

## Design of Broadband Biconical Antenna with Improved Radiation Pattern over 3-40GHz

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Now a days for the expansion of wireless communication system, there has been an increasing demand of broadband antennas. Among existing broadband antennas, biconical antennas are mostly suitable for wireless broadband communications because of omnidirectional radiation pattern. In this paper frequency dependence of radiation pattern with realized gain is investigated by comparing two individually designed biconical antennas over 3 GHz to 40 GHz frequency range.

The modeling and simulation of Biconical antenna is constructed by using CST MICROWAVE STUDIO software. Both the biconical antennas have three parts: cone, cylinder and ring and previous antenna is designed using this (Zhekov, S.S., Tatomirescu, A and Pedersen, G.F., "Antenna for ultrawideband channel sounding," IEEE Trans. Antennas Propag., 16, 692-695, 2017). Only difference is that biconical antenna having improved radiation pattern includes wider ring in inner portion with blending edges for getting good radiation pattern stability over frequency. Here, Fig.1 (a) shows simulated VSWR of two biconical antennas and Fig 1 (b) shows comparison of 3dB beamwidth at different frequencies.

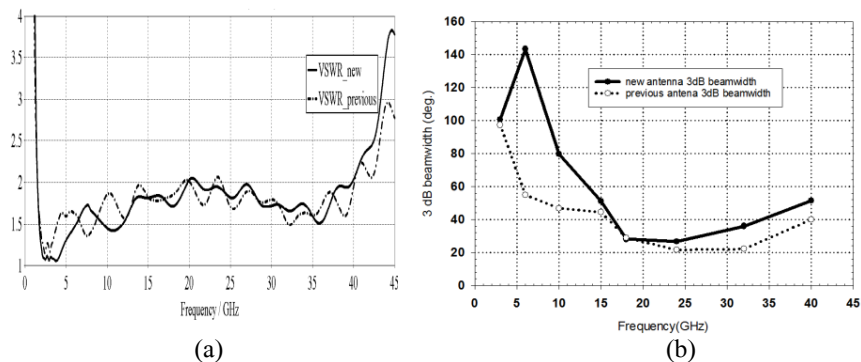


Figure 1. Simulated results (a) VSWR of two biconical antennas (b) Comparison of 3 dB beamwidth of two antennas

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