

Independent Cable

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Cable Operating Companies

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NEWS

Going All Digital

12 Things You Need to Know – PART 2

By Gerhard Franz

In Part One, we began our look at 12 key issues operators need to know in converting an analog cable system to digital, with issues 1-5 (**Bandwidth, Transport Streams, Multiplexing, Modulation and Encoding**). This month, we look at issues 6-12.

6. **SD/HD:** Beyond the analog based NTSC video images, digital TV allows higher definition (HD) video to be transmitted — 1080 horizontal lines on the screen vs. 480.
7. **STB:** Digital TV reception requires either a digital TV set (all new TV sets have integrated digital tuners), or a set top box (STB). Since digital TV allows for insertion of additional information “services” in the transport stream, even digital TV sets may require a STB to receive these additional services.
8. **Encryption:** Content providers require the protection

of digital video content through the use of encryption. This means that the video information (or payload) within a transport stream will be scrambled and can only be received by the subscriber with a descrambling device (STB, cable card, etc.), which is authorized for a specific service.

9. **Proprietary vs. Open Standard:** Although the basic transport of digital video and encoding methods are standardized, encryption is not. While most of the world has adopted an encryption methodology based on the DVB standard, the majority of cable operators in North America currently use proprietary encryption either from Motorola or from Cisco (Scientific Atlanta).

10. **Program Sources:** Digital video programs can be received either via satellite or from terrestrial broadcasters who are now transmitting 100% digital video. If these programs are “in the clear,” they then can be multiplexed into transport streams for 6 MHz channels and transmitted directly to the subscriber. If they are encrypted, they can either be passed through (transmodulated) to a QAM channel and decrypted in the subscriber STB, or decrypted in the headend and then re-encrypted, allowing for use of open standard encryption methods.

11. **TV Standards:** Analog and standard digital TV follows the NTSC standard; high definition video is defined by the ATSC standard, which includes modulation standards for terrestrial broadcast.

12. **IP:** Like any digital data, digital video can be transmitted using the standard IP Protocol. In most cases, the IP encapsulated video streams are modulated onto 6 MHz standard cable TV channels at the edge of the network using Edge QAM modulators and then transported via legacy HFC networks. When the IP format is maintained, a different network is needed and this will be the subject of the column next month. □

About the Author

Dr. Gerhard Franz, CEO of Blankom USA, has over 25 years of global experience in the telecommunications, aerospace and electronics industries. He received his PhD in Electrical Engineering from the Technical University of Vienna, Austria, and his Executive MBA from Rutgers University. He is a senior member of the Institute of Electrical and Electronics Engineers (IEEE) and a member of the Society of Cable Telecommunications Engineers (SCTE). Dr. Franz is the author of several technical papers and business articles and holds two patents.

