

## ABSTRACT

Balai Riset Standardisasi Industri Surabaya is a government agency which is being growth become a Balai Besar. That kind of value-added service can be implemented in the form of a multimedia-based network using CATV technology to provide data communication services such as Internet and teleconference. This multimedia application can be use to handle voice, text, and video communication simultaneously. The system will implement a high degree of interactivity so that costumers can directly perform various tasks such as electronic transaction and banking.

The issue put forward in this final project is how to design a multimedia network using coaxial media with the capability to meet both distributive and interactive needs of Balai Riset Standardisasi Industri Surabaya and its customers. The Parameters that will be use to determine the network performance qualities are CNR, CSO, CTB, and XMOD.

The design process itself will be aided by Cable Tools software. The usage of this software will largely depend on the hardware specification used in this final project. After the initial design is completed, the values of voltage levels and network reverses will then be calculated. This way the network will have a full-duplex capability.

A good network design should be able to meet a strict standard of performance requirements. Measurements show that the resulting performance parameters are still above the targeted values as follows: the lowest CNR of network system is 68,88 dB (min. standard 43 dB), the lowest CTB of network system is 67,12 dB (min. standard 51 dB), the lowest CSO of network system is 68,24 dB (min. standard 51 dB), the lowest XMOD of network system is 63,35 dB (min. standard 51 dB).

These results show that implementation of a coaxial network for multimedia services are very much feasible and affordable for Balai Riset Standardisasi Industri Surabaya.