QA Circle - *Information Bulletin*

QA Circle's

Concept

Quality Assurance is the adherence to a series of procedures and activities to ensure that quality is maintained through each stage of manufacture and process from design to delivery and beyond with a view to produce a product of assured quality.
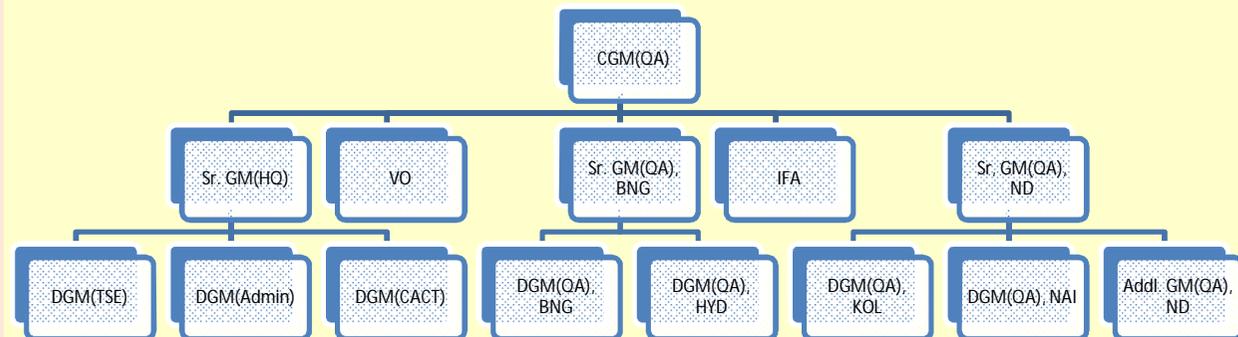
Objective

As an organisation, entrusted with the authority of dealing with all matters relating to quality of supplies TQA circle has the basic responsibility of assuring quality of products supplied so as to provide satisfactory customer service

Role

The primary role of the TQA Circle is to take care of the quality of Telecom supplies. Staff working in this Circle have the responsibility to deal with manufacturers and suppliers of various Telecom products and are committed to ensure that the required quality level is maintained from the design to delivery and beyond.

QA Organisation consists of

Telecom QA Circle Office, Quality Evaluation group,
Component Approval Centre Telecom (CACT) and
Telecom QA Centres spread across the country at different places located in proximity of equipment manufacturer's premises.

```
                        CGM(QA)
      ┌──────────┬──────────┼──────────┬──────────┐
  Sr. GM(HQ)    VO      Sr. GM(QA),    IFA     Sr. GM(QA),
                           BNG                     ND
  ┌────┬────┬────┐      ┌────┬────┐    ┌────┬────┬────┐
DGM(TSE) DGM(Admin) DGM(CACT) DGM(QA), DGM(QA), DGM(QA), DGM(QA), NAI Addl. GM(QA),
                               BNG     HYD      KOL                   ND
```

Functions/Activities of QA Circle

Infrastructure Assessment & procedure

The responsibility for conducting the Infrastructure Assessment for all the products is delegated to Telecom QA Circle

BSNL procures large quantities of various equipments and materials to be used as network constituents.

The operational efficiency of such network depends on the quality of the established manufacturing and supply system practices

With a view to judge the capability of a supplier, to produce and supply the required materials to BSNL there is a need to assess the infrastructure adequacy for ensuring compliance to the production/quality/capacity requirements of BSNL, the extent of reliability building into the design, consistency in quality of production and corresponding capacity of production are kept in view during such assessment. Generally, it is expected that the interim production /testing/ storage/ despatch infrastructure is available in the same premises registered/leased/rented in the name of the manufacturer/supplier.

Whenever the manufacturing facility is shifted to a new premises, a fresh Infrastructure Assessment is necessitated.

Formats QF-501 and QF-502 have been prescribed for submission of data by manufacturer. QF-501 collects general information and QF-502 about plants and machinery of manufacturer (capital goods, testers, repair facilities, etc.). The adequacy of these plants and machinery for proposed number of lines of production shall be assessed to verify if these are satisfactory.

Infrastructure requirement for testing GPON equipment

OLT & ONT CONNECTIVITY & TEST SETUP
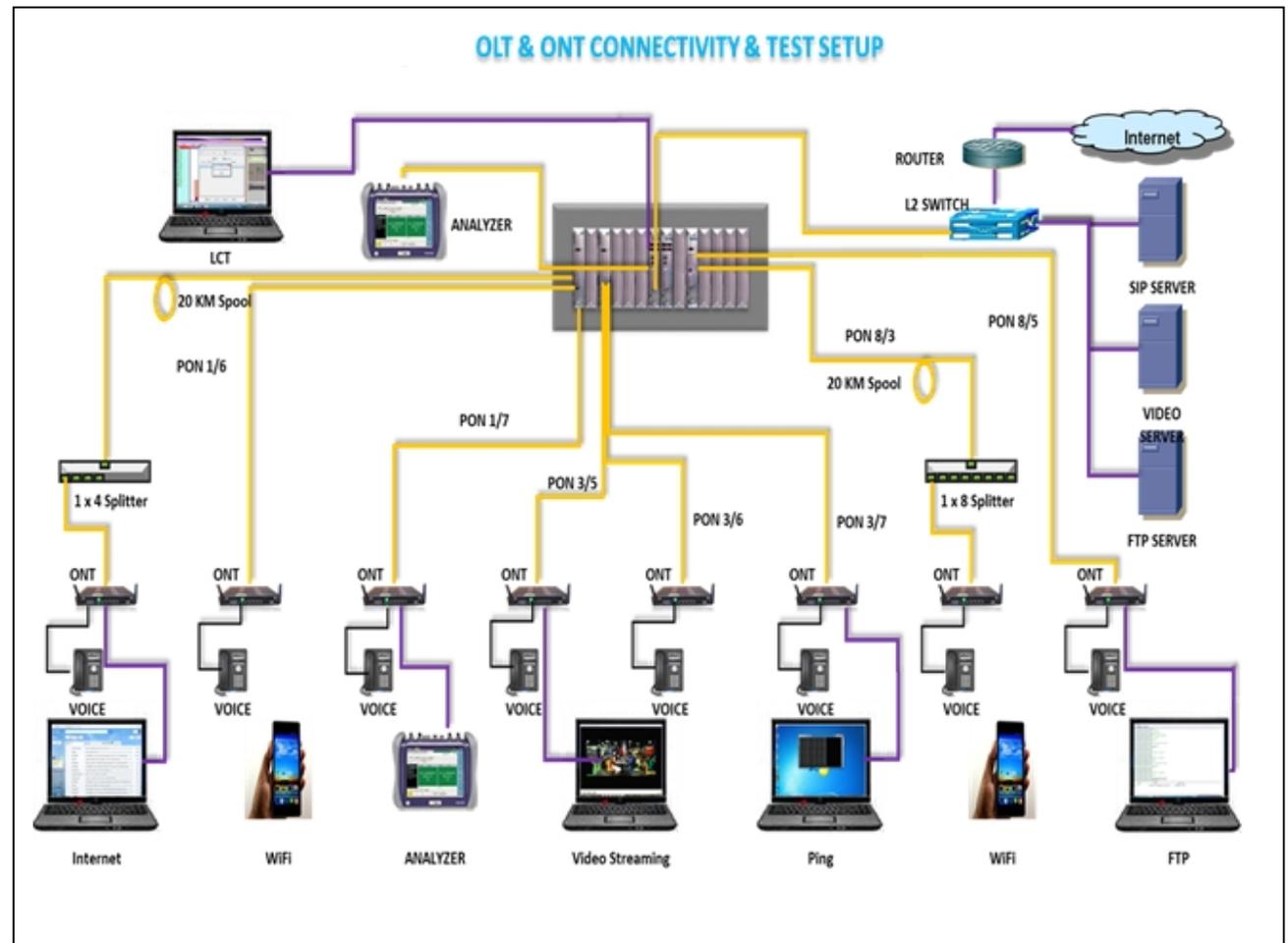
Functions/Activities of QA Circle

Evaluation Procedure

Role of QA in approval of the equipment against TEC GR or Tender is two fold:

i. approval of components ii. approval of infrastructure

Approval procedure proceeds in steps through application, documentation, infrastructure evaluation, technical evaluation, quality assurance checks, report, conclusions and issue of TSE Certificate subject to satisfaction.
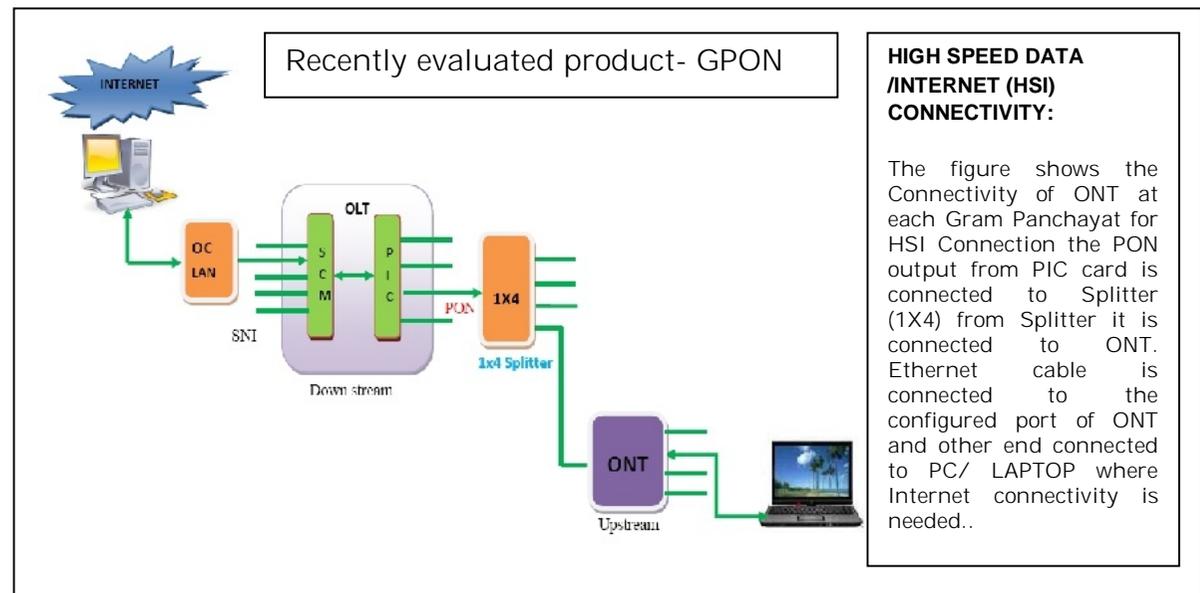
An applicant seeking issue of a TSE Certificate should apply in his own letterhead furnishing details of the product, the specification against which the product is produced, the manufacturing premises where the product is produced, etc. to QA Circle.

As soon as the proto sample is received, the QA Circle will arrange for clause by clause technical evaluation of the product against relevant specification. It is incumbent on the part of the manufacturer to arrange for such of the tests as required by the approving authority at accredited laboratories recognised by CACT obtain test results and submit the same to QA Circle.

On completion of satisfactory tests and evaluation, the QA Evaluating officer in co-ordination with vendor shall prepare detailed Evaluation Report as per existing guidelines, incorporate his own recommendations and forward the same to the Chief General Manager, Telecom QA Circle, Bangalore for scrutiny and issue of TSEC(Technical Specification Evaluation Certificate) if satisfied.

The Quality Evaluation functions include

- Check of conformance to standards through inspection.
- Establishment of sampling plans with specified AQLs, physical, climatic, environmental and life tests.
- Analysing results and monitoring the outgoing quality of products procured.
- Evaluation of component sources.
- Prototype Evaluation of products including accent on developing good quality vendors through proto evaluation procedure.
- Life test on equipment and sub-assemblies.
- Enforcing reliability aspects of the equipment.
- Surveillance tests on production and raw materials of manufacturers during bulk supplies.
- Drawing up of monitoring standards.
- Guidelines on packing, storage, handling of equipments and sub-assemblies.

Recently evaluated product- GPON

HIGH SPEED DATA /INTERNET (HSI) CONNECTIVITY:

The figure shows the Connectivity of ONT at each Gram Panchayat for HSI Connection the PON output from PIC card is connected to Splitter (1X4) from Splitter it is connected to ONT. Ethernet cable is connected to the configured port of ONT and other end connected to PC/ LAPTOP where Internet connectivity is needed..

Component Approval Centre for Telecom(CACT)

certificate of Accreditation from NABL
(National Accreditation Board for Testing and Calibration Laboratories)
for its facilities at Dooravaninagar, Bangalore

- Assessment of quality of component to be enlisted in the preferred parts list (Component Catalogue of CACT).
- To oversee the procedure of source approval for components.
- Collection of field feedback data on failed component.
- Conduct Failure Analysis on failed components and Advice to manufacturers on component quality.
- Conduct Surveillance checks on quality of components procured by Telecom Equipment manufacturers.

BPC(Bulk Production Clearance)

Bulk Production Tests are to be generally taken up during the first offer for bulk testing after issue of TSEC concerned QA Centres will conduct relevant tests on the equipment when the manufacturer offers first production lot. If all the requirements are met, the QA centre will continue the QA testing of further bulk produced equipment with intimation to TSE Centre, Bangalore.

1. Technical status of the system (H/W & S/W) and incorporation of ECN's (Engineering Change Note) wherever applicable confirming to status in Type Approval Certificate of TEC.
2. Deviations list, if any and exceptions list pertaining to usage of unapproved components, workmanship standards and functional test results as per design specifications.
3. If any bought out items are supplied such as battery, terminals, PC, etc. they should have TAC or original vendor should have got the items qualified. Such qualification approval test results shall be submitted.

i. approval of components   ii. approval of infrastructure are the two aspects required to be completely complied with during bulk supplies to BSNL. At the time of bulk production, the manufacturer must also put in place a quality system through various processes of manufacturing. The Production Qualification Tests are introduced to ensure quality and reliability of equipments actually produced. The assessment includes validation of Quality Assurance measures adopted, production processes employed, test equipment and testing procedures provided, level of value addition and production capacity.

Validation of QA measures is conducted before bulk supply starts. However, QA would insist on the complete production line to be in place before embarking on bulk production.
QA philosophy is to build quality step by step, all through the process of production by checking at each stage rather than checking only the final product.