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Single T Slotted Patch Antenna Performance on Structurally Modified Dielectric and Nano Ferrite Based Magnetodieletric Substrate

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Abstract—*The current work presents an analysis of patch antenna on a structurally modified step profile substrate with a single T shaped slot incorporated onto the patch. The performance variation of the antenna have been studied by employing two different substrate materials vide standard commercial dielectric FR_4 substrate and a synthesized nano sized nickel ferrite/LDPE composite substrate with a miniaturization factor of 2.09 and 2.97 respectively. The scattering parameter S_{11} study shows that the maximum -10 dB % bandwidth obtained for the nano magnetodielectric substrate is around 10%, while for that on the standard FR4 substrate is around 8%. The measured S_{11} and simulated gain for the antenna on the nano magnetodielectric substrate is also higher than the antenna on the FR_4 substrate.*