

Jonathan D. Levy¹ gave a presentation on this topic to the ABA conference, Radio Television and the New Media, in May 2001. Mr Levy has kindly provided this text as a supplement to the presentation, for the benefit of ABA Update readers.



Progress and planning for digital television conversion and analog switchoff in the United States

The transition to digital television² in the United States is proceeding along three inter-related tracks—buildout of transmission facilities, sales of consumer equipment, and production of digital television programming. This article provides a brief survey of digital television in the United States. It includes a summary of the regulatory regime, a ‘status report’ on the progress of the transition, and a discussion of goals and policy issues associated with the transition from analog to digital television now underway.³ The presentation focused on digital broadcast television, but it is worth noting at the outset that digital television broadly construed is widely used in the United States. Roughly 15 million households currently receive their video digitally via direct broadcast satellite service, and roughly 10 million households receive some digital cable service. Moreover, these digital services are available to most of the more than 100 million US television households.

The regulatory regime

As adopted by the Federal Communications Commission in 1996, the ATSC digital television transmission standard permits multiple scanning formats (e.g. 1080I, 720P). The Commission recently reaffirmed the standard’s 8 VSB modulation system. The transition scheme makes available to every incumbent full power television station a second channel on a temporary basis. Incumbents must apply for these channels if they want them (and virtually all have applied). At the end of the transition, incumbents will relinquish one of their two allotments, and as de-

scribed below, some spectrum now used for television will be reallocated to alternative uses.

The service rules for digital television are quite flexible. Licensees must provide one ‘standard definition’ digital broadcast video stream, i.e. one digital program stream of picture quality at least as good as the analog that is available on a free-to-air basis. All licensees may provide high definition television, multicasting (multiple video program streams), datacasting, or a combination of services provided that the basic free-to-air program stream is not impaired. Licensees may offer subscription services, but are required to remit to the Federal government five per cent of their gross revenues from ‘ancillary and supplementary services’ (generally services for which a fee is charged by the licensee either to content providers or recipients).

Digital television licensees are subject to staggered buildout requirements. Currently, stations in the 30 largest local markets that are affiliated with the four largest commercial networks (ABC, CBS, Fox, and NBC) are required to have constructed digital transmission facilities. All other commercial stations have until May 2002 to construct digital facilities, while noncommercial educational stations have until May 2003.

Status of the transition

As of the end of June 2001, 200 television stations were on the air with digital television operations. This number includes 108 of the 119 stations in the top 30 markets that FCC rules require to be on

the air by now. The other 11 have received extensions of time to construct their facilities. Another 92 stations are on the air outside the top 30 markets. The 200 stations on the air (out of about 1600 total) are concentrated in the larger markets, and roughly 64 per cent of US television households have access to at least one digital television station. Many markets have multiple stations, e.g. the Washington, DC market has five.

The data on digital television equipment sales are not particularly detailed. Cumulative sales of digital television equipment reached one million units in April 2001. However, most of the equipment is high-resolution monitors that require a separate set-top box to receive digital television signals. (One use of these monitors is for display of DVDs.) Moreover, the figures are for sales to dealers, so it is not possible to know precisely how many units are in the hands of end users. Digital television sales figures are, in fact, growing rapidly in percentage terms (albeit from a low base) but are still small compared to the over 20 million analog television receivers sold each year in the United States.

Most digital television programming in the United States is provided by the major television networks and then passed through to viewers by their local affiliates. Local stations originate little digital or high definition digital television programming. CBS provides almost its entire prime time schedule in high definition digital television, while Fox provides almost its entire prime time schedule in standard definition digital format. NBC and ABC each provide a small amount of

high definition digital television programming (the 'Tonight Show' on NBC and a few movies per month on ABC). The Public Broadcasting Service has provided some specials in high definition digital television and has also experimented with interactive programming (generally supplementary material accessed at the viewer's option).

Goals and policy issues for the transition

The move to digital terrestrial television in the United States has two primary goals: to bring new and valuable services to US consumers and to improve the efficiency of spectrum management in the United States. Currently, 408 MHz of spectrum is allocated for television service (channels 2–69). When the transition is completed, 108 MHz will have been reallocated to new advanced uses, leaving a 'core' allocation of channels 2–51 for television service.

Most licensees have both their analog and digital assignments in the core; they must elect one of the two as a post-transition digital television assignment by 31 December 2003 for commercial stations and by 31 December 2004 for noncommercial stations. The FCC will adopt a procedure for licensees with one or both assignments outside of the core. Once the core spectrum is 'repacked' i.e. stations that need to move into the core have done so, space for some new allotments will be available. In other words, the core spectrum will support an allotment for each incumbent television broadcaster *and* have room for some expansion (due to the fact that digital television signals are less susceptible to interference, in particular from adjacent channels, than analog signals).

Several years ago, the FCC set a target date of 31 December 2006 to complete the transition, although it is now unlikely that this target will be met. In the Balanced Budget Act of 1997, the US Congress provided some instructions to the FCC regarding how to manage the transition. Congress specified the 31 December 2006 date for ending analog service, but provided that any television licensee could request an extension if fewer than 85 per cent of television households in its local market had access to digital terrestrial

television. A household is considered to have access to digital television if (1) it owns an integrated digital television receiver or a digital-to-analog converter or (2) it subscribes to a multichannel video program distribution service (e.g. cable or DBS) that retransmits one digital television program stream from each digital television licensee in the market.

The formal process of reallocating spectrum from television to other uses has already begun. Pursuant to Congressional instructions, the FCC has reallocated the 'upper 700 MHz band' (channels 60–69), with 24 MHz going to public safety use (assigned administratively) and 36 MHz



Jonathan Levy at the ABA conference in May this year, with Lyn Maddock, ABA Deputy Chair

to commercial use (6 MHz auctioned already and 30 MHz to be auctioned). The FCC has adopted flexible service rules for the commercial use spectrum. With respect to the 'lower 700 MHz band' (channels 52–59), the FCC has an open proceeding proposing flexible service rules for that block as well. Under the law, the FCC must complete the auctions for the 700 MHz blocks by 30 September 2002.

Although the upper 700 MHz spectrum has been reallocated, it (and the lower 700 MHz spectrum) are 'encumbered' by television assignments. For example, there are 94 analog and 20 digital assignments in channels 60–69. Moreover, assignments on Channel 59 will also have an impact on new services in the 60–69 block. Channels 52–59 have a total of more than 300 analog and digital assignments.

Clearly, a complex transition lies ahead. The analog-to-digital transition is far more complex than the transition from black and white to color television. It took 22 years to reach 85 per cent penetration, even with a major vertically integrated

programming/equipment supplier (RCA) and no non-broadcast media. In order to accomplish the twin goals of improved television service and improved spectrum management, it will, of course, be necessary to promote widespread adoption of digital television equipment by consumers (at least 85 per cent of television households). However, because the spectrum management payoffs are greatest in the spectrum outside the core, it is also worth thinking about 'bandclearing' in that spectrum.

Bandclearing

The FCC has created a bandclearing framework designed to provide incentives for the new 700 MHz licensees and incumbent television broadcasters to reach voluntary agreements for an early transition to digital television and concomitant clearing of the 700 MHz band for new uses. For example, subject to FCC approval, a 700 MHz licensee may offer compensation to a television broadcaster with one allotment in channels 59–69 and one allotment outside this band in order to induce the broadcaster to vacate its channel 59–69 allotment and commence digital television transmissions on its other channel. The FCC has established a rebuttable presumption that such voluntary agreements serve the public interest, provided that the agreement meets two conditions. First, the agreement must make new wireless services available, provide wireless service to rural underserved areas, or clear commercial frequencies for public safety use. Second, the agreement must not result in loss of analog service of any of the four stations in the local market with the largest market shares or loss of the sole analog service to any community or loss of the sole service to an area provided on a channel reserved for noncommercial educational use.

Even if the rebuttable presumption is not met, the FCC may approve the agreement. Factors to be considered include whether the area experiencing a temporary service loss (i.e. a substitution of digital for analog service) is part of a larger market with many analog television signals and whether the station that has transitioned to digital remains widely available through carriage via a multichannel video programming distributor. In this connection, it is important to

note that the FCC has made clear that television stations transmitting only digitally do have must-carry rights. In other words, local cable operators are generally required to retransmit these signals. Moreover, subject to review in 2003, digital broadcasters can exercise their must-carry rights by providing an analog feed to the cable operator for local retransmission (thus ensuring that cable subscribers without digital equipment can continue to receive the broadcaster's programming).

Various private parties are promoting the idea of a 'secondary auction', a mechanism that would enable bidders in the 700 MHz auction and incumbent broadcasters to agree in advance of the auction on the price for bandclearing. This price could be expressed as some function of the winning bids for the 700 MHz licences. The FCC has recently postponed the 700 MHz auction, which had been scheduled for September 2001. One feature of the postponement (no new date has been set yet) is that it permits the FCC to consider requested procedural changes from parties (including the 'Spectrum Clearing Alliance', whose members hold a substantial share of the incumbent television licenses in the band) interested in setting up a secondary auction.

Meeting the 85% criterion

The FCC has also taken actions, consistent with its jurisdiction, to encourage actions that would lead to meeting the 85 per cent criterion. These actions may be grouped under three headings—encouraging digital television equipment purchases, facilitating MVPD carriage of local digital television signals, and promoting production of high-value digital content.

With regard to encouraging equipment purchases, the FCC has taken action to reduce consumer uncertainty and confusion by reaffirming the choice of 8 VSB as the modulation system for US digital television and by adopting labeling requirements designed to inform consumers of the capability of television receivers to operate with digital cable television systems. The FCC also has an open inquiry on whether to require labels on digital television reception equipment that would inform consumers if the equipment was not capable of receiving terrestrial signals (i.e. if the receiver was de-

signed for use only with an MVPD service). This inquiry also addresses the possibility of the FCC mandating digital television capability on some portion of new television receivers.

As noted above, the FCC has also recently clarified its cable must-carry rules for digital television. In addition to establishing that digital-only stations have must-carry rights that can, for a limited time, be exercised by providing cable operators an analog feed, the FCC also determined that cable operators are obligated to carry digital television stations' 'primary video', defined as a single video program stream and related content. The FCC issued a Further Notice of Proposed Rulemaking on the subject of how to define program-related content and how to apply digital must-carry rules to the DBS service. Moreover, the FCC indicated that proponents of 'dual carriage' (retransmission of both the analog and digital feeds of a station) during the transition faced a heavy burden of proof. Various parties have petitioned the FCC to reconsider aspects of its decision, including the finding that must-carry obligations extend to only a single program stream of each digital television licensee. It is, however, also worth recalling that digital television stations may gain MVPD carriage via a retransmission consent agreement with the distributor rather than by asserting must carry rights. A handful of commercial digital television stations have signed digital retransmission consent agreements, and press reports suggest that some noncommercial educational stations are negotiating retransmission consent agreements that would provide for carriage of multiple video streams.

The decision to produce and exhibit high-value digital content is, of course, not under the control of the FCC. However, it is clear that consumer willingness to acquire digital television equipment is determined to a great extent by the availability of content, whether via digital television, cable, DBS, prerecorded media such as DVD, or other sources. In this regard, the content producers have made it clear that copy protection is crucial. The major studios have been negotiating over the past few years with a group of manufacturers over a copy protection technology known as '5C'. Two of the seven major studios have signed agreements

with the 5C companies to deploy their technology. One crucial open issue is the status of free-to-air digital broadcast programming, to which the 5C technology cannot currently be applied. Content providers are very concerned not only about unauthorized copying of broadcast programming but also its Internet redistribution. Until these concerns are addressed, producers are likely to hold back high-value digital content from free-to-air digital television.

Conclusion

The foregoing has been, of necessity, an abbreviated discussion of the digital television transition in the United States. No pretence has been made of describing all of the details and nuances. Here is a capsule summary:

- The US digital television transition is underway and television station licensees are meeting their FCC buildout requirements.
- Digital television equipment sales are low but increasing rapidly on a percentage basis.
- Resolving copy protection issues remains a key if high-value digital content is to be supplied widely.
- Because the bulk of the spectrum management goals of the transition will come from reallocating channels 52–69, bandclearing in this area is crucial for realising the FCC's spectrum management goals.

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2 As used herein, digital television refers to digital terrestrial broadcast television.

3 This presentation is a summary, not an exhaustive description. Detailed source material on US digital television regulation is available at www.fcc.gov/dtv/ and www.fcc.gov/mmb/prd/bot1.html#DTV. The Commission's first periodic review of the digital television transition is contained in Report and Order and Further Notice of Proposed Rulemaking in MM Docket No. 00-39 (FCC 01-24, released 19 January 2001)

