



**PROJECT QUALITY MANAGEMENT PLAN TEMPLATE**

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**QUALITY MANAGEMENT PLAN  
<PROJECT NAME>**

**COMPANY NAME  
STREET ADDRESS  
CITY, STATE ZIP CODE**

**DATE**

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## **INTRODUCTION**

The Quality Management Plan is an integral part of any project management plan. The purpose of the Quality Management Plan is to describe how quality will be managed throughout the lifecycle of the project. It also includes the processes and procedures for ensuring quality planning, assurance, and control are all conducted. All stakeholders should be familiar with how quality will be planned, assured, and controlled.

The Quality Management Plan for the Loose Tube Fiber Cable (LTFC) project will establish the activities, processes, and procedures for ensuring a quality product upon the conclusion of the project. The purpose of this plan is to:

- Ensure quality is planned
- Define how quality will be managed
- Define quality assurance activities
- Define quality control activities
- Define acceptable quality standards

## **QUALITY MANAGEMENT APPROACH**

This section describes the approach the organization will use for managing quality throughout the project's life cycle. Quality must always be planned into a project in order to prevent unnecessary rework, waste, cost, and time. Quality should also be considered from both a product and process perspective. The organization may already have a standardized approach to quality, however, whether it is standard or not, the approach must be defined and communicated to all project stakeholders.

The quality management approach for the LTFC project will ensure quality is planned for both the product and processes. In order to be successful, this project will meet its quality objectives by utilizing an integrated quality approach to define quality standards, measure quality and continuously improve quality.

Product quality for the LTFC project will be defined by the company's current standards and criteria for its fiber optic cable family. The focus is on the project's deliverable and the standards and criteria being used will ensure the product meets established quality standards and customer satisfaction.

Process quality for the LTFC project will focus on the processes by which the project deliverable will be manufactured. Establishing process quality standards will ensure that all activities conform to an organizational standard which results in the successful delivery of the product.

The project team will work with the Quality Group to define and document all organizational and project specific quality standards for both product and processes. All quality documentation will become part of the LTFC Project Plan and will be transitioned to operations upon the successful completion of the project.

Metrics will be established and used to measure quality throughout the project life cycle for the product and processes. The Quality Group Manager will be responsible for working with the project team to define these metrics, conduct measurements, and analyze results. These product and process measurements will be used as one criterion in determining the success of the project and must be reviewed by the project sponsor. Metrics will include:

- Schedule
- Resources
- Cost
- Process performance
  - Manufacturing line utilization
  - Material waste
- Product performance
  - Attenuation
  - Tensile strength
- Customer Satisfaction (as a result of field trials)

Quality improvements will be identified by any member of the project team or quality group. Each recommendation will be reviewed to determine the cost versus benefit of implementing the improvement and how the improvement will impact the product or processes. If an improvement is implemented the project manager will update all project documentation to include the improvement and the quality manager will update the organizational documentation the improvement affects.

## **QUALITY REQUIREMENTS / STANDARDS**

This section should describe how the project team and/or quality group will identify and document the quality requirements and standards. Additionally, there should also be an explanation of how the project will demonstrate compliance with those identified quality standards. The quality standards and requirements should include both the product and processes.

### ***Product Quality:***

The product quality standards and requirements will be determined by the project team and quality group. These standards will primarily be based on the company's documented standards for all fiber optic cables. There may be product-specific quality standards identified that are not currently part of the documented organizational standards. In this case, the quality group will review these newly identified standards and incorporate them into organizational documentation if approved. The project team will also document any newly identified quality standards into the LTFC project plan and ensure communication with all stakeholders.

As trial products are measured at pre-determined intervals, we will know that the product is compliant with quality standards once we achieve ten consecutive trial runs resulting of cable which is 100% within acceptable quality control margins.

**Process Quality:**

The process quality standards and requirements will be determined by the project team and quality group. Many of these standards will be based on existing company process standards. However, it is anticipated that there will be several unique steps in the manufacturing of the LTFC product which will require new quality standards. The LTFC project team will work with the quality group to establish acceptable standards and document these standards for incorporation into both organizational process documents as well as the LTFC project plan. These standards will be communicated to all project stakeholders.

As trial products are created, the process metrics will be measured and analyzed to determine the quality of the process. Once the LTFC product meets quality compliance and all process metrics fall within acceptable quality assurance margins, we will achieve process compliance for the LTFC project.

**QUALITY ASSURANCE**

This section should explain how you will define and document the process for auditing the quality requirements and results from quality control measurements in order to ensure that quality standards and operational definitions are used. This section should also document the actual quality assurance metrics used for this project.

The quality assurance of the LTFC Project focuses on the processes used in the manufacturing of the LTFC product. In order to ensure quality, an iterative quality process will be used throughout the project life cycle. This iterative process includes measuring process metrics, analyzing process data, and continuously improving the processes.

The LTFC Project Manager and the project team will perform assessments at planned intervals throughout the project to ensure all processes are being correctly implemented and executed. Key performance metrics for the manufacturing of the LTFC product include polyethylene (PE) waste, fiber waste, and time per cable run for each phase of cable creation (buffering, stranding, and jacketing). The established project tolerances for these metrics are the organizational standards for all other cable products. The table below provides the key quality assurance metrics for the LTFC Project.

Process Action	Acceptable Process Standards	Process Phase	Assessment Interval
Fiber Tube Buffering	<ul style="list-style-type: none"> <li>- &lt; 20 feet fiber waste per tube</li> <li>- &lt; 0.5 lbs PR waste per tube</li> <li>- &lt; 8 minutes per linear km of buffer tube</li> </ul>	Buffering	Daily or per run
Fiber Tube Stranding	<ul style="list-style-type: none"> <li>- &lt; 10 feet of waste per stranded core</li> </ul>	Stranding	Daily or per run

	- < 12 minutes per linear km of stranded core		
Core Jacketing	- < 15 feet of waste per jacketed cable - < 3 lbs PE waste per cable - < 12 minutes per linear km of jacketed cable	Jacketing	Daily or per run

The quality manager will provide day to day quality management and conduct process audits on a weekly basis, monitor process performance metrics, and assure all processes comply with project and organizational standards. If discrepancies are found, the quality manager will meet with the Project Manager and review the identified discrepancies.

The Project Manager will schedule regularly occurring project, management, and document reviews. In these reviews, an agenda item will include a review of project processes, any discrepancies and/or audit findings from the quality manager, and a discussion on process improvement initiatives.

Process improvement is another aspect of quality assurance. Quality assurance reviews, findings, and assessments should always result in some form of process improvement and, as a result, product improvement. All process improvement efforts must be documented, implemented, and communicated to all stakeholders as changes are made.

## QUALITY CONTROL

This section describes how you will define and document the process for monitoring and recording the results of executing the quality activities to assess performance and recommend necessary changes. Quality control applies to the project’s product as opposed to its processes. It should include what the acceptable standards and/or performance are for the product and how these measurements will be conducted.

The quality control of the LTFC project focuses primarily on the LTFC product and the acceptable standards and performance. The quality performance standards for the LTFC Project are in accordance with the organizational standards of performance of all fiber optic cable products. However, there are several project-specific quality standards which were established specifically for the LTFC Product. All trial cables which are produced will be submitted to the characterization group for standard loose tube cable performance testing. Additionally, all physical measurements will be conducted on each produced cable to ensure compliance with established quality standards. The table below illustrates all performance and physical quality standards for the LTFC Product:

Product	Physical/Performance Standards	Quality Assessment Activities	Assessment Intervals
6-36 fiber loose tube cable	0.75" +/- 0.01" diameter > 300 N/m <sup>2</sup> Tensile Strength < 5% attenuation at 625nm wavelength	Lab and field testing	Per produced cable length
42-188 fiber loose tube cable	1.5" +/- 0.01" diameter > 450 N/m <sup>2</sup> Tensile strength < 5% attenuation at 625nm wavelength	Lab and field testing	Per produced cable length
194-288 fiber loose tube cable	2.25" +/- 0.001" diameter > 600 N/m <sup>2</sup> Tensile strength < 5% attenuation at 625nm wavelength	Lab and field testing	Per produced cable length

The project team will perform all physical measurements on their trial cables. The characterization group will perform attenuation testing and will provide the results back to the project team within 3 business days after the test sample is submitted. The quality group will ensure all physical and performance standards are met for each trial cable, perform audits, and assist the project team with creating or updating all documentation related to product quality.

The Project Manager will schedule regularly occurring project, management, and document reviews. In these reviews, an agenda item will include a review of products, any discrepancies and/or audit findings from the quality manager, and a discussion on product improvement initiatives.

It is imperative to the success of the project that all of the established physical and performance standards are met. By doing so, the LTFC Project Team will ensure that the product achieves the high level of customer satisfaction anticipated and that future operational cable production will be in line with budget and resource allocations.

### **QUALITY CONTROL MEASUREMENTS**

This section should contain a sample or useable table/log to be used in taking quality measurements and comparing them against standards/requirements. These forms may be found in many different styles or formats. The most important aspect of this log is to provide documentation of the findings. If actual measurements do not meet the standards or

requirements then some action must be taken. This may be done in regularly scheduled project status meetings or as necessary throughout the project lifecycle.

All LTFC Project products and processes must be measured and fall within the established standards and tolerances. The below logs will be used by the project and quality teams in conducting these measurements and will be maintained for use as supporting documentation for the project's acceptance.

***Quality Assurance Log***

Trial #	Date	Process Measured	Required Value	Actual Measured	Acceptable? (Y/N)	Recommendation	Date Resolved

***Quality Control Log***

Cable #	Date	Item Measured	Required Value	Actual Measured	Acceptable? (Y/N)	Recommendation	Date Resolved

## SPONSOR ACCEPTANCE

Approved by the Project Sponsor:

\_\_\_\_\_ Date: \_\_\_\_\_  
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