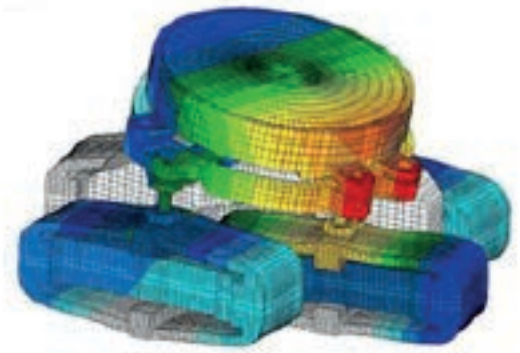


DESCRIPTION

Thanks to the heritage from the PHARAO DTT, CTEC has developed the ATLID Beam Steering Mechanism (BSM) for SODERN (see [publication](#)). ATLID is a Lidar instrument for the EarthCARE mission. The BSM is a Tip-Tilt piezo mechanism based on 4 APAs including Strain Gauges. The requirements were particularly severe regarding the long term stability and the cleanliness. CTEC has successfully delivered the Flight Models in 2015.

The BSA (Beam Steering Assembly), included in the emission path, aims at deviating a pulsed high energy UV laser beam to compensate the pointing misalignment between the emission and reception paths of ATLID. It requires a very high stability and high resolution.



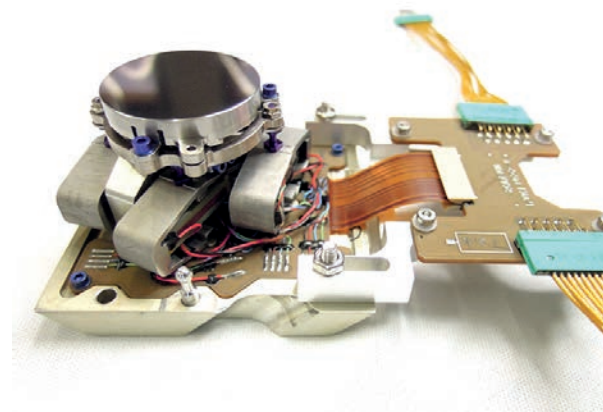
BSM CAD model

APPLICATION

Space

ENVIRONMENTAL CONDITIONS

- Non magnetic
- Shock level: 100 G
- Random Vibration level: 15.5 Grms
- Quasi Static: 26 g
- Cleanliness:
 - Particular: 50 ppm
 - Molecular: 5.10e-8 g/cm²



Complete BSM mechanism

PARAMETER	UNIT	DTT60S-SG FOR ATLID
Stroke Rx +/-	mrad	2.1
Stroke Ry +/-	mrad	1.5
Dimensions	mm	63×62×40
Total mass	g	130
Mirror mass	g	2.9
Mirror dimensions	mm	∅ 27×5
Loaded resonance frequency	Hz	2000
Resolution	nrad	400
Repeatability	µrad	70
Capacitance (per axis)	µF	3