

2026 GNSS Receiver RFP Addendum Overview Statement:

For this procurement, vendors may submit independent laboratory results as supporting evidence, provided the submission documents the laboratory, equipment, RF coupling method, baseline GNSS signal levels, interference waveforms, frequency ranges, power levels, receiver configuration, mitigation settings, measured outputs, and pass/fail criteria.

EarthScope will treat results from materially different protocols as supporting information rather than directly equivalent measurements. EarthScope may subsequently define or commission a common conducted-RF evaluation for shortlisted equipment. Any such evaluation will apply the same signal scenario, interference profiles, receiver configuration rules, and performance measures to all evaluated receivers.

Questions:

- Cycle slips vs Observable Yield - What tool and technique will be used to determine cycle slips, and how will the data be normalized to observable yield? A more sensitive receiver will beat the observable yield specification. However, the additional observables will be a much lower C/No and so have a much higher chance of a cycle slip. Unless this is normalized, a receiver is penalized on the cycle slip metric for beating the observable metric. If the data will not be normalized during evaluation, which is the most important, so we know how to tune the engine (i.e., should we reduce the yield to meet the cycle slip metric)?
 - Answer: We will evaluate a normalization scheme and apply the same normalization scheme to all submitted products equivalently.
- Independent Jamming Tests - There are no known ISO/IEEE GNSS jamming standards, so any “independent” test will likely be defined by a company to highlight their mitigation. Can EarthScope provide a standard or derive a test definition that they would like executed by an independent lab to provide a true independent test?
 - Answer: All submitted products will be tested in the same environment at the same time.
- Environmental - Under the Environmental section of both the receiver and antenna technical requirements, there are requirements for Shock (per IEC 60068-2-27), Earthquake (strong vibrations), Salt Spray (per IEC 60068-2-52) and UV Resistance (per IEC 60068-2-5) with associated test procedures but no limits provided. What are the expected levels that the equipment is required to meet? For example, what is the amplitude, duration and number of pulses for Shock? What are the amplitudes and frequencies for earthquake vibrations? Which test method to use for UV Resistance and the required exposure cycle, test duration and irradiance level. What are the specifications for lightning induced transient resistance.

- Answer: All submitted products will be tested in the same environment at the same time. We encourage vendors to provide additional information on tests that have been performed.
- Data streaming - Regarding the streaming features requested in Section 2.2.6, can you describe the EarthScope cloud side client use cases for how real-time, near real-time, and delayed data streams are handled?
 - Answer: EarthScope operates continuously recording scientific GNSS stations, including stations with constrained or intermittent telemetry. The requested modes describe latency and recovery behavior, rather than a requirement for three permanently duplicated outgoing streams.

Real-time use: A cloud-side client maintains a persistent connection for low-latency processing, monitoring, event response, and redistribution. Data may include 1 Hz or higher-rate raw observations, navigation messages, receiver status, timing information, and event records.

Near-real-time use: Following a short communications interruption, the client identifies a gap and retrieves buffered records while live delivery continues or resumes. Records must preserve their original observation times and provide sufficient sequence or identity information for gap detection, ordering, and deduplication.

Delayed use: Following an extended outage, the client retrieves the complete stored interval through a documented time- or sequence-range mechanism. This supports remote stations that may be disconnected for hours or longer and ensures that the scientifically complete record can be recovered even when real-time delivery was unavailable.

Vendors should describe buffer capacity under the proposed observation configuration, behavior when the buffer fills, reconnection and replay semantics, mechanisms for identifying gaps and duplicates, integrity verification, and whether navigation, metadata, status, and event records are recoverable with the observations.

- Section 1.2.1 Modifications of Firmware and Hardware - Section 1.2.1 indicates that EarthScope may consider new products nearing release, provided they are modified to meet the agreed-upon specifications by June 1, 2027. Do two complete units of any "new product nearing release" still need to be provided for testing by October 31, 2026? If not, what would be the latest acceptable date for providing the two complete units for evaluation?
 - Answer: This depends on the current product.

- For a new product version: Yes, however the newest version, if proposing the newest version, can be provided for additional testing before June 1, 2027.
 - For a new product: No, however, a similar or prior generation product must be provided for testing by October 31, 2026. The new product or generation must be provided for testing by June 1, 2027 if that product is being proposed.
- Section 2.1.4 Desired Features - Which LEO constellations, signals, or frequency bands are of particular interest to EarthScope?
 - Clarification: We request the vendor specify what signals they can support today, and what their technology will be able to support during the lifecycle of the unit.
- Section 2.2.4 Required Receiver Output Capabilities - TCP provides reliable, ordered data delivery but does not guarantee a specific delivery time, as latency also depends on network conditions, configuration, and data volume. Would EarthScope consider defining the ≤ 150 ms latency requirement independently of the transport protocol rather than requiring it specifically over TCP?
 - Clarification: Test will be performed on a local LAN - testing the latency of the receiver to respond.
- Section 2.2.5 Edge Compute Integration - Could EarthScope provide requirements or examples for the custom edge streaming software it intends to implement, including its expected architecture, approximate software size, and operating system requirements?
 - Clarification: Vendors are requested to provide information on what will be supported on the submitted product - what flexibility, what restrictions.
- Section 2.2.5 Edge Compute Integration - Is the OEM board or module expected to be proposed as part of this RFP, or does EarthScope anticipate issuing a separate RFP for it? If a separate RFP is planned, when is it expected to be issued?
 - Answer: At this time there is no intention to have a separate RFP. Vendors are requested and encouraged to provide information about what is available prior to the stated timelines.