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THE ANALYSIS OF CORONA DISCHARGE BASED ON THE DIPLEXERS USED IN KA-BAND
SATELLITE COMMUNICATIONS**Abstract**

The millimeter wave diplexers are used in the system of satellite communications. These diplexers are of high working frequency, narrow passband and high selectivity, which demands the channel filters good performance. With the atmospheric density low and the power of transmitting signals increasing, the phenomenon of corona discharge may occur in the millimeter wave diplexers. The corona discharge can make the performance of communication worse or even lead to the failure of system. The design methods, simulation results of diplexers are described in detail in this paper by the software FET3D. The conditions of the corona discharge can be obtained. With these information, the design of diplexers can be made more accurate and useful, and a better satellite communication system would be ensured.