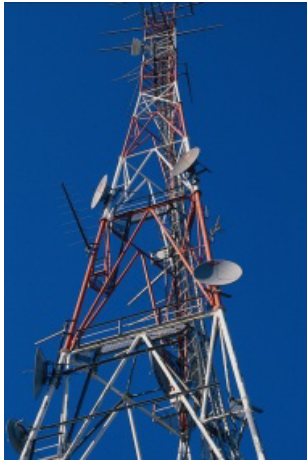


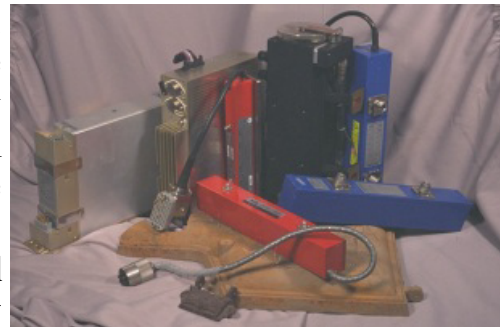
Terrestrial Radio Link Solid-State TWT Replacements

Applications and History

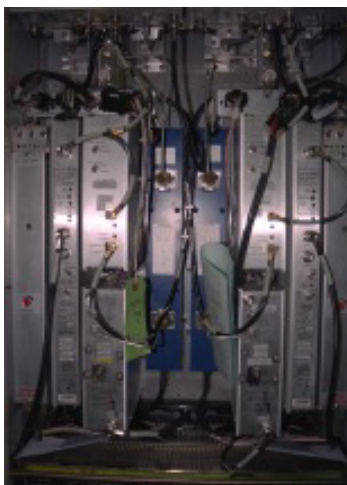


Since the early 1950's, **Terrestrial Microwave Radio links** have been used worldwide as a cost-effective alternative to physical telephone lines. Industries using this wireless technology include regional and local telephone companies, electric, water and gas utility companies and state, federal and foreign government agencies. **Traveling Wave Tube Amplifiers (TWTA)** were used by many, if not all, of the early domestic radio manufacturers as the final stage amplifier at many of the common carrier frequency bands. These manufacturers included **AT&T, GTE, Farinon, Raytheon, Rockwell Collins and Western Electric**. Early TWTA's, were manufactured mostly overseas by

STC and EEV. Later, during the 1970's when digital radio was beginning to take over, TWTA's were manufactured by **Seimans, Thomson and Varian**. **Currently, Thomson is the only supplier still manufacturing these low-power high-linearity TWTA's!**



Thousands of radios worldwide are still using TWTA's manufactured by these companies.



Current radio manufacturers, which include, Alcatel, Harris Farinon, NEC and Northern Telecom are primarily using Solid-State Amplifiers for new radio production. In the early 1980's, after introduction of GaAs FET's, **California Microwave** began making the first Solid-State TWTA replacements for this market. Since then, **Interlink** purchased California Microwave's TWTA replacement line and has been providing high quality TWTA replacements. Mimix Broadband (formerly Shason Microwave) has had it own line of SMARPAK TWTA replacements since 1990 and in April 2000, **Mimix purchased Interlink's complete Solid-State Amplifier line**, which included TWTA replacements and has now combined its TWTA line with Interlink's.