

An analytical metalens design approach of CST studio analysis for breast minimum full electric field coverage

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Abstract:

Microwave imaging (MWI) system has attracted the concern of engineers and physicists. Developing a microwave source combined with metalens structure is a new frontier of science and technology. A proposed design for breast cancer detection system is introduced, by integrating MW system with inspired metalens structure consisting of arrays of metallic split-ring resonators (SRRs) organized to form a ring band surrounding a proposed breast slice model. The objective of this paper is to fully cover the breast slice with the maximum EF intensity and attain an analytical empirical formula for the EF penetration inside the breast, showing the effect of varying the metalens structure design, the antenna number and azimuthal position. This configuration is tested and modelled using CST STUDIO SUITE electromagnetic simulation software. © 2017 IEEE.

Reference:

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