# SQUARE MICROSTRIP PATCH ANTENNA WITH T-PROBE FED FOR WiMAX APPLICATIONS

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# ABSTRACT

This paper concerned on enhancement gain for square microstrip patch antenna using T-probe feeding technique. Air is used as substrate in this proposed design. The thickness of the air-filled substrate, *12mm* is presented with $\varepsilon_0$ equal to 1. Air-filled substrate is sandwiched between superstrate and a ground aluminum plane supported by placing silicon spacer for each corner of square dimension. The patch is fed by a T-shaped probe placed on the 1 mm thickness of aluminum plate. It is fed by a standard SMA connector to takes cable dielectric to the interface without air gaps. The simulation and optimization software CST Microwave simulator and Vector network analyzer (VNA) is used for the return loss measurement results. The performance of the designed antenna was analyzed in term of bandwidth, gain, return loss, VSWR, and radiation pattern. From simulation results parameter obtained were -39.08dB resonate at frequency 2.4GHz meanwhile from measurement the result is -10.8dB resonate at frequency 2.6GHz. Both return loss ($s_{11}$) necessity for WiMAX applications and VSWR simulation is 1.024. That satisfy outcome since the ratio is VSWR<2. The antenna designed has potential to resonate at frequency 2.4 GHz for WiMAX applications.

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