

## Curved Rectangular Patch Array Antenna Using Flexible Copper Sheet for Small Missile Application

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**Abstract :** This paper presents the development and design of the curved rectangular patch arrays antenna for small missile application. This design uses a 0.1mm flexible copper sheet on the front layer and back layer, and a 1.8mm PVC substrate on a middle layer. The study used a small missile model with 122mm diameter size with speed 1.1 Mach and frequency range on ISM 2.4 GHz. The design of curved antenna can be installation on a cylindrical object like a missile. So, our proposed antenna design will have a small size, lightweight, low cost, and simple structure. The antenna was design and analysis by a simulation result from CST microwave studio and confirmed with a measurement result from a prototype antenna. The proposed antenna has a bandwidth covering the frequency range 2.35-2.48 GHz, the return loss below -10 dB and antenna gain 6.5 dB. The proposed antenna can be applied with a small guided missile effectively.

**Keywords :** rectangular patch arrays, small missile antenna, antenna design and simulation, cylinder PVC tube

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