INMARS: SURFACE-ORBITAL TELECOMMUNICATION SYSTEM ON MARS. DESIGN AND TESTING.

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Abstract: The exploration of Mars has been developed by multiple vehicles (rovers and orbiters) deployed since the dawn of the space race, and lately with the Perseverance mission. The acquisition of data and samples is relevant to study the planet and prepare future manned missions. In this regard, the National Institute for Aerospace Technology (INTA) performs R+D of impact probes; in particular, the InMars mission aims to establish an operational probe network on Mars for the acquisition and transmission of atmospheric data. This will provide better understanding of the planet's atmospheric dynamics and help to reduce risks for future landings on Mars. The required surface-orbital telecommunication system must perform a UHF band network, linking probes with Mars orbiters, and operate under severe environmental, impact, and reduced space conditions, among others. This communication will cover the preliminary design and planned testing of the system and its main components.

***Keywords**: Mars exploration, Impact probes, surface-orbital telecommunication system.*