LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

LIGO Laboratory / LIGO Scientific Collaboration

LIGO-T1100185-v2	*ADVANCED LIGO UK*	30 Mar 2011

Summary of technical documentation for
University of Birmingham deliverables

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1   Aim of the document

This document collates all DCC links for documentation about production and testing of all University of Birmingham deliverables, which includes BOSEMs, Satellite Boxes, Coil Drive Electronic units and BOSEM Automated Test equipment

The information contained in this document is available at the following links:

- http://www.sr.bham.ac.uk/dokuwiki/doku.php?id=bal:electronics_documentation

- http://www.sr.bham.ac.uk/dokuwiki/doku.php?id=bal:osems

aLIGO Drive Electronics – Final Documentation (update 30 March 2011)

Requirement Documents

- T060067-00-C.pdf   [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=8949]   Quad Suspension UK Coil Driver Design Requirements
- T080065-v1.pdf [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=8996] AdL Beam Splitter, Input Mode Cleaner, Large Recycling and Small Recycling Triple Suspension Electronics Requirements

Production Documents

Monitor

- Monitor Circuit v4 D0900975-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2435] containing:
    - Circuit Diagram
    - Board connections
    - Altium Files for   Circuit and   Board
    - BOMs
    - Gerber files
- T0900229-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2391] Quad Monitor Board Test Plan
- T0900229-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2391] Test Reports

UIM

- T0900233-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2398] UIM Design Study
- T0900234-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2400] Response to the UIM Evaluation Report T0900014
- T0900249-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2545] UIM Users Guide
- D0900956-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2405] UIM Circuits, containing:
    - Altium Files for   Board and   Circuit
    - Board Diagram
    - Circuits Diagram
    - BOMS
    - Gerber files
- T0900236-v3 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2402] UIM Driver Unit Test Plan
- T0900237-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2403] UIM Driver Board test Plan

- T0900236-v3 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2402] UIM Driver Unit Test report
- T0900237-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2403] UIM Driver Board test report

Quad Top

- T0900232-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2395] TOP Drive Unit Design Description
- T0900235-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2401] Response to the TOP evaluation report
- T0900251-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2557] QUAD TOP Driver Unit Users' Guide
- D0902747-v4 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=7565] Circuit Diagrams for the Production Top Boards, containing:
    - Altium Files for   boards and   driver
    - Circuit Diagrams for Triple and Quad Top boards
    - Quad Top BOMs
    - Triple Top BOMs
    - Top Gerber files
- T0900231-v3 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2394] TOP Driver Board Test Plan
- T0900230-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2392] Quad Top Driver Unit Test Plan
- T0900231-v3 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2394] TOP Driver Board Test Reports
- T0900230-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2392] Quad Top Driver Unit Test Reports

Triple Top

- T0900232-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2395] TOP Drive Unit Design Description
- T0900056-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=656] Conceptual design for the electronics of the Triple Top-stage
- D0902747-v4 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=7565] Circuit Diagrams for the Production Top Boards, containing:
    - Altium Files for   boards and   driver
    - Circuit Diagrams for Triple and Quad Top boards
    - Triple Top BOMs
    - Top Gerber files
- T1100153-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=40112] Triple TOP Coil Drive Unit Test Plan
- T1100153-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=40112] Triple TOP Coil Drive Unit Test Report
- T1100176-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=40730] Triple TOP Coil Drive Board Test Plan
- T1100176-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=40730] Triple TOP

Coil Drive Board Test Report

- T1100186-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=57823]User Guides

PUM

- T0900277-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2868] PUM Drive Unit Design Description
- T0900332-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3521] Response to the PUM Evaluation Document T0900313-v1
- T0900290-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2999] PUM Driver Unit Users' Guide
- D070483-v5 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3040] PUM Driver Board Circuit Diagrams, containing:
  - Altium Files for   Board
  - Circuits
  - BOMS
  - gerber files
- T0900291-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3000] PUM Driver Board Test Plan
- T0900292-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3002] PUM Driver Unit Test Plan
- T0900291-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3000] PUM Driver Board Test Reports
- T0900292-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3002] PUM Driver Unit Test Reports

OMC

- D1003116-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=25952] OMC Coil Driver Unit Circuit Diagrams
- D1001649-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=13022] OMC Coil Driver
  - Altium Files for   Board and   Circuit
  - Circuits
  - BOMS
  - gerber files
- T1000567-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21597] OMC Coil Driver Board Test Plan
- T1000568-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21598] OMC Coil Driver Unit Test Plan
- T1000567-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21597] OMC Coil Driver Board Test Reports
- T1000568-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21598] OMC Coil Driver Unit Test Reports
- T1100190-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=57844] OMC User Guides

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- D0901047-v4 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=2571] AdL Triple Suspension Acquisiton Coil Driver, containing:
    - Altium Files for   Board and   Driver
    - Circuits
    - BOMs
    - manufacturing files
- T1000125-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=9795] Triple Acquisition Driver Board Test Plan
- T1000133-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=9883] Triple Acquisition Driver Unit Test Plan
- T1000125-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=9795] Triple Acquisition Driver Board Test Reports
- T1000133-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=9883] Triple Acquisition Driver Unit Test Reports
- T1100192-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=57847] Triple Acquisition Driver User Guides

Satellite Boxes

- D0901284-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3180] Satellite Box Circuit Diagrams
- T0900314-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3340] Satellite Box Design Description
- T0900322-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3393] Satellite Box Test Plan
- T0900321-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3392] Satellite Box Users Guide
- T1000630-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=22321] Satellite Boxes Current-Source noise characterisation
- T0900308-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3183] Response to the Satellite Box Evaluation report, 0900261-v1
- D0901284-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=3180] Satellite Box Circuit Diagrams which includes
    - Circuits Diagrams
    - BOMS
    - manufacturing files
- T1100193-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=57848] Satellite Boxes Test Reports
- Satellite Box ATE design documents and Visual Basic software source code can be found on B'ham LIGO svn '\ligo_share\Work Package 4\UoB\OSEM Electronics\SB ATE'
- Satellite Boxes Shipments log is available on the wiki page.

Trans Mons

- D1001650-v2 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=13024] Transmon Coil Driver

- Altium Files for   Board
    - Circuits
    - BOMs
    - gerber files
- T1000572-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21603] Transmon Coil Driver Board Test Plan
- T1000571-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21602] Transmon Coil Driver Unit Test Plan
- T1000572-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21603] Transmon Coil Driver Board Test Results
- T1000571-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=21602] Transmon Coil Driver Unit Test Results
- T1100191-v1 [https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=57845] Transmon Coil driver User Guides

Production and shipment progress vs Schedule

- A record of the   production table is available here [http://www.sr.bham.ac.uk/dokuwiki/doku.php?id=bal:prod_plan] and on the wiki page

Useful Links

- Link [http://ilog.ligo-wa.caltech.edu:7285/advligo/IMC_Design_Reviews#PDR] to **HAM Triple** preliminary design review

BOSEM Documentation (Updated 29 March 2011)

BOSEM Counts

- M030162-v2 – UK Scope Document – v2

BOSEM Characterization

- T0900496-v4 – BOSEM Noise Measurement Report – v4

Design, Assembly & Test Documents

- T050111-v4 – BOSEM Design Document & Test Report – v4

- T060233-v3 – BOSEM Assembly Specification – v3

- T070107-v6 – BOSEM Test Specification – v6 (Open with full Adobe Acrobat Reader to get access to appended test report files.)

- T060137-v1 – Design Change Log – v1

DCN & Drawing Tree

- E060262-02-K – Document Change Notice – rev. 2

- E060243-C-K – Drawing Tree

CAD Drawings

- D060218-C-K – BOSEM Assembly

eDrawings

- d060218_bosem_assembly.easm – BOSEM Assembly eDrawing (requires eDrawings [http://www.solidworks.com/pages/products/edrawings/eDrawings.html] viewer)

(SolidWorks file available on for B'ham members in our svn `\ligo_share\Work Package 4\UoB\OSEM Development\Design Effort\OSEM Release\BOSEM – DCN Release C' and for external LIGO members on PDMworks vault)

Shipments log

- BOSEMs Shipment Log is available on the wiki page

Other Useful Links

http://ilog.ligo-wa.caltech.edu:7285/advligo/BOSEM_FRD_and_FRR   [http://ilog.ligo-wa.caltech.edu:7285/advligo/BOSEM_FRD_and_FRR] BOSEM Final Design Review and Fabrication Readiness Review Wiki