

June 28th 2002

BARREL MODULE PRODUCTION SITE QUALIFICATION:

UKB

The UK-Barrel (UKB) ATLAS SCT Cluster submitted its case for site qualification for proceeding to the Production Phase of SCT Barrel Modules on May 28th 2002. It consisted of written documents and associated data on the web page¹, conformed to the general requirements of the procedures and criteria given in the following SCT document:

Barrel Module Assembly Site Qualification Procedures and Criteria

The documentations were questioned and answered by the barrel community through e-mails and the request was reviewed by a panel consisting of Module Coordinator [Y. Unno] and representatives from each of the other Clusters [R. Brenner (Scandinavia), Y. Unno (Japan), C. Haber (US)]

Below is the observation by the panel, *in italics*, along the lines of the criteria:

1. Named Personnel

- (a) A Cluster Responsible Person
- (b) A Cluster Quality Control Person

Site	Cluster Responsible	Cluster QC Responsible
UKB	A. Carter	D. Charlton

- (c) A qualified team of assembly, metrology and electrical test staff

2. Steps to have been completed

- (a) Production of at least 5 electrical modules, satisfying every aspect of the electrical and mechanical specifications listed in SCT-BM-FDR4 and SCT-BM-FDR7, from a starting date to be agreed by the Module Coordinators for each site.
- (b) Yield: no more than one failed module to have been part of the qualifying series.

UKB preferred to keep one module (at the stage of sensor-baseboard assembly) as non-qualification module, with a clear reasoning, after finding the weakness of the sensor to the assembly process. The process was subsequently improved. The finding is common to all clusters.

¹ <http://www.ep.ph.bham.ac.uk/exp/ATLAS/sct/sq/>

- (c) At least two modules to have been exchanged between pairs of sites to verify metrology and electrical measurements

A cross-calibration of metrology was made with the exchanged module from Japan's site qualification. A cross-calibration of the electrical measurement setup had been done in the pre-site qualification modules.

3. Documentation

- (a) Sufficient documentation and manuals for operator use in assembly and test
(b) Agreed batch-traveller procedure for module production and test
(c) Procedure in place for component accountability and yield statistics
(d) All results visible to all barrel sites

In a few cases, further metrology results are requested, in particular for tilt angle measurements of cooling facing, and measurement of hybrids on both sides.

These will be discussed in detail with UKB.

4. Required Facilities

- (a) Inert gas storage for components and completed modules
(b) Appropriate glue storage
(c) Clean room for module assembly equipped with all necessary wire bonding, module assembly station, glue dispensing, metrology station
(d) Commissioned jigging for all processes in (c)
(e) Database terminal and barcode reader
(f) Hardware and software for module QA as listed in SCT-BM-FDR7
(g) Necessary insurance cover for components and modules

After the observations and responses, the panel made the following comments:

1. All aspects of the module construction were of a very high quality, and demonstrated a very professional approach to the project.

2. The UKB Cluster is recommended to proceed to the Production Phase, in accordance with the requested actions below.

- With reference to Section 2 (c), the cluster may exchange one or two modules with other cluster sites to reinforce the cross-calibration of the metrology and electrical measurements, when the other cluster requests.

- With reference to Section 3 (d) the Cluster will provide the information when the necessary jigging is ready before commencing the series production.