MKR-9 Technical Description

Item	Description	Quantity
A	**Antenna consisting of:**	1
	7.2 Meter Cassegrain Ku Band Reflector, Galvanized Kingpost Pedestral, Jackscrews in Az/El (w/handcranks), Mechanical Handcrank for holding/positioning feed, Foundation Embedded Hardware	1
	Servo Interface Kit: Drive Motors for Az, El and Polarization, Limit Switches, Bracketry for Mounting Limit Switches and Transducers, Conduits and Cables. For Model 7200 Controller with Size 11 Single Speed Transducers for 7.2 KXK-120	1
	Axis Crossover: Dual Tx Run, from Az Axis to Feed Flange. (1KW per port power capability) for Moder 7.2 KXK-120 (with Crossguide Couplers)	1
	Hub Closeout (Aluminum) Front and Rear (2 piece) for Model 7.2 KXK-120	1
	Ladder and Platform (Galvanized) for Moder 7.2 KXK-120	1
	Extended Travel Option (200 degrees in two segments)	1
	White Painted Reflector Backup Structure	1
	White Painted Pedestal	1
B	**Feed consisting of:**	1
	Four Port Linear Polarized Frequency Reuse 2 Rx/2 Tx Feed. Frequency Band of the Feed is Rx: 11.70 to 12.50 GHz and the Tx: 17.30 to 18.10 GHz. (DBS) 2KW per port/2.5KW combined max.	
C	**Tracking System consisting of:**	1
	Model 7200 ACS L-Band Vertex Antenna Control System with Orbit Prediction Tracking (OPT), Three Axes (Az/El Two Speed Adjustable), 50 Custom-Configurable Targets with Simultaneously Maintained Parameter and Ephemeris Databases, 02 deg	1
	RMS Position Encoding System, TRL-2S Tracking Receiver, Limit Switches, 85M Interconnect Cable, 0.01 deg ACU Position Display Resolution, Diagnostics, Edit Messages, Beacon Select and Motor Control Unit	
D	**High Power Amplifier System consisting of:**	1
D1	CPI VZU-6995AY Series 500 Watt, 17.3-18.1 GHz TWT Compact High Power Amplifier (CHPA) with PIN Attenuator, Internal Computer Interface RS422/485 and Integrated Output Component. Overall gain 75dB min. Prime Power 208-240 VAC 47-63 Hz, Single Phase, Rear Air Intake and Exhaust.	3
D2	2+1 RF Combining/Switching Network for 17.3-18.1 GHz Operation and consisting of:	1
	Waveguide/Coax Switches	2
	WR62 Waveguide Switch	2
	Crossguide Couplers	3
	High Power Diplexers	2
	Low Power Dummy Loads	2
	Receive Reject Filters	2
	High Power Dummy Loads	3
	WR62 Waveguide Interconnect Sections	1 lot
	Rack Mount LOCAL MIMIC Control and Monitor Unit with MAC Interface	1
	Rack Mount REMOTE MIMIC Control and Monitor Unit	1
	85M Run of Interconnect Cable between LOCAL and REMOTE MIMIC Panels	1 lot
D3	CPI VJW-6769B1 Remote Control Panel for VZU-6995AY with 85M of Interconnect Cable for EIRP Monitoring and Remote HPA Monitor and Control	3

E	**Upconverter Subsystem consisting of:**	
E1	Miteq U-9697-1 Upconverter with: • 125 KHz Step Size • RS485 MAC Interface • 17.3-18.1 GHz Operation • 70 +/- 20 MHz IF Input	2
E2	Miteq RSU-S 1:1 Redundant Switch with MAC Interface	1
E3	Miteq VEQ-2-70 Dual Channel Group Delay Equalizer Unit	1
E4	Input IF Splitter	1
E5	Tx RF Patch Panel/Combiner Unit including: • Qty two (2) 4:1 RF Combiners • SMA Input and Output Connectors • Isolators on all Inputs and Outputs • VP and HP 20 dB Monitor Coupler • 19" Rack Mount Panel • Qty eight (8) Front Panel SMA Patch Cables	1
E6	70 MHz Tx IF Patch Panel	1
F	Maxtech LRK-1200, Ku Band 1:2 Redundant Low Noise Amplifier Subsystem consisting of:	1
F1	Maxtech LKL-12070 LNA, with 70 deg K Noise Temp, 60 dB Gain and 11.7-12.75 GHz Operation	3
F2	Switching , Coupling Devices etc consisting of:	1 lot
	1:2 Redundant Configuration Plate Assembly	
	Serial I/O Interface for MAC	
	1:2 Redundancy Controller	
	90M of Interconnect Cable	
	Qty two (2) Transmit Reject Filters	
	Qty two (2) Input Inject Couplers	
	Qty one (1) Offline LNA Input Inject Coupler	
	Qty two (2) Offline LNA Output Isolators	
G	**Block Downconverter Subsystem consisting of:**	1 lot
G1	Miteq DNB-12.1 Block Downconverter with: • Summary Alarm Interface for MAC • 35 dB Gain • Low Phase Noise • High Frequency Stability	4
G2	Dual Channel Group Delay and Amplitude Equalizer with Summary Alarm Interface for MAC	2
G3	Receive RF Patch Panel/Divider Unit with: • Qty two (2) 1:8 RF Dividers • SMA Input and Output Connectors • 20 dB Monitoring Ports for VP and HP • Isolators on all Inputs and Outputs • 19" Rack Mount Panel • Qty 16, SMA Front Panel Patch Cables	1
G4	Miteq RSU-B 1+1 Switch with MAC Interface	1
H	**Interfacility Links consisting of:**	1 lot

H1	Transmit Interfacility Links consisting of:
	• Tx RF IFL No. 1 (From Tx RF Patch Panel/Combiner Unit to Input of 2+1 HPA System) consisting of:
	   - 85M EWP180 Elliptical Waveguide
	   - Tunable Elliptical Waveguide Connectors
	   - Waveguide to Coax Transitions
	   - Low Loss Coax Interconnect Cables
	   - Low Power Pressure Windows
	   - Isolators with SMA Connectors
	   - Elliptical Waveguide Clamps and Hardware
		1 lot
		1
		
		2
		4
		4
		4
		4
		4
		1 lot

H2	Receive Interfacility Link consisting of:	1 lot
	90M EWP 127A Elliptical Waveguide	2
	Tunable Elliptical Waveguide Connectors	4
	Waveguide to Coax Transitions	4
	Low Power Pressure Windows	2
	5M FSJ1-50A Heliax Cable	2
	SMA Connectors for Heliax Cable	1 lot
	Elliptical Waveguide Clamps and Hardware	1 lot
	Wall Feed Through Plate	1
	Isolators with SMA Connectors	4
H3	Tx RF IFL No. 2 (RF Combiner/Switching Network to Antenna) consisting of:	1 lot
	9M WR62 Elliptical Waveguide	2
	Tunable Elliptical Waveguide Connectors	4
	High Power Pressure Windows	2
	Overhead Cable Tray and Supports	1 lot
	Wall Feed Through Plate	1
	Elliptical Waveguide Clamps and Hardware	1 lot
H4	Miscellaneous consisting of:	1 lot
	ADH-2COM Dehydrator for Tx RF IFL No. 2 Pressurization	1
	ADH-2COM Dehydrator for Tx RF IFL No. 1 Pressurization	1
	Equipment Racks	4
	AC Power Cabling from PDPs to the new Equipment Racks	1
	RF Interconnect Cabling	1 lot
	IF Interconnect Cabling	1 lot
	L Band Patch Panel	1
	L Band 4 Way Divider	1
	Summary Alarm Panel for Operations Room along with 40M Interconnect Cabling	1
	Low Power SMA Terminations	1 lot
	2+1 LNA Subsystem to Antenna Interconnect Waveguide	1
	Test Cables and Adaptors	1 lot