

Receiver front-end and continuum detection.

Description	Manufacturer	Quantity	Unit Cost	Total Cost
Radome, Eccostock PP-2, 1/8 inch	Emerson & Cuming	1	51	51
Vacuum window / Crystal Quartz	NRAO / CV	2	1,200	2,400
Beam-steering optics	NRAO / GB	1	2,500	2,500
Thermal loads, MF-112	Emerson & Cuming	2	519	1,038
Feed horn	NRAO / GB	2	50	100
Circular-to-square waveguide transition	NRAO	2	50	100
OMT	J&E Precision Machine	3	2,864	8,592
Magic tee, 70-90 GHz, CMT-12-R6000	Millitech	4	1,063	4,252
Amplifier, cryogenic, 68-92 GHz	NRAO / CDL	10	1,000	10,000
Wide-band isolator	Microwave Resources, Inc.	8	1,090	8,720
Biphase modulator, 0/180 degrees	Pacific Millimeter	5	2,000	10,000
Bandpass filter, 68-92 GHz	Pacific Millimeter	4	1,000	4,000
Three-way splitter, CL3-12, 6 dB, 3 dB	Millitech	4	2636	10,544
Isolator, 68-75 GHz	Microwave Resources, Inc.	4	1,090	4,360
Isolator, 75-82 GHz	Microwave Resources, Inc.	4	1,090	4,360
Isolator, 82-90 GHz	Microwave Resources, Inc.	4	1,090	4,360
Bandpass filter, 70-77 GHz	Pacific Millimeter	4	1,000	4,000
Bandpass filter, 77-84 GHz	Pacific Millimeter	4	1,000	4,000
Bandpass filter, 84-91 GHz	Pacific Millimeter	4	1,000	4,000
Detector, continuum	Pacific Millimeter	12	770	9,240
Directional coupler, 68-92 GHz, CL3-12	Millitech	4	1,318	5,272
Misc. waveguide, coax and connectors	Various			2,000
Refrigerator, model 1020	CTI Cryogenics	1	9,500	9,500
Misc. vacuum fittings	Varian			3,000
MCB Interface	NRAO	1	1,000	1,000
Misc. circuit boards	NRAO			2,000
Mounts, infrastructure	NRAO		2,000	2,000
Contingencies				12000
			Total Cost	133,389

Downconverter, 4 GHz instantaneous bandwidth, no provisions for 2-24 GHz IF.

Description	Manufacturer	Quantity	Unit Cost	Total Cost
Image filter, Mixer, LO splitter, amplifiers, multipliers, filter P.N. 2ME-22 (A4X)	Spacek Labs	4	17,900	71,600
Amplifier, LO1, 12-18 GHz	Miteq	2	2,000	4,000
Splitter, LO1, 12-18 GHz	Mac Technology	1	200	200
Directional coupler, LO1, model C3207-20	Mac Technology	1	300	300
Detector, LO1	Narda	1	236	236
Amplifier, IF1, 20-24 GHz	NRAO, CDL	5	650	3,250
Bandpass filter, IF1	K&L Microwave	4	800	3,200
Amplifier, LO2	Miteq	2	1,500	3,000
Balanced mixer #2	Miteq	4	450	1,800
Detector, LO1	Narda	1	236	236
Directional coupler, LO2	Mac Technology	1	300	300
Detector, LO2	Narda	2	236	472
Splitter, LO2	Mac Technology	1	300	300
Isolator, 4-8 GHz	SMT	4	140	560
Coaxial attenuators	Midwest Microwave	20	55	1,100
Bandpass filter, IF2	K&L Microwave	4	300	1,200
Amplifier IF2	Miteq	5	750	3,750
Contingencies				10,000
			Total Cost	105,504

Downconverter, 4 GHz instantaneous bandwidth, provision for 2-24 GHz bandwidth.

Description	Manufacturer	Quantity	Unit Cost	Total Cost
Image filter, Mixer, LO splitter, amplifiers, multipliers, filter P.N. 2ME-14 (A4X)	Spacek Labs	4	16,300	65,200
2-way Splitter, LO1, 16.5 GHz	Mac Technology	1	200	200
Directional coupler, LO1, model C3207-20	Mac Technology	1	300	300
Detector, LO1, 16.5 GHz	Narda	2	236	236
Amplifier, IF1, 0.1-26.5 GHz, model AFS4- 00102650-40-8P-4	Miteq	5	2,250	11,250
Coaxial attenuators	Midwest Microwave	20	55	1,100
Amplifier, LO2	Miteq	2	1,500	3,000
Balanced mixer, 2-26 GHz, TB0226LW2	Miteq	4	500	2,000
Directional coupler, LO2, model C4258-20	Mac Technology	1	400	400
Detector, LO2	Narda	1	236	236
SP2T switch	Dow-Key Microwave	12	232	2,784
SP5T switch	Dow-Key Microwave	8	450	3,600
4-way Splitter, LO2 model P8268-4	Mac Technology	1	400	400
IF1 filters	K&L Microwave	16	800	12,800
Amplifier, IF2	Miteq	5	1,850	9,250
Contingencies				12,000
			Total Cost	124,756