




**Atacama
Large
Millimeter /
submillimeter
Array**

ALMA Phasing Project Transportation Plan

ALMA-05.11.10.01-0004-A-PLA

2013-06-04

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1. Description

1.1. Purpose and Scope of Document

Equipment delivered to JAO by the ALMA Phasing Project (APP) will originate at various locations and will be shipped either from vendors to the APP sites, shipped from vendors or APP sites directly to Chile, or shipped first to an intermediate location for test. In many cases, equipment will be shipped by commercial carriers in typical boxes and packaging; such items are routinely shipped and will not be addressed in this plan. However, the NRAO NTC is the primary intermediate test facility, so a significant portion of the deliverables will be sent from the NTC to Chile and those shipments are subject to provisions in this plan. Shipments from the NTC to Chile will be executed by previous ALMA Construction IPTs (Correlator IPT and Back End Photonics IPT), therefore the shipping plans from these two IPTs will apply directly to shipments from the NTC. SOWs are provided for reference; however, SOWs specific to the APP shipments will be drafted separately, modeled from these SOWs used previously.

1.2. Receiving Shipments and Installation

Shipments arriving at the AOS and OSF in Chile will be subject to ALMA protocols for receiving and inspecting incoming freight. The APP requests that such equipment be handled as little as possible, with any suspected damage reported to the APP Project Manager as soon as it is recognized. Equipment will be installed according to a separate plan, jointly developed between the APP and JAO.

1.3. Reference documents

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

Ref	Document Title	ALMA Doc. Number
[RD01]	ALMA Phasing Project Plan	ALMA-05.11.10.01-0001-A-PLA
[RD02]	ALMA Phasing Project Integration and Test Plan	ALMA-05.11.10.01-0005-A-PLA
[RD03]	ALMA NA Correlator IPT Shipping, Handling, and Storage Plan	CORL-60.00.00.00-0017-A-PLA
[RD04]	ALMA Correlator IPT Packing and Shipping Statement of Work	CORL-60.00.00.00-0061-B-SOW
[RD05]	Back End PLO IPT Shipping, Handling, and Storage Plan For CLOA	BEND-50.01.00.00-0013-A-PLA
[RD06]	ALMA Back End Photonics Packing and Shipping Statement of Work for CLOA Phase II	BEND-50.01.00.00-0071-A-SOW



1.4. Acronyms

All acronyms and abbreviations used within this document are given at the [ALMA Acronym Finder](#) web page.

ALMA	Atacama Large Millimeter Array
APP	ALMA Phasing Project
AOS	Array Operations Site
BEND	Back End
CDR	Critical Design Review
CIDL	Configuration Item Data List
CORL	Correlator (IPT Designation)
IPT	Integrated Product Team
JAO	Joint Alma Observatory
LRU	Line Replaceable Unit
MPIfR	Max Planck Institute for Radio Astronomy
NAOJ	National Astronomical Observatory of Japan
NRAO	National Radio Astronomy Observatory
PA	Product Assurance
NTC	NRAO Technology Center
OSF	Operations Support Facility
PAI	Preliminary Acceptance in House
PAS	Preliminary Acceptance on Site
PDR	Preliminary Design Review
PLO	Photonics Local Oscillator
PMO	Project Management Office
QA	Quality Assurance
RD	Reference Document
SOW	Statement of Work

2. Equipment Shipping from the NRAO NTC

The primary shipping events will originate at the NRAO NTC in Charlottesville, VA with destinations to either the ALMA AOS or OSF in Chile. For a breakdown of the items that fit this description, please refer to the Integration and Test Plan [RD 02] which identifies the equipment to be first tested at the NTC. In addition to the equipment under test, additional hardware related to the H-Maser rack will ship for final assembly and test in Chile. *Note: at the time of this writing, the final design and shipping plans for the H-Maser rack are not complete.*

3. The Hydrogen Maser

The hydrogen maser will ship directly from Haystack Observatory to the AOS in Chile. By prior arrangement with the vendor (T4Science), delivery to the AOS is included in the procurement.

4. Items from APP Sites

Most of the items shipped from APP sites are routine shipments by commercial carrier. In some cases special handling or sensitive shipments may be required, but each site is responsible to ship and insure their deliverables arrive safely at their destinations.