Airborne Networks

Proficiency Code: A

Tactical Data Links (TDL). Command, control, and communications systems should be reliable, survivable, flexible, interoperable, timely, and secure. This concept of joint combat operations is supported by the exchange of tactical information between participants on a real-time or near-real-time basis with TDLs. The exchange of real-time tactical information between command and control (C2) systems, weapon systems, and intelligence systems provides mutual support, allows coordinated action, and prevents interference between interfaced forces for the efficient and effective application of military force.

Link 16 Background. Link 16 is the predominant TDL used in USAF, joint and coalition operations. It is a high capacity, secure, jam resistant communications system that supports a wide variety of information exchanges. These exchanges include air/surface/subsurface/land/space surveillance tracks, command and control directives, participant position reports, platform status, electronic warfare, imagery, network enabled weapons, engagement coordination, integrated fire control, and fighter target reports.

Description. Link 16 operates in the 960 – 1215 megahertz (MHz) frequency band, and is a line-of-sight system. However, message relays may extend the range beyond line of sight (BLOS). In addition, messages may be transmitted BLOS over digital media and networks not originally designed for tactical data exchange by embedding formatted tactical digital messages as data fields within available commercial and government protocols, such as those used over satellites and terrestrial links. Both the Link 16 waveform and data messages are standardized to provide interoperability between the different Services, allies, and platform types. Two levels of encryption provide secure information (message security) and non-vulnerable jam resistance (transmission security).

Terminals. The Air Force uses multiple types of Link 16 terminals that require operational parameter configuration to ensure mission capabilities are provided. Systems with integrated TDLs such as the F-22 and emerging systems such as the F-35 which support Link 16 using specific platform unique cryptographic modules, and future systems that will contain software programmable data link capability radios, will likewise require network design and management support.

Link 16 Message Standard: The Chairman Joint Chiefs of Staff (CJCS)-mandated J-series message set is used in tactical data links in accordance with Military Standard (MIL-STD) 6016, Tactical Data Link (TDL) 16 Message Standard and CJCSI 6610.01D, Tactical Data Link Standardization Implementation Plan.

Additional information:

AFMAN 13-116

https://static.e-publishing.af.mil/production/1/af_a3/publication/afman13-116/afman13-116.pdf

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