LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

LIGO Laboratory / LIGO Scientific Collaboration

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ISC Common Mode Servo & Common Mode Summing Node: Acceptance Documentation

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1   Requirements documentation

This acceptance package includes the Common Mode Servo chassis and the Common Mode Summing Node chassis. The former is a new version of the initial LIGO CM servos, while the latter is a new module needed for aLIGO. Requirements are given in the specification documents:

- Common Mode servo: LIGO-E1200177
- CM Summing Node: LIGO-E1200178

2   Design overview and detailed design documentation

a)   Final Design Document (FDD):

The specification documents listed above, combined with the board schematics, make up the final design documentation. Both are in the DCC tree for each module:

- aLIGO, ISC, Electronics, Common Mode Servo: LIGO-E1200175
- aLIGO, ISC, Electronics, Common Mode Summing Node: LIGO-E1200201

b) Review reports:

- CM servo: no review report; history is a bit lost here – it seems a review was initiated in March 2010, but the trail runs cold at that point
- CM Summing Node: no formal review, just presented at an ISC group meeting

b)   *Supporting design documents:*

Besides the above-mentioned specifications documents, the DCC tree includes:

- CM Servo: Technical note: LIGO-T040148; block diagram: LIGO-D1002416
- CM Summing Node: block diagram: LIGO-D1300782

d) Drawings: Schematics and assembly drawings are all linked in the DCC tree.

e) Bill(s) of Materials (BOM): The DCC entry for each board includes a zip file that contains the BOM for that board.

f) Interface control: none

g) Software: not relevant

h) Design source data: Altium project files are included in the zip file included in the DCC entry for each board.

3   Materials and fabrication specification

No special materials.

4   Parts and in-process spares inventoried

All modules are entered in ICS under the assembly D-number:

- CM servo: LIGO-D0901781 (qty 28; usage: 6 per IFO, 18 total)
- CM summing node: LIGO-D1200148 (qty 5; usage: 1 per IFO, 3 total)

The chassis accounting, including function, is also found in LIGO-E1100274.

5   Assembly procedures

There is an assembly drawing for each module; these include some minor assembly tips:

CM servo: LIGO-D0901781

CM summing node: LIGO-D1200148

6   Installation procedures

None.

7   Test documents

Test procedures:

CM servo: LIGO-E1100429

CM summing node: LIGO-E1200086

Test reports:

CM servo: LIGO-E1200673; this contains links to all the CM servo S-numbers, wherein the test reports are found.

CM summing node: LIGO-E1200179; this contains links to all the CM summing node S-numbers, wherein the test reports are found.

Test rigs:

CM servo: LIGO-E1200143 & LIGO-E1200144

8   User interface software

Not applicable.

9   Operation Manual

None.

10 Safety

Not applicable.