

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

Document Type LIGO-T970089-05 - P 7/22/97
LIGO On-line Documents July 1997
W. E. Althouse

Distribution of this draft:

/home/dcc/docs/A_INDEX.pdf

This revision indexes all current documents stored in
/home/dcc/docs through 7/22/97.

This is an internal working note
of the LIGO Project.

California Institute of Technology
LIGO Project - MS 51-33
Pasadena CA 91125
Phone (818) 395-2129
Fax (818) 304-9834
E-mail: info@ligo.caltech.edu

Massachusetts Institute of Technology
LIGO Project - MS 20B-145
Cambridge, MA 01239
Phone (617) 253-4824
Fax (617) 253-7014
E-mail: info@ligo.mit.edu

WWW: <http://www.ligo.caltech.edu/>

1 LIGO TOP-LEVEL DOCUMENTS

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1.2.3. Quarterly Reports

M960024-00 Quarterly Progress Report (December 1995 through February 1996)
M960055-00 Quarterly Progress Report (March 1996 through May 1996)
M970034-00 Quarterly Report (December 1996 through February 1997)
M970080-00 Quarterly Report (March 1997 through May 1997)

1.2.4. Monthly Reports

M970017-01 Monthly Progress Report (End of December 1996)
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M970042-00 Monthly Progress Report (End of March 1997)

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M960051-A LETTER OF INTENT FOR A RESEARCH AND DEVELOPMENT PROGRAM FOR ADVANCED LIGO DETECTORS BY THE LIGO MIT/CALTECH GROUPS
M970001-01 Revised Proposal for a Research and Development Program For Advanced Detectors by the LIGO MIT/Caltech Groups - FY 1997 Proposal Budget

1.2.6. Reviews

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G970071-01 BEAM TUBE BAKEOUT

- G970075-01 LIGO Project Cost/Schedule Status
- G970091-00 LIGO Control and Data System Control and Monitoring

1.3. Publications

- P940008-00 Measurement of Optical Path Fluctuations due to Residual Gas in the LIGO 40 Meter Interferometer
- P950017-02 The Laser Interferometer Gravitational-Wave Observatory (LIGO) Project
- 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

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- E950018-02 LIGO Science Requirements Document (SRD)
- E950111-A LIGO Naming Conventions
- E960036-A LIGO EMI CONTROL PLAN AND PROCEDURES
- E960099-B LIGO RELIABILITY PROGRAM PLAN
- E960010-A LIGO Sites Alignment Requirements
- E950083-B Science Requirements for the LIGO Beam Tube Baffles

1.4.2. Modeling and Data Analysis

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- G970135-00 What We've Learned About What We've Learned About "FRAMES"
- G970156-00 Computer Languages Computer Languages why all the fuss about why all the fuss about C++
- T970100-A LIGO Data Analysis Software Specification Issues
- T970101-A Strain Calibration in LIGO
- M970013-00 A Proposal for the First Experiment for Validation of the 40m End-to-End Model
- M970065-B White Paper Outlining the Data Analysis System (DAS) for LIGO I
- T970128-01 Quantization Noise in Ligo Interferometers

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- L960348-01 LIGO Coordinate Names and Reference Designations - CAUTION
- T950004-B Derivation of Global and Local Coordinate Axes for the LIGO Sites
- 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
- T960042-A Alignment Tolerances and Re-Alignment Criteria for the LIGO Beam Tubes

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T960042-A Alignment Tolerances and Re-Alignment Criteria for the LIGO Beam Tubes
T960125-00 Beam Tube Qualification Test

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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
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T970053-00 Baffle Glaze Shedding

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G960181-00 BEAM TUBE BAKEOUT
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T970110-00 Information for the Beam Tube Pumpdown
T970111-00 Data from Beam Tube Pump Down II
L970429-00 Technical Board Meeting to Review Beam Tube HX2 Vacuum Test Results

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E950101-00 Telecommunications requirements for Hanford, WA Site.
E950106-00 LIGO Requirements and Options for Facilities Monitoring and Control System
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E960022-03	LIGO Vacuum Compatibility, Cleaning Methods and Qualification Procedures
E960050-A	LIGO Vacuum Compatible Materials List
T950065-A	Guidelines for Design Requirement Documents
L970196-00	Part Numbers and Serialization of Detector Hardware
L970164-02	Procedure for Release of Controlled Drawings and Specifications
T960083-A	Derivation of CDS Rack Acoustic Noise Specifications
E960108-A	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
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T960128-00	Radiation Pressure Noise in LIGO
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T960140-00	Fast Estimation of Transverse Fields in High Finesse Optical Cavities
T960189-00	LIGO calibration accuracy
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T970077-00	Gravitational Deflection of LIGO Optics in a 9-Point Hindle Mount
T970091-00	Determination of the Wedge Angles for the Core Optics Components
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G950061-02	A Summary and Future Preview of the FFT Simulation Initiative in LIGO
T960187-01	Effect of Microseismic Noise on a LIGO Interferometer
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T970101-A	Strain Calibration in LIGO
T970128-00	Quantization Noise in Ligo Interferometers

3.2. Suspensions and Seismic Isolation

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E970037-00	SMALL OPTICS SUSPENSION ASSEMBLY SPECIFICATION
E970080-00	SMALL OPTICS SUSPENSION ASSEMBLY QUALITY CONFORMANCE WORKSHEET
T960074-07	Suspension Preliminary Design
E960098-01	PRELIMINARY DESIGN REVIEW Suspension System (SUS)

L970338-00	Settlement of SUS PDR Action Items for SOS
T970135-02	Small Optics Suspension Final Design (Mechanical System)
T960179-00	Small Optics Suspension Prototype Test Results
T960072-00	Beam Splitter and Recycling Mirror Suspension Controller Design Requirements
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T960040-00	RESPONSE OF PENDULUM TO MOTION OF SUSPENSION POINT
T960126-01	Magnet size considerations; interference and coil power dissipation
T960137-00	Note on Electrostatics in the LIGO suspensions

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T960066-00	Seismic Isolation Conceptual Design
T970142-00	Action Item Response Report: FIRST ARTICLE FABRICATION READINESS REVIEW for the Seismic Isolation System (SEI)
L970061-01	Specification Guidance for Seismic Component Cleaning, Baking and Shipping PreparationLasers and Optics

3.3. Lasers and Optics

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L970042-00	Internal Modes of Testmasses
T970077-00	Gravitational Deflection of LIGO Optics in a 9-Point Hindle Mount
T970091-00	Determination of the Wedge Angles for the Core Optics Components
G950061-02	A Summary and Future Preview of the FFT Simulation Initiative in LIGO

3.3.2. Prestabilized Laser

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T950030-03	Prestabilized Laser Design Requirements
M970044-00	LIGO Detector Review Report - Preliminary Design Review (PDR) - Design and Fabrication of Nd3+ Lasers
L970108-00	(Review of) LightWave Electronics (LWE) Laser Reliability Plan

3.3.3. Input Output Optics

T960093-01	Input Output Optics Design Requirements Document
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T970071-01	Core Optics Support Design Requirements Document
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G970067-00	Core Optics Support Design Requirements Review
T970109-00	Spectral Analysis of Coated Optic Phase Maps

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D960785-A RECYCLING MIRROR SUBSTRATE
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3.3.4.2 Input Test Mass Specifications

E960093-A COMPONENT SPECIFICATION: SUBSTRATE, INPUT TEST MASS
 D960787-A INPUT TEST MASS SUBSTRATE, 4K
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 E960095-A COMPONENT SPECIFICATION: MIRROR BLANK MATERIAL, INPUT TEST MASS

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E960102-A COMPONENT SPECIFICATION: SUBSTRATE, END TEST MASS
 D960791-A END TEST MASS SUBSTRATE
 E960097-A COMPONENT SPECIFICATION: MIRROR BLANK MATERIAL, FOLDING MIRROR, END TEST MASS

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E960101-A COMPONENT SPECIFICATION: SUBSTRATE, FOLDING MIRROR
 D960790-A FOLDING MIRROR SUBSTRATE
 E960097-A COMPONENT SPECIFICATION: MIRROR BLANK MATERIAL, FOLDING MIRROR, END TEST MASS

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 D970064-B COC Carrier Shipping Compartment Assembly
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D961418-A	Core Optic Component (COC) Carrier, Foot Assembly
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D961451-A	Core Optic Component (COC) Carrier, Handle Plate
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D961440-A	Large Core Optic Component (COC) Carrier, Standoff Bracket
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D961470-A	Core Optic Component (COC) Carrier, Foot Pad
D961449-C	Core Optic Component (COC) Carrier, Top Plate
D961466-A	Core Optic Component (COC) Carrier, Pad Guide
D961471-A	Core Optic Component (COC) Carrier, Captive Screw Bracket Assembly
D961431-A	Core Optic Component (COC) Carrier, Captive Screw
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D961448-A	Core Optic Component (COC) Carrier, Captive Screw Bracket, Locating
D970001-A	Core Optic Component (COC) Carrier, Captive Screw Retaining Ring
D970005-A	Core Optic Component (COC) Carrier, Toggle Screw, Modified
D961419-B	Core Optic Component (COC) Carrier, Cover Assembly
D961416-B	Core Optic Component (COC) Carrier, Carrier Cover
D970061-A	Core Optic Component (COC) Carrier, Seal Plate
D970004-B	Core Optic Component (COC) Carrier, Expansion Plug Installation Tool
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D961469-B	Core Optic Component (COC) Carrier, Foot
D961470-A	Core Optic Component (COC) Carrier, Foot Pad

D961466-A	Core Optic Component (COC) Carrier, Pad Guide
D961467-C	Core Optic Component (COC) Carrier, Metrology Interface Top Plate
D961471-A	Core Optic Component (COC) Carrier, Captive Screw Bracket Assembly
D961431-A	Core Optic Component (COC) Carrier, Captive Screw
D961447-A	Core Optic Component (COC) Carrier, Captive Screw Bracket
D970001-A	Core Optic Component (COC) Carrier, Captive Screw Retaining Ring
D961472-A	Core Optic Component (COC) Carrier, Captive Screw Bracket Assembly, Locating
D961431-A	Core Optic Component (COC) Carrier, Captive Screw
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D970001-A	Core Optic Component (COC) Carrier, Captive Screw Retaining Ring
D970005-A	Core Optic Component (COC) Carrier, Toggle Screw, Modified
D970006-B	Material List - Large Core Optic Component (COC) Carrier Assembly
D970007-B	Material List - Beam Splitter Optic (BSO) Carrier Assembly
D970085-A	Project Material List - Large Core Optic Component (COC) and Beam Splitter Optic Assemblies

3.4. Alignment and Length Sensing

3.4.1. Alignment Sensing/Control

T952007-04	Alignment Sensing/Control Design Requirements Document
T960134-00	Alignment Sensing/Control Conceptual Design
T970060-00	Alignment Sensing/Control Preliminary Design
T952013-00	Alignment Design Interfaces
T960103-00	ASC: Environmental Input to Alignment noise
T950049-00	ASC Centering Subsystem Description
T950069-00	Naming and Interface Definition for ASC Wavefront/Centering
T950073-00	Interferometer Requirement Flowdown To ASC
T950074-00	Naming and Interface Definition for ASC Initial Alignment
T970063-00	Response to Alignment Sensing and Control DRR2 Action Items
T970061-00	ASC CDS Design Requirements Document
T970062-00	ASC CDS Conceptual Design
T960138-00	ASC Channel Count

3.4.1.1 Optical Lever

T950106-01	ASC Optical Lever Design Requirement Document
T950112-00	ASC Optical Lever Specification and Design Document
T950070-00	Naming Convention and Interface Definition for Optical Lever

3.4.1.2 Wavefront Sensing

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

3.4.2. Length Sensing/Control

T960058-03 Length Sensing and Control Design Requirements Document
 T970138-00 LSC CDS Design Requirements
 T970139-00 LSC CDS Conceptual Design
 T970122-00 Length Sensing and Control Subsystem Preliminary Design
 T952109-01 LIGO Length Sensing System: Design considerations for a tabletop prototype interferometer
 T960067-00 Length Control RMS Deviations from Resonance
 T960139-00 Shot noise sensitivity of the length control error signals
 T970084-00 Frequency Response of the LIGO Interferometer
 T970101-A Strain Calibration in LIGO

3.5. Control and Data System

T950054-02 CDS Control and Monitoring 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

T970061-00 ASC CDS Design Requirements Document
 T970062-00 ASC CDS Conceptual Design

T970138-00 LSC CDS Design Requirements
 T970139-00 LSC CDS Conceptual Design

T960107-00 LIGO Interferometer Diagnostics System Design Requirements
 T960108-00 Interferometer Diagnostics Conceptual Design

T960024-A Vacuum Control and Monitoring System (VCMS) Design Requirements
 T960037-00 Vacuum Control and Monitoring System (VCMS) Design
 T970001-00 Vacuum Control and Monitoring System (VCMS) Final Design

TT960014-00 Vacuum Feedthrough and Cabling Conceptual Design

T960177-00 LIGO Cable Numbering and Marking Standard
 T970076-00 LIGO CDS VME Mainframe Specification
 T960083-A Derivation of CDS Rack Acoustic Noise Specifications

3.6. Physical Environment Monitor

T960127-02 Physical Environmental Monitor Design Requirements Document
 T960145-00 Physical Environmental Monitor Conceptual Design
 T970086-00 Physical Environmental Monitor Preliminary Design Document

G970026-00 Physics Environment Monitoring Preliminary Design Review
 L970028-00 DESIGN REQUIREMENTS REVIEW Physics Environment Monitoring (PEM)
 Action Item Responses

4 R&D DOCUMENTATION

D961304-06 OPTICAL LAYOUT - 40m RECYCLING

G960172-00 THE FMI ALIGNMENT EFFORT
 G970152-01 LIGO@ MIT: Transition to Operations and Advanced Detector R& D

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
 M970013-00 A Proposal for the First Experiment for Validation of the 40m End-to-End Model

T950035-01 Measurement of the Ground Drift at the 40-m Lab
 T950137-00 Description of the Electronics for the FMI Wavefront Experiment
 T960013-01 Calculation of the Modulation Frequency for the 40m Power Recycling Interferometer

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
 T970085-00 Correlation Function and Power Spectrum of Non-Stationary Shot Noise
 T970090-00 Proposal for a table-top prototype resonant sideband extraction interferometer
 T970099-00 Statement of Work: Change of Modulation Frequency at the 40m
 T970102-00 40 Meter BS and RCM Suspension Controller Test Plan
 T970103-00 BS and RCM Suspension Electronics Operator's Manual

LIGO CONFIGURATION DOCUMENTATION



