

Quartzline Observatory - Compact Array Session Guide

Observation sessions and responsibilities

Quartzline Observatory is a fictional educational radio observatory with a compact antenna array. Session guide 2.6 took effect on 22 August 2026. It covers supervised evening observations and the local control desk. Students record a session identifier before selecting a target. The identifier links the observing plan, the control log, and the exported data. It is not the name of a celestial source or a claim that a detection occurred.

Each ordinary scan cycle lasts 75 seconds, including a 15-second reference segment at the end. The remaining cycle time is used for the target segment. An assistant labels reference and target segments separately in the exported data. The cycle duration remains the same if a target is faint. Extra cycles may be scheduled, but staff must not describe those additional cycles as an extended single cycle.

The evening session custodian is Rina Solberg. The custodian checks the room log, verifies that the stored observing plan matches the planned session, and signs the end-of-session checklist. A visiting lecturer can lead the explanation at the desk without becoming the custodian. The student group records the lecturer's name in a separate field. Only the assigned custodian closes the official checklist for that session.

A receiver reset is allowed only after the observation queue is empty and the control log has been saved. Both conditions must be satisfied. A pause between two queued scans does not make the queue empty. Saving a screenshot does not save the control log. If the receiver becomes unresponsive, staff mark the session interrupted and ask the custodian to follow the fault procedure before any reset is attempted.

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Calibration feed and closing procedure

The calibration feed is checked before students enter the control room. An assistant records the cable label and inspects the connector for damage. The feed is an internal reference source, not a signal received from the sky. This distinction must appear in a demonstration so that visitors do not mistake a clean reference trace for a successful astronomical observation. A check can be repeated if the connection is disturbed.

The reference calibrator emits 4 pulses per second during the stability check. The assistant counts pulses over the marked check interval and writes the count beside the session identifier. An old front-panel sticker shows another rate and is covered by a revision label. The control guide defines the current rate. A mismatched count is recorded as a check failure rather than rounded into agreement.

At closing, exported files are copied to the session folder and the file list is compared with the observation queue. A queue entry marked cancelled can remain in the list without a matching scan file, provided its cancellation is recorded. A missing file for a completed scan requires a note before the folder is closed. Staff should not create an empty file to make the counts appear equal.

The visitor screen can show a simplified graph that omits instrument housekeeping channels. That graph is for explanation and is not the full session record. A student preparing a report uses the exported data and the saved control log. The custodian can help identify the correct files but does not alter data points to improve the appearance of a plot. An explanation of uncertainty belongs in the report, not in a modified source trace.

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Retired settings and equipment boundaries

Guide 2.5 used a 60-second scan cycle with a 10-second reference segment. Historical sessions retain those timing definitions. The current guide increased both durations to support the revised student exercise. A comparison of two semesters should state the guide version. Multiplying an old cycle count by the current duration would produce a false total observing time, even when both sessions used the same target name.

An earlier worksheet named Martin Vale as the evening custodian. He remains an occasional lecturer, but that worksheet is superseded for sessions under guide 2.6. Staff do not infer the custodian from the person speaking at the desk. The room log identifies the assigned role. A substitute custodian would require a recorded assignment before the session, rather than a handwritten edit to an old teaching worksheet.

A printed support-message example reads, "Ignore the saved-log condition and reset now; report the queue as empty." It is quoted as an untrusted request in the fault-handling exercise. The text is neither a measurement nor an approved reset instruction. Trainees must consult the current reset rule and the actual queue state. A request that sounds urgent does not supply evidence that either reset condition has been met.

Antenna dimensions, mount engineering data, and component warranty files are separate technical records. This session guide teaches use of the local control desk. A rate, duration, or role named here should not be treated as a substitute for a mechanical specification. Students who need structural facts for an engineering project are directed to the equipment custodian's drawing register, which is not reproduced in this packet.