IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advance Higher Throughput Communications for GEO and LEO satellites (3)

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BLINK SOFTWARE SATELLITE MODEM: EXCEEDING 10 GB/S CONTINUOUS THROUGHPUT

Abstract

Blink is a pure-software modem for space-ground communications. Recent years have shown that software modems can be useful for payload reception in operational environments, as well as for TT&C, bringing a long list of desirable capabilities to wideband payload reception.

Continuous performance upgrades to the Blink software and advances in standard server hardware have helped make Blink more than double its throughput compared to results measured 12 months earlier. Blink now supports signal reception at a continuous throughput exceeding **10 Gb/s** (DVB-S2 32APSK, approximately **3 GHz carrier**) on a single server.

A software modem capable of supporting carriers of effectively any bandwidth and that can be adapted to new waveforms rapidly, deployed in the cloud or at conventional ground stations has significant potential to change ground operations. The impact spans ground segment architecture evolution speed and cost, longevity of ground hardware, flexibility in light of reliable digital signal streaming, high availability cost-efficiency, scaling and upgrade agility, among other concerns in a software-based ground segment.

This paper describes all of the mentioned concerns, as well as the measurement setup, environment, result details, main considerations regarding deployment at conventional or cloud ground stations and factors related to using software and hardware modems in the ground segment.