

## **SCPS solution for heterogeneous networks for isolated areas: A novel design approach**

### **Abstract**

This research presents an innovative system that has capability to prove the technical feasibility and advantages of a joint radio frequency (RF) and free space optic (FSO) system with a synchronized self-trace directional between various deployments of mesh net nodes in the low space, with several factors driving this convergence. Sky mesh network utilizing aerial altitude platform, system (AAPS) is driven via Wi-Fi and optical fiber combining the capacity of optical fiber networks with the deployment and mobility of wireless networks. Our proposed system is based on AAPS; however, this mechanism has encountered troubles in precariousness due to winds, a challenge that hinders network deployment due to loss of the line of sight (LoS). A smart communication platform system (SCPS) base station is proposed to overcome these restrictions. In this research, we experimentally simulate the SCPS, which provides more stability and accuracy in the transmission of RF and FSO. The proposed experimental simulation model considers the multi-hop wireless ad-hoc mesh networks and LoS between the mesh nodes in one unit with high performance and low weight and costs. Furthermore, fiber-optic cable (FOC) and FSO based quality of service (QoS) need to be enforced throughout the network in order to ensure that critical, latency-sensitive traffic is appropriately prioritized. This novel invention focuses on and evaluates the process approach of a coordinated transformations system based on linked FOC, FSO and RF in AAPS for a data rate of 1.25 Gps at 350 m.