



**Atacama
Large
Millimeter /
submillimeter
Array**

ALMA Phasing Project Configuration Item List for Hydrogen Maser

ALMA-05.11.21.00-0001-A-LIS

2014-32/4:

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Change Record

Version	Date	Affected section(s)	ICO #	Reason/Initiation/Remarks
A.1	2014-10-02	All	-	Initial Draft
A.2	2014-10-20	5		Updated document list
A	2014-10-26	All		Updated document list

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1. Description

1.1. Purpose

This document acts as a collection of the documentation needed for the ALMA Phasing Project Hydrogen Maser

1.2. Scope

This document is an LRU-level document. The information relevant to each of the steps can be found in their own separate documents.

2. Abbreviations and Acronyms

AD	Applicable Document
APP	ALMA Phasing Project
BEND	Back End
BOM	Bill of Materials
CIDL	Configuration Item Data List
DWG	Drawing
HMaser	Hydrogen Maser
LIS	List
LO	Local Oscillator
LRU	Line Replaceable Unit
M&C	Monitor and Control
PCB	Printed Circuit Board
RD	Reference Document

3. HMaser Assembly

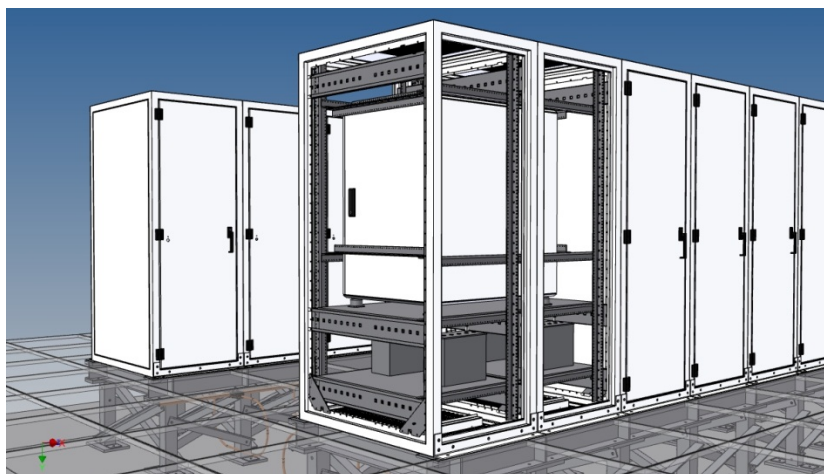


Figure 1: HMaser Assembly. The iMaser is shown inside the seismic rack with backup batteries below
In normal operation, the sides are covered to maintain thermal stability



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4. Bill of Materials

HMaser BOM			
Item	Description	Status	Spares
iMaser 3000 Hydrogen Maser Frequency Standard	Serial number #59	Installed	None
Signal Cable LMR-240 (quantity 2)	5MHz signal from maser to rack bulkhead	Installed	None
Signal Cable LMR-240 (quantity 4)	10MHz signal from maser to rack bulkhead	Installed	None
Signal Cable LMR-240 (quantity 1)	1pps output signal from maser to bulkhead	Installed	None
Signal Cable LMR-240 (quantity 1)	1pps input signal from maser to bulkhead	Installed	None
Cat-5 Cable (quantity 1)	Internet signal from maser to bulkhead	Installed	None
Signal Cable RG213, 6 meters (quantity 1)	5MHz Signal from maser rack to CRG	Installed	None
Signal Cable RG213, 6 meters (quantity 1)	10MHz Signal from maser rack to CRG	Installed	None
Cat-5 Cable (quantity 1)	Internet signal from maser rack to Network switch in CLOA.	Installed	None
Temperature monitor		Not installed	none
Eaton TPC2365 Power distribution unit	From 240 VAC UPS unit	Installed	None
Maser Rack	Equipto Seismic rated rack for maser mounting	Installed	None



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5. HMaser Document Inventory

<i>File Name</i>	<i>Description</i>	<i>Release</i>
<i>Applicable documents listed in review plan</i>		
2014-10-07 - ALMA-05.11.10.49-50.00.00.00-A-ICD - ICD APP and ALMA BE.pdf	<i>Back End ICD</i>	10/7/14
2014-10-14 - ALMA-05.11.10.00-20.00.00.00-A-ICD - ICD APP and ALMA Site.pdf	<i>Site ICD</i>	8/9/13
2014-10-07 - ALMA-05.11.00.00-70.35.25.00-A-ICD - ICD APP and COMP.pdf	<i>Computing ICD</i>	10/7/14
2014-10-08 - ALMA-05.11.10.00-60.00.00.00-A-ICD - ICD APP and CORR.pdf	<i>Correlator ICD</i>	10/8/14
2014-10-16-ALMA-05.11.10.49-0005-A-ICD	<i>ICD between C167 Microprocessor And ROACH2 FPGA</i>	10/16/14
<i>EDM documents listed in review plan</i>		
2013-07-25 ALMA-05.11.21.11-0001-A-DWG HMaser Rack Layout	<i>HMaser Rack Layout</i>	7/25/13
2014-04-10 ALMA-05.11.21.01-0001-A-PLA HMaser v1.0.docx	<i>Maser Installation and test plan</i>	1/10/14
2014-07-22 ALMA-05.11.21.02-0002-A-PLA HMaser switchover.docx	<i>Rb to Maser switchover procedures</i>	7/22/14
2014-10-03-ALMA-05.11.21.02-0001-A-PRO-APP_H_Maser_Procedure	<i>Startup, shutdown, and monitoring procedures</i>	9/24/14
2014-09-22 ALMA-05.11.21.01-0004-A-PLA APP_maser_maintenance_plan	<i>Maser maintenance manual</i>	9/24/14
2014-10-28 - ALMA-05.11.21.00-0002-A-VER - Maser_rqmts_verification_matrix.xlsx	<i>Compliance Matrix 10/28/14</i>	10/28/14
ALMA-05.11.10.01-0003-A.2-PLA.pdf	<i>APP Hazard analysis and compliance</i>	5/17/13
ALMA-05.11.21.03-001-A-REP	<i>Seismic analysis</i>	8/22/14
2014-08-13 ALMA-05.11.21.03-0002-A-TDR-Hmaser Test Data Report v2.1.docx	<i>Maser test data report</i>	10/16/14
CRG_Test_2013-04-18-BEND-55.03.00.00-0026-A-TDR.pdf	<i>CRG Test Results</i>	4/18/13



CNO C'Rj culpi 'Rt qlgev'Eqpli wt cvkp'Kgo 'Nku'ht "
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Rci g< 9"qh'.

<i>File Name</i>	<i>Description</i>	<i>Release</i>
2014-08-27-ALMA-05.11.21.90-0001-A-REP-H-MASER workmanship inspection_signedBLO	<i>Workmanship inspection report</i>	8/27/14
<i>APP Internal documents listed in review plan</i>		
2014-10-28 ALMA-05.11.21.00-0001-A-LIS HMaser CIDL	<i>Configuration items data list</i>	10/26/14
ALMA_Phasing_20130222_CLOAMod_v1.pdf	<i>Rack Modification plan</i>	2/22/13
14-10-06_MASER-RACK-ASSY.stp	<i>Hmaser Rack CAD file</i>	10/16/14
APP I&T Plan V2.2 08APR14	<i>APP Integration and Test Plan</i>	4/8/14
T4S-MAN-0015v1.3_Network_Monit_User_Manuel_a14_Option-RE-DIST.pdf	<i>Network monitor manual</i>	7/11/13
T4S-PROC0011_IP_address_change_IO_card_general.pdf	<i>IP Address change manual</i>	7/19/11
Mark6_command_set-Release1.1	<i>Recorder command set</i>	10/10/14
Certificate of conformance iM59.pdf	<i>Certificate of Conformance</i>	8/13/14
ALMA-05.11.10.00-001-A-GEN APP Failure Modes and Effects	<i>APP Failure Modes and Effects</i>	5/11/10
Maser white paper MTBF 130131.pdf	<i>T4Science MTBF study</i>	1/1/13
A500 MSDS.pdf	<i>MSDS (battery)</i>	8/22/14
MSDS hydride LaNi5.pdf	<i>MSDS (battery)</i>	8/22/14
TEST_report_iM59.pdf	<i>Manufacturer's test report</i>	11/29/10
GPS monitoring 31JUL14.pdf	<i>Long-term GPS monitoring</i>	7/31/14
TSC Certificate of Calibration.jpg	<i>Test set certificate of calibration</i>	6/17/13
<i>Reference documents cited in review plan</i>		



CNO C'Rj culpi 'Rt ql gev'Eqpli wt cvlp'Kgo 'Nkv'ht "
J { f t qi gp'O cugt "

F qe'P < CNO C/270304302/2223/C/NKU"
F cvg< 4236/32/4: "
Rci g< : "qh":

<i>File Name</i>	<i>Description</i>	<i>Release</i>
Installation_Operation_and_Maintenance_User_manual_iMaser_T4S-MAN-0012_1_7emc-2.pdf	<i>Maser manual</i>	1/1/10
EOC_Memo11_Aug02_FINAL(3).pdf	<i>ALMA MEMO #602 - Performance of H Maser during the EOC week 29 July- 03 Aug</i>	8/3/14
2013 May 17 Reliability ALMA-05.11.10.03-0002-A.4-REP.pdf	<i>Reliability and Maintainability Report</i>	5/17/13
<i>Other material available for review on demand</i>		
APP Workbook	<i>Configuration summary</i>	10/26/14
EOC_Memo10_Jul25_FINAL	<i>H Maser Integration Plan (EOC memo 10)</i>	7/29/14
maser_dspl.pdf	<i>Maser configuration at ALMA</i>	4/24/13
Oscilloquartz crystal specifications.pdf	<i>Oscilloquartz crystal specifications</i>	8/14/14
TSC-5120A-MAN-Rev-G.pdf	<i>Phase noise test set manual</i>	5/16/06
<i>Material to be delivered or discussed at Acceptance Review</i>		
TBD	<i>Training requirements and plan</i>	
TBD	<i>Training materials</i>	
TBD	<i>Maser Hazard Analysis, incl. electrical</i>	