

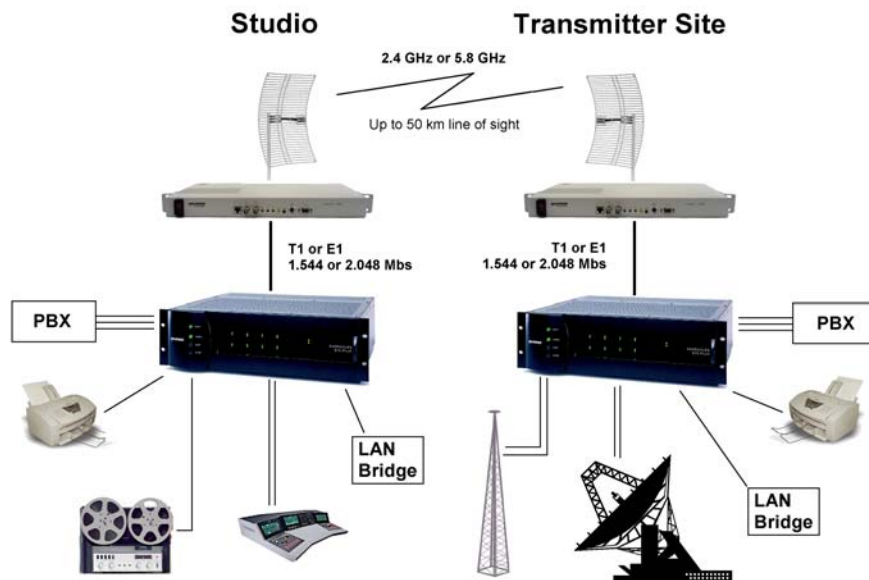
***Application
Note***

Digital Spread Spectrum Radio for High Capacity STL Links

Using the Intraplex STL PLUS and AudioLink PLUS STL system with Spread Spectrum radios is an attractive alternative to 950 MHz STL frequencies. And you get the cost saving payload capabilities of a T1/E1 STL.

The 950 MHz STL band is crowded. Frequency coordination takes time and often no frequencies are available. Traditional STLs typically carry only one 15 kHz stereo program. TSL channels must be obtained for backhaul of telemetry, RPU's and satellite downlinks.

Now, by combining the **Intraplex STL PLUS** (T1) or **AudioLink PLUS** (E1) system with the **Harris Aurora™** digital Spread Spectrum microwave radio, Intraplex Products offers the advantages of a, license-free digital RF STL solution. T1/E1 STL over Spread Spectrum Radio has the bi-directional traffic capacity of a T1/E1 system, and without monthly recurring lines costs.



What is Spread Spectrum?

Spread Spectrum communications systems have been used by the military for roughly half a century due to their inherent robustness and security. The use of Spread Spectrum in commercial communications systems has only recently become a reality. In Spread Spectrum systems the transmitted signal occupies a bandwidth which is much greater than the minimum bandwidth required to send the information. A spreading signal or code signal which is independent of the data is used to spread the bandwidth of the transmitted information. The receiver recovers data by correlating the received spread signal with a synchronized replica of the spreading signal used by the transmitter. One important reason for using Spread Spectrum techniques is to reduce the effects of interference on a communications link. By using a wider bandwidth than necessary for signal transmission, a signal can still be recoverable even with a very low Signal-to-Noise Ratio (SNR). A major incentive for using Spread Spectrum is that there are no licensing requirements for Spread Spectrum systems operating in the Industrial Scientific and Medical (ISM) frequency bands.

The Intraplex STL PLUS and AudioLink PLUS

The Intraplex STL PLUS and AudioLink PLUS are bi-directional STL/TSL systems designed to transport 15, 20, or 22.5 kHz stereo audio with no digital compression. Audio input and output can be specified as either analog or AES/EBU digital.

The systems use T1 or E1 multiplexing to combine multiple signals into a single high-speed digital transmission link. Optional plug-in modules let you add additional program audio channels for second-station STL and backhaul of RPU and Satellite downlink, data channels for remote controls and LAN connections to remote servers, voice channels for intercoms, off premise extension telephones, and PBX-to-PBX interconnection.

The Intraplex STL system saves on communications costs when compared to the multiple transmission paths it can replace.

The system incorporates Intraplex's extraordinary transmission robustness and error mitigation circuitry, using digital signal processors to maintain circuit availability and preserve digital signal fidelity, even in difficult transmission environments.

The Harris Aurora™

The Aurora is a point-to-point Spread Spectrum digital microwave radio system. This system operates in the ISM bands of 2.4 GHz and 5.8 GHz, which allows users to establish wireless interconnection between sites without frequency coordination and licensing.

The Aurora is available in single T1 or E1 models for the 2.4 and 5.8 GHz bands. For higher traffic capacity applications Aurora is offered in models that carry two T1 or E1 channels at 5.8 GHz.

This solution is typically a plug-and-play installation interconnecting with the Intraplex STL using readily available CAT-5 wiring. To complete the installation, antenna and transmission lines are available.



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