Troubleshooting RF interference can be a lengthy process. At the very least, it requires a Spectrum Analyzer to identify what is occurring on or near your frequency. Using a conventional spectrum analyzer, you have to be watching the screen when the interference occurs, or you risk missing the event. TX RX Systems Inc has solved this problem with our Advanced Spectrum Logging system.

The ASL Kit is designed to be utilized in applications where constant monitoring of the spectrum over a long period of time is beneficial. This includes applications where you may be only interested in a small subset of the time (for example, during an interference event). The ASL software allows us to collect every analyzer trace, and play them back in real time.

Supports Complex Configurations:
Unlike basic trace logging, the ASL allows the user to monitor multiple sweeps covering any frequency span. In order to best utilize the ASL, a custom configuration can be created for each application. This allows you to maximize the speed and resolution of the collection.

Single Channel Resolution:
Using multiple sweeps, rather than a single wideband sweep, the user can maintain sufficient resolution to identify events within a single channel. The spectrum analyzer monitors 705 data points per sweep but only 3 data points are required to define a single channel. This allows the system to monitor up to 235 individual channels per sweep. This high resolution permits the user to pinpoint specific channel activity.

Collecting Data:
The ASL software stores all of the trace data in custom SQL databases. Each database can hold a maximum of 10 Gigabytes of data. Depending on the speed at which traces are collected (determined by the Span, RBW, and VBW.), this will typically allow between 7 and 15 days of continuous data collection, If the database becomes full, it will delete the first 10,000 records (1-2 hours) and continue collecting data. To prevent the loss of data, the user can archive a database and create a new one before it reaches 10 GBs.

Analyzing Data:
During or after data collection, the user can playback the analyzer traces. The playback utility allows you to set the start and stop time and the playback speed. Playback speed is adjustable from single step to significantly faster than real time. All of the various trace features such as maximum Hold, Minimum Hold, Markers and even Waterfall modes are available during trace playback. If you know the approximate time of an interference event, you can jump to that time and use the single step mode to slowly walkthrough the traces. If you're more interested in overall peak signal levels, you can run the entire database at maximum speed in Maximum Hold mode.

If an interference event occurs during data collection, the stored traces can be played back without interrupting the data capture by opening a second instance of the software and selecting "Playback only." By utilizing this feature, the user can playback the data as soon as it's collected without missing the next event.

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Applications:
The features in the ASL software make it ideal for use in a number of situations.

Intermittent Interference
Troubleshooting Intermittent interference is difficult because a lot of time is wasted waiting for an event to occur. When it does, you might miss that event on conventional spectrum analyzer if you're momentarily distracted. The ASL software will permit you to catch multiple events, allowing the user to better evaluate the interference.

The ASL software allows the user to focus their efforts elsewhere while waiting for an interference event. In addition, the configurations can be set so that they give individual channel resolution, letting you pinpoint the channel of interest after the event occurs.
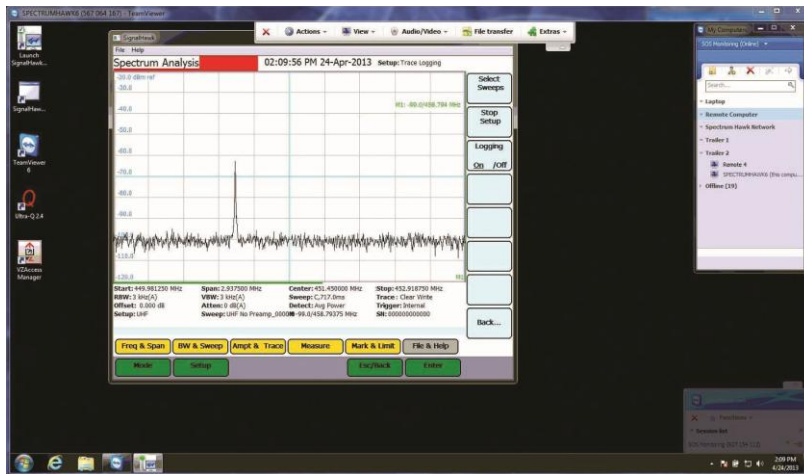
Long Term Analysis
Looking at data over a long period of time can give you a better understanding of changing conditions over time. The ASL software can be used to collect large data sets and play them back in accelerated speed to view interference or noise phenomenon and determine any correlation between occurrences. The data can also be played back in waterfall mode to provide a 3 dimensional view of the spectrum over time.

Remote Access
Some locations can only be accessed at certain times, require an escort, or have other access restrictions. This limits the amount of time you can spend analyzing the RF environment, and limits the speed at which you can respond to interference events. If an internet connection is available, the ASL can be accessed remotely from anywhere. Full control of the unit is available including Configuration setup, attaching or changing databases, recording and playback.

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