

Before the
 Federal Communications Commission
 Washington, D.C. 20554

In the Matter of)
)
 Digital Television Distributed Transmission) MB Docket No. 05-312
 System Technologies)
)

REPORT AND ORDER

Adopted: November 3, 2008

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By the Commission: Commissioners Copps, Adelstein, Tate, and McDowell issuing separate statements.

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I. INTRODUCTION

1. In this Report and Order, we adopt rules for the use of distributed transmission system (“DTS”) technologies in the digital television (“DTV”) service. We find that DTS will provide broadcasters with an important tool for providing optimum signal coverage for their viewers. For some broadcasters that are changing channels or transmitting locations for their digital service, DTS may offer the best option for continuing to provide over-the-air service to current analog viewers, as well as for reaching viewers that have historically been unable to receive a good signal due to terrain or other interference. In the *Second DTV Periodic Report and Order*, the Commission approved in principle the use of DTS technologies, but deferred to a separate proceeding the development of rules for DTS operation and the examination of several policy issues related to its use.¹ In the Notice of Proposed Rulemaking in this docket, we examined the issues related to the use of DTS and proposed rules for future DTS operation.² The rules we adopt will apply to DTS proposals related to operations after the transition to DTV on February 17, 2009.³ DTS proposals related to pre-transition operations will continue to be evaluated under the interim policy approved in the *Second DTV Periodic Report and Order* and clarified in the *DTS Clarification Order*.⁴

2. We find that these rules will improve some DTV stations’ ability to serve more of their viewers within their service areas. We expect that DTS will be especially useful in mountainous areas where single transmitters have been unable to reach viewers in valleys or those blocked by elevated terrain. Furthermore, DTS may be a useful tool for stations to prevent some loss of service to existing analog viewers resulting from changes to the station’s service area in the transition to digital service.

II. EXECUTIVE SUMMARY

3. In summary, we take the following actions to authorize and implement DTS service:

¹ See *Second Periodic Review of the Commission’s Rules and Policies Affecting the Conversion to Digital Television*, MB Docket No. 03-15, Report and Order, 19 FCC Rcd 18279, 18356, ¶¶ 177 (2004) (“*Second DTV Periodic Report and Order*”). *Second DTV Periodic Report and Order*, 19 FCC Rcd at 18290, ¶ 28.

² See *Digital Television Distributed Transmission System Technologies*, MB Docket No. 05-312, Clarification Order and Notice of Proposed Rulemaking, 20 FCC Rcd 17797 (2005) (“*DTS Clarification Order and DTS Notice*”).

³ See Digital Television and Public Safety Act of 2005 (“DTV Act”), which is Title III of the Deficit Reduction Act of 2005, Pub. L. No. 109-171, 120 Stat. 4 (2006) (“DRA”) (*codified at* 47 U.S.C. §§ 309(j)(14) and 337(e)).

⁴ See *Second DTV Periodic Report and Order*, 19 FCC Rcd at 18283, 18355-57, ¶¶ 9, 174-78 (allowing interim DTS operations if such operations provided predicted service only within a station’s currently authorized area and requiring DTS stations to serve essentially all of its replication coverage area); and *DTS Clarification Order*, 20 FCC Rcd at 17798-99, ¶¶ 4-6 (clarifying application of the interim policy).

- We define a DTS service area as being comparable to that of a station's single transmitter facility, and, to implement this approach, we will determine a station's potential maximum authorized service area using the "Table of Distances" proposed in our *DTS Notice*.⁵
- We adopt a waiver policy to permit a station to use DTS if doing so will enable it to continue to serve its existing analog viewers who would otherwise lose service as a result of its transition to digital service.⁶
- We require that DTS transmitters be located within either the DTV station's Table of Distances area or its authorized service area.⁷
- We adopt rules to prohibit stations from using DTS to "cherry-pick" service.⁸
- We afford primary regulatory status to the multiple transmitters used in a DTS network within the areas that such DTS transmitters are authorized to serve.⁹
- We apply to DTS stations the Part 73 licensing and technical rules that apply to DTV single-transmitter stations.¹⁰
- We will evaluate DTS proposals using the same interference standard adopted for DTV stations' post-transition operations in the *Third DTV Periodic Report and Order*.¹¹ We also adopt the root-sum-square ("RSS") method of calculating interference from multiple DTS transmitters.
- We permit a licensee of multiple digital Class A TV, digital LPTV, and/or digital TV translator stations to operate through interconnected single-frequency DTS networks, but will continue to separately license each station in this interconnected single-channel network.¹²
- We approve on an experimental basis the use of DTS technologies by a single digital Class A TV, digital LPTV or digital TV translator station to provide service within its authorized service area.¹³

⁵ See Section IV.C., *infra*.

⁶ See Section IV.C., *infra*.

⁷ See Section IV.C., *infra*.

⁸ See Section IV.C.3., *infra*.

⁹ See Section IV.B., *infra*.

¹⁰ See Section IV.D.2., *infra*.

¹¹ See Section IV.D.3., *infra*.

¹² See Section IV.E., *infra*.

¹³ See Section IV.E., *infra*.

III. BACKGROUND

A. DTS Technologies

4. A DTV “distributed transmission system” (“DTS”) employs multiple synchronized transmitters spread around a station’s service area, rather than the current single-transmitter approach. Each transmitter broadcasts the station’s DTV signal on the same channel. Due to the synchronization of the transmitted signals, DTV receivers treat the multiple signals as reflections or “ghosts” and use “adaptive equalizer” circuitry to cancel or combine them to produce a single signal. (DTS has also been referred to as DTT, for distributed transmission technologies and as DTx, for distributed transmitters.)

5. Full-power analog TV and DTV stations provide service within an area that reaches up to 80 miles from their single transmitting site. Coverage distance depends on a station’s authorized channel, power, antenna height and the characteristics of the surrounding terrain. Some stations have authorized facilities that only provide service to a distance of 30 to 40 miles. In situations where coverage is limited by terrain, such full-power stations sometimes use translators that re-broadcast the station’s signals on a different channel at relatively low power to provide service in a small area. Translator stations are authorized with secondary regulatory status. In addition, in a few cases, full-power analog TV stations have been able to use TV booster stations, which are like TV translator stations but use the same channel as the primary station. DTV distributed transmitters are similar to analog TV booster stations in some ways, but DTV technologies have the potential to enable much broader use of this type of operation.

6. Potentially, DTS can provide service to areas that a single-transmitter station would fail to reach due to natural or man-made obstructions that would block the signal coming from the single-transmitter site. It can provide more uniform signal levels throughout a station’s service area, making indoor reception more reliable. Also, multiple DTS transmitters generally operate at a lower power than a single transmitter to achieve the same coverage and thereby reduce the likelihood of causing interference to neighboring licensees. Use of DTS is also more spectrum efficient than use of translators because DTS uses the stations’ already allotted frequency, whereas translators require one or more additional frequencies. In addition, establishing new DTV translators generally requires separate applications for each translator to be filed during an open filing opportunity with a possible lengthy review process to determine and resolve mutually exclusive applications, while applications for DTS can be submitted by the station seeking to use the additional transmitters and evaluated as part of one application.

7. In the *Second DTV Periodic Report and Order*, the Commission adopted an interim DTS operations policy (“interim policy”). The interim policy permits stations to use DTS within their currently authorized area (including its replication area as well as any maximization area resulting from facilities granted by a construction permit or license). For an interim DTS proposal to be approved, it must be designed to serve essentially all of the station’s replication coverage area.¹⁴ In the *DTS Clarification Order*, the Commission clarified how the interim policy applies during the pendency of this proceeding.¹⁵ Specifically, consistent with the requirement that stations using DTS must serve at least the

¹⁴ *Second DTV Periodic Report and Order*, 19 FCC Rcd at 18356-57, ¶¶ 177-78.

¹⁵ *DTS Clarification Order*, 20 FCC Rcd at 17799, ¶ 4.

population that is currently served with a single transmitter, DTS transmitters must be located within the DTV station's predicted noise-limited service contour (PNLC).¹⁶ The *DTS Clarification Order* also said that the Commission would consider on a case-by-case basis requests from stations to extend beyond the PNLC by a minimal distance, provided such extension is necessary to permit coverage of the area within the PNLC.¹⁷ At present, only one station has applied for and been authorized to operate a DTS system under the interim policy.¹⁸ In addition, the Commission has approved the use of a multiple DTV transmitter system using multiple channels under an experimental authorization.¹⁹ We also note that TV station WSTE, channel 7, Ponce, PR, which currently operates an integrated system of synchronous boosters to broadcast its analog signal throughout its coverage area, will be allowed to convert its current system to a digital network when it files its application for post-transition operations.²⁰

B. The DTV Transition

8. In early 2006, after the release of the Commission's *DTS Clarification Order and DTS Notice*, Congress enacted significant statutory changes relating to the DTV transition. Most importantly, the DTV Act established February 17, 2009 as the hard deadline for the end of the

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ Reading Broadcasting, Inc. ("RBI"), licensee of WTVE-DT, channel 25, Reading, PA was granted a DTS STA on Nov. 30, 2006; see FCC File No. BSDTS-20060407ACP.

¹⁹ On May 23, 2007, the Video Division of the Commission's Media Bureau issued a letter granting the Metropolitan Television Alliance ("MTVA") experimental authority to operate a low-power DTV multiple-transmitter system in New York, NY. The MTA consists of the licensees of ten New York City area television stations (WCBS-TV, WNBC-TV, WNYW-TV, WABC-TV, WWOR-TV, WPIX-TV, WNET-TV, WPXN-TV, WNJU-TV, and WXTV(TV)). These stations operated digital facilities from the North Tower of the World Trade Center, which was destroyed in the September 11th attack. The experimental DTV network is testing the ability of these stations to provide fill-in over-the-air DTV coverage in areas of New York City where adequate coverage is not provided. See Letter from Barbara A. Kreisman, Chief, Video Division, Media Bureau (1800E1-KRH) to Metro Television Alliance, LLC, c/o Thomas P. Van Wazer (dated May 23, 2007). In an ex parte in September 2008, presented the results of its field test study. See MTVA *ex parte* (dated Sept. 11, 2008). In addition, two stations applied for and were authorized to operate a DTS system under an experimental authorization; however, such authority has now expired for these stations. The Pennsylvania State University, NCE licensee of WPSU-DT, channel 15, Clearfield, PA, which was the first to build an experimental DTS system, applied for this system before the interim DTS policy was established, but has since allowed authority for this system to expire. See FCC File Nos. BPEXT-20010608ABD, BEPEXT-20020618ABG and BEPEXT-20030805ARU. Tribune Broadcast Holdings, Inc., licensee of WTTK-DT, channel 54, Kokomo, IN, applied for an experimental DTS system because they could not meet the interim policy restrictions. The station, however, has now ceased operating its experimental DTS system and has withdrawn its experimental authority in order to focus on the construction of the station's post-transition facility. See FCC File Nos. FCC File Nos. BPEXT-20050427AEV and BEPEXDT-20060519ACV.

²⁰ Siete Grande, licensee of WSTE, seeks to fully replicate the coverage of its analog booster system when it transitions to DTV. See Siete Grande comments at 16-17. See also Comments of Siete Grande in MB Docket No. 87-268 (filed Jan. 25, 2007). In the *Seventh Report and Order* in the DTV proceeding, the Commission revised WSTE's parameters in the post-transition DTV Table Appendix B to enable the station to replicate its analog coverage. The Commission also instructed the Media Bureau to process, and grant as appropriate, the applications that will permit WSTE to continue serving its coverage area with its digital signal. *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MB Docket No. 87-268, Seventh Report and Order and Eighth Further Notice of Proposed Rulemaking, 22 FCC Rcd 15581, 15609, n.168 (2007) ("*Seventh Report and Order*" and "*Eighth Further Notice*").

DTV transition and the end of analog transmissions by full power stations.²¹ The DTV Act also requires full-power television broadcast licensees to cease operations outside the core DTV spectrum (*i.e.*, channels 2-51) after February 17, 2009 in order to make that spectrum available for new public safety and commercial wireless services.²² Full-power TV broadcast stations must be operating inside the core TV spectrum and only in digital at the end of the transition.²³

9. On August 6, 2007, the Commission released the post-transition DTV Table of Allotments (“DTV Table”), providing eligible stations with channels for DTV operations after the DTV transition on February 17, 2009.²⁴ On December 22, 2007, the Commission adopted a Report and Order in the Third DTV Periodic Review proceeding.²⁵ In the *Third DTV Periodic Report and Order*, we established a number of procedures and rule changes designed to provide flexibility to broadcasters to ensure that they meet the statutory transition deadline and complete construction of their final, post-transition (DTV) facilities. Among other things, we set construction deadlines for full-power television stations to construct their full, authorized post-transition (DTV Table Appendix B) facilities²⁶ and established the procedures and standards applicants must follow in filing applications for facilities specified in the final, post-transition DTV Table.²⁷ On May 30, 2008, the Commission lifted the freeze on the filing of maximization applications, as well as on the filing of petitions for rulemaking to allow requests for channel substitutions to the DTV Table.²⁸

²¹ See *supra* note 3.

²² See 47 U.S.C. § 337(e)(1).

²³ *Id.* We note that the statutory transition deadline applies only to full-power stations. See 47 U.S.C. §§ 309(j)(14) and 337(e). The Commission previously determined that it has discretion under 47 U.S.C. § 336(f)(4) to set the date by which analog operations of stations in the low power and translator service must cease. *Amendment of Parts 73 and 74 of the Commission’s Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations*, MB Docket No. 03-185, Report and Order, 19 FCC Rcd 19331, 19336 ¶ 12 (2004) (“*Digital LPTV Report and Order*”). The Commission opted not to establish a fixed termination date for the low power digital television transition until it resolved the issues concerning the transition of full-power television stations. *Id.* at 19336 ¶ 19.

²⁴ See generally *Seventh Report and Order*, *supra* note 20; *on recon.*, Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and Eighth Report and Order, 23 FCC Rcd 4220 (2008) (“*First Order on Reconsideration*”). The post-transition DTV Table is the result of informed decisions made by eligible licensees and permittees during the Commission’s channel election process. The channel election process was established by the Commission in the 2004 *Second DTV Periodic Report and Order*.

²⁵ See *Third Periodic Review of the Commission’s Rules and Policies Affecting the Conversion to Digital Television*, MB Docket No. 07-91, Report and Order, 23 FCC Rcd 2994 (2007) (“*Third DTV Periodic Report and Order*”).

²⁶ See *id.* at 3014-26 (Section V.B.).

²⁷ See *id.* at 3059-63 (Section V.D.).

²⁸ See Public Notice, “Commission Lifts the Freeze on the Filing of Maximization Applications and Petitions for Digital Channel Substitutions, Effective Immediately,” DA 08-1213 (MB rel. May 30, 2008).

IV. DISCUSSION

10. In this Report and Order, we adopt rules for television broadcasting using a DTS network.²⁹ Specifically, we will permit DTV station licensees and permittees to use DTS technologies where feasible in place of a single transmitter to provide service as authorized. These rules will apply to stations' post-transition operations. We apply to DTS stations the Part 73 licensing and technical rules that apply to DTV single-transmitter stations and will evaluate DTS proposals using the same interference standard adopted for DTV stations' post-transition operations in the *Third DTV Periodic Report and Order*.³⁰ Stations wishing to apply to use DTS must wait until the Commission obtains approval from the Office of Management and Budget ("OMB") for the revised forms and modified information collection requirements. The Media Bureau will announce by public notice when the Commission is ready to accept applications for DTS. Until the changes to the necessary forms are effective,³¹ we will continue to accept DTS proposals under our interim policy to be evaluated as a request for Special Temporary Authority ("STA").³²

11. For example, we recognize that stations may wish to use DTS to ensure that their current analog viewers do not lose service after the station transitions to digital-only operation. A station that wishes to use DTS for this purpose need not wait for the final rules to take effect, but may apply under the interim policy and request a waiver of the limitations to authorized service area, if necessary.³³ Stations that receive an STA to use DTS under the interim policy must still apply to use DTS for their post-transition operations once our new rules and forms become effective.

12. The Commission received 23 comments and 11 reply comments to the *DTS Notice*.³⁴ The *DTS Notice* sought comment on the use of DTS technologies, as well as on the asserted benefits of such technologies, and proposed to permit DTV station licensees and permittees to use DTS technologies where feasible in place of a single transmitter to provide service as authorized.

A. Use and Benefits of DTS Technologies

13. We adopt our proposal in the *DTS Notice*³⁵ to authorize DTV stations to use a network of DTS transmitters in lieu of a single-transmitter facility. The record generally supports our proposal to allow DTV stations to use DTS technologies and confirms the spectrum

²⁹ See Appendix B – Rule Changes; 47 C.F.R. § 73.626. The rules adopted herein are revised from those proposed in the *DTS Notice* to better effectuate the goals of this proceeding.

³⁰ See *Third DTV Periodic Report and Order*, 23 FCC Rcd at 3059-73 (Sections V.D-F.).

³¹ See Appendix C – Form Changes to Forms 301 and 340.

³² 47 CFR § 73.1635. See *DTS Clarification Order*, 20 FCC Rcd at 17798-99, ¶¶ 4-6. In addition, any DTS proposals related to pre-transition operations may be evaluated under the interim policy.

³³ See discussion of waiver policy *infra* ¶ 28.

³⁴ See Appendix A – List of Commenters.

³⁵ *DTS Notice*, 20 FCC Rcd at 17800, ¶ 7.

use efficiency and improved consumer service likely to result from the use of DTS.³⁶ We disagree with the claims of New America Foundation and others (collectively “NAF, *et al.*”)³⁷ that areas within a DTV station’s authorized service area that are now not reached because of terrain or other reason, constitute unreachable space that should be made available for other uses.³⁸ Because we decide herein to limit DTS service to the area that the DTV station is, or would be, authorized to serve with a single transmitter, we disagree that DTS would confer new spectrum rights to broadcasters.³⁹ In addition, our rules for DTS operations address the concerns raised in the docket about potential abuse and cherry-picking.⁴⁰ We note that stations using DTS should be aware that some of their viewers may need to adjust their antennas to receive the DTS signal from a direction that is different from the direction of the signal from the main antenna.⁴¹

14. DTS proponents tout a number of benefits,⁴² which mostly include those anticipated by the Commission.⁴³

- First, DTS will allow stations to reach viewers that would not otherwise be served by conventional means.⁴⁴ This includes reaching rural and remote areas, as well as

³⁶ See Alliance comments at 1; APTS comments at 1; Coalition comments at 1; CDE Reply comments at 1; CBA comments at 1; Cox Reply comments at 1; Harris comments at 5-6; KJLA, *et al.* comments at 1; LIN comments at 1; MWG comments at 1-2; MSTV comments at 1; NAB comments at 1; Paxson comments at 1-2; Rohde & Schwarz, Inc. and Samsung comments at 1; Siete Grande comments at 3; Smith comments at 1-2; SunBelt comments at 1; Penn State comments at 1; TVPlus comments at 1.

³⁷ The sole opposition to the proposal to allow broadcasters to use DTS technologies comes from a joint filing by several consumer groups, which include: New America Foundation (NAF), Media Access Project (MAP), Acorn Active Media Foundation, Action Coalition for Media Education (ACME), Alliance for Community Media (ACM), Benton Foundation, Center for Digital Democracy (CDD), Center for Neighborhood Technology (CNT), Champaign-Urbana Community Wireless Network (CUWiN), Citizens for Independent Public Broadcasting (CIPB), Common Cause, Consumer Federation of America (CFA), FreeNetworks.org, Free Press, Future of Music Coalition (FMC), Hawaii Consumers, MediaChannel.org, Media Alliance, Prometheus Radio Project, Reclaim the Media, and Tribal Digital Village (TDV) (collectively, “NAF, *et al.*”). See *NAF, et al.* comments filed Feb. 7, 2006.

³⁸ The Commission recently authorized the operation of new low power devices in the TV broadcast spectrum at locations where individual channels/frequencies are not being used for authorized services. See *Unlicensed Operation in the TV Broadcast Bands*, ET Docket No. 04-186, First Report and Order and Further Notice of Proposed Rulemaking, 21 FCC Rcd 12266, 12267, ¶ 2 (2006) (“*White Space Order*”).

³⁹ See *NAF, et al.* comments at 6, 9, 13.

⁴⁰ See cherry-picking discussion at section IV.C.3., *infra*.

⁴¹ Moreover, in adjusting their antenna to acquire the DTS signal, such adjustment may cause loss of other broadcast signals, necessitating re-scanning of the channels on the viewer’s DTV set or converter box.

⁴² See, e.g., Alliance comments at 1; APTS comments at 1; Coalition comments at 1; CDE Reply comments at 1; CBA comments at 1; Cox reply comments at 1; Harris comments at 5-6; KJLA, *et al.* comments at 1; LIN comments at 1; MWG comments at 1-2; MSTV comments at 1; NAB comments at 1; Paxson comments at 1-2; Rohde & Schwarz, Inc. and Samsung comments at 1; Siete Grande comments at 3; Smith comments at 1-2; SunBelt comments at 1; Penn State comments at 1; TVPlus comments at 1.

⁴³ *DTS Notice*, 20 FCC Rcd at 17801-02, ¶ 12.

⁴⁴ See, e.g., APTS comments at 1-2; Coalition comments at 1-3; LIN comments at 1-2; MSTV comments at 1; NAB comments at 1, 5; Paxson comments at 1-3; Paxson Reply at 2. See also MWG comments in MB Docket No. 03-15 at 14. We agree with MSTV that “the core purpose of DTS is to enhance the reliability of service to a station’s over-the-air viewers.” MSTV comments at 10.

filling-in gaps in coverage within a station's authorized service area caused by terrain blockage.

- Second, DTS techniques will distribute more uniform and higher-level signals throughout a DTV station's service area.⁴⁵ This will offer improved service within stations' coverage areas, including near the edges where signals can be low using traditional means. We agree that this should increase viewership through improved reception without causing more interference to neighboring operations, as well as minimize the preclusive impact on existing and future surrounding stations.⁴⁶
- Third, DTS will improve reception quality and reliability through operation of transmitters at lower power and height.⁴⁷ It will improve reception of DTV signals on pedestrian and mobile devices, and enhance indoor reception, especially for suburban viewers. DTS may also allow manufacturers to create new types of reception devices.⁴⁸
- Fourth, DTS offers an alternative to stations whose single, taller tower proposals may have been stymied by tower height and placement limits associated with aeronautical safety or local zoning concerns, including aesthetic and safety concerns about taller towers.⁴⁹ DTS may also minimize delays and expenses to build out because broadcasters can collocate on existing wireless towers.⁵⁰
- Fifth, a DTS network will enhance spectrum efficiency because such a network uses the same channel for all of its operations.⁵¹
- Sixth, DTS may facilitate the DTV transition by delivering more reliable digital signals to viewers and by offering a less costly alternative to constructing a large single tower facility.⁵² DTS can also benefit stations moving their DTV operations to new channels where existing transmission equipment cannot be re-used.⁵³ DTS operation offers broadcasters another means to achieve their build-out deadlines, thereby advancing the DTV transition. Broadcasters will be able to reach larger portions of their audiences by delivering signals to segments of the public who,

⁴⁵ See, e.g., APTS comments at 1-2; MWG comments at 8; NAB comments at 1, 5; Paxson comments at 2-3; RBI, 2-3; TVPlus comments at 3.

⁴⁶ *Id.* We disagree with the NAF, *et al.* who question whether DTS would actually increase viewership. NAF, *et al.* comments at 12-13.

⁴⁷ See, e.g., Alliance comments at 1; LIN comments at 1-2; MWG comments at 3; NAB comments at 1, 5; Paxson comments at 2-3; RBI, 2-3; TVPlus comments at 3.

⁴⁸ See, e.g., Paxson, 2-3.

⁴⁹ See, e.g., LIN comments at 1-2; NAB Reply comments at 3; Paxson comments at 5.

⁵⁰ See, e.g., RBI comments at 2-3; TVPlus comments at 3-5; TVPlus Reply at 1.

⁵¹ See, e.g., NAB comments at 2.

⁵² See, e.g., Coalition comments at 3.

⁵³ See, e.g., NAB Reply comments at 3.

absent DTS solutions, might not be able to receive a station's DTV signal over the air.⁵⁴

- Seventh, for the reasons already noted (*e.g.*, improved service), DTS will enhance DTV broadcasters' ability to compete with cable and satellite service and offer an effective over-the-air alternative for many viewers. We disagree that this competitive benefit necessitates or warrants that we permit DTS stations to expand their over-the-air service throughout their entire Designated Market Areas ("DMAs"), as argued for by Paxson and others.⁵⁵
- Finally, we believe DTS may be a useful tool for stations to address the service loss situation that came to light during the Wilmington DTV early transition, where some analog viewers of station WECT, Wilmington, NC (channel 6), who lived beyond the station's digital service area, lost service when the station transitioned to digital-only operations.⁵⁶ DTS may provide stations in this situation with the ability to continue to serve some of their analog viewers who would lose service as a result of the stations' transition.⁵⁷ We also believe that DTS may allow stations to improve service to viewers that are within a station's digital service contour and previously received a strong analog signal, but are now at the edge of the digital service area and now receive a weaker signal.

B. Regulatory Status

15. We adopt our proposal in the *DTS Notice*⁵⁸ to afford primary regulatory status to the multiple transmitters used in a DTS network within the areas that such DTS transmitters are authorized to serve.⁵⁹ The record supports the grant of primary status to DTS transmitters located within a station's authorized service area.⁶⁰ We adopt our tentative conclusion and find that primary status within a station's authorized service area is essential for stations to implement

⁵⁴ See, *e.g.*, MWG comments at 3.

⁵⁵ See Paxson comments at 16. Paxson argues that DTS technology, if used to expand coverage throughout a station's DMA, has the "potential to revitalize over-the-air broadcasting" and would enable DTS broadcasters to compete with cable and satellite service.

⁵⁶ See *Ex Parte* Comments of MWG (dated Sept. 29, 2008). See also Written Statement Of The Honorable Kevin J. Martin, Chairman, Federal Communications Commission, Before the United States Senate Committee on Commerce, Science, and Transportation (dated Sept. 23, 2008) at 7-8; http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-285589A1.doc.

⁵⁷ We recognize that DTS will not solve every instance in which analog viewers lose service after the digital transition. For example, in some situations, use of DTS might interfere with another station's service and could not be permitted. Other solutions are available, including increasing the station's power, using translators, changing channels, and using another station's subchannel to provide service via multicasting.

⁵⁸ *DTS Notice*, 20 FCC Rcd at 17801, ¶ 11.

⁵⁹ See discussion of DTS service area *infra* Section IV.C.

⁶⁰ See, *e.g.*, Alliance comments at 1-2; APTS comments at 3; Coalition comments at 6; Coalition Reply at 2-4; KJLA et al. comments at 2; MSTV comments at 2; MSTV Reply comments at 1; MWG comments at 8; NAB comments at 3; Paxson comments at 12; RBI comments at 3; Siete Grande comments at 3; Smith comments at 2; Sunbelt comments at 2; TVPlus comments at 5.

a successful DTS network and obtain the benefits offered by DTS techniques.⁶¹ We agree with MWG that, without primary treatment, stations would face protection issues and would be discouraged from using DTS.⁶² We conclude that, without primary status, stations would lose primary coverage to significant populations that now enjoy such via a single-transmitter. As described below, we will consider waiver requests, on a case-by-case basis, to permit a station to use DTS to continue serving its existing analog viewers within its analog Grade B contour who would otherwise lose over-the-air service after the station terminates analog broadcasting.⁶³ Where granted, these areas will also continue to have primary regulatory status, as they currently have for analog service.

C. Service Area and Location of Transmitters

16. As explained in more detail below, we adopt a Comparable Area Approach, meaning that a DTS service area will be comparable to that of the station's single transmitter facility, and define a DTS station's potential (or hypothetical) maximum authorized service area using our proposed "Table of Distances."⁶⁴ The question of how best to define a DTS station's authorized service area garnered the most attention in the record, with commenters debating a variety of alternative approaches. Our discussion in this section focuses, first, on whether a DTS station's authorized service area should be comparable to that of the station's single transmitter facility ("Comparable Area Approach"), or if a DTS station should be authorized to significantly expand its service area beyond that now permitted by a single-transmitter broadcaster under the rules ("Expanded Area Approach"). Next, we determine how best to implement the adopted approach. In implementing that approach, we must also address the concerns that a DTS station may use its DTS network to "cherry-pick" (*i.e.*, favor certain populations over others), or otherwise operate in a way that would affect a station's obligation to serve its principal community of license. Finally, we discuss the placement of the multiple DTS transmitters.

1. Comparable Area Approach Adopted

17. We adopt a Comparable Area Approach as proposed in the *DTS Notice*.⁶⁵ For this purpose, we will define a DTS station's maximum authorized service area to be comparable to that which the DTV station could be authorized to serve with a single transmitter.⁶⁶ A DTS broadcaster will be allowed to apply to provide service to a distance comparable to the hypothetically maximized service distance that could be reached by a single-transmitter station.⁶⁷

⁶¹ *DTS Notice*, 20 FCC Rcd at 17801-02, ¶ 12.

⁶² MWG comments at 8.

⁶³ See discussion of waiver policy *infra* ¶ 28.

⁶⁴ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(c).

⁶⁵ *DTS Notice*, 20 FCC Rcd at 17804, ¶ 20.

⁶⁶ Subject to their being able to meet other requirements regarding service and interference, DTS broadcasters may serve all areas within a station's authorized service area as defined in the new post-transition DTV Table. See 47 C.F.R. § 73.622(i). Similarly, a DTS broadcaster may also serve all areas within the station's maximized service area authorized. Stations applying to use DTS must have an authorized service area or establish an authorized service area prior to filing their DTS application. See *infra* at ¶ 41.

⁶⁷ The hypothetically maximized service distance refers to stations' facilities equal to the maximum power and antenna height allowed by our rules, which limit how large stations' service areas can be. See 47 C.F.R. § 73.622(f). (continued....)

The Commission's rules generally define a DTV station's service area as the station's predicted noise-limited service contour.⁶⁸ DTV service areas are calculated using the parameters specified in the DTV Table or authorized by a DTV construction permit or license.⁶⁹ Commenters were divided on the DTS service area issue, with some favoring a Comparable Area Approach⁷⁰ and others advocating an Expanded Area Approach,⁷¹ such as the DMA Approach, which was tentatively rejected in the *DTS Notice*.⁷²

18. We select the Comparable Area Approach over an Expanded Area Approach for several reasons. First, this approach offers consistent treatment to both single-transmitter and DTS stations and best balances the primary coverage rights between stations choosing to employ DTS and those choosing not to do so. An Expanded Area Approach is not necessary to implement DTS service or obtain its core benefits.⁷³ Second, we find that this approach best protects the principles of localism by restricting a station's focus to its traditional coverage area.⁷⁴ Third, we find that a Comparable Area Approach is more consistent with our TV channel allotment and licensing policies applicable to single-transmitter stations.⁷⁵ Fourth, we find that this approach, unlike an Expanded Area Approach, would preserve opportunities for new

It is hypothetical because it assumes approval of such maximized facilities. Stations, however, must still apply for facilities to serve such a maximized coverage area and obtain Commission approval. In addition, stations must obtain FAA or state or local government approval as may be necessary for such facilities. A station applying for DTS facilities would not be required to first apply for Commission approval of their hypothetical single-transmitter maximum facilities because, as discussed *infra* at ¶ 25, we have established a Table of Distances for this purpose.

⁶⁸ 47 C.F.R. § 73.622(e) (“The service area of a DTV station is the geographic area within the station's noise-limited F(50,90) contour where its signal strength is predicted to exceed the noise-limited service level.”).

⁶⁹ *Id.* at § 73.622(i) (post-transition DTV Table). *See also id.* at §§ 73.622(e)(2) and 73.625(b). Stations should also consult OET Bulletin No. 69 for guidance in calculating a station's DTV service area using the Longley-Rice methodology.

⁷⁰ Several commenters said that DTS stations should be allowed to apply for facilities to serve an area generally comparable to the area they could cover with a single transmitter. *See, e.g.,* Alliance at 2; CBA at 3; Harris 2; Siete Grande at 14; Smith at 2. In addition, MSTV and Cox agree that stations should not be afforded dramatically expanded primary coverage rights, stating that a DTS service area should be defined to “preclude expanded primary coverage rights except into traditionally underserved rural areas.” MSTV comments at 10-11; and Cox reply at 1-2. We further note that the NAF, et al., while generally opposing DTS, particularly oppose any expansion beyond a station's traditional authorized service area in that such use may impact the availability and use of TV white space. NAF et al. comments at 9.

⁷¹ Other commenters advocate for an approach tentatively rejected in the *DTS Notice* at 17803-05, ¶¶ 18-19, but advanced by the Coalition, to permit primary DTS use within a station's entire DMA, subject only to interference and minimum service requirements (“DMA Approach”). *See, e.g.,* Coalition comments at 2, 6-9; CDE comments at 1-2; KJLA et al. comments at 1; NAB comments at 4; Paxson comments at 5; RBI comments at 4; Sunbelt comments at 3-5; Penn State comments at 4; TVPlus comments at 6-7. Alternatively, these commenters seek to afford secondary status to DTS use outside a station's authorized service area but within a station's DMA (“DMA Secondary Service Approach”).

⁷² *DTS Notice*, 20 FCC Rcd at 17803-04, ¶ 18.

⁷³ *See supra* ¶ 13-14.

⁷⁴ *See, e.g.,* MSTV comments at 11 (warning that “arbitrary service expansion” may “undermine principles of localism”). *See also, e.g.,* Alliance at 2; CBA at 3; Harris 2; Siete Grande at 14; Smith at 2.

⁷⁵ *See, e.g.,* 47 C.F.R. § 73.623(h). *See also generally* 47 C.F.R. Parts 73 and 74.

stations, including low-power stations.⁷⁶ Finally, while a promising technology, DTS is still new and we hesitate at this time to dramatically redefine the broadcast television service based on that technology. We thus find that DTS stations should not be afforded dramatically expanded primary coverage rights.⁷⁷

19. We also note that stations using single-transmitter or DTS operation can expand their reach through TV translators or low power television (“LPTV”) operations, albeit on a secondary basis.⁷⁸ In this regard, we disagree with the NAF, et al.⁷⁹ that argue that TV operations should be restricted to provide more vacant channels for the operation of unlicensed devices.⁸⁰ The TV services for which this spectrum is allocated on primary and secondary bases are important media for the provision of news, information, and entertainment that warrant priority over those unlicensed broadband devices.

20. The primary Expanded Area Approach advanced by commenters is the DMA Approach, advanced by the Coalition, which would allow DTS broadcasters to expand their service to cover an entire DMA, limited only by the requirement that they do not cause unacceptable interference to another licensee.⁸¹ The Commission, however, tentatively rejected this DMA Approach in the *DTS Notice*⁸² and we remain troubled by the implications of allowing significantly greater coverage for DTS than the coverage that can be achieved by a traditional single-transmitter station. We find that it is not appropriate at this time to expand significantly the coverage rights of some stations by allowing DTS operation on a primary basis beyond a station's authorized maximized area and bounded only by the DMA to which it is assigned by the Nielsen Media Research (Nielsen).⁸³ As explained in the *DTS Notice*, many DMAs cover extensive areas and the DMA Approach could allow some stations to provide service into communities 100 or more miles away from their community of license.⁸⁴ We agree with MSTV and others that DTS must not be used to undermine localism and that a DTS service area should not shift a station's primary focus from its community of license.⁸⁵ We find that DTS

⁷⁶ See also, e.g., Alliance at 1 (saying DTS must not undermine the contributions of boosters, translators and low-power stations).

⁷⁷ *DTS Notice*, 20 FCC Rcd at 17802, ¶ 14.

⁷⁸ See *infra* ¶¶ 24,34.

⁷⁹ NAF et al. comments at 9.

⁸⁰ See *White Space Order*, *supra* note 38.

⁸¹ See, e.g., Coalition comments at 2, 6-9; CDE comments at 1-2; KJLA et al. comments at 1; NAB comments at 4; Paxson comments at 5; RBI comments at 4; Sunbelt comments at 3-5; Penn State comments at 4; TVPlus comments at 6-7.

⁸² *DTS Notice*, 20 FCC Rcd at 17803-04, ¶ 18.

⁸³ Nielsen assigns DMAs based on measured viewing patterns and these assignments occasionally change.

⁸⁴ *Id.*

⁸⁵ MSTV comments at 11. MSTV is concerned about the impact of “service shifts and expansions within a station's own DMA” on local viewers. MSTV would, however, allow expanded service only into “traditionally underserved rural areas in which populations have historically been insufficient to sustain viable, full-service over-the-air station.” *Id.*

technology's core purpose should be to improve service to a DTV station's local community, both in increasing reception reliability to existing viewers and reaching local viewers now blocked because of terrain and other like impediments. A Comparable Area Approach achieves that purpose, while the DMA Approach may distract stations from this important policy goal.

21. At the crux of the DMA Approach is the proposition that a DMA is a broadcaster's "natural market."⁸⁶ Proponents of the DMA Approach argue that a Comparable Area Approach imposes an artificial limit on the full application and benefits of DTS technologies because DTS broadcasters are no longer constrained by the reach of a single-transmitter.⁸⁷ The Coalition and others argue that our concerns about localism are "misplaced" because the Commission's rules now require stations to serve their community of license and stations are now carried via cable and satellite throughout their DMA.⁸⁸ They also argue that an Expanded Area Approach would better enable over-the-air DTV service to compete with cable and satellite service.⁸⁹

22. Broadcasters, however, are licensed to local communities, not DMAs, and for good reason. This ensures that broadcasters are responsive to the unique interests and needs of the individual communities to which they are licensed.⁹⁰ Section 307(b) of the Communications Act explicitly requires the Commission to "make such distribution of licenses, frequencies, hours of operation, and of power among the several States and communities as to provide a fair, efficient, and equitable distribution of radio service to each of the same."⁹¹ Pursuant to this mandate, when the Commission allocates channels for a new broadcast service, its first priority is to provide general service to an area, but its next priority is for facilities to provide the first local service to a community.⁹² In carrying out the mandate of Section 307(b), the Commission has long recognized that "every community of appreciable size has a presumptive need for its own transmission service."⁹³ Indeed, the Supreme Court has stated that "[f]airness to communities [in

⁸⁶ See, e.g., Paxson comments at 7 (stating that the DMA has emerged as "broadcasters' natural market"). Although concerned about the impact on localism, MSTV joins in this general assertion that "the DMA approach is a more accurate reflection of a station's market." MSTV, however, says that the Commission must "ensure that a station generally cannot expand service to areas within its DMA that are nevertheless far outside the station's existing service area." MSTV comments at 10.

⁸⁷ See, e.g., Paxson comments at 5-6, 8; RBI comments at 4.

⁸⁸ See, e.g., Coalition comments at 10. Paxson also notes that the Commission licenses new wireless services via geographically-based areas. Paxson comments at 7.

⁸⁹ See, e.g., Paxson comments at 7; Coalition comments at 2.

⁹⁰ The Commission has a long-standing policy to foster broadcast "localism," which it has defined as the airing of "programming that is responsive to the needs and interests of their communities of license." See, e.g., *Broadcast Localism*, MB Docket No. 04-233, Report and Notice of Proposed Rulemaking, FCC 07-218 (rel. Jan. 24, 2008) ("*Broadcast Localism NPRM*"); Notice of Inquiry, 19 FCC Rcd 12425, ¶ 1 (2004) ("*Broadcast Localism NOI*").

⁹¹ See 47 U.S.C. § 307(b) ("In considering applications for licenses, and modifications and renewals thereof, when and insofar as there is demand for the same, the Commission shall make such distribution of licenses, frequencies, hours of operation, and of power among the several States and communities as to provide a fair, efficient, and equitable distribution of radio service to each of the same.")

⁹² See *Broadcast Localism NOI*, 19 FCC Rcd at 12425, ¶ 2.

⁹³ See *id.*

distributing radio service] is furthered by a recognition of local needs for a community radio mouthpiece.”⁹⁴ Moreover, we find that it would be inappropriate to redefine the broadcast television service in this proceeding, which pertains only to DTS. Adopting an expanded service area only for DTS broadcasters would disfavor stations that choose to continue using a single-transmitter.

23. It is certainly true that the Commission has several important rules in place designed to protect localism.⁹⁵ We agree with commenters, for example, that our principal community coverage requirement plays an important part in protecting localism.⁹⁶ Moreover, as noted by the Coalition, a broadcaster’s service to its local community will be evaluated when seeking renewal of its license.⁹⁷ These rules, which will continue to apply to DTS stations as they do single-transmitter stations, work within the existing licensing framework to protect localism and highlight the importance of maintaining a station’s focus on its community of license.

24. We adopt our tentative conclusion in the *DTS Notice*⁹⁸ that an Expanded Area Approach, particularly throughout a geographically large DMA, would subvert our current licensing rules by allowing a station to obtain the rights to serve a new community where a new station, including a low-power station, might otherwise be licensed.⁹⁹ We reject the argument of the Coalition and others that a DMA Approach would not preclude new stations “because DTS

⁹⁴ See *id.*; *Pacific Broadcasting of Missouri LLC*, 18 FCC Rcd 2291 (2003) (quoting *Public Service Broadcasting of West Jordan, Inc.*, 97 F.C.C.2d 960, 962 (Rev. Bd. 1984)).

⁹⁵ The Commission has a number of rules to ensure that a broadcaster is responsive to the unique interests and needs of individual communities. For example, the Commission’s main studio rule requires that a station maintain its main studio in or near its community of license to facilitate interaction between the station and the members of the local community it is licensed to serve. See *id.* § 73.1125. In addition, the main studio also must house a public inspection file, the contents of which must include “a list of programs that have provided the station’s most significant treatment of community issues during the preceding three month period.” See *id.* § 73.3526(e)(11)(i) (commercial TV issues/program list). The purpose of this requirement is to provide both the public and the Commission with information needed to monitor a licensee’s performance in meeting its public interest obligation of providing programming that is responsive to its community. See *Revision of Programming and Commercialization Policies, Ascertainment Requirements, and Program Log Requirements for Commercial Television Stations*, MM Docket No. 83-670, Report and Order, 98 F.C.C.2d 1075, 1076, ¶ 2-3, 1107, ¶ 71 (“Commercial TV Deregulation Order”) (explaining the purpose of issues/programs lists for commercial television).

⁹⁶ See, e.g., Coalition comments at 10; MSTV comments at 4; NAB comments at 3; Sunbelt comments at 2. The principal community coverage rule requires a DTV broadcast station to provide a specified signal contour over its community of license to ensure that local residents receive service. See 47 C.F.R. § 73.625.

⁹⁷ See 47 U.S.C. § 307(b). When a broadcast station seeks to renew or transfer its license, it must give public notice to its community to ensure that members of the community have an opportunity to file a petition to deny if they object to the station’s application for renewal or transfer of license. 47 C.F.R. § 73.3580.

⁹⁸ *DTS Notice*, 20 FCC Rcd at 17803-04, ¶ 18.

⁹⁹ See *id.* Disallowing such expansion is consistent with the statutory requirement to award new licenses through competitive bidding (auctions), as appropriate. See 47 U.S.C. § 309(j); see also *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding for Commercial Broadcast and Instructional Television Fixed Service Licenses*, 13 FCC Rcd 15920-26, ¶ 14 (1998).

expansion will occur on a station's already occupied channel."¹⁰⁰ New stations, particularly in a geographically large DMA,¹⁰¹ may be permitted to use the same channel and such expansion may also affect adjacent channel operations. We, thus, reject the DMA Approach and will not allow a DTS station to offer service beyond that station's authorized service area for its single-transmitter facility.

25. Furthermore, we will not give stations a blanket authorization to offer DTS service on a secondary basis throughout a station's DMA for the same reasons that we rejected the primary DMA Approach.¹⁰² Many broadcast commenters advocated, as an alternative to primary service throughout a DMA, that we permit DTS broadcasters to serve an entire DMA on a secondary basis ("Secondary Service DMA Approach").¹⁰³ We seek to afford consistent treatment to both single-transmitter and DTS stations and find that special treatment is not necessary to implement DTS service. Permitting DTS service throughout a station's DMA, even on a secondary basis, threatens localism by distracting a station's focus from its community of license. Moreover, a Secondary Service DMA Approach might still preclude opportunities for new low-power stations. Finally, at this time, we do not seek to dramatically redefine the broadcast television service. We note, however, that DTV broadcasters may achieve the same goals sought by a secondary DTS service through the use of digital on-channel translator/LPTV stations under Part 74 of the rules.¹⁰⁴

2. Table of Distances Approach Adopted

26. We adopt the proposed "Table of Distances" Approach¹⁰⁵ to define the limits of a DTS station's comparable service area. This Table defines each full-power DTV station's hypothetically maximized service area or, in other words, the maximum service area that can be obtained by DTV stations under our rules.¹⁰⁶ The Table, which is based on a set of distances from stations' reference points that reflect DTV stations' potential maximized facilities, will be used by DTV stations when applying to maximize facilities using a DTS network. We agree with MWG that this Table approach will define for DTS stations a comparable service area to

¹⁰⁰ Coalition reply at 5 (claiming that "in almost all circumstances, a maximized, single-transmitter DTV facility will already have prevented new co-channel service because of the destructive level of interference that it would be predicted to cause to any service from a new full-power, LPTV, translator or Class A station co-channel operation.").

¹⁰¹ For example, Denver DMA includes areas of northern Wyoming.

¹⁰² See *supra* ¶¶ 20-24. We will, however, in some circumstances, permit incidental secondary service that results from the necessary placement of transmitters near the edge of a station's service area. See also *infra* ¶ 32.

¹⁰³ See, e.g., Alliance at 2; Coalition comments at 2, 6-9; CDE comments at 1-2; KJLA et al. comments at 1; NAB comments at 4; Paxson comments at 5; RBI comments at 4; Sunbelt comments at 3-5; Penn State comments at 4; TVPlus comments at 6-7.

¹⁰⁴ See *supra* ¶ 18, *infra* ¶ 34. See also 47 C.F.R. § 74.701 *et seq.* We note that our existing rules do not preclude the use of on-channel digital translators.

¹⁰⁵ *DTS Notice*, 20 FCC Rcd at 17804-06, ¶¶ 20-23.

¹⁰⁶ The Table is based on the maximum height and power that a single-transmitter station would be allowed to apply for. See 47 C.F.R. § 73.622(f).

single-transmitter stations in a simple and straightforward manner.¹⁰⁷ Instead of individually calculating the theoretically maximized DTV service contours of each DTS station, the Table of Distances will simplify determinations of allowable coverage areas under our rules and will ensure consistent treatment of similarly-situated stations.¹⁰⁸ For the majority of DTV stations, the results under the Table approach will be the same as a station-by-station approach; however, the Table approach also accounts for cases of terrain blockage and will allow coverage to continue both for existing viewers and also for the portion of the authorized area that was previously blocked by terrain.¹⁰⁹ We find unpersuasive MSTV's concern that the Table approach may allow DTS broadcasters to extend service into adjacent DMAs,¹¹⁰ as our rules would now allow such extension by single-transmitter stations.¹¹¹

27. Specifically, we adopt the following Table of Distances.¹¹² As explained below, the distances represent circles within which DTS station coverage contours must be contained. In the vast majority of cases, the appropriate circle will equal or exceed a station's currently authorized coverage contour, including the contour within which the station will provide service at the end of the transition. The rule will provide for those exceptional situations in which this is not the case.¹¹³

Channel	Zone (see 47 C.F.R. § 73.609)	F(50,90) field strength	Distance from reference point
2-6	1	28 dBu	108 km. (67 mi.)
2-6	2 and 3	28 dBu	128 km. (80 mi.)
7-13	1	36 dBu	101 km. (63 mi.)
7-13	2 and 3	36 dBu	123 km. (77 mi.)
14-51	1, 2 and 3	41 dBu	103 km. (64 mi.)

¹⁰⁷ MWG comments at 13 (saying Table is likely simplest to administer); *see also* Alliance comments at 2. But see MSTV comments at 11 (concerned that Table may allow service into adjacent DMAs); and APTS comments at 1, 4-5 (prefers focus to be on population and viewers rather than geography).

¹⁰⁸ *DTS Notice*, 20 FCC Rcd at 17804, ¶ 20.

¹⁰⁹ *See infra* ¶¶ 29-31. For this reason, we apply 47 C.F.R. § 73.622(e)(1) to DTS stations, but not 47 C.F.R. § 73.622(e)(2). *See* Appendix B – Rule Changes; 47 C.F.R. § 73.626(b).

¹¹⁰ MSTV comments at 11.

¹¹¹ 47 C.F.R. § 73.622(f). *See also* Coalition reply at 4, n.8.

¹¹² *See* Appendix B – Rule Changes; 47 C.F.R. § 73.626(c).

¹¹³ *See* Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(2). This situation will occur where a station's authorized single-transmitter antenna height above average terrain ("HAAT") exceeds the standard maximum HAAT (Section 73.622(f) of our rules specifies an HAAT associated with the maximum allowed power, and any increase in HAAT above that height requires a corresponding decrease in the allowed maximum power) and where the average terrain elevation in different directions from the station's transmitter site are significantly different from each other. *See infra* ¶ 31.

28. Waiver policy. We adopt a waiver policy to enable stations to address the type of loss experienced by WECT, Wilmington, NC (channel 6), where many analog viewers of that station lost service when the station transitioned to digital-only operations. Notwithstanding our Table of Distances, on a case-by-case basis, we will permit a station to use DTS if doing so will enable it to continue to serve its existing analog viewers within its analog Grade B contour who would otherwise lose service as a result of its transition.¹¹⁴ Moreover, we will consider a station's DTS proposal to serve lost analog viewers of another station affiliated with the same network, provided the station is geographically close to the affected area and use of DTS would not cause impermissible interference to another station. Because the purpose of this waiver policy is to maintain service to existing viewers after the digital transition, we will limit the use of DTS under this waiver policy to stations that apply by August 18, 2009 to provide such service and commit to build the DTS facility as quickly as possible.¹¹⁵ We urge stations to determine now if they anticipate such a loss of service to current analog viewers and to apply as soon as possible to obtain an STA for DTS operation under the interim policy so that they can continue to provide uninterrupted service to the current analog viewers within their analog Grade B contour after they terminate their analog service.¹¹⁶ We delegate authority to the Media Bureau to consider waiver requests, which must be made in accordance with existing Commission rules.¹¹⁷ After the new DTS rules and forms take effect, stations must apply to modify their facilities in order to obtain licensed authority to operate using DTS.

29. Reference point. The reference point is one of the parameters used to calculate the area described by the Table of Distances. We will determine each DTS station's reference point using the allotment established in the Commission Order that created or made final modifications to the post-transition DTV Table,¹¹⁸ and the corresponding facilities for the station's channel assignment¹¹⁹ as set forth in that Commission order.¹²⁰ In the *DTS Notice*, the Commission proposed use of a station's reference point in its certification (FCC Form 381) filed in connection with DTV channel election process;¹²¹ however, we find that the new post-

¹¹⁴ We will allow stations to apply for a waiver to use DTS to serve their former analog viewers even if there is another affiliate of the same network that will serve them, provided such service would not cause impermissible interference to another station. In acting on waiver requests, we may consider, among other things, the extent to which the area is currently served by other affiliates of the same network.

¹¹⁵ We believe that providing the flexibility to apply within six months after the transition date will allow stations to deal with unforeseen circumstances that come to light when they make their transition.

¹¹⁶ See *supra* ¶ 11.

¹¹⁷ See 47 C.F.R. § 1.3 (waiver requests).

¹¹⁸ 47 C.F.R. § 73.622(i).

¹¹⁹ See, e.g., *Seventh Report and Order*, 22 FCC Rcd at 15672, app B; *First Order on Reconsideration*, 23 FCC Rcd at 4311, app B.

¹²⁰ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(c)(2).

¹²¹ In November 2004, licensees filed certifications via FCC Form 381 in order to define their proposed post-transition facilities. In these certifications, licensees chose whether to (1) replicate their allotted facilities, (2) maximize to their currently authorized facilities, or (3) reduce to a currently authorized smaller facility. See Public Notice, "DTV Channel Election Information and Deadlines," 19 FCC Rcd 19569 (MB 2004) ("Certification (continued....)")

transition DTV Table now provides a more relevant reference point.¹²² Generally, a station would use its current reference point based on its Appendix B facility or the Order granting it a new channel, as appropriate.¹²³ Upon the appropriate public interest showing, a station may request a change to its reference point, just as stations have done historically, provided certain criteria are met.¹²⁴ Such changes in reference points are subject to a station showing that the resulting service area circle fully encompasses the station's authorized service area.¹²⁵ We decline to adopt the MWG additional proposal of allowing changes to reference points based on whether a DTV City Grade signal could be delivered over the principal community from a hypothetical maximized facility located at the proposed reference point, since this criteria could allow stations to move the center of their coverage area to nearly 90 km from the principal community.¹²⁶

30. Uniform terrain. In parts of the country where the terrain is uniform, the Table of Distances illustrates the area that a station could serve if it operated a single-transmitter facility at the maximum effective radiated power ("ERP") and antenna height above average terrain ("antenna HAAT") allowed by our rules.¹²⁷ Reliance on this Table will facilitate licensees' use of DTS by eliminating the need for a two-step process: first, calculating the antenna height necessary to match the maximum allowed average antenna height and power for a single transmitter and, then, calculating the distances to the service contour in every direction based on the antenna HAAT in that direction. In most cases, the Table will match the potential maximized facilities of single-transmitter stations because most stations are not in areas where variations in the terrain result in significant variations in the coverage.

31. Irregular terrain. We also will use the Table of Distances in areas in which irregular terrain is an issue.¹²⁸ In such locations, single-transmitter stations' maximum service areas are distorted from a circular coverage contour to varying degrees. Where coverage does not reach as far due to terrain in one direction, a station would have a correspondingly larger coverage distance in other directions. In these cases, stations' single-transmitters may be authorized to serve people outside of the circular coverage contour because the average terrain

Deadline PN"). Stations that did not submit certification forms by the deadline were evaluated based on replication facilities. *See Second DTV Periodic Report and Order*, 19 FCC Rcd at 18296, ¶ 41.

¹²² The post-transition DTV Table is based on the results of the Commission's channel election process. The Commission attempted to accommodate broadcasters' channel preferences as well as their replication and maximization service area certifications (made via FCC Form 381). *See Seventh Report and Order*, 22 FCC Rcd at 15583, ¶ 2.

¹²³ *See* Appendix B – Rule Changes; 47 C.F.R. § 73.626(c)(2).

¹²⁴ *See* 47 C.F.R. §§ 76.611 and 73.622(d). *See also* 47 U.S.C. §§ 307, 308 and 309.

¹²⁵ MWG comments at 12.

¹²⁶ The 48 dBu DTV city grade contour extends approximately 90 km from the transmitter site for channels 14-51, assuming a fully maximized station with 1000kW ERP at 365m HAAT.

¹²⁷ *See* 47 C.F.R. § 73.622(f).

¹²⁸ Coverage contours of stations using non-directional transmitting antennas will be circular except where the surrounding terrain has a different average height in different directions. For example, if the average terrain to the North is 500 feet above mean sea level and the average terrain to the South is 1000 feet above mean sea level, the coverage contour will extend further to the north than it does to the south.

calculation has allowed the station to be authorized for a larger coverage contour in one direction (one that would not have been reached if there was no terrain issue). In these circumstances, we will permit stations to provide DTV service within their authorized coverage area.

32. Location of DTS Transmitters. We require that each DTS transmitter be located within either the DTV station's Table of Distances area or the station's authorized service area (*i.e.*, predicted noise-limited service contour ("PNLC")).¹²⁹ We disagree with MWG and the Coalition that there may be situations where placement of a DTS transmitter outside of a station's authorized service area may be necessary to provide meaningful service to the communities that are near the edge of the station's PNLC.¹³⁰ We find that transmitters placed inside, but near the edge of, a station's authorized service area can adequately serve the communities in that area.

33. DTS Coverage. We require that each DTS transmitter's coverage must be contained within either the DTV station's Table of Distances area or its authorized service area, except where such extension of coverage beyond the station's authorized service area is of a minimal amount and necessary for the station to provide coverage to its entire authorized service area.¹³¹ The coverage for each DTS transmitter is determined based on the F(50,90) field strength given in the Table of Distances, calculated in accordance with Section 73.625(b). The combined coverage of a DTS station is the logical union of the coverage of all DTS transmitters.¹³² We recognize, and agree with commenters, that in circumstances where transmitters are placed inside but near the edge of a station's authorized service area, it may be technically difficult to ensure that signals from that transmitter will not carry beyond the station's authorized service area.¹³³ For most stations, our decision to use the Table of Distances based on maximum facilities will allow them flexibility to cover their entire authorized service area with DTS service. For those situations in which a station's authorized service area extends beyond its Table of Distances coverage, we will consider, on a case-by-case basis, requests to locate a DTS transmitter inside, but near the edge of, the station's authorized service area with facilities that may result in signal transmissions beyond that area by a minimal distance.¹³⁴ Such placement must be shown to be necessary to adequately serve the population inside of a station's authorized service area.¹³⁵ In addition, DTS transmitters will be limited to power levels such that any individual DTS transmitter's coverage would only exceed the station's authorized service area by

¹²⁹ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(6). See also *DTS Notice*, 20 FCC Rcd at 17802, ¶ 14.

¹³⁰ See Coalition reply at 7; MWG comments at 13.

¹³¹ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(2). Stations may not extend coverage beyond their authorized service area, unless it is necessary to serve their entire authorized service area. Stations are not required to cover their entire Table of Distances area.

¹³² See Appendix B – Rule Changes; 47 C.F.R. § 73.626(d).

¹³³ See, e.g., APTS comments at 5.

¹³⁴ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(2). This rule represents an exception to the prohibition of secondary DTS service beyond a station's authorized service area. See *supra* ¶ 25. We recognize that such service may also be necessary for stations to serve an area within the current analog Grade B that is not within the station's digital service contour, as permitted by the waiver process discussed *infra* ¶ 28.

¹³⁵ See *id.*

a minimal amount. We note that the Commission has considered such a request under the interim DTS policy.¹³⁶ We will not protect DTS service from another DTV station's interference beyond the station's authorized service area and DTS signals beyond the authorized service area must protect other authorized DTV facilities.¹³⁷ We delegate authority to the Media Bureau to consider these requests.

34. Digital On-Channel Translator. Alternatively, as previously noted,¹³⁸ stations seeking to serve the communities near the edge of their PNLC may apply for a digital on-channel translator/LPTV station. Authority for operation of digital on-channel translator/LPTV station was established in the *Digital LPTV Report and Order*, in which the Commission permitted digital LPTV and TV translator stations to retransmit programming directly received on the same TV channel with the consent of the licensee of the original input signal.¹³⁹ Digital on-channel translator/LPTV stations must be separately licensed (on a secondary basis) under Part 74 of the rules.¹⁴⁰ The on-channel translator/LPTV station is technically equivalent to an on-channel booster.¹⁴¹ However, unlike a booster, the protected signal contour of an on-channel translator/LPTV station is not confined to the protected contour of the associated TV broadcast station. Applications for new on-channel translator/LPTV stations must be filed in the same manner as other applications for new TV translator or LPTV stations. The proposed facilities of these stations are subject to the interference standards, criteria and procedures applicable to other LPTV and translator applications.

35. "Largest Station" Alternative. As an alternative to the Table of Distances Approach for determining the hypothetically maximized service area, full-power stations may use the "largest station" provision in section 73.622(f)(5) of the rules.¹⁴² Section 73.622(f)(5), which seeks to equalize the coverage areas of all stations within a market and address disparities

¹³⁶ *DTS Notice*, 20 FCC Rcd at 17798-99, ¶ 4.

¹³⁷ *Id.* at 17799, ¶ 5.

¹³⁸ *See supra* ¶¶ 18, 24.

¹³⁹ *Digital LPTV Report and Order*, 19 FCC Rcd at 19415, ¶ 249.

¹⁴⁰ *See discussion infra* Section IV.E.

¹⁴¹ To the extent that a station demonstrates a need to use a non-synchronized, on-channel digital booster to serve terrain-shadowed portions of their service areas (much in the same manner as analog boosters are used), we will permit stations on a case-by-case basis to request STA to use an on-channel digital booster. Consideration of authorizing a digital booster service may be more appropriately addressed in the *Digital LPTV* docket. *See DTS Notice*, 20 FCC Rcd at 17810-11, ¶ 39. *See also* Alliance comments at 5; Merrill Weiss comments at 25; Sunbelt comments at 4-5; TVPlus comments at 8-9; WOGF reply at 4.

¹⁴² 47 C.F.R. § 73.622(f)(5). Section 73.622(f)(5) provides that licensees assigned a DTV channel in the initial DTV Table of Allotments may request an increase in either effective radiated power ("ERP") in some direction or antenna height above average terrain ("antenna HAAT") that exceeds the initial technical facilities authorized for the allotment. 47 C.F.R. § 73.622(f)(5). Such increases are limited to maximum powers specified in paragraphs (f)(6) through (f)(8) of that section. *Id.* § 73.622(f)(6)-(8). Where specified antenna HAAT values are exceeded, the maximum ERP generally is reduced in accordance with the appropriate chart or formula in those paragraphs. Paragraph (f)(5) also allows the maximum ERP and HAAT combination to be "up to that needed to provide the same geographic coverage area as the largest station within their market, whichever would allow the largest service area." *Id.* § 73.622(f)(5). Such requests must include an engineering showing that the increase would not result in new interference.

between VHF and UHF stations, permits stations to exceed the ERP and antenna HAAT limits in order to “provide the same geographic coverage area as the largest station within their market.”¹⁴³ This rule was clarified in the 2001 *First DTV Periodic Report and Order*.¹⁴⁴ In comments, the Coalition and KJLA advocate that we permit DTS stations to also use this rule to maximize their service area.¹⁴⁵ We agree that the service areas available to single-transmitter stations should also be available to DTS stations.¹⁴⁶ To the extent that a single-transmitter station may now seek an increased coverage area under section 73.622(f)(5), we will permit a DTS station to do the same.¹⁴⁷ Unlike single-transmitter stations, DTS stations likely will not actually need to exceed the ERP and antenna HAAT limits in order to provide the same geographic coverage area as the largest station within their market. Thus, DTS stations seeking to maximize under this rule to cover an area greater than can be covered using the values in the Table of Distances may request an increase in ERP and antenna HAAT values to determine the circle within which all DTS station coverage contours must be contained. In other words, DTS stations may obtain the same coverage under the rule as would a single-transmitter station, provided the DTS service would not result in new interference.

¹⁴³ See *id.* See also *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MM Docket No. 87-268, Sixth Report and Order, 12 FCC Rcd 14588, 14595-14607 ¶¶ 12-33 (1997) (“*Sixth Report and Order*”) (establishing the initial DTV Table of Allotments and adopting section 73.622 of the rules).

¹⁴⁴ See *Review of the Commission’s Rules and Policies Affecting the Conversion to Digital Television*, MM Docket No. 00-39, Report and Order, 16 FCC Rcd 5946, 5973-4, ¶¶ 73-4 (2001) (“*First DTV Periodic Report and Order*”). In clarifying the rule, the Commission stated: “First, the maximum ERP limits (1000 kW for UHF channels 14-69 in any zone; 30 kW for VHF channels 7-13 in Zone 1; 160 kW for VHF channels 7-13 in Zone 2 or 3; 10 kW for VHF channels 2-6 in Zone 1; and 45 kW for VHF channels 2-6 in Zone 2 or 3) may not be exceeded. The “largest station” provision applies only where the rules normally require a reduction in the maximum power because a specified antenna HAAT is exceeded. That is, it does not allow power higher than the maximum ERP to compensate for an antenna HAAT that is lower than the value specified in the rule. Second, the “largest station” provision is only triggered where a station in the same market is serving a larger area than could be covered with the standard maximum power and antenna height specified in section 73.622 (f) of the rules. Otherwise, applicants must comply with the maximum power and antenna height in that rule section. Third, for the purpose of this rule, stations in the same DMA are considered to be in the same market. Fourth, the geographical coverage determination is based on the area within the DTV station’s noise-limited contour, calculated using predicted F(50,90) field strengths as set forth in section 73.622(e) of the rules and the procedure specified in section 73.625(b) of the rules. Under this provision an application may not request a power and antenna height combination that would result in coverage of more square kilometers of area than the largest station in the market. It is not necessary that the application specify coverage that is congruent with or encompassed by the coverage area of the largest station. Stations are not expected to shift their coverage area in order to use this provision of the maximum power rules. Finally, DTV stations are still subject to the interference protection requirements, even when availing themselves of this provision.”

¹⁴⁵ The Coalition and KJLA say that stations should be able to choose the larger of (1) the hypothetically maximized service area using the Table of Distances Approach or (2) “the service area of the station in the DMA with the greatest population and coverage area” (their so-called “Equal Service Area Approach”). See KJLA comments at 3; Coalition reply at 5. We note that this proposal refers to population when only geographic area is considered by section 73.622 (f)(5). In conjunction with this approach, the Coalition again seeks secondary DTS service throughout a DMA. As explained above, we decline to authorize secondary DTS use throughout the DMA to which a station is assigned by Nielsen.

¹⁴⁶ See also MWG comments 13.

¹⁴⁷ See *infra* ¶ 40 (explaining the licensing rules applicable to single-transmitter stations, including section 73.622(f)(5), will apply to DTS stations).

36. In addition, MSTV expresses interest in using “DTS to expand service into traditionally underserved rural areas in which populations have historically been insufficient to sustain a viable, full-service over-the-air station.”¹⁴⁸ We believe the rules we adopt here address MSTV’s interest. As noted above, under Part 74 of our rules, DTV stations may now offer expanded service on a secondary basis through use of either a digital LPTV or digital translator station.¹⁴⁹ We expect that the same technologies used by DTS will offer stations the ability to use a synchronized on-channel digital translator to achieve the goal of reaching traditionally underserved rural areas, while minimizing mutual interference with the parent station.

3. “Cherry-picking” Prohibited

37. We adopt our proposal in the *DTS Notice*¹⁵⁰ to require that DTS stations provide at least the same level of service they would provide were they using their single-transmitter facilities. Specifically, we will not accept an application proposing use of DTS if the combined coverage from all of the transmitters fails to cover the entire area within the applicant’s authorized service area.¹⁵¹ Further, each DTS transmitter’s coverage must be contiguous with at least one other DTS transmitter’s coverage.¹⁵² We find that this rule will prevent stations from using DTS technologies to favor some populations within their service area over others, a practice sometimes referred to as “cherry-picking.”¹⁵³

38. Most commenters agree that “cherry-picking” should be prohibited.¹⁵⁴ CDE, however, disagrees that a cherry-picking rule is necessary, saying that DTS stations have no greater incentive than single-transmitter stations to reduce service via cherry-picking.¹⁵⁵ CDE also says “existing rules for serving certified populations are more than sufficient to prevent reduction in service.”¹⁵⁶ We disagree and find that the use of a multiple-transmitter system in lieu of a single-transmitter facility by DTS broadcasting presents an opportunity for abuse that must be contained before it starts. While the incentive to fully serve a coverage area, whatever it may be, may be the same for DTS and single-transmitter stations, alike, the opportunity to pick and choose populations within the station’s service area is not. Existing viewers, including those in sparsely populated areas, rightly will expect to receive television service regardless of the technology employed by the station. Therefore, because of the different means that DTS and single-transmitter stations will use to deliver service, we find it necessary to impose restrictions

¹⁴⁸ MSTV comments at 11.

¹⁴⁹ See *supra* ¶ 18.

¹⁵⁰ *DTS Notice*, 20 FCC Rcd at 17806, ¶ 25.

¹⁵¹ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(1).

¹⁵² See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(3).

¹⁵³ As discussed *infra*, stations applying to use DTS must have an authorized service area or establish an authorized service area prior to filing their DTS application. See *infra* ¶ 40.

¹⁵⁴ See, e.g., Harris comments at 3; NAB comments at 3; NAF et al. comments at 15; Paxson comments at 14; Smith comments at 3.

¹⁵⁵ CDE comments at 2 (saying “the concern over cherry-picking by a broadcaster employing DTS is predicated on an incentive to reduce service that is greater than the incentive for a single-stick broadcaster”).

¹⁵⁶ *Id.* See also APTS comments at 1, 4-5.

to eliminate the opportunity for “cherry-picking.” We recognize, however, that some difference in coverage between conventional and DTS operations may be unavoidable, but we intend to keep this concern and public service obligations in mind when we review applications to use DTS technologies.

39. Specifically, we adopt the proposed contour overlap method to prohibit “cherry-picking.”¹⁵⁷ This is the same approach used under the interim rules.¹⁵⁸ The contour overlap method evaluates whether a DTS station would serve “essentially all of its replication coverage area;” or, in other words, whether all viewers within a station’s replicated service area are predicted to be served by a station’s current transmitter.¹⁵⁹ Contour overlap ensures that the station’s service area is contiguous and does not consist of unconnected areas of service separated by populated areas that are not served.¹⁶⁰ This rule furthers one of the major goals of adopting DTS, which is to provide improved service, particularly in geographic areas that have been difficult to reach with the signal from a single transmitter. Accordingly, we will deny any application to construct DTS facilities that would result in a loss of service to the population currently served within the licensee’s service contour. We agree with MWG that this will be an effective way of assuring that the population within a station’s service area receives service.¹⁶¹ We will require that these viewers be predicted to receive the minimally necessary signal strength (based on the FCC curves F(50,90) propagation model) from at least one DTS transmitter.¹⁶² We will keep the same considerations in mind in evaluating any requests for waiver to provide service to current analog service areas within the station’s analog Grade B contour.¹⁶³

D. Licensing and Technical Rules

40. We adopt our proposals in the *DTS Notice* to apply to DTS stations the Part 73 licensing and technical rules that apply to DTV single-transmitter stations. The record supports this conclusion and we address the specific provisions of the new rules in the section below. As we discuss below, stations that wish to apply to use DTS under the new rules may do so after the rules take effect and the new forms and processing program are available.¹⁶⁴ Until the new rules and forms are effective, stations may apply to use DTS under the existing interim policy as a

¹⁵⁷ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(d).

¹⁵⁸ *DTS Notice*, 20 FCC Rcd at 17798-99, ¶ 4 (requiring that DTS provide service to essentially all of a station’s replication coverage area).

¹⁵⁹ See *supra* note 4 (noting that under the interim rules, we require that the combined DTS noise-limited service be provided over all of a station’s replication service area and requiring overlapping contours to be sure that every location in a station’s replication service area is within the PNLC of at least one proposed DTS transmitter).

¹⁶⁰ This rule and the general prohibition on cherry-picking also applies to stations using DTS to maximize beyond their current service contour.

¹⁶¹ MWG comments at 16.

¹⁶² See Appendix B – Rule Changes; 47 C.F.R. § 73.626(d).

¹⁶³ See discussion of waiver policy *supra* ¶ 28.

¹⁶⁴ See discussion of licensing process *infra* ¶ 43.

request for STA.¹⁶⁵ A station that wishes to use DTS to ensure uninterrupted service for its current analog viewers may apply under the interim policy and request a waiver, if necessary.¹⁶⁶ The record is insufficient to support use of DTS for new stations that do not yet have an authorized service area. Accordingly, stations applying to use DTS must have an authorized service area or establish an authorized service area prior to filing their DTS application. If there is demonstrated interest in or need for DTS as an option for new stations, we can initiate a rulemaking or interested parties may file a petition for rulemaking.

1. Technical Rules: Power, Antenna Height, and Emission Mask

41. We adopt our proposal in the *DTS Notice*¹⁶⁷ to apply to DTS stations the Part 73 DTV effective radiated power (“ERP”), antenna height above average terrain (“antenna HAAT”) and emission mask rules applicable to single-transmitter stations.¹⁶⁸ The record supports this conclusion.¹⁶⁹ We will require that each transmitter in a DTS system conform to the maximum power and emission mask requirements applicable to single-transmitter stations.¹⁷⁰ We find that this approach will offer DTS stations flexibility in designing their system to maximize DTV service, while limiting their potential for causing interference, in light of the service area limitations adopted above¹⁷¹ and the post-transition interference protection requirements that were adopted in the *Third DTV Periodic Report and Order*.¹⁷²

42. We apply to all primary DTS transmitters the full-power DTV emission mask rules.¹⁷³ We decline to adopt relaxed out-of-band emission designator mask requirements for very low power DTS transmitters, as requested by Harris.¹⁷⁴ We recognize that secondary stations, such as digital LPTV and translators, may now use relaxed emission masks¹⁷⁵ and that applying those standards to low-power primary DTS transmitters may offer some cost savings.¹⁷⁶ But we agree with MWG that when transmitters are located in dense RF environments, such as when multiple stations build a common DTS network with collocated transmitters, there might be a significant increase in the noise floor that could affect all of the stations.¹⁷⁷ We find that the

¹⁶⁵ 47 C.F.R. § 73.1635.

¹⁶⁶ See discussion of waiver policy *supra* ¶ 28.

¹⁶⁷ *DTS Notice*, 20 FCC Rcd at 17807, ¶ 27.

¹⁶⁸ See 47 C.F.R. § 73.622(f).

¹⁶⁹ See, e.g., CDE comments at 2; Harris comments at 2-4; KJLA *et al.* comments at 2; MSTV comments at 10; MWG comments at 17; NAB comments at 3; Paxson comments at 14; Smith comments at 3-4.

¹⁷⁰ We are convinced by MWG who argues that the relative powers of distributed transmitters in a network must be carefully chosen to optimize the service the network provides and should not be unnecessarily constrained.

¹⁷¹ See discussion of DTS service area *supra* Section IV.C.

¹⁷² See 47 C.F.R. § 73.616. See also *Third DTV Periodic Report and Order*, *supra* note 17, at Section V.F.

¹⁷³ See 47 C.F.R. § 73.622(h)(1).

¹⁷⁴ Harris comments at 3-4.

¹⁷⁵ See 47 C.F.R. § 74.794(a)(2).

¹⁷⁶ See Harris comments at 4; MWG Reply Comments at 12.

¹⁷⁷ MWG reply at 11.

increased risk of interference is not worth the relatively small savings that could be realized by using a relaxed emission mask.

2. Licensing Issues

43. We adopt our proposal in the *DTS Notice*¹⁷⁸ to apply to DTS stations the Part 73 DTV licensing rules applicable to single-transmitter DTV stations,¹⁷⁹ as supported by the record.¹⁸⁰ We also conclude that DTS transmitters will not be separately licensed, but will be part of a linked group that will be covered by one construction permit and license. We find that this is a simple and efficient way to license DTS transmitters. DTS stations will use the same application filing and processing procedures applicable to single-transmitter DTV stations.¹⁸¹ Accordingly, DTS stations will also be subject to the rules recently established for DTV stations in the *Third DTV Periodic Report and Order*.¹⁸²

44. Specifically, stations will request authority to construct DTS facilities by filing a single application that includes either (1) a main transmitter and one or more additional transmitters that will collectively use the DTS technology, or (2) two or more smaller DTS transmitters. A station may add to its DTS network of transmitters using a minor change application for a construction permit to change a licensed DTV facility, or for a modified construction permit to change a DTV facility authorized by a construction permit. Such applications will be processed in accordance with the DTV processing rules and guidelines. We will revise FCC Forms 301, 340 and 302-DTV to accommodate requests for DTS systems.¹⁸³ Until the new rules and forms are effective, we will continue to accept DTS proposals under our interim policy to be evaluated as requests for STA.¹⁸⁴ We recognize that stations may wish to use DTS to ensure that their current analog viewers do not lose service after the station transitions to digital-only operation. A station that wishes to use DTS for this purpose need not wait for the final rules to take effect, but may apply under the interim policy and request a waiver under existing Commission rules, if necessary.¹⁸⁵ Stations that receive an STA to use DTS under the interim policy must file for a modification after the rules take effect and the forms are available in order to continue using DTS for their post-transition operations.

45. Principal community coverage requirement. As noted above, Part 73 will apply to DTS stations as they would to single-transmitter stations and this includes our principal community coverage requirement.¹⁸⁶ This rule, which commenters agree must also apply to full-

¹⁷⁸ *DTS Notice*, 20 FCC Rcd at 17802, 17807, ¶¶ 13, 28.

¹⁷⁹ See, e.g., 47 C.F.R. §§ 73.622-625.

¹⁸⁰ See, e.g., CDE comments at 2; KJLA et al comments at 2; MSTV comments at 3; MWG comments at 9; NAB Reply comments at 8; Smith comments at 4; TVPlus comments at 5.

¹⁸¹ See, e.g., 47 C.F.R. §§ 73.622-625.

¹⁸² See, e.g., *Third DTV Periodic Report and Order*, supra note 17, at Section V.D-F.

¹⁸³ See Appendix C – Form Changes.

¹⁸⁴ See *DTS Clarification Order*, 20 FCC Rcd at 17798-99, ¶¶ 4-6.

¹⁸⁵ See 47 C.F.R. § 1.3, and discussion of waiver policy in ¶ 28.

¹⁸⁶ See 47 C.F.R. § 73.625.

power DTS stations,¹⁸⁷ requires a DTV broadcast station to provide a specified signal contour over its community of license to ensure that local residents receive service (sometimes referred to as a predicted signal strength that is “noise-limited plus 7 dB”).¹⁸⁸ We will strictly enforce this requirement when evaluating DTS proposals and require that the coverage from one or more DTS transmitter(s) must provide principal community coverage as required in Section 73.625(a).¹⁸⁹ The record supports this conclusion.¹⁹⁰ However, we remain concerned that, in cases where DTS stations propose to use multiple transmitters to comply with Section 73.625(a), the interaction between the signals from the different transmitters may make reception difficult or impossible in some part of the overlapping coverage areas. Therefore, while we will afford DTS stations the flexibility to satisfy our principal community coverage requirement with multiple transmitters, we will disallow proposals that fail to address this concern.

3. Interference Rules and Calculations

46. Consistent with our decision to apply Part 73 to DTS stations, we will evaluate DTS proposals using the same interference standard adopted for DTV stations’ post-transition operations in the *Third DTV Periodic Report and Order*.¹⁹¹ As already noted, commenters generally support application of the Part 73 rules to DTS broadcasters.¹⁹²

47. Interference from DTS Stations. A DTS station must not cause more than 0.5 percent new interference to another station in accordance with Section 73.616 of the rules.¹⁹³ We will calculate interference from DTS stations based on the combined signals of all the DTS transmitters in a network.¹⁹⁴ In the *DTS Notice*, the Commission asked whether to calculate interference based on each DTS transmitter individually or, based more conservatively, on the combined signals of all the DTS transmitters.¹⁹⁵ Commenters generally support measuring the

¹⁸⁷ See, e.g., MSTV comments at 4; NAB comments at 3; Sunbelt comments at 2.

¹⁸⁸ See 47 C.F.R. § 73.625.

¹⁸⁹ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(4).

¹⁹⁰ See, e.g., MWG comments at 18-19; MSTV comments at 4 and reply at 2; Sunbelt comments at 2.

¹⁹¹ See 47 C.F.R. § 73.616.

¹⁹² Commenters raised other issues in the docket that we decline to address at this time. We will not address the issue of whether to adopt variable desired-to-undesired (D/U) interference ratios in situations where adjacent-channel transmitters are proposed to be located inside a desired station’s noise-limited service contour; see, e.g., MSTV comments at 7-8; NAB reply at 6; MWG reply at 6-8. We find that the comments submitted in this record do not provide an adequate basis on which to make a decision to retain the current D/U ratios or to change them. See *Third DTV Periodic Report and Order*, *supra* note 17, at ¶ 168. For the same reason, we also decline address comments seeking the conversion of our database’s coordinate data from the North American Datum of 1927 (NAD27) to the more recent North American Datum of 1983 (NAD83), see, e.g., CDE comments at 3; MWG reply at 13. However, we may address this issue in a future proceeding so we can consider the issue in the context of all media operations.

¹⁹³ 47 C.F.R. § 73.616. Section 73.616(e) states: “An application will not be accepted if it is predicted to cause interference to more than an additional 0.5 percent of the population served by another post-transition DTV station.”

¹⁹⁴ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(5).

¹⁹⁵ *DTS Notice*, 20 FCC Rcd at 17808, ¶ 30.

combined interference effect of multiple DTS transmitters.¹⁹⁶ For purposes of compliance with this rule, we adopt the root-sum-square (“RSS”) method of calculating interference from multiple DTS transmitters, rather than adding up the aggregate interference from each individual DTS transmitter, commonly referred to as a “direct summation” approach. This means that the combined field strength level at a given location is equal to the square root of the sum of the squared field strengths from each transmitter in the DTS network at that location.¹⁹⁷ We note that the RSS method differs from the direct summation method used under the interim rules. CDE and MWG advocated use of the RSS method.¹⁹⁸ MSTV and NAB suggested a direct summation approach, but did not address the RSS method.¹⁹⁹ We agree with CDE and MWG that the RSS method in virtually all situations will best approximate actual interference from multiple DTS transmitters and is less likely to overestimate interference.²⁰⁰ We will use the RSS method to calculate both adjacent channel and co-channel interference.²⁰¹

48. DTS protection from interference. As mentioned above, we are applying the same interference protection standard for DTS stations as we do for traditional single-transmitter DTV stations. Accordingly, a DTS station must be protected from interference in accordance with the criteria specified in Section 73.616 (*i.e.*, the 0.5 percent new interference standard).²⁰² To determine compliance with the interference protection requirements of Section 73.616, the population served by a DTS station shall be the population within the station’s combined coverage contour, excluding the population in areas that are outside (1) the DTV station’s authorized service area, (2) the Table of Distances area, and (3) the DTS coverage authorized under the waiver policy in paragraph 28 to prevent the loss of analog service. For DTS stations, a population within the combined coverage contour will be considered to have service if it is predicted, using the OET-69 methodology, to receive sufficient signal strength from at least one DTS transmitter individually.²⁰³ In other words, the field strengths of DTS transmitters in a network will not be combined for the purposes of determining service to a population within the station’s combined coverage contour. Section 73.616(e) also states that, “For this purpose, the population served by the station receiving additional interference does not include portions of the population within the noise-limited service contour of that station that are predicted to receive interference from the post-transition DTV allotment facilities of the applicant or portions of that population receiving masking interference from any other station.” For purposes of applying this provision to DTS stations, we will not consider self interference to be masking interference. In

¹⁹⁶ See, e.g., CDE reply at 1; MWG reply at 8; Paxson comments at 13; MSTV reply at 5.

¹⁹⁷ See Appendix B – Rule Changes; 47 C.F.R. § 73.626(f)(5)(ii).

¹⁹⁸ CDE reply at 1; Merrill Weiss reply at 8-11.

¹⁹⁹ MSTV comments at 5; NAB reply at 6. MSTV and NAB suggest aggregating the interference from individual co-channel DTS transmitters in making interference calculations.

²⁰⁰ CDE reply at 1; Merrill Weiss reply at 8-11. We agree with MWG, which states that “there is virtually no possibility that the receiver will coherently sum interfering signals from two undesired transmitters; summing the undesired signals would be overly pessimistic.” MWG reply at 3.

²⁰¹ See MWG reply at 8.

²⁰² See Appendix B – Rule Changes; 47 C.F.R. § 73.626(e).

²⁰³ *Id.*

the *DTS Notice*, we noted MWG's suggestion that, for purposes of analyzing interference from its neighbors, internal interference between DTS transmitters in a single system should be ignored, and sought comment on this issue.²⁰⁴ We received no additional comment on this issue. We agree with MWG and expect that a DTS system designed with good engineering practice should have minimal self interference. We may, however, revisit this issue if we are presented with evidence of significant self interference.

49. Changes to OET Bulletin No. 69. Commenters also state that we must modify the methodology in our OET Bulletin No. 69 (OET-69) to properly calculate interference from multiple DTS transmitters.²⁰⁵ Currently, our application processing software based on OET-69 methodology only considers interference from a single transmitter. We agree and will adapt our application processing software and OET-69 methodology to determine the combined impact from multiple transmitters.²⁰⁶ Specifically, we will modify OET 69 and our software implementing the methodologies described therein to consider interference to a station's service from the multiple DTV transmitters operated by a station using a DTS network. This change will not affect the current OET-69 method under which the interference impact to a station from other stations that operate from a single antenna are considered individually; rather the interference impact of multiple transmitters will be limited to only the DTS transmitters operated by a single station. This change will be issued in a forthcoming update of OET-69.

4. Synchronization Standard

50. As proposed in the *DTS Notice*,²⁰⁷ we will not require DTS transmitters to comply with a particular synchronization standard, such as that approved by the Advanced Television Systems Committee ("ATSC"),²⁰⁸ as long as the synchronization technology used is effective in minimizing interference within the system and otherwise will provide service to the population within a station's service area consistent with the Commission's rules. The record supports this conclusion.²⁰⁹ We agree with MSTV that the synchronization standard should be flexible to encourage the development and enhancement of synchronization technology.²¹⁰ Stations, of course, must continue to comply with the ATSC standards for digital television, as required by our rules.²¹¹

²⁰⁴ See *DTS Notice*, 20 FCC Rcd at 17808, ¶ 29-30; see also MWG comments in MB Docket No. 03-15 at 20.

²⁰⁵ See, e.g., MSTV comments at 5; NAB reply at 6.

²⁰⁶ See "Longley-Rice Methodology for Evaluating TV Coverage and Interference," OET Bulletin No. 69, February 6, 2004.

²⁰⁷ *DTS Notice*, 20 FCC Rcd at 17809, ¶ 34.

²⁰⁸ See ATSC Standard A/110A, "Synchronization Standard for Distributed Transmission" (dated July 19, 2005); http://www.atsc.org/standards/a_110a.pdf.

²⁰⁹ See, e.g., Harris comments at 5; MSTV comments at 12; Paxson comments at 14; Rohde & Schwarz and Samsung comments at 1-2. We note that CBA says that Class A and LPTV stations using DTS should not have to comply with the ATSC technical standard and that the Commission should allow experimentation with an alternative technical standard, such as COFDM. CBA comments at 4.

²¹⁰ MSTV comments at 12.

²¹¹ See 47 C.F.R. § 73.682(d).

51. We also agree with MSTV that the essential patents to employ the synchronization technology used in DTS should be licensed on a reasonable and nondiscriminatory (“RAND”) basis.²¹² Under RAND policies, patent holders commit themselves to offer their patents for licensing on RAND terms. In the *DTS Notice*,²¹³ the Commission noted that MWG has patent interests in the technology contained in the ATSC synchronization standard for DTS. By not requiring a particular synchronization standard, we seek to avoid requiring DTS broadcasters to use a patented technology. In cases where stations choose to use a patented technology, we expect that such use will be offered on RAND terms. We note that the ATSC patent policy requires a patent holder to file a statement with ATSC to disclose whether the patent holder will commit itself to offer its patents for licensing on RAND terms.²¹⁴ MWG has filed a patent statement in accordance with this policy to license its patents on RAND terms.²¹⁵ Consistent with our previous patent policy for DTV, we reiterate our expectation that the licensing of the patents for DTS technology will be on RAND terms and if a future problem is brought to our attention, we will consider it and take appropriate action.²¹⁶

E. Class A and Low Power DTS

52. First, we approve on an experimental basis the use of DTS technologies by a single digital Class A TV, digital LPTV or digital TV translator station to provide service within its authorized service area.²¹⁷ Second, as proposed in the *DTS Notice*, we permit a licensee of multiple digital Class A TV, digital LPTV, and/or digital TV translator stations to operate through interconnected single-frequency DTS networks, but will continue to separately license each station in this interconnected single-channel network.²¹⁸ In this section, we first discuss the use of DTS by a single digital Class A TV, digital LPTV and digital TV translator station to provide DTS service in the same manner as a full-power DTS station, *i.e.*, to provide service within the station’s authorized service area.²¹⁹ Then, we discuss the use of DTS by multiple Class A or low power stations to operate through interconnected single-frequency DTS networks.

53. Single-station DTS. We will allow low power stations to request an experimental license to use DTS to build out their digital facilities, as we offered to full power stations in 2004. However, at this time, we believe that it is premature and unnecessary to create DTS service rules for individual Class A and low power stations to use DTS in place of a single transmitter to provide service within the protected contour of the authorized station. In the *DTS*

²¹² MSTV comments at 12.

²¹³ *DTS Notice*, 20 FCC Rcd at 17809, ¶ 34.

²¹⁴ See ATSC’s Patent Policy at http://www.atsc.org/policy_documents/B-4-2006-03-13_PATENT_POLICY.pdf.

²¹⁵ See Patent Statement of MWG to the ATSC (dated Dec. 17, 2002) at http://www.atsc.org/standards/patent_statements/mwg.pdf; see also MWG comments at 23.

²¹⁶ See *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MM Docket 87-268, Fourth Report and Order 11 FCC Rcd 17771, 17794, ¶ 55 (1996).

²¹⁷ *DTS Notice*, 20 FCC Rcd at 17809-10, ¶ 37.

²¹⁸ *DTS Notice*, 20 FCC Rcd at 17809-10, ¶ 36.

²¹⁹ The service area of a Class A TV station is defined by 47 C.F.R. § 73.6010(c) and (d). The service area of a digital LPTV or translator station is defined by 47 C.F.R. § 74.792.

Notice, the Commission generally sought comment on whether to allow Class A and low power stations to use DTS to provide service within their authorized service area. While noting that such stations may benefit from use of DTS technologies to overcome terrain limitations and avoid interference, the *DTS Notice* also noted that the service area of a Class A or LPTV station is typically much smaller than that of a DTV broadcast station and, thus, Class A and low power stations may have less need for distributed stations.²²⁰ The comments generally support allowing these stations to use DTS to serve authorized service areas.²²¹ For example, Holston Valley and Smith note that low power UHF stations can achieve large service contours, for which DTS would help overcome the same reception problems faced by full-power stations.²²² The CBA states that there will be Class A and LPTV licensees interested in experimenting with DTS technologies.²²³

54. The record is not instructive on the specific means to implement a Class A or secondary low power DTS service. We believe that low power stations should be able to use DTS for individual station operation. However, we do not have an adequate record at this time to resolve the technical issues for low power stations as they differ from full power stations. Nor do we have sufficient indication of widespread interest in DTS among individual low power stations to warrant initiating a further notice at this time. We recognize that low power stations generally serve a much smaller geographic area than most full power stations. Consequently, the likelihood of needing DTS to provide service is low. Moreover, Class A and low-power stations do not face the same DTV transition deadline as full-power stations,²²⁴ thereby reducing the urgency for post-transition low power DTS rules. Low power stations are in the early stages of transitioning to digital service and do not yet have a deadline for terminating analog service.²²⁵ To provide maximum flexibility, we will allow low power stations to request an experimental license to use DTS to build out their digital facilities, as we offered to full power stations in 2004.²²⁶ If there is demonstrated interest in or need for DTS as an alternative for individual low power stations on a permanent basis, we can initiate a rulemaking at that time. For now, Class A and low power stations that wish to experiment with DTS technologies may request STA on a case-by-case basis.

55. Interconnected Networks of Class A Stations. We permit a digital Class A TV licensee²²⁷ to use DTS technologies to operate a group of commonly-owned stations with

²²⁰ See *DTS Notice*, 20 FCC Rcd at 17810 ¶ 37.

²²¹ See, e.g., Coalition comments at 12; CBA at 1; Holston Valley comments at 1-2; LMFG comments at 1-2; MWG comments at 24; MSTV comments at 12-13; Smith comments at 5-6.

²²² Holston Valley comments at 2; Smith comments at 6. We note that the protected signal contour of a digital UHF low power station operating with the maximum permitted ERP of 15,000 watts at an antenna height of 152.4 meters (500 feet) is predicted to extend 49.9 kilometers (29.1 miles).

²²³ CBA comments at 1.

²²⁴ See *supra* note 7.

²²⁵ See *supra* note 23.

²²⁶ *Second DTV Periodic Report and Order*, 19 FCC Rcd at 18283, 18355-57, ¶¶ 9, 174-78.

²²⁷ See 47 U.S.C. § 336(f)(1). In the Community Broadcasters Protection Act of 1999 ("CBPA"), Congress directed the Commission to establish a Class A television service to provide a measure of primary status to certain LPTV (continued....)

contiguous predicted DTV noise-limited contours through interconnected single frequency networks that carry common locally-produced programming within the market area²²⁸ served by the station group.²²⁹ Because the rules now permit a digital Class A TV licensee to offer common locally-produced programming within the contiguous predicted DTV noise-limited contours of any of the digital Class A stations in a commonly-owned group,²³⁰ we find that we should permit the more spectrally-efficient single-frequency network of commonly-owned stations with contiguous predicted DTV noise-limited contours. Accordingly, we will not reject a digital application of a Class A station to change its channel on the basis of predicted interference to another commonly-owned station in the same market area. Applications for such digital Class A TV stations must be filed using the process proposed in the digital LPTV proceeding.²³¹ We will not otherwise permit single-frequency networks of commonly-owned digital Class A stations (*i.e.*, stations with non-contiguous contours) and we will separately license each station in the single-frequency network (*i.e.*, we will not issue a single DTS license for such interconnected stations).

56. In the *DTS Notice*, the Commission proposed to authorize Class A TV licensees to use DTS technologies to operate a single-frequency network of a group of commonly owned digital Class A stations.²³² Commenters were split on this proposal. One group of commenters support such single-channel networks of commonly-owned Class A stations because it would be

stations so that those stations could continue to operate during and after the DTV transition. In order to qualify for Class A status, an LPTV station was required to have broadcast a minimum of 18 hours per day and to broadcast an average of at least 3 hours of locally produced programming per week during the three month period preceding enactment of the CBPA. The CBPA directed that Class A licensees must be subject to the same license terms and renewal standards as full power television licensees, and that Class A licensees should be accorded primary status as television broadcasters as long as they continue to meet the requirements set forth in the statute. Class A TV stations are similar in many respects to LPTV stations; their operations are generally governed by the same technical standards. Unlike LPTV stations, Class A stations must comply with Part 73 regulations applicable to full-service TV broadcast stations, except for those that cannot apply for technical or other reasons. Class A stations also are afforded certain interference protection rights not available to LPTV stations. The Class A service rules (Part 73, Subpart J) also contain provisions for the operation of digital Class A TV stations. *Digital LPTV Report and Order*, 19 FCC Rcd at 19333-34, ¶ 4. There are currently approximately 567 Class A stations. See News Release, "Broadcast Station Totals as of December 31, 2006," 2007 WL 221575 (dated Jan. 26, 2007) ("Broadcast Station Totals"); also available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-269784A1.doc.

²²⁸ The market area for locally produced programming of a digital Class A station is the area within the station's predicted DTV noise-limited contour, as defined in Section 73.622(e), based on the station's authorized facilities. See *Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations*, MB Docket No. 03-185, Report and Order, 19 FCC Rcd 19331 (2004) ("*Digital LPTV Report and Order*"). With respect to a group of commonly-owned stations, digital Class A stations whose predicted noise-limited contours are physically contiguous to each other comprise the market area for locally produced programming. See 47 C.F.R. § 73.6000(2).

²²⁹ See proposed rule section 47 C.F.R. § 73.6023 in Appendix A to the *Notice*. We will not issue a single DTS license for such interconnected stations.

²³⁰ See 47 C.F.R. § 73.6000(2).

²³¹ See *supra* note 23.

²³² See *DTS Notice*, 20 FCC Rcd at 17809, ¶ 36.

spectrally efficient.²³³ The other group of commenters oppose such networks, claiming that it would in effect change the regulatory status of Class A TV stations.²³⁴ Specifically, MSTV and NAB assert that allowing Class A TV licensees to use DTS to operate such single-channel networks throughout a station's market area would convert such networks into a single Class A "super" station that would change the regulatory relationship between full-power and Class A stations.²³⁵

57. We conclude that our current rules permit Class A stations to use of a single-frequency DTS network to interconnect. Therefore, to the extent that Class A stations may now offer service throughout the contiguous predicted DTV noise-limited contours of a commonly-owned group of digital Class A stations, we will allow it. When there are commonly-owned stations in the same market, the individual stations operate on different TV channels in order to avoid interference to reception. Use of a common channel in a Class A station group using DTS technologies would promote spectrum efficiency and may also provide an alternative for licensees whose stations may someday face channel displacement and possible cessation of operation. We also note that our rules do not now preclude licensees from operating such commonly-owned stations on the same channel, albeit with the potential for interference.²³⁶ Use of DTS technology could significantly lessen the interference risk among such stations depending on local conditions. Moreover, each of the commonly-owned Class A stations in the same market is separately licensed and, with certain exceptions, must satisfy the regulatory requirements for a Class A station. That is, the operation of each of the Class A stations in such networks would, in most respects, be the same as their operation as stand-alone digital stations with regard to protected service area, permitted ERP, and minimum hours of operation. These stations would be authorized with the same regulatory status accorded stand-alone digital Class A stations under the existing Class A interference standards.²³⁷

58. We find that the above provisions for use of DTS technologies do not alter the statutory status of Class A stations. The Commission established the Class A television service pursuant to the Community Broadcasters Protection Act of 1999 ("CBPA") in order to preserve low-power community television service.²³⁸ Class A stations provide locally-originated

²³³ See, e.g., CBA comments at 1; Holston Valley comments at 1-2; LMFG comments at 1-2; MWG comments at 24.

²³⁴ See, e.g., MSTV comments at 12 reply at 7; Paxson comments at 15; NAB reply at 9.

²³⁵ MSTV comments at 13 and reply at 7; NAB reply at 9. Paxson adds that Class A licensees should not be given such an opportunity to expand throughout a market area unless full-power broadcasters are also allowed the opportunity to serve an entire DMA. Paxson comments at 15.

²³⁶ A change in channel not related to channel displacement is a major change for which an application can only be filed in an established filing window.

²³⁷ See 47 C.F.R. Part 73, subpart J.

²³⁸ See 47 U.S.C. § 336(f)(1). Congress directed the Commission to establish a Class A TV service to provide a measure of primary status to certain LPTV stations so that those stations could continue to operate during and after the DTV transition. The CBPA directed that Class A licensees must be subject to the same license terms and renewal standards as full power television licensees, and that Class A licensees should be accorded primary status as television broadcasters as long as they continue to meet the requirements set forth in the statute. Class A TV stations are similar in many respects to LPTV stations; their operations are generally governed by the same technical standards. Unlike LPTV stations, Class A stations must comply with Part 73 regulations applicable to full-service (continued....)

programming, often to rural and urban communities that have either no or little access to such programming. Such stations are owned by a wide variety of licensees, including minorities, women, educational organizations and small businesses, and often provide niche programming to residents of specific ethnic, racial, and interest communities. The Class A service promotes diversity and localism in television broadcasting. The CBPA provided Class A eligibility for licensees of commonly-owned LPTV stations broadcasting common local programming produced in the combined market area of these stations.

59. Interconnected Networks of Low Power Stations. We permit digital LPTV and TV translator stations to interconnect through the use of a single-frequency DTS network. We find that they can do so within the framework of their service rules.²³⁹ Unlike Class A networks, low power networks do not raise any policy considerations because they involve only secondary service. Moreover, these low power stations have no minimum coverage obligations.

V. CONCLUSION

60. By this Report and Order, we adopt rules for DTV broadcasters' use of DTS technologies. The rules we adopt herein will apply to DTV operations after the February 17, 2009 transition date. These rules will improve DTV stations' ability to serve all viewers in their service areas. In particular, DTS will benefit viewers who would not otherwise be reached by conventional means. We recognize that some stations may need to use DTS to provide digital service to current analog viewers who are within the station's Grade B contour after they terminate analog broadcasting. We will accept requests for waivers from the rules we are adopting, as well as deviations from the Interim Policy, to permit and expedite service for viewers in these areas who would otherwise lose service from the station, and, in particular, if the viewers would be without service from any affiliate of the same network.

VI. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

61. As required by the Regulatory Flexibility Act of 1980 ("RFA"),²⁴⁰ the Commission has prepared a Final Regulatory Flexibility Analysis ("FRFA") relating to this Report and Order. The FRFA is set forth in Appendix D.

B. Final Paperwork Reduction Act Analysis

62. This Report and Order was analyzed with respect to the Paperwork Reduction Act of 1995 ("PRA")²⁴¹ and contains modified information collection requirements, including

TV broadcast stations, except for those that cannot apply for technical or other reasons. Class A stations also are afforded certain interference protection rights not available to LPTV stations. The Class A service rules (Part 73, Subpart J) also contain provisions for the operation of digital Class A TV stations. *Digital LPTV Report and Order*, 19 FCC Rcd at 19333-34 ¶ 4.

²³⁹ See 47 C.F.R. Part 74, Subpart G.

²⁴⁰ See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 et. seq., has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFA"), Pub. L. No. 104-121, Title II, 110 Stat. 847 (1996). The SBREFA was enacted as Title II of the Contract With America Advancement Act of 1996 ("CWAAA").

²⁴¹ The Paperwork Reduction Act of 1995 ("PRA"), Pub. L. No. 104-13, 109 Stat 163 (1995) (*codified in* Chapter 35 of Title 44 U.S.C.).

changes to FCC Forms 301 and 340 to accommodate applications for DTS systems.²⁴² The information collection requirements adopted in this Report and Order will be submitted to OMB for final review under Section 3507(d) of the PRA, and OMB and the public will be afforded an opportunity to file comments on the modified information collection requirements contained in this proceeding.²⁴³ In addition, pursuant to the Small Business Paperwork Relief Act of 2002 (“SBPRA”),²⁴⁴ the Commission sought specific comment in the *DTS Notice*²⁴⁵ on how it might “further reduce the information collection burden for small business concerns with fewer than 25 employees.” We received no comment on this issue.

C. Congressional Review Act

63. The Commission will send a copy of this Report and Order in a report to be sent to Congress and the Government Accountability Office, pursuant to the Congressional Review Act.²⁴⁶

D. Additional Information

64. For more information on this Report and Order, please contact Evan Baranoff, Policy Division, Media Bureau at (202) 418-7142, Gordon Godfrey, Engineering Division, Media Bureau at (202) 418-2193, or John Gabrysch, Engineering Division, Media Bureau at (202) 418-7152.

VII. ORDERING CLAUSES

65. Accordingly, IT IS ORDERED that, pursuant to Sections 1, 4(i) and (j), 7, 301, 302, 303, 307, 308, 309, 316, 319, 324, 336, and 337 of the Communications Act of 1934, 47 U.S.C §§ 151, 154(i) and (j), 157, 301, 302, 303, 307, 308, 309, 316, 319, 324, 336, and 337, this Report and Order IS ADOPTED, and the Commission’s rules ARE AMENDED as set forth in Appendix B, and SHALL BE EFFECTIVE 30 days after publication of the summary of the Report and Order in the Federal Register, EXCEPT that the information collection requirements contained in section 73.626(f) of the rules and the changes to FCC Forms 301 and 340 are subject to the PRA and are not effective until approved by the OMB. The Commission will publish a notice in the Federal Register announcing when OMB approval for these forms and information collections have been received and these rules will take effect.

66. IT IS FURTHER ORDERED that, pursuant to Section 5(c) of the Communications Act of 1934, 47 U.S.C. § 155(c), the Chief, Media Bureau, is GRANTED DELEGATED AUTHORITY to review and process requests and applications to use DTS technologies.

²⁴² See *supra* ¶ 44. See also OMB Control Nos. 3060-0027 (Form 301) and 3060-0029 (Form 340).

²⁴³ 44 U.S.C. § 3507(d).

²⁴⁴ The Small Business Paperwork Relief Act of 2002 (“SBPRA”), Pub. L. No. 107-198, 116 Stat 729 (2002) (codified in Chapter 35 of title 44 U.S.C.); see 44 U.S.C. 3506(c)(4).

²⁴⁵ See *DTS Notice*, 20 FCC Rcd at 17812, ¶ 43.

²⁴⁶ See 5 U.S.C. § 801(a)(1)(A). The Congressional Review Act is contained in Title II, § 251, of the CWAAA; see Pub. L. No. 104-121, Title II, § 251, 110 Stat. 868.

67. IT IS FURTHER ORDERED that, pursuant to the Congressional Review Act, 5 U.S.C. § 801(a)(1)(A), the Commission SHALL SEND a copy of this Report and Order in a report to Congress and the General Accounting Office.

68. IT IS FURTHER ORDERED that the Reference Information Center, Consumer Information Bureau, shall send a copy of this Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A**List of Commenters****COMMENTS**

1. Alliance for Local Broadcasters (“Alliance”) (filed 02/06/06).
2. Association of Public Television Stations (“APTS”) (filed 02/06/06).
3. Coalition for DTS¹ (“Coalition”) (Joint Comments filed 02/06/06).
4. Cohen, Dippell and Everist, P.C. (“CDE”) (filed 02/06/06).
5. Community Broadcasters Association (“CBA”) (filed 02/06/06).
6. Harris Corporation (“Harris”) (filed 02/06/06).
7. Holston Valley Broadcasting Corporation (“Holston Valley”) (filed 02/06/06).
8. KJLA, LLC (KJLA), KMVD Licensee Co., LLC (KMVD), and Rancho Palos Verdes Broadcasters, Inc. (RPVB) (“KJLA, LLC et al”) (Joint Comments filed 02/06/06).
9. LIN Television Corporation (“LIN”) (filed 02/06/06).
10. Louis Martinez Family Group (“LMFG”) (filed 02/06/06).
11. Merrill Weiss Group LLC (“MWG”) (late filed 02/07/06).
12. Association for Maximum Service Television, Inc. (“MSTV”) (filed 02/06/06).
13. National Association of Broadcasters (“NAB”) (filed 02/06/06).
14. New America Foundation, *et al.*² (includes Media Access Project, “MAP”) (“NAF, *et al.*”) (Joint Comments filed 02/06/06).
15. Owens, Whitney (filed 02/06/06).
16. Paxson Communications Corporation (“Paxson”) ³ (filed 02/06/06).
17. Reading Broadcasting, Inc. (“RBI”) (filed 02/06/06).
18. Rohde & Schwarz, Inc. and Samsung (Joint Comments) (filed 02/06/06).
19. Siete Grande Television, Inc. (“Siete Grande”) (filed 02/06/06).
20. Smith, Thomas C. (“Smith”) (filed 02/06/06).
21. SunBelt Television, Inc. (“SunBelt”) (filed 02/06/06).
22. The Pennsylvania State University (“PSU”) (filed 02/06/06).
23. TVPlus LLC (filed 02/06/06).

¹ The Coalition members include: Tribune Broadcasting Company, Media General, Inc., Clear Channel Television, Meredith Broadcast Group, California Oregon Broadcasting, Inc., Holston Valley Broadcasting Corporation, Reading Broadcasting, Inc., Oklahoma Land Company LLC, and Axcera, LLP.

² The complete list of commenters jointly filing with the New America Foundation (NAF) in this pleading include: Acorn Active Media Foundation (Acorn), Action Coalition for Media Education, Alliance for Community Media, Benton Foundation, Center for Digital Democracy (CDD), Center for Neighborhood Technology, Champaign-Urbana Community Wireless Network (CUWiN), Citizens for Independent Public Broadcasting, Common Cause, Consumer Federation of America (CFA), FreeNetworks.org, Free Press, Future of Music Coalition, Hawaii Consumers, MediaChannel.org, Media Access Project (MAP), Media Alliance, Prometheus Radio Project, Reclaim the Media, and Tribal Digital Village.

³ Paxson changed its name last year to ION Media Networks (“ION”).

REPLY COMMENTS

1. CDE (filed 03/07/06).
2. Coalition (late filed 03/10/06).
3. Cox Broadcasting, Inc. (filed 03/07/06).
4. KJLA, LLC et al (filed 03/07/06).
5. MWG (late filed 03/08/06).
6. MSTV (filed 03/07/06).
7. NAB (filed 03/07/06).
8. Paxson (filed 03/07/06).
9. Reading (filed 03/07/06).
10. TVPlus LLC (filed 03/07/06).
11. Word of God Fellowship, Inc. (filed 03/07/06).
12. Wireless Internet Provider's Association (filed 02/27/06).

APPENDIX B

Rule Changes

The Federal Communications Commission proposes to amend 47 C.F.R. Part 73 as set forth below:

PART 73—RADIO BROADCAST SERVICES

1. The authority citation for Part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 334 and 336.

2. Part 73, Subpart E, is revised by adding new Section 73.626 to read as follows:

§73.626 DTV Distributed Transmission Systems.

- (a) A DTV station may be authorized to operate multiple synchronized transmitters on its assigned channel to provide service consistent with the requirements of this section. Such operation is called a distributed transmission system (DTS). Except as expressly provided in this section, DTV stations operating a DTS facility must comply with all rules applicable to DTV single-transmitter stations.
- (b) For purposes of compliance with this section, a station's "authorized service area" is defined as the area within its predicted noise-limited service contour determined using the facilities authorized for the station in a license or construction permit for non-DTS, single-transmitter-location operation.
- (c) *Table of Distances.* The following Table of Distances describes (by channel and zone) a station's maximum service area that can be obtained in applying for a DTS authorization.

Channel	Zone	F(50,90) field strength	Distance from reference point
2-6	1	28 dBu	108 km. (67 mi.)
2-6	2 and 3	28 dBu	128 km. (80 mi.)
7-13	1	36 dBu	101 km. (63 mi.)
7-13	2 and 3	36 dBu	123 km. (77 mi.)
14-51	1, 2 and 3	41 dBu	103 km. (64 mi.)

- (1) DTV station zones are defined in § 73.609.
- (2) *DTS reference point.* A station's DTS reference point is established in the FCC Order that created or made final modifications to the Post-Transition DTV Table of Allotments, § 73.622(i), and the corresponding facilities for the station's channel assignment as set forth in that FCC Order.
- (d) *Determining DTS Coverage.* The coverage for each DTS transmitter is determined based on the F(50,90) field strength given in the Table of Distances (in paragraph (c) of this

section), calculated in accordance with § 73.625(b). The combined coverage of a DTS station is the logical union of the coverage of all DTS transmitters.

- (e) *DTS protection from interference.* A DTS station must be protected from interference in accordance with the criteria specified in § 73.616. To determine compliance with the interference protection requirements of § 73.616, the population served by a DTS station shall be the population within the station's combined coverage contour, excluding the population in areas that are outside both the DTV station's authorized service area and the Table of Distances area (in paragraph (c) of this section). Only population that is predicted to receive service by the method described in 73.622(e)(2) from at least one individual DTS transmitter will be considered.
- (f) *Applications for DTS.* An application proposing use of a DTS will not be accepted for filing unless it meets all of the following conditions:
- (1) The combined coverage from all of the DTS transmitters covers all of the applicant's authorized service area;
 - (2) Each DTS transmitter's coverage is contained within either the DTV station's Table of Distances area (pursuant to paragraph (c) of this section) or its authorized service area, except where such extension of coverage beyond the station's authorized service area is of a minimal amount and necessary to meet the requirements of paragraph (f)(1) of this section;
 - (3) Each DTS transmitter's coverage is contiguous with at least one other DTS transmitter's coverage;
 - (4) The coverage from one or more DTS transmitter(s) is shown to provide principal community coverage as required in § 73.625(a);
 - (5) The "combined field strength" of all the DTS transmitters in a network does not cause interference to another station in excess of the criteria specified in § 73.616, where the combined field strength level is determined by a "root-sum-square" calculation, in which the combined field strength level at a given location is equal to the square root of the sum of the squared field strengths from each transmitter in the DTS network at that location.
 - (6) Each DTS transmitter must be located within either the DTV station's Table of Distances area or its authorized service area.

3. Part 73, Subpart J, is revised by adding new Section 73.6023 to read as follows:

§73.6023 Distributed transmission systems.

Station licensees may operate a commonly owned group of digital Class A stations with contiguous predicted DTV noise-limited contours (pursuant to § 73.622(e)) on a common television channel in a distributed transmission system.

APPENDIX C

Changes to FCC Forms 301 and 340

The Federal Communications Commission revises FCC Form 301 and FCC Form 340 to accommodate the use of DTS. The revised forms will contain the following questions:

SECTION III.E. – DTS Engineering

GENERAL QUESTIONS. Complete the following questions that relate to the proposed DTS facility as a whole.

1. Channel Number: _____
2. Zone: I II III
3. Reference Point Coordinates for Table of Distances, in accordance with Section 73.626(c) of the rules:
 _____ ° _____ ’ _____ ” N S Latitude
 _____ ° _____ ’ _____ ” E W Longitude
4. File Number for Current Authorized Service Area: _____
5. The proposed DTS facility will operate on the DTV channel for this station as established in the Post-Transition DTV Table of Allotments, 47 C.F.R. Section 73.622(i). Yes No
6. The proposed DTV station satisfies the interference protection provisions of 47 C.F.R. Sections 73.616 and 73.626. Yes No (If “No,” attach as an Exhibit justification.)
7. The proposed DTV station satisfies the coverage requirement in 47 C.F.R. Section 73.625 and, therefore, will encompass the allotted principal community. Yes No (If “No,” attach as an Exhibit justification.)
8. The proposed DTS facility satisfies the requirements in 47 C.F.R. Section 73.626 in the following respects:
 - a. The combined coverage from all of the DTS transmitters in the proposed DTS facility covers all of the station’s authorized service area, as required in 47 C.F.R. Section 73.626(f)(1). Yes No (If “No,” attach as an Exhibit justification.)
 - b. Each DTS transmitter’s coverage is contained within either the DTV station’s Table of Distances area (47 C.F.R. Section 73.626 (c)) or its authorized service area, except where such coverage is of a minimal amount and necessary to meet the requirements of 47 C.F.R. Section 73.626(f)(1). Yes (coverage entirely contained station’s authorized service area) Yes (but coverage exceeds station’s authorized service area by “minimal amount”) No (Attach as an Exhibit a justification if “No” or if “Yes but coverage exceeds station’s authorized service area by minimal amount”.)
 - c. Each DTS transmitter’s coverage is contiguous with at least one other DTS transmitter’s coverage, as required in 47 C.F.R. Section 73.626(e)(3). Yes No (If “No,” attach as an Exhibit justification.)

- d. The coverage from one or more DTS transmitter(s) in the DTS facility provide(s) principal community coverage, as required in 47 C.F.R. Section 73.626(e)(4). **Yes (one transmitter provides principal community coverage)** **Yes**
 (multiple transmitters provide principal community coverage) **No**
 (If “No,” or if “Yes, multiple transmitters provide principal community coverage,” attach as an Exhibit justification.)
- e. The combined field strength of all of the DTS transmitters in the proposed DTS facility do not cause interference to another station in excess of the criteria specified in 47 C.F.R. Section 73.616, as required in 47 C.F.R. Section 73.626(e)(5). **Yes**
 No (If “No,” attach as an Exhibit justification.) (Note: The combined field strength level shall be determined by a “root-sum-square” calculation, where the combined field strength level at a given location is equal to the square root of the sum of the squared field strengths from each transmitter in the DTS network at that location.)
- f. Each DTS transmitter in the proposed DTS facility is located within either the DTV station’s Table of Distances area or its authorized service area. **Yes** **No**
 (If “No,” attach as an Exhibit justification.)
9. Environmental Protection Act.
- a. The proposed DTS facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RF radiation exceeding the limits specified in 47 C.F.R. Sections 1.1307 and 1.1310. **Yes**
 No
- b. Submit in an Exhibit the following for each transmitter site in the proposed DTS facility:
 (If “Yes,” provide a brief explanation for each site of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to each transmitter site. Note: By checking “Yes” to this question, the applicant also certifies that it, in coordination with other users of each transmitter site, will reduce power or cease operation as necessary to protect persons having access to each site, transmitter or antenna from radio frequency electromagnetic exposure in excess of FCC guidelines.)
 (If “No,” provide an Environmental Assessment as required by 47 C.F.R. Section 1.1311.)
10. The proposed DTS facility satisfies the requirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, radio receiving installations and FCC monitoring stations. **Yes** **No**
11. The antenna structures to be used by the proposed DTS facility have been registered with the Commission and will not require re-registration to support the proposed antennas, OR the FAA has previously determined that the proposed antenna structures will not adversely effect safety in air navigation and these structures qualify for later registration under the Commission’s phased registration plan, OR the proposed installation on these antenna structures do not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.

TECHNICAL SPECIFICATIONS. Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response “on file” is not acceptable.

TECH BOX (site-specific questions). Complete the following questions for each transmitter site in the proposed DTS facility.

1. DTS Site Number (x of total number of sites): ___ of ___
2. Antenna Location Coordinates: (NAD 27):
 ___° ___', ___" N S Latitude
 ___° ___', ___" E W Longitude
3. Antenna Structure Registration Number: _____
 Not Applicable FAA Notification Filed with FAA
4. Antenna Location Site Elevation Above Mean Sea Level: _____ meters
5. Overall Tower Height Above Ground Level: _____ meters
6. Height of Radiation Center Above Ground Level: _____ meters
7. Height of Radiation Center Above Average Terrain: _____ meters
8. Maximum Effective Radiated Power (average power): _____ kW
9. Antenna Specifications:
 - a. Manufacturer: _____ Model: _____
 - b. Electrical Beam Tilt: _____ degrees Not Applicable
 - c. Mechanical Beam Tilt: _____ degrees toward azimuth _____ degrees True Not Applicable
 - d. Polarization: Horizontal Circular Elliptical
 - e. Directional Antenna Relative Field Values: Not applicable (Nondirectional)
 Rotation: _____° No rotation
 [Degree Value Grid]
 If a directional antenna is proposed for this site, the requirements of 47 C.F.R. Section 73.625(c) must be satisfied. Exhibit required.
 [Exhibit No. ____]
 - f. Elevation Pattern: Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?
 Yes No
 - g. **Required Exhibit:** Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). [Exhibit No. ____]

The vertical (elevation) plane radiation pattern data shall be submitted in Office Open XML (“Excel Spreadsheet”) format with the first column containing depression angle values and second (and subsequent, when applicable) column(s) containing relative field values. When applicable, the first row shall list the azimuth angle being tabulated. The range of depression angles shall be 10 degrees above horizontal (-10 degrees depression) to 90 degrees below horizontal (90 degrees depression) and shall include data points spaced not more than 0.5-degree between -5 and 10 degrees depression angle, and not more than 5 degrees elsewhere. All pattern minima and maxima shall be included. Additional elevation plane data may be included

following the column corresponding to 350 degrees TN so that the direction(s) of maximum and minimum radiation are provided. A relative field value of 1 shall correspond to the azimuth and depression angles corresponding to the direction of maximum ERP.

APPENDIX D

Final Regulatory Flexibility Act Analysis

1. As required by the Regulatory Flexibility Act (“RFA”)¹ an Initial Regulatory Flexibility Analysis (“IRFA”) was incorporated in the *Notice of Proposed Rulemaking* (“DTS Notice”) to this proceeding.² The Commission sought written public comment on the proposals in the *DTS Notice*, including comment on the IRFA.³ The Commission received no comments on the IRFA. This present Final Regulatory Flexibility Analysis (“FRFA”) conforms to the RFA.⁴

A. Need for, and Objectives of, the Report and Order

2. This Report and Order adopts rules for the use of distributed transmission system (“DTS”) technologies.⁵ The rules adopted in this Report and Order will allow DTV station licensees and permittees to use DTS technologies where feasible in place of a single transmitter to provide service as authorized. In summary, we take the following actions to authorize and implement DTS service:

- We define a DTS service area as being comparable to that of a station’s single transmitter facility, and, to implement this approach, we will determine a station’s potential maximum authorized service area using the “Table of Distances” proposed in our DTS Notice.
- We adopt a waiver policy to permit a station to use DTS if doing so will enable it to continue to serve its existing analog viewers who would otherwise lose service as a result of its transition to digital service.
- We require that DTS transmitters be located within either the DTV station’s Table of Distances area or its authorized service area.
- We adopt rules to prohibit stations from using DTS to “cherry-pick” service.
- We afford primary regulatory status to the multiple transmitters used in a DTS network within the areas that such DTS transmitters are authorized to serve.
- We apply to DTS stations the Part 73 licensing and technical rules that apply to DTV single-transmitter stations.

¹ See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 - 612., has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (“SBREFA”), Pub. L. No. 104-121, Title II, 110 Stat. 847 (1996).

² *DTS Notice*, 20 FCC Rcd at 17811 and 17817, ¶ 41 and app. B.

³ *Id.*

⁴ See 5 U.S.C. § 604.

⁵ A DTV distributed transmission system would employ multiple synchronized transmitters spread around a station’s service area. Each transmitter would broadcast the station’s DTV signal on the same channel, relying on the performance of “adaptive equalizer” circuitry in DTV receivers to cancel or combine the multiple signals plus any reflected signals to produce a single signal. See *supra* ¶ 4.

- We will evaluate DTS proposals using the same interference standard adopted for DTV stations' post-transition operations in the Third DTV Periodic Report and Order. We also adopt the root-sum-square ("RSS") method of calculating interference from multiple DTS transmitters.
- We permit a licensee of multiple digital Class A TV, digital LPTV, and/or digital TV translator stations to operate through interconnected single-frequency DTS networks, but will continue to separately license each station in this interconnected single-channel network.
- We approve on an experimental basis the use of DTS technologies by a single digital Class A TV, digital LPTV or digital TV translator station to provide service within its authorized service area.

We find that these rules will improve some DTV stations' ability to serve more of their viewers within their service areas. For example, we expect that DTS will be especially useful in mountainous areas where single transmitters have been unable to reach viewers in valleys or those blocked by elevated terrain. Furthermore, DTS may be a useful tool for stations to prevent some loss of service to existing analog viewers resulting from changes to the station's service area in the transition to digital service. These rules will apply to post-transition operations (*i.e.*, operations after February 17, 2009). DTS proposals related to pre-transition operations will continue to be evaluated under the Commission's interim policy.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

3. There were no comments filed that specifically addressed the rules and policies proposed in the IRFA.

C. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply

1. Entities Directly Affected By Rules

4. The RFA directs the Commission to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the rules adopted herein.⁶ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small government jurisdiction."⁷ In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.⁸ A small business concern is one which: (1) is independently owned and operated;

⁶ *Id.* § 603(b)(3).

⁷ 5 U.S.C. § 601(6).

⁸ *Id.* § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

(2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.⁹

5. The rules adopted by this Report and Order will permit DTV broadcast stations to use DTS technologies where feasible in place of a single transmitter to provide service as authorized. We adopt our tentative conclusion in the *DTS Notice* that only television broadcast station licensees and permittees will be directly affected by the rules adopted herein.¹⁰ Therefore, in this FRFA, we consider the impact of the rules on small television broadcast stations. A description of such small entities, as well as an estimate of the number of such small entities, is provided below.

6. Television Broadcasting. The rules and policies adopted herein apply to television broadcast licensees and potential licensees of television service. The SBA defines a television broadcast station as a small business if such station has no more than \$14.0 million in annual receipts.¹¹ Business concerns included in this industry are those “primarily engaged in broadcasting images together with sound.”¹² The Commission has estimated the number of licensed commercial television stations to be 1,376.¹³ According to Commission staff review of the BIA Financial Network, MAPro Television Database (“BIA”) on March 30, 2007, about 986 of an estimated 1,374 commercial television stations¹⁴ (or about 72 percent) have revenues of \$14.0 million or less and thus qualify as small entities under the SBA definition. The Commission has estimated the number of licensed NCE television stations to be 380.¹⁵ We note, however, that, in assessing whether a business concern qualifies as small under the above definition, business (control) affiliations¹⁶ must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. The Commission does not compile and otherwise does not have access to information on the

⁹ 15 U.S.C. § 632. Application of the statutory criteria of dominance in its field of operation and independence are sometimes difficult to apply in the context of broadcast television. Accordingly, the Commission’s statistical account of television stations may be over-inclusive.

¹⁰ *DTS Notice*, 20 FCC Rcd at 17818, app. B.

¹¹ See 13 C.F.R. § 121.201, NAICS Code 515120.

¹² *Id.* This category description continues, “These establishments operate television broadcasting studios and facilities for the programming and transmission of programs to the public. These establishments also produce or transmit visual programming to affiliated broadcast television stations, which in turn broadcast the programs to the public on a predetermined schedule. Programming may originate in their own studios, from an affiliated network, or from external sources.” Separate census categories pertain to businesses primarily engaged in producing programming. See Motion Picture and Video Production, NAICS code 512110; Motion Picture and Video Distribution, NAICS Code 512120; Teleproduction and Other Post-Production Services, NAICS Code 512191; and Other Motion Picture and Video Industries, NAICS Code 512199.

¹³ See News Release, “Broadcast Station Totals as of December 31, 2006,” 2007 WL 221575 (dated Jan. 26, 2007) (“*Broadcast Station Totals*”); also available at <http://www.fcc.gov/mb/>.

¹⁴ We recognize that this total differs slightly from that contained in *Broadcast Station Totals*, *supra* IRFA note 11; however, we are using BIA’s estimate for purposes of this revenue comparison.

¹⁵ See *Broadcast Station Totals*, *supra* IRFA note 11.

¹⁶ “[Business concerns] are affiliates of each other when one concern controls or has the power to control the other or a third party or parties controls or has to power to control both.” 13 C.F.R. § 121.103(a)(1).

revenue of NCE stations that would permit it to determine how many such stations would qualify as small entities.

7. In addition, an element of the definition of “small business” is that the entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific television station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply do not exclude any television station from the definition of a small business on this basis and are therefore over-inclusive to that extent. Also as noted, an additional element of the definition of “small business” is that the entity must be independently owned and operated. We note that it is difficult at times to assess these criteria in the context of media entities and our estimates of small businesses to which they apply may be over-inclusive to this extent.

8. Class A TV, LPTV, and TV translator stations. The rules and policies adopted herein also apply to licensees of Class A TV stations, low power television (LPTV) stations, and TV translator stations, as well as to potential licensees in these television services. The same SBA definition that applies to television broadcast licensees would apply to these stations. The SBA defines a television broadcast station as a small business if such station has no more than \$14.0 million in annual receipts.¹⁷ Currently, there are approximately 567 licensed Class A stations, 2,227 licensed LPTV stations, and 4,518 licensed TV translators.¹⁸ Given the nature of these services, we will presume that all of these licensees qualify as small entities under the SBA definition. We note, however, that under the SBA’s definition, revenue of affiliates that are not LPTV stations should be aggregated with the LPTV station revenues in determining whether a concern is small. Our estimate may thus overstate the number of small entities since the revenue figure on which it is based does not include or aggregate revenues from non-LPTV affiliated companies. We do not have data on revenues of TV translator or TV booster stations, but virtually all of these entities are also likely to have revenues of less than \$14.0 million and thus may be categorized as small, except to the extent that revenues of affiliated non-translator or booster entities should be considered.

2. Entities Not Directly Affected By Rules

9. We adopt our tentative conclusion that the rules adopted herein will not directly affect any other types of entities other than television broadcast station licensees and permittees.¹⁹ In the *DTS Notice*, we invited comment on this tentative conclusion, but received no comments on this issue. In particular, out of an abundance of caution, we invited comment from any small cable operators or small multichannel video programming distributors (MVPDs)²⁰ who believed they might be directly affected by the proposed rules contained in the *DTS Notice*.²¹ Because the rules adopted herein pertain only to the technology employed in

¹⁷ See 13 C.F.R. § 121.201, NAICS Code 515120.

¹⁸ See *Broadcast Station Totals*, *supra* IRFA note 11.

¹⁹ *DTS Notice*, 20 FCC Rcd at 17818-19, app. B.

²⁰ MVPDs include such entities as Direct Broadcast Satellite (DBS) providers, private cable operators (PCOs), also known as satellite master antenna television (SMATV) systems, home satellite dish (HSD) services, multipoint distribution services (MDS)/multichannel multipoint distribution service (MMDS), Instructional Television Fixed Service (ITFS), local multipoint distribution service (LMDS) and open video systems (OVS).

²¹ *DTS Notice*, 20 FCC Rcd at 17819-22, app. B.

television broadcasting, we find that these rules will not directly affect small cable operators or small MVPDs. We, thus, adopt our conclusion that these entities fall outside the scope of this FRFA. Accordingly, we do not discuss these entities, which were listed in the IRFA.²²

D. Description of Projected Reporting, Recordkeeping and other Compliance Requirements

10. The rules adopted by this Report and Order will permit television broadcast licensees to use DTS technologies in lieu of a single-transmitter to operate their television broadcast stations. Use of DTS is at the option of the broadcast licensee. The rules do not impose any mandatory reporting, recordkeeping and other compliance requirements, unless the licensee chooses to use DTS. The rule changes that will directly affect reporting, recordkeeping and other compliance requirements are described below.²³

11. The rules adopted by this Report and Order require that DTS transmitters be part of a linked group that will be covered by one construction permit and license. DTS transmitters will not be separately licensed. Unless otherwise indicated, the rules adopted by this Report and Order will apply the current requirements and processes for DTV stations, or, where appropriate, analog TV stations. The Commission intends to use application filing and processing procedures similar to the current procedures for DTV licensing.²⁴ FCC Forms 301 and 340 will be modified to accommodate the use of DTS.²⁵ Specifically, licensees will request authority to construct DTS facilities by filing a single application that includes either (1) a main transmitter and one or more additional transmitters that will collectively use the DTS technology, or (2) two or more smaller DTS transmitters. In addition, a licensee may add to its DTS network of transmitters using a minor change application for a construction permit to change a licensed DTV facility, or for a modified construction permit to change a DTV facility authorized by a construction permit. Such applications will be processed in accordance with the Commission's current processing rules and guidelines, which includes requiring that the coverage from one or more DTS transmitter(s) must provide principal community coverage as required in Section 73.625(a) of the rules.²⁶

E. Steps Taken to Minimize Significant Impact on Small Entities, and Significant Alternatives Considered

12. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small

²² *Id.*, ¶¶ 10-21.

²³ See Appendix A – Rule Changes.

²⁴ See Notice ¶ 15; see also proposed revised rule section C.F.R. § 73.626(b) in Appendix A to the Notice.

²⁵ See Appendix C – Changes to FCC Forms 301 and 340.

²⁶ 47 C.F.R. § 73.625.

entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.²⁷

13. The rules adopted by this Report and Order will permit broadcast stations to use DTS technologies where feasible in place of a single transmitter to provide service as authorized. The use of use DTS technologies is not mandatory and only television broadcast licensees who choose to employ a DTS network will be impacted by the rules. Specifically, we conclude that small broadcasters will benefit from the opportunities offered by DTS technologies. Although no commenters specifically address the IRFA, the record does show many benefits of DTS to small broadcasters. Small broadcasters will share in the benefits to all broadcasters discussed in section III.A., *supra*, which include uniform signal levels throughout a licensee's service area, the ability to operate at reduced power to achieve the same coverage, a reduced likelihood of causing interference to neighboring licensees, an ability to overcome terrain limitations, and more reliable indoor reception.²⁸ Of particular importance to small broadcasters, the use of DTS technologies will allow stations to reach rural and remote areas that cannot now be served by conventional means. Finally, the Commission is not imposing any adverse economic impact on small entities by the rules adopted in this Report and Order because the rules will impact small broadcasters only if they choose to avail themselves of the opportunities afforded by them; therefore, no discussion of alternatives is necessary.

F. Report to Congress

14. The Commission will send a copy of this Report and Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.²⁹ In addition, the Commission will send a copy of this Report and Order, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of this Report and Order and FRFA (or summaries thereof) will also be published in the Federal Register.³⁰

²⁷ 5 U.S.C. § 603(c)(1)-(c)(4)

²⁸ See Report and Order at ¶ 6.

²⁹ See 5 U.S.C. § 801(a)(1)(A). The Congressional Review Act is contained in Title II, § 251, of the CWAAA; see Pub. L. No. 104-121, Title II, § 251, 110 Stat. 868.

³⁰ See 5 U.S.C. § 604(b).

**SEPARATE STATEMENT OF
COMMISSIONER MICHAEL J. COPPS**

Re: *Digital Television Distributed System Technologies; MB Docket No. 05-312*

Anyone looking for an example of how the digital television transition would have benefited from a national commitment on the level of Y2K need look no further than this item approving the use of distributed transmission systems (DTS). The Order notes that DTS “will provide broadcasters with an important tool for providing optimum signal coverage for their viewers.” In particular, DTS can help provide service to viewers at risk of losing service due to challenging terrain or other factors such as the digital “gap” issue highlighted in the Wilmington test last September.

The problem is not the technology but the timing. Had we identified these coverage issues earlier, we could have approved DTS months ago and given broadcasters enough time to build out before the transition. Now that generally will not be possible. Would a truly comprehensive and coordinated DTV effort have identified these issues earlier? We will never know for sure. What we do know is that, in the absence of such an effort, we never gave ourselves a chance.

**STATEMENT OF
COMMISSIONER JONATHAN S. ADELSTEIN**

Re: *Digital Television Distributed System Technologies; MB Docket No. 05-312*

I support this Report and Order to authorize the use of distributed transmission system (DTS) technology because it should help local broadcasters to better serve their over-the-air viewers who may not receive a good quality signal after the transition to digital television. DTS technology makes broadcast signals available in difficult to reach areas through the use of multiple transmitters in their authorized service areas. For viewers in remote areas, DTS technology means that they could finally receive a reliable signal of their local broadcast television station. DTS technology will help ensure that the DTV transition does not disenfranchise any viewer or household.

While the intentions of this item are noble, the real impact of DTS technology will be judged by our implementation of the rules and standards adopted in this Order. DTS technology should not be used to extend a station's reach into an adjacent market and it should not be used to "cherry-pick" among viewers. I trust the Media Bureau will exercise its delegated authority in a judicious and prudent manner that is consistent with our statutory obligations to promote localism in broadcasting and to minimize the burden of the DTV transition on consumer.

Accordingly, I support this item.

**STATEMENT OF
COMMISSIONER DEBORAH TAYLOR TATE**

Re: *Digital Television Distributed System Technologies; MB Docket No. 05-312*

This Order brings us one step closer to the nationwide DTV Transition on February 17, 2009. As I have traveled across America for DTV Town Hall events, consumers, as well as broadcasters, continue to voice concerns about the loss of television signals they may experience as a result of the digital transition. In Wilmington, NC, we saw this first-hand. I am likewise concerned about consumers in certain areas of my home state of Tennessee. The Order adopted today authorizes the use of a technology that provides optimum signal coverage. Digital Transmission System technologies (DTS) allow broadcast stations to use a series of synchronized transmitters located throughout the service area, rather than just a single transmitter at the broadcast facility. To prevent interference, when considering applications from stations seeking to use DTS, the Commission will apply the same interference standard used for single transmitter stations. As we move toward February 17, we will no doubt encounter new and challenging technical and policy questions. I hope that, as in this case, the Commission can efficiently and effectively develop solutions to such questions, so that we can achieve our goal of a seamless Transition.

**STATEMENT OF
COMMISSIONER ROBERT M. McDOWELL**

Re: *Digital Television Distributed System Technologies; MB Docket No. 05-312*

By adopting rules that allow broadcasters to take advantage of Distributed Transmission System (“DTS”) technology, we hope to help consumers who may find themselves without over-the-air access to one or more of their favorite broadcast stations after February 17, 2009, the nation’s digital television transition deadline.

DTS is not a new concept. The technology relies on use of a series of transmitters located throughout a station’s authorized service area – rather than the traditional, centrally located single “stick” – to broadcast a digital television signal. Because of the flexibility provided by multiple transmitters, broadcasters who choose to make use of DTS will be able to reach viewers whose TV receivers might otherwise be blocked by terrain or other sources of interference. And because the multiple transmitters are technically capable of using the same frequency throughout the TV station’s service area, DTS makes more efficient use of spectrum than do the comparable analog TV booster stations (which must employ different frequencies to improve the main analog station’s reach).

Plainly, the new DTS rules can assist television broadcasters in overcoming the so-called “digital cliff” problem within their authorized DTV service areas, *i.e.*, the abrupt loss of the signal due to interference within the station’s service area. But our action today goes a step further to address a different concern highlighted by the early DTV transition in Wilmington, N.C. As our DTV call center’s data from September reflect, some viewers in the outer edges of the Wilmington region were unhappily surprised to learn that one local station’s authorized DTV service area is notably smaller than its old analog service area. In response to that situation, our Report and Order allows licensees to seek a waiver, during a limited window of time, to apply for DTS facilities that would extend the station’s digital signal out to the old analog Grade B contour. I hope that this limited waiver mechanism will help over-the-air viewers in more distant locations to continue to receive broadcast programming that they have long enjoyed.

I note, however, that nothing in our decision today *requires* broadcasters to make use of DTS technology – and even those licensees who are interested in it are unlikely to be able to construct DTS facilities before February 17. I therefore renew my call to broadcasters to work diligently, starting now, to inform their viewers about any technical issues that may affect over-the-air reception in their communities. In particular, I urge stations in each market to consider jointly producing and airing a local “infomercial” about how their viewers should prepare for the DTV transition. Such locally focused programs, especially if they feature engaging on-air personalities, could be an ideal, user-friendly way to convey important information about specific technical issues confronting a community, such as digital cliff problems or a station’s smaller DTV service area. A local infomercial also could greatly assist consumers grappling with tasks that people in many markets may confront, including converter box connections and antenna positioning. It is past time for DTV education efforts to move from generalized messaging to targeted assistance for consumers.