The Redwire Space Star Field Simulator is a hardware in the loop simulator that provides as-you-fly operation of the Redwire Model 82920 Star Tracker in a simulated night sky environment. The Star Field Simulator offers several modes including predefined flight through user-defined night sky segments, externally driven orientation used in a closed-loop environment, and prerecorded night sky tracking data. This mode flexibility enables the star field simulator to accelerate the entire vehicle flight control development cycle from initial star tracker integration to full flight simulations. For example, flight systems engineers can use the star field simulator to explore operational scenarios such as different rates of motion, vehicle control scenarios, or pointing transitions.

In addition to system integration and simulation support, the star field simulator provides a testbed to verify star tracker operation saving valuable system troubleshooting labor and schedule time during build and test cycles.

When combined with Redwire’s Advanced Configurable Open-system Research Network (ACORN), the star field simulator enables full digital mission engineering, mitigating risk and increasing mission assurance.

APPLICATIONS

+ Star Tracker Test and Validation.

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PARAMETERS

+ Dimensions (W x L x H)
  8” x 24” x 7”
  (200 mm x 610 mm x 180 mm).

+ Mass
  11 LBS (5 Kg).

+ Included
  Star Field Simulator Fixture, Cabling, Power Supply,
  Star Field Driver, Laptop, SFS Software Suite.

+ Mode Support
  Mode 1: User defined flight segments from initial inertial
  frame.
  Mode 2: Externally driven star field display update.
  Mode 3: Predefined night sky tracking data.

+ User-Supplied Equipment
  Windows 10 computer system to run “Space Sextant”
  Star Tracker Telemetry interface.
  Model 82920 Star Tracker or Model 83190 SpectraTRAC.

MISSION HERITAGE

Based on software written at JPL to qualify star trackers.

Star Field Simulators are export controlled through an ECCN (Export Control Classification Number) issued by the United States
Department of Commerce, ECCN 7A104. Export shipment requires successful application for an export license.

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