NRAO FRONT–END STATUS
140 FOOT TELESCOPE

MARCH 1999

TECHNICAL DATA SHEET NO. 12

RECEIVER NAME	FREQUENCY (GHz)	AMPLIFIER TYPE	SYSTEM TEMPERATURE (KELVIN)	3 dB BANDWIDTH (MHz)	FEED TYPE	POLARIZATION	CALIBRATION VALUE	SWITCHING SYSTEM	REMARKS	PERSON(S) IN CHARGE
50–500 MHz Rx	50–88 MHz	HIGH DYNAMIC RANGE TRANSISTOR DUAL CHANNEL	300 + Tsky	38	OPEN SLEEVE CROSSED DIPOLE	ORTHOGONAL LINEAR OR REMOVABLE QUAD HYBRID AT FEED FOR RCP AND LCP	ADJUSTABLE 2 TO 2500K	DICKE SWITCH: REFERENCE TEMPERATURE ADJUSTABLE FROM 100 TO 100,000K OR FREQUENCY SWITCH	FEED CHANGES FROM 50–88 MHz TO 110–240 MHz OR TO 450–500 MHz REQUIRE TWO HOURS.	NORROD (SHANK)
	110–240 MHz			130	BROADBAND CROSSED DIPOLE					
	450–500 MHz	FET AMP	50–80	50	CAVITY BACKED CROSSED DIPOLE	RCP AND LCP		FREQUENCY SWITCH	450–500 MHz AMP IN 50–250 MHz Rx	
300–1000 MHz Rx	300–350 MHz	COOLED GASFET AMP DUAL CHANNEL	60–100	70	280–350 350–410 CAVITY BACKED CROSSED DIPOLES	DUAL ORTHOGONAL LINEAR RF HYBRID FOR RCP AND LCP	5K	FREQUENCY SWITCHING	ONE OF THE FIVE FEEDS 280–350 MHz 350–410 MHz 500–750 MHz 750–850 MHz OR 750–1000 MHz CAN BE USED. TO CHANGE FEEDS REQUIRES TWO HOURS.	NORROD (SHANK)
	350–410 MHz			60						
	500–750 MHz	COOLED GASFET AMP DUAL CHANNEL	50–70	80	500–750 SCALAR WITH CROSSED DIPOLES					
	750–950 MHz	COOLED HFET DUAL CHANNEL	45–50	80	750–850 CAVITY OR 750–1000 SCALAR					
	750–1000 MHz	COOLED GASFET AMP DUAL CHANNEL	50–70	80	750–1000 SCALAR WITH CROSSED DIPOLES				CHANGE BETWEEN 750–950 HFETS AND 750–1000 FETS REQUIRES 5 DAYS	
6/25 CM Rx	1.00–1.45 (25 CM)	COOLED GASFET DUAL CHANNEL	35–40	450	SINGLE BEAM SCALAR	ORTHOGONAL LINEAR	4K TO 6K	FREQUENCY SWITCHING NOISE ADDING	FEED CHANGE REQUIRED TO SWITCH BANDS TAKES TWO HOURS.	NORROD (SHANK)
	4.47–5.05 (6 CM)	COOLED GASFET DUAL CHANNEL	50–60	580	SINGLE BEAM	ORTH CIRCULAR OR ORTH LINEAR	1.4K OR 12.8K	OTHER POLARIZATION		
					DUAL BEAM OFFSET 3 HPBW	IDENTICAL OR ORTH CIRCULAR OR IDENTICAL LINEAR		BEAM SWITCHING		

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1.3–1.8 GHz Rx	1.30–1.80	DUAL CHANNEL COOLED HFET	19–25	UP TO 120 FEED LIMITED	THREE 2HE SINGLE BEAM 1.30–1.36 1.36–1.43 1.60–1.72 ZEEMAN 1.36–1.43 ZEEMAN 1.6–1.72	ORTHOGONAL LINEAR OR CIRCULAR	2K AND 200K	FREQUENCY OR POLARIZATION SWITCHING OR NOISE ADDING	EITHER CIRCULAR OR LINEAR POLARIZATIONS ARE SELECTABLE. CIRCULAR POLARIZATION REQUIRES ADJUSTMENTS FROM THE CONTROL ROOM. BAND CHANGE REQUIRES 2 TO 3 HOURS. OBSERVATIONS OUTSIDE STATED FEED BANDS POSSIBLE AT REDUCED EFFICIENCIES.	NORROD (SIMMONS)
2–5 GHz Rx	2.9–3.4	DUAL CHANNEL COOLED FET	38±4	UP TO 250 FEED LIMITED	TWO 2HE SINGLE BEAM 2.90–3.1 3.20–3.4	ORTHOGONAL LINEAR	APPROX 1.6K AND 150K	FREQUENCY SWITCHING NOISE ADDING	BAND CHANGE REQUIRES FEED CHANGE. THIS TAKES 2–3 HOURS. FREQUENCY SWITCHING REQUIRES 50 MS BLANKING TIME.	ANDERSON (SIMMONS)
	4.6–5.0	DUAL CHANNEL COOLED HFET	28±5	UP TO 200 FEED LIMITED	ONE 2HE SINGLE BEAM 4.6–4.8	CIRCULAR	3K AND 150K		RECEIVER BAND LIMITED BY 4.6–4.8 GHz FEED. FREQUENCY SWITCHING REQUIRES 50 MS BLANKING TIME.	
6 CM, 7–FEED Rx	4.6–5.1	COOLED HFET FOURTEEN CHANNEL	35–45	500	7 CORRUGATED HORNS 3 HPBW APART	DUAL CIRCULAR	4K	NONE	CONTINUUM USE ONLY. TOTAL POWER RF DETECTION.	ANDERSON (SIMMONS)
CASSEGRAIN RECEIVERS	3.95–5.85	COOLED HFET	25K	300	CASSEGRAIN	DUAL LINEAR DUAL CIRCULAR	2–2.5K	FREQUENCY OR NUTATOR BEAM	FIXED 7 GHz LO FREQ; FEED LIMITS LOWER FREQ. OPERATION TO 4.7 GHz	NORROD (SIMON)
	8–10	COOLED HFET	30–35	300	CASSEGRAIN	DUAL CIRCULAR	2–4K	FREQUENCY OR NUTATOR BEAM		STENNES (DUNBRACK)
	18.0–26.5	COOLED HFET	30–60	300	CASSEGRAIN	DUAL CIRCULAR	3–7K	FREQUENCY OR NUTATOR BEAM	TWO BANDS: 18.0–22.5, 22.0–26.5 4 HOURS TO SWITCH BANDS	STENNES (DUNBRACK)
								BEAM SHIFT = 0–8 ARC MIN.	NUTATOR RATE 5 Hz MAXIMUM	