

OPERATIONAL DESCRIPTION

The R & S model TMU9 transmitter is composed of multiple modules housed in a single rack cabinet including the final emission mask filter. The transmitter rack houses one or more exciters, a control unit, one or more amplifiers operating in parallel, splitter and combiner unit, emission mask filter, cooling system, and output harmonic filter. Transmitter configurations include a 2 amplifier, 3 amplifier, 4 amplifier, and 5 amplifier systems.

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 harmonic filter and an emission mask filter to reduce harmonic energy and to ensure adjacent channel emission is compliant with FCC rules.

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. An optional touchscreen display is available.

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