

## ABSTRACT

Mobile wireless communication technology is now growing with the advent of various technologies such as GSM, UMTS, LTE mobile, wireless LAN, and other technologies. In its application, these technologies require individual frequencies. The biggest challenge in this days of the antenna is an antenna that is small but can operate on any existing technology. One that can be done is with multiband antenna. Planar inverted-F antenna (PIFA) is one of the many types of antennas used for handset applications.

Planar inverted-F antenna (PIFA) is an enhancement of the  $\lambda / 4$  monopole antenna . Now this PIFA antennas are widely used for mobile and portable radio applications because of simple design, light weight, and low manufacturing cost. PIFA antenna consists of two parts, the patch and ground plane. In the previous study, mentioned that the use of slots in the groundplane can widen the bandwidth of the PIFA antenna and produce a new resonant frequency at high frequency. In addition the use of some U-shaped slot on the patch can generate some new resonant frequency of the PIFA antenna compared with PIFA antenna without a slot.

At this final task, designed and realized a PIFA antenna that works on GSM 850 (828-890MHz), GSM 900 (880-960MHz), GSM 1900 (1850-1990 MHz), UMTS (1910-2170MHz), Bluetooth (2.4 GHz), Mobile LTE (2.6-2.7GHz), and Wireless LAN 5.8 (5.8-5.9 GHz) using U-slot patch antenna and the rectangular slot in the groundplane antenna.

Keyword: PIFA antenna, multiband, U-slot, slot groundplane