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(54) **RUGGEDIZED AVIONICS WITH STIFFENING FRAMES FOR USE ON KINETICALLY LAUNCHED VEHICLES**

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(57) **ABSTRACT**

Ruggedized avionics assemblies for use on kinetically launched space vehicles are disclosed. The avionic assemblies are able to maintain structural integrity and functionality under high acceleration forces generated during kinetic launch, including acceleration forces of >5,000 times Earth's gravity in a single direction of loading. The avionics assembly is ruggedized to withstand this level of acceleration force during launch via a plurality of constraining elements to constrain a plurality of printed circuit boards aligned in parallel to an acceleration vector. Further, a high specific strength and stiffness composition of the plurality of constraining elements aids in supporting the printed circuit boards and preventing them from bending and dislodging electronic components mounted to the printed circuit boards.