A Review of Log Periodic Dipole Antennas with Different Shapes of Dipole Elements

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Abstract: Now a days for the current and future communication applications like radio wave direction finding systems, 5G mobile and wireless communication, air borne applications, UWB radar and mobile imaging applications, the log periodic dipole array (LPDA) antenna is the most suitable and it can be used as either in directional finding applications or UWB applications based on its properties. In this paper, various miniaturization techniques of log periodic dipole array antenna are studied and analyzed. Comparison of different types of LPDA structures such as dual band elements, folded planar helix dipole, sinusoidal dipoles, T-shaped and H-shaped top loading dipoles with respect to operating frequency, bandwidth, type of the substrate, gain and dimensions of the antenna are presented at the end. Miniaturization of the antenna is achieved by using these different configurations. A high gain and VSWR value which is less than 2 can be obtained by applying above said miniaturization techniques.

Keywords: The log periodic dipole array (LPDA) antenna, Antenna miniaturization, Dielectric loading, Top loading.