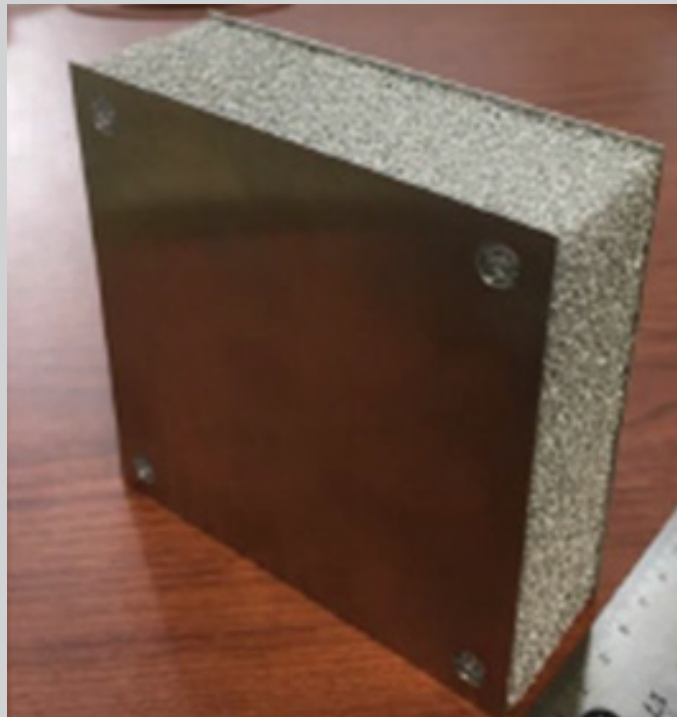
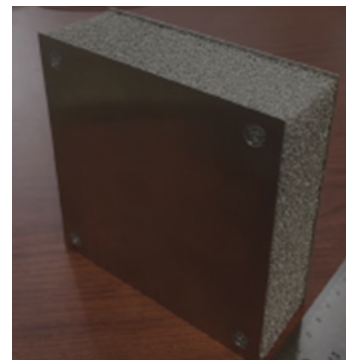
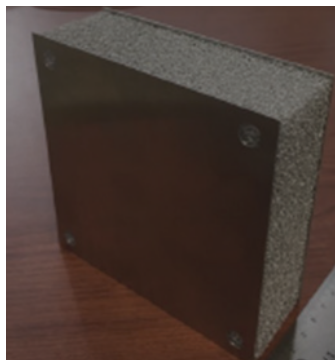
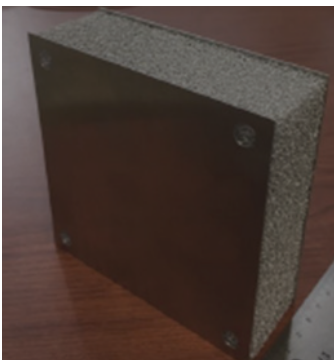


MAGELLAN MMOD SHIELDING ENHANCED SURVIVABILITY ELEMENT PANEL

Magellan Aerospace, with extensive support from the University of Manitoba, developed a satellite structural panel, known as ENhanced Survivability Element (ENSURE) designed to protect the interior of spacecraft from MMOD.



RADIATION ENVIRONMENT • MASS EFFICIENT • PASSIVE PROTECTION



OVERVIEW

The ENSURE panel is required to protect spacecraft equipment from MMOD equivalent to 6 mm orbital debris size at 7 km/s, which is a typical hazard experienced by satellites in low Earth orbit (e.g., the three RADARSAT Constellation Mission satellites). The ENSURE panel consists of an aluminum foam core sandwich panel coupled with a whipple shield. The ENSURE panel employs 40 PPI, 6-8% relative density aluminum core and 1 mm thick aluminum facesheets. The Whipple shield is fashioned as a MMOD protection blanket consisting of 7 layers of AF-10 HC Nextel sheets.

The University of Manitoba developed the numerical model for the ENSURE panel, and calibrated the layering approach using data from a High Velocity Impact (HVI) test conducted at the University of New Brunswick.

KEY FEATURES AND CHARACTERISTICS

Facesheet Thickness:	1-mm aluminum
Core Details:	40-mm aluminum foam core (40 PPI, 6-8% relative density)
Whipple Shield:	7 layers of AF-10 HC Nextel layers in multilayer blanket
Technology Readiness:	TRL 5+

** Data for prototype. Design optimization for flight possible.*

Acknowledgement

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ABOUT MAGELLAN AEROSPACE

Magellan Aerospace is a global aerospace company that provides complex assemblies and systems solutions to aircraft and engine manufacturers, and defence and space agencies worldwide. Magellan designs and manufactures aeroengine and aerostructure assemblies and components for aerospace markets, advanced proprietary products for military and space markets, and provides engine and component repair and overhaul services worldwide. Magellan is a public company whose shares trade on the Toronto Stock Exchange (TSX: MAL), with operating units throughout North America, Europe, and India.

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