Review of: "Investigations on Input Impedance and Radiation Pattern of a UWB Antenna for Microwave Imaging"

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Potential competing interests: No potential competing interests to declare.

The paper describes an investigation on the Input Impedance and Radiation Pattern of a UWB Antenna for Microwave Imaging. Although the explanation of the idea is good and the results are supported with simulations and measurements, I have some major and minor comments to be addressed as described below.

1. Overall, the performances of the proposed antenna are interesting. The main contribution of this paper is the compact design and finished engineering product. However, some clarifications are asked of the authors regarding this contribution over the originality. The paper is not a brand new contribution. Especially, the obtained bandwidth is not important compared with those in the literature. Please give proper justification.
2. The organization and the quality of the writing and the figures should be improved.
3. The authors should specify the requirements specifications before the simulation process.
4. The optimization process (abstract) in this work is more like parameter tuning. The term “optimization” has a more rigorous definition. For instance, an objective function or cost function may be required first, and some processes are performed to ensure the results meet the objective.
5. In page 9, line 2 of the paragraph, how can we explain the negative values of the gain of the antenna?
6. The return losses are always positive quantities, and reflection coefficients are negative for all passive circuits. On pages 15, 19, 21, 27, please replace the return loss by reflection coefficient or pay attention to the terms **increase** and **decrease** in these interpretation paragraphs.
7. I suggest to add another figure illustrating the configuration of the electrical field and its polarization. Also, introducing a comparative table comparing the antenna performance and structure dimensions with those reported in the literature.
8. The proposed designed antenna is well supported with simulated and experimental data, but photographs of all testing/experimentation set-ups are missing.
9. In the last section (investigation of how to improve the directivity of the proposed antenna), why did you get the results by changing the reflector dimensions? Is there any physics behind it? Is the radiation pattern fully omnidirectional?
10. In the figure titles, Y-axis, sometimes the authors put S11 parameter, and in other times they put reflection coefficient; please use the same notation in all figures.
11. On pages 2, 17, and 18, the authors should use a mathematical equation editor for all parameters and equations illustrated on these pages.
12. Page 21, first paragraph, line 2, correct, OfLs……