

ABSTRACT

A coaxial network as part of HFC network structure can not be built with just a bunch of amplifiers and cable. Careful analysis and planning are important in designing a solid network that will meet end-of-line performance specifications.

The first step of HFC network planning phases is defining the scope of the network by determining the size or area that the network will serve. During this phase, the bandwidth of the network will be established. This final project shows that the true bandwidth of the network is 706 MHz. Allocating 423 MHz of forward bandwidth will provide space for 56 analog channels and will allow 283 MHz bandwidth to remain, excluding any other restrictions which might be defined for any particular network, while the maximum digital channel capacity is 45 channels or about 1215 Mbps of data rate.

Once the scope of the network has been defined in terms of size, bandwidth and services, a network structure is created. The network structure most prevalent today is Fiber-to-the-Serving Area (FSA), or some variant of it. The key of this structure is to move signal to small pockets of subscribers and provide for ease of future upgrade.

The final step of this project is fitting all of the HFC network planning phases into a coaxial network design project of Gejayan optical node. The result in analyzing the design project, both in forward and reverse direction, shows that the design project fit all of the network performance target, that is 3 - 12 dBmV of home communication terminal's signal level, 48 dB of CNR, also 53 dB of CTB and other operating parameter (i.e. CSO, XMOD, and HMOD), to support the delivering of a quality signal to each costumer premises on the network.