Abstracts

Microwave Transmission through a Plasma Sheath (Correspondence)

J. Willis and D.W. Czubiak. "Microwave Transmission through a Plasma Sheath (Correspondence)." 1964 Transactions on Microwave Theory and Techniques 12.5 (Sep. 1964 [T-MTT]): 553-555.

Propagation of an electromagnetic wave of a given frequency in a plasma will occur only if the plasma density is less than a critical value. When the density is expressed in terms of the plasma frequency epsilon/sub p/² = ne² epsilon/sub 0//sup m/, propagation occurs if the plasma frequency is less than the frequency of the electromagnetic wave. When the plasma density is such that the plasma frequency is in excess of the signal frequency, the plasma acts like a conductor reflecting and severely attenuating the signal so that it cannot penetrate to any great depth into the plasma.

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