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**FOR IMMEDIATE RELEASE:**

*AFC receives ISO 9001 Certification*

**ADVANCED FIBRE COMMUNICATIONS RECEIVES  
ISO 9001 CERTIFICATION**

Petaluma, California, October 6, 1997 –Advance Fibre Communications®, Inc. (NASDAQ: AFCI) announced today it is officially registered by Underwriters Laboratories Inc. (UL) to ISO 9001, ANSI/ASQC Q9001: quality assurance in design, development, production, installation, and servicing.

The ISO 9001 international standard consists of all elements which define a quality system aimed primarily at achieving customer satisfaction by preventing nonconformity at all stages from design through servicing.

“AFC is committed to providing the best quality products in the industry”, says Carl Grivner, chief executive officer at AFC. “ISO 9001 certification is further validation of our commitment to deliver products unrivaled in quality and service.”

In the United States and abroad, many industry and government purchasers now require ISO 9001 certification of their suppliers.

AFC is a leading manufacturer of telecommunications systems for the “local loop” between telephone service users and public telephone networks worldwide. AFC has pioneered a single platform that supports any network, any transport, and any service. AFC’s flagship product the UMC 1000® 3<sup>rd</sup> Generation Digital Loop Carrier™ provides any service from POTS to xDSL over copper, fiber, HDSL, coax and radio transport media. ###

# Quality Manual

**Document No:** 7700-0000

**Abstract:** This document describes AFC's Quality System. It outlines quality policies, procedures, and responsibilities designed to meet the requirements of ISO 9001.

## Revision History:

Ver.	Date	Author	Changes from Previous Version
1A	1/22/96	Peter Kilkus	Initial Release
1B	3/5/97	Peter Kilkus	Incorporate Recommendations from ISO Audit
2A	9/5/97	Peter Kilkus	UL ISO 9001 audit changes. Defined Quality System Reviews. Added Quality Procedure names and numbers. Updated Purchasing section and organization chart.

## Approvals:

Title	Date	Printed Name	Signature
Author			
Product Management			
AR&D/Engineering			
Operations			
Quality Assurance			
Chief Executive Officer			



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## 1. Management Responsibility

### 1.1 Quality Policy

At Advanced Fibre Communications, **Quality** is defined as the sum total of the attributes of our products and services which guarantees their usefulness to our customers. We will deliver products and services that consistently meet or exceed our customers' expectations and we will deliver these products on time, every time. Every AFC employee shares in this commitment to customer satisfaction. Our objective is defect-free products and services. Our performance standard for every activity is: Do it right the first time.

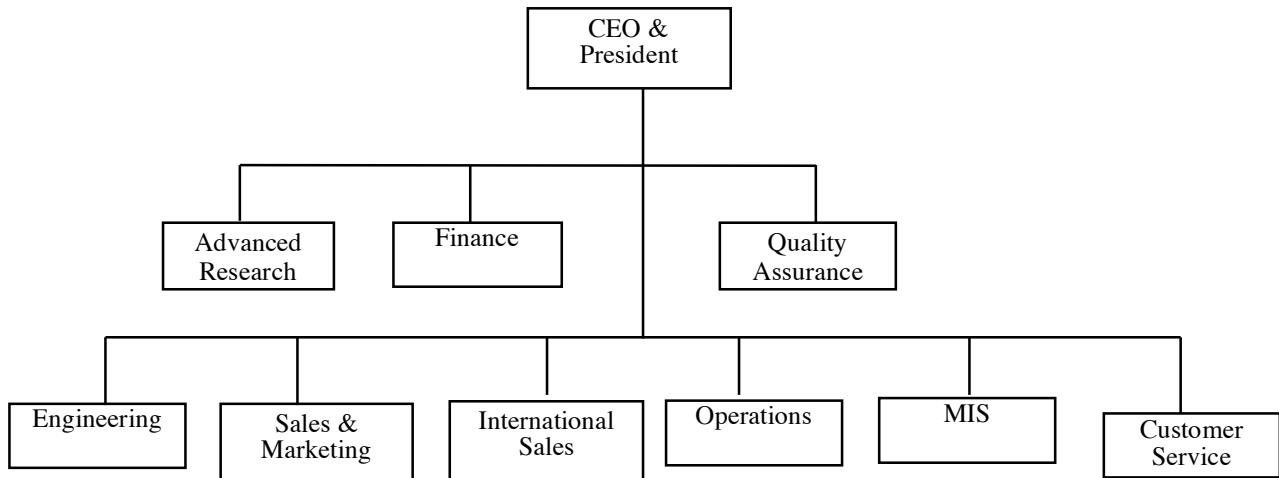
In order to fulfill the objectives of this Quality Policy, AFC will train all employees in the Quality Policy to see that it is understood and effectively implemented.

The following **AFC Core Values** are the foundation for the environment which sustains our Quality commitment to our customers:

- We will treat all individuals fairly, ethically, and with respect.
- We are a company built and sustained by people who are customer-oriented, empowered risk-takers, team players, and results-driven.
- We strive to be recognized as a leader in communications technology with products that improve the quality of life in our customers' communities.
- We base our decisions on the critical balance of customer expectations, shareholder return, and the well being of our people.
- We will continually strive to improve the quality and efficiency of our business.
- We will make it fun!

## 1.2 Organization

A description of the organization and the definition of the interrelationships, as well as Responsibility and Authority, is contained in the following section and Section 1.3.



## 1.3 Responsibility and Authority

The CEO is the chief executive officer of AFC. The Vice-President of Quality Assurance reports to the CEO. Executive Management is defined as the CEO and the direct reports to the CEO.

Executive Management is responsible for:

- Providing leadership and visibility in quality-related activities.
- Reviewing the Quality System and setting quality goals.
- Providing the necessary resources to implement and maintain the Quality System.

Managers and Supervisors are responsible for:

- Implementing the Quality System and setting specific Quality objectives.
- Recommending and implementing solutions to improve quality and productivity.
- Providing necessary training and tools to implement the Quality System.

All employees are responsible for:

- Understanding and implementing the Quality Policy and Quality System.
- Identifying, recording, and communicating and correcting quality problems.
- Recommending and implementing solutions to improve quality and productivity.

Executive Management appoints the Vice-President of Quality Assurance as its representative to manage the Quality System with the responsibility and authority to ensure that the Quality System is established, implemented, and maintained in accordance with ISO 9001 and to report

on the performance of the Quality System for management review and as a basis for improvement of the Quality System.

AFC's executive management will review the Quality System quarterly. The purpose of the review is to assess the effectiveness and continuing suitability of the Quality System in satisfying the requirements of ISO 9001. An additional goal is to assure that the established Quality Objectives support the implementation of the Quality Policy as well as to define new Quality Objectives.

A minimum of five members of Executive Management must be present at a Quality System Review (QSR) for it to be considered effective: CEO, QA, Engineering, Operations, and Customer Service. All twenty elements of ISO 9001 will be reviewed annually – five at each QSR. The results of the review are recorded. The effectiveness of the Quality System is also determined through the results of the Internal Quality Audit Program which audits the application of each of the ISO elements.

Resources for implementing the Quality System, including inspection, testing, monitoring, and auditing the product and processes, are identified and provided by management. These resources are included in the various project and product plans produced by individual departments.

The following summaries of responsibilities are covered in more detail in the relevant sections of this document.

Quality Assurance is responsible to ensure that Advanced Fibre Communications' hardware and software products are developed, manufactured, and supported to meet defined Quality and Reliability standards throughout the product life cycle such that recognition of and conformance to requirements is an inherent part of the process.

Sales is responsible for primary contact with customers regarding all aspects of customer satisfaction. Sales also assists Marketing in determining customer needs and how AFC products will satisfy those needs. Obtains product quality feedback from customers and distributes this information, with the assistance of Marketing and Quality Assurance, throughout the company.

Marketing is responsible for defining the product requirements which meet the needs of AFC's customers, assisting Engineering in implementing the Phased Review Life Cycle Process, controlling the introduction of the product to the customer base, and managing the service and repair aspects of the life cycle. Determines product quality requirements and the acceptable quality levels necessary to meet the customer or market needs and expectations.

Customer Service is responsible for primary customer contact regarding field performance, service, and installation quality issues. Maintains a trouble call reporting system and the returned material processing system. Provides feedback to the company on field issues.

Engineering is responsible for designing and testing products to the full range of performance, quality, and reliability requirements following the Phased Review Life Cycle Process. This process is the defined Engineering product development process which explicitly recognizes the

variability of the development process based on the types and complexity of features being implemented and establishes the necessary checks and balances to control the complexity and parallelism of a rapid development environment and its interrelationship with Manufacturing.

Design Verification Test within Engineering is an independent system test group responsible for verifying all hardware and software designs against all relevant requirements.

Component Engineering within Engineering is responsible for maintaining a Component Quality program which includes component and supplier selection and qualification processes to ensure that all components meet required specifications.

Manufacturing is responsible for ensuring that products are manufactured and tested to AFC quality standards and delivered to customers in an accurate, timely, and cost-effective manner.

Quality Control within Manufacturing is responsible for the operational techniques and activities that are used to fulfill the requirements for quality. These techniques and activities are designed to both monitor processes and to eliminate causes of unsatisfactory performance at all stages of production. These include Receiving, In-Process, Final, and Shipping Inspection. With Purchasing and Component Engineering, is responsible for implementing the Component Quality and Supplier Quality programs.

Manufacturing Engineering within Manufacturing is responsible for implementing, maintaining, and improving manufacturing processes so that manufactured product, including that of assembly contractors, meets all quality requirements.

Purchasing within Manufacturing is responsible for procuring materials that conform to applicable component specifications and quality workmanship standards. Selects and develops suppliers capable of complying with quality requirements, competitive pricing, and performance to schedule mandates.

## **2. Quality System**

AFC has established a quality system which through organizational structure, procedures, processes, and resources implements quality management throughout the company. The quality system ensures that AFC products conform to specified requirements.

This Quality Manual is the first level documentation of the AFC Quality System. It is supported by several high level quality program documents including the Manufacturing Quality Program and the Phased Review Life Cycle Process.

The second level of quality system documentation consists of the procedures which effectively implement the Quality System defined in the higher level documents. These are the individual procedures within each major department which support the Quality System.

A third level of quality system documentation consists of the appropriate and necessary work instructions and forms needed to perform detailed operations. These instructions may take the

form of flow charts, checklists, etc. A master list of all documents in use is maintained per the Procedure Control System. The current revision of all documents is identified to ensure that non-applicable documents are not used.

AFC primarily defines and documents its requirements for Quality Planning in this Quality Manual and in the Manufacturing Quality Program and Phased Review Life Cycle Process. Quality planning is an agenda item in the Management Reviews of the Quality System and is a defined element of the AFC Business Plan. Each department is required to create objectives that support the Quality objectives defined in the Business Plan. Quality Planning is also done at the more detailed project and program level by explicitly including requirements development and review, document development and review, hardware and software design review, design verification, field verification, field reliability, and customer satisfaction in all project plans.

### **3. Contract Review**

A Contract Review function within Finance has the primary responsibility to review major contracts with domestic and international customers. Executive management also reviews these contracts in detail for price and performance elements critical to the company's future success. Marketing, Sales, and Engineering also review major contracts to determine the capability of meeting specifications. Quality Assurance reviews them for quality, reliability and regulatory compliance requirements. Contract Review records are maintained.

Major Requests for Quotations (RFQ's) and Requests for Proposals (RFP's) are reviewed by the broad team of people mentioned above prior to acceptance. Smaller quotations and sales orders are all reviewed, prior to acceptance, by designated applications engineering and order administration experts for conformance to specified customer requirements and to AFC standards. If a question arises about quality requirements, for example, the Quality Assurance department is notified. If discrepancies are noted or changes required the customer is notified and the change requirements negotiated to ensure that terms and requirements can still be met.

The purpose of these reviews is to assess if the customer's requirements are adequately defined and understood, and if AFC has the capability to meet the customer's requirements. If discrepancies are noted or changes required, the customer is notified and the change requirements negotiated. A Contract Review Procedure documents these processes, including contract amendment procedures, and records of these activities are maintained.

### **4. Design Control**

The Phased Review Life Cycle Process, which begins with the development of a Marketing Requirements Document (MRD) and proceeds through installation and maintenance of a product that fully satisfies the customer's needs, serves as a comprehensive description of the AFC product design plan and quality program and is intended to be the primary internal communication and training resource to guarantee that all AFC employees with design and design support responsibilities share a common quality goal. It describes the design cycle's

interrelated phases and development activities and identifies organizational responsibilities for coordination and control of these life cycle activities. This process supports a rapid time to market by focusing on the fundamental elements of design quality that allow flexibility while ensuring adequate control.

Final product quality is also dependent on the quality of the process used in determining true customer requirements, translating those requirements into specifications, implementing those specifications in software, and verifying that the final product meets the original customer requirements. The AFC Phased Review Life Cycle explicitly recognizes the variability of the development process based on the types and complexity of features being implemented and has established the necessary checks and balances to control the complexity and parallelism of a rapid development environment.

The Phased Review Life Cycle Process is supported by a set of individual procedures defining design documentation, design change control, review procedures, configuration control procedures, and design verification and validation procedures.

## **5. Document and Data Control**

Appropriate documents and data are available and controlled at all locations in the company where they are needed and where operations essential to the effective functioning of the management system are performed.

Control of documents will be based on adequately trained employees being given controlled access to required procedures. Although uncontrolled paper copies which match the governing versions will be allowed for use, they are not considered the governing document.

Documentation includes (but is not limited to) this Quality Manual, procedures, quality plans, work instructions, drawings, specifications, purchase orders, inspection and test data, calibration and external standards.

Data includes (but is not limited to) any information which may affect quality. Data is not used until it has been reviewed. The record of review is the approved document in which the data is used.

Procedures are in place that control all documents and data relating to the requirements of this manual. These procedures ensure that:

- Authorized staff members identify, control, review and approve these documents before issue or use.
- Accurate and complete, current issues of Quality System documents are always available where they are needed.
- A master list of current status for all documents in use is maintained, or they are controlled by a documented procedure or work instruction. The current revision of all documents is identified, to ensure that non-applicable documents are not used. Documents are not used if

they are not on the list, or otherwise controlled by a documented procedure or work instruction.

- Documents are legible, dated (including revision date), traceable to the product or service (where applicable) and maintained in an orderly and accessible manner.
- Confidential information will be distributed on an “as needed” or “need to know” only basis.

Document changes and modifications are controlled through the following processes:

- Master lists of approved controlled documents have been established (MDLs). Documented procedures, and work instructions exist to ensure that changes to documents are controlled, tracked, communicated, and provided to all that need to be aware of the changes.
- Document changes are reviewed by the same functions or organizations that perform the original review and approval of documents unless specifically designated otherwise.
- Staff responsible for review and approval of original documents and changes have authority to access pertinent information to base their review and approval decisions on.
- Changes are identified on the document or attached control sheet, in attachments, or in supporting documents, whenever practical.

The core set of Quality Procedures includes:

7700-0000	Quality Manual
7700-0001	Procedure Control System
7700-0003	Workmanship Standards Manual
7700-0004	Product Life Cycle Process
7700-0005	Manufacturing Quality Program
7700-0006	CLEI Code and Product Notice (PCN) Procedure
7700-0007	Calibration Procedure
7700-0009	General Review Procedure
7700-0011	Corrective and Preventive Action Procedure
7700-0012	Quality Audit Procedure
7700-0013	Electrostatic Discharge (ESD) Control
7700-0015	Forms Control
7700-0016	Training Procedure
7700-0020	Network Backup Procedure
7700-0022	Quality Record Retention Procedure
7700-1001	Product (PCBA) Identification & Traceability
7700-1203	Supplier Quality Program
7700-1300	Printed Circuit Board Assembly Contractor Manufacturing Specification
7700-1302	Mechanical Work Instruction Control
7700-1304	Manufacturing Software Database Maintenance and Administration
7700-1400	Test Engineering Software Control Procedure

7700-1401	Test Engineering Hardware Control Procedure
7700-1500	Receiving Inspection Procedure
7700-1501	Material Review Board (MRB) Procedure
7700-1502	Non-Conforming Material Control Procedure
7700-1505	Subcontracted PCB Assemblies – Sample Inspection
7700-1601	Material Handling and Storage Procedure
7700-1700	Contract Review
7700-1701	Warranty Service Procedure
7700-1702	Technical Assistance Center Procedure
7700-1705	Order Processing Procedure
7700-4001	Engineering Change Order (ECO) Procedure
7700-4005	Mechanical ECO Process
7700-4103	Component Quality Program

## 6. Purchasing

Purchased materials, components, and assemblies become part of, and directly affect the quality of, AFC's products. Purchasing contracts and other interactions with suppliers and contractors will assure that the quality requirements are clearly stated and verified. The Approved Supplier List (ASL) is established by Purchasing and Quality Control. The Supplier Quality Program is the basis for supplier selection for the ASL. The Supplier Quality Program is established by Quality Assurance, Quality Control, and Purchasing. Administering the Supplier Quality Program is the primary responsibility of Quality Control.

Purchasing documents contain as a minimum: supplier part number, name, revision, quantity, AFC's part number, name and revision, delivery, and price. They may also include (as applicable): supplier catalog reference number, description, supplier drawing number, or AFC drawing number. All purchasing documents are reviewed and approved prior to release to the supplier.

AFC selects suppliers and subcontractors based on their ability to meet all of our requirements, the type of product or service they provide, and their previous record of performance. Suppliers are assessed per current procedures, evaluated and approved prior to use. Records are maintained that list the acceptable sources for each product material, supply or service that is used in our products. The selection of suppliers and the degree of control exercised are dependent upon the product type, supplier performance and customer requirements. In all purchasing contracts and orders, clear instructions will be given on the level of quality expected and the specifications of the product.

Potential new supplier and subcontractors quality systems are evaluated to determine the classification and acceptability of a supplier by one or more of the following methods:

- Conduct on-site audit with the supplier/subcontractor.

**Advanced Fibre Communications Proprietary Data**

- Send the supplier a Quality System Survey to complete.
- Complete the Pre-Qualification Interview via phone conversation.
- Acceptable first article inspection and/or testing, of potential supplier product and as applicable, evaluation of first delivery reports.
- When the supplier cannot show existence of a quality system, acceptability is based on monitoring of delivered product.

AFC reserves the right to verify purchased product at the supplier's or subcontractor's premises and will specify these arrangements as part of the purchasing process. AFC customers may, as specified in a contract, verify purchased product at both AFC's and subcontractor's premises.

## **7. Control of Customer-Supplied Product**

In the event that customers may wish to supply product for incorporation by AFC into products sold to that customer, procedures will be established by Operations for verification, storage, and maintenance of the customer-supplied product. Any such product that is lost, damaged, or is otherwise unsuitable for use shall be recorded and reported to the customer. This process is also applicable to customer-owned product returned to AFC's Warranty Services Department.

7700-1701, Warranty Services Procedure.

## **8. Product Identification and Traceability**

The identification of all raw material, piece parts, printed circuit and mechanical assemblies is defined in the AFC Part Numbering System document. In addition, every electrical assembly has a bar code label affixed to the unit. The bar code allows tracking through the assembly and test process, including units returned from the field for repair. The Board Track system allows collection and correlation of manufacturing quality data for yield improvement. The system also allows collection of field failure data by unit and customer which is used for corrective and preventive action and to determine reliability improvement programs.

The control and issuance of serial numbers is the responsibility of Manufacturing Engineering. Data by serial number is maintained as an electronic record and can be used to trace any problem to a given unit and time of manufacture

Additional unit markings and special bar code labels are sometimes specified by customers and will be applied as required.

## **9. Process Control**

All production processes are identified and planned and qualified to assure that quality is achieved at each stage of manufacture. Controls are established to assure that the proper equipment and personnel are available, a good work environment is maintained, and quality criteria and workmanship standards are available and clearly understood. Quality system

procedures and instructions include documented work instructions where the absence of work instructions would adversely affect quality or compliance with reference standards and codes. AFC will:

- Identify and use suitable production, installation and test equipment.
- Approve processes and equipment as appropriate.
- Provide and operate in an appropriate working environment.
- Comply with the standards or codes applicable to our business.
- Comply with documented quality plans.
- Monitor and control suitable processes and product characteristics.
- Maintain equipment to ensure process capability.
- Define product acceptance standards in writing or as applicable, with representative samples.
- Limited shelf life products, or products that require special storage or handling are controlled.

Any special processes that produce results that cannot be verified by subsequent inspection and testing of the product are identified. These processes are closely monitored and controlled to predetermined specifications to ensure that a quality product is being produced. Personnel involved in these processes will be trained and qualified as specified in the Training Procedure. Records are maintained of all training and process qualifications.

Process control is the primary responsibility of Manufacturing Engineering with the assistance of Quality Assurance. Manufacturing Engineering also assures that AFC process control requirements are implemented and met by assembly contractors. Inspection and test results are recorded and analyzed using statistical techniques as appropriate to identify trends, problem areas and to measure the effectiveness of the quality system.

## **10. Inspection and Testing**

The Manufacturing Quality Program describes AFC's inspection and testing process. Inspection and testing techniques and activities are designed to both monitor processes and to eliminate causes of unsatisfactory performance at all stages of production in order to result in economic effectiveness. Although every activity is quality-related, there are some key points at which more formal inspection or test is indicated:

- There is a change of responsibility or ownership.
- The next step is irreversible or results in a significant change in the state of the product.
- A critical quality step has been completed.
- A completed step involves dominant process variables.

By analyzing the manufacturing process and identifying the critical points, the quality program can be optimized to verify quality and provide process feedback resulting in optimum quality for the lowest cost and time commitment. This analysis is performed on an ongoing basis and may result in additional inspection, test, or statistical control points.

Receiving Inspection will be required on all incoming materials per the defined requirements. The Supplier Quality Program will be used to determine the amount and nature of receiving inspection. Vendor-supplied data will be used where appropriate. Material not conforming to requirements will be segregated from production materials for disposition. Product that is released from incoming prior to verification for urgent release to production purposes are identified to facilitate recall should verification result in the material being suspect of a nonconforming situation.

In-Process Inspection and Test will be done at several key points as defined in the Manufacturing Quality Program. The results will be recorded and the status noted. No products will be allowed to the next stage of production until conformance to verification requirements have been met.

Final Inspection will include a verification of the completeness of all previous required inspection and test through appropriate records, and will confirm all quality attributes defined for this process step prior to finished goods stock. A final shipping inspection audit will also be used to verify product conformance to both AFC and customer packaging, marking, and documentation requirements. No product will be released for shipment until all previous inspections and tests have been completed. This status is verified through the Board Track system, and electronic records of verification are retained in the system.

Nonconforming product is identified and reviewed per the MRB (Material Review Board) process for disposition, corrective and preventive action. Quality hold will be imposed on products that have defects that could affect product performance and can be released only through the process defined in the Hold Order Procedure.

## **11. Control of Inspection, Measuring, and Test Equipment**

Inspection, measuring and test equipment is selected, handled, controlled, maintained, calibrated, adjusted and used in a manner that ensures its effectiveness in demonstrating conformance of products to specified requirements. Calibration procedures and calibration intervals for test equipment, and test procedures for products being tested, take into account accuracy requirements for the tests being made. Calibration and testing are accomplished in a manner which ensures that measurement uncertainty is known and is consistent with the required measurement capability.

Inspection, measuring and test equipment is calibrated against standards that have a known valid relationship to nationally recognized standards. Where no such standards exist, the method used for calibration is documented. Calibration records for inspection, measuring and test equipment are maintained. Inspection, measuring and test equipment is clearly identified to indicate its calibration status. When inspection, measuring and test equipment is found to be out of tolerance during calibration, the validity of previous inspection and test results is assessed, and appropriate corrective action is taken. Records of such assessments are maintained. Effective procedures and training are implemented to prevent inadvertent adjustments to test equipment and test software which would invalidate tests and calibrations.

The full extent of the calibration system is documented in the Calibration Procedure.

## **12. Inspection and Test Status**

Inspection and test status of all products is identified throughout the production process by means of authorized stamps, tags, labels, or inspection records to ensure that products are dispatched to customers only after passing the required inspections and tests. Test status of electronic assemblies is primarily monitored through the use of the Board Track system and board serial number. Mechanical assemblies such as cabinets are accompanied by a checklist document which identifies the completion of required test and inspection steps.

No material can pass to another production point until the inspection and test status is noted as having successfully passed the inspection or test requirements. The Board Track system prevents this movement electronically by comparing the serial number of an assembly to the electronic log of required tests and inspections against that assembly. The mechanical checklist must be initialed in the case of mechanical assemblies.

When a part is rejected, it is labeled accordingly, and handled per the requirements of the Material Review Board Procedure for disposition. All materials are considered acceptable unless located in a clearly marked, non-conforming materials container or location. Materials will not be released from these locations without documented concurrence from quality personnel. Non-conforming product found during out-of-box audits or as part of a material purge is held from shipment and identified as reject with rejection labels. A rejection report is written describing the discrepancy and products are segregated for disposition and, when required, corrective action.

## **13. Control of Non-Conforming Product**

AFC maintains documented procedures to ensure that product that does not conform to specified requirements is prevented from unintended use or installation. This control process provides for identification, documentation, evaluation, segregation, and disposition of the nonconforming product. The details of the process are defined in the Control of Non-Conforming Material Procedure. Notification of affected departments is also part of the process. Nonconforming product is reviewed in accordance with the Material Review Board (MRB) Procedure which defines disposition criteria. These criteria include rework, repair, scrap, or return of the affected material. The MRB will also discuss, as part of the disposition process, ways to prevent the recurrence of the nonconformity in the future.

Records of the disposition of nonconforming materials are maintained, reviewed and analyzed for repetitive discrepancies and when noted, corrective action shall be taken. Details of the non-conforming situation are forwarded to the functions concerned and when necessary to the customer. All repaired or reworked product is inspected in accordance with documented procedures prior to release, reworked product is re-inspected in accordance with documented procedures and results are recorded to indicate actual condition.

#### **14. Corrective and Preventive Action**

Quality Assurance is responsible for monitoring, coordinating, and recording all corrective and preventive actions. The corrective action process is designed to effectively handle customer complaints, results of internal audits, and reports of product or process nonconformities. Results of the investigation of the cause of nonconformities relating to products, processes, or the quality system itself are used to determine the action needed to eliminate the root cause of the nonconformities. Audits of the corrective action system will ensure that the corrective action taken is effective and that preventive action is also appropriate and effective.

Management will review appropriate sources of information such as processes and work operations which affect product quality, audit results, quality records, service records, and customer complaints to detect, analyze, and eliminate potential causes of nonconformities. The results of this review will be used to initiate preventive actions. As with corrective actions, audits of the results of the actions will be used to ensure that the preventive action taken is effective. A review of the corrective and preventive action system occurs as part of the Management Review process with records maintained.

#### **15. Handling, Storage, Packaging, Preservation, and Delivery**

AFC maintains a documented process for handling, storage, packaging, preservation, and delivery that is structured and controlled to prevent damage or deterioration of our products. Areas used for handling, storage, packaging, inspection and test of products are maintained in a well organized, clean, safe manner to ensure quality and end performance. Methods are in place for authorization of receipt to and dispatch from such areas.

Age sensitive materials are identified and handled in a First In First Out basis. Electrostatic Discharge Control measures are followed where product requiring such protection is applicable. Product is protected from damage after final inspection. Packaging materials and markings used are identified to assure conformance to specified requirements. When no requirements are in place, product packaging shall ensure that product is adequately protected from damage during staging and delivery. Delivery of components and finished product will be done in such a manner as to assure that product is not damaged or rendered unusable. When contractual agreements are in place delivery methods shall comply with such documented agreements.

These processes follow the recognized standards for telecommunications equipment handling, packaging, and shipping, are supported by a series of detailed procedures, and are audited at regular intervals by Quality Assurance.

#### **16. Control of Quality Records**

AFC maintains documented procedures for identification, collection, indexing, access, filing, storage, maintenance, and disposition of quality records. Quality records are maintained to demonstrate achievement of the required quality and the effective operation of the Quality

System as identified by ISO 9001. Pertinent quality records from assembly contractors, such as test and inspection yield and defect data, will be considered a part of these records.

Inspection and test records are maintained that identify at a minimum, product identification, quantity, inspection procedures followed, date, person doing inspection, number, type and severity of defects found. Quality records will be used to prepare reports that summarize inspection and test results, and reviewed as appropriate for possible corrective action. Field performance and NTF data is collected, maintained and analyzed to identify the cause and frequency of equipment failure. Production, engineering, and installation functions shall be provided this data to facilitate improvements to product design, manufacture, and repair.

Quality records will be stored in a way that will be readily retrievable and will prevent damage or deterioration. All quality records will be stored for at least three years after the date of production of the documented products. Quality records will be managed using existing document control procedures. AFC will make available to customers and suppliers those quality records needed for corrective actions and continuous improvement projects.

## **17. Internal Quality Audits**

Internal quality audits are conducted at least annually to verify whether quality activities comply with ISO9001 and to determine the effectiveness of the Quality System. Quality Assurance establishes an internal audit plan defining the frequency and type of audits. Documented schedules for audits are developed on the basis of the status and importance of the activity and are performed at least annually. Details of the audit process are defined in the Quality Audit Procedure.

The audits are carried out by trained personnel independent of those having direct responsibility for the activity being audited, and are conducted according to established procedures. Results of the audits are documented and brought to the attention of responsible managers and corrective actions are initiated for major discrepancies. Follow-up audits verify the implementation and effectiveness of the corrective actions taken. The results of the internal audits are also used by management to assess the effectiveness of the Quality System. Records of training and audits are maintained.

## **18. Training**

AFC has documented procedures for identifying the personnel and training required to perform all activities affecting quality from initial customer contact to final product distribution. The Human Resources Department has the primary responsibility for the Training Procedure and will identify training needs and provide for the training of all personnel performing activities affecting quality. Personnel performing specific assigned tasks will be qualified on the basis of appropriate education, training, and/or experience, as required. Training and skill requirements are determined for each job function. Appropriate records of training shall be maintained.

Training needs are reviewed on an annual basis. Requirements for certification and recertification are documented and known to all affected employees. As a minimum, the certification process considers experience, training, and demonstrated skills.

## **19. Servicing**

After sales service is critical to the life cycle costs of customers who buy and install telecommunications equipment. Customer Service is responsible for the proper implementation of service-related activities which include telephone support, installation support, on-site field service, customer training, and returned material repair procedures. A call reporting system tracks all customer service issues and is used to determine quality improvement activities for this function as well as for the products themselves.

Primary on-call assistance is provided to the customer. Quality support is available to the customer to solve problems and analyze the performance of their equipment. Assemblies and/or repairs are verified/tested to assure they meet customers requirements. Failure rates, failure mode, and NTF (no trouble found) data is included in information regarding repair and return processes and is available to customers on request. All customers who may be affected are promptly notified of a reported problem that is affecting product.

## **20. Statistical Techniques**

Quality Assurance with Quality Control will establish and maintain a system for process assessment using Statistical Process Control techniques and audits at key process points. These assessments will be documented as to methods and procedures and will include periodic summary reporting of trend information to management to assist in quality improvement activities.

The need for statistical techniques is identified. The application of statistical techniques to verify and control process capability and product characteristics is detailed in documented procedures where applicable. QA with QC will be responsible for identifying, designing, implementing, analyzing, and reporting the measurements which characterize current status of and potential improvement opportunities for AFC's hardware, software, manufacturing, and repair processes and products. Although no processes have been identified which require classical statistical process control, statistical techniques are used regularly in the analysis of data regarding field reliability, test yields, and other areas to track trends and implement Quality improvements

Training, as required, in statistical techniques, process capability studies, statistical sampling, data collection and analysis, problem identification, problem analysis, and corrective action will be available to all functions.