

ALMA-US ICD No. 2

WBS 3.2.8.10/ 10.7.1

Antenna / Apex Interface

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Date: 2000-JAN-24

Version: A

Issued by: Antenna and Systems Groups

Date:

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Revision Control

1. Revision Version # _____

Date:

Revised by:

Reason for / items changed:

2. Revision Version # _____

Date:

Revised by:

Reason for / items changed:

etc.

1.0 Description

To define apex mechanical interfaces to the antenna. This interface will provide a mounting flange and space requirement for a nutating device and holography receiver. The subreflector and apex interface cylinder will be specified.

2.0 Related Documents and Drawings

*U.S. Prototype Antenna Purchase Order, Appendix A, Antenna Optical Configuration
U.S. Prototype Antenna Purchase Order, Section 3.5.5 Apex Equipment*

2.1 Related Interface Control Drawings

03020810M002A Apex Interface, Revision B, 2000-JAN-24

3.0 Physical System Interfaces

3.1 Mechanical interface

The contractor shall provide an apex interface to the specifications of drawing number 03020810M002A. As specified in the drawing 03020810M002A APEX INTERFACE the required volumes A and B shall be provided for additional AUI equipment such as calibrator, nutator and holography receiver. The flanges for bolting with dowel pins will be provided on the top of the quadrupod as shown in the drawing. A flange shall also be provided at the front of the focus stage with the bolt and dowel pin pattern shown in the Apex Detail. Detailed material properties that are selected by the Contractor for the Apex Interface Cylinder and Subreflector shall be approved by AUI. The subreflector ribs and supporting structure shall be determined by the Contractor to meet U.S. Prototype Antenna Purchase Order specification and be approved by AUI.

The antenna shall meet all requirements specified in Contract while a 20 Newton-mm torque is applied at the subreflector mounting flange with a 10 Hz low jerk square wave that has a 10 milliseconds rise time. This action will be primarily applied in the cross elevation direction but shall meet specifications in all directions of this nutation motion.

3.2 Mass, if relevant

Apex shall meet performance specifications with vendor supplied Apex Interface Cylinder, Subreflector and an additional mass that can vary from 0 to 20 kg.

3.3 Electrical power

Not relevant

3.4 Electronic interface, including computer hardware

Not relevant

3.5 Thermal control interface

Not relevant

4.0 Software/Control Function Interface

4.1 Monitor and Control software interface

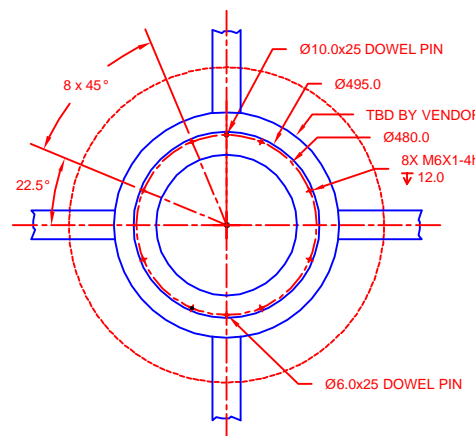
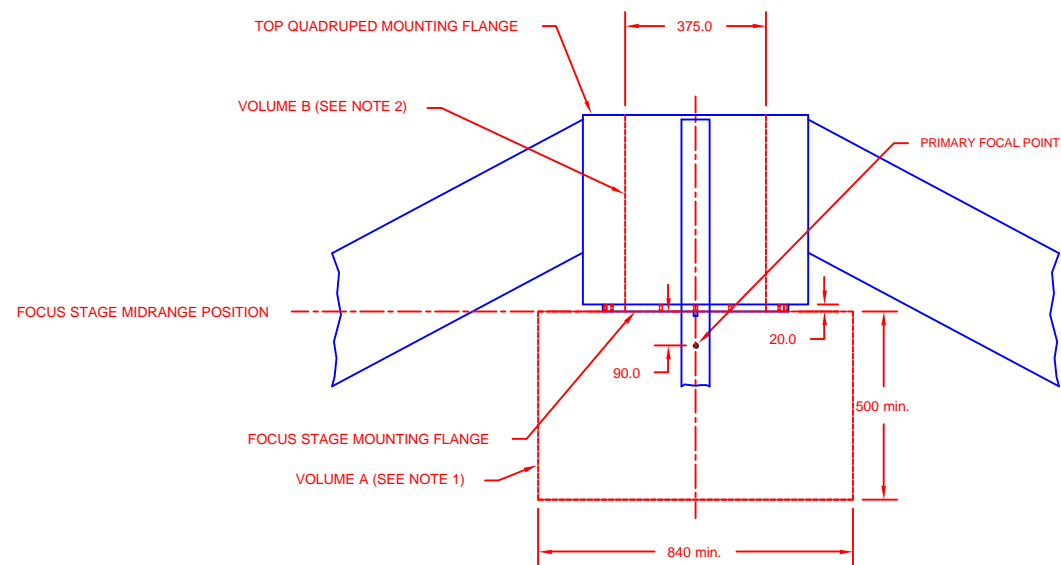
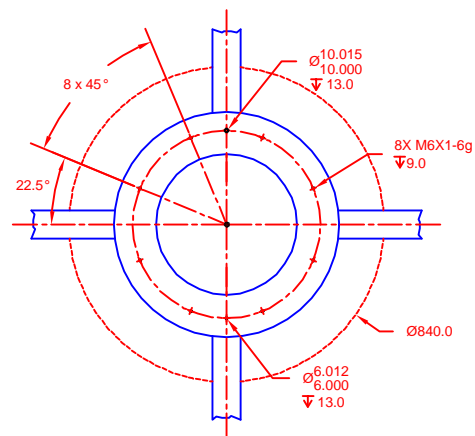
Not relevant

4.2 Other software or control interfaces

Not relevant

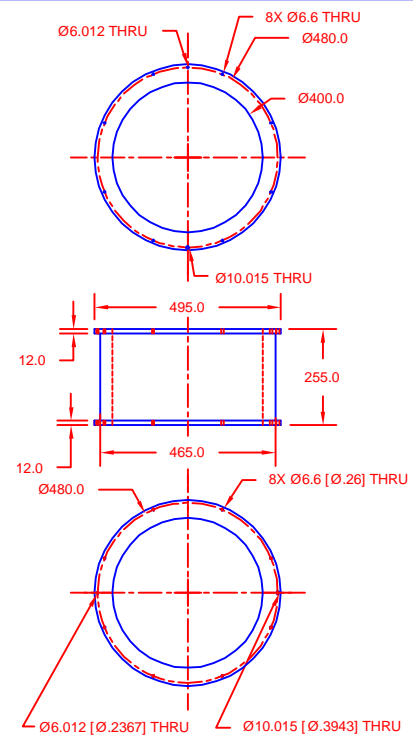
5.0 Safety Issues

Not aware of any



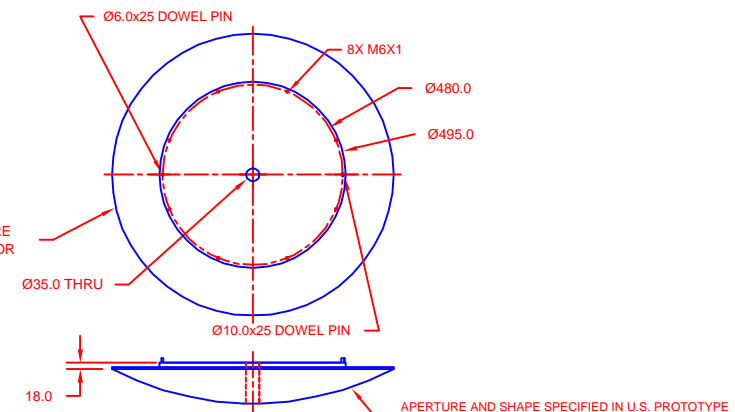
APEX DETAIL

NOTES:-
 1.) SUBREFLECTOR VOLUME FOR NUTATOR IS Ø840 X 500 AND VOLUME TRAVELS WITH FOCUS STAGE
 2.) QUADURPOD BACK RELIEF FOR CALIBRATION SYSTEM AND HOLOGRAPHY RECEIVER IS Ø375 THRU-HOLE



APEX INTERFACE CYLINDER

NOTES:-
 1.) MATERIAL: ALUMINUM WITH DETAILED MATERIAL SPECIFICATIONS APPROVED BY AUI



SUBREFLECTOR

NOTES:-
 1.) MATERIAL: ALUMINUM WITH DETAILED MATERIAL SPECIFICATIONS APPROVED BY AUI

METRIC

THIRD ANGLE PROJECTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMALS ANGLES X±1 ±1° .X±0.1 ±0.5° .XX±0.01		CONTRACT NO.		ALMA NATIONAL RADIO ASTRONOMY OBSERVATORY operated by ASSOCIATED UNIVERSITIES INC. in agreement with THE NATIONAL SCIENCE FOUNDATION	
DO NOT SCALE DRAWING	TREATMENT	APPROVALS	DATE	TITLE	
FINISH	SIMILAR TO	DRAWN	2000-01-24	APEX INTERFACE	
SPECIAL MARKING SYM.		CHECKED	2000-01-24	ALMA-TUCSON 949 N. CHERRY AVE. CAMPUS BLDG. 65 TUCSON, AZ 85721-0655	
		ENGR.	2000-01-24	SIZE	REV.
		SYSTEMS GROUP	2000-01-24	B	A
		D. Emerson		CAGE CODE	DWG NO.
					03020810M002A
				SCALE	CALC. W/P ACT. W/P SHEET
				1:20	1/1