL	42.589821° N	71.366790° W	Mar 20 2023	10:15:32 AM	3ZRFV008

Antenna Alignment [Bluetooth] [GLO] [GPS]

Roll: 0° [Target: 0°]
Tilt: 0.9° [Target: 3.3°]
Azimuth: 0° [Target: 0°]

View Notes

Delete

Check measured values and picture (or screen shot in case license feature is disabled).

3Z RF Vision Import Report to Laptop/PC

- Turn on the 3Z RF Vision and connect micro-USB to laptop or PC USB port.
- Check USB drive, go to folder 3Z RF Vision > reports and open the Site ID folder for the site you want to import the report to.
- Connect the on-the-go cable to your android device. PDF, CSV and JPG files will show, copy to your HD.
- To charge the unit, power down and connect to the provided power adaptor.



3ZRFVision (D:) > reports > DN1235-A-Report

Name	Date modified	Type	Size
DN1235-A-Report.pdf	3/20/2023 6:15 PM	Adobe Acrobat D...	259 KB
3ZRFV006.JPG	3/20/2023 6:11 PM	JPG File	87 KB
3ZRFV007.JPG	3/20/2023 6:13 PM	JPG File	63 KB
3ZRFV008.JPG	3/20/2023 6:15 PM	JPG File	42 KB
DN1235-A-Report.csv	3/20/2023 6:15 PM	Microsoft Excel C...	1 KB

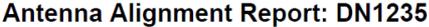
3Z RF Vision Report Types

PDF

The PDF report contains a table and a picture (or screenshot) when camera feature is not available with the measurements for each antenna aligned.

Table on page 1

Pictures on page 2



Sector	Antenna	Target			Measured			Height	Height Type	Latitude	Longitude	Date	Time	Image Name
		Azimuth	Tilt	Roll	Azimuth	Tilt	Roll							
ALPHA	1	0	0.0	0	0	0.9	0	226.9 ft	GPS AMSL	42.589821° N	71.366790° W	Mar 20 2023	10:15:32 AM	3ZRFV008
BETA	1	120	0.0	0	121	1.4	-1	224.9 ft	GPS AMSL	42.589818° N	71.366789° W	Mar 20 2023	10:13:24 AM	3ZRFV007
GAMMA	1	240	0.0	0	238	0.8	0	222.8 ft	GPS AMSL	42.589818° N	71.366794° W	Mar 20 2023	10:11:21 AM	3ZRFV006



Model#: 3ZRFV-2000 Firmware: 2.10.12 Units: Feet (ft) Azimuth Threshold: 3 Roll Threshold: 1 Position: (D dddd) Geoid: EGM96
Serial#: 18490870 Calibration Due: Mar 15, 2025 DATUM: WGS84 Time Zone: (GMT-08:00) Tilt Threshold: 1.0 Azimuth Offset: * Tilt Inverted: **
GNSS FW: N/A

Page 1 of 3

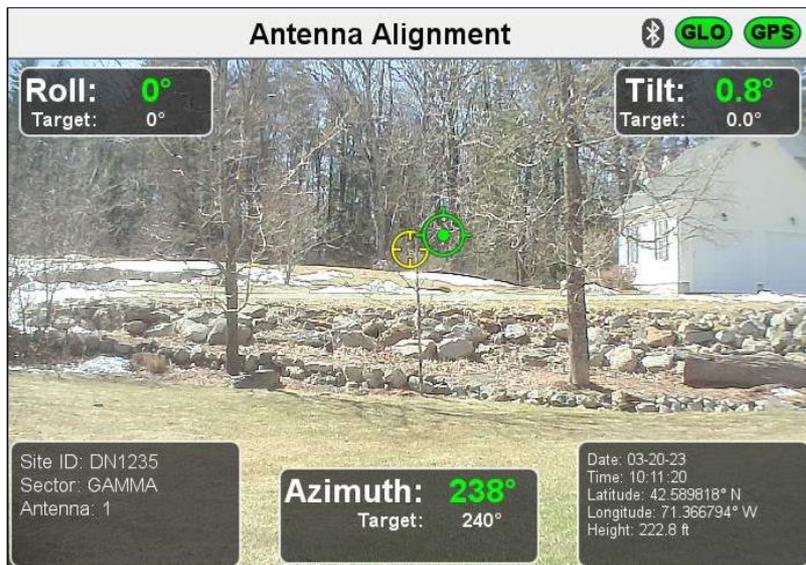
3Z RF Vision Report Types

CSV and JPG

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Sector	Antenna	Target Azimuth	Target Tilt	Target Roll	Measured Azimuth	Measured Tilt	Measured Roll	Height	Height Type	Latitude	Longitude	Date	Time	Image Name	Serial No
2	ALPHA	1	0	0	0	0	0.9	0	226.9 ft	GPS AMSL	42.589821° N	71.366790° W	Mar 20 2023	10:15:32 AM	3ZRFV008	18490870
3	BETA	1	120	0	0	121	1.4	-1	224.9 ft	GPS AMSL	42.589818° N	71.366789° W	Mar 20 2023	10:13:24 AM	3ZRFV007	18490870
4	GAMMA	1	240	0	0	238	0.8	0	222.8 ft	GPS AMSL	42.589818° N	71.366794° W	Mar 20 2023	10:11:21 AM	3ZRFV006	18490870

CSV

JPG



3Z RF Vision Report Navigation

Mobile App

RF VISION
antenna alignment tool



MOBILE APP FEATURES

- Control RF Vision Antenna Alignment Tool from any mobile device
- View real-time Azimuth, Tilt & Roll
- View, save or delete alignment reports
- Share alignment reports from site

Note: RF Vision software update 2.6.169 required to use this app.
Register and download at 3ztelecom.com

Watch Video!

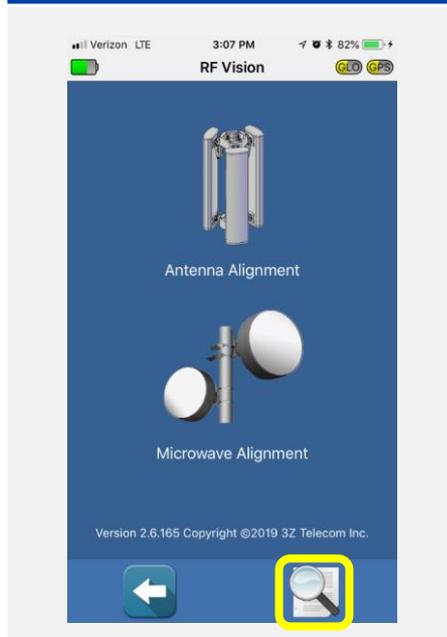


Tel. 954-581-6565 | info@3ztelecom.com | www.3ztelecom.com

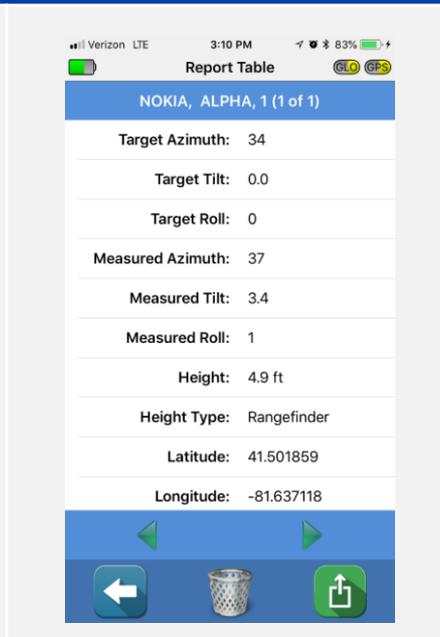
3Z RF Vision Report Navigation

Mobile App

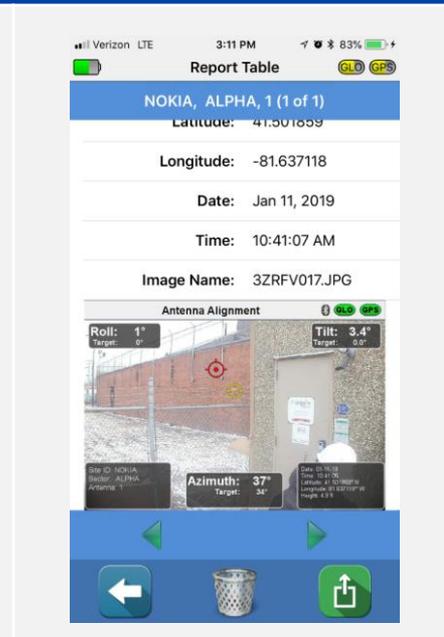
The 3Z RF Vision Mobile App will allow the user to quickly and conveniently share the 3Z RF Vision reports from the site, using a smartphone.



Click on the Report Icon



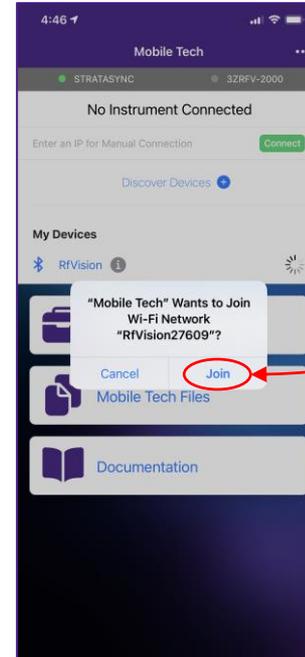
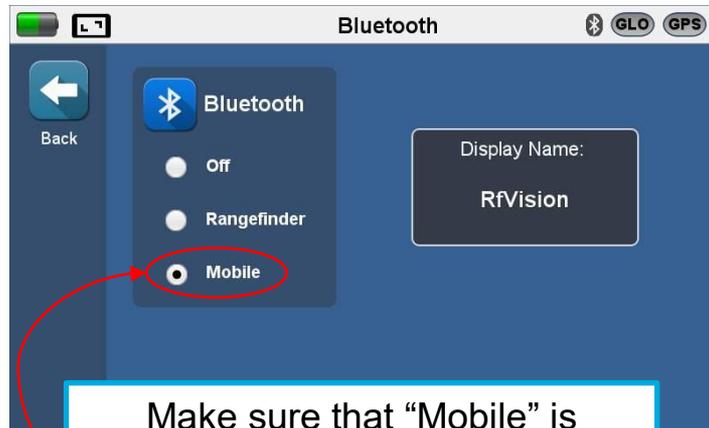
Select the Site, view and share reports via email, WhatsApp, etc.



RF Vision Integration to StrataSync with VMT

Simple and Secure Cloud Storage and Data Management

1. Get a StrataSync Account here: <https://tinyurl.com/wyb69a6f>
2. Download and install VMT: Search for “Viavi Mobile Tech” on Apple App Store or Google Play Store
3. Connect RF Vision to VMT:

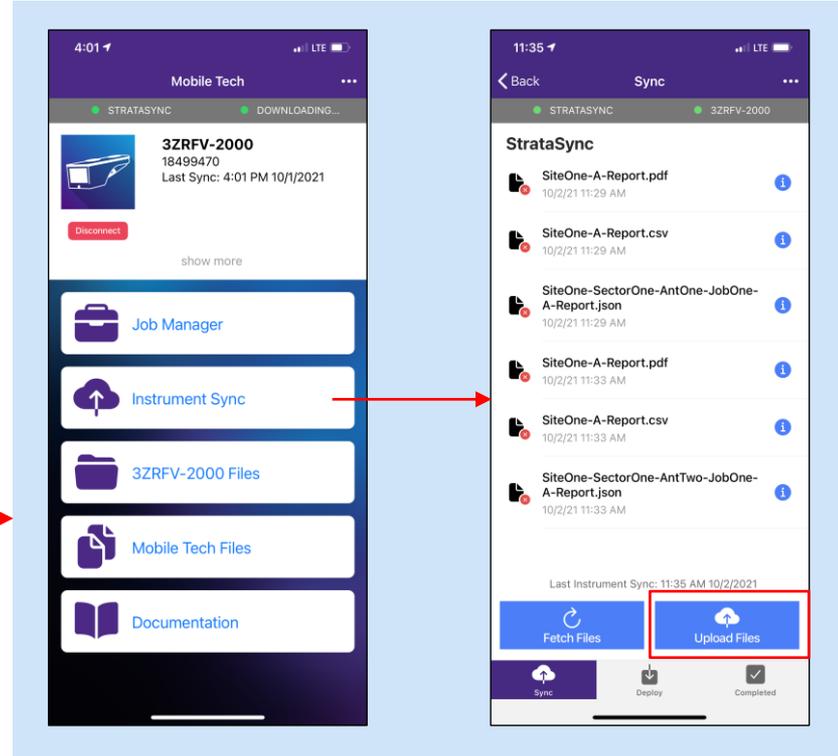
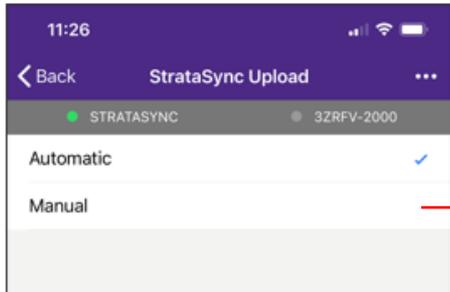


Note:
VMT automatically uses the TechID associated with your StrataSync login credentials

RF Vision Integration to StrataSync with VMT

Simple and Secure Cloud Storage and Data Management

4. Perform alignments and save results!
5. Upload results and reports to StrataSync from VMT manually or configure VMT for Automatic upload.



RF Vision Integration to StrataSync with VMT

View and Download Reports / Results Directly from StrataSync

Actions ▾ For 2 selected record(s)

	Asset Type	Asset Unique ID	Work Order ID	Tech ID	Filename	Data Format	Data Type
<input type="checkbox"/>	RFVision	12345678	doublesite	ben001	siite-sec2-ant2-doublesite-A-Report.json	application/json	AntennaAlign
<input type="checkbox"/>	RFVision	12345678	doublesite	ben001	siite-sec-ant-doublesite-A-Report.json	application/json	AntennaAlign
<input checked="" type="checkbox"/>	RFVision	12345678	doublesite	ben001	siite-A-Report.pdf	application/pdf	AntennaAlign
<input checked="" type="checkbox"/>	RFVision	12345678	doublesite	ben001	siite-A-Report.csv	text/csv	AntennaAlign
<input type="checkbox"/>	RFVision	12345678	zzzz	ben001	sitesite-sector-antenna-zzzz-A-Rep...	application/json	AntennaAlign
<input type="checkbox"/>	RFVision	12345678	sitsite	ben001	sitesite-sector-antenna-sitsite-A-Re...	application/json	AntennaAlign
<input type="checkbox"/>	RFVision	12345678	zzzz	ben001	sitesite-A-Report.pdf	application/pdf	AntennaAlign
<input type="checkbox"/>	RFVision	12345678	zzzz	ben001	sitesite-A-Report.csv	text/csv	AntennaAlign
<input type="checkbox"/>	RFVision	12345678	yyy	ben001	patha-yyy-M-Report.json	application/json	MicrowaveAlign
<input type="checkbox"/>	RFVision	12345678	yyy	ben001	patha-M-Report.pdf	application/pdf	MicrowaveAlign



Select and download, including classic RF Vision PDF / CSV to PC

Antenna Alignment Report - PASS

Site ID: SiteOne
Work Order: JobOne
Technician: sp001
Date/Time: 2021-10-02T11:13:00-04:00

Sector	Antenna	Target Az	Target Tilt	Target Roll	Measured Az	Measured Tilt	Measured Roll	Height	Height Type	Latitude	Longitude	Date	Time	Image Name
sec2	ant2	250	0	0	250	0.3	0	0	Mount	39.710552° N	-77.94400° W	Oct 5, 2021	15:33:19	32RFV002

Antenna Alignment - SiteOne (JobOne)

Roll: 0°
Tilt: 0.3°
Azimuth: 250°

Site ID: SiteOne
Sector: SectorOne
Antenna: Antenna

Model: 32RFV 2000
Serial: 1489470
Firmware: 2.8.101
Calibration Due: Wed Nov 30 2022 08:00:00 GMT-0500 (UTC)

Units: Feet (ft)
SATUSE: C54GB3

Altitude Threshold: 2
Time Zone: (GMT-5:00)

Roll Threshold: 2
Tilt Threshold: 2
Position: N 5 Decimal Degrees (DMMN)
Geoid: EGM96

Double-click to view, including new CDM-based, job-focused report

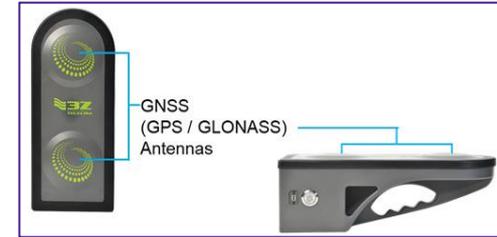
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Sector	Antenna	Target Az	Target Tilt	Target Roll	Measured	Measured	Measured	Height	Height Type	Latitude	Longitude	Date	Time	Image Name
2	sec	ant	0	0	0	*45	3.7	4	57.5 m	GPS AMSL	45A° 27.852' N	9A° 11.400' E	Feb 17 201	3:13:32 AM	32RFV001
3	sec2	ant2	1	0	1	*45	3.7	4	57.5 m	GPS AMSL	45A° 27.852' N	9A° 11.400' E	Feb 17 201	3:13:32 AM	32RFV002
4															
5															
6															
7															



RF Vision 2000 Operational Hints & Best Practices

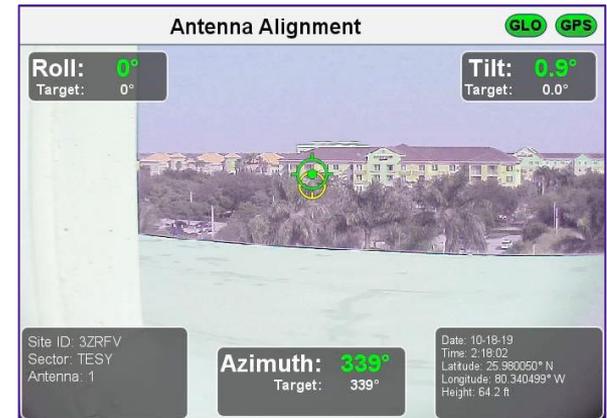
Antenna Alignment Best Practices (1/2)

- Whenever possible, try to attach the RF Vision to the top part of the antenna being aligned
- Position the RF Vision on the antenna in a manner that minimizes obstruction of / interference with the top-mounted GNSS receivers on the RF Vision
 - Pay close attention to how you position your body and hands so as not to block the receivers. Placing yourself behind the unit at eye level is the best way to prevent accidental interference.
 - Metal platforms and other antennas immediately above your position can make azimuth lock challenging. Using an extended lip clamp / top clamp, or utilizing the Azimuth offset mounting options can help improve the RF Vision's view to the sky.



Antenna Alignment Best Practices (2/2)

- If not already on, turn on the unit and wait for the GPS or GLO icons (or both) to turn green, indicating that Azimuth measurements are now possible using the RF Vision's GNSS receivers.
 - If it has been a long time since the RF Vision has been powered on, or if the RF Vision has been transported a long distance from where it was previously used, it may take several minutes for the GNSS receiver to find enough satellites for the icons to turn green. This is normally due to the time it takes for the GNSS receiver to download fresh satellite almanac(s) as a result of dislocation in time and/or geography since last use.
 - Turning on the unit and acquiring azimuth lock prior to climbing can help avoid waiting for almanac downloads while at the top of the tower.
- Once the GPS and/or GLO icons have turned green (Azimuth lock achieved), align the antenna using the augmented reality, bullseye alignment feature.
- Antenna is aligned when bullseye overlaps yellow target reticle and turns green
- Wait 5 to 10 seconds for the Azimuth value to stabilize before saving your results.



RF Vision Battery Care

The RF Vision 2000 has a built-in, high-capacity Li-Ion battery with integrated fault and safety protection circuitry. Please observe the following guidelines for maintaining the health of the RF Vision 2000 battery sub-system:

- For first time use, charge the unit to full charge prior to beginning your work
- Always use the supplied AC charger (5V / 2A capable) when charging
- Always turn the unit off before charging
- Alert appears if RF Vision battery level is below 50% on power down
- Recharge your unit after each use to avoid recharging during the working day, and to prevent battery reaching the deep discharge state.
 - A battery in deep discharge requires a potentially lengthy trickle charge period wherein charging current is tightly controlled to prevent damage to the battery
- Never use the RF Vision to the point where the battery becomes fully discharged and where the unit turns itself off – this could result in a battery condition which requires the unit to be returned to the service center
- Leave the unit connected to the charger if it will not be used for extended periods of time

RF Vision Power LED Indications

There are 3 modes to the power button LED when the AC power charger is connected to the unit:

- Flashing green (slow) = battery is charging normally
- Solid green (no flashing when pressed) = battery is fully charged
- Solid green (rapid flashing when pressed) = battery is trickle-charging from a deep discharge state
 - When in trickle charge mode, the unit may require up to 48 hours to return to full charge. To test for full charge, press the Power Button LED and confirm the LED no longer flashes rapidly in response.



Exclusive Viavi Rental Partner with the most expansive inventory, including:

- 3Z RF Vision: GPS-Enabled Antenna Alignment Tool
- OneAdvisor-800 (ONA800): Spectrum Analyzer / Cable Antenna Analyzer
- TBERD 2000: OTDR



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Questions?

