

QUICK CARD

Measuring the Time Delay of a Satellite Antenna and Cable System

This quick card approximates the time delay from a satellite antenna and cable system to an Edge Grand Master (EGM) or router operating as an EGM.

EQUIPMENT REQUIREMENTS

- ▶ T-BERD/MTS 5800 with Transport Software Release V31.2.1 or greater
- ▶ Timing Expansion Module V2 (TEM V2)
- ▶ GNSS Antenna with known delay (VIAVI provided Taoglas A.171, Taoglas AA.162, Tallysman TW7882, or Maxtena M9706CWT recommended)
- ▶ SMA Male Adapter to adapt to the connector type on the antenna system under test.



Figure 1: Equipment Requirements

CONNECT ANTENNA UNDER TEST AND COMPLETE SURVEY


1. Identify the connector type of the Satellite Antenna system. If the connector is not SMA male, connect an SMA male adapter to the cable. The TEM uses an SMA Female connector.
2. Connect the antenna cable system under test to the female SMA connector on the TEM V2 (labeled Antenna).
3. Tighten the connector until the antenna is securely attached.
4. Press the power button  to turn on the test set.
5. Activate the TEM V2 Timing Module, setup the GNSS Receiver, Complete a survey, and verify GNSS Reception as described in the following quick card. When you configure the **Antenna Time Bias**, select the Antenna Type for the VIAVI supplied reference antenna, not the antenna system under test:
 - [T-BERD/MTS-5800 - Enabling the TEM V2 Timing Expansion Module](#)
6. Wait for survey to complete and for **Tuning Status** to reach at least **Intermediate Tune**.



Figure 2: TEM V2

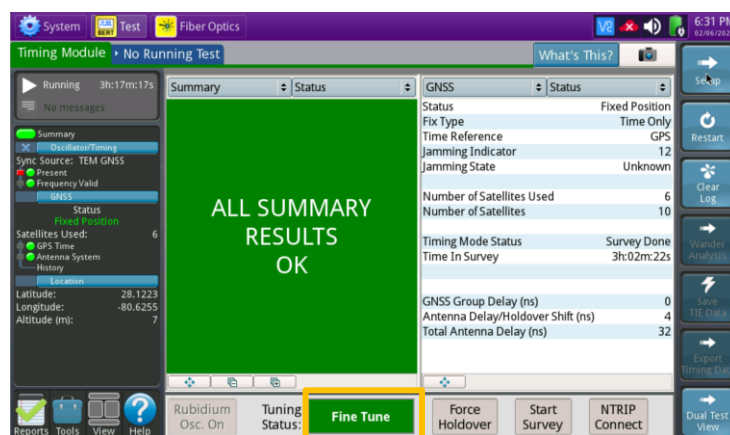


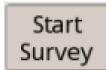


Figure 3: TEM V2 Results Screen

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CONNECT REFERENCE ANTENNA AND COMPLETE SURVEY

1. Tap the **Force Holdover** button  at the bottom on the screen. The button will turn yellow and be relabeled **Release Holdover** .
2. Disconnect the antenna cable system under test from the TEM V2 timing module.
3. Connect the Viavi-provided magnetic mount antenna to the TEM V2 Antenna and place the puck of the antenna in a location with clear-sky view. If you have to move the T-BERD/MTS to a different location, the ambient temperature should be close to that of the original location. If moving from indoors to outdoors, place the T-BERD/MTS in cooled or heated vehicle.
4. Press the **Start Survey** button  at the bottom of the screen.
5. In pop-up window, select **Fast-15 minutes** and tap **OK**.
6. Wait for the 15 minutes survey to complete.

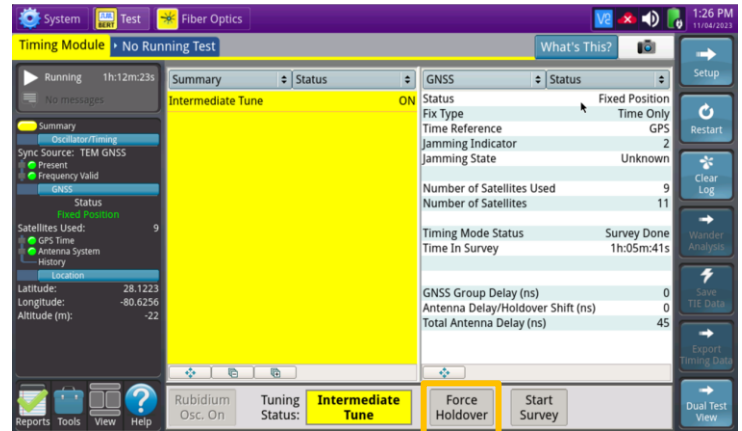


Figure 4: Timing Module GNSS Status Results

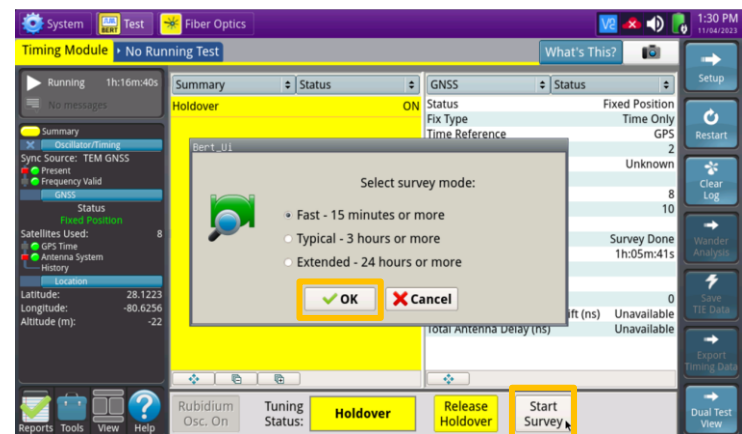



Figure 5: Start Survey pop-up window

VIEW ANTENNA DELAY

1. After the survey finishes, press the **Release Holdover** button  at the bottom of the screen.
2. The **Total Antenna Delay/Holdover Shift (ns)** value will populate in approximately 10 seconds. This is the Total Delay of the Satellite antenna system.

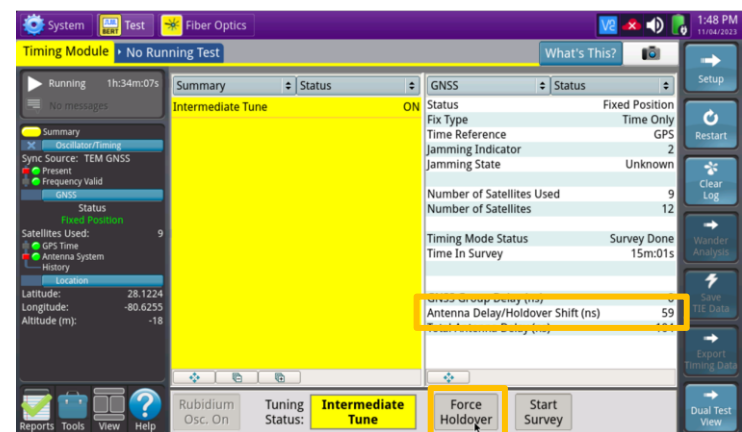


Figure 6: GNSS Status, Total Antenna Delay/Holdover Shift