

AGENDA – Revised 27 September 1999

ALMA LO PDR WORKSHOP

28 & 29 September 1999
 Santa Rita Room – Windmill Inn

Tuesday, 28 September

08:00 *Coffee – Refreshments*

08:30 Introduction – Scope and goal of this meeting Darrel Emerson

08:40 Specifications – Summary of scientific requirements and how they translate into engineering specifications Darrel Emerson & Simon Radford

U.S. BASELINE DESIGN

09:00 1) LO Baseline Plan – Description and rationale Larry D’Addario

09:30 2) Test Interferometer LO Plan Larry D’Addario

09:50 *Coffee Break*

Photonic Systems

10:20 1) General introduction to photonic LO issues John Payne

10:30 2) Phase locking, round trip correction, photomixer development Bill Shillue

11:30 3) Photonic phase calibration –
 Systems aspects and implementation Darrel Emerson/Andrea Vaccari

11:45 *Lunch – Terra Cotta Restaurant*

Multipliers and LO source generation

13:30 1) LO Sources (locked to reference) Skip Thacker/Eric Bryerton

a) Details of LO generation and meeting the phase specs

b) Current status and results

13:50 2) mmwave Multipliers John Webber

a) Current status

b) Research areas – Frequency plan; amplitude noise

EUROPEAN ACTIVITIES**Summary of European capability**

14:10 1) European photonics plans and activities Rolf Güsten

14:40 2) UK activities Brian Ellison

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Tuesday, 28 September *continued*

15:10 *Coffee Break*

15:40 General discussion

16:15 Review Panel Executive Session

17:00 Adjourn

18:30 *Dinner – El Corral*

Wednesday, 29 September

08:00 *Coffee – Refreshments*

08:30 The schedule and timeline Larry D’Addario

08:50 Discussion on US/Euro collaboration

09:50 *Coffee Break*

10:20 Review Panel Executive Session

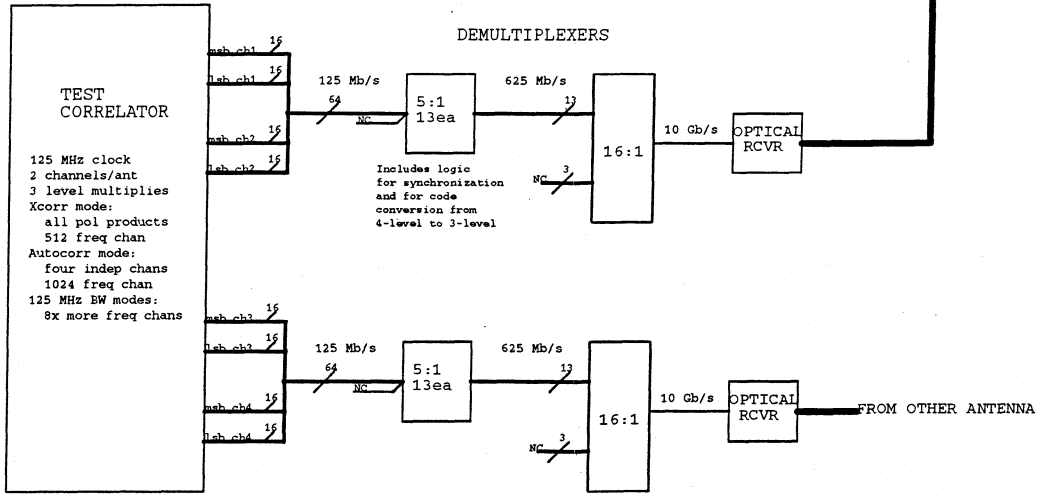
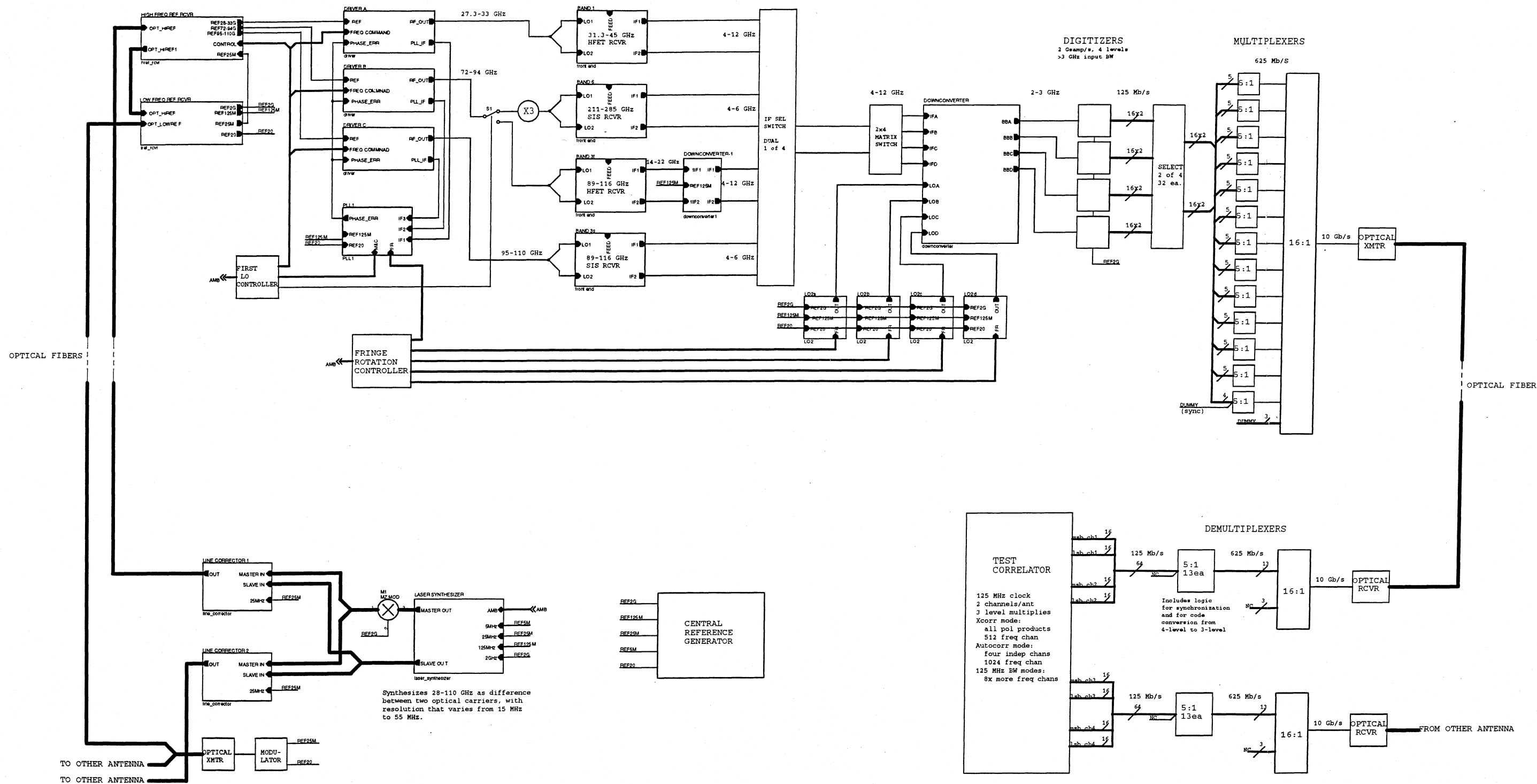
11:00 Comments from the Review Panel

11:40 Adjourn

12:00 *Lunch – Breckenridge Brewery*

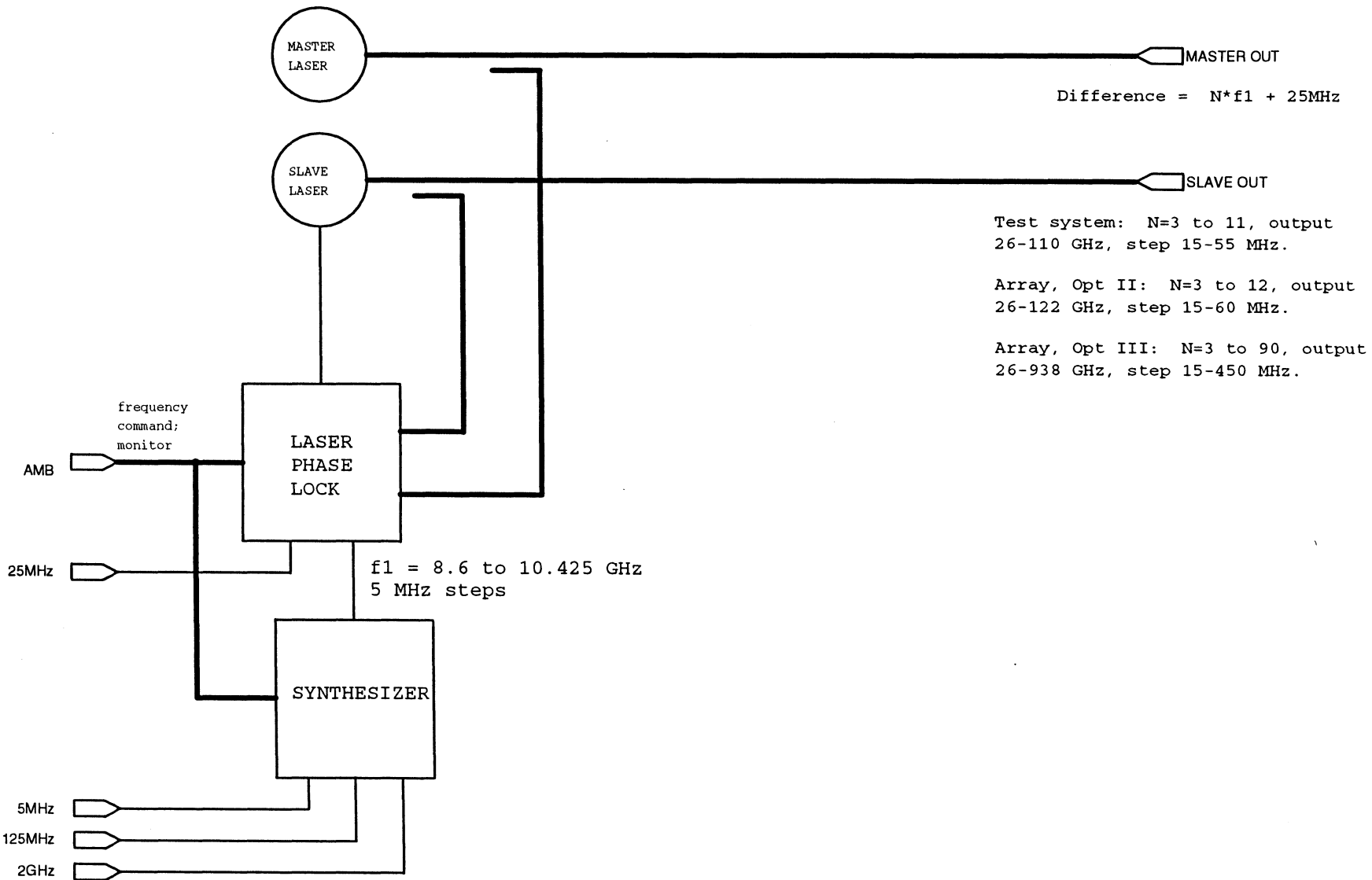
Afternoon: A visit to the Tucson photonics and receiver labs
and, optionally,
a half-day trip to Kitt Peak for those interested.

ALMA TEST INTERFEROMETER

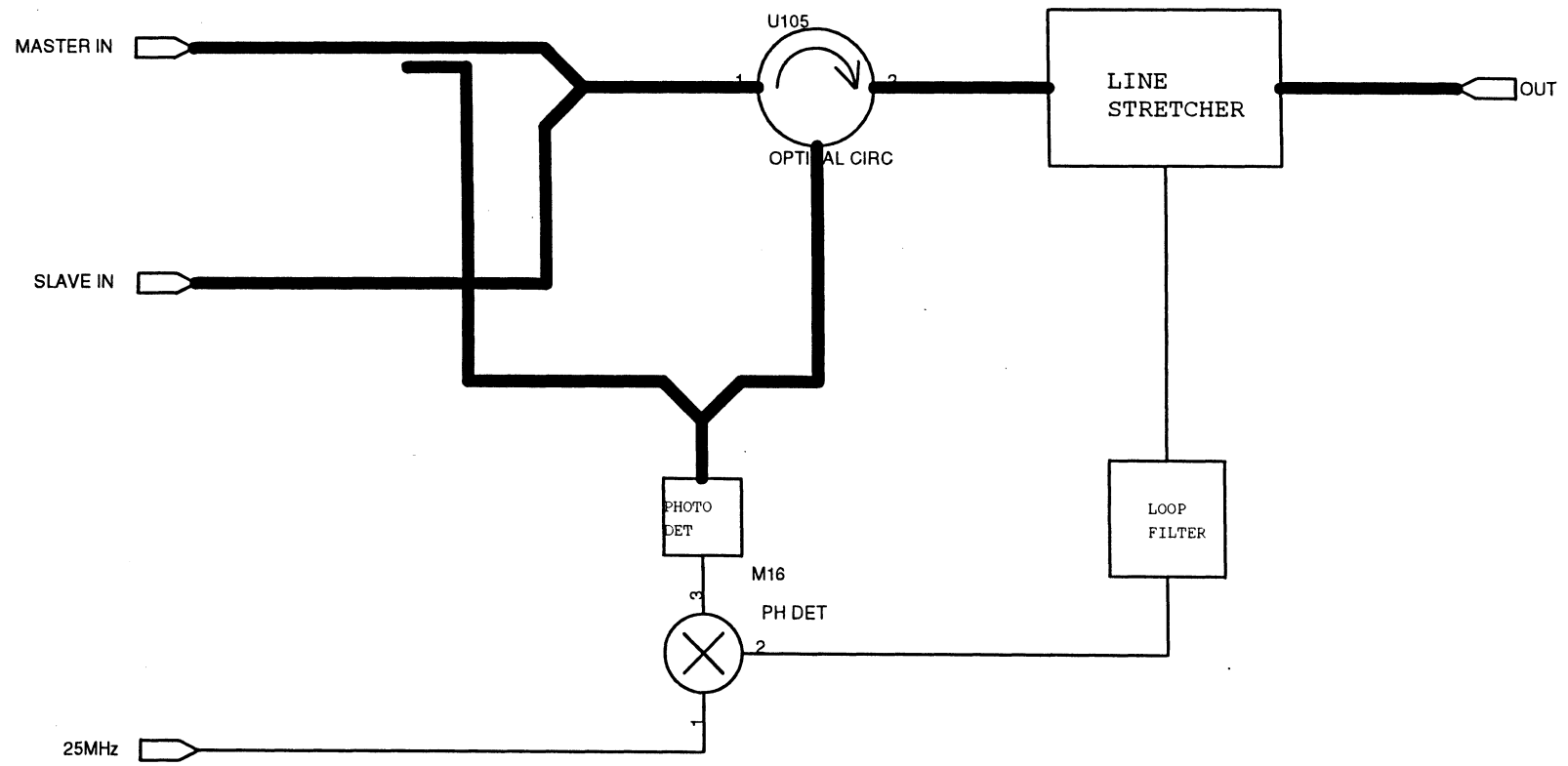


NOTES:
 1. Many devices require connections to monitor and control bus. These will be shown on future versions of this schematic.
 2. Arrangement of components into hierarchical blocks on this schematic does not imply anything about the physical layout or packaging.

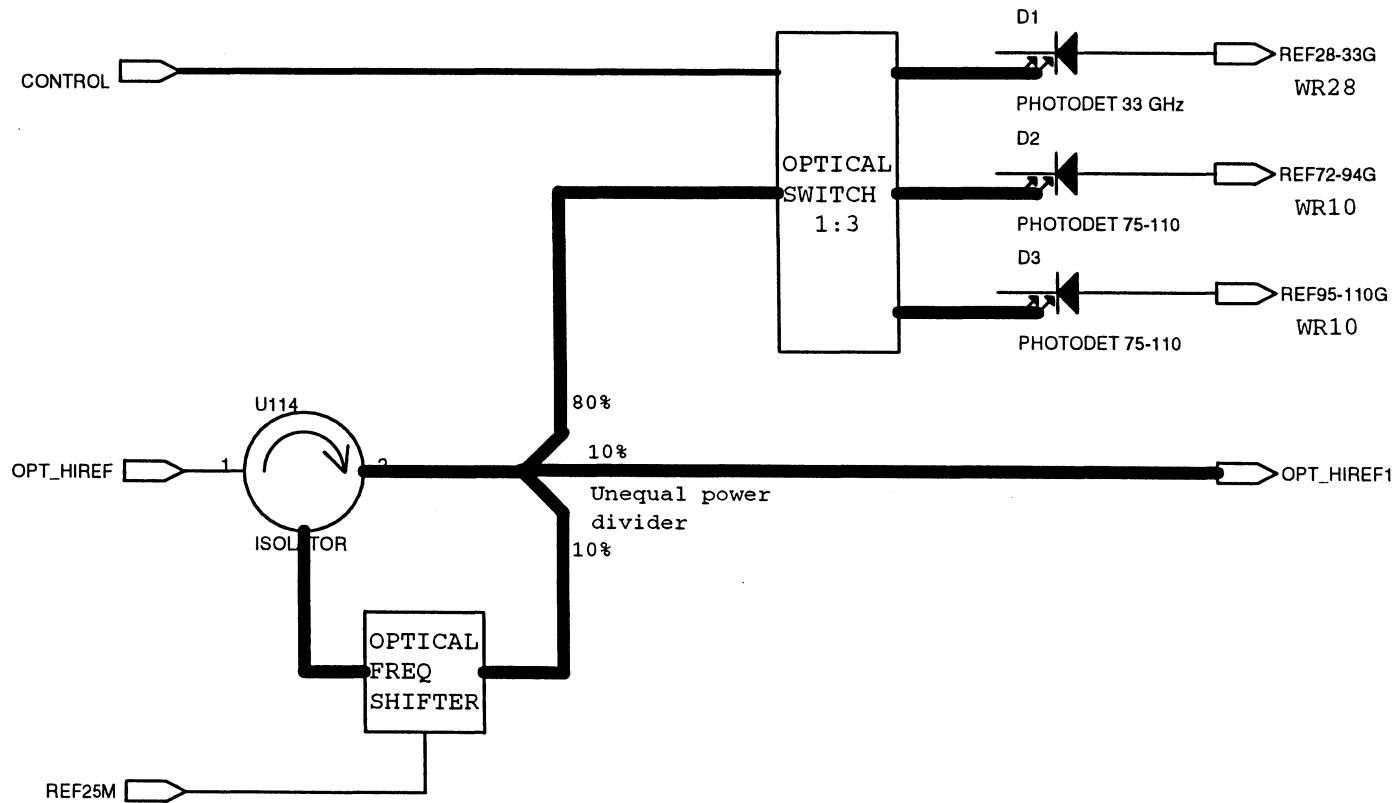
FIG	ALMA TEST INTERFEROMETER - TOP BLOCK DIAGRAM
SIZE	Document Number
DATE	Revision
BY	Author
CHKD	Checker
APP'D	Appr. Authority



Title		
ALMA Test System: Laser Synthesizer Block		
Size	Document Number	Rev
A	(Doc)	
Date:	Friday, September 24, 1999	Sheet 5 of 8

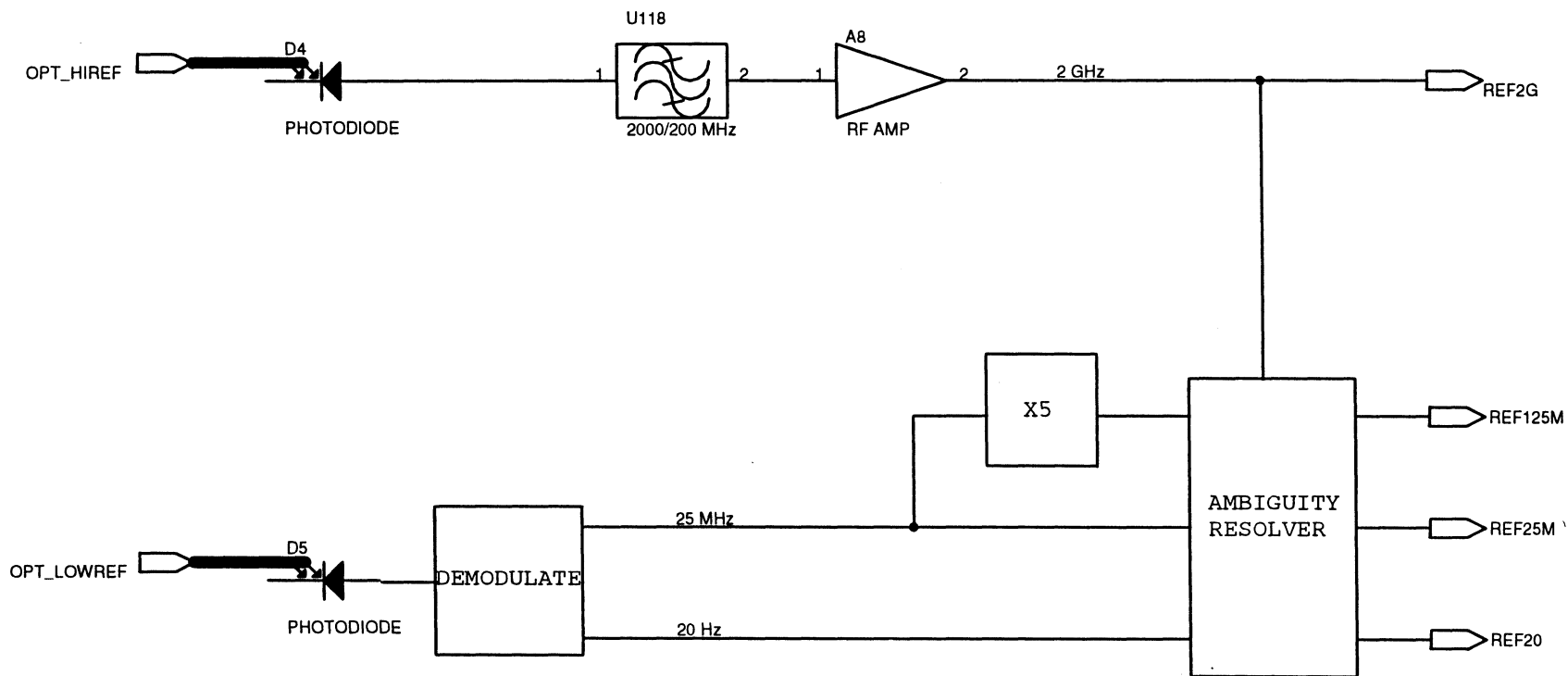


Title		
ALMA Test System: Line Corrector block		
Size	Document Number	Rev
A	(Doc)	
Date:	Monday, September 27, 1999	Sheet 6 of 8



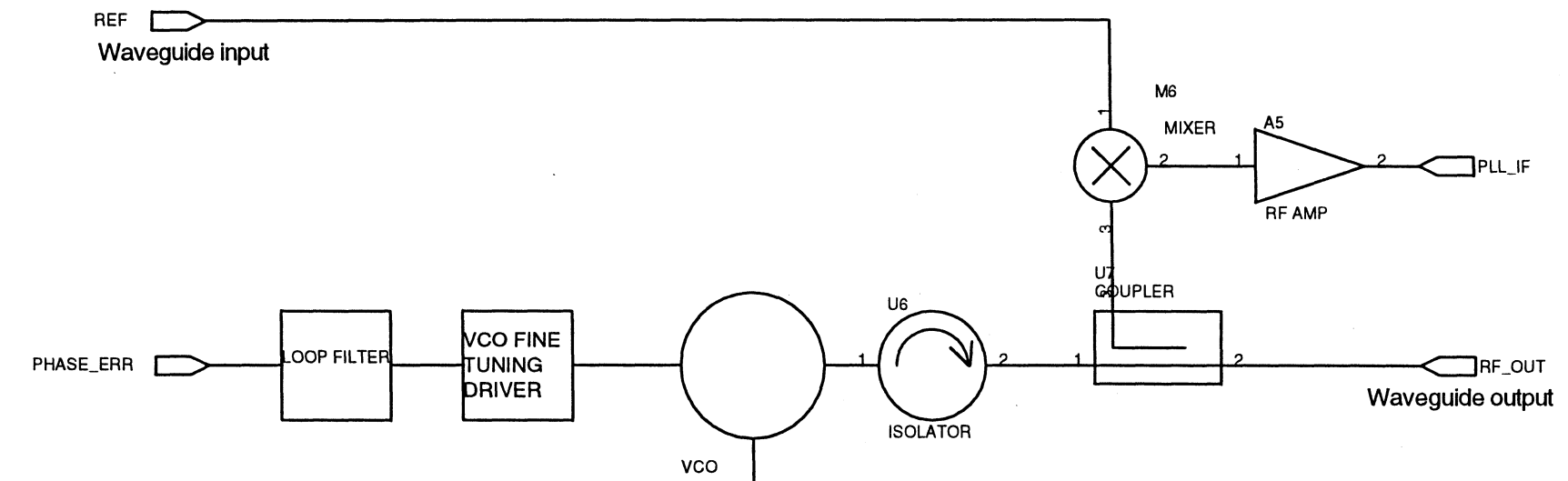
Waveguide Connections
to mixers in Driver
modules

Title		
High Frequency Reference Receiver Block		
Size A	Document Number (Doc)	Rev (Rev Code)
Date:	Friday, September 24, 1999	Sheet 4 of 8



Ambiguity resolution is accomplished by capturing each signal on the next positive zero crossing of the next faster signal, using fast flip-flops. This transfers the phase stability of the fastest signal to the others. It requires an initial timing adjustment and then stability better than about 20% of the period of the next faster signal.

Title		
ALMA Test System: Low Frequency Reference Receiver Block		
Size A	Document Number	Rev
Date:	Monday, September 27, 1999	Sheet 8 of 8



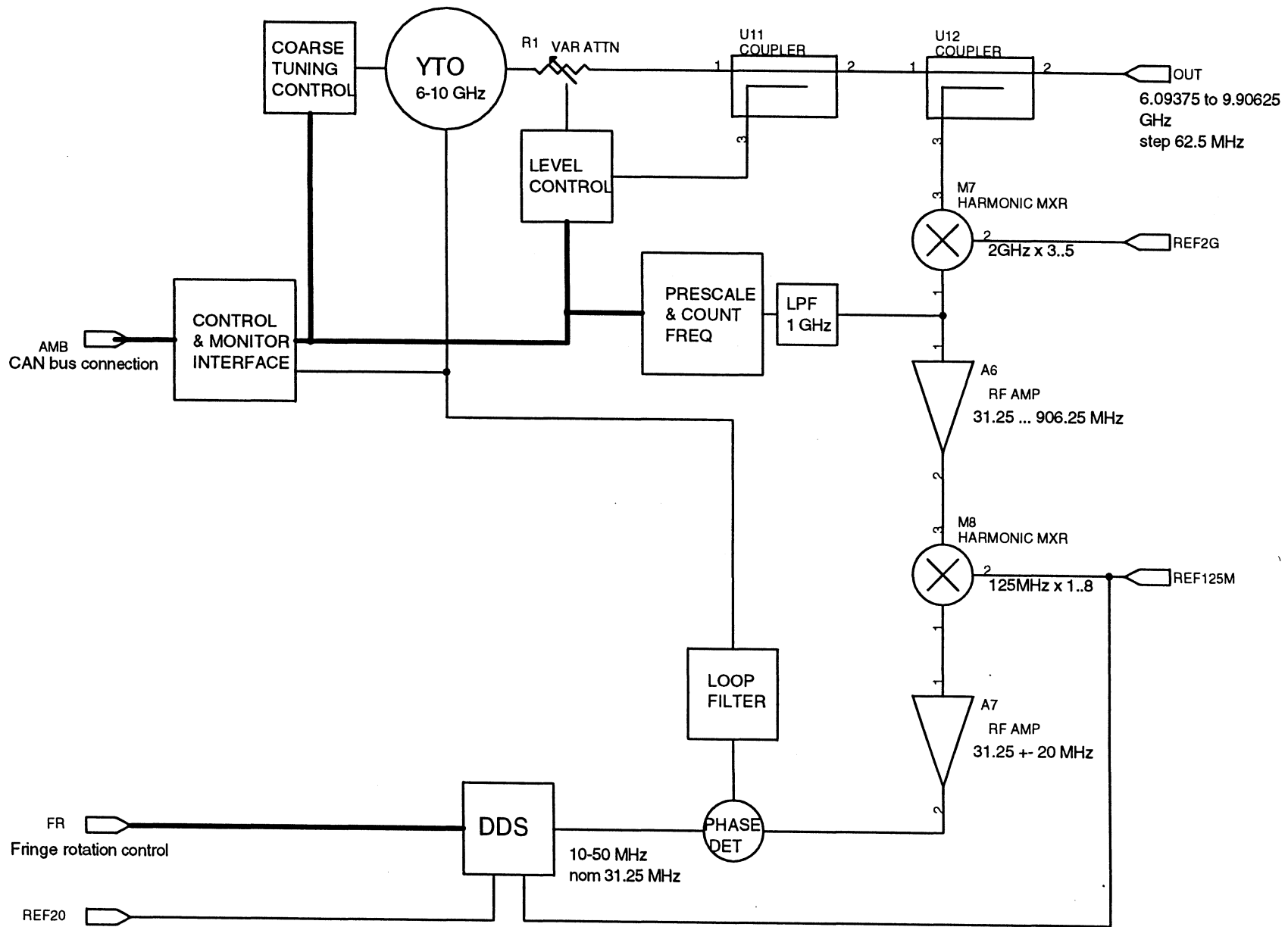
SPECIFICATIONS TABLE

Driver	PN	Test system		Array	
		Freq range	min power	Freq range	min power
A	-1	27.3-33 G	30 mW	27.3-33 G	30 mW
B	-2	72-94 G	80 mW	75-96 G	100 mW
C	-3	95-110 G	10 mW	99-148 G	100 mW

NOTES

- VCO may include power amplifier(s) and frequency multiplier(s) if needed to meet specifications.
- For ALMA test interferometer, VCOs are expected to be: A:YTO, B:GDO, C:GDO.
- Coarse tuning driver interfaces to external digital controller, not directly to AMB.
- Coarse tuning driver may include both mechanical and electrical controls, depending on type of VCO.

Title		
LO Driver Block		
Size	Document Number	Rev
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Title		
SECOND LOCAL OSCILLATOR BLOCK		
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