

عنوان مقاله:

Standard Deviation Characterization of a Small Size Reverberation Chamber by Using Full wave Simulation and E-Field Probe

محل انتشار:

فصلنامه سیستم های اطلاعاتی و مخابرات، دوره 7، شماره 2 (سال: 1398)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Reverberation Chamber (RC) is a new type of measurement equipment used in electromagnetic compatibility and antenna tests and capable to produce an almost uniform electric field inside a Working Volume (WV). In this paper, the field uniformity of an actual small size RC is studied. At first, the mode density of the chamber which should be larger than unity is investigated. In the next step, the Standard Deviation (SD) of a small size RC, as a field uniformity criterion is investigated in an existing RC. A highly detailed three-dimensional model of chamber including its stirrers, antenna, WV, and its door create to verify the field uniformity of a RTS₆₀ reverberation chamber. The removal of reverberation chamber's stirrers shows that they have a direct effect on the uniformity of field. As the stirrer moves during the test, the effect of three different position of stirrer on the field uniformity is investigated. The transmission antenna, as an important component of these rooms, is simulated and investigated separately. The reflection coefficient of that antenna fit the working frequency band of the chamber. In a real scenario, the SD of the chamber is measured by using an electric field probe. A comparison between the simulation and measurement also is done in order to confirm the uniformity of the electric fields.

کلمات کلیدی:

Reverberation chamber; stirrer; Electromagnetic Compatibility tests; Antenna gain and efficiency; standard Deviation

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