

Synthesis of a Printed Planar UWB Antenna for Imaging Applications (UWB-SPLINE.0.5-3.0.GHz)

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Abstract

In the last years great effort has been paid to the development of microwave imaging systems for medical applications (e.g, for breast cancer detection). In this framework, the synthesis of the antennas used to collect the data is a crucial task. As a matter of fact, the antenna should be small in order to allow the displacement of several copies of it to collect as much data as possible. In addition, it would be advantageous to have an antenna able to efficiently operate over a large bandwidth in order to collect the information at different frequencies.

The objective of the activity is therefore the synthesis of a spline-shaped UWB planar monopole antenna for imaging application. The design will be carried out by means of a Particle Swarm Optimization (PSO) procedure and it will be aimed at fulfilling the following requirements:

- good impedance match over the 0.5-3.0 GHz frequency range - small dimensions Moreover, since the antenna is intended for imaging applications, the presence of a matching liquid with high permittivity will be considered during the optimization.

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