The Jet Propulsion Laboratory (JPL) has developed and tested several technologies for the deployment of low frequency radio antennas on the lunar surface. These very low mass dipole antennas, based on thin polyimide films with conductive coatings, could be the basis for interferometric arrays to observe redshifted neutral Hydrogen spectral signals from the cosmic Dark Ages and Epoch of Reionization, emission from solar radio bursts and associated coronal mass ejections, and searches for radio emission from exoplanets with significant magnetic fields. These signals can only be observed at low frequencies where terrestrial interference and ionospheric absorption and refraction make high quality measurements all but impossible from the ground. All of these studies would benefit from the uniquely radio quiet environment provided by the lunar far side, which is beyond Earth's ionosphere and shielded from both human-generated interfering signals and Earth's naturally occurring Auroral Kilometric Radiation. Among the approaches to polyimide antenna deployment that we have studied, prototyped, and field tested at JPL are small dedicated rovers, larger multi-purpose rovers, and unassisted deployment using long inflatable polyimide tubes. This paper will present recent results of deployment testing in the JPL Mars Yard, including examples of sloped and rocky terrain. We will also describe plans for future steps in the technology development process. This work has been carried out at the Jet Propulsion Laboratory, California Institute of Technology, with support from the Lunar University Network for Astrophysical Research (LUNAR). The LUNAR consortium has been funded by the NASA Lunar Science Institute to investigate concepts for astrophysical observatories on the Moon via cooperative agreement NNA09DB30A.