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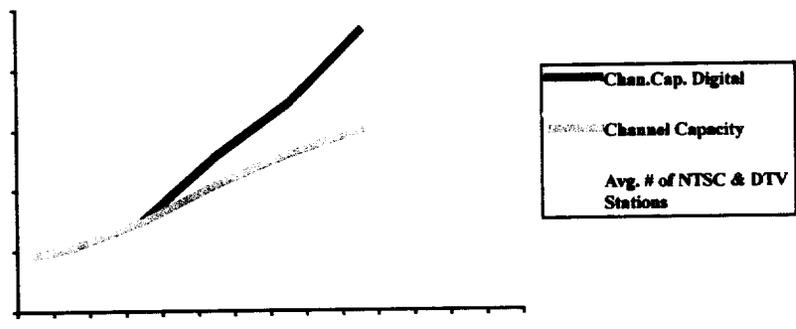
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**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY**

In the Matter of)
)
Carriage of the Transmissions)
of Digital Television)
Broadcast Stations)
)
Amendments to Part 76)
of the Commission's Rules)

CS Docket No. 98-120

**Reply Comments of the
National Association Of Broadcasters**



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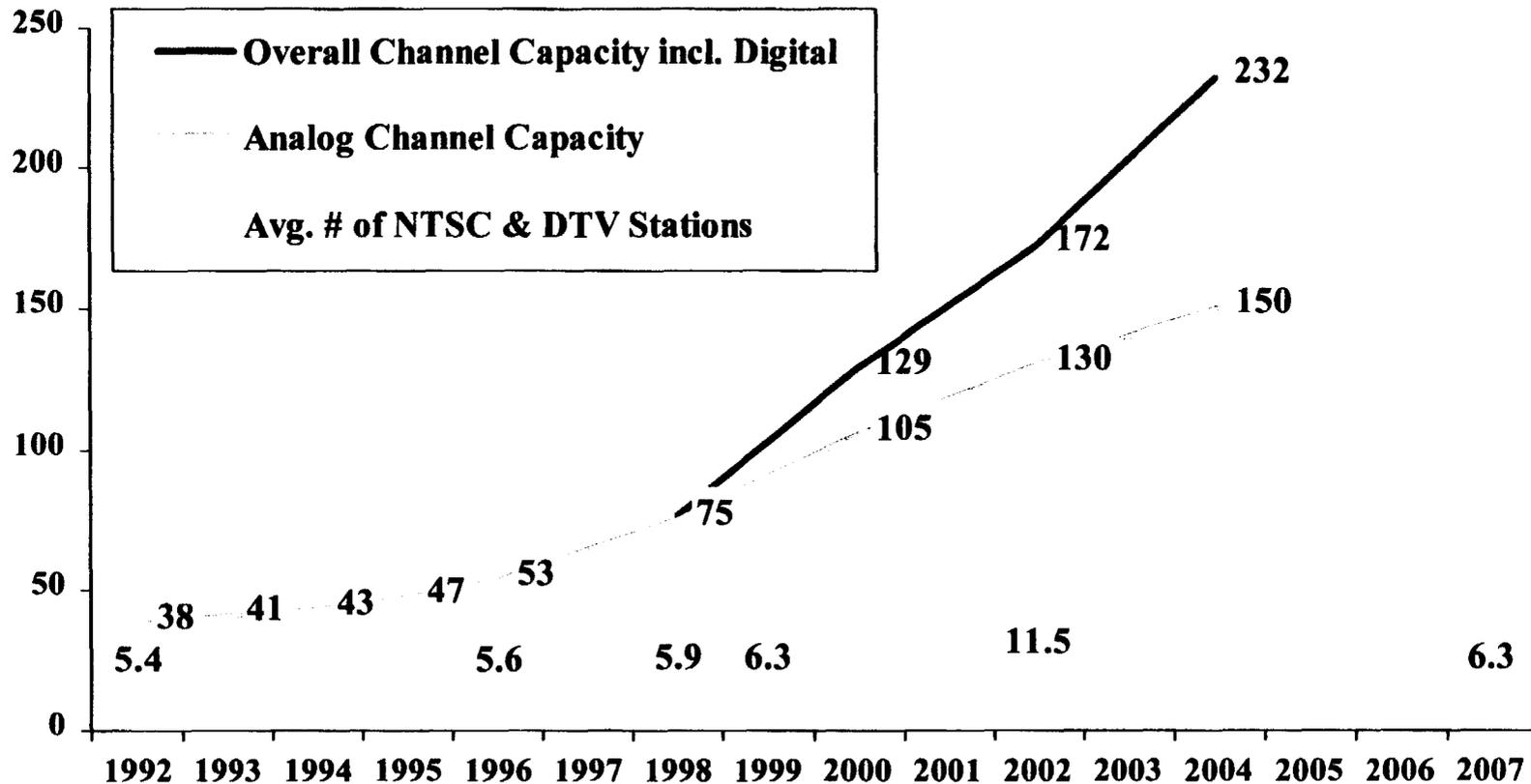
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Cable Growth Chart

Cable Channel Capacity: Average Cable System vs. Number of Local Broadcast Signals, Including DTV



Source: Channel capacity data are from Paul Kagan Associates, Inc. estimates, "Channel Logjam Eases -- Capacity Projections to 2004," *Cable TV Programming*, July 31, 1996. Channel capacity with digital estimates are calculated using double (see "Digital Doubles Channel Capacity," *Pay TV Newsletter*, September 25, 1998, Paul Kagan Associates) the above cited Kagan capacity estimates, adjusted for the percentage of subscribers with digital service, Donaldson, Lufkin & Jenrette, published in *Broadcasting & Cable*, November 10, 1998, Cable TV Operations supplement, p. 15. The average number of NTSC and DTV stations reported is the total number of these stations divided by the number of television markets for each of the years. The number of DTV stations used in the calculations are: 40 DTV stations on air in 1998, 120 by 2000, and 1,200 by 2002. It is assumed that in 2007 the NTSC stations are no longer broadcasting.

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- D Cable Giants Flex Multiplexing Muscle Article**
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SUMMARY

Cable's predictions of harm from the imposition of DTV must carry are inherently unbelievable. They are founded on the fatal flaw that cable capacity will remain stagnant. Cable similarly predicted devastating results from analog must carry. But cable's arguments ring even more hollow today than they did (and were shown to be) before. Cable repeats the discredited claims about losses to C-SPAN. Those claims weren't true before and likewise won't be true with carriage of DTV signals. Cable's predictions of severe programming losses from DTV must carry simply cannot be squared with the real world.

Cable's obfuscation aside, cable capacity is exploding and will continue to explode so that the impact of digital must carry on cable will be *de minimus*. Cable companies' own statements, NCTA's published statistics, multitudinous press accounts, investment analysts' reports and independent research studies and projections all describe the explosion in cable capacity. By year-end 1998, the *average* cable customer is expected to receive 90 channels. Analog channel capacity alone is projected to average 130 channels *per system* by the end of 2002. Moreover, cable is transitioning from analog to digital. NCTA proclaims that, "[a]s cable operators deploy digital technologies . . . the quantity and quality of cable services will increase *exponentially*." A recent study on the effects of digital rebuilds concluded that "going digital" nearly doubles the average system's channel capacity. And Donaldson, Lufkin & Jenrette recently forecast that digital cable will achieve subscriber penetrations growing from 1.7% in 1998 to 32.4% of all subscribers in 2002.

To provide a visual depiction of this explosive growth, NAB calculated a growth rate of per system cable capacity. The resulting Cable Growth Chart, Exhibit B, shows that, while cable capacity has been expanding for years, the growth rate *dramatically* picked up in late 1996, with explosive growth occurring from 1998 onward. As is also readily apparent, digital will, as NCTA proclaims, cause capacity to grow *exponentially*. Therefore, cable can accommodate the gradual addition of DTV signals *without* bumping existing programming.

Thus, the relative “burden” on the average cable system from carriage of both DTV *and* NTSC signals will be *de minimus*. NAB constructed a chart (Exhibit G) showing, for the years since must carry was passed through 2004, local commercial broadcast stations as a percentage of cable carrying capacity. This chart shows that the relative burden of carrying both DTV *and* NTSC signals will be *less* than the burden of carrying only analog signals when must carry came into effect.

Nonetheless, cable submits “studies” attempting to show dire consequences from DTV must carry. These “studies” however are severely flawed. Each has significant problems, aside from the basic flaw common to all: they assume *that there will be no increase in cable capacity up to the time when all commercial DTV signals come on air some four years hence*.

Cable makes much of the difficulties and costs of carriage of DTV signals. But, carriage of digital signals can be no more expensive or difficult than the carriage of broadcasters' analog signals. The incremental cost for equipment to place an 8VSB digital signal on a 6 MHz channel is very small. Installing the equipment

to convert the DTV signal to the cable industry's modulation format is optional. Zenith also points out that a modulation format for cable systems was included in the ATSC DTV Standard, and cable deliberately chose an incompatible approach. *If there are additional costs to the cable industry as a result of taking this step, they are self-imposed.*

And with adequate notice, cable's planned upgrades can accommodate DTV carriage at virtually no incremental cost. The Commission has focused the DTV rollout on the largest TV markets. These markets are also where cable systems are upgrading. Systems with planned upgrades can adjust those plans to accommodate DTV carriage without significant incremental cost.

Cable argues that DTV must carry would be bad public policy because it amounts to an unfair preference for broadcasting over cable. But cable misses the point that Congress determined that broadcast programming *should have* a preferred berth on monopoly cable systems for the benefit of the *entire* viewing public. In complaining that DTV must carry is unfair, cable ignores the public interest in preserving the competitiveness and multiplicity of free television through the DTV transition. Moreover, because of the rapid growth in cable capacity, cable operators will not "unfairly" have to drop cable programming. For cable systems that have not upgraded, there should be exceptions and phase-in rules. New cable programming also will not be deterred, as is evidenced by the burgeoning numbers of new cable networks. Cable subscribers will not be deprived of current or new cable programming.

Importantly, NAB demonstrates that the statutory and constitutional arguments advanced by cable provide no basis for declining to implement mandatory carriage of digital and analog signals during the transition. The carriage scheme that Congress established is straightforward. Recognizing the importance of cable carriage to free over-the-air television and understanding the incentive of cable to use its bottleneck facilities to disadvantage broadcasters, Congress required that cable systems carry “the signals” of broadcast television stations without distinction between digital and analog signals. Recognizing that digital television was coming, but anticipating that the new mode of transmission might require minor adjustments to the basic framework, Congress instructed the FCC to make any changes in the must carry rules “necessary to ensure” carriage of digital signals. Cable mounts a threefold attack on this coherent framework. None of these attacks is sufficient to shake the statutory structure Congress erected in the Cable Act. Cable’s statutory arguments cannot be squared with the statutory text, which unambiguously requires carriage of both analog and digital signals. Their First Amendment arguments miss the mark; must carry during the transition will serve the important interest of preserving the benefits of free over-the-air television. Their Fifth Amendment “takings” arguments are meritless because must carry is not a physical taking under the Supreme Court’s opinion in *Loretto*. The Commission must, therefore, obey the plain text of the statute and require mandatory carriage of both analog and digital signals during the transition.

Comments in this proceeding also clearly demonstrate that the Commission must continue to provide strong oversight to insure interoperability among DTV receivers and cable systems. Also, appropriate policies and technical standards have been established for navigational systems and should be applied to cable carriage of broadcast DTV signals.

Finally, the Commission's must carry rules should provide for priority carriage of one signal of every must carry eligible broadcaster before the second signal of any broadcaster is carried.

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**Reply Comments of the
National Association Of Broadcasters**

Cable company comments inveighing against DTV must carry come down to three main points. One, they predict devastating consequences to cable programs, programmers and cable subscribers from the imposition of DTV must carry on channel-locked cable capacity. Two, they complain that this staggering impact would be brought about by an unfair and unnecessary preference for broadcasters and broadcast programming over cable programmers and over cable operators' choices. And, three, they argue that any required preference for digital broadcast signals is unauthorized and unconstitutional.

NAB below responds in turn to those three sets of arguments. We then comment on continuing concerns over compatibility and interoperability

issues that are evidenced in several sets of initial comments. Lastly we respond to a number of other issues raised in the comments.

I. Cable Capacity Is Expanding At an Exponential Rate and, Will Accommodate the Gradual Addition of DTV Signals Without the Losses of Cable Programming or Other Hardships that Cable Predicts.

“This digital capability . . . effectively obliterat[es] the must-carry threat.”¹

Cable commenters predict devastating consequences to cable operators, cable programmers and cable consumers from the imposition of DTV must carry. Cable’s predictions of harm, however, are inherently unbelievable. They are all founded on the fundamental and fatal flaw that cable capacity is and will remain stagnant, stuck at some point in the recent past.² As this flawed footing is revealed and removed, cable’s house-of-cards arguments tumble to the ground one after another. They thus are reduced to what their earlier similar arguments against analog must carry were shown to be -- much ado about nothing. Cable’s obfuscation aside, cable capacity is

¹ Jim Barthold, *Bandwidth Debate: Just How Much Will Be Enough* (last modified Aug. 10, 1998) <<http://www.mediacentral.com/Magazines/CableWorld/News98/1998081003.html>> comments made by Jerry Wolfer, Senior Vice President, Engineering & Technology, MediaOne, appended here as Exhibit A.

² See generally Comments of A&E Television Networks (hereinafter “A&E Comments”) CS Docket 98-120, Oct. 13, 1998 (Appendix II measuring number of channels lost in top ten DMAs if digital must carry is adopted based on channel capacity as of 1998); Comments of C-SPAN Networks (hereinafter “C-SPAN Comments”), CS Docket 98-120, Oct. 13, 1998 (probability model discussed in Exhibit B does not account for increased channel capacity of cable operators); Comments of National Cable Television Association (hereinafter “NCTA Comments”) CS Docket 98-120, Oct. 13, 1998 (programming loss discussion is based on current channel capacity).

in fact exploding and will continue to explode to such an extent that the full impact of digital must carry on cable (in 2002) will be, in most places and on most all cable subscribers, if anything, *de minimus*.³

A. Cable's Claims of Capacity Shortfalls, Program Losses and Hardships Are, as Before, Greatly Exaggerated.

Cable commenters argue that the imposition of digital must carry (in addition to analog must carry) would wreak massive harm on cable operators, programmers and consumers.⁴ These arguments are familiar. Cable similarly predicted devastating results from analog must carry. But cable's arguments ring even more hollow today than they did (and were shown to be) before. The history of the cable industry in fact has been one of ever-expanding capacity. Cable's near-term future, by its own account, is one of explosive growth in capacity.

1. Cable Claimed Before that "The Sky Is Falling;" It Didn't.

As the Supreme Court said with regard to cable's claims regarding analog must carry, "[cable operators and cable programmers] say the burden of must-carry is great, but the evidence adduced on remand indicates the actual effects are modest."⁵ Examples abound of cable operators' and cable

³ For small cable systems and systems that have not been upgraded where substantial additional carriage obligations would result in significant losses of existing programming, the Commission should adopt reasonable phase-in standards and/or exceptions to the digital carriage rules.

⁴ *E.g.*, A&E Comments at 41.

⁵ *Turner Broad. Sys., Inc. v. FCC*, (hereinafter "Turner II") 117 S.Ct. 1174, 1198 (1997). The Court continued: "Significant evidence indicates the vast

programmers' alleging extravagant harms from analog must carry -- which turned out to be far less than claimed, or even non-existent.⁶

For example, despite cable's claims that significant percentages of cable capacity were required by analog must carry,⁷ the FCC told the Supreme Court in *Turner II* that "just over 7% of the industry's capacity" was devoted to carriage of must-carry stations, including public stations.⁸ The FCC also told the *Turner II* Court that "[cable] appellants' claim that those cable systems were or are full [is] dubious," noting that "[o]f the systems reporting themselves to appellants as channel-locked in December 1994 for which data were available, nearly 40% added new cable programming within six months."⁹

Contracting assertions of substantial losses to cable programmers, the FCC told the Court that less than six percent of all cable systems nationwide "had to drop even a single cable program service to accommodate broadcast stations added because of must-carry. . . . Thus, even among the few systems that dropped any programming services at all, the average number of cable

majority of cable operators have not been affected in a significant manner by must-carry." *Id.*

⁶ See, e.g., Appendix D to the National Association of Broadcasters Comments, CS Docket 98-120, Oct. 13, 1998 at 8-10 (hereinafter "SPR Study"); Comments of the Association of Local Television Stations (hereinafter "ALTV Comments"), CS Docket 98-120, Oct. 13, 1998, at 53, 55, 56.

⁷ See, e.g., Time Warner's Statement of Material Facts as to Which There is No Genuine Issue at ¶ 28 (Feb. 2, 1993) (J. A. in *Turner I*, No. 93-44, at 203).

⁸ Brief for the Federal Appellees at 36 n.28, *Turner Broadcasting System, Inc. v. FCC*, 117 S. Ct. 1174 (1997) (No. 95-992).

services dropped was less than 1.”¹⁰ The FCC continued that “[o]f the 27 cable networks involved in this litigation, 17 presented no evidence of any drops at all. Among the rest, the average number of drops was less than six nationwide. No cable network provided evidence of more than 12 drops nationwide.”¹¹

The Supreme Court concluded that “[c]able operators nationwide carry 99.8 percent of the programming they carried before enactment of must-carry.”¹² Thus, as a *Turner II* expert witness and author of the SPR Study contained in NAB’s initial comments remarked, “there is an unavoidable sense of *déjà vu* in the arguments being marshaled by the cable industry (system owners and certain cable program services) in opposition to digital must-carry rules.”¹³

2. Cable’s Allegations and Predictions of Harm Here Are Based on the Cable World of Yesterday, Not the One That “Must Carry” DTV Signals.

Cable commenters paint a picture of predominantly channel-locked cable systems that cannot carry broadcasters’ digital signals without causing severe harm to cable programmers and subscribers by dropping significant

⁹ *Id.* at 38 and n.34.

¹⁰ *Id.* at 36-37.

¹¹ *Id.* at 37 n.30.

¹² *Turner II*, 117 S. Ct. at 1198. The Supreme Court there cited nationwide averages as appropriate measures of the burden to cable, despite cable programmers claims that such measures were “useless figure[s]” arrived at by “a series of irrelevant calculations.” Brief for Turner Broadcasting System, Inc. at 51, *Turner Broadcasting System, Inc. v. FCC*, 117 S. Ct. 1174 (1997) (No. 95-992).

numbers of popular cable networks and services. They repeat the tired and discredited claims about losses to C-SPAN, the admired cable industry public service programmer. The problem is that those claims weren't true before and likewise won't be true with carriage of DTV signals during the transition. Cable's predictions of severe programming losses from DTV must carry simply cannot be squared with a real world picture of the cable industry.

a. Cable Describes its Capacity as Limited, Full and Stagnant.

As a glimpse at the Cable Growth Chart, appended to these comments as Exhibit B, shows, the history of the cable industry has been one of expanding capacity. The FCC told the Supreme Court in *Turner II* that "because of past and future increases in channel capacity, must-carry's already marginal impact on cable systems and programmers has waned and will continue to do so."¹⁴ And as NAB demonstrated in initial comments,¹⁵ and the Cable Growth Chart depicts, cable capacity is expanding dramatically.

Yet cable industry commenters describe cable capacity as limited and channel-locked and predict dire consequences to numerous cable program services forced off cable systems to make room for DTV signals.¹⁶ NCTA's

¹³ SPR Study at 8.

¹⁴ Brief for the Federal Appellees at 37, *Turner Broadcasting System, Inc. v. FCC*, 117 S. Ct. 1174 (1997) (No. 95-992).

¹⁵ Comments of the National Association of Broadcasters (hereinafter "NAB Comments"), CS Docket 98-120, Oct. 13, 1998 at 24-32 and Appendix D.

¹⁶ See NCTA Comments at 40-43, Comments of Cable Telecommunications Association (hereinafter "CATA Comments"), CS Docket 98-120, Oct. 13, 1998

description of this situation here so closely resembles what the cable programmers told the Supreme Court in *Turner II* that one would think the cable world hadn't changed one iota.¹⁷

But, as NCTA neglects to mention, DTV signals will come on-air only gradually over the next four years, during which time cable capacity is being expanded and digitized dramatically, as NCTA's own website proclaims.¹⁸

NCTA in its comments purports to describe "the real world effect" of digital must carry, but places the coming DTV signals on an old backdrop of yesterday's cable systems.¹⁹ It anecdotally describes a cable system in New

at 22; Comments of Time Warner Cable (hereinafter "Time Warner Comments" or "TWC Comments"), CS Docket 98-120, Oct. 13, 1998 at 8-9; Comments of Tele-Communications, Inc. (hereinafter "TCI Comments"), CS Docket 98-120, Oct. 13, 1998 at 21-22.

¹⁷ NCTA here recited: "Today over 80 percent of all cable systems have capacity of less than 54 channels and 17 percent offer less than 30 channels. Approximately two-thirds of subscribers are served by cable systems that currently have no excess channel capacity." NCTA Comments at 41 (footnotes omitted). (It should be noted that this same 17 percent of systems only served one percent of subscribers.) The cable programmers told the Supreme Court: "[A]s the evidence confirms, channel capacity in the cable industry has been, and will continue to be, extremely limited. The average channel capacity of U.S. cable systems is approximately 43 channels, and over 86 percent of cable systems have a capacity of less than 54 channels. . . . [and] fully two-thirds of [cable subscribers] . . . were served by cable systems with no available channel capacity." Brief for Turner Broadcasting System, Inc. at 43, *Turner Broadcasting Sys. Inc. v. FCC*, 117 S. Ct. 1174 (1997) (No. 95-992). See the FCC's opinion of these latter assertions, *id.* at text accompanying n. 8.

¹⁸ *Cable: Building to Deliver the Future* (as of April 1998) http://www.ncta.com/overview98_1.html; see also, discussion *infra* at I.B.

¹⁹ NCTA uses the standard database for cable capacity (which NAB itself used in its comments, see SPR Study at n.29) but fails to mention that 49% of that data is from 1995 or before. NCTA Comments at n.92. It also neglects to

York City and the effect “full” DTV must-carry would have on it, as though that cable system were not being upgraded, digitized or even capable of re-arranging the capacity of its basic tier, and as though *full* DTV must carry could take effect yesterday (not four years hence).²⁰

NCTA does acknowledge that “some larger systems that have upgraded their facilities may currently have new, unused channel capacity,”²¹ but says that cable simply shouldn’t have to use new, unassigned capacity for digital must carry.

NCTA’s depiction of a 750 MHz cable system,²² however, demonstrates that typically there will be left over “approximately 80 MHz (12 channels) [sic] for use in deploying a wide range of additional services in the future” *after* accommodating a digital video tier *and* cable modem and telephony services!²³ Thus NCTA itself shows that cable programming would *not* have to be bumped from upgraded cable systems.

But NCTA points mostly to the past, arguing that “channel locked” systems “would be forced initially to drop four existing cable networks to accommodate the four network affiliate stations that will be on-air in the top

mention the extraordinary upgrading and digitization that is touted on its own web site, and discussed *infra* at Section I.B.

²⁰ NCTA Comments at 41.

²¹ *Id.* at 42.

²² See Exhibit A for discussion of 750 MHz as the upgrade of choice, at least for the larger MSOs.

²³ NTCA Comments at 42.

ten markets between last November and May of 1999 and in the top 30 markets by November 1999.”²⁴

But its arguments in this regard are overbroad. One, NCTA seems to speak of channel-locked systems as the norm, ignoring those “larger systems that have upgraded their facilities,” as well as cable systems across the country that are upgrading today.²⁵ Two, it implies that a must carry rule would be adopted and become effective overnight. Three, it ignores its own argument and that of cable MSOs in this proceeding²⁶ that retransmission consent negotiations can arrive at DTV carriage arrangements (and thus

²⁴ NCTA Comments at 43.

²⁵ See, e.g., *Cox Planning to Offer More Than Cable TV*, Las Vegas Review-Journal, Nov. 5, 1998 (in metropolitan Las Vegas, Cox Cable is already delivering some Internet access over its fiber-optic network and expecting to offer “hundreds of new television channels” and telephone services); *Insight to Upgrade Cable to High End Technology*, Business First of Columbus, Oct. 5, 1998 (in Columbus, Ohio, where Insight Communications is building an 870 MHz interactive digital system, with some of its 90,000 customers seeing the upgrade first quarter of 1999, and most of the equipment in place by the end of 1999, and where Time Warner has spent \$155 million since 1989 to upgrade its 191,000 customers to the “current standard of 750 MHz,”), *TCI set for \$5 Million Upgrade*, Rapid City Journal, Oct. 22, 1998 (in Rapid City, South Dakota where TCI is installing a new “fiber-based backbone that will turn its cable system into a multimedia provider of cable [as many as 120 channels], high-speed Internet access [available as early as next summer] and, later, telephone service,” with the upgrade finished next fall). See also, *Cable: Building to Deliver the Future*, (as of April 1998) <http://www.ncta.com/overview98_1.html>.

²⁶ NCTA Comments at 39. See also Comments of MediaOne (hereinafter “MediaOne Comments”), CS Docket 98-120, Oct. 13, 1998 at 7; Time Warner Comments at 10-11; TCI Comments at 12; Comments of Cablevision Systems Corporation (hereinafter “Cablevision Comments”), CS Docket 98-120, Oct. 13, 1998 at 14.

must anticipate capacity being available for these voluntary carriage arrangements).

NCTA in fact argues that the “pattern [of 90 percent of network affiliates choosing retransmission consent instead of must carry] is likely to occur during the early implementation of carriage of digital broadcast signals, since network affiliates are the first stations required to begin transmitting in digital between now and 2002.”²⁷ Is it NCTA’s argument that retransmission consent carriage for the four affiliates would *not* displace four cable networks, but that must carry of the same would, or is it that cable *would* bump cable networks for retransmission consent carriage of the affiliates’ DTV signals?

b. Cable Operators’ Claims Blink Reality.

Individual cable MSOs, aside from Time Warner, rely on unfounded argument and assertion rather than evidence as to capacity to defend against digital must carry.²⁸ It is in fact striking how bereft of data on capacity these MSOs’ comments are. Other than an anecdotal reference to the number of local broadcast signals carried here or there,²⁹ the closest these commenters

²⁷ NCTA Comments at 39.

²⁸ Comments of TCI at 19-23; MediaOne Comments at 23-26; *see generally*, Cablevision Comments; Comments of Adelphia Communications Corporation, Arizona Cable Telecommunications Association, Insight Communications Company, L.P., Suburban Cable TV Co. Inc., Mediacom, LLC, Prime Communications-Potomac, LLC, Tele-Media Corporation (hereinafter “Adelphia Comments”), CS Docket 98-120, Oct. 13, 1998.

²⁹ Comments of the International Channel, TV 5, TV Asia, RAI International, The Filipino Channel and Arab Radio and TV (hereinafter “International

come to presenting evidence on capacity for DTV carriage is TCI's assertion that "two-thirds of all cable subscribers today are served by systems that are 'channel-locked.'"³⁰ But that comment too is based on "old" data and TCI makes no attempt to estimate how much "new" capacity will be deployed over the time DTV will be coming on air.

Time Warner Cable, the only cable MSO that attempts to depict (but not "predict") capacity, presents the results of a recent channel capacity survey.³¹ That survey purports to show that TWC's systems "continue to lack appreciable numbers of vacant channels" and that "TWC on average *might* be forced to drop 10 or more non-broadcast signals per system."³² As we show, however, that conclusion blinks the reality of TWC's own upgrades.

First, the TWC survey is not a "representative sample of TWC cable systems" as TWC says it is.³³ TWC's survey *did not* randomly select systems for inclusion in its survey.³⁴ Thus TWC's survey is not at all representative of "TWC on average."

Channel Comments"), CS Docket 98-120, Oct. 13, 1998 at 14; Comments of The Weather Channel (hereinafter "Weather Channel Comments"), CS Docket 98-120, Oct. 13, 1998 at 16.

³⁰ TCI Comments at 19.

³¹ Time Warner Comments at 9 and Exhibit E.

³² *Id.* at 9 (emphasis added). Time Warner's calculations double the total number of broadcasters carried on its surveyed systems, not just the must-carry eligible broadcasters and thus no doubt over-count the number of channels that would be devoted to must-carry broadcasters.

³³ *Id.* at Exhibit E, ¶ 2.

³⁴ *Id.*, ¶ 3.

Second, the TWC systems surveyed were, by design, the largest systems of its largest major metropolitan divisions and the largest systems of one non-cluster division. The survey had a clear bias towards large market systems. It is of course the largest markets with the greatest number of broadcast signals which, *if DTV signals were added at the time of the survey to those systems*, expectedly would produce high numbers of cable services “dropped.” But that would be impossible. DTV is contemporary with the fiber optic and digital cable world of 2000, not the old analog world of limited capacity.

Third, and most relevant, the carrying capacity of these TWC systems is being increasing dramatically now and over the next two years, well before “full” DTV must carry would be added. Time Warner has announced that by 2000 all TWC systems will be upgraded to 750 MHz facilities (110 channels as opposed to the 80 channels reported for the systems in TWC’s survey).³⁵ TWC also does not mention the current digitization of cable systems, including Time Warner’s, and the “doubling” of carrying capacity digitization can afford.³⁶

³⁵ See Hearings before the Senate Commerce Committee, 105th Cong., 2d Sess. (July 8, 1998)(Statement of Joseph J. Collins, Time Warner Cable). In fact, Time Warner recently indicated that 70% of its subscribers will have upgraded systems by the end of this year. See David B. Wilkerson, *CBS, Time Warner set key digital pact* (last updated December 8, 1998) http://cbs.marketwatch.com/archive/19981208/news/current/cbs_twx.htx. See also Exhibit A and discussion of capacity explosion, *infra* Section I.B.

³⁶ See discussion of increased capacity with digital cable, *infra* at Section I.B. (While digital compression of 12 SDTV programs per 6MHz channel is

Thus Time Warner in overlays DTV must carry on *static and stagnant* cable capacity. TWC's survey cannot be considered a valid prediction of any impact DTV must carry might have on TWC systems.

MediaOne, a leader in upgrading cable systems, takes a different but still unavailing tack. It asserts that the upgraded and expanded capacity of cable systems, even "reserved" and unused capacity, provides no basis for DTV must carry. It argues that new video and non-video services (including "multiplexed versions of existing premium services" and "multiple pay-per-view") take up a substantial portion of the expanded capacity that results from system upgrades and thus DTV must carry "would deprive consumers of innovative and diverse video and non-video services they highly desire."³⁷ And, it argues, even unused new capacity "reserved" for future services was invested in with the expectation that cable operators would have "the flexibility to program this new capacity with the services that are most highly demanded by the broadest group of their customers."³⁸

utilized by some cable providers for cable programs, the 256 QAM digital cable bit rate enables *two* full-format DTV broadcast signals to be carried in one 6 MHz cable channel, "effectively obliterating the must-carry threat," Exhibit A. Thus arguments advanced by cable parties such as "[f]or every cable channel required by the government to be dedicated to a broadcast station's digital feed, one less channel is available for carriage of a cable programming network, which also may be offering a high-definition or digital television service desired by cable customers," TCI Comments at 22, ignore the increased capacity that digital affords.

³⁷ MediaOne comments at 24.

³⁸ *Id.* (emphasis omitted) MediaOne's suggestion, at n. 35, that DTV must carry would deter cable operators from upgrading their systems is countered by the SPR Study in NAB's initial comments which describes the dramatic,

But MediaOne's arguments cannot win this case. One, MediaOne does no math in support of its claims. But NCTA does and its "typical" 750 MHz system showed substantial excess capacity *after* Internet access, telephony and new digital video channels were deployed.³⁹ In fact, top cable engineers, including MediaOne's, have said that "750 [MHz] is plenty."⁴⁰ Two, MediaOne ignores the "doubling up" capability afforded by digital compression, which "effectively obliterates the threat of must-carry."⁴¹ Three, it could always be said that, no matter how much carrying capacity was available, "required" services deny the cable operator the ability to add "other" services.⁴²

explosive expansion of cable systems *in order to* provide new video and non-video services and specifically to win the race with the telephone companies for Internet access and advanced telephony services. Given the projections shown there for cable expansion to 200 to 500 channels, it is dubious that the gradual and *de minimus* addition of DTV signals would deter or delay cable upgrades.

³⁹ See discussion at Section I.A.2.a. See also Exhibit A where the large MSOs' top engineers, including MediaOne's, discuss the flexibility afforded with upgrades and digital compression: "every engineer feels that 750 [MHz] is plenty." *Id.*

⁴⁰ *Id.*

⁴¹ See *id.* for comments of MediaOne's Jerry Wolfer, to the effect that digital "doubling up" capability in a 750 MHz system "effectively obliterat[es] the must-carry threat."

⁴² NAB Comments at Appendix A. It is worth noting, in regard to MediaOne's assertion that must carry interferes with its programming new capacity "with the services that are most highly demanded by the broadcast group of their customers," MediaOne Comments at 24, that the *Turner II* Court noted that "the broadcasters added by must-carry had ratings greater than or equal to the cable programs they replaced." *Turner II* at 1194.

c. Claims of Harm to Cable Programmers Are, as Before, Greatly Over-Blown.

Despite the Supreme Court's noting that cable operators and cable programmers "say the burden of must-carry is great, but the evidence . . . indicates the actual effects are modest,"⁴³ both cable operators and cable programmers are at it again. NCTA, several MSOs and many cable programmers claim that, as a result of digital must-carry, cable networks will be dropped, new cable networks will be stifled, minority and women-oriented cable services will suffer and cable niche programming will have no outlet.⁴⁴

NCTA in fact continues to showcase C-SPAN and repeat refuted evidence as to C-SPAN and C-SPAN 2's being dropped or cut back "in millions of households," albeit now (after public chiding of C-SPAN for misstating the actual record⁴⁵) adding easy-to-miss caveats of the harm occurring "under must carry *and other provisions of the 1992 Cable Act*" and

⁴³ *Turner II* at 1198.

⁴⁴ See, e.g., NCTA Comments at 45-46; Time Warner Comments at 8; MediaOne Comments at 21; TCI Comments at 16-17; Cablevision Comments at 12; Comments of C-SPAN Networks (hereinafter "C-SPAN Comments"), CS Docket 98-120, Oct. 13, 1998 at 6; A&E Comments at 24 and Appendix II; Comments of Home & Garden Television and Television Food Network (hereinafter "HGTV Comments"), CS Docket 98-120, Oct. 13, 1998 at 17-18; Comments of Lifetime Entertainment Services (hereinafter "Lifetime Comments"), CS Docket 98-120, Oct. 13, 1998 at 11, 14; Comments of BET Holdings II, Inc. (hereinafter "BET Comments"), CS Docket 98-120, Oct. 13, 1998 at 3, 18, 21.

⁴⁵ Letter from Eddie Fritts, President & CEO, National Association of Broadcasters to Brian P. Lamb, Chairman & CEO, C-SPAN (May 29, 1998) (appended here as Exhibit C).

“by government-imposed preferences for broadcasters *and other programmers.*”⁴⁶

The intended gist is the same. It is that “all this” happened because of analog must carry and “all this would happen”⁴⁷ again because of digital must carry. The problem is that “all this” couldn’t be proved before,⁴⁸ and it sounds an awful lot like Chicken Little claiming “the sky is falling” to suggest that “all this” is happening again – when cable capacity is exploding and cable programmers (many owned by MSOs) are multiplexing themselves silly to grab available “shelf space.”⁴⁹

C-SPAN’s comments also scale back by half its claimed losses from must carry and retransmission consent from what it asserted in its letter to Congress.⁵⁰ Nonetheless, C-SPAN’s numbers continue not to add up. One, there is no evidentiary basis given for the numbers now used or for attributing those numbers (of “lost” and “unrestored” potential viewers) to must carry or retransmission consent. Two, C-SPAN’s list of unrecovered markets/ potential subscribers includes: (1) three systems that in fact do

⁴⁶ NCTA Comments at 44 (emphasis added).

⁴⁷ *Id.*

⁴⁸ See Exhibit C; see also *Turner II* at 1198; Brief for Federal Appellees, *Turner II*, 117 S. Ct. 1174 (1997)(No. 95-992); and discussion *supra* at Section I.A.2.b.

⁴⁹ See “Emory Thomas, Jr., *Cable giants flex multiplexing muscle* (last seen October 27, 1998) <http://www.msnbc.com/news/208997.asp>, appended here as Exhibit D.

⁵⁰ C-SPAN Comments at n. 13. See Letter from Brian P. Lamb, Chairman & CEO, C-SPAN to Congress (May 22, 1998) and Exhibit C.

carry C-SPAN and C-SPAN 2,⁵¹ (2) nine systems that devote one channel to C-SPAN but have C-SPAN 2 share a channel with another service,⁵² and (3) four systems that do not carry a C-SPAN network but *could*, as they *voluntarily* carry more must-carry eligible broadcast stations than they “must” with the one-third cap.⁵³ Three, for these and all the listed communities, cable systems are making programming choices for a variety of reasons and one *cannot* say that, *but for* must carry, C-SPAN would be carried.⁵⁴ The same point is the obvious response to the many cable programmers that assert in comments here that analog must carry hurt their carriage opportunities.⁵⁵

⁵¹ These systems are in Wauwatosa, WI, Chesterfield County, VA and Waynesboro, PA.

⁵² Bellevue, NE, Chicago, IL, Chicago Suburbs, IL, Union City, CA, S. Pasadena, CA, Naperville, IL, Philadelphia, PA, Des Moines, IA, Highland Park, IL.

⁵³ These systems are in Rohnert Park, CA, Alhambra, CA, Union City, CA and South Pasadena, CA.

⁵⁴ In the *Turner* litigation deposition, C-SPAN’s witness could identify only *eight* cable systems (out of more than 11,000) where it alleged that C-SPAN had been dropped because of must carry, and eight more where C-SPAN 2 had allegedly been dropped. As the deposition revealed, for most – if not all – of those systems, C-SPAN had no evidence that must-carry was the cause of the drop. In one of the eight systems where it was claimed that C-SPAN 2 had been dropped, the evidence showed that the reason claimed by the cable system was “that all viewership surveys consistently demonstrate that C-SPAN 2 is the lowest viewed service on their line-up.” Memorandum of the National Association of Broadcasters and the Association of Independent Television Stations, Inc. in Support of Motion for Summary Judgment at Appendix at 16, *Turner Broadcasting v. FCC*, 910 F.Supp. 734 (D.D.C. 1995).

⁵⁵ See HGTV Comments; Lifetime Comments; BET Comments; A&E Comments; Comments of Ovation, Inc. (hereinafter “Ovation Comments”), CS Docket 98-120, Oct. 13, 1998; Weather Channel Comments; Comments of America’s Health Network, Great American Country, Knowledge TV,

What can be said about C-SPAN in particular⁵⁶ and about cable networks in general is that, since must carry, they have continued to gain carriage on hundreds of systems serving millions of subscribers. Must carry has not deterred dramatic gains in carriage for cable programmers, including C-SPAN. As the FCC told the *Turner II* Court, “because of past and future increases in channel capacity, must-carry’s already marginal impact on cable systems and programmers has waned and will continue to do so.”⁵⁷ Even a brief glimpse at the Cable Growth Chart, appended here as Exhibit B, shows that the rate of growth in cable capacity is rapidly increasing over that of the 1992-1996 period the FCC described to the Supreme Court.

Outdoor Life Network, Speedvision Network and The Golf Channel (hereinafter “America’s Health Comments”), CS Docket 98-120, Oct. 13, 1998; Comments of ZDTV (hereinafter “ZDTV Comments”), CS Docket 98-120, Oct. 13, 1998; and International Channel Comments.

⁵⁶ The future carriage prospects for C-SPAN and C-SPAN 2 are indeed secure, for another important reason in addition to expanding cable capacity. Over half of the cable systems identified in C-SPAN’s Comments, at Exhibit A, as still not having restored carriage to their networks are TCI systems. TCI, the largest cable operator, providing cable service to over 25% of total cable subscribers according to the NCTA web site (www.ncta.com), pledged in 1997 to carry C-SPAN and C-SPAN 2 on *all* of its cable systems for the next fifteen years. *See TCI Signs Deal To Carry C-SPAN*, Pittsburgh Post-Gazette, May 5, 1997, at D-6. As TCI President Leo Hindrey stated at the time of the TCI/C-SPAN agreement, “this should erase, once and for all, any doubts about the future of this great network.” *Big Cable Company Cuts Deal to Carry C-SPAN*, Roll Call, May 5, 1997.

⁵⁷ Brief for Federal Appellees, *Turner II*, 117 S. Ct. 1174 (1997) (No. 95-992) at n.31 and accompanying text. The FCC continued that (as of June 1996) “[t]otal carriage of virtually all the appellants’ networks has increased since 1992 by hundreds of systems, enlarging their subscriber bases by millions of cable households.” *Id.*

NCTA proffers, as some evidence of putative “harm” to cable programmers, the fact that “increased channel capacity continues to be outpaced by an increased number of national cable program networks.”⁵⁸ But as the FCC told the Supreme Court about earlier similar cable claims, “the excess of demand over supply is not the result of must-carry; since 1992, the cable industry’s capacity has increased by 15 times the number of added must-carry stations.”⁵⁹ Today, cable capacity is growing at a *much* steeper rate than it was growing then.⁶⁰

And, as the FCC also told the Supreme Court, the significant growth in the number of cable networks since must-carry was enacted “reflects the judgment of the market that available capacity is sufficiently plentiful to launch commercially successful new networks, notwithstanding the must-carry rules.”⁶¹ Similarly today, the growth in the number of cable networks is the logical result of the anticipated explosion of cable capacity and deployment of digital capabilities, *notwithstanding* digital must carry obligations.⁶² And, notwithstanding digital must carry obligations, cable networks and their offshoots will continue to respond to and compete within

⁵⁸ NCTA Comments at 47.

⁵⁹ Brief for Federal Appellees, *Turner II*, 117 S. Ct. 1174 (1997)(No. 95-992) at 38.

⁶⁰ See discussion *infra* at I.B. Brief for Appellees National Association of Broadcasters and Association of Local Television Stations, *Turner II*, 117 S. Ct. 1174 (1997)(No. 95-992) at 45.

⁶¹ Brief for Federal Appellees, *Turner II*, 117 S. Ct. 1174 (1997)(No. 95-992) at 39.

the new cable marketplace, replete with abundant channel capacity.⁶³ In fact, the number of video channels available will be largely within the discretion of cable operators, as they re-allocate their capacity among various service options and tiers of service.⁶⁴

To update the picture C-SPAN presented with its letter to Congress of a “typical” 59 channel cable system asking the rhetorical question of “which 10 channels would you take away from your customers,” NAB has reproduced C-SPAN’s “Anytown, USA’ channel lineup,⁶⁵ and updated it for “typical” cable capacity as of December 1998 and again as of 2002. It is included with these comments as Exhibit E. As is readily seen, with “typical” December 1998 cable system capacity of 90 channels (as estimated by NCTA on its web site) and with five cable channels devoted to five DTV signals (worst case for 1998), there still is room for *26 additional cable networks!* That could include, for example, *all* the cable programmers filing comments in this proceeding, six additional premium channels, eight additional pay-per-view channels, and many more “new” cable networks.

⁶² See Exhibit D. See also Exhibit A for the expectation by cable of digital must carry.

⁶³ C-SPAN itself apparently is confident enough of ample cable capacity, despite the specter of DTV must carry, to announce plans for *three* multiplexed versions of itself, one of which, C-SPAN 3, already has some carriage as C-SPAN Extra. See *Nick Unveils Additional Nets for 10-Pack*, Multichannel News, May 11, 1998.

⁶⁴ See Exhibit A; See also SPR Study at 5-7.

⁶⁵ NAB Comments at Appendix F (C-SPAN’s “typical” lineup).

The availability of channels becomes all the more abundant in 2002 when all commercial DTV signals are scheduled to be on air. For 2002 we have used a “typical” channel capacity of 172 channels, derived from our Cable Growth Chart, *supra* (based on published estimates from independent sources), and added another five DTV signals (for carriage of a total of ten DTV signals). There will still be channel capacity for *another 77 cable networks, on top of the full complement of DTV signals!* This typical channel line-up of 2002 could include all the cable programs, premium channels and pay-per-view channels (PPVs) carried in this “typical” line-up for 1998 plus *all seven of the announced multiplexed and time shifted versions of the commenting cable programmers' premium services, all of the announced multiplexed versions of the commenting cable programmers and scores of future cable networks and PPVs!* All this, and keeping the cable gate to the audience open for free DTV too!

d. “Studies” by C-SPAN and A&E Are Predictive of Nothing.

C-SPAN presents with its comments an “independent probability model” which it says “projects that a second channel given to broadcasters means the C-SPAN networks will reach millions fewer Americans.”⁶⁶ That study, however, is useless and predictive of nothing.

⁶⁶ C-SPAN Comments at 6, citing to *A Probability Model of the Effects of Digital Must Carry Rules on the C-SPAN Networks*, Mercurio, Matthew G., Economists Incorporated, Washington, D.C., Oct. 8, 1998 (hereinafter “EI Report”).

One, in “projecting” the effect of adding DTV signals (which come on air only gradually over the next four years, with the bulk of stations not beginning their DTV operations until the end of 2002), the EI Report “added” the DTV signals to dated, “un-projected” cable capacity. Thus, this study *assumes that there has been no increase in cable capacity (from the levels reported in the database, 49% of which is more than three years old⁶⁷) and that there will be no increase in cable capacity up to the time when all commercial DTV signals are on air some four years hence.*

Two, the EI Report similarly ignores the rapid deployment of digital cable technology, which can afford a two-for-one capacity efficiency, enabling carriage of two DTV signals in one cable channel.⁶⁸ Thus the EI Report in another way grossly underestimates the cable capacity that will be available at the time the DTV signals are all on-air.

Three (and a third fatal flaw), the EI Report uses the wrong variable to estimate the impact of carriage of broadcasters’ digital signals. The report uses what is referred to as the “effective channel capacity, which is defined as total channel capacity minus the number of off-air broadcast signals.”⁶⁹ But in doing so the report subtracted more than just must carry signals in estimating the “effective channel capacity” that the cable system has to work with after “un-droppable” (i.e., must carry) signals are accounted for. *Many*

⁶⁷ SPR Study at n.29, *see also* discussion *supra* at Section I.A.2.a.

⁶⁸ *See* discussion in Section I.B. *infra*. *See also* Exhibit A.

⁶⁹ EI Report at 6 (emphasis omitted).

cable systems however, carry off-air (out of market) broadcast signals that are *not* must carry eligible and thus *do not reduce* the “effective channel capacity” variable used in the EI Report. Thus, the EI Report is flawed in three basic, critical ways. This report cannot be used to predict anything.

Similarly, A&E Networks presents an impossible picture (by means of an, indeed very, “informal analysis”⁷⁰) of the impact of DTV must carry in the top ten markets where DTV will first debut. A&E’s depiction of “the disruption to current cable service” in those markets is a fantasy, not a factual depiction of what might have happened if the facts and the law were different from what they are. As such, it too is worthless and predictive of nothing.

One, A&E says its “informal analysis” assesses the impact of DTV must carry in the top ten markets, but it counts DTV carriage of *every* home market broadcaster, not just those eligible and *not just up to the one-third cap*⁷¹ in order to come up with its number of lost cable networks.⁷²

⁷⁰ A&E Comments at Appendix II (A&E informal analysis).

⁷¹ A&E self-servingly “assumes” the elimination of the statutory one-third cap but buries this fact in footnotes both in text (at fn. 41, 42) and in its “study” (at the end of fn. 3). A&E tries to cleverly suggest that, unless there is no cap and *all* broadcasters are carried, the rationale for DTV must carry is undermined. In so suggesting A&E simply fails to accept that the Supreme Court upheld Congress’ must carry scheme balancing benefits and burdens, finding the statute’s concomitant “limiting” of both burden and benefit a constitutional plus not a minus, *See Turner II* at 1199. A&E argument amounts to nothing more than a disagreement with Congress over the extent to which the government’s interests should be advanced. Footnote 3 of the “informal analysis” also reveals to (only) the careful reader other ways it has over-included broadcast stations but under-included cable systems.

Two, A&E uses old, outdated capacity figures to assess “lost” channels and nowhere attempts to account for the explosion in cable capacity and digitization.⁷³

To get a glimpse of the dramatic increase in capacity during the years DTV will come on air versus level of capacity that A&E used, NAB has placed a dot and notation on the Cable Growth Chart (attached as Exhibit F) at the approximate point in time (and capacity levels) that A&E’s data represents. Cable growth swings steeply upwards *after* A&E’s baseline.

Thus both A&E’s and C-SPAN’s “studies” don’t hold water, and don’t show or predict any real world impact from DTV.

⁷² A&E’s not using the one-third cap (on top of stagnant capacity figures) yielded 5,790 “lost” channels in the top ten markets, or almost 26% of all channels. Applying the one-third cap (but still with A&E’s stagnant data and with its over-counting of must-carry eligibles) changes A&E picture significantly, yielding 2,093 “lost” channels, or a very different 9.31% of total channels. (See Exhibit F here appended for a chart revising A&E’s calculations). Applying the one-third cap to A&E’s Los Angeles data yields *one-sixth* the number of “lost” channels that A&E shows by not using the statutory cap (1216 channels vs. 208).

⁷³ A more accurate picture (albeit still not showing digital “doubling” and still over-counting must-carry stations) of channel capacity available for DTV carriage and of the resulting *lack* of “lost” cable programs can be seen in the cable systems *that had upgraded their capacity* as of the time these data were collected. Upgraded cable systems in Lakewood CA (MediaOne), Orange County CA (Cox), Mt. Prospect IL (Telenois Inc.), Vallejo CA (TCI), Boston MA (Cablevision) and Dallas (TCI) show a far different picture of DTV impact. Four of these six systems, even without digital doubling and with over-counting of must-carry stations, show zero impact.

3. Cable's Claims of Costs and Difficulties Associated with Cable Carriage Are Red Herrings.

Cable makes much of the difficulties and costs that carriage of broadcasters' DTV signals would entail. But cable carriage of DTV signals need not be difficult or costly. Carriage itself can be straightforward. And cable systems should be able to accommodate DTV signals within their already planned upgrades.⁷⁴

a. Carriage Can Be Straightforward In Spite of the Self-Imposed Restrictions to Cable Deployment.

NCTA alleges that carriage of broadcasters' signals will be expensive and difficult.⁷⁵ In fact, carriage of broadcasters' digital signals can be no more expensive or difficult than the carriage of broadcasters' analog signals.

The simplest technical method to put a 8VSB digital broadcast signal on a cable plant is to use the same approach as is done today for NTSC, in which the cable operator merely inserts the broadcast signal into a 6 MHz slot in the cable spectrum. One method in common use is to install an antenna to receive an analog (NTSC) signal off air and prepare it for insertion on cable using a device called a heterodyne processor. The function of this device is to take the analog signal, reduce the amplitude of its aural carrier, and shift it to a new channel.

⁷⁴ See, e.g. NCTA Comments at 50.

⁷⁵ *Id.* "Operators would also incur headend equipment costs, including installing expensive antennas, antenna towers and processing equipment in order to receive digital broadcast signals and pass them through the system or convert them for redistribution in the cable industry's modulation format."

The first step for the digital (DTV) signal would be the same -- install an antenna (using the same model antenna as one would use for analog reception located at the same height on the receiving tower). In some cases existing antennas could be used. Then the signal would be sent to a heterodyne processor, which could be optimized for the digital signal. While some models of existing heterodyne processors could possibly be used with only slight adjustments, even new product design should cost little more than an NTSC heterodyne processor. The incremental cost for equipment to place an 8VSB digital signal on a 6 MHz channel instead of an analog NTSC signal could indeed be very small. NCTA makes a significant overstatement of this small burden on cable operators.

With respect to the cost of equipment to convert the DTV signal to the cable industry's modulation format, installing such equipment is an optional step. Zenith points out that a modulation format suitable for cable systems was developed and included in the ATSC DTV Standard, and without supportable technical justification, cable deliberately chose an incompatible approach.⁷⁶ *If there are additional costs to the cable industry as a result of taking this step, they are self-imposed.* In any event, since taking this step is not required, the cost of such equipment is irrelevant to any decision making here.

⁷⁶ Comments of Zenith Electronics Corporation (hereinafter "Zenith Comments"), CS Docket 98-120, Oct. 13, 1998 at 7. *See also* Comments of

b. With Adequate Notice, Cable's Planned Upgrades Can Accommodate DTV Carriage at Virtually No Incremental Cost.

Cable plants are built at more or less standard capacities. These well known capacities are 300 MHz, 400 MHz, 550 MHz, 750 MHz, and 850 MHz. These major demarcations are principally a consequence of the technology available to implement the amplifiers used in cable systems. The costs to deploy this infrastructure do not change depending upon what program material is on what channel or even if a channel is used.

Typically 300 MHz yields about 36 standard 6 MHz channels, 400 MHz has about 52 channels, 550 MHz has about 77 channels, 750 MHz has about 110 channels. Thus, starting at 300 MHz, successive upgrades to 400, 550, 750 and 850 MHz each yield channel capacity increases of 16, 25, 33 and 16 new 6 MHz channels, respectively. After an upgrade is completed, these new channels are available for deployment, regardless of whether the cable system has programming available to fill them. Except under the most serendipitous of circumstances, it is unlikely that the number of new cable programming services slated to be added to the channel lineup will exactly match the additional cable capacity made available through upgrading. In many cases, excess capacity will exist where broadcast signals can be placed with virtually no significant incremental cost. Likewise, one of the outgrowths of deploying digital cable transmission, is that channel capacity,

the Association of Local Television Stations, Inc. (hereinafter "ALTV Comments"), CS Docket 98-120, Oct. 13, 1998 at 43-45.

in terms of 6 MHz channels, is gained in those instances where more than one cable program service is combined in a single 6 MHz channel through digital compression and transmission. If new cable services are not placed in these newly freed up 6 MHz channels, that capacity is then available for broadcast signals at little incremental cost.

The Commission wisely focused its rollout of DTV on the largest TV market first. These are the areas with the largest populations, the most viewers, the largest number of broadcast stations, the most advertising opportunity, and often the largest most modern cable systems. These areas will also be the focus of sales and promotion efforts of the consumer electronics industry. The Commission then moves progressively to smaller markets, giving time for the technology to mature, the services to develop, the public to get excited, and Moore's Law to work its magic, reducing the cost of digital integrated circuits by half every eighteen to twenty four months.

The largest markets are also where cable systems already are upgrading to the higher bandwidth levels and are introducing digital technology. These areas, given adequate notice, can accommodate DTV carriage with their already expanded capacities at virtually no incremental cost. Systems with planned upgrades can adjust those plans to also accommodate DTV carriage without significant incremental cost. And of

course, once the broadcast transition to DTV is completed, the capacity used for NTSC broadcast signals will be available for whatever uses cable chooses.

B. Cable Capacity Is Expanding at an Exponential Rate and Thus, as a General Matter, Upgraded Capacity Easily Will Absorb the Gradual Addition of DTV Signals.

While cable industry comments depict stale and stagnant channel capacity, conveniently side-stepping the current upgrading of cable capacity, cable cannot and did not deny the breadth and depth of the rapid expansion that is transforming the cable industry. Cable companies' own statements,⁷⁷ NCTA's published statistics,⁷⁸ multitudinous press accounts,⁷⁹ investment analysts' reports⁸⁰ and independent research studies and projections⁸¹ all describe the current and future explosion in cable capacity.

From 1996 through 2001, the cable industry will spend an estimated \$33 billion to upgrade its facilities.⁸² In 1997, the average cable customer received a weighted average of 78 channels, an increase of 14.7% channels

⁷⁷ See Hearings before the Senate Commerce Committee, 105th Cong., 2d Sess. (July 8, 1998)(Statement of Joseph J. Collins, Time Warner Cable); *TCI Group Tallies Digital Subscribers At 1 Million and Posts \$52 Million Net*, *The Wall Street Journal*, Nov. 16, 1998; and Exhibit A.

⁷⁸ *Cable: Building to Deliver the Future* (as of April 1998) http://www.ncta.com/overview98_1.html.

⁷⁹ See e.g., Exhibit A.

⁸⁰ See e.g., *U.S. Cable TV Industry New Product Subscriber Forecast*, *Broadcasting & Cable*, Nov. 10, 1998, Cable TV Operations at 15.

⁸¹ See e.g., Paul Kagan Associates, Inc., *Channel Logjam Eases – Capacity Projections to 2004*, *Cable TV Programming*, July 31, 1996; *Digital Doubles Channel Capacity*, *Pay TV Newsletter*, Sept. 25, 1998.

⁸² *Cable: Building to Deliver the Future* (as of April 1998) http://www.ncta.com/overview98_1.html.

from one year before.⁸³ By year-end 1998, the *average* cable customer is expected to receive 90 channels.⁸⁴ Analog channel capacity alone is projected to average 130 channels *per system* by the end of 2002.⁸⁵ And given the fact that larger cable systems tend to offer more channels, the average cable *customer* receives a much higher number of channels than is provided by the average cable system.⁸⁶

Moreover, cable is presently transitioning from analog to digital programming and distribution systems.⁸⁷ NCTA itself proclaims that, “[a]s cable operators deploy digital technologies – which allow for as many as 12 high quality digital channels to be compressed into the space of one analog channel – the quantity and quality of cable services will increase *exponentially*.”⁸⁸ TCI recently announced that it has hooked up one million digital cable subscribers, ahead of schedule, and TCI’s president said he is expecting a 15% digital penetration within one year of launching the new services, and an 80% penetration over five years.⁸⁹

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ Exhibit B.

⁸⁶ *Cable: Building to Deliver the Future* (as of April 1998) http://www.ncta.com/overview98_1.html

⁸⁷ *Id.* In 1997, TCI offered digital cable to 65% of its 14 million cable customers. Several other cable operators, such as Cox, Comcast, MediaOne, Bresnan, Jones, Marcus, Buford, Time Warner and Century, are in various stages of digital cable deployment.

⁸⁸ *Id.* (emphasis added).

⁸⁹ *TCI Group Tallies Digital Subscribers At 1 Million and Posts \$52 Million Net*, *The Wall Street Journal*, Nov. 16, 1998 at B11.