APPENDIX A

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BEFORE THE

Federal Communications Commission

WASHINGTON, D.C.

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
Advanced Television Systems	)	RM _____
and Their Impact Upon the	)	
Broadcast Service	)	
	)	

To: The Commission

PETITION FOR EXPEDITED RULEMAKING

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Summary

Univision Communications Inc. ("Univision") hereby petitions the Commission to amend its rules to give broadcasters the option of transmitting their digital television ("DTV") signals using Coded Orthogonal Frequency Division Multiplexing ("COFDM") digital modulation technology. Univision has observed the recent tests conducted by Sinclair Broadcast Group, Inc. ("Sinclair") examining the comparative abilities of COFDM and 8-Vestigial-Sideband ("8-VSB") to deliver a viewable picture in a multipath environment. The results of the 8-VSB testing raise grave concerns for broadcasters, like Univision, whose audiences are located mainly in dense urban areas where both dynamic and static multipath interference are rampant.

The real world implications of these tests are that reliable reception of a DTV signal in an urban area is nearly impossible with the use of the simple indoor antenna to which millions of Americans have become accustomed. With regard to many urban viewers, and particularly those that rely on Univision's Spanish-language programing for their news, entertainment and information, an outdoor antenna is not physically possible. As a result, the only way they will be able to receive DTV programming is through a cable or satellite provider. Even for those able and willing to pay monthly programming fees, there are currently no guarantees that local digital broadcast signals will even be carried by cable and satellite systems.

While the inability of 8-VSB to provide for reliable reception of DTV in urban areas will adversely affect a substantial portion of the American viewing audience, Hispanics and other ethnic and racial minorities that are disproportionately located in urban areas will be particularly harmed. As a Spanish-language broadcaster with virtually all of its viewers residing in major urban areas, Univision stands to lose more than most broadcasters if the Commission requires exclusive use of the 8-VSB standard. While Univision is committed to the launch of DTV and intends to construct its digital broadcast facilities in accordance with the Commission's timetable,

this commitment will be rendered meaningless if the eighty-four percent of Hispanic households that are located in urban areas are unable to receive a reliable digital television signal.

In this regard, the ability of COFDM to overcome these urban obstacles makes it an excellent modulation choice for broadcasters with heavily urban audiences. The Sinclair tests demonstrate that reception of a DTV signal using COFDM modulation technology is far more likely than reception of an 8-VSB signal in areas with complex multipath conditions. While proponents of an exclusive 8-VSB standard argue that 8-VSB reception technology will improve with time, the Commission and broadcasters cannot afford to stake the future of DTV on such an assumption. First impressions weigh heavily with viewers, and if their first impression of DTV is that it does not work in urban areas, it will be a long time before they consider investing again in a DTV receiver. As a result, even if 8-VSB receiver technology slowly improves, it will be a long time before it is able to overcome the negative perception of DTV that will be created by exclusive reliance on 8-VSB modulation. Thus, with this Petition, Univision urges the Commission to act swiftly to amend its rules to allow broadcasters the flexibility to transmit their DTV signals using COFDM technology as an alternative to the 8-VSB standard. Such action will ensure that the wonders of DTV are available to *all* Americans.

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PETITION FOR EXPEDITED RULEMAKING

Univision Communications Inc. ("Univision"), by its attorneys, hereby petitions the Commission to amend its rules to give broadcasters the option of transmitting their digital television ("DTV") signals using Coded Orthogonal Frequency Division Multiplexing ("COFDM") digital modulation technology. Univision has observed recent tests conducted by Sinclair Broadcast Group, Inc. ("Sinclair") that raise real issues as to whether the Commission-mandated 8-Vestigial-Sideband ("8-VSB") digital modulation standard can overcome the complex multipath effects common in urban areas. This flaw in 8-VSB technology means that reliable over-the-air reception of a DTV signal with an indoor antenna is unlikely, if not impossible, in most urban areas. In contrast, it appears that COFDM modulation can easily withstand the effects of complex multipath conditions, thereby making it an excellent alternative to 8-VSB in urban areas.

Having this alternative available is particularly important to Univision, which operates the Spanish-language Univision Network and the Univision Television Group, Inc. ("UTGI") station group. The Univision Network is available to 93% of all Hispanic households, and is the fifth largest full-time television network, delivering larger audiences than all broadcast and cable

networks except ABC, CBS, NBC, and Fox. UTGI operates Spanish-language television stations in fifteen of the largest Hispanic markets, including nine of the top ten.[1] As a result, Univision occupies a unique position with its audience, broadcasting a variety of programming designed to serve the Hispanic community, including news, sporting events, general entertainment, and children's programming.[2]

If the Commission permits broadcasters to use only the 8-VSB modulation standard, many millions of urban and, in particular, Hispanic viewers, will be deprived of the wonders of digital television. As Chairman Kennard has emphasized:

> [M]y job as chairman of the FCC is to make sure that consumers benefit from the digital age. I want all Americans -- *and I mean all Americans* -- to be able to use these amazing new technologies . . . .[3]

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1 Univision's full-power stations include KDTV(TV), San Francisco, California; KFTV(TV), Hanford (Fresno), California; KMEX-TV, Los Angeles, California; KTVW-TV, Phoenix, Arizona; KUVI-TV, Bakersfield, California; KUVN(TV), Garland (Dallas), Texas; KUVS(TV), Modesto (Sacramento), California; KWEX-TV, San Antonio, Texas; KXLN-TV, Rosenberg (Houston), Texas; WGBO(TV), Joliet (Chicago), Illinois; WLTV(TV), Miami, Florida; and WXTV(TV), Paterson (New York), New Jersey. Univision's LPTV stations include K30CE, Austin, Texas; KABE-LP, Bakersfield, California; KDTV-LP, Santa Rosa, California; KUVE-LP, Tucson, Arizona; KUVN-LP, Fort Worth, Texas; W47AD, Hartford, Connecticut; and WXTV-LP, Philadelphia, PA.

2 Univision has been an active participant on behalf of itself and the Hispanic community in the Commission's DTV rulemakings, most recently filing reply comments to the Commission's NPRM concerning the applicability of the must-carry rules to digital transmissions by television broadcasters, as well as a petition for reconsideration of the Commission's Fifth and Sixth Report and Orders in the DTV proceeding. *See* Reply Comments, Univision Communications Inc., In the Matter of Carriage of the Transmissions of Digital Television Broadcast Stations, CS Docket No. 98-120, filed December 22, 1998; Univision Communications Inc., Petition for Reconsideration of the Fifth and Sixth Orders, In the Matter of Advanced Television Systems and Their Impact upon the Broadcast Service, MM Docket No. 87-268, filed June 13, 1997.

3 Remarks of William E. Kennard, Chairman, FCC, before the Variety/Schroders Media Conference (March 24, 1999) (emphasis added); *see also* William E. Kennard, Chairman, FCC, Statement of FCC Chairman William Kennard on Adopting Final DTV Allotments and Rules (Feb. 18, 1998) ("I believe that the adoption of a core DTV spectrum of

(continued...)

By limiting broadcasters to 8-VSB modulation technology,[4] however, the Commission is mandating a "digital divide," where viewers living in rural areas and those able to afford cable, satellite, or a rotating outdoor antenna may be able to receive reliable DTV reception, while urban, minority, and less affluent viewers will not.

As a Spanish-language broadcaster with the majority of its viewers residing in urban areas, Univision stands to lose more than most broadcasters if the Commission continues to rely exclusively on the 8-VSB standard. While Univision is committed to constructing its digital facilities and initiating DTV broadcasting in accordance with the Commission's timetable, this effort will be to no avail if the many millions of Hispanic viewers residing in urban areas are unable to receive a reliable digital television signal. Univision therefore urges the Commission to act swiftly to amend its rules to allow broadcasters the flexibility to transmit their DTV signals using COFDM technology as an alternative to the 8-VSB standard. Such action will ensure the successful transition to digital television for *all* Americans.

UNIVISION BACKGROUND

Univision Communications Inc. Currently, Univision and its network affiliates are actively engaged in preparations for the conversion to digital television broadcasting. Univision has filed

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[3] (...continued)
channels 2-51 is necessary to serve our ultimate goal of ensuring the success of the digital transition so that all American consumers will see the benefits of digital television."); Susan Ness, Commissioner, FCC, Remarks before MSTV'S DTV Implementation Seminar (May 27, 1998) ("I am a believer in digital television. I will continue to take steps to ensure that consumers reap the benefits from this historic transition. Broadcasters have the opportunity to reinvent television. I believe that we are well underway to seeing the benefits of digital video technology made available to all Americans -- not just those who subscribe to DBS, cable, or other pay services.").

[4] 47 C.F.R. § 73.682(d) (incorporating by reference the Advanced Television Systems Committee ("ATSC") DTV standard, which includes 8-VSB as the only digital modulation technique).

DTV construction permit applications for its owned and operated full-power stations, and has been working hard to secure displacement channels for its low power television stations that will be displaced from their current channels by the implementation of digital broadcasting. As a strong proponent of DTV and the continued vitality of local, over-the-air broadcasting, Univision is filing this Petition to help ensure the future viability of both.

Univision/Hispanic Demographics. The Univision Network is the primary source of news and entertainment for America's 31.5 million Hispanics. The twenty most widely watched programs in U.S. Hispanic households are aired exclusively on the Univision Network.[5] In addition, Univision's audience is expanding rapidly, as Hispanics are the fastest growing segment of the U.S. population. According to current census projections, the U.S. Hispanic population is expected to increase 52 percent by the end of the next decade, and by 258 percent by the year 2050.[6] By 2050, the U.S. Hispanic population is expected to make up 24.5 percent of the overall population, up from its current 11.5 percent share today.[7]

Not only is Univision the dominant source of news, entertainment, and educational programming for the nation's Spanish-speaking population, but studies conducted by Nielsen Media Research show that bilingual Hispanics also watch Univision more than any other Spanish or English-language network. Thus, it is critically important that Hispanic viewers be able to reliably receive Univision programming, even in a digital world. The Univision Network and its

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[5] Nielsen Hispanic Television Index (October 1998-September 1999).

[6] Statistical Abstract of the United States: 1996 (116th ed.), U.S. Bureau of the Census, p. 19.

[7] The Tampa Tribune, Hispanic Population on the Rise, March 15, 1996 (citing Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1995-2050, U.S. Bureau of the Census (1996)); Los Angeles Times, Latinos, Asians to Lead Rise in U.S. Population, March 14, 1996 (citing same report from U.S. Bureau of the Census).

affiliated stations provide Hispanic viewers access to local news and informational programming that is relevant to the Hispanic community and often difficult to obtain from other sources.[8]

Given the explosive growth of the Hispanic population, and its desire for and reliance on Spanish-language programming, it is essential that the needs of this segment of the population be considered in the transition to digital television. If an English-language viewer has difficulty receiving a particular station's DTV signal, that is certainly a problem, but he or she will hopefully still have access to the DTV signals of several other DTV stations for news and emergency information. However, if Univision is unable to reliably deliver a DTV signal, its disenfranchised audience may have no alternative Spanish-language channel available. As a result, failure to allow Univision the flexibility to utilize COFDM modulation may not only deprive many Hispanics of the benefits of DTV, but may leave them at the end of the DTV transition with a lower level of broadcast service than they enjoy today.

DIGITAL TELEVISION BACKGROUND

Adoption of 8-VSB Standard. The selection of the current 8-VSB standard began in 1987 with the commencement of the proceeding on advanced television and the Commission's formation of an advisory committee, the Advisory Committee on Advanced Television Services ("ACATS"), which was charged with the task of analyzing different advanced television systems and ultimately choosing one to recommend to the Commission.[9] By 1993, ACATS had narrowed the possibilities for an advanced television system to four digital proposals. Ultimately, an alliance

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[8] According to a poll conducted before the last Presidential election, Univision was the top-rated news source among Hispanics for election news, with 53% of respondents naming Univision as the main source of information about the upcoming election. Greenberg Research, Inc., Hispanic Poll, June 1996.

[9] Formation of Advisory Committee on Advanced Television Service and Announcement of First Meeting, 52 Fed. Reg. 38523 (October 16, 1987).

was formed among the remaining proponents and a system incorporating the 8-VSB standard was tested and developed.[10] The testing focused on fixed, residential television service received through a 30-foot rooftop or tower-mounted directional antenna. The emphasis at the time was on the duplication of the existing distance of coverage enjoyed by analog NTSC signals, rather than on replication of NTSC's reliable indoor reception with a simple antenna. Furthermore, tests of the DTV modulation system examined reception only under static multipath conditions, and did not account for dynamic multipath interference.[11]

In 1994, COFDM was proposed as an alternative modulation technology for transmitting digital television signals. However, a subcommittee of ACATS considering the COFDM proposal concluded that the standard was not ready for testing at that time.[12] On November 27, 1996, pursuant to the recommendation of ACATS, the Commission adopted a DTV standard that included 8-VSB as the exclusive digital modulation technique.[13] The DTV standard did, however, afford broadcasters flexibility with respect to scanning formats, aspect ratios, and lines of resolution.

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[10] *See* Advanced Television Systems and Their Impact on the Existing Television Broadcast Services, Fourth Report and Order, 11 FCC Rcd 17771 (1996) ("Fourth Report and Order").

[11] Although ACATS mentions in its Final Technical Report that it tested 8-VSB under "flutter" conditions, this is not the same as the complex, dynamic multipath conditions common in urban areas. *See* Advisory Committee on Advanced Television Service, Final Technical Report, at ¶ 5.2.3 (Oct. 31, 1995); *see also* Advisory Committee on Advanced Television Service, ATV System Recommendation, sections 7-8 (Feb. 24, 1993) (indicating that tests conducted in 1991 and 1992 accounted only for static multipath conditions).

[12] Final Report and Recommendation of the Advisory Committee on Advanced Television Service, November 28, 1995, at para. II. G.

[13] *See* Fourth Report and Order, at 17798.

COFDM. Although the Commission's advisory committee concluded that COFDM was not ready for testing in 1994, significant advances have been made in the development of COFDM digital modulation technology since that time. The Digital Video Broadcasting Project, a global organization of broadcasters, manufacturers, network operators, and regulatory bodies, began work on the technology in 1995, finalizing its digital television transmission standard in 1997. The standard was subsequently approved by the European Telecommunications Standards Institute, and COFDM decoder chips became available for installation in commercial DTV receivers in 1998. COFDM has been selected as the DTV modulation standard for numerous countries around the world, including all of the European Union nations, consisting of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom, as well as Australia, India, Japan, and Singapore.[14]

8-VSB Reception Problems and the Office of Engineering & Technology's Response. In June of this year, Univision observed the testing of DTV modulation techniques conducted by Sinclair in the Baltimore, Maryland area. These tests compared the abilities of COFDM and 8-VSB to allow reception of a DTV signal with a simple indoor antenna. The results of these tests have been submitted to the Commission by Sinclair, and raise grave concerns about the risks involved in proceeding with the implementation of DTV while relying exclusively on the 8-VSB

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[14] The DVB website states that India has joined Europe, Australia, New Zealand, and Singapore in selecting COFDM as the transmission standard for their DTV systems as well. DVB News 5.3, 950 Million Can't Be Wrong as India Says Yes to DVB, September 1999 (available at www.dvb.org/dvb_news). A recent survey conducted by the Gallup Organization predicts that DTV viewers will outnumber analog TV viewers in the UK by 2002, and that the end of analog TV in the UK will occur closer to 2006 than the 2010 target date proposed by the British government. Telecomworldwire, Pace Micro Expects Britain to Switch to Digital TV About 2006, Oct. 20, 1999.

modulation standard. In response to growing concerns about 8-VSB, the Commission's Office of Engineering and Technology ("OET") released a report in September 1999 comparing the COFDM and 8-VSB digital modulation standards.[15] While the OET Report found a number of advantages to COFDM, it concluded that the existing 8-VSB standard should not be replaced.[16] As discussed below, however, Univision does not advocate the replacement of 8-VSB with COFDM, but rather the flexibility to use either modulation technique.

Univision's Position. Based on its own observations, as well as the technical findings articulated by Sinclair in its Petition for Expedited Rulemaking filed October 8, 1999,[17] Univision has serious concerns about the ability of the 8-VSB standard to provide for reception of a DTV signal in urban areas. With this Petition, Univision urges the Commission to allow television broadcasters the flexibility to use COFDM as their modulation technique for DTV.

DISCUSSION

I. 8-VSB Digital Modulation Technology Does Not Allow for Reliable Reception of a DTV Signal in Urban Areas

Sinclair's tests comparing the abilities of COFDM and 8-VSB to allow reliable reception of a DTV signal indicate that reliable over-the-air reception of a DTV signal using 8-VSB modulation technology is unlikely in urban areas experiencing complex, dynamic multipath

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15 DTV Report on COFDM and 8-VSB Performance, Office of Engineering and Technology, Federal Communications Commission, FCC/OET 99-2 (September 30, 1999) ("OET Report").

16 Specifically, the OET Report found that, among other things, (1) COFDM can support a viable DTV service, (2) COFDM provides superior indoor reception under static and dynamic multipath conditions, (3) COFDM operations would likely cause no meaningful additional interference to NTSC stations, and (4) COFDM is superior for mobile and portable reception. OET Report at 16-21.

17 Sinclair Broadcast Group, Inc., Petition for Expedited Rulemaking, filed October 8, 1999 ("Sinclair Petition").

conditions. This is particularly true for viewers who must use an indoor antenna. The real world implication of the Sinclair study is that the only way to reliably receive DTV in urban environments is through a cable or satellite television service, neither of which currently carry local DTV signals, and both of which come with a monthly price tag that many urban viewers are unwilling or unable to pay. As is discussed below, these options are inadequate substitutes for the free and reliable over-the-air reception of DTV with a simple indoor antenna that COFDM permits.

A. Requiring Viewers to Purchase and Install Outdoor Antennas Is Not a Viable Solution to the 8-VSB Problem

For decades, American television viewers have come to rely on indoor antennas to receive analog television signals. Viewers have become accustomed to the ease of purchasing a TV set, plugging it in, and then enjoying the programming of their local television stations. Even if the included indoor antenna didn't always allow a flawless picture for every local channel (a little snow, a little ghosting), it certainly provided a watchable signal and access to news and emergency information. Given this experience and the steadily rising expectations of video technology, American television viewers will be stunned to find out that their relatively expensive DTV sets are little more than very large electronic paperweights unless they are connected to a rooftop antenna.

Intensifying their frustration will be the "cliff effect" of digital transmissions. When receiving an inadequate DTV signal, viewers will not get a snowy picture, as they would with an NTSC signal, but no picture at all. At this point, most consumers will be boxing up their new DTV sets to return them and get their money back. For those more determined consumers who assume that the set must be defective and exchange it for a new one, the continuing inability to obtain even a watchable signal using the same indoor antenna that works fine with their NTSC set

will permanently poison the well for future acceptance of DTV. Thus, even if the Commission assumes that an outdoor antenna *could* solve 8-VSB reception problems, most consumers will not have the patience or the willingness to try installing one to find out.

Even those hearty souls who climb onto their roof to mount an outdoor antenna will be crestfallen when they discover that the highly directional antenna necessary to overcome 8-VSB's multipath problems has to be reoriented each time they want to change channels. In the 500-channel "why should I get out of my chair when I have the remote in my hand" universe, such a labor-intensive technology has little chance of success. The Commission has heralded DTV as a revolutionary development in broadcast television technology, allowing crystal clear pictures, multiple streams of programming, and data applications.[18] Many urban viewers, however, will be staring at blank DTV screens and cursing broadcasters, set manufacturers, and the FCC.

1. Even if Viewers Are Willing and Able to Purchase and Install Outdoor Antennas, These Antennas Still Will Not Allow the Same Ease of Reception to Which Viewers Have Become Accustomed

First of all, outdoor antennas are by no means the cure-all for 8-VSB reception problems, particularly in an urban multipath environment. The main reason an outdoor antenna is better able to receive broadcast signals than an indoor antenna is that its larger design and elevated location make it more sensitive to weak signals. However, multipath interference is the result of an antenna receiving not only the main signal, but also reflections of that signal bouncing off buildings, trucks, and other objects. These reflections can confuse the receiver, causing ghosting on NTSC sets, and no picture at all on DTV sets. However, because an outdoor antenna is more sensitive than an indoor antenna, the outdoor antenna might actually pick up *more* of these

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[18] *See* Advanced Television Systems and Their Impact on the Existing Television Broadcast Services, Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order, 13 FCC Rcd 7418, 7420-21 (1998).

multipath reflections, thus exacerbating the reception problems of 8-VSB modulation. To solve this problem, the outdoor antenna must be made highly directional so that it receives the main signal at which it is aimed, but does not pick up the reflected signals coming from other directions. Unfortunately, such a directional antenna will have to be reoriented each time a viewer wants to change channels unless all local television stations use the same transmitter site.

In areas where all DTV stations are not collocated, a viewer will need to install a directional outdoor antenna with rotating capability to direct the antenna towards each local station. In households with more than one television set, each television in the household will need a separate rotating antenna if viewers in the household want to watch different stations at the same time. Further, because outdoor rotating antennas cannot instantaneously rotate at the click of a button, viewers will no longer enjoy the "channel surfing" that has become such a basic aspect of television viewing in America.

Also, with a rotating outdoor antenna, a television set can only receive a signal from the station on which it is focused. As a result, the ability to receive two signals at once will be eliminated, thus preventing use of picture-in-picture functions and the ability to videotape one channel while watching another. In fact, even that most basic of modern American viewing habits, videotape time-shifting, will suffer, as VCRs have no way of rotating the outdoor antenna to receive the program that they have been set to record. Thus, even those DTV viewers that have a rotating outdoor antenna will often find that they end up with a two-hour recording of a blank screen rather than the movie that they have been dying to see. Given that over half of all households currently receive ten or more local television signals, and those in the largest urban markets receive as many as 22 local television signals, 8-VSB DTV antennas will bear a stronger

resemblance to a whirligig than to a TV aerial.[19] In the end, few in urban multipath-ridden environments will find the outdoor antenna/8-VSB DTV combination to be an acceptable source of video programming.

2. The Inability to Install an Outdoor Antenna Will Prevent Many Urban Residents From Receiving DTV

Even if a rotating outdoor antenna could solve urban reception problems, installing such an antenna may not be possible, particularly for the large number of urban residents that live in multiple dwelling units ("MDUs"). Over 25 percent of households in America reside in MDUs.[20] Because most MDU residents do not have access to rooftop space, much less a way to run signal and rotator power cables to the roof, they will be unable to install their own outdoor antennas. Accordingly, MDU residents will have to rely on a common antenna (assuming the building owner is willing to install one). However, in those markets where not all DTV stations are collocated, a single rotating antenna on the roof of an MDU will not suffice, since residents in different apartments will want to watch different stations at the same time. Just as in households with more than one TV set, building owners would have to install a rotating outdoor antenna for each

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[19] *See* Review of the Commission's Regulations Governing Television Broadcasting, Notice of Proposed Rulemaking, MM Docket 91-221 (June 12, 1992) (noting that, as of 1992, "more than half of all households receive 10 or more over-the-air television signals."); In the Matter of Carriage of the Transmissions of Digital Television Broadcast Stations, Notice of Proposed Rulemaking, CS Docket No. 98-120 (July 10, 1998) (noting that "[t]he ten largest markets have an average of 17 stations each with two markets having 22 stations.").

[20] This figure is based on the American Housing Survey for the United States 1997, produced by the U.S. Department of Housing and Urban Development and the U.S. Department of Commerce. The Commission has also noted that, as of 1990, there were almost 31.5 million households in MDUs in the U.S., comprising approximately 28 percent of the total housing units nationwide. *See* Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, Fifth Annual Report, 13 FCC Rcd 24284, 24364 (December 23, 1998).

television set in each apartment in the building. Between the lack of rooftop space and the enormous cost of such a massive installation, this is clearly not a reasonable option. Thus, the 25 percent of American households that live in MDUs will not be eligible to participate in the digital revolution unless an acceptable DTV signal can be received through an indoor antenna or a non-directional rooftop antenna. The 8-VSB modulation standard's inability to meet the needs of these viewers will force MDUs to be analog islands in a digital sea.

B. Forcing Viewers to Subscribe to Cable or Satellite Services in Order to Receive DTV Is Not an Adequate Solution to the 8-VSB Problem

Given the current lack of rotating outdoor antennas, and the extreme user-unfriendliness of such a viewing system, the only way to receive a reliable DTV signal using 8-VSB technology, particularly in areas that experience complex multipath conditions, is through a cable or satellite television subscription. This "solution" to the 8-VSB problem is inadequate for a number of reasons.

First, one of the primary goals of the Commission in supporting DTV was "to preserve and promote *free*, *universally available*, local broadcast television in a digital world."[21] Cable and satellite television are certainly not "free," nor are they "universally available." Cable has still not passed every household in America, and it is often the residents of MDUs that have the greatest difficulty obtaining the required line-of-sight signal necessary to receive service from satellite television providers.

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21 *See* Advanced Television Systems and Their Impact on the Existing Television Broadcast Services, Memorandum Opinion and Order on Reconsideration of the Fifth Report and Order, 13 FCC Rcd 6860, 6861 (1998).

According to Nielsen estimates, over 20 percent of all TV households still rely on free, over-the-air television reception for their programming.[22] Viewers in lower income brackets are disproportionately represented in this group, relying heavily on over-the-air reception. For example, only 50 percent of households earning less than $20,000 subscribe to cable television.[23] Relying on cable and satellite television companies to deliver local broadcasters' DTV signals to the home effectively abandons this substantial portion of the population. If changes are not made, the cessation of analog broadcasting at the end of the DTV transition will leave these households without access to any television programming.

Second, even in homes that subscribe to cable or satellite television, it is far from a certainty that cable or satellite operators will carry the DTV signals of all local broadcasters during the DTV transition period, or that they will carry all of the program signals aired by broadcasters who are engaged in DTV "multicasting." There is also considerable controversy over whether cable and satellite operators will retransmit DTV programming in its original high resolution, possibly depriving subscribers of the major benefit of DTV. The Commission has yet to issue a ruling setting forth the "must-carry" obligations of cable operators with respect to broadcasters' DTV signals,[24] and the issue of satellite carriage of DTV signals has yet to be addressed In the absence of firm must-carry requirements, cable operators are unlikely to carry the DTV signals of every broadcaster in a market, and certainly will not carry supplemental information in the DTV signal that would allow viewers to utilize ancillary services.

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[22] This figure is based on the 1999 Nielsen Television Index.

[23] *See* Media Dynamics, Inc., TV Dimensions '99, at 112 (1999).

[24] *See* In the Matter of Carriage of the Transmissions of Digital Television Broadcast Stations, Notice of Proposed Rulemaking, CS Docket No. 98-120 (July 10, 1998).

Third, it is simply poor policy to require broadcasters to rely on alternative transmission media to reach America's television viewers. For example, the Emergency Alert System cannot depend on the populace having a cable connection in order to receive emergency information. Also, as more and more Americans utilize handheld television receivers and other mobile television devices, the need for a robust over-the-air DTV broadcast technology that can handle dynamic multipath situations grows rather than diminishes.[25] Both Congress and the Commission have worked hard to preserve free, over-the-air television.[26] To now require viewers to subscribe to cable or satellite in order to receive DTV programming would severely undercut that effort and the benefits it has brought to all Americans.

II. The Inability of 8-VSB to Overcome the Effects of Complex Multipath Conditions Disproportionately Burdens Hispanic Viewers

The inability of the Commission-mandated 8-VSB digital modulation technology to provide a reliable DTV signal under complex multipath conditions affects all viewers and

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[25] The Consumer Electronics Manufacturers Association ("CEMA") recently noted that American consumers are increasingly demanding mobility in their equipment for voice telephony, entertainment, information, and data services. *See* Comments, CEMA, WT Docket No. 99-168 (July 19, 1999); Reply Comments, CEMA, WT Docket No. 99-168 (August 13, 1999). In its comments, CEMA proposed that COFDM be the modulation technology for a new terrestrial Mobile Multimedia Broadcast Service because of its ability to overcome mobile multipath problems. The OET has also noted that COFDM provides superior mobile and portable reception. *See* OET Report at 20.

[26] *See, e.g.*, Turner Broadcasting System, Inc. v. FCC, 114 S. Ct. 2445, 2445 (1994) (stating that Congress' objective in passing must-carry legislation was to "preserve access to free television programming for the 40 percent of Americans without cable"); Satellite Delivery of Network Signals to Unserved Households for Purposes of the Satellite Home Viewer Act, Report and Order, 14 FCC Rcd 2654, 2659 (1999) (noting that "The Satellite Home Viewer Act limits the compulsory copyright license to 'unserved' households, reflecting Congress' intent to protect the role of local broadcasters in providing free, over-the-air television to American families."); Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Fifth Report and Order, 12 FCC Rcd 12809, 12820 (1997) ("We expect that the fundamental use of the 6 MHZ DTV license will be for the provision of free, over-the-air television service.").

broadcasters. However, as is discussed below, this problem will have a disproportionate impact on Hispanic viewers and Spanish-language broadcasters such as Univision.

A. The Complex Multipath Conditions Plaguing 8-VSB Reception Exist Primarily in Urban Environments, Thereby Disproportionately Burdening Hispanic Viewers

As discussed above, the inability of 8-VSB to cope with complex, or "dynamic," multipath conditions means that city dwellers will bear the brunt of the Commission's decision to rely exclusively on 8-VSB modulation technology. Although OET's report assessing the merits of COFDM versus 8-VSB appears to imply that dynamic multipath exists only in mobile environments,[27] urban environments also experience dynamic multipath effects resulting from moving objects, such as cars, airplanes, and people. Thus, the OET's conclusions regarding the inability of 8-VSB to overcome dynamic multipath conditions are of great import to urban residents.[28]

Because the Hispanic population of America resides predominantly in urban areas, the inability to receive a DTV signal using 8-VSB modulation with a simple indoor antenna in urban areas will disproportionately impact Hispanic viewers and Spanish-language broadcasters. Based on Nielsen figures, 84 percent of Hispanic households are located in urban areas.[29] By forcing broadcasters to rely exclusively on 8-VSB technology, the Commission is depriving America's Hispanic population, along with other ethnic and racial minorities that tend to reside in urban areas, of access to free, universal over-the-air digital television.

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[27] *See* OET Report at ii, 13.

[28] OET Report at 22 (concluding that COFDM "has better performance in both dynamic and high level (up to 0 dB), long delay static multipath situations" than 8-VSB).

[29] These figures are based on the 1999 Nielsen Television Index and the 1999 Nielsen Hispanic Television Index, which define "urban area" as a metropolitan area that has a population in excess of 85,000 people.

Even if cable, satellite, or outdoor antennas would allow adequate reception of DTV signals, these costly options are not realistic in many urban households. Based on Nielsen estimates for the year 2000, 34.2 percent of Hispanic TV households will earn less than $19,000.[30] Unless the price of DTV sets drops precipitously, many of these households will enter the digital age by way of a converter box. Adding the cost of a rotating outdoor antenna, or cable or satellite television service, may make DTV an unworkable proposition for them, thereby depriving these households of DTV and the important news and emergency information it will provide.

B. Hispanic Viewers Tend to Disproportionately Reside in MDUs, Thereby Exacerbating the Difficulties in Receiving an 8-VSB DTV Signal

As discussed above, residing in a multiple dwelling unit greatly increases the difficulty in receiving an adequate 8-VSB DTV signal. Because Hispanic viewers reside predominantly in urban areas, it is no surprise that they live disproportionately in MDUs relative to the rest of the American population. While 25.1 percent of all households in America reside in MDUs,[31] the proportion of Hispanic households residing in MDUs is 41.9 percent.[32]

As a result, the inability to receive 8-VSB DTV with an indoor antenna is of particular concern for Hispanic viewers and Spanish-language broadcasters. These viewers will not have access to an outdoor antenna, and certainly will not have the ability to control the direction of a

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[30] These figures are based on the 1999 Nielsen Television Index and the 1999 Nielsen Hispanic Television Index. *See also* John Reed & Roberto R. Ramirez, The Hispanic Population in the United States: March 1997 (Update), Census Bureau, U.S. Department of Commerce (issued July 1998) (noting that, in 1996, one-quarter of Hispanic families in America were living below the poverty level).

[31] *See supra* Note 20.

[32] This figure is based on the American Housing Survey for the United States 1997, produced by the U.S. Department of Housing and Urban Development and the U.S. Department of Commerce.

common rooftop antenna shared by all of the MDU's residents. In many markets, the Spanish-language broadcaster's transmitter is not collocated with those of the English-language stations. It is therefore unlikely that a common antenna would be directed towards the Spanish-language station, ensuring that the Hispanic residents of the MDU will be unable to obtain a viewable picture from their Spanish-language station.

C. Cable Is Not a Viable Option for the Spanish-Language Audience

1. A Disproportionate Number of Hispanic and Minority Viewers Do Not Subscribe to Cable

Hispanic viewers rely heavily on over-the-air reception of television programming. While 20.9 percent of all U.S. households rely on over-the-air reception, **40 percent of Hispanic households rely on over-the-air reception for their television programming.**[33] If Spanish-language broadcasters do not have the flexibility to use COFDM to provide a robust over-the-air DTV signal to these viewers, the "digital revolution" foreseen by the Commission will not be seen in the living rooms of Hispanic viewers.

2. Cable Operators Are Less Likely to Carry Spanish-Language Broadcasters

For those Hispanic households that do subscribe to cable, cable carriage of Spanish-language DTV stations is far from a given. As Univision has discussed in the Commission's digital must-carry proceeding,[34] cable companies' continuing unwillingness to carry minority-oriented stations, even in the face of the Commission's NTSC must-carry rules, does not bode

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[33] These figures are based on the 1999 Nielsen Television Index and the 1999 Nielsen Hispanic Television Index.

[34] *See* Reply Comments, Univision Communications Inc., In the Matter of Carriage of the Transmissions of Digital Television Broadcast Stations, CS Docket No. 98-120, filed December 22, 1998, at 6-7.

well for Hispanic viewers planning on receiving local Spanish-language DTV programming from their cable television operator.[35] While DTV must-carry rules could help to alleviate this problem, the inevitable appeals of DTV must-carry rules by the cable industry could forestall enforcement of the rules for years. Moreover, as mentioned above, there is no guarantee that cable operators will retransmit all programming from local stations, or that they will do so in its original resolution, or that they will carry ancillary services for viewers that are included in the DTV broadcast signal.

III. The Benefits of Affording Broadcasters the Flexibility to Use COFDM Far Outweigh the Purported Costs

As demonstrated above, if the Commission continues to rely exclusively on 8-VSB modulation technology, much of America's urban and Hispanic viewers will be left out of the digital revolution. If DTV cannot be received on an indoor antenna in an urban setting, then it will not be received at all by many millions of American viewers. Taking such a path will not only lead to a nation of digital "haves" and "have nots," but threatens the very transition to DTV itself. Achieving the economies of scale necessary to bring DTV prices into the reach of all Americans will be difficult if the initial experience of urban viewers is that DTV sets just don't work. Fortunately, COFDM provides an alternative to the 8-VSB modulation standard that is workable in harsh urban multipath environments. Given the stakes involved, forcing broadcasters to rely

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[35] While cable companies appear somewhat willing to carry the DTV signals of the big-four networks' owned and operated stations, none has agreed to carry Spanish-language broadcasters' DTV signals. *See* AT&T-NBC's Digital Dance, Broadcasting & Cable, June 14, 1999, at 9 (reporting that AT&T and NBC have entered into an agreement for retransmission of digital signals from NBC's 13 owned and operated stations); TW to CBS: Will Carry, Broadcasting & Cable, December 14, 1998, at 6 (reporting that Time Warner has agreed to carry the digital signals of CBS's fourteen owned and operated stations).

exclusively on the 8-VSB modulation standard with its known flaws is far too risky, and completely unnecessary.

Univision acknowledges that, despite the obvious benefits of COFDM and the flaws of 8-VSB, consumer electronics manufacturers with a vested interest in 8-VSB have come forth with a host of dubious reasons why the Commission should "stay the course" and ignore Sinclair's findings. However, while manufacturers and others, including the OET, have attempted to minimize the significance of 8-VSB's shortcomings, none has come forth with any significant evidence that discredits the performance of COFDM in complex, dynamic multipath environments. Instead, manufacturers continue to claim that "miracle chips" are being developed that will enable reception of an 8-VSB signal in urban environments.[36] To date, however, these miracle chips have not surfaced.[37] Univision looks forward to the day when all of 8-VSB's reception problems are solved, if that is possible. The Commission, however, simply cannot allow the DTV transition to be stalled while problems with 8-VSB are fixed, when a viable and proven alternative that has been adopted worldwide, such as COFDM, is available. While putting out a defective product and promising that the bugs will be fixed in the next version may work for software manufacturers, television viewers are not nearly so forgiving.

Finally, urban and Hispanic viewers, and not manufacturers, stand to lose the most if DTV signals cannot be received with simple indoor antennas in urban environments. If the Commission continues to mandate 8-VSB, manufacturers will sell plenty of DTV sets to those consumers who

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36 *See* OET Report at 15; *see also* New Chips Said to Fix DTV Reception Flaws, Communications Daily, Vol. 19, No. 162 (Aug. 23, 1999).

37 Sinclair has noted that it requested, but was denied, permission to test these chips. *See* Comments of Sinclair Broadcast Group, Inc. on DTV Report from FCC Office of Engineering and Technology (Oct. 19, 1999), at 10-11.

subscribe to cable or can afford a rotating rooftop antenna. Then, if the problems with 8-VSB are ever solved, these manufacturers will have the opportunity to sell these same consumers a "new and improved" DTV set. Unlike the Commission, set manufacturers do not have a duty to ensure that the benefits of new communications technologies are available to all Americans. Thus, they have little reason to be concerned for the urban and Hispanic viewers who cannot afford cable or a rooftop antenna, as these individuals are not the affluent consumers that will make electronics manufacturers wealthy in the early days of the DTV transition.

In this regard, it is also worth noting here that Univision has no hidden agenda. If it were convinced that 8-VSB worked fine and would allow Univision to bring DTV to all of its Hispanic viewers, there would be no need for this Petition. However, it is the commonality of Univision's interest in reaching the Hispanic community, and the Hispanic community's interest in receiving Univision programming, that causes Univision to raise this matter before the Commission. It is vitally important that Univision's audience participate in the implentation of DTV, and this participation is too important to accept at face value the manufacturers' assertions that the 8-VSB standard has only struck an ice cube, and not the mammoth iceberg that is now staring broadcasters square in the face.

A. Manufacturers Have Already Recognized the Inability of 8-VSB Modulation to Provide Satisfactory Indoor Reception

While manufacturers assert before the Commission that the indoor reception problems with 8-VSB will be quickly solved by improvements to the technology, their actions elsewhere indicate otherwise. General Electric Corporate Research and Development recently applied to the National Institute of Standards and Technology ("NIST"), a division of the Department of Commerce, for a research grant to study the matter. The project is expected to take 3.25 years,

and includes NBC and Thomson Consumer Electronics as project participants. The description of the research proposal that was released by the NIST states:

> Digital television (usually called high-definition television, or HDTV) presents issues for "free" over-the-air broadcasting because of poor indoor reception in urban areas. A team led by GE Corporate Research and Development plans to develop and demonstrate improved receivers, antennas, and transmitters that will both meet new HDTV standards and enhance indoor reception quality. Because the impairments are complex and not fully understood, the first task is to characterize the indoor reception environment. . . . This research can lead to a system-wide solution that benefits an entire industry but would be too risky and far-reaching for any single company to pursue.[38]

This description of 8-VSB's performance flaws, coming from major manufacturers, hardly creates the impression that 8-VSB's indoor reception problems have already been solved or that they will be easily and quickly solved. Moreover, even if these problems are solved, and the solution is implemented in consumer products three or four years from now at the conclusion of this research project, it is difficult to imagine that implementation of COFDM technology will not be a far faster and surer route to solving the indoor reception problem.

B. Allowing Broadcasters the Flexibility to Use COFDM Will Not Delay the Transition to DTV

Proponents of 8-VSB have attempted to convince the Commission and broadcasters that modifying modulation standards now will delay the DTV transition and the return of analog broadcast spectrum in 2006. These arguments fail on a number of grounds. First, the only Commission action that will certainly delay the transition to DTV is retaining 8-VSB as the exclusive modulation standard. The 20 percent of all households that rely on over-the-air television reception, and the 40 percent of Hispanic households that rely on over-the-air television reception, are unlikely to purchase DTV sets knowing that they will have to purchase and install

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[38] *See* National Institute of Standards and Technology, Project No. 98-04-0024 (available at http://jazz.nist.gov/atpcf/prjbriefs/prjbrief.cfm?ProjectNumber=98-04-0024).

outdoor antennas as well. Moreover, if cable and satellite television operators do not soon begin carrying all local DTV signals, the issue of over-the-air DTV reception will become more important for all consumers, with the loss of channel surfing, picture-in-picture, and time-shifting capabilities making consumers extremely wary of the DTV/outdoor antenna combination.

Second, the DTV transition will not be stalled because of a lack of knowledge of COFDM technology. Countries around the world have adopted COFDM as part of their DTV systems. Thus, consumer electronics manufacturers already have an enormous amount of knowledge on COFDM. On a related note, because COFDM has been adopted worldwide, manufacturers may be able to achieve economies of scale in manufacturing new DTV sets that will soon bring DTV prices within the reach of all Americans.

Third, the transition to DTV has hardly begun; thus, it is not too late for a Commission decision that allows broadcasters to use COFDM. While proponents of 8-VSB argue that the DTV transition has progressed too far to alter modulation standards, such a view represents wishful thinking at best. Only a few thousand DTV receivers have been purchased by consumers to date,[39] and many broadcasters have encountered problems in meeting their DTV construction deadlines.[40] It is particularly disingenuous for manufacturers to complain that early adopters of

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[39] While the trade press reports that 50,000 DTV sets have been sold to retailers and consumers together, Sinclair notes in its Petition that only a fraction of these have been sold to consumers. *See* Gary Arlen, Another Digital Divide: Interindustry, Multichannel News (Oct. 11, 1999), at 78 (noting that "50,000 DTV sets have been sold (at least at the wholesale level) in the first 10 months of availability. (Of course, that's compared with 2 million analog sets per month)."); Sinclair Petition at 34 (noting that the number of consumers purchasing DTV sets amounts to only "four thousandths of one percent of all U.S. television households").

[40] According to the Commission's website, more than half of the broadcasters in markets 11-30 required to construct their digital facilities by November 1, 1999 have not met that deadline. Summary of DTV Applications Filed (available at http://www.fcc.gov/mmb/

(continued...)

DTV will be upset if their sets cannot receive all local DTV signals because of COFDM, when these same manufacturers have basically admitted that those first sets do not work and that the problems will be fixed in the next generation of DTV sets. Either way, these early adopters will be buying new sets, and the only question is whether those sets will be COFDM, or yet another incremental attempt at improving 8-VSB.

Finally, it is worth noting that the refusal of cable operators to carry broadcasters' digital signals has also stunted the development of DTV.[41] Forcing broadcasters to use a modulation technology that is difficult to receive in urban areas except through cable carriage is therefore not a step in the right direction. Because the DTV transition is still in its infancy, a decision to allow broadcasters the flexibility to use COFDM will have little negative impact, and that impact will be nothing compared to the outcry from urban residents if the much-vaunted digital revolution amounts to no more than a very expensive blank screen in their living room. The choice is easy: maintain exclusive reliance on 8-VSB in order to spare the feelings of a few thousand wealthy consumers who have already purchased DTV sets, or allow broadcasters to use COFDM and bring the promise of DTV to all Americans, including the millions of ethnic and racial minorities living in urban areas.

C. Allowing Broadcasters the Flexibility to Use COFDM Will Not Impose Significant Costs on Broadcasters

Univision does not agree that allowing broadcasters to use COFDM technology will impose significant costs on broadcasters. As an initial matter, Univision and other supporters of

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[40] (...continued)
vsd/files/dtvsum.html).

[41] *See* CBO Report (noting that the DTV transition will be extended beyond 2006 due largely to the lack of a digital must-carry requirement).

COFDM do not seek to abandon 8-VSB. Instead, Univision envisions COFDM as an alternative modulation standard, with broadcasters able to use either standard. Thus, any costs incurred by a broadcaster in switching to COFDM will be borne voluntarily. It is Univision's understanding that broadcasters who have already constructed their digital facilities will be able to use those same facilities to broadcast a digital signal using COFDM technology at minimal cost.[42] However, the costs that no broadcaster can endure are the costs of continuing to operate an 8-VSB facility that its urban viewers are unable to receive.

D. Allowing Broadcasters the Flexibility to Use COFDM Will Not Affect the DTV Table of Allotments

Sinclair has proposed that the Commission appoint a COFDM Task Force that will determine interference ratios for COFDM transmissions into existing NTSC and 8-VSB DTV signals.[43] If the Commission takes that step, Univision believes that allowing broadcasters the flexibility to transmit their signals using COFDM will not affect the DTV Table of Allotments. Such an approach will ensure that broadcasters can reach their audiences through the most suitable modulation technique, while protecting against the possibility of harmful interference.

CONCLUSION

For all of the reasons set forth above, Univision urges the Commission to act swiftly to initiate a proceeding to amend its rules to allow broadcasters the flexibility to transmit their signals using COFDM digital modulation technology. Only by allowing this flexibility will the

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[42] Sinclair Petition at 33.

[43] Id. at 35.

Commission be able to ensure that DTV is available to all Americans, and that Hispanic viewers in particular are part of the digital revolution.

Respectfully submitted,

UNIVISION COMMUNICATIONS INC.

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Dated: November 17, 1999

CERTIFICATE OF SERVICE

I, Rhea Lytle, a secretary to the law firm of Fisher Wayland Cooper Leader & Zaragoza L.L.P., hereby certify that on this 17th day of November 1999, I served a true copy of the foregoing **"PETITION FOR EXPEDITED RULEMAKING"** by first class United States Mail, postage prepaid, upon the following:

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***VIA HAND DELIVERY**