

“Negative index metamaterial at 100 GHz”

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Abstract – We present the free space characterization results of a metamaterial made of Split Ring Resonators and metallic wires scaled for an operation at 100 GHz. The interpretation of the measured transmission spectra is performed by means of a three dimensional electromagnetic modelisation which allows us to identify the left-handed band and find the origin of the losses using a parametric study over the number of elementary resonators in the propagation direction. We also extract the effective parameters values in the frequency band where the material behaves as a double negative medium, by means of two complementary methods, namely the Fresnel Inversion and the Field Summation.