

Services at GHRIL and TFS

wht-naomi-63

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1.0 Introduction

This document outlines the services required for NAOMI at GHRIL and the Test Focal Station (TFS). More detail will be provided as the NAOMI design progresses.

2.0 GHRIL Services

2.1 Electrical power (UPS mains):

		W
DM rack (with Xinetics mirror, peak requirement)	800	
OMC racks (2) (peak requirement)	490	
WFS (average)	205	
TTS (WFS duplicate)		205
Figure sensor (estimate)		100
Workstations		<u>200</u>
	Total:	2000

Adding a 50% contingency (to cover all peak loads and auxiliary equipment) we have 3kW.

2.2 Global heat removal system for GHRIL area.

A global heat removal system from GHRIL is likely to be required. Approach is to be determined (subject to availability of funding). Initial operation should be planned to be without a global system.

2.3 Dust control

Ideal approach: Positive pressure environment with filtered input air.

Minimum requirements:

- Minimise dust entry via Nasmyth port and seal joints in walls and roof as appropriate.
- Check door seals for effectiveness and correct any deficiencies.
- Take measures to prevent dust entry when roof hatches are opened.

2.4 Dry nitrogen or air supply

Purge to prevent condensation and dust on critical optical components. The frequency of operation of the purge and the flow rate are yet to be determined. Both will depend on the cleanliness achieved at GHRIL.

2.5 Human Communications

- a) Three-way voice communications between GHRIL, WHT control room and GHRIL control room. (Hands-free in GHRIL control and optics rooms, headset in WHT control.)
- b) Video cameras in GHRIL control and optics room, monitor in WHT control room.

2.6 Ethernet connection

GHRIL control and optics rooms to WHT control.

2.7 Links from GHRIL control room to WHT Control Room & TCS.

To be defined in Interface Control Documents.

2.8 Earthing system

Although the earthing is believed satisfactory based on E-0 experience, a review of the GHRIL earth system is recommended. Two types of earth may be required; a heavy duty copper cable/strap with attachment points for equipment (including the bench) and a braided earth for the dissipation of electrostatic charge.

2.9 Safety

- a) Add fire/smoke detection and integrate into WHT fire warning system
- b) Add extra fire extinguisher (one for each GHRIL area)
- c) Review gate interlock hardware
- d) Add GHRIL/UES illuminated indicator (to avoid choosing wrong gate).

2.10 Access modifications

- a) Provide hatch in GHRIL roof above WFS to allow installation and removal using dome crane. Note that WFS has its own lifting frame which was described at the PDR. The hatch opening should be at least 1.0 m by 1.2 m. It should be positioned over the footprint of the WFS on the GHRIL table.
- b) Move double doors to provide easier access to GHRIL optics room.

3.0 Services at the Test Focal Station

3.1 Electrical Power

Same requirements as given for the GHRIL in Section 2.1.

3.2 Heat Removal

A heat removal system to keep all equipment within the operational temperature limits at GHRIL is required. Note that the area's temperature variations must not perturb the local seeing conditions more than those encountered within the GHRIL.

3.3 Dark Conditions

A temporary light-tight partition is required to allow the equipment mounted on the optical bench to be operated in conditions of total darkness as at GHRIL. The electronics to be mounted in the GHRIL Control Room would need to be in an illuminated area.

3.4 Earthing System

An earthing system at least equivalent to that at GHRIL is required.

3.5 Dry nitrogen or air supply

Purge (flow rate TBD) to prevent condensation and dust on critical optical components.

3.6 Human Communications

- a) Voice communications between the WHT control room and the TFS. (Hands-free in the TFS, headset in WHT control.)
- b) Video camera in the TFS optical table area.

3.7 Ethernet connection

TFS to WHT control room.

3.8 Links from TFS to TCS.

TBD

3.9 Handling Equipment

A crane or portable hoist with a lifting capacity of 80 kg is required to lift the wavefront sensor (WFS) on to the optical table.