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## Analysis on Design Parameters of Plasma Limiter for Protecting against High Power Electromagnetic Pulse

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The coupling path of high power electromagnetic (HPEM) to electronic devices is divided into following two ways, one is the Front-door coupling and the other is the Back-door coupling<sup>1</sup>. The former is flow in an intended path such as antennas or sensors and the latter is inflow through an unintended path such as holes or cables. As HPEM pulse has higher power and it causes larger damage to electronic devices, it is necessary to research the protection method of RF systems affected by HPEM pulse in the front-end coupling path case. In this paper, the design parameters of the plasma limiter are analyzed for optimal design to protect against HPEM pulse. There are several limiters to reduce high power microwave power such as solid-state limiter and ferrite materials, etc<sup>2</sup>. but the plasma limiter uses the discharge electrode in waveguide<sup>3</sup>. Therefore it is suitable to protect HPEM pulse before it reaches the RF front-end system. Despite the ability to defend high-power microwave, the plasma limiter has some problem such as its expensive cost and complicated process than semiconductor limiters, so the research for optimal design is essential. Using our analysis on design parameters of the plasma limiter, it is expected that to improve a protecting performance and to figure out the optimal design.

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