



Link 22 is the latest Tactical Data Link (TDL) to be developed by NATO, having grown from the collaborative project to upgrade Link 11 capability – NATO Improved Link Eleven (NILE).

The goals of this project were to replace the aging Link 11 standard, complement Link 16, improve allied interoperability, and enhance mission performance. The Link 22 standard was developed to overcome weak points of earlier data links. Such weak points include Link 11's lack of robustness, susceptibility to interference, and low data rate. Link 16's weaknesses include a short range and the use of civil aviation frequencies. It was designed primarily for use in Maritime warfare but is fully capable of supporting all warfare Command and Control (C2) domains.

Project output

The Link 22 project has developed common specifications and products that enable participating nations to develop and implement their own hardware. Core software for the System Network Controller (SNC) is supplied. The SNC provides the communications transport function, including network protocols, together with multi-media system and network management functions. Single source provision ensures a high degree of Interoperability. The project also provides integrated Link Level COMSEC (LLC) equipment, managed by the SNC, for message security.

About SyntheSys

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Principles

The Link 22 message standard is part of the J-Series family of messages and operates using a Time Division Multiple Access (TDMA) architecture. Tactical data may be selectively exchanged between participants within constructed communities of interest, which are defined by functional requirements input into the SNC. Communications are achieved using Line Of Sight (LOS) (UHF 225-400 MHz) and Beyond Line Of Sight (BLOS) (HF 3-30 MHz) bands.

Up to 4 networks able to use UHF/HF fixed frequency or frequency hopping media can be used in any combination. Control of each radio media is conducted using Signal Processing Controllers (SPC) whose functions include the control of network timing and frequency hopping.

Message Standard

The Link 22 message standard provides a data exchange capability that is very close to that of Link 16, with the exception that the concept of C2 and NonC2 platform message exchange is not implemented. Approximately 70% of Link 22 messages are formatted exactly as their Link 16 equivalents, being prefixed as 'F/J' messages. Messages employing formatting specific to Link 22 are prefixed as 'F' messages.

Current situation

A number of European NATO nations (primarily Germany, France, Italy and Spain) have Link 22 implementation programmes that are well advanced. It is thus likely that there will be a significant operational Link 22 capability available in a number of NATO platform types.

Finland has also developed a Link 22 capability. An issue of significance is the current lack of LLC equipment suitable for use in small aircraft, such as helicopters, although this may be rectified with an appropriate development programme in the near future.