HAM Large Triple Suspension (HLTS) and HAM Suspensions Electronics Final Design Review Checklist - E1000053-v6

Based on the Final Design Review Checklist, LIGO M050220-v1, page 10 D. Bridges for the SUS team, 10 Apr 2010

HLTS Final Design Review Checklist

Number	Checklist Description	Document Number	Document Title	Comment
Final requirements - any changes or refinements				
1	from PDR?	T1000012	HAM Large Triple Suspension Final Design Document	
-		T010007-v2	Cavity Optics Suspension Subsystem Design Requirements Document	
		1010001 12	ouvry option outpension outpeysion besign requirements booument	
			Preliminary Design Review (PDR) Report for the HAM Large and Small Triple	
2	Resolution of action items from PDR	M0900018-v1	Suspensions (HLTS, HSTS)	
-		T1000012	HAM Large Triple Suspension Final Design Document	See Section 3
3	Subsystem block and functional diagrams	T1000061	aLIGO Triple Suspension Controls Design Description	See Section 5
	Drawing package (assembly drawings and	11000001	acido mple Suspension Controis Design Description	
	majority of remaining drawings)	E080191-v1	Drawing Tree - HLTS Overall Assembly and Assembly Fixtures	
4	majority of remaining drawings)	E1000036	SUS Drawing Tracker	See sheet specific to HLTS
		D080718-v1	HLTS Overall Assembly and Assembly Fixtures	See sheet specific to TIE 15
		D070447-v1		
-	The share star line a		HLTS Overall Assembly	
	Final parts lists	E080329-v1	Material List - HLTS Overall Assembly and Assembly Fixtures	
	Final specifications	E080208-v1	HLTS Assembly Specification	
7	Final interface control documents	T1000031-v2	Requirements for HAM Installation Arm	
		<u>M1000047</u>	Decision to Modify HAM Structures (HLTS, HSTS, OMC)	
		TBD		Alignment features
		M080041-v1	Thickness of PR3 and SR3 and Wedge Information	Optic size and wedge angle
		T080078-v3	Stable Recycling Cavity Mirror Coordinates and Recycling Cavity Lengths	Optic size, wedge angle and orientation
		D080662-v2	PR3 Substrate	Optic size and wedge angle
		D080663-v2	F-PR3 Substrate	Optic size and wedge angle
		D080664-v2	SR3 Substrate	Optic size and wedge angle
		D060102-v1	aLIGO ETM and ITM SUS Recycling Mirror Envelope	Optic height above table
8	Relevant RODA changes and actions completed	T1000012	HAM Large Triple Suspension Final Design Document	See Section 8.1
		M050397-03	Core Optic Sizes, Including TMs, BS, FM and RM	
		M060315-00	No Flats on IMC & RM Optics	
		M080038-03	Responsibilities for Elements of the Stable Recycling Cavities	
		M080041-v1	Thickness of PR3 and SR3 and Wedge Information	
		M080374-00	Provision for Mounting Struts to HLTS & HSTS	Superseded by M1000047
		M0900034	Use of SmCo and NdFeB Magnets in Advanced LIGO Suspensions	
		M0900087-v1	All In-Vacuum Cabling Will Be Shielded	
		M0900234-v1	SUS (US) Blades Will Use Maraging Steel 250	
		M0900271-v1	Division of Responsibilities for Harnesses for Advanced LIGO Suspensions	
		M1000047	Decision to Modify HAM Structures (HLTS, HSTS, OMC)	
9	Signed Hazard Analysis	E1000043-v3	HLTS Assembly and Installation Hazard Analysis	
	Final Failure Modes and Effects Analysis			Not required
	Risk Registry items discussed	T1000012	HAM Large Triple Suspension Final Design Document	See Section 8.2
	Design analysis and engineering test data	T080310-v2	MATLAB Model of HAM Large Triple Suspension (HLTS)	
			Parameters and Predicted Mode Frequencies and Transfer Functions for the	
		T1000095-v1	As-Built HLTS Prototype	
		T1000106	HLTS Prototype Test Results	
		T0900223-v2	Status of Testing Self-Clinching Nuts for Use in Advanced LIGO	
13	Software detailed design	T1000061	aLIGO Triple Suspension Controls Design Description	
	Final approach to safety and use issues	E1000043-v3	HLTS Assembly and Installation Hazard Analysis	
	Production plans	C1000229	HLTS Production Plan	Restricted to Lab Business
	Plans for acquisition of parts, components,	0.000220		
	materials needed for fabrication	C1000229	HLTS Production Plan	Restricted to Lab Business
	Installation plans and procedures	E1000229	HLTS Installation Procedure	Nestricted to Lab Dusiliess
17	motaliation plans and procedures	T1000045 T1000031-v2	Requirements for HAM Installation Arm	
18	Final hardware test plans	T1000031-V2 T1000089-v1		
	Final hardware test plans Final software test plans	T1000089-V1 T1000061	HAM Large Triple Suspension (HLTS) AdvLIGO Test Plan aLIGO Triple Suspension Controls Design Description	
	•			Destricted to Leb Dusines
	Cost compatibility with cost book	<u>C1000229</u>	HLTS Production Plan	Restricted to Lab Business
	Fabrication, installation and test schedule	T1000100		See Project Management Schedule page
	Lessons learned documented, circulated	T1000106	HLTS Prototype Test Results	
23	Problems and concerns	T1000012	HAM Large Triple Suspension Final Design Document	See Section 9