Measurement Techniques of the Reflectivity of RF Absorbers

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ABSTRACT

Because the properties of RF absorbers affect the performance of anechoic chambers, the RF absorbers become an important item in the design of semi-anechoic chambers. In this thesis, we setup the RF absorber measurement system in accordance with the report of " IEEE Std 1128-1998 ". An arch method is used to measure the properties of RF absorbers. A simple small-anechoic chamber is built for the measurement. The transmitting and receiving antennas are needed in the measurement system. For this purpose, broadband double-ridged horn (DRH) antenna is numerically and experimentally investigated. Electromagnetic software HFSS V9.0 of the Ansoft company is used in the simulation. The DRH is designed and fabricated. The return loss and radiation pattern of the DRH implement are measured. The reflectivities of RF absorbers are calculated using a theoretical method [12] and an approximated formula [13]. Then, we conduct the measurement of the RF absorbers in a simple small anechoic chamber and in a USI (Universal Scientific Industrial Co., Ltd.) chamber. The comparison among the properties of the RF absorbers, including the calculated, measured, and data sheet provided by vendor are presented in this thesis.

Keywords : anechoic chamber、RF absorbers、arch method、double-ridged horn

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