Diploma Project
Academic Year 2023 / 2024

Project code: 202301

Project Title (English):
Design of 5G - Fixed Wireless Access (FWA) for Rural Connectivity in Egypt (Hayah Karimah Project as an example)

Project Title (Arabic):

تصميم شبكات الجيل الخامس ذات الوصول اللاسلكي الثابت لتقديم اتواصل مع الأماكن الريفية فى مصر
(مشروع حياة كريمة كمثال)

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Project Objectives:
The arrival of 5G has made it possible for wireless networks to compete against fiber, satellite, xDSL, and cable in delivering high-speed broadband service to residences and businesses at attractive prices. Wireless operators provide this service with Fixed Wireless Access (FWA). FWA is a method of connecting subscribers to an telecommunications network (e.g., broadband Internet access or telephone services) using a wireless alternative to traditional copper cables and/or fiber. The 'last mile,' or transmission from the area node to the business or residence using it, is handled via wireless. Businesses with limited mobility, such as utilities and Oil & Gas firms, are prime candidates for FWA service. The savings in deployment time and cost are significant. With no need to dig trenches to lay fiber, FWA is an attractive option for operators.

This project aims to design and propose a solution for Fixed Wireless Access (FWA) network in for Rural Connectivity in Egypt (as Hayah Karimah Project). The proposed solution can add customers and increases speed and spectral efficiency while reducing Operating Expenses (OPEX) and Capital Expenses (CAPEX).

Project Outcomes:
After complete this project, the studies will be familiar with:

- 5G-Fixed Wireless Access (5G-FWA) vs other last mile alternatives
- Fixed Wireless Access (FWA) network components
- 5G-FWA deployment NSA and SA
- OPEX and CAPEX for 5G-FWA deployment in rural areas of Egypt