OPERATIONAL DESCRIPTION

The R & S model NV830X model transmitter is composed of multiple modules housed in a single rack cabinet except for the final emission mask filter which is externally mounted and connected to the transmitter via transmission line. The transmitter rack houses one or more exciters , a control unit, one or more amplifiers operating in parallel, splitter and combiner unit, cooling system, and output harmonic filter.

The exciter unit accepts the transport stream input signal and converts this to an ATSC RF modulated signal. The exciter includes signal processing to improve transmitter linearity performance and frequency response as well as compensating for frequency response issues in the transmission system beyond the transmitter before it reaches the antenna. If dual exciters are used, an exciter switcher is used to select which exciter is routed to the rest of the transmitter.

After the exciter, the signal is split and directed to one or more amplifiers operating in parallel. Here the modulated ATSC signal is amplified. A combiner is used to combine the signal from each of the amplifiers and then the signal is routed to a low pass filter to eliminate harmonic energy.

After the signal passes through the harmonic filter, the signal is applied to an externally mounted emission mask filter to eliminate adjacent channel radiation.

The control unit interfaces with each subsystem within the transmitter and provides monitoring of each function, implements automatic power control, communicates with any remote control system, and provides fault protection for the transmitter.

The cooling system contains the fans necessary to properly cool all components within the transmitter and interfaces with the control system for proper operation.