LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY
- LIGO -
CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Document Type	**LIGO-T970089-00 - P**	3/14/97

LIGO Online Documents
March 1997

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Distribution of this draft:

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1 LIGO TOP-LEVEL DOCUMENTS

1.1. DCC Information

T970050-01 DCC Document Listing
L960641-05 Electronic Submissions to the Document Control Center
G960249-00 Electronic Submissions to LIGO Document Control Center (DCC)

1.2. Management Documentation

M950001-A LIGO PROJECT MANAGEMENT PLAN
M950020-01 LIGO Operations, 1997-2001
M960024-00 Quarterly Progress Report (December 1995 through February 1996)
M960051-A LETTER OF INTENT FOR A RESEARCH AND DEVELOPMENT PROGRAM FOR ADVANCED LIGO DETECTORS BY THE LIGO MIT/ CALTECH GROUPS
M960055-00 Quarterly Progress Report (March 1996 through May 1996)
M970007-01 Annual Report (December 1995 through November 1996)
M970017-01 Monthly Progress Report (End of December 1996)
M970033-00 Monthly Progress Report (End of January 1997)

1.3. Publications

P940008-00 Measurement of Optical Path Fluctuations due to Residual Gas in the LIGO 40 Meter Interferometer
P960024-A PRINCIPLES OF CALCULATING ALIGNMENT SIGNALS IN COMPLEX RESONANT OPTICAL INTERFEROMETERS
P960031-C The Laser Interferometer Gravitational Wave Observatory Project LIGO
P960041-02 Recent Research on the LIGO 40 m Interferometer
P960042-00 Development of Laser Interferometers for Gravitational Wave Detection: Abstract and Summary
P970002-00 Modeling LIGO Data Analysis

1.4. System Engineering Documentation

E950018-02 LIGO Science Requirements Document (SRD)
E960010-A LIGO Sites Alignment Requirements
T950107-A Orientation of the LIGO Beam Center Lines with respect to foundation slabs
T960176-C Determination of the as-built LIGO Global Coordinate Axes for Hanford, WA
E950111-A LIGO Naming Conventions
E960036-A LIGO EMI CONTROL PLAN AND PROCEDURES
D970008-A Chamber & Rack Designations - WA (Corner Station)
D970009-A Chamber & Rack Designations - WA (Mid Station)
D970010-A Chamber & Rack Designations - WA (End Station)

2 FACILITIES DOCUMENTATION

2.1. Vacuum Equipment

E940002-02 Vacuum Equipment Specification

2.2. Beam Tube

E950083-B Science Requirements for the LIGO Beam Tube Baffles
E960028-A Specification, Porcelain Coating of Beam Tube Baffles
E960037-A COMPONENT SPECIFICATION: MECHANICAL FABRICATION OF BEAM TUBE BAFFLES
E960123-01 Beam Tube Bakeout Design Requirements Document
T960042-A Alignment Tolerances and Re-Alignment Criteria for the LIGO Beam Tubes
T960124-00 ISSUES AND CONSIDERATIONS ON THE BEAM TUBE BAKE
T960125-00 Beam Tube Qualification Test
T960178-01 Beam Tube Bakeout Conceptual Design
T970053-00 Baffle Glaze Shedding
T970054-00 Beam Tube Dynamics

2.3. Civil Construction

E950101-00 Telecommunications requirements for Hanford, WA Site.
E950106-00 LIGO Requirements and Options for Facilities Monitoring and Control System (FMCS)

3 DETECTOR DOCUMENTATION

3.1. Detector System Documentation

T950065-A Guidelines for Design Requirement Documents
E960112-05 Detector Subsystems Requirements
E960022-03 LIGO Vacuum Compatibility, Cleaning Methods and Qualification Procedures
E960050-A LIGO Vacuum Compatible Materials List
E960108-A Closeout of COC DRR AI#11 -- Recommendation of parameter choices in 2 km interferometer design.
T960019-00 Frequency, Intensity and Oscillator Noise in the LIGO
T960120-00 Misalignment-Beam Jitter Coupling in LIGO
T960122-00 Proposed initial detector MC and RC baseline lengths
T970068-00 Recycling Cavity and Mode Cleaner Cavity Baseline Dimensions
D970002-00 Recycling Cavity Dimensional Range
D970003-00 Recycling Cavity Layout
T960083-A Derivation of CDS Rack Acoustic Noise Specifications
T960128-00 Radiation Pressure Noise in LIGO
T960136-00 Estimates for Motions due to Sound Fields
T960140-00 Fast Estimation of Transverse Fields in High Finesse Optical Cavities
T960189-A LIGO calibration accuracy
T970007-00 Modelling the Performance of an Initial-LIGO Detector with Realistically Imperfect Optics
G960250-00 Modelling the Performance of an Initial-LIGO Interferometer with Realistically-Deformed Optics
L970042-00 Internal Modes of Testmasses
T952008-00 A Tutorial For the Fast Fourier Transform Interferometer Simulator

3.2. Suspensions and Seismic Isolation

T950011-14 Suspension Design Requirements
L960596-00 Cross-coupling in the suspension controllers
T960040-00 RESPONSE OF PENDULUM TO MOTION OF SUSPENSION POINT
T960065-02 Seismic Isolation Design Requirements Document
T960066-00 Seismic Isolation Conceptual Design
T960072-00 Beam Splitter and Recycling Mirror Suspension Controller Design Requirements
T960074-07 Suspension Preliminary Design
T960126-01 Magnet size considerations; interference and coil power dissipation
T960137-00 Note on Electrostatics in the LIGO suspensions

3.3. Lasers and Optics

3.3.1. General Documentation

T950030-03 Prestabilized Laser Design Requirements
E950081-06 Nd 3+ Laser Target Specifications
E950099-04 Core Optics Components Requirements (1064 nm)
T960093-01 Input Output Optics Design Requirements Document
G950061-02 A Summary and Future Preview of the FFT Simulation Initiative in LIGO
T970077-00 Gravitational Deflection of LIGO Optics in a 9-Point Hindle Mount

3.3.2. Core Optics Specifications

E960092-A COMPONENT SPECIFICATION: SUBSTRATE, RECYCLING MIRROR
E960093-A COMPONENT SPECIFICATION: SUBSTRATE, INPUT TEST MASS
E960094-A COMPONENT SPECIFICATION: MIRROR BLANK MATERIAL, BEAM SPLITTER
E960095-A COMPONENT SPECIFICATION: MIRROR BLANK MATERIAL, INPUT TEST MASS
E960096-A COMPONENT SPECIFICATION: MIRROR BLANK MATERIAL, RECYCLING MIRROR
E960097-A COMPONENT SPECIFICATION: MIRROR BLANK MATERIAL, FOLDING MIRROR, END TEST MASS
E960100-A COMPONENT SPECIFICATION: SUBSTRATE, BEAM SPLITTER
E960101-A COMPONENT SPECIFICATION: SUBSTRATE, FOLDING MIRROR
E960102-A COMPONENT SPECIFICATION: SUBSTRATE, END TEST MASS
D960785-A RECYCLING MIRROR SUBSTRATE
D960787-A INPUT TEST MASS SUBSTRATE, 4K
D960789-A BEAM SPLITTER SUBSTRATE
D960790-A FOLDING MIRROR SUBSTRATE
D960791-A END TEST MASS SUBSTRATE
D960793-A BEAM SPLITTER BLANK
D960794-A CORE OPTIC BLANK
D960803-A INPUT TEST MASS SUBSTRATE, 2K

3.3.3. Core Optics Components Carrying Case Drawings

D961416-A Core Optic Component (COC) Carrier, Carrier Cover
D961417-A Beam Splitter Optic, Carrier Cover,
D961418-A Core Optic Component (COC) Carrier, Foot Assembly
D961419-A Core Optic Component (COC) Carrier, Cover Assembly
D961420-A Beam Splitter Optic (BSO) Carrier, Cover Assembly
D961421-A Core Optic Component (COC) Carrier, Base Plate
D961422-A Core Optic Component (COC) Carrier, Base Pad
D961423-A Core Optic Component (COC) Carrier, Side Pad
D961424-A Core Optic Component (COC) Carrier, Base Cover
D961425-A Core Optic Component (COC) Carrier, Base Assembly
D961426-A Core Optic Component (COC) Carrier, Pressure Disc
D961431-A Core Optic Component (COC) Carrier, Captive Screw
D961432-A Large Core Optic Component (COC) Carrier, Standoff
D961433-A Beam Splitter Optic (BSO) Carrier, Standoff
D961434-A Large Core Optic Component (COC) Carrier, Standoff Assembly
D961435-A Beam Splitter Optic (BSO) Carrier, Standoff Assembly
D961440-A Large Core Optic Component (COC) Carrier, Standoff Bracket
D961442-A Large Core Optic Component (COC) Carrier, Hinged Standoff
D961443-A Beam Splitter Optic (BSO) Carrier, Hinged Standoff
D961444-A Large Core Optic Component (COC) Carrier, Hinged Standoff Assembly
D961445-A Beam Splitter Optic (BSO) Carrier, Hinged Standoff Assembly
D961447-A Core Optic Component (COC) Carrier, Captive Screw Bracket
D961448-A Core Optic Component (COC) Carrier, Captive Screw Bracket, Locating
D961449-A Core Optic Component (COC) Carrier, Top Plate
D961450-A Core Optic Component (COC) Carrier, Top Plate Assembly
D961451-A Core Optic Component (COC) Carrier, Handle Plate
D961452-A Large Core Optic Component (COC) Carrier, Indexed Standoff
D961453-A Beam Splitter Optic (BSO) Carrier, Indexed Standoff
D961454-A Large Core Optic Component (COC) Carrier, Indexed Standoff Assembly
D961455-A Beam Splitter Optic (BSO) Carrier, Indexed Standoff Assembly
D961460-A Large Core Optic Component (COC) Carrier Assembly
D961461-A Beam Splitter Optic (BSO) Carrier Assembly
D961466-A Core Optic Component (COC) Carrier, Pad Guide
D961467-A Core Optic Component (COC) Carrier, Metrology Interface Top Plate
D961468-A Core Optic Component (COC) Carrier, Metrology Interface Top Plate Assembly
D961469-A Core Optic Component (COC) Carrier, Foot
D961470-A Core Optic Component (COC) Carrier, Foot Pad
D961471-A Core Optic Component (COC) Carrier, Captive Screw Bracket Assembly
D961472-A Core Optic Component (COC) Carrier, Captive Screw Bracket Assembly, Locating
D961473-A Core Optic Component (COC) Carrier, Standoff Clevis Pin
D970001-A Core Optic Component (COC) Carrier, Captive Screw Retaining Ring
D970004-A Core Optic Component (COC) Carrier, Expansion Plug Installation Tool
D970005-A Core Optic Component (COC) Carrier, Toggle Screw, Modified
D970006-A Material List - Large Core Optic Component (COC) Carrier Assembly
D970007-A Material List - Beam Splitter Optic (BSO) Carrier Assembly
D970061-A Core Optic Component (COC) Carrier, Seal Plate
D970085-A Project Material List - Large Core Optic Component (COC) and Beam Splitter Optic Assemblies

3.4. Alignment and Length Sensing

T950049-00 ASC Centering Subsystem Description
T950069-00 Naming and Interface Definition for ASC Wavefront/Centering
T950070-00 Naming Convention and Interface Definition for Optical Lever
T950073-00 Interferometer Requirement Flowdown To ASC
T950074-00 Naming and Interface Definition for ASC Initial Alignment
T950106-01 ASC Optical Lever Design Requirement Document
T950112-00 ASC Optical Lever Specification and Design Document
T952007-04 Alignment Sensing/Control Design Requirements Document
T970063-00 Response to Alignment Sensing and Control DRR2 Action Items
T952013-00 Alignment Design Interfaces
T952109-01 LIGO Length Sensing System: Design considerations for a table-top prototype interferometer
T960058-00 Length Sensing and Control Design Requirements Document
T960067-00 Length Control RMS Deviations from Resonance
T960103-00 ASC: Environmental Input to Alignment noise
T960111-A WAVEFRONT SENSOR
T960113-00 Modal Model Update 1: Interferometer Operators
T960114-B Modal Model Update 2: GW-Sensitivity to Angular Misalignments
T960115-A Modal Model Update 3: Small Angle Regime
T960116-00 Modal Model Update 4: Mode Mismatch
T960191-00 Modal Model Update 5 Large Angle Regime
T960118-00 Modal Model Update 6: Mode Cleaner
T970058-00 Modal Model Update 7 Angular Transfer Functions
T960134-00 Alignment Sensing/Control Conceptual Design
T970060-00 Alignment Sensing/Control Preliminary Design
T970061-00 ASC CDS Design Requirements Document
T970062-00 ASC CDS Conceptual Design
T960138-00 ASC Channel Count
T960139-00 Shot noise sensitivity of the length control error signals

3.5. Control and Data System

T950054-02 CDS Control and Monitoring Design Requirements Document
T950095-00 Vacuum Feedthrough and Cabling Design Requirements Document
T950120-01 CDS Control and Monitoring Conceptual Design
T960009-00 LIGO Data Acquisition System Design Requirements
T960010-00 CDS Data Acquisition System Conceptual Design
T960014-00 Vacuum Feedthrough and Cabling Conceptual Design
T960024-A Vacuum Control and Monitoring System (VCMS) Design Requirements
T960037-00 Vacuum Control and Monitoring System (VCMS) Design
T960107-00 LIGO Interferometer Diagnostics System Design Requirements
T960108-00 Interferometer Diagnostics Conceptual Design
T960177-00 LIGO Cable Numbering and Marking Standard

T970001-00 Vacuum Control and Monitoring System (VCMS) Final Design
T970061-00 ASC CDS Design Requirements Document
T970062-00 ASC CDS Conceptual Design

3.6. Physical Environment Monitor

T960127-02 Physical Environmental Monitor Design Requirements Document
T960145-00 Physical Environmental Monitor Conceptual Design

4 R&D DOCUMENTATION

D961304-00 OPTICAL LAYOUT - 40m RECYCLING
M960114-00 Statement of Work: Replacement of Vertex Masses at 40m
M960115-00 Statement of Work: Installation of Side Chamber and Reconfiguration of Associated Optics at the 40m
T950137-00 Description of the Electronics for the FMI Wavefront Experiment
T960073-00 40 Meter Recycling Electronics Design Requirements
T960162-02 Specifications of the 40m Test Mass Suspension Prototype
T960186-00 Procedure for Attaching the Fins and Hanging the PNI Mirrors