Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Investigation of UHF multipactor onset and suppression in a 50 ohm microstripline test cell[1] JOHN BOOSKE, MIRHAMED MIRMOZAFARI, NADER BEHDAD, University of Wisconsin, Madison, MULTIPACTOR MURI COLLABORATION — Multipactor is a cascade avalanche of secondary electrons in resonance with an oscillating RF electric field in vacuum conditions [1]. It can disrupt transmission of high power electromagnetic fields and even cause surface damage in waveguides or RF components. We have developed a broadband microstripline test cell to investigate two-surface multipactor susceptibility and suppression. The input and output vacuum-sealed, high power, coaxial couplers are well-matched to the ˜50 ohm, low-loss test-cell impedance, with excellent transmission from 0.1 – 1.5 GHz. The top surface of the section where multipactor occurs is replaceable, enabling studies with surfaces having different secondary emission coefficients. Photoelectric electron seeding by a UV source ensures statistically reliable multipactor initiation. We will describe the results from initial experiments, including the effects of varying UV illumination intensity, surface conditions, and multi-tone RF field excitation. [1] J. R. M. Vaughan, "Multipactor,"IEEE Trans Elec Dev, vol. 35, no. 7, pp. 1172-1180, July 1988.

[1]supported by AFOSR MURI grant FA9550-18-1-0062

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Date submitted: 02 Jul 2019 Electronic form version 1.4