

Abstract Submitted  
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**Distributed Discharge Limiter Studies for X-band High Power Microwaves**<sup>1</sup> JOHN SCHARER, DAVID HOLMQUIST, MATT KIRLEY, BRIAN KUPCZYK, JOHN BOOSKE, University of Wisconsin — The design, fabrication, measurements and analysis of an X-band high power microwave (HPM) limiter are presented. The microwave discharge test chamber is an L-band rectangular waveguide with Lexan microwave windows. The chamber is illuminated by the output of an X-band waveguide pressed against the chamber window. The objective is to study conditions and configurations that enable rapid ( $< 50$  ns) discharge formation above a pre-set power density threshold. A 25 kW X-band magnetron (9.38 GHz) with a 0.8 microsec pulse width is used to produce the breakdown. Incident, reflected and transmitted microwave powers and optical emission intensity are measured to observe the discharge breakdown and extinction rates. Pressures used are in the 1 to 760 Torr range. Transmission, reflection and attenuation for Ar and Ne are examined. Modeling of experimental results and analyses are presented.

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