Abstracts

A Dual-Channel Rotary Joint for High Average Power Operation (1970 [MWSYM])

O.M. Woodward. "A Dual-Channel Rotary Joint for High Average Power Operation (1970 [MWSYM])." 1970 G-MTT International Microwave Symposium Digest of Technical Papers 70.1 (1970 [MWSYM]): 249-251.

Recently an X-band, dual-channel rotary joint was needed for the airborne terminal of a satellite communication link. Low losses were necessary in the high average power transmit channel (l2.5 KW, CW) to avoid excessive temperature rise, and in the receive channel to reduce the noise temperature of the system. Other important considerations were: no liquid or forced-air cooling; restricted size limitations; low cross-coupling between channels. A new type of rotary joint combining the TM/sub 01/ mode and the circularly-polarized TE/sub 11/ mode in circular waveguide was developed which satisfied the electrical, thermal, and size requirements of the system.

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