

C/NOFS, Planar Langmuir Probe (PLP)

Donald Hunton, Air Force Research Laboratory

The Planar Langmuir Probe (PLP) is a dual disk probe to sense ionospheric plasma density. PLP provides low time-resolution density inputs for ionospheric modeling and high time-resolution measurements of density irregularities for disturbance microphysics. The electron density and temperature will be used to quantify the conditions that produce scintillations and to model Electron Density Profiles (EDPs). PLP also monitors the spacecraft surface potential

Please note that some of the data from PLP may not be reduced and made available in a timely manner. These items are marked below with an asterisk (*)

Measurement Output	Units	Estimated Accuracy	Frequency (Cadence)	Estimated Range of Output Values
Ion Density Fluctuations	cm ⁻³	+/- 5%	32, 256, 512, or 1024 Hz	1E2 to 1E-4 of average value
Average Ion Density	cm ⁻³	+/- 5%	1 Hz	1E2 to 1E7 cm ⁻³
delta n / n	unitless		1 Hz	
Spectral Slope	unitless		1 Hz	
Vehicle Floating Potential *	Volts	+/- 0.05 V	0.5 Hz max, 1 every 8 sec, 1 every 32 sec, etc	-5 to +1.4 V
Electron Temperature	deg K	TBD	.5 Hz max, 1 every 8 sec, 1 every 32 sec, etc	TBD
Ion RPA Characteristics *	Ion temp: K Along Track ion drift: m/s Veh Pot: V	TBD	on command but not frequent	TBD