

ENGINEERING CAPABILITIES for Composite Radomes

RF Radome Design

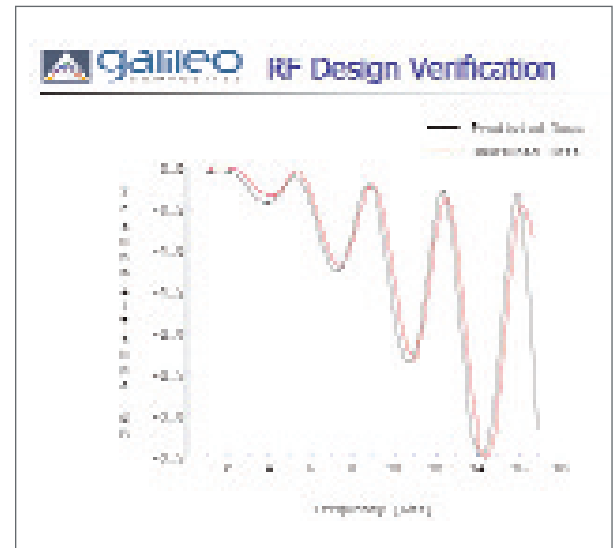
MFG Galileo is highly experienced in the science of determining the best radome construction for a given application and environment, taking into consideration the type and frequencies of the RF signal and the expected environmental loads. Past radome projects cover all frequencies from L-Band through Ka-Band, including multi-band applications, and wind loads up to 200 mph.

Our engineering staff, including a PhD-level radome design expert, is practiced at listening to fully understand the application and performance requirements. With the support of MFG Research, our team stays current on characteristics and applications of available resin systems, structural reinforcements and core materials such as structural foam and honeycomb. Each new radome design considers previous experience and currently available technologies.

The design process is an iterative process balancing the best optimization of RF requirements and structural loads such as wind speed. Once the minimum construction is established to meet the wind loads, the RF design process begins.

The elements of the RF design process include:

- Proven and proprietary computer algorithm is used to determine the predicted electrical performance of the radome:
 - Insertion loss (absorbed and reflected)
 - Sidelobe degradation
 - Boresight error
 - Phase delay
 - Others as needed
- Outstanding correlation between predictions and actual RF measurements
- Considers precise and empirically-generated electrical material properties and layer by layer dimensions and variation



RF Design Verification Graph

- Takes into account the precise geometrical relationship between the antenna and radome
- Considers the construction of the seams and optimizes for the specific frequency band
- Test panels can be produced and analysis results verified prior to production
- Analysis includes thickness sensitivity to ensure manufacturing variation is aligned with the RF analysis

RF Testing

MFG Galileo uses an anechoic chamber to verify radome designs prior to beginning production as required by the customer.

- A test plan will be established by MFG Galileo and provided to the customer for approval
- Testing may consider many parameters such as insertion loss, various incident angles, frequency, etc.
- Testing may be witnessed by the customer
- Full test reports provided

