

August 27, 2004

Chairman Michael Powell  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

**RE: In the Matter of Carriage Digital Television Broadcast Signals, *et al.*  
Ex Parte Submission  
CS Docket Nos. 98-120, 00-96 and 00-2**

Dear Chairman Powell:

The government-mandated transition to digital television is an experiment in public industrial policy of a scope unprecedented in United States history. It requires not only substantial investment by industry to be able to develop and deliver digital services to consumers, but also significant investment by consumers in the equipment required to receive them. For the effort to succeed, U.S. consumers must have access to all the benefits of digital television, including more programming choices, more attractive programming and more innovative services. Otherwise, they will have every reason to protest the hundreds of dollars necessary to make their personal transition to digital.

Enclosed is a white paper explaining how and why consumers in a lone German market – the densely urbanized Berlin area – accepted that market's recent transition to digital television. The white paper, prepared by the outside legal advisers to Berlin's equivalent of the Commission, demonstrates that there are at least three key prerequisites to a smooth consumer adoption of digital television:

- 1) consumers expect that any digital transition will deliver more programming choices and other services;
- 2) consumers and broadcasters require substantial public support for any government-mandated digital transition; and
- 3) the timing of the final transition to digital must take into account the circumstances and preparedness of the entire relevant market.

At present, the United States does not meet any of these requirements. However, the Commission's recent efforts offer real hope for resolving these issues in a manner that puts consumers first.

Most critically, consumers need to know that local cable systems will not be able to deny consumers' access to all free, over-the-air services offered by local television stations. As the white paper explains, in Berlin, "the key consumer incentive for transitioning to digital was the availability of additional free over the air programming services." Local broadcasters are ready to develop additional programming,

including new community-focused programming that broadcasters are uniquely able to provide, and then multicast those multiple streams of digital programming over the same six megahertz of broadcast spectrum as their current analog signal. However, many local broadcasters cannot risk the additional millions necessary to develop or maintain this new programming without assurances that cable operators will not strip such programming out of their signals.

The Commission can end this uncertainty by ensuring that each local television station can require carriage of its entire free, over the air digital signal to all local cable subscribers. As other submissions to this docket underscore, cable carriage of all local television stations' digital programming will require far less capacity on today's digital cable systems than analog carriage. That simple reality – and the obvious consumer benefit of having continued access to all local stations' television programs – is a fundamental reason for the Commission to end six years of debate and adopt multicast digital carriage. It also will facilitate sale of digital television sets, as all local retailers will be able to assure their customers that all local digital signals will be available to all local cable subscribers.

The attached white paper, which is jointly submitted by the NBC Television Affiliates, the CBS Television Network Affiliates Association, Paxson Communications Corporation and the NBC Television Station Group, confirms that a full multicast carriage requirement is not just necessary to preserve the vitality of free, over the air television, but also a key prerequisite to widespread consumer adoption of digital television.

Please direct communications regarding this submission to any of the undersigned representatives.

Respectfully submitted,

NBC TELEVISION AFFILIATES

By: /s/ Jonathan Blake  
Jonathan Blake  
Jennifer Johnson

Covington & Burling  
1201 Pennsylvania Avenue, NW  
Washington, DC 20004  
202-662-6000

Its Attorneys

CBS TELEVISION NETWORK AFFILIATES  
ASSOCIATION

By: /s/ Jonathan Blake  
Jonathan Blake  
Jennifer Johnson

Covington & Burling  
1201 Pennsylvania Avenue, NW  
Washington, DC 20004  
202-662-6000

Its Attorneys

FOX TELEVISION AFFILIATES ASSOCIATION

By: /s/ Wade Hargrove  
Wade Hargrove

Brooks Pierce McLendon Humphrey & Leonard,  
LLP  
PO Box 1800  
Raleigh, NC 27602  
919-834-9216

Its Attorneys

NBC TELEVISION STATION GROUP

By: /s/ F. William LeBeau  
F. William LeBeau

1299 Pennsylvania Avenue, NW  
11<sup>th</sup> Floor  
Washington, DC 20004  
202-637-4535

Its Senior Regulatory Counsel

ABC TELEVISION AFFILIATES ASSOCIATION

By: /s/ Wade Hargrove  
Wade Hargrove

Brooks Pierce McLendon Humphrey & Leonard,  
LLP  
PO Box 1800  
Raleigh, NC 27602  
919-834-9216

Its Attorneys

LIN TELEVISION CORPORATION

By: /s/ Gregory Schmidt  
Gregory Schmidt

11 Dupont Circle, NW  
Suite 365  
Washington, DC 20036  
202-462-6001

Its Vice President, New Dev. and General Counsel

PAXSON COMMUNICATIONS CORP.

By: /s/ Lowell W. Paxson  
Lowell W. Paxson  
Chairman

601 Clearwater Park Road  
West Palm Beach, FL 33401  
561-659-4122

ccs: Commissioner Kathleen Abernathy  
Commissioner Michael Copps  
Commissioner Kevin Martin  
Commissioner Jonathan Adelstein  
Kenneth Ferree, Chief, Media Bureau

Jon Cody, Media Adviser to Chairman Powell  
Stacy Fuller, Media Adviser to Cmr. Abernathy  
Jordan Goldstein, Media Adviser to Cmr. Copps  
Catherine Bohigian, Media Adviser to Cmr. Martin  
Johanna Shelton, Media Adviser to Cmr. Adelstein

# **White Paper**

Lessons for the United States from the Berlin DTV Transition

July 14, 2004

**Prepared by**

**Hogan & Hartson, L.L.P.**

**at the request of**

**NBC Affiliate Broadcast Network and  
NBC Owned and Operated Station Division**

## I. Introduction

The authors of this White Paper, Hogan & Hartson L.L.P., served as legal and strategic advisors to the Berlin media authority (MABB). MABB was in charge of the Berlin digital television (DTV) transition project.

## II. Executive Summary

On August 4, 2003, the greater Berlin area completed the world's first successful meaningful-scale transition to all digital broadcast television. This transition provides many lessons for governments and broadcasters currently facing the task of an analog-to-digital conversion.

A successful DTV transition depends on getting the right answers to two key questions: (i) what are the key ingredients to persuading both consumers and industry participants to make the transition; and (ii) when is the right time to terminate consumers' access to analog television broadcasts.

The Berlin project provides answers to these questions. It demonstrates that a successful transition to over the air digital broadcasting will require:

- (1) substantial **incentives for consumers**, including new over the air programming services, to spur consumer interest and investment in the new technology;
- (2) substantial **government support of broadcasters** that goes significantly beyond the provision of temporary spectrum and includes (a) public funding of all transition costs, and (b) guaranteed must-carry status for all DTV broadcast channels, including multicast streams, on local cable networks; and
- (3) timing that is driven by **circumstances in each local market**; in Berlin, this included a very low percentage of homes served by over-the-air television, and the availability of free broadcast and multichannel alternatives for those losing their analog signal.

Berlin demonstrates that the United States does not yet have the ingredients in place for a successful transition to digital.

## III. Key Lessons from the Berlin Transition

### 1. Substantial consumer incentives are necessary to drive consumer acceptance of the new technology. In Berlin, two key incentives drove consumer adoption of digital television:

- ***New Programming.*** In Berlin, the key consumer incentive for transitioning to digital was the availability of additional free over the air programming services. The number of available broadcast program channels increased from 11 analog to 27 digital channels as a direct result of the transition (see the Annex to this White Paper for details). All these additional channels, including the most popular nation-

wide program services, were previously available only through cable and/or satellite.

→ *The only way to increase available free over-the-air programming in the United States would be to encourage development of multicasting, which is the delivery of multiple programming streams by a single television station over the same amount of spectrum. At this time, it is not finally settled whether significant additional free over the air programming services will be generally available following the digital transition in the United States, due in great part to uncertainty concerning carriage rights for the full digital signal on cable systems.*

- **Consumer Financial Support.** The Berlin transition did not occur until the government provided for low-income households to be equipped with a digital set-top-box at government expense.

→ *In the United States, no provision has yet been made for consumers who rely on free broadcast television who may need government assistance to transition to free digital broadcasts.*

## 2. Substantial government support of broadcasters, beyond additional spectrum, is critical to limit the disruption inherent in a government-mandated digital transition.

- **Additional Spectrum.** In Berlin, broadcasters received additional spectrum to facilitate the transition to digital until the completion of the planned transition period. For example, the two major commercial broadcasters, RTL Group and ProSieben-Sat.1, began simulcasting their programming in both analog and digital well in advance of the analog surrender.

→ *In the United States, the federal government provided 6 MHz of additional spectrum to nearly all television stations, with the expectation that broadcasters will return 6 MHz of spectrum at the end of the planned transition.*

- **Full DTV Must-Carry.** In Berlin, state legislation provided for each digital terrestrial channel to be entitled to must-carry status on the local cable network. This provided a major incentive for broadcasters to switch to digital transmissions and offer new services. While in the analog world, only 11 terrestrial channels were entitled to a must-carry status, must-carry status now is available to 27 channels. Because cable operators themselves still are using analog technology and consequently have limited capacity on their networks, the DTV must-carry requirement therefore also imposed an additional regulatory burden on cable operators and system capacity in the interest of a successful DTV transition.

→ *In the United States, the Federal Communications Commission has not finally determined whether a local cable system will continue to be required to carry the entire 6 MHz bandwidth of all free over-the-air television signals following*

*the surrender of broadcasters' analog spectrum. Absent guaranteed cable carriage of the entire digital signal, many U.S. television stations, whose business model depends on reaching virtually all viewers, will not be able to risk substantial investments in new programming and therefore will not be able to launch new programming services.*

- **Broadcasters' Financial Support.** The Berlin transition did not occur until public funding was made available to commercial broadcasters to cover the costs of the digital transition, i.e., to lease digital transmission capacity from third party terrestrial network operators. This support amounted to approximately \$ 55,000 per digital channel per broadcaster. It will be paid annually for at least five years to cover all ongoing costs of broadcasters related to the transmission of their digital signals (see below at IV. 1.3 for details). Because broadcasters in Berlin do not own their own transmitters, this is the only cost associated with the switchover to digital.<sup>1</sup>

→ *In the United States, the federal government has not provided any financial support, beyond the temporary use of spectrum, to broadcasters seeking to develop digital facilities or new digital programming or business plans. However, the federal government might limit the risks of certain transition investments by mandating continued carriage of the entire local broadcast signal of digital stations, including multicast streams, to all local cable subscribers following the surrender of analog spectrum.*

**3. The DTV transition must occur on a market-by-market basis. Its timing must focus on the specific circumstances of each local market, not on top-down government mandates.**

- **Single Market Transition.** Berlin was the only market in Germany to convert to digital, accounting for just 1.8 million of 36.2 million television households nationwide. The DTV transition for many areas in Germany is not expected to occur before 2010. And even then, over the air digital television is not expected to be available nationwide in Germany but will be limited to major urban areas.

→ *The United States has a higher percentage of non-urban households than Germany, and a far higher percentage of households in rural or non-urban areas than Berlin. The Congressional transition plan, adopted in several stages during the late 1990s, recognized the need to evaluate each market individually, measuring a market's digital readiness by the percentage of digital cable, digital satellite, and digital terrestrial adoption in TV households in each market.*

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<sup>1</sup> Berlin has only three full-power terrestrial transmitters that together broadcast the 11 analog channels that required conversion to digital. None of these transmitters are owned by the commercial broadcasters, however, which instead lease transmitter capacity from third party providers (either the public broadcasters or the still partly state-owned Deutsche Telekom AG, the former telecommunications monopolist). The commercial broadcasters were therefore not burdened with the costs of upgrading even these three transmitters to digital.

- **Consumer Reliance on Terrestrial Broadcasting.** In Berlin, 160,000 households relied exclusively on terrestrial broadcasting, with another 90,000 households depending on terrestrial reception for 2<sup>nd</sup> and 3<sup>rd</sup> sets. With a total of approximately 3 million TV sets in the Berlin area, less than 10 percent of all television sets were therefore affected by the surrender of analog spectrum.
  - *In the United States, roughly 15 million households rely exclusively on terrestrial broadcasting, and many other consumers own one or more over-the-air dependent televisions that would not work without additional equipment following any surrender of analog spectrum. Certain communities have even greater reliance on over the broadcast: for example, roughly 28 percent of U.S. Hispanic households do not subscribe to cable or satellite television.*
  
- **Nature of Television Market.** The Berlin television market, like the entire German market, is dominated by free or low-cost subscription television services. Satellite multichannel service is available for no monthly fee, while cable service is provided at the relatively low monthly cost of \$ 12-18 per month. About 95 percent of German consumers subscribe to one of these two multichannel services. The free satellite and low priced cable offerings include all of the over-the-air channels, as well as additional channels like CNN and MTV. There is only one pay TV platform in all of Germany ("Premiere") with approx. 2.8 million subscribers and an audience share of well below 3 percent, offering a handful of channels not available via free TV. Premiere is available both on cable and satellite systems at a monthly fee of \$ 15 and more (in addition to the cable fee of \$ 12-18). As a result of the availability of both free and low priced alternatives to over the air TV, there was a much lower risk that the digital transition would alienate viewers of over the air television.
  - *In the United States, there is no low price substitute for over-the-air television. Under the current FCC transition plan, consumers who lose service after broadcasters surrender their analog spectrum would have to either a) buy digital-to-analog converter equipment, which currently retails for at least \$ 100, or b) switch to cable or satellite service, whose basic packages cost a new subscriber at least \$20 to \$40 per month before installation, taxes, and franchise fees<sup>2</sup>.*

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<sup>2</sup> Before tax, franchise, and installation fees, Time Warner Cable's New York Basic service costs \$19.97 per month; Comcast Basic Cable service in Philadelphia costs \$22.79 per month; and DirecTV's Total Choice base package costs \$39.99 per month.

#### IV. The Story of the Berlin DTV Transition

As the first and so far the only region in Germany to convert to digital terrestrial broadcasting, the greater Berlin area (Berlin-Brandenburg) completed its DTV transition in August 2003, having enjoyed **particularly favorable conditions** for the transition: Because Berlin had historically been isolated within the former East Germany, there were more frequencies available to give to broadcasters for digital transmissions than in any other German region.<sup>3</sup>

The project was directed by the Berlin media authority (MABB).<sup>4</sup> To a great extent, MABB served as a mediator among the broadcast, transmission network and consumer electronics industries, as it negotiated the relevant agreements and approved implementing by-laws in order for the transition to occur within a clear legal framework.<sup>5</sup>

The Berlin project started in 1997. Public funding of the transition was made available by December 2001, and the termination of all analog signals occurred in August 2003. Notably, **the Berlin transition is not indicative of the rest of Germany**. Many critical facts underlying the Berlin project do not apply to other areas of the country, which are conducting their transitions separately on a region-by-region basis. No dates have been fixed for the cessation of analog broadcasting in these regions and the bulk of the German transition to digital is not expected to be completed until 2010.<sup>6</sup> Even then, the over the air DTV transition will not have occurred nationwide, but will have been limited to urban areas. In view of the small number of affected households in many rural areas, it would be prohibitively expensive to develop a nationwide infrastructure of over the air digital TV.<sup>7</sup> Instead, households in those rural areas are expected to switch to satellite TV – which, as noted above, is delivered free to consumers.

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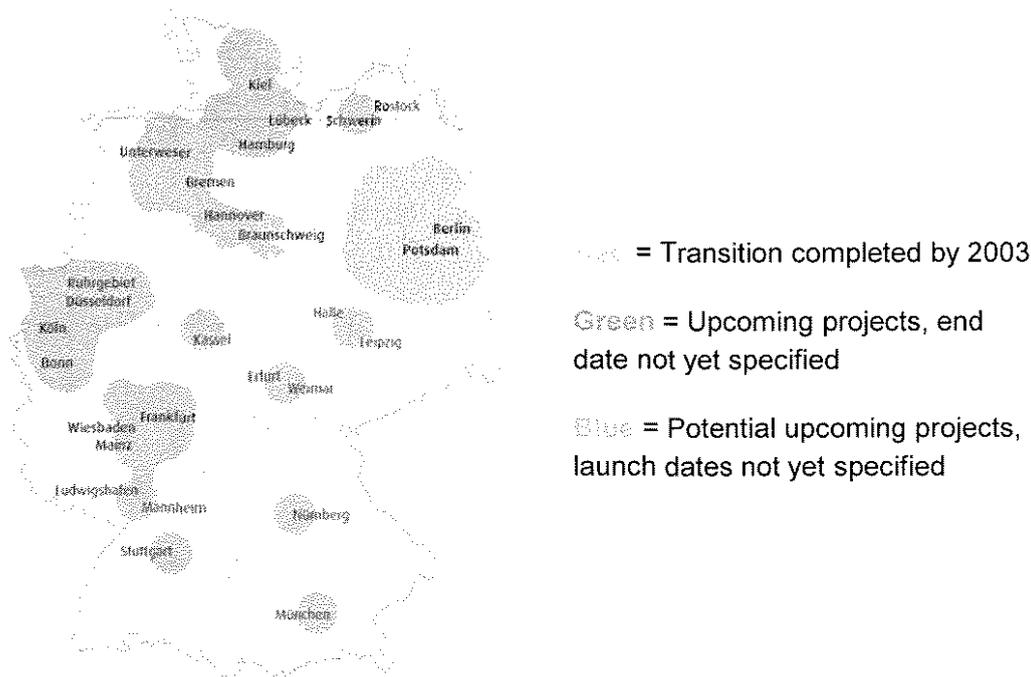
<sup>3</sup> See Ernst Benda (president of the MABB media council), in: Christoph Wagner & Andreas Grünwald, *Rechtsfragen auf dem Weg zu DVB-T*, Berlin 2002, p. 9.

<sup>4</sup> Full documentation of the MABB's role in the DTV transition is available from the MABB's website at [www.mabb.de/](http://www.mabb.de/) as well as from the project website at [www.ueberallfernsehen.de/](http://www.ueberallfernsehen.de/).

<sup>5</sup> The authors of this White Paper, Christoph Wagner and Andreas Grünwald of Hogan & Hartson L.L.P., counseled MABB on implementing by-laws to accompany the transition. This experience has been documented (Christoph Wagner & Andreas Grünwald, *Rechtsfragen auf dem Weg zu DVB-T*, 2002), as well as another legal analysis of the DTV transition by Armin Dittermann, *Analoger Switch-Off ohne Gesetz?*, 2002. See also Andreas Grünwald, *Analoger Switch-Off*, 2001, for a comparative analysis of the German and U.S. efforts to switch from analog to digital terrestrial broadcast television.

<sup>6</sup> See the report by the German Federal Ministry of Economics, *Startszenario 2000*, published in January 2000, which is available in English at <http://www.bmwi.de/Navigation/Service/bestellservice,did=18264.html>.

<sup>7</sup> See the comment by Thomas Hirschle, president of the Baden-Württemberg media authority, at the 2003 Munich Media Convention (press release available at [www.medientage-muenchen.de/](http://www.medientage-muenchen.de/)).



**1. In Berlin, the rapid transition was the result of significant public efforts to support consumer and broadcaster adoption of digital terrestrial television.**

**1.1. The availability of multiple digital broadcast channels proved a substantial incentive for consumers to invest in the digital transition.**

Before the transition, 11 analog television channels were available to terrestrial television households in Berlin: four channels of the public broadcasters ARD and ZDF, five channels of the two major commercial networks RTL and ProSiebenSat.1, one local television station and one foreign language channel (BBC World). Except for the local and the foreign language channel, these analog terrestrial channels represented the most popular and highest rated nationwide programs and were (and still are) also available on cable,<sup>8</sup> supported by their (analog) must-carry status.<sup>9</sup> These channels are either financed entirely through advertising (commercial channels) or through a mix of advertising and a mandatory monthly fee from viewers (public broadcasters).<sup>10</sup> Unlike the United States,

<sup>8</sup> In terms of their average annual audience share in 2003, the 10 most popular nationwide television channels in Germany are: RTL, ARD I, ARD III, ZDF, Sat.1, ProSieben, RTL II, Kabel 1, VOX, and DSF (source: [www.kek-online.de/](http://www.kek-online.de/)).

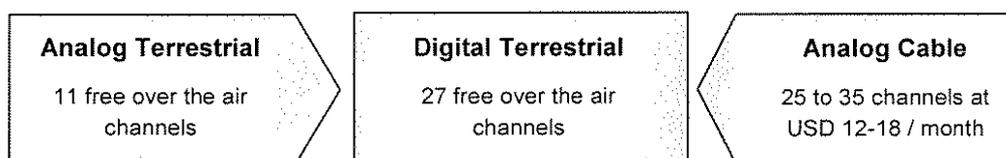
<sup>9</sup> Sec. 41 (1) of the Berlin/Brandenburg Interstate Treaty on the Media.

<sup>10</sup> Pursuant to the Interstate Treaty on the Financing of Broadcasters, all German television households must make a monthly payment of currently EUR 16,15 (approx. USD 19.85) which is collected by the public broadcasters. These funds secure the financing of the public broadcasters as well as the budget of the regional media authorities such as MABB.

the public broadcasters in Germany command a robust 40 percent share of total television viewing.<sup>11</sup>

The transition to DTV more than doubled the number of program channels available over the air, offering viewers 27 free high quality television services (13 ARD/ZDF channels, nine RTL and ProSiebenSat.1 channels and five of the most popular special interest channels (see the Annex to this White Paper for details).

The availability of many more free, over the air program services was a substantial inducement for analog terrestrial households to switch to DTV, which effectively more than doubled their number of channels. Furthermore, the digital transition enabled free, over the air television to become a close substitute for pay cable services, which generally only provide 25 to 35 television channels.<sup>12</sup>



These competitive advantages with respect to both analog terrestrial and analog cable were used by MABB as an incentive to promote DTV. Advertising campaigns sponsored with public money invited not only terrestrial broadcast households, but also cable households to switch to DTV where they would receive a comparable amount of programs at no reception costs beyond a one-time payment for a DTV set-top-box (below \$ 100).

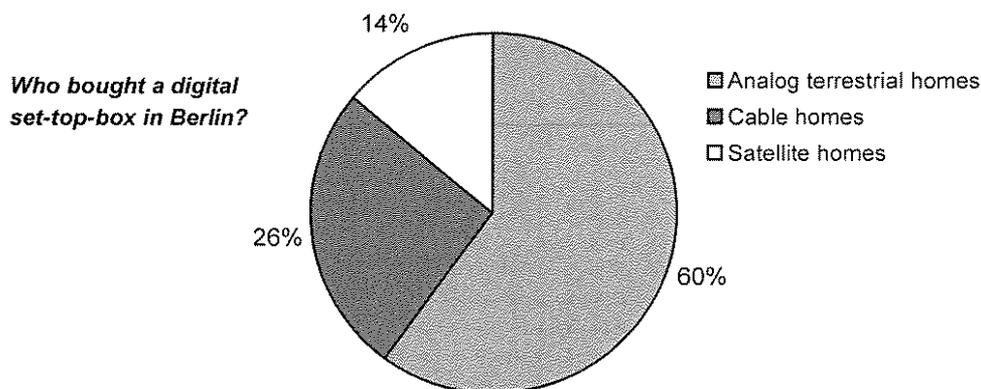
As a result, out of the 250,000 purchasers of DTV set-top-boxes in Berlin, 60 percent had previously relied exclusively on analog terrestrial broadcasting, while another 26 percent had previously been cable subscribers.<sup>13</sup>

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<sup>11</sup> See <http://www.kek-online.de/cgi-bin/esc/zuschauer.html> for details on audience share figures of German public and commercial broadcast channels.

<sup>12</sup> Most German cable operators have not yet upgraded their networks to a frequency range of more than 470 MHz; furthermore, these networks are still being used for analog rather than for digital transmissions. As a consequence, the number of cable channels available for broadcast retransmission is relatively low. For example, Kabel Deutschland, Germany's biggest cable operator, serves its Berlin customers with 34 television channels at a monthly subscription fee of EUR 14.13 (approx. \$ 17.50).

<sup>13</sup> See MABB project report *Berlin Goes Digital – The Switchover of Terrestrial Television from Analog to Digital Transmission in Berlin-Brandenburg*, 2003, p. 8.



**1.2. To cover their transition costs some television households received public subsidies to invest in digital set-top-boxes.**

Low-income television households were deemed by MABB to be entitled to receive a publicly funded digital set-top-box in order to participate in the DTV transition. Out of the 160,000 affected households in the Berlin project area, 6,234 successfully applied for such subsidies.<sup>14</sup> They were equipped with a standard DTV receiver which was entirely paid for by MABB (75 percent) and from social welfare funds (25 percent).<sup>15</sup> MABB had budgeted 1 million EUR (approx. \$ 830,000) for this purpose. Furthermore, it had agreed with the consumer electronics industry that a standard set-top-box would be available at a maximum retail price of \$ 240 for those households that would not qualify for public subsidies. However, within a few weeks after the beginning of the simulcast period, set-top-box retail prices had dropped to below \$ 100.

**1.3. Commercial broadcasters participated in the DTV transition because they did not face any extra costs due to the public funding of the project and because their DTV signals received full must-carry status on the local cable network.**

To a great extent – and going far beyond the aforementioned advertising campaigns – the Berlin transition project was, and the ongoing digital transmission costs still are, publicly funded. MABB is legally required to support the technical development of the broadcast infrastructure.<sup>16</sup> Pursuant to this regulatory obligation, MABB relieved commercial broadcasters until 2008 from any additional costs that would arise from the DTV transition vis-à-vis the analog terrestrial

<sup>14</sup> See MABB project report *Berlin Goes Digital – The Switchover of Terrestrial Television from Analog to Digital Transmission in Berlin-Brandenburg*, 2003, p. 8.

<sup>15</sup> Source: Oral information from the responsible MABB official, Mr. Sascha Bakarimow.

<sup>16</sup> Sec. 8 (1) No. 8 of the Berlin/Brandenburg Interstate Treaty on the Media.

transmission of their programs (approx. \$ 55,000 per digital channel per year).<sup>17</sup> Indeed, commercial broadcasters agreed to participate in the DTV transition only after it had become certain that their transition costs would be borne entirely from MABB budgets.<sup>18</sup>

Furthermore, Berlin legislation provided all DTV channels with full must-carry status on the local cable network.<sup>19</sup> The funding arrangement with MABB and the carriage of these services on cable were the fundamental preconditions for commercial broadcasters to make any programs available in digital format and to give up analog spectrum for the Berlin project. Similar funding agreements between the media authorities and commercial broadcasters are part of the transition scenarios for other German regions. Significantly, in areas where the regional media authority is not willing to provide such financial support, some commercial broadcasters have elected not to participate in the respective projects at all.

**1.4. The Berlin digital transition was accelerated by extensive government funding reflecting a commitment to preserve free, over the air television.**

Within just one decade, terrestrial broadcast television in Germany has almost entirely been supplanted by satellite and cable services. Cable and satellite carry the same most popular commercial and public service programs that are available via over the air television along with additional programs. Back in 1992, 60 percent of all television households still received analog terrestrial, 35 percent received cable and 5 percent received satellite television. Today, this situation is reversed, with terrestrial transmissions having lost about 90 percent of their formerly exclusive audience.<sup>20</sup>

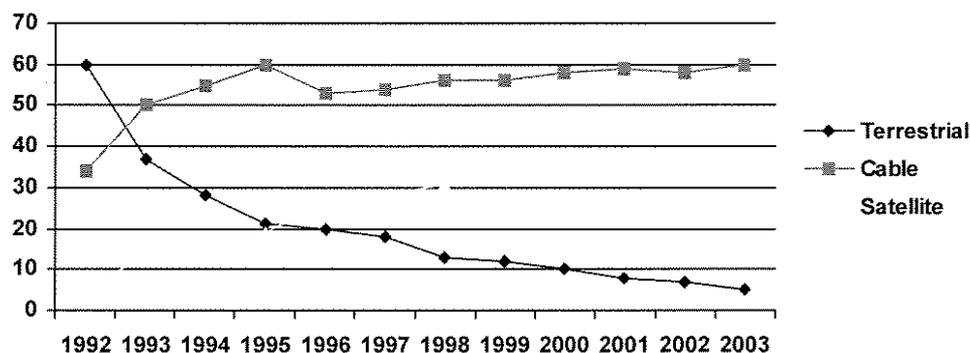
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<sup>17</sup> This was the key element of the treaty under public law (*öffentlich-rechtlicher Vertrag*) dated February 13, 2002, between the commercial and public broadcasters on the one side and MABB on the other.

<sup>18</sup> See the comment by Jürgen Doetz, president of the private broadcasters association (VPRT), at the 2003 Munich Media Convention (press release available at [www.medientage-muenchen.de/](http://www.medientage-muenchen.de/)).

<sup>19</sup> Sec. 8 (1) of the MABB's DTV Ordinance (dated July 9, 2001).

<sup>20</sup> Source: MABB project report *Berlin Goes Digital – The Switchover of Terrestrial Television from Analog to Digital Transmission in Berlin-Brandenburg*, at 2 (2003)



Both broadcasters and politicians were alarmed by this development. As cable operators turned into gatekeepers to the majority of Germany's television households, the availability of free over the air television seemed to be endangered.<sup>21</sup> This created the political will to provide for an alternative television infrastructure that would allow the providers of television programs to reach their audiences without having to deal with cable operators as intermediaries. DTH satellite television, however, is not fully suitable as an alternative infrastructure in this regard, because the satellite industry is subject to some specific restrictions of its own in Germany. According to tenancy laws, a landlord does not always have to permit a tenant to install a satellite dish on the outer wall of a rented apartment.<sup>22</sup> With almost 60 percent of the overall German population living in rented housing,<sup>23</sup> this constitutes a significant obstacle to the future growth of satellite TV.<sup>24</sup> Against this specific, the Berlin project was highly driven by political concerns to maintain the viability of the terrestrial.

## 2. The timing of the Berlin transition took advantage of several factors unique to Berlin.

### 2.1. The total number of households affected by the Berlin digital transition was minimal.

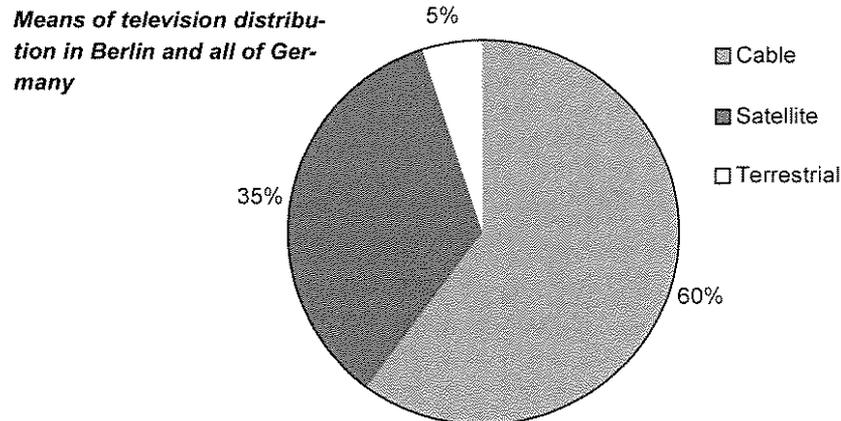
<sup>21</sup> Most explicitly, these concerns were articulated during the merger approval proceedings with regard to Liberty Media's attempt to acquire control of the biggest German cable operator, Kabel Deutschland GmbH, in 2001/2002 (Federal Cartel Office, merger control case No. B7-168/01, approval denied on February 22, 2002).

<sup>22</sup> See the decision of the German Federal Constitutional Court (*Bundesverfassungsgericht*) dated February 9, 1994, BVerfGE 90, 27, most recently confirmed by the ruling of the German Federal Court of Justice (*Bundesgerichtshof*), NJW 2004, p. 937 (dated January 22, 2004).

<sup>23</sup> Source: Federal Statistical Office, data for 2002.

<sup>24</sup> See the study *Der Zugang zur digitalen Satellitenverbreitung – Digitalisierung und Fernsehen ohne Grenzen* by Alexander Roßnagel, Werner Sosalla & Thomas Kleist, 2002, for details.

Out of 36.2 million German television households, only about 2 million households (approx. 5 percent) actually rely on over the air broadcast television as their sole means to access television programming. In the Berlin area, the numbers are similar - only 160,000 out of a total of 1.8 million households depend exclusively on terrestrial reception.<sup>25</sup>



According to MABB research, only 90,000 homes in addition to the 160,000 homes relying exclusively on over the air television services use terrestrial reception for 2<sup>nd</sup> and 3<sup>rd</sup> television sets.<sup>26</sup> The Berlin project therefore not only affected a very limited number of households, but also a remarkably low number of television sets. In terms of these statistics alone, the Berlin project cannot be viewed as a model even for all of Germany.

**2.2. *Because of the small number of affected households, the Berlin project did not create a significant risk that participating broadcasters would lose meaningful audience share as a result of the cessation of analog broadcasting.***

As described above, the Berlin transition affected only 160,000 households that were relying exclusively on terrestrial television. This represents just over five percent of the total 1.8 million television households in Berlin and 0.4 percent of the total 36.2 million television households in all of Germany. At the same time, almost all broadcast channels that had been available via analog terrestrial transmissions to the 160,000 Berlin households were nationwide channels which reached almost all television households in the country and therefore could rely

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<sup>25</sup> Source: MABB project report *Berlin Goes Digital – The Switchover of Terrestrial Television from Analog to Digital Transmission in Berlin-Brandenburg*, 2003, p. 3.

<sup>26</sup> See MABB project report *Berlin Goes Digital – The Switchover of Terrestrial Television from Analog to Digital Transmission in Berlin-Brandenburg*, 2003, p. 3.

on revenues from nationwide advertising clients. From the perspective of those broadcasters, the DTV transition in the Berlin area meant only that they might temporarily lose considerable less than one percent of their nationwide audience until the 160,000 affected households had switched to either digital terrestrial, cable or satellite.

**2.3. *Outside of other highly urbanized areas like Berlin, Germany itself does not expect to see the Berlin experience repeated in the near term.***

Berlin worked because the cost per consumer for the transition to digital was fairly low, because (i) a total of 1.8 million households could benefit from terrestrial DTV as an alternative to analog terrestrial, satellite and cable, and (ii) only three full power broadcast transmission facilities had to be upgraded to digital technology for this purpose. This ratio does not apply to many other areas even within Germany. In May 2004, some other areas in Germany launched a digital transition project of their own. However, these are also densely populated metropolitan areas with, again, only a small number of transmitters serving a large proportion of the population.<sup>27</sup>

Even after the Berlin experience, digital terrestrial broadcasting is unlikely to establish itself as a nationwide technical infrastructure. If only for reasons of the costs associated with the transition, only some of Germany's approximately 500 full power broadcast stations will eventually be upgraded to DTV transmissions, with potentially the majority simply ceasing terrestrial broadcasts altogether. As a consequence, the coverage of digital terrestrial in Germany will not even come close to the 100 percent coverage of analog terrestrial, and will always be limited to certain circumscribed areas.

## **V. Conclusions from a U.S. Perspective**

Since the United States began the digital transition process in earnest in 1998, the broadcast industry has made substantial progress without much government support beyond the temporary availability of an additional channel for use until the transition has been completed. The more important participant in the digital transition – the consumer – has made less progress, however:

- As of today, 1,216 television broadcast stations in 207 markets are delivering digital signals,<sup>28</sup> i.e. approximately 70 percent of the 1,730 U.S. full power television stations have launched a digital service.

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<sup>27</sup> Currently, additional DTV projects have been launched in the Cologne/Bonn and in the Hannover/Bremen/Braunschweig area, which after Berlin are among the most densely populated regions in Germany.

<sup>28</sup> Source: NAB website at [www.nab.org/](http://www.nab.org/).

- 99 percent of U.S. households are in a market served by a digital television signal.<sup>29</sup> In 2003, the Consumer Electronics Association reported that to date, a total of 5.8 million units of DTV sets had been shipped by manufacturers to the U.S. market place, and that the total number of stand-alone set-top-box decoders in the U.S. was nearly 400,000 by this time.<sup>30</sup>
- Of the roughly 106 million U.S. television households, 48 million have adopted digital multichannel service: 24.1 million homes subscribe to digital cable and 23.7 million homes subscribe to a satellite service.<sup>31</sup>
- With two thirds of U.S. television households receiving their signals through cable and another 17 percent receiving their television through satellite,<sup>32</sup> there are more than 15 percent of U.S. television households depending exclusively on over the air broadcast television. Certain communities have even greater reliance on over the broadcast: for example, roughly 28 percent of U.S. Hispanic households do not subscribe to cable or satellite television.<sup>33</sup>
- Billions of dollars have been spent across the broadcast industry on the conversion to digital television, with each station investing hundreds of thousands of dollars to upgrade to digital transmission systems, as well as significant annual utility costs for a digital/analog simulcast.
- Although the U.S. Congress has identified the digital transition as a desirable policy objective, to date, the federal government has facilitated the transition only by making available to most – but not all – broadcasters an additional 6 MHz channel for their temporary use until the transition has been completed. These additional channels were squeezed into the existing spectrum dedicated for television use. At the end of the transition, broadcasters are to return this spectrum (or its equivalent) to the federal government. The government also will claim 18 6 MHz channels of spectrum formerly dedicated to television broadcast use to resell to other parties or contribute to public safety applications. However, commercial broadcasters receive no financial support from the government in connection with this transition; indeed, the capital costs of digital transmitter and studio construction are being borne entirely by the broadcasters themselves. The FCC has initially determined that commercial broadcasters will not be entitled to must-carry rights for any

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<sup>29</sup> Source: [http://www.digitaltvzone.com/dtv\\_stations\\_on\\_air/](http://www.digitaltvzone.com/dtv_stations_on_air/)

<sup>30</sup> See the CEA's Digital Television Fact Sheet, available at [www.ce.org/](http://www.ce.org/).

<sup>31</sup> Source: Kagan, 5/2004

<sup>32</sup> Source: NAB legislative issue paper on the DTV transition, March 2004.

<sup>33</sup> See *Hispanic Fact Pack: Annual Guide to Hispanic Advertising and Marketing*, Supplement to Advertising Age at 35 (2004).

aspect of their digital signals until the end of the transition period; meanwhile, the FCC is currently reconsidering its initial decision to allow cable operators to choose to carry a part of a local station's digital broadcast signal, rather than all free, over the air digital programming aired by each local station.

- To date, the federal government has not provided, and has not committed to provide, any financial or other support to consumers in connection with the costs associated with the digital transition.
  
- In addition to the must-carry issue, other matters crucial to a successful digital transition remain unresolved. These include, for example, the timing of the transition itself, including the appropriate level of market penetration of digital receivers and the steps, if any, to be taken to ensure service to broadcast-only households;<sup>34</sup> and issues regarding the security of digital broadcast content.<sup>35</sup>

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<sup>34</sup> See, e.g., Public Notice, "Media Bureau Seeks Comment on Over-the-Air Broadcast Television Viewers," DA 04-497 (May 27, 2004).

<sup>35</sup> See, e.g., Report and Order and Further Notice of Proposed Rulemaking, "Digital Broadcast Content Protection," FCC 03-273 (Nov. 4, 2003).

Annex: Over the air television channels in the Berlin area

*Pre-transition (analog):*



*Post-transition (digital):*

