White Paper

DVTEST

RF ENCLOSURE

Ventilation Mechanism for Shielded Enclosures

I. State of Problem

RF enclosures require ventilation when large amounts of heat are generated in testing. Forced cooling is also required for Device Under Test (DUT) in some applications. As the frequency increases, wavelength becomes smaller. In high frequencies, electromagnetic waves can pass through apertures designed for ventilation and can cause interference to the DUT. Therefore, special design for ventilation is mandatory to filter such waves.

II. Ventilation for RF Enclosures

The configuration of apertures and geometry of ventilation units play an important role in isolation of RF enclosures. The design of ventilation units provide more than 150dB of isolation for a frequency range of DC-9GHz as shown in *Figure 3*.

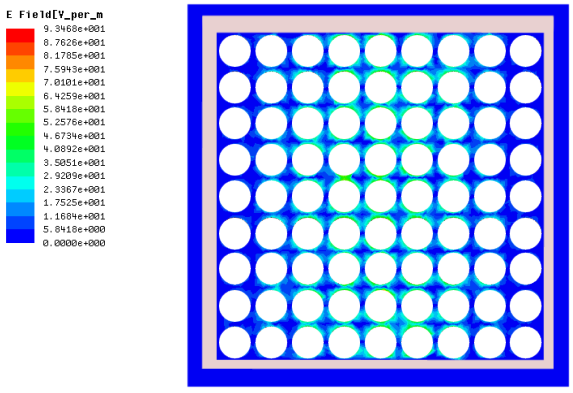


Figure 2: E-field intensity V/m on the surface of vent.

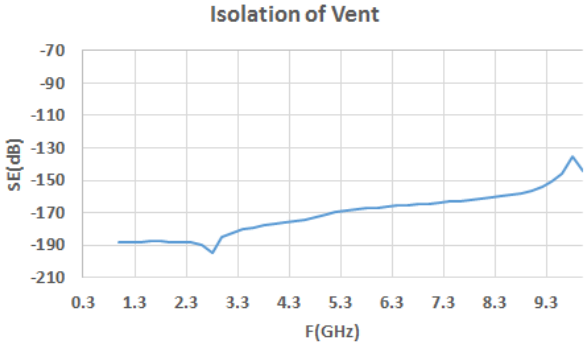
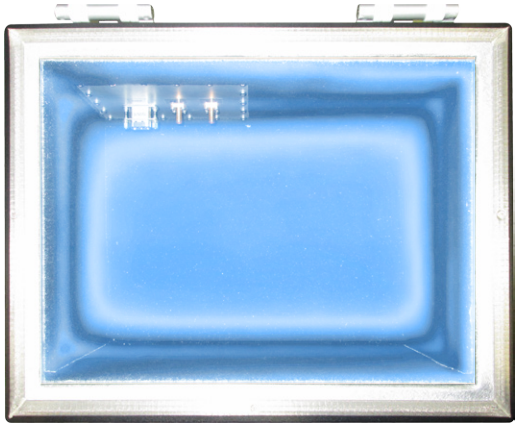


Figure 3: Isolation of ventilation units for RF enclosure.

III. dbSAFE

RF enclosure options maximize airflow while maintaining shielding integrity. Geometry of the vents form a multi-layer RF filter capable of offering 150dB from DC-9GHz. Surfaces can be coated or screened to prevent dust infringement and corrosion.

Ventilation is available in several form factors and can be configured to provide uniform air flow across the enclosure.



Top view of dbSafe configured with uniform ventilation option.



RF enclosure with basic ventilation option.