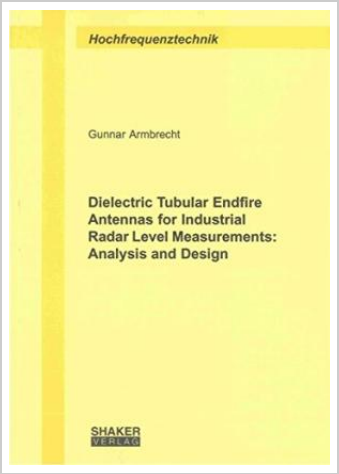

Dielectric Tubular Endfire Antennas for Industrial Radar Level Measurements: Analysis and Design

By Gunnar Armbrecht

Shaker Verlag Okt 2011, 2011. Taschenbuch. Book Condition: Neu. 233x146x17 mm. Neuware - This thesis concerns dielectric antenna design for monostatic radar operation as well as guided still pipe measurement techniques in electrically large tank-mounted metal tubes. The application is for the use in the field of industrial level gauging for process automation industry within the frequency range of 8.5 to 10.5 GHz. At first, Maxwell's theory for cylindrical hollow metallic waveguides as well as for dielectric rods with solid and tubular geometries is revisited in order to derive a combined analytical field approach. This approach aims to be valid for each type of waveguide being considered within this work by solely adapting the boundary conditions. The antenna optimization starts with an intensive evaluation of the modal radiation properties of cylindrical dielectric waveguides for the purpose to design optimized traveling wave endfire antennas made of polytetrafluoroethylene (PTFE) and polypropylene (PP). Therefore, the theoretical directivity limits, particularly that of the hybrid non-cylindrical symmetric HE/EH eigenmodes in mono- and multimode configurations, are estimated analytically. Based on the eigenmode approach, the applicability of a commercially available state-of-the art 3D field simulator, that numerically solves Maxwell's equations based on the finite integration technique (FIT),...

Reviews

It is great and fantastic. Better then never, though i am quite late in start reading this one. Your life period will likely be transform once you comprehensive reading this book.

-- ***Blanca Davis***

An extremely wonderful book with lucid and perfect information. It is one of the most awesome publication i have read. Your life period will probably be enhance the instant you total looking at this pdf.

-- ***Prof. Dan Windler MD***