

## Moseley Lanlink Gives 950 STL a New Direction

STL by its own definition, Studio to Transmitter Link has historically meant a one-way path from the studio to the transmitter site. The reality of today's broadcast environment places far more rigorous requirements on the once simple studio to transmitter link. Audio backhaul and bidirectional data connectivity has become an important role of the link from the studio to the transmitter.

Applications for data connectivity have grown dramatically in recent years. More and more broadcast equipment manufacturers have been including Ethernet connections and web browser interfaces on their products. Audio processing and transmitter remote control systems with 10/100BASE-T network connections are good examples of the growing need for data at transmitter sites. Mirrored servers at the transmitter site or other off-premises location provide security from the loss of valuable information in the case of a catastrophic event at the studio location. Some examples of increasing uses of data connectivity are:

- RDS song title and artist data
- Remote mirrored servers
- Transmitter remote control
- TRL (telemetry return link)
- Security and surveillance
- STL backup\*
- TSL audio backhaul\*

\*using an IP codec

The 950 MHz RF STL system is the de-facto standard for program audio transport for radio stations. Adding the return portion of the link to a 950 system up to now has required licensing additional TSL (transmitter to studio link) channels or leasing circuits from the telco. Due to the large installed base of 950 MHz systems, a data transport system which would work alongside and compliment a 950 MHz STL without incurring additional expense would provide a solution to broadcasters' data transport requirements.

Moseley Associates, Inc. has introduced Lanlink 900 LAN Extender as a response to this need. Lanlink transports bidirectional Ethernet and RS-232 serial data over a license-free 900 MHz RF link. Because of the closeness in frequency to the 950 MHz STL band, Lanlink can be duplexed into an existing 950 MHz antenna system. Lanlink operates in the 902-928 MHz ISM band so no license is required.

The data transport capabilities of Lanlink are 512 kbps 10BASE-T for IP/Ethernet connections with an RJ-45 connector. Two RS-232 channels that can be set to 1200-115,200 bps offer serial data paths.

One user reports Lanlink supports an Audiovault mirrored server at the transmitter site. All program elements and the log are available at the site so the station can go on air from the transmitter if for some reason it becomes necessary to leave the studio. The addition of a web cam provides them security surveillance.

In another facility, Lanlink was installed specifically for RDS. Since then a LAN connection for a computer at the transmitter for email and Internet was established. The plans are to network the Omnia audio processor so it may be adjusted from anywhere on the network.

Meanwhile another application was to transport remote control and telemetry data to and from a BE FM-20 transmitter. That station plans to add an IP audio codec to provide STL backup. Reportedly Lanlink will pay for itself within two years from the savings from the phone lines that were cancelled.

Lanlink uses robust digital frequency hopping Spread Spectrum technology producing signals that can still be recoverable even with a very low signal-to-noise ratio. The power output is 0.1 to 1 watt (20 to 30 dBm). This is sufficient to provide paths of up to 30 miles. As a general rule, where there is a working 950 MHz STL already in service Lanlink will operate comfortably. In these situations, it should not be necessary to conduct additional path studies.

Lanlink connects in-line between the STL transmitter or receiver and the 950 MHz antenna system. A built-in duplexer in Lanlink combines the RF output of the STL and that of the Lanlink with less than 1.2 dB of insertion loss. This eliminates the expense and additional loading of another antenna.

Moseley's Lanlink is the perfect companion for the Moseley Starlink SL9003Q digital STL system as well as all other Moseley models and those of other manufacturers.