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Status of the development of the brazilian decimetric array

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The Brazilian Decimetric Array (BDA), under development, will have high spatial and time resolutions of ~ 5 arcsec at 5.0 GHz and 100 ms, respectively. It is planned to employ modern technology at low cost. The BDA will have the capability to observe solar and non-solar phenomena in the following radio protected bands: 1.2-1.7, 2.7 and 5.0 GHz. The sensitivity estimates show that the BDA will have rms sensitivity of 3 mJy at 21 cm for a system temperature of 50 K, using low-noise amplifiers. The final version of the BDA will be an interferometer array consisting of 38 parabolic antennas of 5-m diameter with a compact "T" shaped array at the center having 32 antennas. The array will be located at Cachoeira Paulista - SP, Brazil. The Prototype of Brazilian Decimetric Array (PBDA) consisting of 5 element alt-az mounted parabolic dishes, unique in Latin America, has been successfully developed and it is in operation at INPE, in São José dos Campos, since April 2003. This array operates in the frequency range of (1.2-1.7) GHz. Mechanical Alt-az mount for parabolic dishes of 4/5 meter diameter mesh type antennas have been developed locally. Alt-az tracking systems hardware/software to track antennas simultaneously ~ 5 /hour has been incorporated by Inteltek Automation Ltd. Company of Pune, India. Tracking systems hardware panels mounting and cables routing were done locally. Crossed log periodic dual polarised feeders, with 50 ohm impedance's operating in the frequency range (1.2-1.7) GHz were developed and were tested in anechoic chamber to measure VSWR, impedance's and cross talk between the two linear polarisation. Low noise preamplifiers operating in the frequency range mounted at the back of the feeder were. PLO receivers have been developed with final output of 2 MHz. The digital correlator for prototype has been developed and interfaced to PBDA analogue system. Tracking and pointing accuracies for solar non-solar observations. The status of the BDA project will be summarized. The fringe rates of 10 base lines and weak solar flare observations and one dimensional map of the strong flares and that of the quite sun will be presented.

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