

## **ABSTRACT**

*With a large population in an area, such as Sragen Regency with a population of 976,951 people with a population growth rate per year from 2020 - 2021 of 13.83%. Telecommunications technology has two transmission media, namely wired and wireless. In its use, cable media is used for long-distance communication due to several influencing factors such as geographical conditions and inefficient infrastructure for using cable media. In this study the author will also analyze by comparing the link budget of the design made by the author and the design of HUAWEI. The parameters used in the design are Gain, Free Space Loss (FSL), Effective Isotropic Radiated Power (EIRP), Isotropic Received Level (IRL), Received Signal Level (RSL), Fading Margin, Unavailability, and Availability. In this study, a microwave transmission link was designed using Pathloss 5.0 software and performed a simulation that produced several parameter values, as well as Google earth software to determine the geographical conditions of the area. Transmission can still work within HUAWEI's standardized frequency range when Power Transmit is lowered to 20 dBm up link Fade margin is 23.20 dB when the link goes down.*

**Keywords:** *microwave link, line of sight, pathloss, planning.*