

Namaste Layers

21 March 2008

W5NYV

Summary

| Layer | Thoughts |
|-------------|---|
| Physical | The bits are here. Electromagnetic waves. Antennas. Waveguides. Low-noise amplifiers. Feed line. Receiver, downconverter, and demodulator. The relationship between a device and a physical medium. Encoding and transmission. |
| Data Link | Frames. Ethernet. Switches. The interactions of multiple devices with a shared physical medium. |
| Network | IP. X.25. Packets. The network layer provides the functional and procedural means of transferring variable length data sequences from a source to a destination over one or more networks, while maintaining the quality of service requested by the Transport layer. This is the layer that interfaces with IPICS. |
| Transport | TCP and UDP. Quality of service defined here. Transparent data services provided here. End-to-end. Can provide reliability. Data arrives in-order, data has minimal error, duplicate data is discarded, lost and discarded packets are resent, and traffic congestion control happens. |
| Application | Here are the applications on the personal computers and other Namaste. Data is encapsulated in the transport layer protocol. |

Physical

Antenna

The antenna is assumed to be an 18" dish identical to those used in satellite television applications. The gain difference between the uplink and downlink bands (+4.0dB) is roughly equal to the path loss difference between the uplink to downlink bands (-4.4dB) resulting in a differential of -0.4dB to the uplink when comparing antenna gain and path loss.

Incident waveform from satellite - treat as unknown and find minimum level.
This sets gain of satellite transmit antenna.

22.8dB receiver antenna gain.

Waveguides – input waveguide?

Low Noise Amplifier

LNAs are available for the downlink frequency with less than 0.8dB noise figure from Down East Microwave.

Feedline

Limit this item to as short a run as possible.

Downconverter

Translates the received waveform from 3.4GHz to an IF of

Filter

Demodulator

Recovers the encoded waveform from the received waveform.

Demultiplexer

Decompression

Digital Output