



**Atacama  
Large  
Millimeter /  
submillimeter  
Array**

## **ALMA Phasing Project (APP) Acceptance Review for the H-Maser S/N 59– Minutes**

**ALMA-05.11.21.04-0001-A-MIN**

2014-11-06

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## Change Record

Version	Date	Affected Section(s)	Reason/Initiation/Remarks
A	2014-11-06	All	Initial draft

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# 1. Introduction

## 1.1. Purpose

This document contains the meeting minutes for the acceptance review of the ALMA Phasing Project (APP) Active Hydrogen Maser S/N 59 that has been integrated at the ALMA Central LO system during May-July 2014.

## 1.2. Scope

This review aims to look at the technical requirements of the H-Maser only, so ALMA system-level technical requirements are not covered (though are general PA-, Environmental- and Safety requirements).

## 1.3. Applicable Documents

The following documents are part of this document to the extent specified herein. If not explicitly stated otherwise, the latest issue of the document is valid.

Ref	Document Title	ALMA Doc. Number
[AD01]	Acceptance Review for the H-Maser S/N 59 - Plan	<a href="#">ALMA-05.11.21.01-0005-A-PLA</a>

## 1.4. Reference Documents

The following documents contain additional information and are referenced in this document.

Ref	Document Title	ALMA Doc. Number
[RD01]	ALMA Product Assurance Requirements	<a href="#">ALMA-80.11.00.00-001-D-GEN</a>
[RD02]	ALMA Safety Manual	<a href="#">ALMA-10.08.00.00-011-D-MAN</a>



## 2. Acceptance Meeting Participants

### 2.1. JAO Acceptance Team

Member	Role
Nick Whyborn	Array Lead Engineer
Norikazu Mizuno	Array Maintenance Group Manager
David Rabanus	Array Maintenance Group Manager
Ivan Lopez	Safety Manager
Satoko Takahashi	(On behalf of the) EOC Lead
Bernhard Lopez	System Integration & PA/QA (Chair)

### 2.2. Observers

Member	Role
Phil Jewell	Head of NAASC
Masahiro Sugimoto	Sr. Instrument Engineer
Alejandro Saez	Technical Lead – Correlator/DTS
Jose Luis Ortiz	AMG Engineer
Roberto Price	Systems Engineer
Alejandro Caceres	Documentation Support

### 2.3. APP Team

Member	Role
Shep Doleman	APP Principal Investigator
Michael Hecht	APP Project Manager
Christophe Jacques	NRAO Photonics Group Lead
Geoff Crew	APP Software Lead
Rich Lacasse	APP Correlator Lead

## 3. Agenda

1. Review of action items from applicable action items from the CDR
2. Review of pending action items from the in-house acceptance (if any)
3. Review of the compliance matrix, test results and - if applicable - related NCRs/CREs/RFWs
4. Review of workmanship inspection report
5. Review of safety compliance
6. Review Acceptance Review RIDs (if any)
7. Summary of action items
8. Recommendation for acceptance

## 4. Logistics

### 4.1. Date, Time and Conference Details

*This meeting was held on Thursday November 6 14:30-16:00 UTC (11:30-13:00 Chile).*

## 5. Acceptance Related Documentation & Information

### 5.1. Summary of open RIDs from the Critical Design Review (CDR)

According to the action items listed in the Final CDR Report [RD01] the following RIDs that are related to the H-Maser appear still as unresolved:

Key	Summary	Status
<a href="#">APPRID-43</a>	All hardware delivered to JAO must be accompanied with a detailed and costed maintenance plan	Open

*A maintenance plan for the H-Maser has been provided by the APP Team (see documentation package), therefore no further actions are required in the context of APPRID-43 for the H-Maser acceptance.*

### 5.2. Summary of open action items from the PAS

*None.*

### 5.3. Review of the compliance matrix, test results and related NCRs/CREs/RFWs

*Requirement BAK-0010 – maser rack cabling and grounding connection: needs to be re-measured. APPRID-66.*

*Requirements ENVI-00050-00 / R, ENVI-00121-00 / R and ENVI-00122-00 / R: agreed to proceed with the formalization of proposed Requests for Waivers RFW02, RFW03 and RFW04, i.e. to not verify explicitly these requirements. APPRID-65.*

*Requirements SAFD-0050-00/, SAFD-0060-00/ and SAFD-0090-00/: Ivan confirms that these safety related requirements have been met.*

*Requirement PA-00860-00/ on Documentation: Nick indicates that ICDs between APP and other subsystem is a **blocker for acceptance**; action item on APP to finalize these with stakeholders (JAO will facilitate the process); APPRID-62, APPRID-63 and APPRID-64. The other documentation shall be duly signed as well, though is not consider a blocker for acceptance of the H-Maser; APPRID-58.*

*A question was raised if the H-Maser nominal monitor values and limits were available; confirmed that the detailed table is part of the Maser manual.*

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### 5.3. Review of workmanship inspection report lines

*Electrical tests of the grounding connection need to be repeated; APPRID-66.*

*Pending labeling and Ethernet cable routing needs to be addressed; APPRID-67.*

### 5.4. Review of safety compliance

*The capacity of the H-Maser to self-protect itself in case of failures has been questioned; APP to provide clarification on the related mechanisms implemented by device; APPRID-60.*

*Maser rack stiffness – the corresponding seismic analysis report had recommended the installation of stiffness plates, but these had not been installed. APP Team indicates that the report had made incorrect assumptions, and that indeed the installation is compliant even without these plates. This counter-report is to be provided for review by the Acceptance Team; APPRID-61.*

*The acceptance team confirms compliance with the safety requirements.*

### 5.5. Summary of action items

Key	Summary	Assignee	Priority
<a href="#">APPRID-67</a>	Finalize H-Maser rack labeling and ethernet cable routing (see workmanship report)	Christophe Jacques and Jorge Castillo	Normal
<a href="#">APPRID-66</a>	Measure the grounding connection of the Maser rack	Jorge Castillo	Normal
<a href="#">APPRID-65</a>	Prepare and submit RFWs for not verifying requirements ENVI-00050-00 / R, ENVI-00121-00 / R and ENVI-00122-00 / R	Michael Hecht and Bernhard Lopez	Normal
<a href="#">APPRID-64</a>	ICD Between ALMA Phasing Project And ALMA Computing ALMA-05.11.00.00-70.35.25.00-A-ICD is not approved by both parties to the interface	Michael Hecht and Bernhard Lopez	<b>BLOCKER</b>
<a href="#">APPRID-63</a>	ICD Between ALMA Phasing Project And ALMA Backend ALMA-05.11.10.00-50.00.00.00-A-ICD is not approved by both parties to the interface	Michael Hecht and Bernhard Lopez	<b>BLOCKER</b>
<a href="#">APPRID-62</a>	ICD Between ALMA Phasing Project And ALMA Site ALMA-05.11.10.00-20.00.00.00-A-ICD is not approved by both parties to the interface	Michael Hecht and Bernhard Lopez	<b>BLOCKER</b>
<a href="#">APPRID-61</a>	Maser ACRV - rack stiffness confirmation	Christophe Jacques	Normal
<a href="#">APPRID-60</a>	H-Maser and level of HW self-protection	Shep Doeleman	Normal
<a href="#">APPRID-59</a>	Typo at "Installation of Interrack Cables and Switchover Procedure for Hydrogen Maser Frequency Standard for the CLOA" procedure	Christophe Jacques	Normal
<a href="#">APPRID-58</a>	Maser ACRV - ALMA documents are not yet duly released	Michael Hecht and Alex Caceres	Normal



## 5.6. Recommendation for acceptance

*The Acceptance Team recommends that conditional acceptance of the APP H-Maser S/N 59 can be granted upon resolution of the blocking action items APPRID-62, APPRID-63 and APPRID-64 related to the due approval of the applicable Interface Control Documents (ICDs). Full acceptance would be subject to resolution of all listed action items.*

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