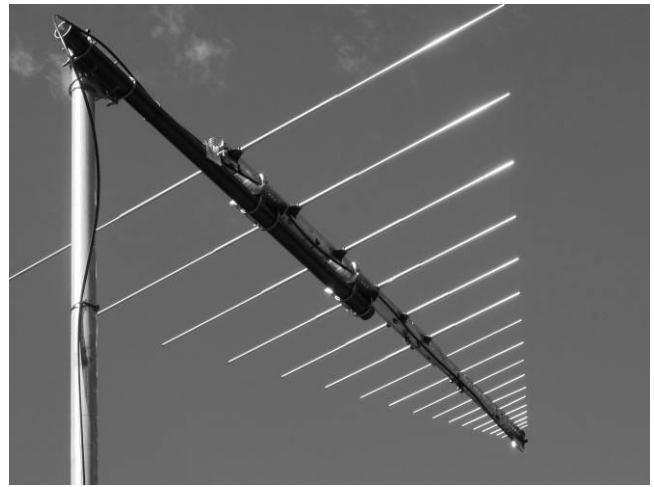
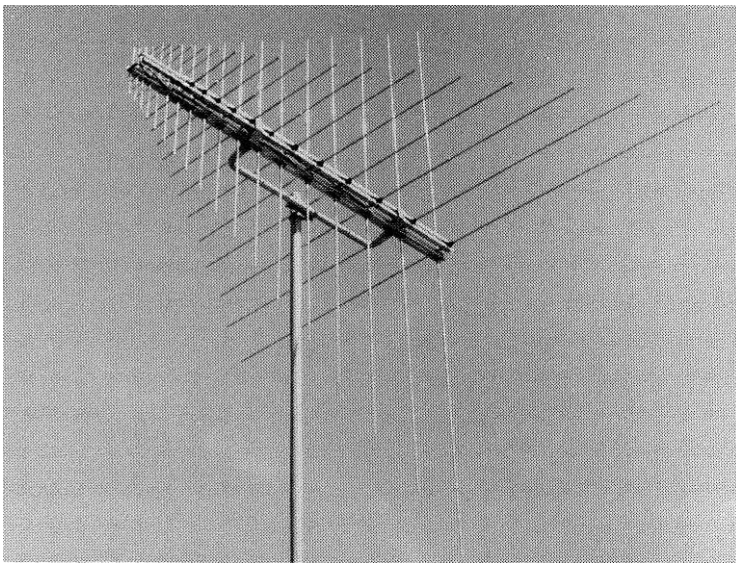




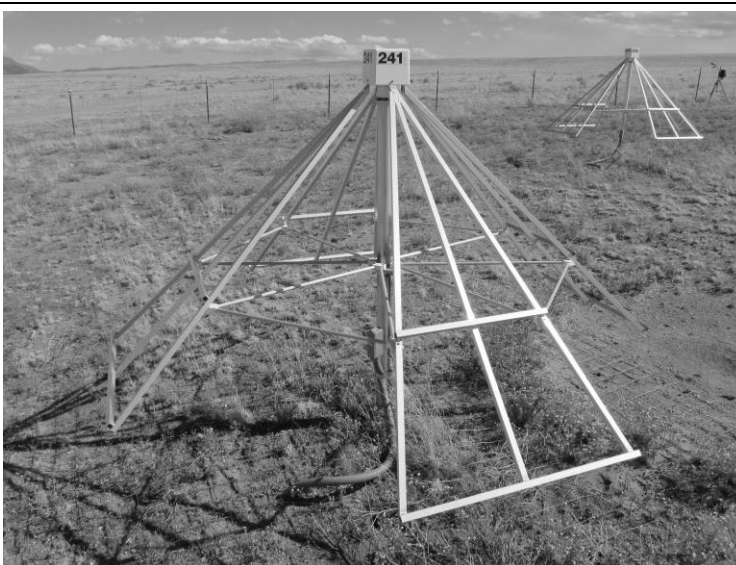
P/N CLP-1, Model CLP5130-1N linear polarized log periodic antenna
21-element, 50 ~ 1300 MHz
U-boom support shown; rotator and mast not included



P/N CLP-2, Model CLP5130-2N linear polarized log periodic antenna
17-element, 105 ~ 1300 MHz
Dragonfly mount shown but antenna normally supplied with U-boom support; mast not included



P/N CLP-X, Model CLP5130-1X
Cross-polarized log periodic antenna
15-element, 50 ~ 500 MHz
U-boom support; mast not included



P/N LWA-SYS, Model Long Wavelength Array (LWA) Cross-polarized, tied-fork dipole antenna
2-element, 10 ~ 90 MHz
Ground mounted, mast included

The antennas described here are durable, general purpose, wideband antennas. They allow different parts of the spectrum to be observed from as low as 20 MHz to as high as 1300 MHz. The Callisto's native frequency range is 45 to 870 MHz so an up-converter or down-converter is needed for observing outside this range. All antennas are shipped unassembled but are easily assembled and installed with ordinary tools.

Log periodic dipole array antennas ~ CLP5130-1N (p/n CLP-1), CLP5130-2N (p/n CLP-2), CLP5130-1X (p/n CLP-X)

The wide frequency range of the log periodic antennas makes them suitable for observing solar radio bursts over at least one decade in frequency. The CLP5130-1N may be used to observe in Callisto's full frequency range 45 to 870 MHz. With slightly reduced frequency coverage, cost and physical space, the CLP5130-2N may be used with Callisto from 105 to 870 MHz. The CLP5130-1X is a cross-polarized antenna that may be used with Callisto in the frequency range 50 to 500 MHz. When used with a quadrature coupler, the CLP5130-1X can receive and discriminate circular polarizations. The CLP5130-1N and CLP5130-2N are linearly polarized. Two CLP5130-1N or two CLP5130-2N properly mounted in a cross-polarized configuration may be used with a quadrature coupler to receive and discriminate circular polarizations.

Active cross-polarized, tied-fork dipole antenna ~ LWA Antenna (p/n LWA-SYS)

The active crossed-dipole antenna was originally designed for the Long Wavelength Array (LWA), and it has proven itself as a sensitive wideband antenna for HF and low VHF solar radio observations. This antenna is identical to the LWAs in New Mexico and California, USA. The active crossed-dipole antenna is designed to be installed on the ground and requires a 3 x 3 m ground screen (ground grid) to stabilize its operating gain over different types of earth.

The active crossed-dipole may be connected directly to the Callisto instrument for observing in the 45 to 90 MHz range or it may be used with an up-converter to extend Callisto's frequency range downward to 10 MHz. Because the two dipoles are cross-polarized, they may be used with a quadrature coupler to receive and discriminate circular polarizations. The active balun in the antenna uses type SMA (female) connectors, so it usually is necessary to connect a flexible coaxial jumper between the main coaxial cable transmission line and the balun.

Parameter	CLP5130-1N	CLP5130-2N	CLP5130-1X	LWA Antenna
Reeve part number	CLP-1	CLP-2	CLP-X	LWA-SYS
Frequency (MHz)	50 ~ 1300	105 ~ 1300	50 ~ 500	10 ~ 90 MHz
Number elements	21	17	15 x 2	1 x 2
Polarization	Horizontal	Horizontal	Horizontal/Vertical	Horizontal/Vertical
Forward gain (dBi)	10 ~ 12	11 ~ 13	10 ~ 12	5 ~ 8
Front-back ratio (dB)	10 ~ 15	10 ~ 15	10 ~ 15	Not applicable
3 dB Beamwidth, E-plane (°)	60 ~ 70	60 ~ 70	60 ~ 70	Omnidirectional
3 dB Beamwidth, H-plane (°)	110 ~ 130	110 ~ 130	110 ~ 130	90
Impedance (ohms)	50	50	50	50
VSWR	< 2:1	< 2:1	< 2.5:1	Not specified
RF connector	N	N	N	SMA
Boom length (m)	2	1.4	1.9	1.5
Longest element (m)	3	1.45	3	1.5
Mast diameter (mm)	48 ~ 61	42 ~ 50	48 ~ 61	Included
Weight (kg)	5	3	10	20
Rotation radius (m)	1.8	1.0	1.8	Not applicable
Wind survival (m/s)	40	40	40	Not specified
Wind surface (m ²)	0.2	0.08	0.28	Not specified
Ground screen required	No	No	No	Yes (3 x 3 m)
Low noise preamplifier	Recommended	Recommended	Recommended	Included (35 dB)
Manufacturer	Creative Design	Creative Design	Creative Design	Burns Industries
Data source	Manufacturer	Manufacturer	Manufacturer	LWA
Approximate cost* (USD)	529	389	2650	1500

* Subject to change

RF cables and connectors

The best antenna can be ruined by poor coaxial cable or connectors or poor installation practices. Therefore, it is absolutely essential that the highest possible quality coaxial cable and connectors and installation practices be used with the above antennas.

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