

“Application of left handed superstrates to improve radiation performances of dipole antennas”, pp.3-11

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Abstract – In this paper, radiation properties of dipole antennas with Left Handed Media (LHM) superstrates are analysed. A uniform LHM superstrate with cells tuned to the antenna’s resonant frequency and a non-uniform LHM superstrate which combines cells working at different frequencies are studied. By varying the number of cells of each type, it is possible to control the corresponding radiation characteristics of the whole structure and tune it to specific requirements. Using of these superstrates, dipole antennas with high directivity, low back radiation and high efficiency are achieved. The performances of simulated and fabricated LHM unit cell have also been compared and the results are in good agreement.