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(57) Abstract :
The present invention discloses a system (100) for fabricating metamaterial-based antenna for ultra-wideband (UWB) applications. The system (100) comprises a coplanar waveguide (CPW)-fed antenna (101) excited by a signal source (102) and a metamaterial array (103) positioned behind the CPW-fed antenna (101). The metamaterial array (103) includes a circular ring slot (103-1) combined with modified radiators (103-2), which can be T-shaped, to manipulate the electromagnetic waves and enhance the antenna's performance. The metamaterial array(103) acts as a reflector, redirecting and focusing radiation for increased gain. The CPW-fed antenna is supported by a supporting substrate (104) wherein the supporting substrate is FR-4 substrate. The metamaterial array (103) can be designed as a compact 3x3 array having dimensions of 14.8 mm x 14.8 mm x 0.25 mm.

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