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Stratospheric airship design and hi sentinel results

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A irships are defined as LTA vehicles with propulsion and steering systems. Designing airships to operate in the stratosphere is very challenging due to the extreme high altitude environment. It is significantly different than low altitude airship designs as observed in the familiar advertising or tourism airships or blimps. The stratospheric airship design is very dependent on the specific application and the particular requirements levied on the vehicle with mass and power limits. The design is a complex iterative process and is sensitive to many factors. This paper will attempt to identify the key factors that have the greatest impacts on the design and how they were implemented in the tactical Hi Sentinel stratospheric airship. The Hi Sentinel objectives are to provide a tactical launch, low-cost system capable of lifting small to medium payloads (20-200 lbs) to high altitudes for duration of greater than 30 days. Designed for launch from remote sites, these airships do not require large hangars or special facilities. Airship design factors and Hi Sentinel test flight results will be presented.

Biography

I Steve Smith has a BS from Texas A&M University in Aerospace Engineering. He is currently a Sr. Program Manager/R&D as well as the HiSentinel Program Manager at Southwest Research Institute (SwRI) in San Antonio, TX. He has 40 years of expertise in lighter-than-air (LTA) technologies, operations and management including free balloons, tethered aerostats and low altitude and stratospheric airships. Prior to coming to SwRI, he served as Chief, Balloon Program Office of Goddard Space Flight Center (GSFC)/Wallops Flight Facility (WFF). He has published numerous papers and received numerous awards during his professional career.

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