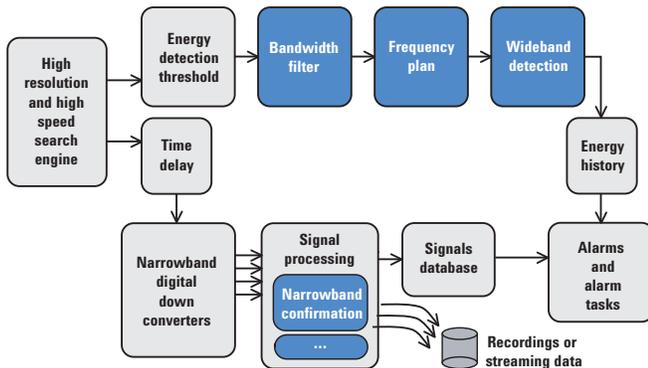


Universal Signal Detection

Agilent's Option USD for E3238S Signal Detection and Monitoring Systems

- **Rapidly reconfigure missions without programming**
- **Efficiently detect, tip and record gap-free multi-channel signals of interest**
- **Easily adapts to detect emerging signals or new signals of interest**



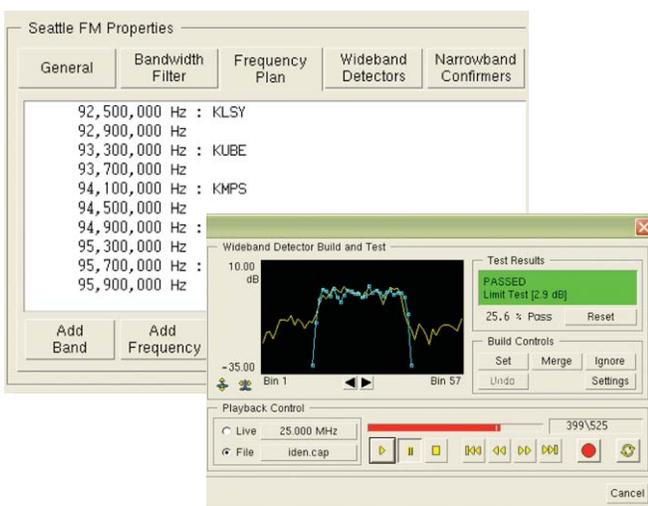
A universal signal detector automatically identifies signals of interest by operating on the characteristics of RF transmissions. Agilent's Universal Signal Detection (Option USD) includes a bandwidth filter, a frequency plan, wideband detectors, and narrowband confirmers. These wideband and narrowband technologies are combined to create universal signal detectors that efficiently sift through the crowded spectrum and significantly increase the probability of intercept. As signals of interest are detected, simultaneous gap-free recordings (or data streams) are easily handled by the multiple digital down converters (DDC) and parallel DSPs in the E3238S system. When a new threat emerges you can quickly build a detector from a recording of a new signal without programming.

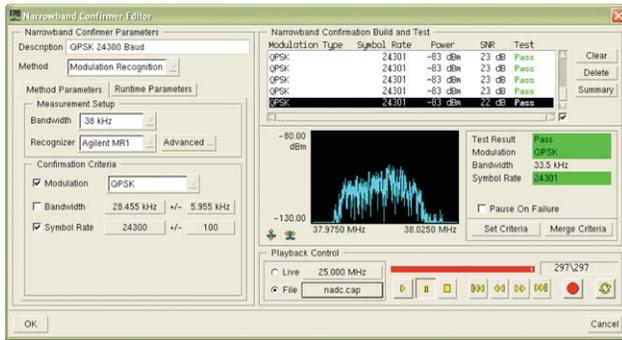
Bandwidth Filters and Frequency Plans

For energy that appears above a threshold, a signal detector's bandwidth filter and frequency plan will remove signals that don't meet the criteria for the signal of interest. The frequency plan can include individual frequencies, bands of frequencies, or the channelized bands.

Wideband Detection

USD's wideband detection operates on the frequency-domain results of each sweep. When energy is detected in the frequency spectrum, that portion of the frequency spectrum is processed by one or more wideband detectors. The wideband detectors quickly determine if the energy is a potential signal of interest by comparing its magnitude spectrum to the wideband detectors you created. It passes signals programmatically as opposed to a human viewing the spectrum data. The wideband detector techniques that are supported in USD are shape, peaks and limit lines.



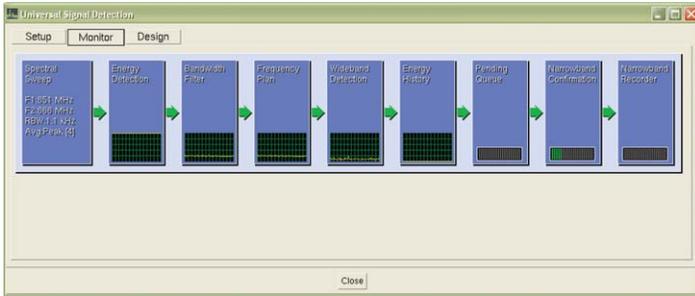


Narrowband Confirmation

USD's narrowband confirmation operates on the complex time-domain data from signals that meet the bandwidth, frequency, and spectral shape criteria. When used with Agilent's modulation recognition option MR1, the modulation format, symbol rate, (and frequency spacing for FSK) are compared to criteria for the signal of interest. Option MR1, when coupled with Option USD, allows the modulation recognition application to run on all active narrowband channels at the same time. Agilent's narrowband confirmation takes full advantage of the E3238S system's DDCs and parallel DSPs.

Design, Monitor and Run Universal Signal Detectors

Universal Signal Detection has separate development and run modes for maximizing efficiency for the developer and the operator. In the design environment, you create and test signal detectors. Because you make inputs into dialog boxes, select pull-down menus, and check boxes, programming is not needed to detect and capture signals of interest. There's a straightforward design flow that helps you create signal detectors. Once the signal detector is designed, it is stored in a library. There is no limit to the number of detectors stored in the library. Up to 23 signal detectors can be running at one time. In run or monitor mode, operators can add signal detectors "on-the-fly" from the library that was previously created. A mission set up can load numerous detectors and automatically begin the search for specific signals.



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