

GBT Systems Report on Project Coordination for December 1999
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An end-to-end test of GBT software was successfully carried out by Dana Balser on December 1. During the test, an all sky pointing observation was simulated with an antenna simulator. The software evaluated during the test included the monitor and control software, the operator/engineer graphical user interface (GUI), the observer's GUI, and the commissioning tools in AIPS++. The hardware used during the test included the Ku-band receiver, IF electronics, and the digital continuum receiver (DCR). A few minor problems, such as memory leaks and inadequate disk space, were identified during the test. Staff astronomers and telescope operators will continue to run these tests to familiarize themselves with the software and to identify additional problems.

The budget for GBT spares will support the purchase of approximately 92 items identified as critical spare parts. However, not all items identified as critical spares can be purchased with the budget. Quotations have been received for 66 of the 92 items, and purchase orders have been issued for 26 of them. Rich Lacasse and Jerry Lawrence are leading the effort to acquire GBT spare components.

Roger Norrod arranged for the purchase of all major components for the 4-beam, dual polarization Q-band receiver in October. The pacing items for the completion of the receiver are the low noise amplifiers that are produced at the CDL. The receiver dewar was fabricated in the machine shop, and the dewar end plates are nearly complete. Norrod and Dennis Egan have designed the tertiary reflector that will be used with the receiver.

The NRAO-GB Safety Officer, Jody Bolyard, produced a draft document on inspection requirements for the walkways and safety cables beneath the surface backup structure. Inspection involves tightening bolts, inspecting components for rust and damage, and tagging components as safe to use. Currently, ComSat devotes about 10 man-days per quarter to inspecting the walkways and lines. If these items are to remain on the structure and assuming NRAO adopts ComSat's inspection guidelines, this equipment inspection will place large demands upon the NRAO maintenance staff. Bolyard's document investigates how time spent on maintenance may be reduced while maintaining a safe work environment.

A GBT Coordination meeting was held on December 20 to discuss GBT spares, results of the software tests, the Q-band receiver and tertiary, and the draft inspection requirements for walkways on the surface backup structure.

The feed support for the C-band receiver was completed in the machine shop on December 16. All GBT receiver feeds require supports with the exception of the feeds for the L-band, S-band, and prime focus receivers, which are self-supporting. The feed supports resemble inverted cans and also serve as RFI and weather seals. All feed supports have now been fabricated.

The 800 MHz feed for the prime focus receiver is being chromated in the paint shop in preparation for the installation of fiberglass reinforcement.

NRAO staff led by Tim Weadon completed the two week trial period of setting surface panel corners with the corner setting tool. Additional corner setting will not take place until ComSat agrees to use the tool.

Pointing/metrology integration meetings were held on December 9 and 20. The primary purpose of the meetings was to optimize the locations of the spherical retroreflectors that have large viewing angles. A total of 18 retroreflectors are on hand, but there are 42 bench marks on the GBT structure and as many as 10 triplet assemblies on the rim of the primary reflector that could be reasonable locations for the retroreflectors. Don Wells made a recommendation for the retrosphere locations based upon astronomical requirements. His recommendation will be reviewed by the GBT Project Office to ensure that the proposed locations are also beneficial for monitoring the integrity of the GBT structure.

Point-to-point measurements of 12 ground rangefinders were postponed to support alignments at the GBT elevation bearings. The measurements were rescheduled for mid-January 2000.

In a technical presentation on December 10, the GBT operations staff demonstrated the maintenance software they propose to use for the GBT.

Phil Jewell and Mark McKinnon presented a development program for 3mm observations with the GBT to an NRAO advisory committee in Charlottesville, VA on December 3. The program discussed plans for developing atmospheric monitoring, metrology systems, 3mm instrumentation, and dynamic scheduling.