

December 13th 2001

BARREL MODULE PRODUCTION SITE QUALIFICATION:

JAPAN

The Japan ATLAS SCT Cluster presented its case for site qualification for proceeding to the Production Phase of SCT Barrel Modules on December 11th 2001 at CERN. It consisted of written documents and associated presentations, and conformed to the general requirements of the procedures and criteria given in the following SCT document:

Barrel Module Assembly Site Qualification Procedures and Criteria

1. Named Personnel

- (a) A Cluster Responsible Person
- (b) A Cluster Quality Control Person
- (c) A qualified team of assembly, metrology and electrical test staff

Site	Cluster Responsible	Cluster QC Responsible
Japan	Nobu Unno	Yoichi Ikegami

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 Co-ordinators for each site.
- (b) Yield: no more than one failed module to have been part of the qualifying series.
- (c) *At least two modules to have been exchanged between pairs of sites to verify metrology and electrical measurements*

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 (through the database?)*

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*
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The request was reviewed by a panel consisting of Module Co-ordinator [A Carter] and representatives from each of the other Clusters [R Brenner, O Dorolt, (Scandinavia), A Seiden, V Fadeyev, (US), R Apsimon, J Carter (UK-B)]

The panel made the following comments:

1. All aspects of the module construction were of a very high standard, and demonstrated a very professional approach to the project.
2. **The Japan Cluster is recommended to proceed to the Production Phase**, but in accordance with the requested actions below, and with due reference to the actual component availability.

The following points should be addressed:

- With reference to Section 2 (c) the Cluster should, as a matter of urgency, exchange the necessary two modules with one or more other Cluster sites, and provide a written plan of this work before Production begins.
- With reference to Section 3 (c) the Cluster should provide implementation details.
- With reference to Section 3 (d) the Cluster should, through a Module Co-ordinator, make all electrical and mechanical results, in raw data format, available to the community for the 5 modules. Future site qualifications would require this to be done before formal qualification is sought, and Japan should provide it before proceeding to Production.
- With reference to Section 4 (g): the Cluster should provide the SCT Project Leader with a letter that assures full replacement of modules and module components in the event of loss through fire, theft, flood, etc. while in Japan.
- All details of the QA for current measurements, long-term tests, thermal cycling (temperatures, voltages etc) must be defined by the Module Co-

ordinators and followed during production. It was noted that new module shape parameters were introduced during this review by Y Unno, and proposed to be part of the standard metrology. If the Japan Cluster wish to implement these they are encouraged to justify them as part of the accepted procedure through urgent discussions with the other clusters

- Some concern was expressed over the missing database structure to handle all aspects of the module construction processes and accountability. The Cluster should liaise closely with other clusters to agree how this best be done and agree a format and content for this, ideally before Production begins, or at least in parallel with its start-up.
- There was concern that the current method of jiggging for module metrology, and the details of measurements, are neither agreed nor the same across all Module Clusters, nor defined in the FDR documentation. This was regarded as very serious, requiring urgent resolution by a group consisting of one person from each Cluster, convened by A. Carter. It was not considered that this should delay the start of production by the Japan Cluster, but its continuation after the first month would be subject to further review if the matter had not by then been resolved.