

CASE STUDY

NASA LAUNCH COMMUNICATIONS SEGMENT ANOMALY INVESTIGATION & RESOLUTION

The NASA Launch Communications Segment (LCS) is a Near Space Network (NSN) capability that supports space missions and launch vehicles departing from or returning to Kennedy Space Center (KSC) and Cape Canaveral Space Force Station, providing a critical communications link between astronauts and mission controllers on crewed flights and augmenting launch vehicle telemetry and orbital tracking for robotic missions. LCS ground stations play a key role in the Artemis lunar launch program, supporting mission communications during the crucial early boost phase over the Atlantic.

As part of the agency's preparation for the Artemis I launch campaign, Kurtek was commissioned to investigate reported anomalies with the processing of real-time launch vehicle telemetry at the LCS ground stations and the delivery of decoded telemetry data to NASA's mission control centers. A team of senior Kurtek engineers, consisting of several internationally recognized experts in the interpretation, application, and implementation of Consultative Committee for Space Data Systems (CCSDS)

interoperability standards, performed an assessment of the Space Link Extension (SLE) protocol implementation used by the LCS, analyzing recorded vehicle telemetry data and ground network traffic captures to successfully diagnose the cause of the reported anomalies. Using vehicle simulators and ground element protocol emulation capabilities, Kurtek's engineers identified and validated a CCSDS protocol stack configuration that enabled

KEY RESULTS

- Successfully completed a high-visibility, high-priority anomaly investigation for the Artemis I launch campaign.
- Identified and validated a low-risk, low-cost strategy to meet Artemis I launch communications performance requirements.

effective resolution of the anomalies for the Artemis I launch without requiring costly software modifications or high-risk network changes.

To learn more about our capabilities, email us at info@kurtek.io or call our team at **703-943-7236**.