# Engineering Change Control Procedures and Documentation

**Document number: AOW/GEN/RAH/3.0/06/97/Engineering Changes**

Version date 05/06/97

## 1.0 Purpose and scope of document

This document defines how engineering changes are proposed and approved. It should be read by all directly involved in producing hardware, software and providing facility support for the NAOMI project. Note that a separate procedure may be devised for software changes other than architecture changes.

## 2.0 Requirements

The procedure given below must be followed for a change that affects any of the following:

> a. NAOMI Space Envelope

> The NAOMI space envelope on the GHRIL bench (ROE Drawing No. 00A03L) is given in the NAOMI drawings section of BSCW.

> b. Performance

> Where a subsystem or component is covered by a Work Package Description (WPD)then the performance specifications in that document shall be used to determine the need for an engineering change request (ECR). Note that the need for ECRs is expected to arise principally at the design level rather than in detailing.Where a WPD is not applicable the performance predictions given in the Technical Description of NAOMI (AOW/GEN/AJL/7.0/07/96/Technical Description of NAOMI) should be used as guidelines.

> c. Function

> Where applicable, the functional requirements of the WPD shall be the basis for determining the need for an ECR. In other situations one should refer to the Top Level Scientific and Operational Requirements for NAOMI (AOW/SYS/RMM/6.0/07/96/NAOMI S & O Requirements).

> d. A WPD specification

> The following apply:

Baseline Wavefront Sensor Work Package Description (Document Number AOW/SUB/RAH/6.6/03/97).
Baseline Optical Chassis Work Package Description (Document Number AOW/SUB/RAH/5.4/03/02/97)

e. An interface with another subsystem or organisation.

The document Interface Control Procedures and Documentation(Document number AOW/GEN/RAH/2.0/05/97/ICD Documentation) defines the NAOMI subsystems for the purposes of interface control.

f. A science requirement

Section 1.1 of the Top Level Scientific and Operational Requirements for NAOMI (Document AOW/SYS/6.0/07/96/NAOMI S & O Requirements) defines the science requirements. Note that further requirements are likely to be added with the development of new instrumentation for use with NAOMI.

If in doubt the project engineer (PE) should be consulted. Note that where documents are referenced above one should check BSCW for the current version. Changes that do not fall into any of the above categories should be handled by each organisation using their existing internal change procedures.

Changes are to be made relative to baselined documents. Once baselined a document is then subject to the engineering change procedure except as noted above. Any document relating to an area that is being worked on by two or more organisations must be baselined. Each organisation's documents must be completely baselined on completion of their CDR.

## 3.0 Change procedure

The need for an engineering change must first be confirmed with the local manager. If confirmed, an engineering change request form must be completed. The format of this form is given below in Section 4.0. The document numbering system is specified in Section 6.0. The completed form, together with any necessary supporting information, should be submitted to the PE, preferably by e-mail. Drawings should be attached as an AutoCad file or a figure in a Microsoft Word document. Hard copies are acceptable if the request is not urgent. If the hard copies are larger than A-4 size  sufficient copies should be included for distribution to all organisations likely to be affected by the change. A suggested distribution list should be included as part of the request.

The PE will determine whether wider consultation or discussion is needed and he will organise or consult as appropriate. If necessary the request may be passed to the project manager (PM), project scientist (PS) and/or the software manager (SM) for further approval. In general the PM will be involved if cost or schedule are likely to be affected or

the change is likely to have significant effect on the project. The approval of the PS will be sought for any change affecting a science requirement or a significant specification. When the necessary actions are complete the change will be approved or rejected. If rejected a copy of the request will be returned to the author. The reason for the rejection will be given in the "remarks" section of the form. Any remarks will be initialled by the PM, PS, SM or PE as appropriate.

When full approval has been given the PE will notify the author via e-mail. The PE will then place a change order with all relevant information in an appropriate area on BSCW. The format for the change order is given in Section 5.0 below.

## 4.0 Format for Engineering Change Request

Document number: ECR/nnn/mmm/#.#/month/yr/title

Date of request:

Subsystem

Author of request

Proposed change

Reason for change

Attachments (optional)

Drawing(s) affected

Specifications or other subsystems affected:

ICDs affected:

Suggested distribution list:
Remarks (reserved for use by PM, PS, SM and PE as appropriate):

## 5.0 Format for Engineering Change Order

Document number: ECO/nnn/mmm/#.#/month/yr/title

Date of request:

Subsystem:

Author of request:

Proposed change:

Reason for change:

Attachments (optional):

Drawing(s) affected:

Distributed to:

Specifications or other subsystems affected:

ICDs affected:

Approved (PE):                    Date:

Approved (PS) (if required):       Date:
Approved (PM) (if required):       Date:

Approved (SM) (if required): Date:


Remarks (initialled and dated by each author).


## 6.0 Document Numbering

For engineering change requests the following numbering format shall be used:

ECR/nnn/mmm/#.#/month/yr/title

where  ECR replaces the standard AOW in the normal documentation system,
nnn is one of  OPT, MEC, ELE, FAC, SOF.
mmm is the author,
#.# is doc number and version by that author on that nnn topic,
the title should be a brief version of the main title.

For engineering change orders "ECR" will be replaced by "ECO".