

Minutes of Teleconference on ALMA ATF & OSF Holography Planning

Thursday, July 20 2006, 15:30 UTC.

Minutes by DTE, last changed 2006-07-21

Participants: Beasley, Brito, Duvall, Emerson, Glendenning, Kern, Lucas, Mangum, Michalski, Martinez, Meadows, Murowinski, Ocampo, Perfetto, Ridgeway, Shepherd, Sramek, Webber.

Minutes of our last (2006-05-25) meeting are at:

http://www.tuc.nrao.edu/~demerson/osfholo/mins2006-05-25_1.1_w.appendix.pdf

AGENDA:

- 1.** From Action Items of our last meeting: outstanding ICDs to have been completed are ICD 33B, (ICD 67 canceled), ICD 65 and ICD-5.
See sections #1 and #4 of the previous minutes.
What is the status of these and any other outstanding ICDs?
- 2.** Holography tower at the OSF; status report.
- 3.** Schedule for the ATF holography. Issues and conflicts?
Which antenna will be used for the tests?
- 4.** Schedule for OSF holography. Issues and conflicts?

Discussion

- 1.** Antonio confirmed that all **ICDs** had been completed, with the exception of the interface to computing. This involved monitor points, such as temperature sensors involved in the temperature control. While the temperature control will now be first implemented in unit #2, Brian would still like to get the updated ICD ASAP so it can at least be “roughed in” to the software.
- 2. Holography tower at the OSF:** The bid opening for the Holography Tower at the OSF will be on 2006-08-08 (originally on 2006-07-28, but had been delayed because of request from bidders).

For the tower-site interface at the OSF, there is need for a shelter at the tower for synthesizers etc., similar to what Jack Meadows had provided at the ATF. Dick would like to confirm that the tower includes a capability of hauling equipment to the top, and also has a small platform suitable for someone to stand at the top of the tower.

3. Schedule for ATF holography.

Antonio reported that the holography rx #2 was delayed, because of a possible need to change some connectors and waveguide lengths. Rx #1 is ok for both antennas.

The original plan was to use our holo rx for all 3 12-m antennas, while the Japanese would provide their own receiver for the 7-m antennas. There is a query as to whether our holography receiver could be modified to cater for the 7-m antennas as well. Antonio thinks this is probably feasible, so wants to delay shipping.

This will probably work, and is worth considering, but we must be careful not to compromise delivery of 2nd rx.

Feeds: we are behind schedule on redesigned holography signal feeds. Jeff M. would like to test the new feeds at the ATF. Question: in the worst case, could we do antenna acceptance in Chile with just the original feeds? Jeff M. & Robert would very much like to have the new feeds, and for ATF testing if possible. The new feeds should give much better s/n at the edge of the dish.

Antonio said that the current version of replacement feed only improves illumination at the edge by 1.5 dB, which is not enough.

Action: Antonio will put get a group together in next couple of days to discuss the feed situation, to define what is acceptable and what is not, and what action should be taken.

AEC antenna at the ATF: Pascal reports an existing ACU problem with AEC antenna – but he's coming to the ATF himself next week, and we will learn more then. The baseline plan is to test holography using the AEC antenna at the ATF; this is primarily for the benefit of PSI work, which can then proceed simultaneously using the Vertex antenna. However, this decision needs to be reviewed nearer the time. Rick and Brian noted that using the Vertex prototype, presumably most similar for the first antenna in Chile, might allow problems to be discovered at the ATF before they are encountered in Chile.

Antonio reported that he expected to be able to ship the first holography rx to the AOC, with the holography tx, on Aug 14. This is ~2 weeks behind the current IPS date, but still ahead of the need date in Socorro.. This implies that lab testing in Socorro can begin by at least August 21 as currently scheduled, with the equipment being taken to the ATF on August 28. Computing is still on track to meet the IPS date of August 21, however the CIPT internal date of August 1 is slipping by 1-2 weeks.

Dick would like to install on AEC antenna, so that PSI can proceed unhindered using the Vertex antenna. There are disadvantages of doing that – more difficult on AEC. Cables, rack mounting, tx pointing are all affected.

Rodrigo will put rack details on EDM. Pascal provided the following for the minutes:
“The electronic box of the holography receiver has to be installed in the Rx Cabin. Its volume, mass and interfaces have to be defined. We are not yet at a level where we need to issue a CRE to the holography/antenna ICD, but we need to keep track of what's happening not to face problems in the future.”

Jack is concerned about getting fiber and cable to the tower. Antonio will look into fiber situation. Jeff M. reminds us that Jack will be needed to repoint the holography transmitter, which can be time consuming.

Backend needs to know which antenna in order to make necessary preparations.

Baseline plan: use AEC antenna for holography, but will review the situation as events unfold. Motivation for using AEC is to help PSI.

Schedule:

Aug 14 2006: Holography rx #1 and tx ship to Socorro.

Delivery at AOC expected Aug 21.

Aug 28 install hardware on antenna and perform basic checkout.

Sep 11 software tests.

(However note Action item #7 – the above may slip ~1 week).

A total of 41 days for testing (TBC).

Brian & Dick will agree on and circulate a revised and sufficiently detailed schedule. IPS will be updated.

4. OSF holography issues: will be discussed further at our next meeting.

Next meeting of this group is planned for August 10 at 15:30 UTC. Darrel will confirm this.

Action Items:

1. Antonio to give Brian. revised ICD. It is understood that the exact ranges may change as the design progresses, however the M/C points and formats can be fixed.

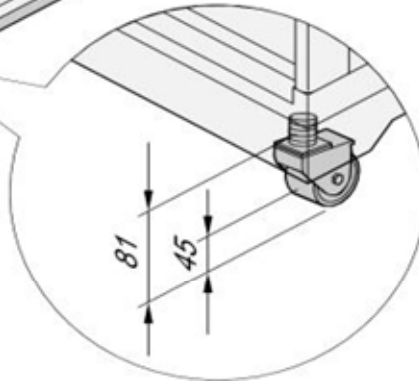
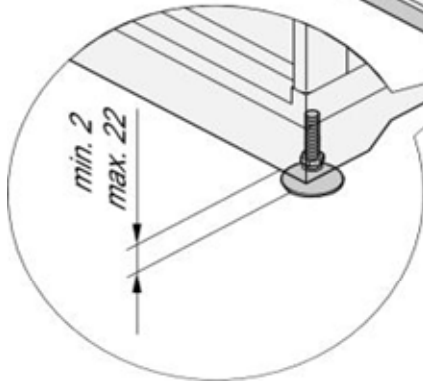
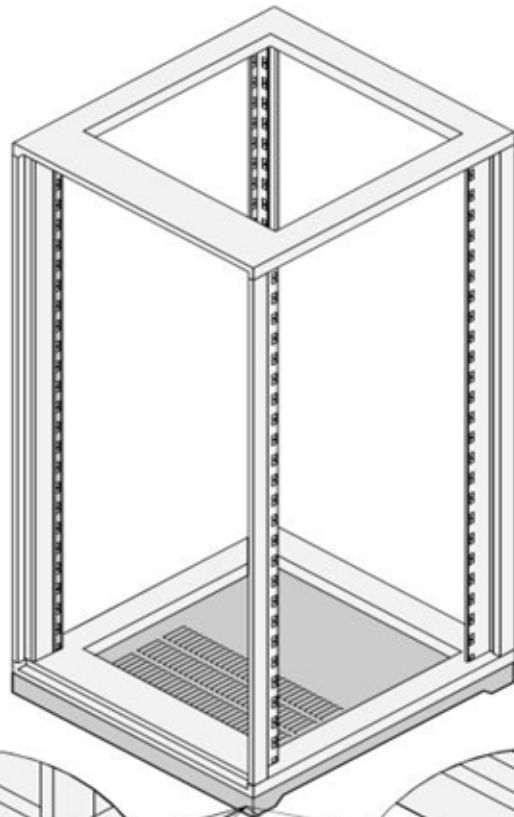
2. Antonio will organize a small working group to consider the holography feed issues, what feeds are or are not acceptable, and what timescale for delivery of feeds to ATF and/or OSF.
3. Dick will keep contact with site over the tower specs, to ensure that adequate equipment haulage and a platform are included.
4. Site IPT should discuss with Jack the needs for the shelter at the OSF tower base.
5. Rodrigo will put details of the holography rack onto EDM. See attachment to these minutes. Rodrigo comments: *“These [see attachment] are a few general assembly drawings I have for documentation. They can be used as a reference. In the binder, that will be delivered together with the mini-rack, there will also be detailed PCB drawings, data sheets, test results, the SoW, purchase orders and the disc configuration for the Ethernet Power Strip.”*
6. Dick and Brian will circulate an agreed schedule for the ATF activities.
7. IPS will be updated (see attachment to these minutes). After the meeting Stefan wrote *“I have updated the IPS to reflect the latest information from Antonio. Assembly and Testing of (2) Holography transmitters was split into two separate tasks. The dates should reflect our discussion with one exception. Vacation time of Front End staff was not accounted for in the delivery schedule and that puts the shipment out 1 more week.”*
(This may slip the schedule described above by ~1 week).
8. Although the baseline is for holography at the ATF to use the AEC antenna, this is a somewhat fluid situation which Dick will watch very closely, keeping all informed.
9. Darrel will organize the next meeting, currently set for Thursday August 10 at 15:30 UTC.

ATTACHMENT I

Holography Mini-Rack Assembly

(provided by Rodrigo Brito)

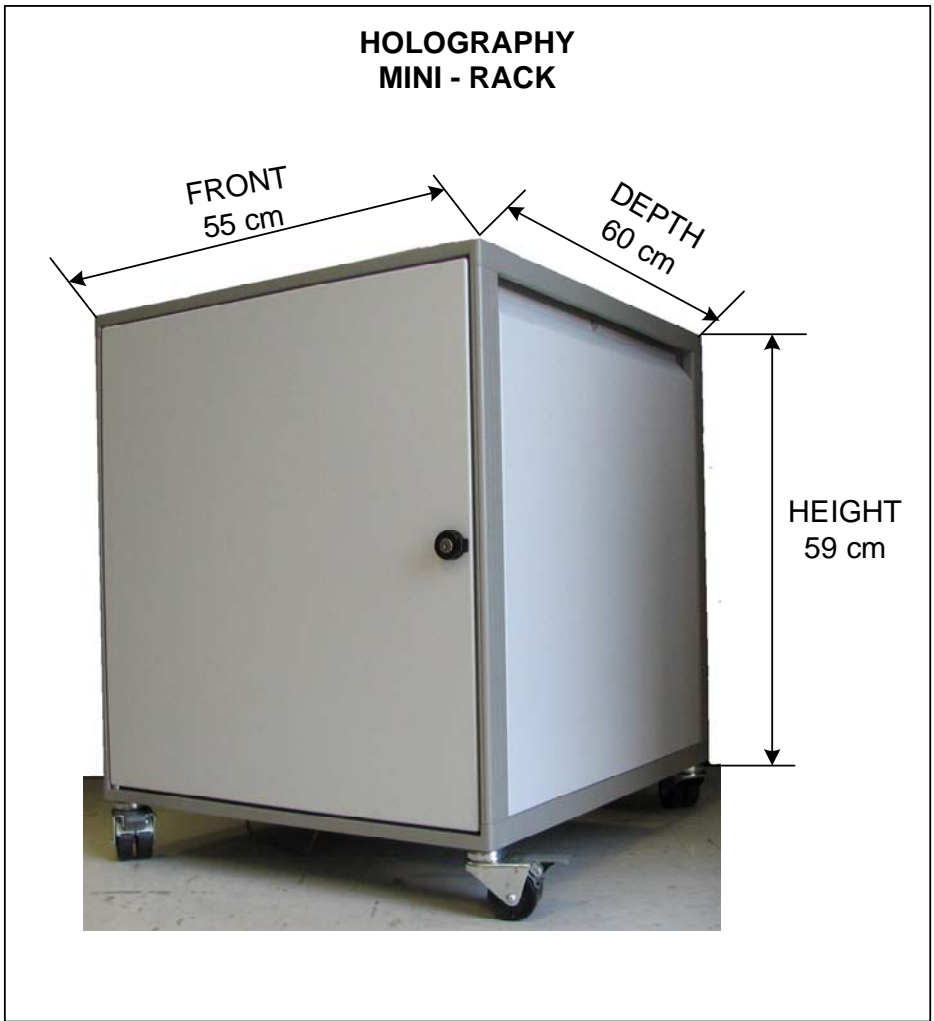
REVISION HISTORY				
ICD #	DATE	Description	REV	APPROVED
				RBRITO



Reference Generator Supporting Documents List			
DESCRIPTION	PART NUMBER	Date	Rev

Drawn rbrito	07/10/06	ALMA Back End - AIV Holography		
Checked				
QA		TITLE Holography Mini-Rack Assembly		
MFG				
APPROVED				
QA		SIZE B		REV A
		SCALE		Sheet 1 of 1

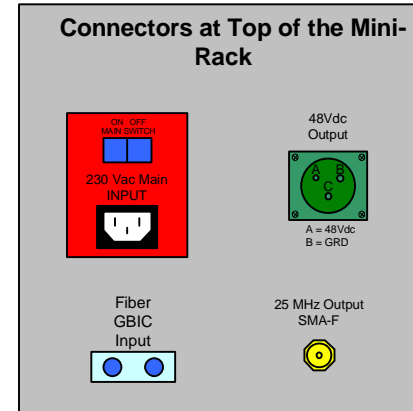
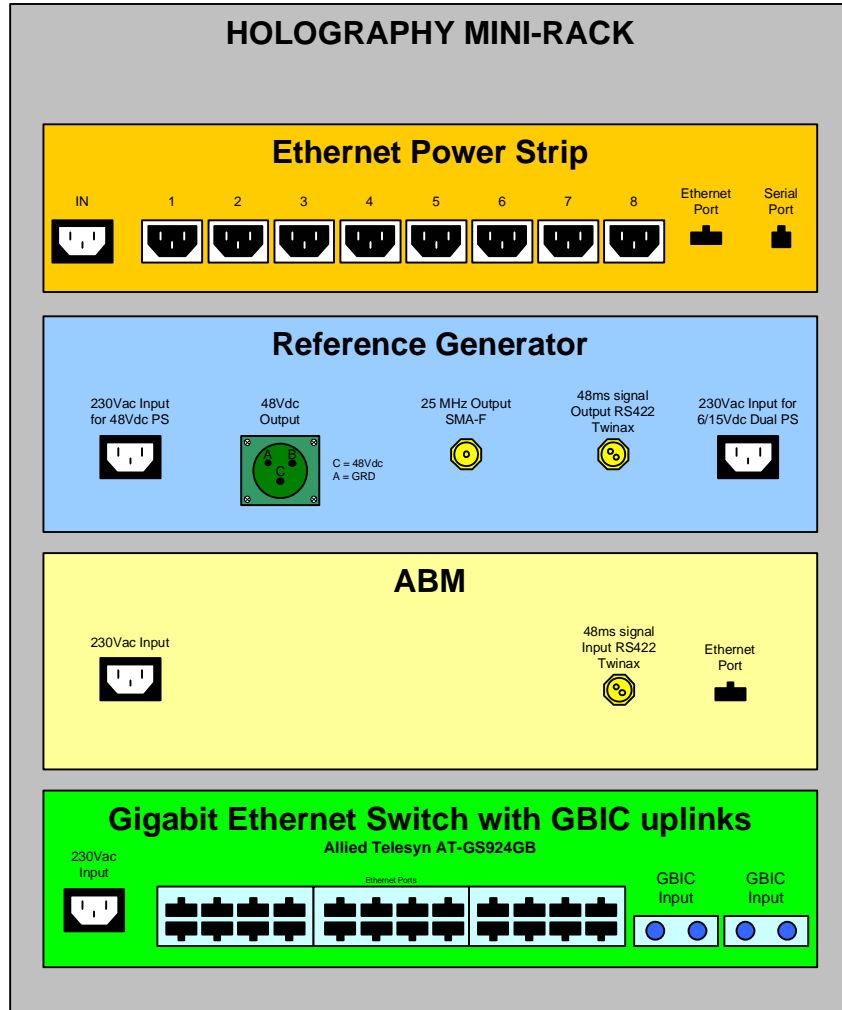
REVISION HISTORY				
ICD #	DATE	Description	REV	APPROVED
				RBRITO



DESCRIPTION	PART NUMBER	Date	Rev
LORR PCB Schematics	BEND-50.03.05.00-003-A-DWG	11/14/03	A
LORR Block Diagram	BEND-50.03.05.00-002-A-DWG	11/13/03	A
LORR PCB BOM	BEND-50.03.05.00-004-A-BOM	11/14/03	A

Drawn rbrito	10/07/06	ALMA Back End - AIV Holography		
Checked		TITLE Holography Mini-Rack Assembly Pictures		
QA				
MFG				
APPROVED				
QA		SIZE B		REV A
		SCALE	Sheet 1 of 1	

REVISION HISTORY				
ICD #	DATE	Description	REV	APPROVED
				RBRITO

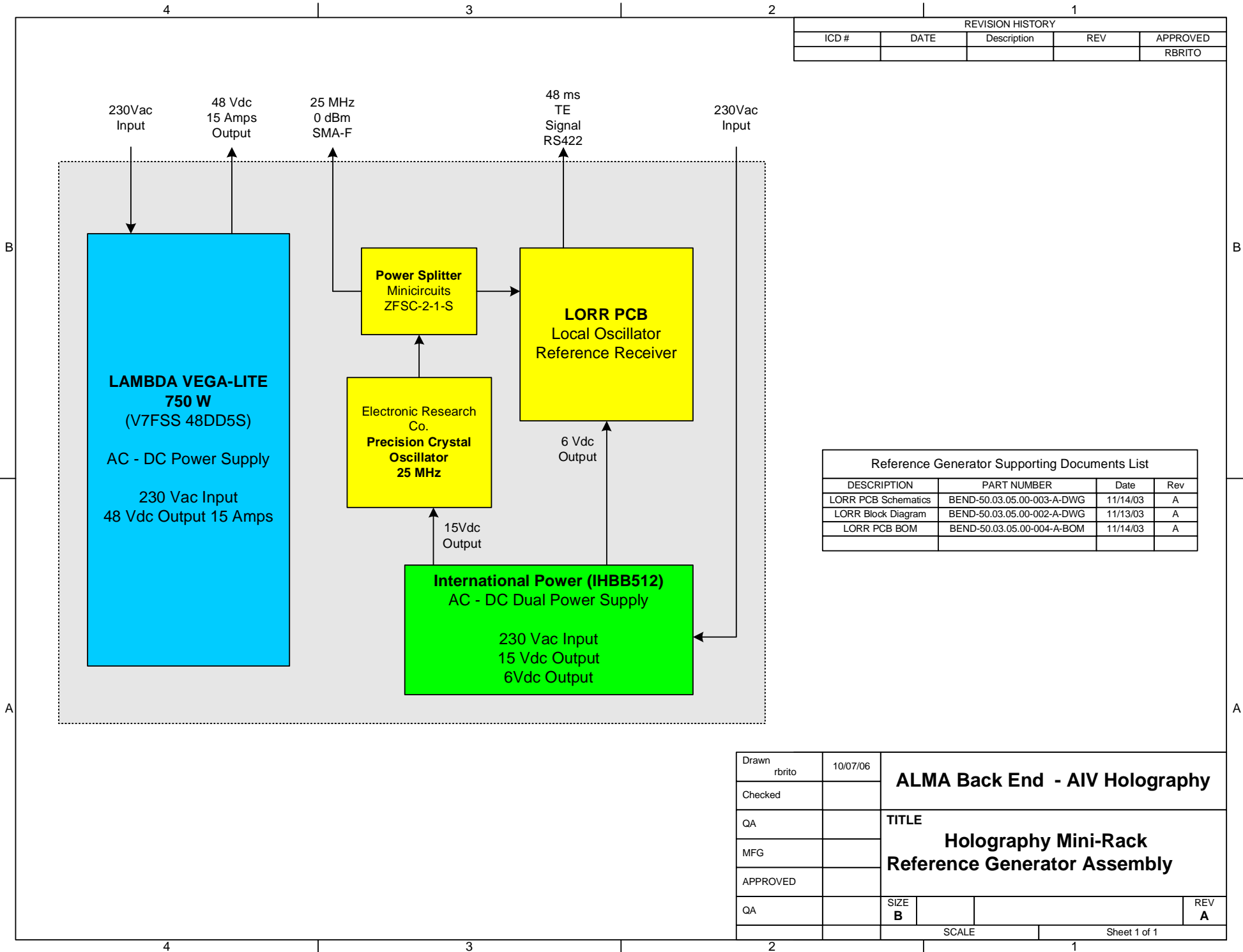


Reference Generator Supporting Documents List

DESCRIPTION	PART NUMBER	Date	Rev

Drawn rbrito	07/10/06	ALMA Back End - AIV Holography		
Checked				
QA		TITLE Holography Mini-Rack Assembly		
MFG				
APPROVED				
QA		SIZE B		REV A
		SCALE		Sheet 1 of 1

REVISION HISTORY				
ICD #	DATE	Description	REV	APPROVED
				RBRITO



DESCRIPTION	PART NUMBER	Date	Rev
LORR PCB Schematics	BEND-50.03.05.00-003-A-DWG	11/14/03	A
LORR Block Diagram	BEND-50.03.05.00-002-A-DWG	11/13/03	A
LORR PCB BOM	BEND-50.03.05.00-004-A-BOM	11/14/03	A

Drawn rbrito	10/07/06	ALMA Back End - AIV Holography		
Checked		TITLE Holography Mini-Rack Reference Generator Assembly		
QA				
MFG				
APPROVED				
QA		SIZE B		REV A
		SCALE	Sheet 1 of 1	

ATTACHMENT II

Updated Front End Holography Schedule

(provided by Stefan Michalski, to reflect the latest information from Antonio)

ALMA Front End Schedule Bi-Weekly FE Posting

Activity ID	Activity Desc.	WBS	ES	EF	% Comp	OD	Comments	2005												2006												2007												2008											
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1_08	Foreign Project added by Open Plan		A: 15Oct03		0.00	0		Time Now - 16Jul2006																																															
1_08.1	ALMA System Engineering & Integration	1.08	A: 15Oct03	18Jan13	0.00	3946d		[Gantt bar: 15Oct03 to 18Jan13]																																															
1_08.1.2	System Engineering	1.08.365	A: 15Oct03	23Dec11	0.00	2224d		[Gantt bar: 15Oct03 to 23Dec11]																																															
1_08.1.2.10	Requirements and ICDs	1.08.365.2965	A: 15Oct03	30Jun09	0.00	1576d		[Gantt bar: 15Oct03 to 30Jun09]																																															
1_08.1.2.10.30	System Engineering ICD List	1.08.365.2965	A: 15Oct03	05Mar07	0.00	970d		[Gantt bar: 15Oct03 to 05Mar07]																																															
1_08.1.2.10.30.260	ICD 5 ANTE-Antenna & FEND-Holography Receiver CCB Approval	1.08.365.2965	A: 13Dec03	A: 13Dec03	100.00	0		[Gantt bar: 13Dec03 to 13Dec03]																																															
1_08.1.2.10.30.760	ICD 33-B FEND Holography Measure Equip & COMP-M/C ICD Submitted	1.08.365.2965	21Jul06	21Jul06	0.00	0		[Gantt bar: 21Jul06 to 21Jul06]																																															
1_08.1.2.10.30.766	ICD 33-B FEND Holography Measure Equip & COMP-M/C CCB Approval	1.08.365.2965	25Aug06	25Aug06	0.00	0		[Gantt bar: 25Aug06 to 25Aug06]																																															
1_08.1.5	Antenna Evaluation & Prototype System Integration	1.08.370		10Mar08	0.00	1452d		[Gantt bar: 10Mar08 to 10Mar08]																																															
1_08.1.5.6	Prototype System Integration EU & NA	1.08.370.3000		10Mar08	50.00	991d		[Gantt bar: 10Mar08 to 10Mar08]																																															
1_08.1.5.6.22	PSI ATF (Stage Eight)	1.08.370.3000		21Feb08	0.00	538d		[Gantt bar: 21Feb08 to 21Feb08]																																															
1_08.1.5.6.22.28	PSI ATF - Receive FEND Holography Electronics	1.08.370.3000	18Sep06	18Sep06	0.00	0	Holograph replanning by IPT Complete.	[Gantt bar: 18Sep06 to 18Sep06]																																															
1_08.1.8	System AIV OSF/AOS	1.08.375		18Jan13	0.00	3032d		[Gantt bar: 18Jan13 to 18Jan13]																																															
1_08.1.8.6	ALMA System Integration	1.08.375.3020		18Jan13	0.00	3032d		[Gantt bar: 18Jan13 to 18Jan13]																																															
1_08.1.8.6.18	AIV Receive & Lab Check-In	1.08.375.3020		26Apr12	0.00	2338d		[Gantt bar: 26Apr12 to 26Apr12]																																															
1_08.1.8.6.18.4	AIV Receive Front End Components	1.08.375.3020	17Jul06	26Apr12	0.00	2111d		[Gantt bar: 17Jul06 to 26Apr12]																																															
1_08.1.8.6.18.4.52	FEND Holography Recvr1 from ATF and Rcvr2 from FE - AIV Receive	1.08.375.3020	09Jan07	09Jan07	0.00	0	Holography replanning by IPT Complete	[Gantt bar: 09Jan07 to 09Jan07]																																															
1_08.1.8.6.20	AIV - OSF Integration	1.08.375.3020		19Nov07	0.00	705d		[Gantt bar: 19Nov07 to 19Nov07]																																															
1_08.1.8.6.20.50	OSF Lab - Temp. Facilities	1.08.375.3020		19Nov07	0.00	705d		[Gantt bar: 19Nov07 to 19Nov07]																																															
1_08.1.8.6.20.50.62	OSF Temp. Lab Integration/Outfitting - Complete	1.08.375.3020	20Sep07	20Sep07	0.00	0	OSF lab complete and ready to integrate/test OPT and HOLOG systems. FE and BE deliverables occur during the outfitting itself.	[Gantt bar: 20Sep07 to 20Sep07]																																															
1_09	Foreign Project added by Open Plan		A: 26Jan06	A: 26Jan06	0.00	0		[Gantt bar: 26Jan06 to 26Jan06]																																															
1_09.9	1.09 Science IPT	1.09	A: 26Jan06	A: 26Jan06	0.00	3708d		[Gantt bar: 26Jan06 to 26Jan06]																																															
1_09.9.2	Phase 2 Science Support	1.09.380.3040	A: 26Jan06	A: 26Jan06	0.00	3708d		[Gantt bar: 26Jan06 to 26Jan06]																																															
1_09.9.2.80	Updated Holography Requirements / System at OSF	1.09.380.3040	A: 26Jan06	A: 26Jan06	0.00	206d		[Gantt bar: 26Jan06 to 26Jan06]																																															
1_09.9.2.80.3	Update to Front End to Develop Holography Electronics	1.09.380.3040	A: 26Jan06	A: 26Jan06	100.00	0		[Gantt bar: 26Jan06 to 26Jan06]																																															
4	ALMA Front End Schedule	1.04	A: 14May01	11Apr12	0.00	2666d		[Gantt bar: 14May01 to 11Apr12]																																															
4.08	Front End Subsystem Engineering	1.04.075	A: 01Apr03	23Dec11	0.00	2279d		[Gantt bar: 01Apr03 to 23Dec11]																																															
4.08.15	ICDs Requiring Approval	1.04.075.0640	A: 15Oct03	13Feb07	0.00	809d		[Gantt bar: 15Oct03 to 13Feb07]																																															

ALMA Front End Schedule Bi-Weekly FE Posting

Activity ID	Activity Desc.	WBS	ES	EF	% Comp	OD	Comments	2005												2006												2007												2008											
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.08.15.07	ICD 5 ANTE-Antenna & FEND-Holography Receiver Received Approval	1.04.075.0640	A: 13Dec03	A: 13Dec03	100.00	0		-Holography Receiver Received Approval																																															
4.08.15.33	ICD 33 FEND - Holography & COMP - Control Soft.	1.04.075.0640	A: 01Feb06	25Aug06	100.00	145d		ICD 33 FEND - Holography & COMP - Control Soft.																																															
4.08.15.33.06	ICD 33-B FEND Holography Receiver & COMP-Control Draft	1.04.075.0640	A: 01Feb06	21Jul06	95.00	30d	June 17, 2006 RG Moved from June 2 to June22.Dec 26, 2005 RG added new FEND subproject for ICD 33 and moved activities from COMP. 2006_02_24(SM): Feb. 17 meeting minutes state that all Holography ICDs will be approved by April 15, 2006. 2006_06_28(AP): Design Mods for HoloRx #1 are behind schedule. May leave receiver as design and implement mods on Holo Rx #2.	ICD 33-B FEND Holography Receiver & COMP-Control Draft																																															
4.08.15.33.07	ICD 33-B FEND Holography Receiver & COMP-Control Submit to SE&I	1.04.075.0640	21Jul06	21Jul06	0.00	0	Dec 26, 2005 RG added new FEND subproject for ICD 33 and moved activities from COMP.	ICD 33-B FEND Holography Receiver & COMP-Control Submit to SE&I																																															
4.75	FE Integration & Test Centre Activities	1.04.220	A: 01Apr04	02Mar12	0.00	1935d		FE Integration & Test Centre Activities																																															
4.75.40	FE Support to System Integration	1.04.075.0668	A: 26Jan06	06Aug07	0.00	379d		FE Support to System Integration																																															
4.75.40.20	Holography System - Front End	1.04.075.0668	A: 26Jan06	06Dec06	0.00	218d		Holography System - Front End																																															
4.75.40.20.05	FEND Holography System - Receive Updated Specification for ATF Receiver	1.04.075.0668	A: 26Jan06	A: 26Jan06	100.00	0		FEND Holography System - Receive Updated Specification for ATF Receiver																																															
4.75.40.20.10	FEND Holography System - Develop Transmitter Electronics	1.04.075.0668	A: 01Feb06	20Sep06	0.00	162d		FEND Holography System - Develop Transmitter Electronics																																															
4.75.40.20.10.5	FEND Holography System - Design Holography Transmitter	1.04.075.0668	A: 01Feb06	A: 18Jul06	100.00	30d	2006_02_24(SM): Includes development of ancillary electronics (cabling, power supplies, ABM, TE & 25MHz, etc.) moved	30Jan2006																																															
4.75.40.20.10.10	FEND Holography System - Design Holography Transmitter Software	1.04.075.0668	A: 26Jun06	04Aug06	20.00	20d	2006_06_28(AP): MM started work on software.	FEND Holography System - Design Holography Transmitter Software																																															
4.75.40.20.10.15	FEND Holography System - Procure Transmitter Hardware & Test Equipment	1.04.075.0668	A: 24Apr06	25Jul06	80.00	60d	2006_05_24(AP): All hardware purchased with exception of positioner & M&C electronics.	FEND Holography System - Procure Transmitter Hardware & Test Equipment																																															
4.75.40.20.10.20	FEND Holography System - Assemble 1st holography transmitter	1.04.075.0668	26Jul06	08Aug06	0.00	10d		FEND Holography System - Assemble 1st holography transmitter																																															
4.75.40.20.10.25	FEND Holography System - Lab Test 1st Holography Transmitter	1.04.075.0668	09Aug06	15Aug06	0.00	5d		FEND Holography System - Lab Test 1st Holography Transmitter																																															
4.75.40.20.10.30	FEND Holography System - Assemble 2nd holography transmitter	1.04.075.0668	30Aug06	13Sep06	0.00	10d		FEND Holography System - Assemble 2nd holography transmitter																																															
4.75.40.20.10.35	FEND Holography System - Lab Test 2nd Holography Transmitter	1.04.075.0668	14Sep06	20Sep06	0.00	5d		FEND Holography System - Lab Test 2nd Holography Transmitter																																															
4.75.40.20.15	FEND Holography System - Receiver(s)	1.04.075.0668	A: 01Feb06	30Oct06	0.00	189d		FEND Holography System - Receiver(s)																																															
4.75.40.20.15.05	FEND Holography System - Perform modifications to Holography Receiver #1	1.04.075.0668	A: 01Feb06	28Jul06	95.00	100d	2006_01_27(AP): Receiver mods include (a) redesign of main feedhorns (long lead item 5 mos) (b) Winterize the receiver package (add heaters 2mos.) 2006_06_28(AP): ALMA-J Antenna IPT asked for Chassis mods. Will impact delivery date as solutions are being investigated. 2006_07_20(AP): Above investigation yielded the following - No more design mods implemented on Rx#1, design mods to be implemented on Rx#2. Rx#1 will need to be retrofitted at a later date PSI group to return to FEND for retrofit. 95% pending testing.	FEND Holography System - Perform modifications to Holography Receiver #1																																															
4.75.40.20.15.10	FEND Holography System - Design Holography Receiver #2	1.04.075.0668	A: 01Feb06	29Sep06	20.00	20d	2006_02_24(SM): Includes development of ancillary electronics (cabling, power supplies, ABM, TE & 25MHz, etc.) 2006_06_28(AP): HoloRx#2 delayed to focus on HoloRx#1.	FEND Holography System - Design Holography Receiver #2																																															

ALMA Front End Schedule Bi-Weekly FE Posting

Activity ID	Activity Desc.	WBS	ES	EF	% Comp	OD	Comments	2005												2006												2007												2008											
								Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec												Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec												Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec												Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec											
4.75.40.20.15.15	FEND Holography System - Procure parts for Holography Receivers	1.04.075.0668	A: 01Feb06	29Sep06	5.00	60d																																																	
4.75.40.20.15.20	FEND Holography System - Assemble & Test Holography Receiver #2	1.04.075.0668	02Oct06	30Oct06	0.00	20d																																																	
4.75.40.20.15.25	FEND Holography System - Receipt of material for Holography Receivers	1.04.075.0668	29Sep06	29Sep06	0.00	0																																																	
4.75.40.20.30	FEND Holography System - Lab Test of Holography System #1 (Transmitter + Receiver) in CV	1.04.075.0668	16Aug06	22Aug06	0.00	5d																																																	
4.75.40.20.35	FEND Holography System - Ship Holography System #1 (Transmitter & Receiver) to ATF	1.04.075.0668	23Aug06	29Aug06	0.00	5d																																																	
4.75.40.20.40	FEND Holography System #1 - Delivered to ATF	1.04.075.0668	29Aug06	29Aug06	0.00	0																																																	
4.75.40.20.45	FEND Holography System - Lab Test of Holography System #2 (Transmitter + Receiver) in CV	1.04.075.0668	31Oct06	06Nov06	0.00	5d																																																	
4.75.40.20.50	FEND Holography System - Ship Holography System #2 (Transmitter & Receiver) to OSF	1.04.075.0668	07Nov06	06Dec06	0.00	20d																																																	
4.75.40.20.55	FEND Holography System #2 - Delivered to OSF	1.04.075.0668	06Dec06	06Dec06	0.00	0																																																	