



Compact Environmental Anomaly Sensor 3

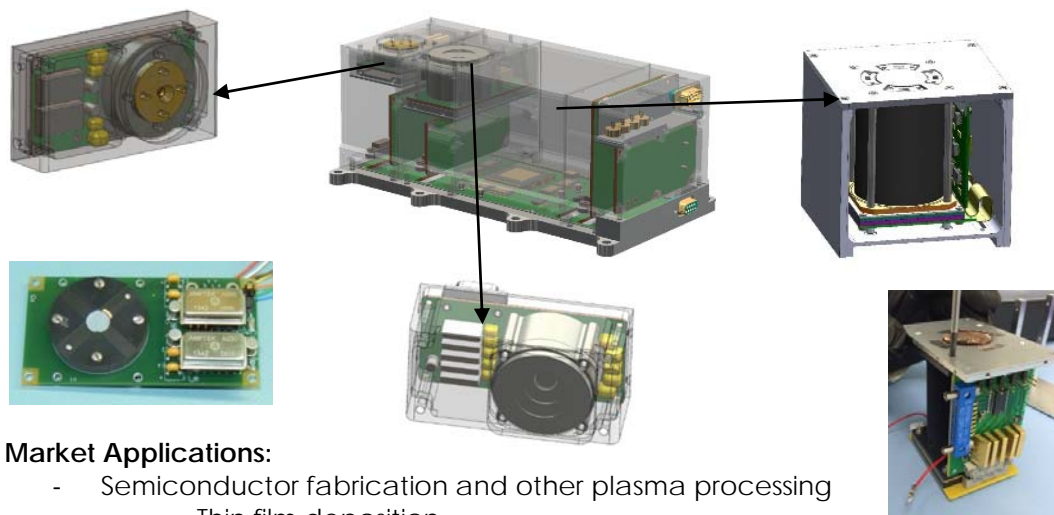
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Background:

In space, satellites are constantly bombarded by high energy particles which may lead to anomalies which result in adverse effects for a spacecraft operation. By being able to measure high energy electrons and protons in the local area of the satellite allows operational users to rule-in or rule-out the environment, distinguish different causes of ambiguous symptoms, and quantify environmental/hazard levels.

Technology Description:

The Air Force Research Laboratory has developed the CEASE 3 (Compact Environmental Anomaly Sensor) which is designed to measure energetic electrons and protons in the space environment. CEASE consists of four sensors. Three of the sensors are independent, unique silicon detector stacks called LEPET, MEPET, and HEPET. The fourth sensor is an electro-static analyzer which use electric fields for energy filtering and charge multiplication for particle detection. The sensors cover a range from 100 eV – 5 MeV for electrons and 2 MeV – 100 MeV for protons in sufficient detail so that the measured particle spectrum can be used to predict the relative hazard level of the local space particle environment. CEASE is the instrument on the spacecraft which provides proportional real-time measurements of the local charged particle flux versus energy.



Market Applications:

- Semiconductor fabrication and other plasma processing
 - o Thin film deposition
 - o Plasma etching
- Teaching tool
- Measure the electrical energy without regard to mass
- Auger electron spectroscopy
- Surface analysis
- Space environment
- Mass spectrometry

Key Advantages:

- Low SWAP
- Measures over a wide range of incident particles
- Short analysis time for the user
- Can fly in all orbits

For information about this technology, please contact Matt O'Brien from our Tech Engagement Team at: 505-846-5028 matto@afrlnewmexico.com

