Hom work 12-1-17

Name _____ Date _____

Lesson 9: Video Signals and DBS Systems

Reference

1. *Residential Audio and Video Systems* (Chapter 1)

Introductory Information

Compared to audio, the television signal is a complex creature. It must carry information about the entire screen, including brightness (luminance) and color (chrominance). It also needs to carry a signal that is changing up to 30 times each second, sometimes over long distances. If that wasn't enough, we now have several different types of video signals, coming from several different devices and transmitters. Compared to audio, video requires several times more information, and as a result several times more bandwidth.

Cable TV has evolved dramatically since it served as a way to share a tall antenna. Eventually broadcasters created networks for cable only, and today there are well over 200 cable-only TV channels available. But how does it all work? Cable providers receive their signals in a variety of ways, and process them at a facility called a head-end. At the head-end, local channels are received and converted to a channel numbering sequence that makes sense to somebody.

Satellite reception of television signals at home began in the mid-1970's, when companies such as Home Box Office (HBO) began sending its signal to cable providers throughout North America. These low-power signals were intended for cable companies only, who would receive them with huge parabolic antennas (dishes) and forward them to paying subscribers.

In this lesson you will study the technologies used to transmit and receive video signals and learn the fundamental properties of these signals.

Learning Objectives

After completing this lesson, you will be able to:

1. Describe the various types of video signals, and the different forms and formats of these signals.
2. Discuss the purpose of the MPEG standards for video distribution.
3. Understand the technologies used in satellite and cable TV.

Questions

1. Composite video is the rough equivalent of __?__ signals in audio.
2. What is it called when a DBS provider transmits a signal to a satellite owned by the DBS provider?
3. Each channel occupies a band that is __?__ wide.
4. What is meant by the phrase "DBS satellites are simply relay devices?"
5. Other than sending the signal from the LNB to the receiver, what is the other function of the coax cable?
6. What type of signal is prone to errors in reproducing exact colors?
7. Standard broadcast television is sometimes called __?__.
8. The beauty of the __?__ standards is the broadcaster's ability to convert an uncompressed digital video stream from 270 Mbps (megabits per second) down to 1.5 to 30 Mbps after compression.

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9. What is the frequency range which DBS runs at?

10. How many programming channels is each transponder capable of providing?

11. What is the most critical part of the installation of a DBS system?

12. What is meant by the term "modulated signals"?

13. Which video format did the French launch in 1967?

14. Which video signal is a step up from S-video?

15. Describe the two types of data that are uploaded to the DBS satellite as part of the digital bit stream.

16. Why are uplink frequencies higher than downlink frequencies?

17. Where is the Aural carrier located?

18. List the two video formats which were slightly improved over NTSC.

19. Which compression standard made the direct broadcast satellite industry possible?

20. What was the primary reason for the development of closed-captioning technology?

21. What type of signal is an analog signal that combines brightness and color information along with synchronization pulses into one signal?

22. What is the name of the cable company facility which receives and processes the signals?

23. How does S-video improve the signal quality over composite video?

24. Does the telephone modem on a DBS receiver need to be connected for regular program viewing?

25. Which video format uses a wider bandwidth to support the greater number of scan lines?