

Abstract Submitted  
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**Evaluation of Breakdown Delay in High Power Microwave Dielectric Barrier Discharges**<sup>1</sup> BRIAN KUPCZYK, XUN XIANG, MATT KIRLEY, JOHN SCHARER, JOHN BOOSKE, University of Wisconsin - Madison — An essential element of distributed discharge limiter development is minimizing the delay time between high power microwave (HPM) incidence and diffuse plasma creation. We present a series of pulsed plasma experiments conducted in neon and argon from 80-760 torr designed to assess methods of reducing this delay time. Evidence is presented implicating a charge buildup effect on the dielectric window with a characteristic decay time constant on the order of tens of minutes to several hours. A detailed description of the experimental setup used in this study is provided and progress towards development of a high-frequency multi-moded signal acquisition system is also presented, including the development of a circuit analog absorber designed to provide greater than 30dB attenuation with a thickness of less than 2cm.

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