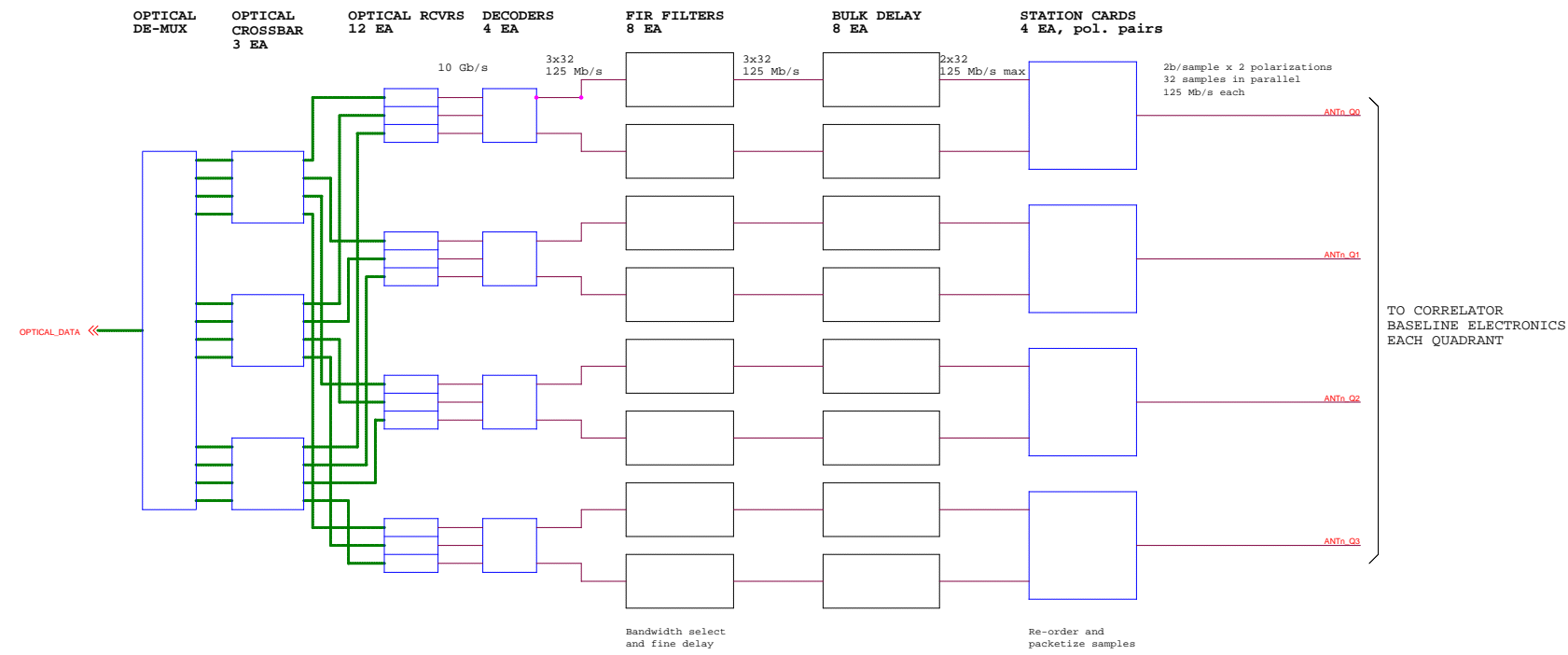


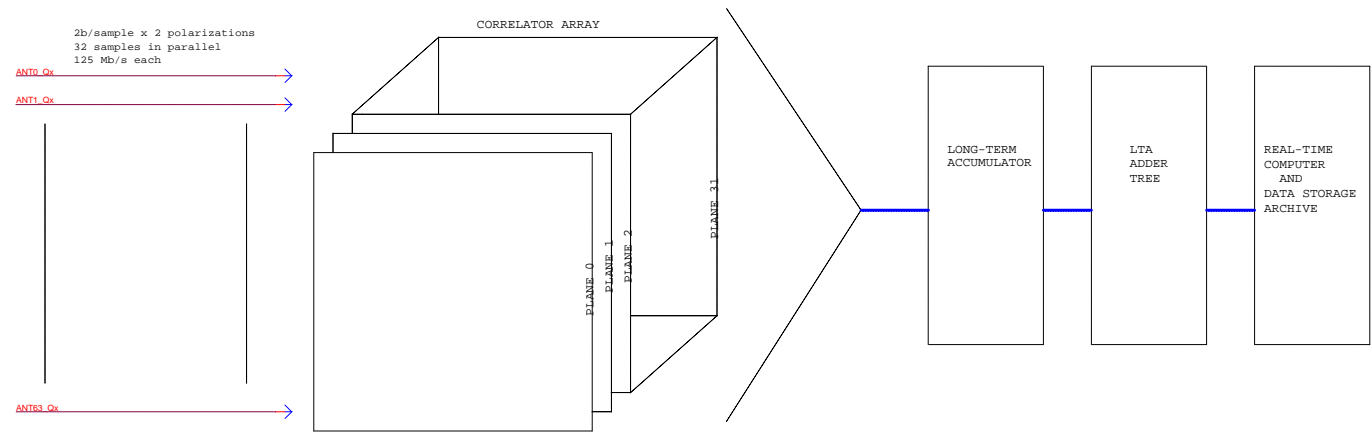
ALMA CENTRAL ELECTRONICS

CORRELATOR STATION ELECTRONICS

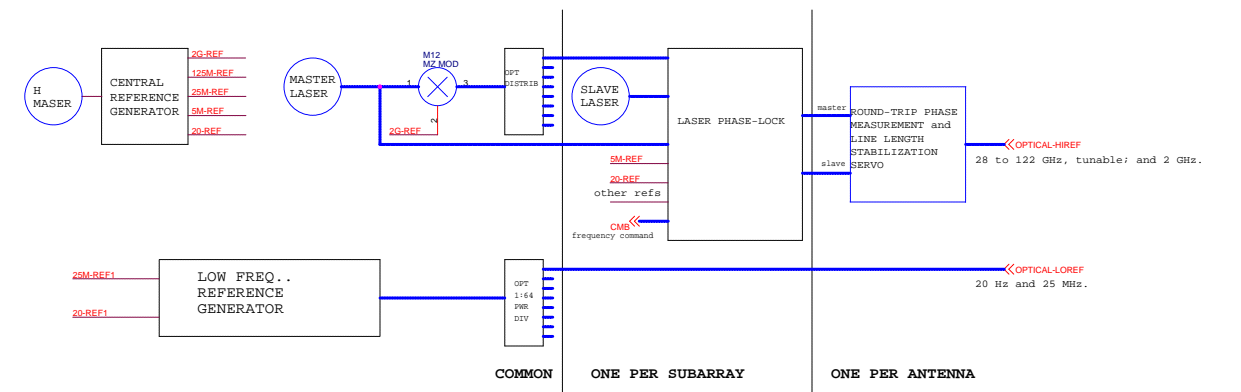


TO CORRELATOR
BASELINE ELECTRONICS
EACH QUADRANT

CORRELATOR BASELINE ELECTRONICS (ONE OF FOUR QUADRANTS)



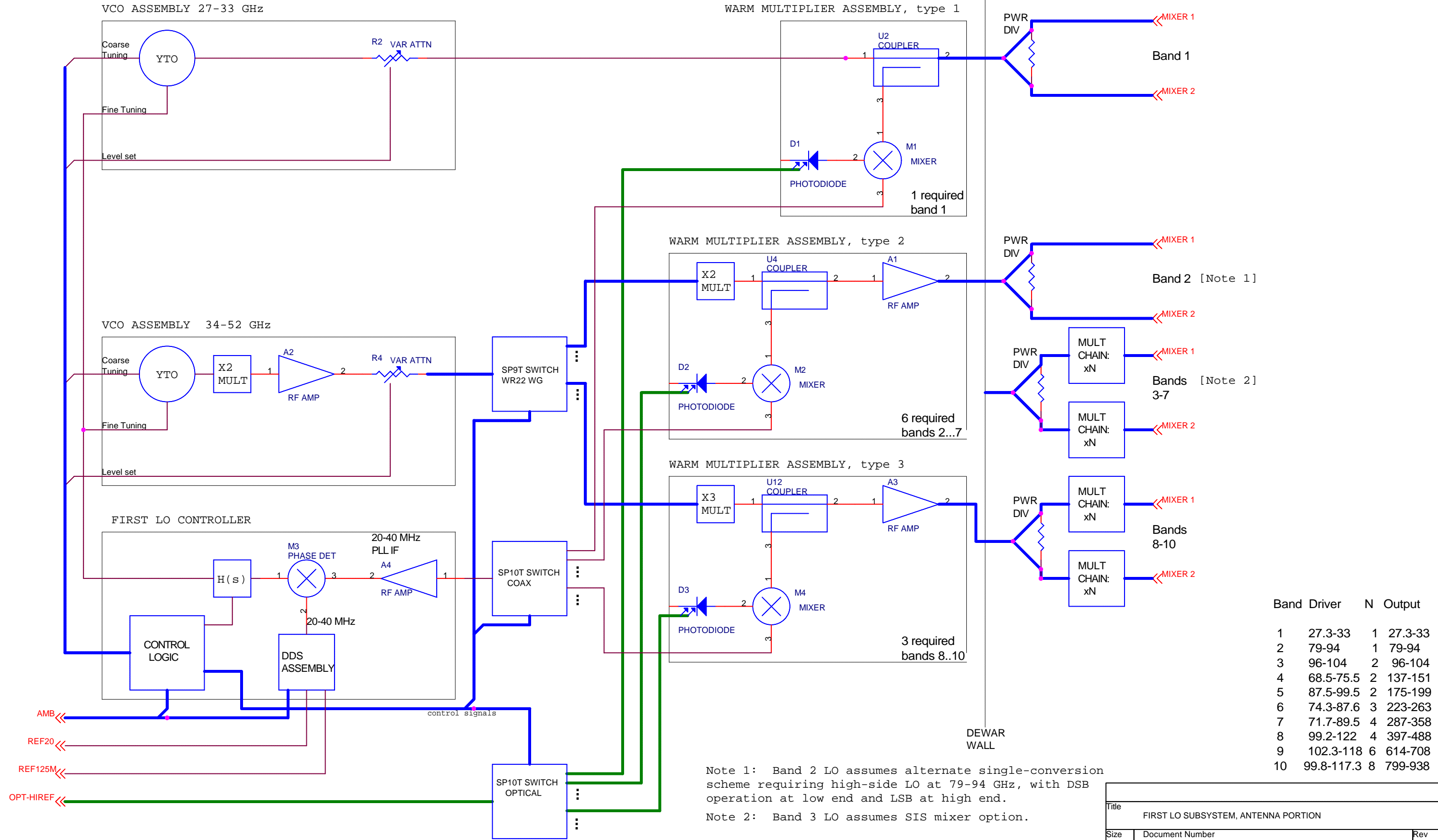
LOCAL OSCILLATORS



MODULES

WARM MULTIPLIER ASSEMBLIES
Separate for each band

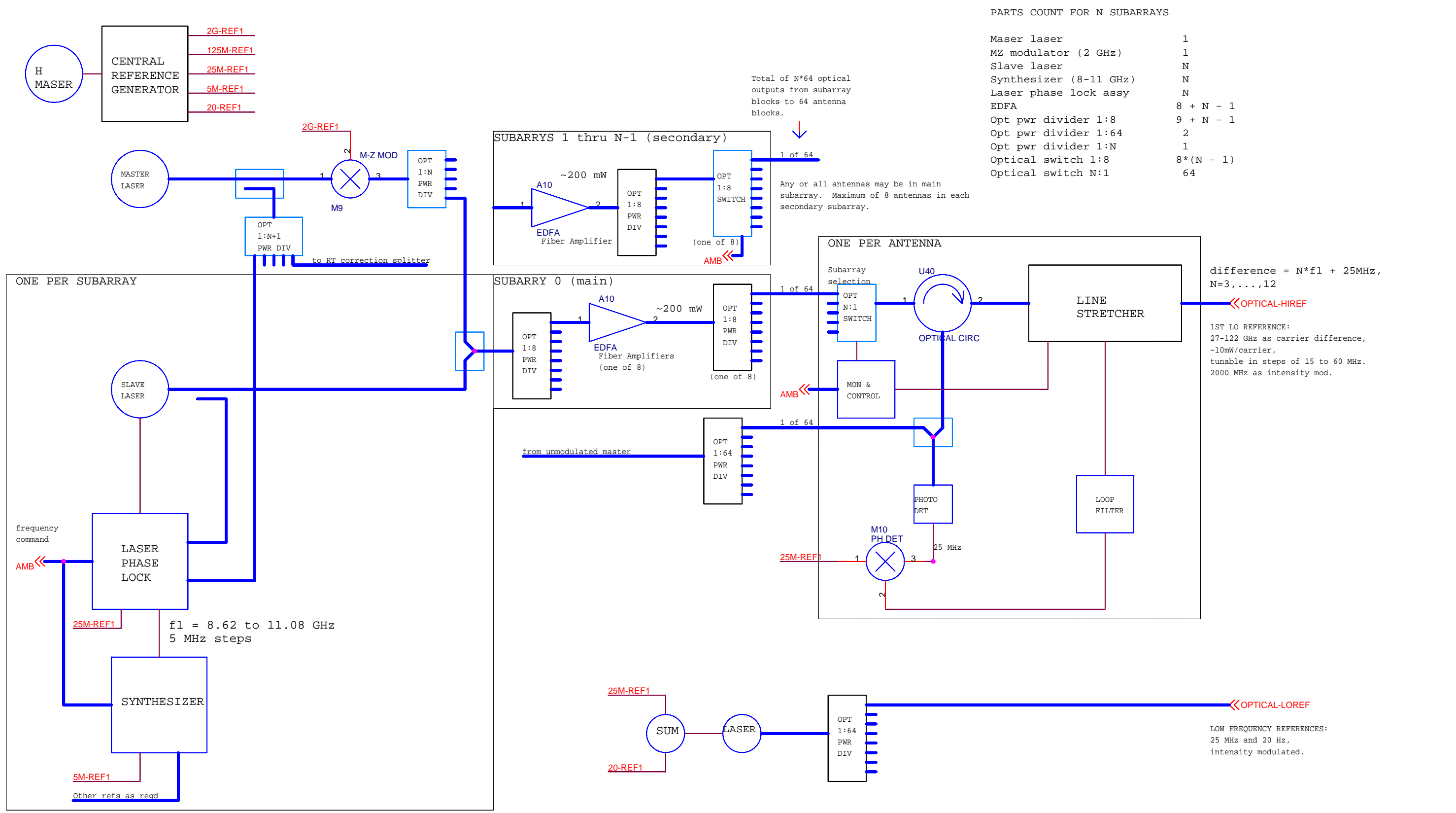
COLD MULTIPLIER ASSEMBLIES
Separate for each band



Band	Driver	N	Output
1	27.3-33	1	27.3-33
2	79-94	1	79-94
3	96-104	2	96-104
4	68.5-75.5	2	137-151
5	87.5-99.5	2	175-199
6	74.3-87.6	3	223-263
7	71.7-89.5	4	287-358
8	99.2-122	4	397-488
9	102.3-118	6	614-708
10	99.8-117.3	8	799-938

Note 1: Band 2 LO assumes alternate single-conversion scheme requiring high-side LO at 79-94 GHz, with DSB operation at low end and LSB at high end.
 Note 2: Band 3 LO assumes SIS mixer option.

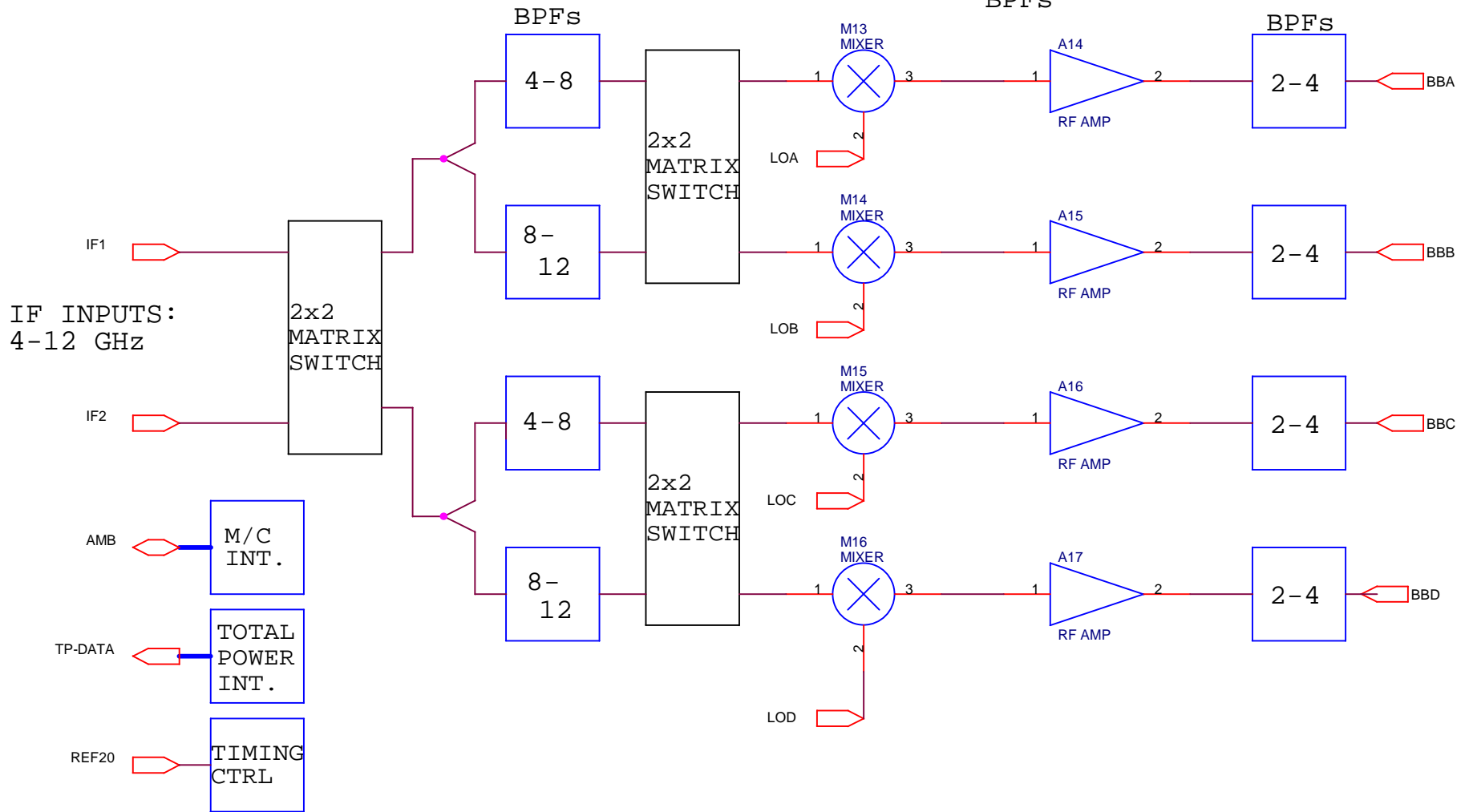
Title		
FIRST LO SUBSYSTEM, ANTENNA PORTION		
Size	Document Number	Rev
B	ALMA09001Kx0002D	
Date:	Thursday, February 01, 2001	Sheet 3 of 10



LO DETAILS -- CENTRAL

Title ALMA TOP LEVEL BLOCK DIAGRAM -- LOs, central portion		
Size B	Document Number ALMA09001Kx0002D	Rev
Date:	Thursday, February 01, 2001	Sheet 4 of 10

BASEBAND OUTPUTS:
2-4 GHz

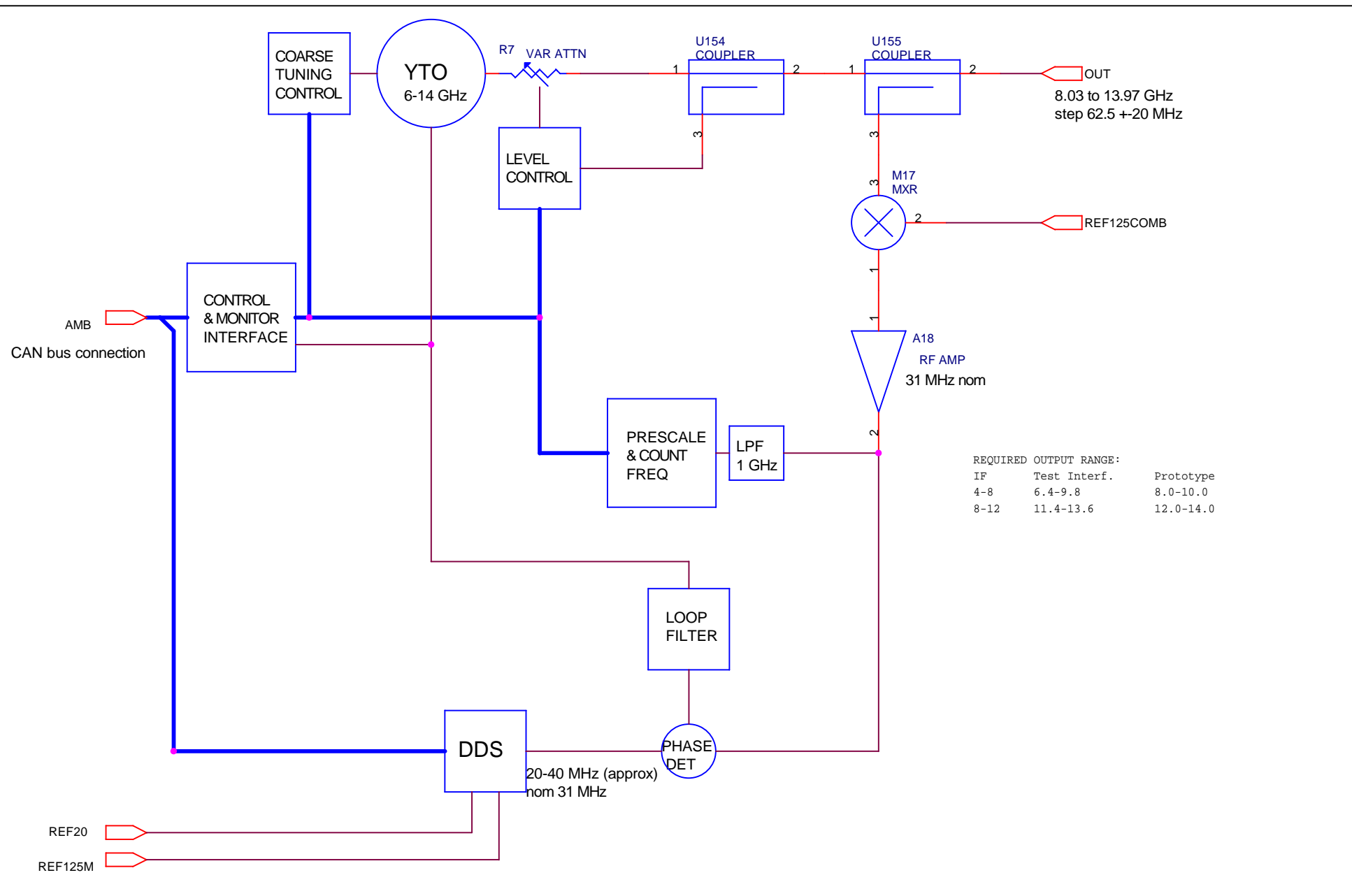


IMPORTANT DETAILS NOT SHOWN:

1. Square law detectors required for each IF input signal (4-12 GHz) and each BB output signal (2-4 GHz).
2. Gain must be adjustable via command from computer, resolution 1dB or less.

Test Interferometer Note: A special version of this module for use in the TI will differ only in the output bandpass filters. Two will cover 1.6-2.4 GHz and the others will cover 1.6-1.7 GHz, rather than 2-4 GHz..

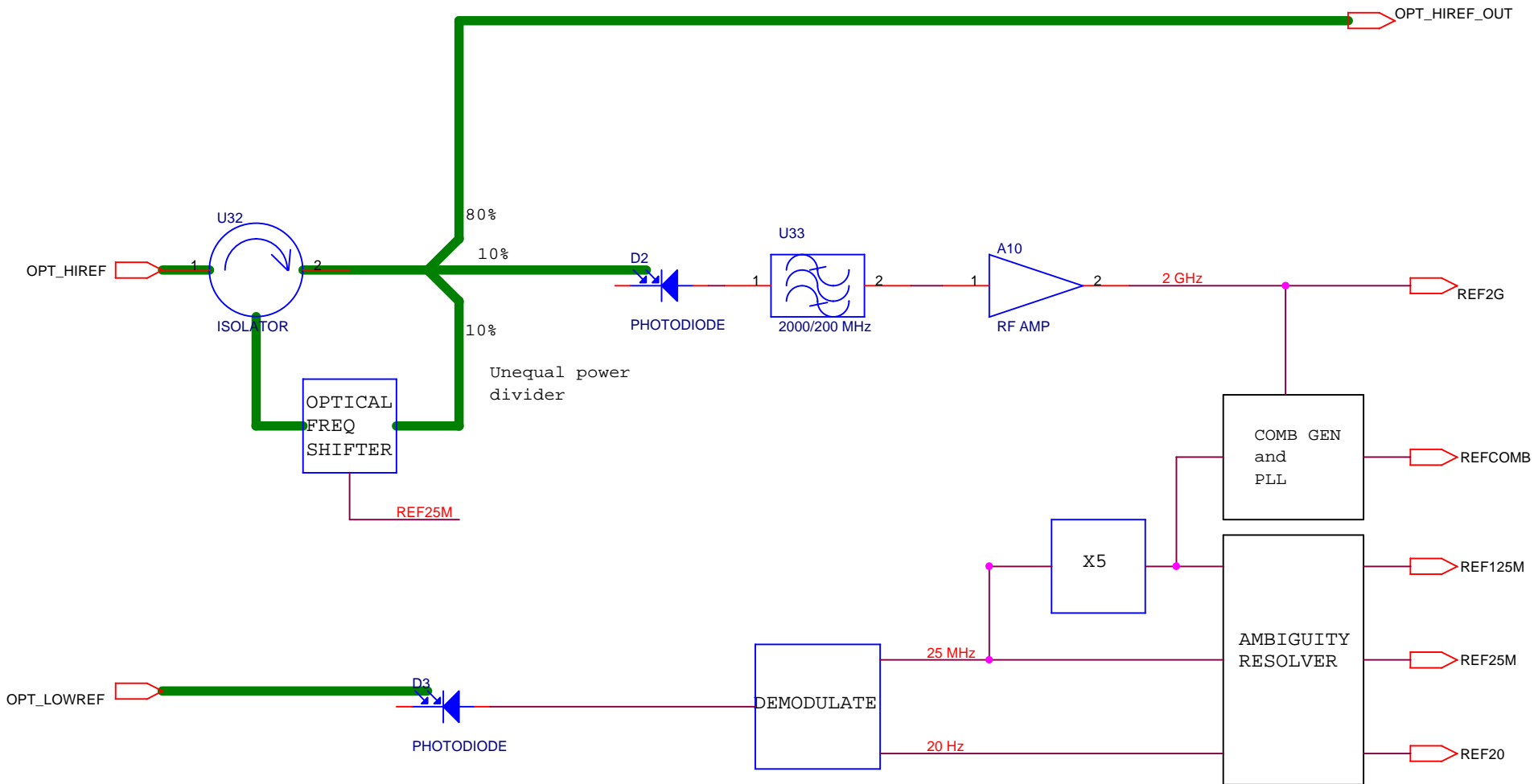
Title		
DOWNCONVERTER BLOCK		
Size	Document Number	Rev
A	ALMA09001Kx0002D	
Date:	Thursday, February 01, 2001	Sheet 5 of 10



REQUIRED OUTPUT RANGE:

IF	Test Interf.	Prototype
4-8	6.4-9.8	8.0-10.0
8-12	11.4-13.6	12.0-14.0

Title		
SECOND LOCAL OSCILLATOR BLOCK		
Size	Document Number	Rev
A	ALMA09001Kx0002D	
Date:	Thursday, February 01, 2001	Sheet 6 of 10



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 LO: Reference Receiver Block		
Size	Document Number	Rev
A	ALMA09001KX0002D	
Date:	Thursday, February 01, 2001	Sheet 7 of 10