

MULTI-KILOWATT SOLID STATE TRANSMITTERS

FOR SGLS APPLICATIONS



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ABSTRACT

The Space-Ground-Link-Subsystem (SGLS) has been providing Telemetry, Tracking, and Commanding (TT&C) services to the Air Force Satellite Control Facility (SCF) since the late 1960's. The current transmitter system is comprised of a 10 kW travelling wave tube (TWT) and associated equipment. As solid state technology matures, it is now appropriate to consider alternative approaches. Solid state offers the potential advantages of improved reliability, graceful degradation, high efficiency, and lower life cycle costs. This paper addresses the current status of solid state multi-kilowatt systems development. The present state of solid state power transistors and low loss power combiners are at a stage where high power S-band CW transmitters are possible. The advantages and disadvantages of the state of the technology are discussed as are the practical considerations for integration into SGLS systems applications.

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