From akerr Sun Jun 1 12:05:27 1997
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by polaris.cv.nrao.edu (8.8.5/8.8.5/CV-2.2) id MAA22577;
Sun, 1 Jun 1997 12:05:26 -0400
Message-Id: <199706011605.MAA22577@polaris.cv.nrao.edu>
Subject: MMA Receiver Development Equipment Budget -- 1998
To: jwebber@polaris.cv.nrao.edu (John Webber)
Date: Sun, 1 Jun 1997 12:05:26 -0400 (EDT)
From: "Anthony Kerr" <akerr@NRAO.EDU>
Cc: akerr@polaris.cv.nrao.edu (Anthony Kerr),
span2@polaris.cv.nrao.edu (Shingkuo Pan)
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John,

The MMA Receiver Development Equipment needs for 1998 are listed below. A couple of notes:

(i) An SIS mixer test set with a 4-12 GHz IF for the MMA will be substantially different from our present L-band arrangement. We can't do away with the existing L-band sets -- we need them for 12-m receiver work, and for mixer evaluation, since all our calibration and experience is with them. We should therefore equip the second JT dewar in Kirk's lab as an SIS test set with 4-12 GHz IF, and make it independent of the old test sets.

(ii) For MMA receiver development we can't rely on having just one of everything, as we have in the past. This results in having no permanent test sets as the components are always needed for something else. An example of this is the E-band (60-90 GHz) components we had to borrow back from Marian for our present sideband-separating mixer tests. We also frequently have to borrow components from our various LO plates for other work. With the exception of a few major items, we should leave the existing millimeter-wave test equipment for general CDL use, and plan on putting together permanent test sets in the
different bands for the MMA receiver development.

(iii) I have included the test equipment needed for the GB anechoic chamber. The AB Millimetre test set will be a valuable tool for other than antenna testing. Sri is away so I made a guess at the cost of the positioning equipment -- I expect you already have his input.

(iv) I have not included most of the LO development costs. Richard said he would cover the conventional LO and AM & PM noise measurement. I suggested several items he should include

to make the LO testing equipment relatively independent (i.e., to avoid having the equipment raided by others).

I have probably overlooked many things. If anything major comes to mind I'll let you know!

--Tony.

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MMA CDL RECEIVER DEVELOPMENT EQUIPMENT -- Year 1
Draft 1 31 May 97

	N	Cost for N	Basis	-- Sub-Totals --	
Sideband source plates					$20,225
YIG Oscillator		$2,500	est		
Tripler		$800	est		
Harmonic Genreator		$1,500	est		
Amplifiers	2	$4,000	est		
Level-set attenuator		$575	cat		
Horn		$850	cat		
Microwave counter		$10,000	est		
IF plate					$14,208
LP Filter	2	$600	guess		
LN Amplifiers	2	$3,000	est		
Step Attenuator	2	$2,872	cat		
Transfer switch		$664	cat		
Power Divider		$300	guess		
SPDT Switch		$602	cat		
Amplifiers	2	$1,800	est		
Pad		$170	est		
YIG Filter		$2,500	est		
Tunnel Diode Detector		$300	est		
Noise source		$1,000	est		
Power Supplies		$400	est		
Dewar instrumentation					$17,334
Temperature Gauge					
Temp Sensors	6	$1,380	cat		
LP feedthrough filters	12	$480	guess		
LP feedthrough filters	80	$960	guess		
Connectors	24	$840	est		
Superconducting Magnet		$1,000	guess		
Vacuum Valve		$400	est		
Turbo pump		$8,000	est		
4K IF Plate 4-12 GHz				$4,274	
SP4T Coax Switch		$2,000	est		
Loads		$230	est		
Pad		$303	cat		
Directional Coupler		$500	est		
Amplifier		--			
Quad Hybrid		$1,241	cat		
LO plates					$95,325
60-90 GHz				$26,515	
Gunn Oscillator		$8,000	est		
Isolator		$2,000	est		
Level-set attenuator		$650	cat		
W/G switch		$2,300	cat		
Wavemeter		$3,000	est		