

FCC FACT SHEET*

**Rules Governing the Use of Distributed Transmission System Technologies
Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard
Notice of Proposed Rulemaking – MB Docket No. 20-74 and GN Docket No. 16-142**

Background: Section 73.626 of the Commission’s rules governs the use of a distributed transmission system (DTS) by broadcast television stations. DTS uses multiple transmitter sites within a station’s authorized service area, each operating on the same channel, in order to provide better service to the public. The Commission has recognized numerous potential benefits of DTS technology, including the ability to serve hard-to-reach viewers, improved indoor and mobile reception, and the more efficient use of TV spectrum. The Commission’s current rules regarding DTS use were first adopted more than a decade ago in advance of the digital television (DTV) transition, which was completed for full-power television stations in 2009. In 2017, when the Commission authorized broadcast television stations to use the Next Gen TV, or ATSC 3.0, transmission standard on a voluntary, market-driven basis—while continuing to deliver current-generation DTV service to their viewers using the ATSC 1.0 standard—it found that the existing DTS rules were adequate to authorize DTS use with ATSC 3.0 and stated that the Commission would revisit the rules in the future if appropriate.

In October 2019, America’s Public Television Stations and the National Association of Broadcasters filed a Joint Petition for Rulemaking seeking to amend section 73.626 to make technical changes to the DTS rules that could enable the broadcast television industry to expand DTS use.

What the Notice of Proposed Rulemaking (NPRM) Would Do:

- Seek comment on amending the Commission’s rules to permit, within certain limits, DTS signals to spill over beyond a station’s authorized service area by more than the “minimal amount” currently allowed by section 73.626.
- Seek comment on how DTS signals extending beyond their current service areas should be treated for interference purposes if such spillover is allowed.
- Seek comment on potential impacts to other spectrum users, such as TV translators and LPTV stations, including whether there are alternatives to the proposed rule changes that could accomplish the intended objectives.
- Seek comment on whether to modify the DTS rules as they relate to Class A and LPTV licensees.
- Seek comment on whether and to what extent the proposed changes are also appropriate for stations broadcasting in ATSC 1.0.

* This document is being released as part of a “permit-but-disclose” proceeding. Any presentations or views on the subject expressed to the Commission or its staff, including by email, must be filed in MB Docket No. 20-74, which may be accessed via the Electronic Comment Filing System (<https://www.fcc.gov/ecfs/>). Before filing, participants should familiarize themselves with the Commission’s *ex parte* rules, including the general prohibition on presentations (written and oral) on matters listed on the Sunshine Agenda, which is typically released a week prior to the Commission’s meeting. *See* 47 CFR § 1.1200 *et seq.*

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

In the Matter of
Rules Governing the Use of Distributed
Transmission System Technologies
Authorizing Permissive Use of the "Next
Generation" Broadcast Television Standard
MB Docket No. 20-74
GN Docket No. 16-142

NOTICE OF PROPOSED RULEMAKING*

Adopted: []

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Comment Date: [30 days after publication in the Federal Register]
Reply Comment Date: [60 days after publication in the Federal Register]

By the Commission:

I. INTRODUCTION

1. In this Notice of Proposed Rulemaking (NPRM), we seek comment on changes to the Commission's rules governing the use of a distributed transmission system (DTS), or single frequency network (SFN), by a broadcast television station. Consistent with the joint petition for rulemaking (Petition) submitted by America's Public Television Stations (APTS) and the National Association of Broadcasters (NAB) (collectively, Petitioners), by this NPRM we seek input regarding technical changes to the DTS rules that could enable the broadcast television industry to expand DTS use as it deploys the

* This document has been circulated for tentative consideration by the Commission at its March 2020 open meeting. The issues referenced in this document and the Commission's ultimate resolutions of those issues remain under consideration and subject to change. This document does not constitute any official action by the Commission. However, the Chairman has determined that, in the interest of promoting the public's ability to understand the nature and scope of issues under consideration, the public interest would be served by making this document publicly available. The Commission's ex parte rules apply and presentations are subject to "permit-but-disclose" ex parte rules. See, e.g., 47 CFR §§ 1.1206, 1.1200(a). Participants in this proceeding should familiarize themselves with the Commission's ex parte rules, including the general prohibition on presentations (written and oral) on matters listed on the Sunshine Agenda, which is typically released a week prior to the Commission's meeting. See 47 CFR §§ 1.1200(a), 1.1203.

1 See 47 CFR § 73.626. For the purposes of broadcast television, the term single frequency network (SFN) is synonymous with the term distributed transmission system (DTS). See Authorizing Permissive Use of the 'Next Generation' Broadcast Television Standard, GN Docket No. 16-142, Notice of Proposed Rulemaking, 32 FCC Rcd 1670, 1697, para. 61 (2017) (Next Gen TV NPRM); see Authorizing Permissive Use of the 'Next Generation' Broadcast Television Standard, GN Docket No. 16-142, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 9930, 9987, para. 115, n.343 (2017) (Next Gen TV Order) (explaining that SFNs are "a technique that broadcasters use to transmit signals on the same frequency from multiple antennas in a local geographic area where it is not practical to serve the entire area with a single antenna"). DTS has also been referred to as distributed transmission technologies (DTT) and distributed transmitters (DTx). Digital Television Distributed Transmission System Technologies, MB Docket No. 05-312, Report and Order, 23 FCC Rcd 16731, 16734, para. 4 (2008) (2008 DTS Order).

next generation broadcast television standard (ATSC 3.0).² The Commission's current rules regarding DTS use were first adopted more than a decade ago in advance of the digital television (DTV)³ transition, which was completed for full-power television stations in 2009. Petitioners contend that, while certain characteristics associated with ATSC 3.0 make the use of DTS more efficient and more economical in conjunction with that standard, the Commission's current rules inhibit expanded DTS deployments, particularly near the edge of a station's coverage area.⁴ Accordingly, Petitioners ask that we amend our rules to permit, within certain limits, DTS signals to spill over beyond a station's authorized service area by more than the "minimal amount" currently allowed by our rules.⁵ We seek comment below on whether and, if so, how to modify our DTS rules to ensure that broadcasters planning to deploy ATSC 3.0 are able to use DTS effectively while at the same time minimizing potential impacts on other spectrum users.⁶ To that end, we seek comment on amending our rules consistent with the changes proposed in the Petition. As Petitioners note, the Commission has recognized numerous potential benefits of DTS technology, including the ability to serve hard-to-reach viewers, improved indoor and mobile reception, and the more efficient use of TV spectrum. With this NPRM, we seek to facilitate the use of new and innovative technologies by broadcasters and the benefits such technologies may hold for broadcast television viewers.

II. BACKGROUND

2. Traditionally, a broadcast television station transmits its signal from a single elevated transmission site central to the service area, resulting in a stronger signal available near the transmitter and a weaker signal as the distance from the transmitter increases.⁷ Non-uniform terrain or morphological features can also weaken signals, regardless of distance from the transmitter.⁸ One way for a station to augment its signal strength is to provide fill-in service using one or more separately licensed secondary transmission sites that operate on a different radiofrequency (RF) channel than the main facility, i.e., a television translator.⁹ By contrast, a distributed transmission system employs two or more transmission sites located around a station's service area,¹⁰ each using the same RF channel and synchronized to manage self-interference.¹¹ DTS therefore offers an alternative to traditional full-power television transmission and the use of secondary translators on additional frequencies.

² Joint Petition for Rulemaking of America's Public Television Stations and the National Association of Broadcasters, GN Docket No. 16-142 (filed Oct. 3, 2019) (Petition) at 3.

³ Digital television (DTV) broadcasting involves the transmission of television signals using digital technology, rather than the earlier analog technology.

⁴ Petition at 4-6.

⁵ See *id.* at 8; 47 CFR § 73.626(f)(2).

⁶ See Letter from Patrick McFadden, Associate General Counsel, NAB, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 16-142, at 1 (filed Jan. 27, 2020) (stating that broadcasters expect to be transmitting ATSC 3.0 signals in 61 markets by the end of 2020); see also *Unlicensed White Space Device Operations in the Television Bands*, ET Docket No. 20-36, Notice of Proposed Rulemaking, FCC 20-17 (Mar. 2, 2020) (*TV White Spaces NPRM*) (proposing targeted changes to the unlicensed white space device rules in the TV bands to provide improved broadband coverage that would benefit American consumers in rural and underserved areas).

⁷ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 60.

⁸ Petition at 3.

⁹ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 60; see also Petition at 4.

¹⁰ *2008 DTS Order*, 23 FCC Rcd at 16734, para. 4.

¹¹ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 61. Through synchronization of the transmitted signal, DTV receivers treat the multiple signals as reflections or "ghosts" and use "adaptive equalizer" circuitry to cancel and combine them to produce a single signal. *2008 DTS Order*, 23 FCC Rcd at 16734, para. 4.

3. *Current DTS Rules.* More than a decade ago, the Commission first recognized the potential uses and benefits of DTS technologies when the transition from analog to digital broadcasting brought with it the ability to transmit multiple television signals on the same channel without causing harmful interference, thus making DTS feasible for television for the first time. In November 2008, the Commission adopted a Report and Order establishing rules for the use of DTS in the DTV service.¹² In the *2008 DTS Order*, the Commission noted that DTS could allow stations to reach more viewers in their coverage areas, distributes more uniform and higher-level signals near the edges of stations' coverage areas, improves indoor reception and reception on mobile devices, offers an alternative to stations limited by tower height and placement restrictions, increases spectrum efficiency by allowing networks to use the same channel for all operations, enhances the ability of broadcasters to compete with multichannel video programming distributors, and allows broadcasters to continue to reach viewers that lost service as a result of the digital transition.¹³

4. Specifically, in the *2008 DTS Order*, the Commission adopted rules permitting a full-power DTV station to transmit using multiple lower power transmitter sites operating on the same frequency.¹⁴ In crafting these rules, the Commission defined a DTS station's maximum authorized service area to be an area "comparable to that which the DTV station could be authorized to serve with a single transmitter."¹⁵ This was referred to as the "Comparable Area Approach."¹⁶ To define the boundaries of this comparable service area (i.e., a DTS station's maximum service area), the Commission established a "Table of Distances," which it derived from the hypothetical maximum service area that a DTV station would be allowed to apply for under the Commission's rules.¹⁷ The maximum service area defined by the Table of Distances is centered around the station's reference facility.¹⁸ Among other things, the Commission's rules require that each DTS transmitter must be located within either the

¹² See generally *2008 DTS Order*. The order addressed, among other things, the regulatory status afforded to DTS transmitters, the maximum authorized service area for a DTS network, the location of DTS transmitters, licensing and technical rules, and the use of DTS transmitters by Class A and low power television (LPTV) stations.

¹³ See *2008 DTS Order*, 23 FCC Rcd at 16738-40, para. 14.

¹⁴ See *id.* at 16734, para. 6.

¹⁵ *Id.* at 16741-42, para. 17.

¹⁶ *Id.* at 16741-42, para. 17. In adopting the "Comparable Area Approach," the Commission rejected proposals for an "Expanded Area Approach," which would have permitted DTS stations to expand coverage beyond their single-transmitter service areas (e.g., to cover their entire DMAs). *Id.* at 16743-46, paras. 20-25.

¹⁷ *Id.* at 16746, para. 25; see also 47 CFR § 73.626(c) (describing by channel and zone "a station's maximum service area that can be obtained in applying for a DTS authorization"). The distance provided in the Table of Distances assumes the maximum antenna height and power that a single-transmitter station is permitted to apply for under Commission rules. *2008 DTS Order*, 23 FCC Rcd at 16741-42, para. 17, n.67. The distance in the table is "hypothetical" because it assumes approval of the maximized facilities. *Id.* Stations, however, must still apply for facilities to serve such a maximized coverage area and obtain Commission approval. *Id.* In addition, stations must obtain Federal Aviation Administration and state and local government approvals as may be necessary for such facilities. *Id.* By contrast, a station applying for DTS facilities would not be required to apply first for Commission approval of its hypothetical single-transmitter maximum facilities because the Commission has established the Table of Distances for such purposes. *Id.*

¹⁸ *2008 DTS Order*, 23 FCC Rcd at 16748-49, para. 29; see also 47 CFR § 73.626(c)(2). Based on a station's location and band (Low VHF, High VHF, or UHF), the Table of Distances reflects a predicted noise-limited service contour (NLSC) for a given station's non-DTS, single-transmitter facility (i.e., the reference facility). Specifically, the table provides the distance for the radius of a circle to be drawn around a station's "reference point," i.e., a geographic point specific to each station that was defined during the DTV transition process.

reference station's Table of Distances area¹⁹ or its authorized service area.²⁰ In addition, each DTS transmitter's coverage (i.e., its noise-limited service contour (NLSC)) must be contained within either the 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 to ensure that the combined coverage from all of its DTS transmitters covers all of the station's authorized service area.²¹ The Commission affords primary regulatory status to DTS transmitters within the areas they are authorized to serve.²² Finally, the rules allow licensees of multiple digital Class A, low power television (LPTV), and/or television translator stations to operate through interconnected single frequency DTS networks, i.e., to operate a network of stations co-channel using their multiple licenses.²³

5. *Next Gen TV (ATSC 3.0)*. In November 2017, the Commission adopted a Report and Order authorizing broadcast television stations to use the ATSC 3.0 transmission standard on a voluntary, market-driven basis while they continue to deliver current-generation DTV broadcast service to their viewers using the ATSC 1.0 standard (*Next Gen TV Order*).²⁴ In the *Next Gen TV Order*, the Commission concluded that the existing rules authorizing DTS stations generally were adequate to authorize the operation of an ATSC 3.0 SFN and that the record did not support changes to the authorized service areas for DTS stations at that time.²⁵ The Commission further stated that it would monitor the

¹⁹ *2008 DTS Order*, 23 FCC Rcd at 16750, para. 32; *see also* 47 CFR 73.626(f).

²⁰ *2008 DTS Order*, 23 FCC Rcd at 16750, para. 32; *see also* 47 CFR 73.626(b) (defining a station's "authorized service area" 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"). The Commission explained that, in the vast majority of cases, a circle drawn according to the Table of Distances would equal or exceed a station's non-DTS, single-transmitter authorized service area, but the DTS rules provide for those exceptional circumstances in which that is not the case (e.g., in areas where irregular terrain causes a station's service area to be distorted). *2008 DTS Order*, 23 FCC Rcd at 16747-51, paras. 27-33.

²¹ *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33; *see also* 47 CFR 73.626(f)(2). The coverage for each DTS transmitter (i.e., its NLSC) is determined based on the F(50,90) field strength given in the Table of Distances (e.g., 41 dBu for UHF stations), calculated in accordance with Section 73.625(b). *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33; *see also* 47 CFR 73.626(d). The combined coverage of a DTS station is the logical union of the coverage of all DTS transmitters. *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33.

²² *2008 DTS Order*, 23 FCC Rcd at 16740-41, para. 15 (concluding that "primary status within a station's authorized service area is essential for stations to implement a successful DTS network and obtain the benefits offered by DTS techniques"); *see also* 47 CFR 73.626(e) (defining the population to be protected from interference for a DTS station as "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" and stating that "[o]nly population that is predicted to receive service...from at least one individual DTS transmitter will be considered"). Moreover, the Commission concluded that it would permit, in some limited circumstances, incidental (or *de minimis*) secondary service beyond the station's service area where such service results from the necessary placement of transmitters near the edge of the station's service area. *2008 DTS Order*, 23 FCC Rcd at 16746, para. 25, n.102.

²³ *2008 DTS Order*, 23 FCC Rcd at 16761-64, paras. 55-59. The Commission also approved the use of DTS technologies on an experimental basis by a single digital Class A, LPTV, or TV translator station to provide service within its authorized service area, i.e., operating a reference facility and one or more transmitters using a single Class A or LPTV license in the manner permitted for full-power DTS stations. *Id.* at 16760-61, paras. 53-54.

²⁴ *Next Gen TV Order*, 32 FCC Rcd at 9931, 9987, paras. 1, 115. ATSC 3.0 refers to a next generation broadcast television transmission standard developed as the world's first Internet Protocol-based broadcast transmission platform. ATSC 3.0 merges the capabilities of over-the-air broadcasting with the broadband viewing and information delivery methods of the Internet, using the same six-megahertz channels presently allocated for DTV broadcast service. *Id.* at 9931, para. 1.

²⁵ *Id.* at 9988, para. 118. The Commission also instituted a requirement that all DTS transmitters under a single license follow the same broadcast television transmission standard (i.e., no mixing of ATSC 1.0 and ATSC 3.0) and declined to adopt a synchronization standard for ATSC 3.0, i.e., a specific technical standard to be used for the

(continued....)

deployment of ATSC 3.0 in the marketplace and consider changes to the DTS rules in the future, if appropriate.²⁶ The Commission also noted that a station interested in pursuing a change to its DTS service area may file for a waiver of the DTS rules pursuant to the Commission's general waiver standard.²⁷

6. *Petition for Rulemaking.* On October 3, 2019, Petitioners filed a joint petition for rulemaking seeking to amend section 73.626 of the Commission's rules relating to DTS.²⁸ Petitioners assert that broadcasters planning ATSC 3.0 deployments are interested in exploring the advanced capabilities of ATSC 3.0 to facilitate the use of DTS.²⁹ The Petition asks the Commission to "amend its methodology for determining DTS service limits while preserving the current interference requirements."³⁰ Petitioners contend that the DTS rules, which currently allow DTS signals to spill over by only a "minimal amount" beyond a station's authorized service area, "limit broadcasters' ability to deploy additional [DTS] transmitters near the edge of a station's coverage area, hampering the deployment of [DTS] networks."³¹ Petitioners do not seek to place DTS transmitters beyond a station's authorized service area.³² Rather, Petitioners ask the Commission to change the DTS rules to permit stations more flexibility in the placement of their DTS transmitters, particularly near the edge of a station's coverage area.³³ Specifically, Petitioners propose that the placement of DTS transmitters would be limited by what Petitioners refer to as the DTS transmitter's "interference contour," which could not exceed that of the reference facility.³⁴ Petitioners assert that their requested rule changes would allow them to "unlock" the "numerous" benefits of DTS operations beyond what the current DTS rules enable, such as further improving service throughout a station's coverage area, improving mobile reception, and

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synchronization of multiple signals received from different transmitters at different times. *Id.* at 9987, paras. 115-116, n.349.

²⁶ *Id.* at 9988, para. 118.

²⁷ *Next Gen TV Order*, 32 FCC Rcd at 9988, para. 118, n.356. It does not appear that broadcasters have sought to use the Commission's general waiver standard to obtain changes to DTS service areas.

²⁸ Petition at 2-3. See 47 CFR § 73.626.

²⁹ Petition at 1.

³⁰ *Id.* at 2.

³¹ *Id.* Petitioners further assert that updating the Commission's DTS rules would result in (1) significantly more cost-effective deployment of DTS due to a simplified design, (2) improvements in service, particularly near the edge of a station's coverage area, (3) improved mobile reception, and (4) improved spectrum efficiency by reducing the need for television translators using separate channels. *Id.*

³² Petitioners' Reply at 2.

³³ Petition at 3-11.

³⁴ Petitioners request that, for UHF stations, the Commission permit a DTS transmitter's NLSC, which for UHF stations is a 41 dBu F(50,90) contour, to exceed the reference facility's NLSC, so long as the DTS transmitter's 36 dBu F(50,10) "interference" contour does not exceed the reference facility's 36 dBu F(50,10) contour. Petition at 8. Petitioners state that they selected this value to avoid interference with Class A and LPTV operations, i.e., the "interference" contour value is 36 dBu because the service contour field strength of Class A and LPTV stations is 51 dBu and the nominal desired-to-undesired ratio necessary to avoid interference is 15 dB (51 - 15 = 36 dBu). Petitioners' proposal also applies the 15 dBu desired-to-undesired ratio to the NLSC value for Low-VHF and High-VHF channels, resulting in the contour values in their proposed Table of Distances. *Id.* at 8, Attach. A. The desired-to-undesired ratio is a measure of the strength of the broadcast signal for a particular channel (i.e., the desired signal) compared with the strength of undesired broadcast signals in the same channel (i.e., other, undesired signals from nearby facilities).

allowing more efficient use of broadcast spectrum by reducing the need for television translators using separate channels.³⁵

7. On October 11, 2019, the Media Bureau issued a public notice seeking comment on the Petition and setting comment and reply comment deadlines of November 12, 2019 and November 27, 2019, respectively (Public Notice).³⁶ Thirteen parties filed comments in response to the Public Notice.³⁷ Seven parties filed reply comments, including Petitioners.³⁸

8. The majority of commenters support the Petition, although some with reservations.³⁹ For example, ARK Multicasting (ARK) and the LPTV Spectrum Rights Coalition (LPTV Coalition) state that they support the Petition provided that LPTV stations and TV translators are protected from displacement.⁴⁰ National Public Radio (NPR) urges the Commission to address the risk of interference posed by DTV Channel 6 (DTV6) stations in spectrum adjacent to reserved band noncommercial educational (NCE) FM stations.⁴¹ Two commenters—The National Translator Association (NTA) and Microsoft Corporation (Microsoft), the latter a supporter of white space device operations⁴²—oppose the Petition.⁴³ NTA states that the Petition is “premature” and that the issues put forth by the Petition should be considered in three to five years “once the penetration of home reception and broadcast station transmissions are both far enough along for the affected [parties] to understand many of the strengths and weaknesses in this ambitious upgrade and replacement program.”⁴⁴ Microsoft asserts that the “rule changes proposed in the [P]etition . . . appear to go well beyond what is needed to fill coverage gaps within broadcasters’ service areas”⁴⁵ and that Petitioners have not made a persuasive showing that the

³⁵ Petition at 1-2, 11.

³⁶ *Media Bureau Seeks Comment on Joint Petition for Rulemaking of America’s Public Television Stations and the National Association of Broadcasters Seeking to Amend Section 73.626 of the Commission’s Rules Relating to Distributed Transmission Systems*, Public Notice, 34 FCC Rcd 9443 (MB 2019) (Public Notice).

³⁷ The parties that submitted comments were: ARK Multicasting, Inc. Comments (ARK Comments); Columbus Broadcasting Corporation (Columbus Comments); LPTV Spectrum Rights Coalition Comments (LPTV Coalition Comments); Meredith Corporation Comments (Meredith Comments); Microsoft Comments; National Public Radio, Inc. Comments (NPR Comments); National Translator Association (NTA Comments); Nexstar Broadcasting, Inc. Comments (Nexstar Comments); ONE Media 3.0, LLC Comments (ONE Media Comments); One Ministries, Inc. (OMI Comments); Pearl TV Comments; Public Media Group Comments (PMG Comments); and Smith and Fisher, LLC Comments (Smith and Fisher Comments).

³⁸ The parties that submitted reply comments were: America’s Public Television Stations and National Association of Broadcasters Reply (Petitioners’ Reply); ARK Multicasting, Inc. (ARK Reply); Graham Media Group Reply (Graham Reply); Gray Television, Inc. Reply (Gray Reply); Merrill Weiss Group, LLC Reply (MWG Reply); The EW Scripps Company Reply (Scripps Reply); and TEGNA Inc. Reply (TEGNA Reply).

³⁹ *See generally* Columbus Comments; LPTV Coalition Comments; Meredith Comments; Nexstar Comments; ONE Media Comments; OMI Comments; Pearl TV Comments; PMG Comments; Smith and Fisher Comments; ARK Reply; APTS/NAB Reply; Graham Reply; Gray Reply; MWG Reply; Scripps Reply; TEGNA Reply.

⁴⁰ ARK Comments at 3; LPTV Coalition Comments at 1-2.

⁴¹ NPR Comments at 2.

⁴² The unused spectrum between television stations is referred to as “white space.” The Commission has authorized unlicensed white space device operations, both fixed and personal/portable, in portions of the VHF and UHF broadcast television bands that are not being used by television broadcasters and associated services and has taken action to promote white space device operations. *See, e.g., TV White Spaces NPRM*, paras. 3-4. Unlicensed white space devices can be used to provide a variety of wireless services. *Id.* at para. 2.

⁴³ *See generally* Microsoft Comments; NTA Comments.

⁴⁴ NTA Comments at 1.

⁴⁵ Microsoft Comments at 2.

flexibility in the existing rules as to *de minimis* spillover is insufficient.⁴⁶ Microsoft further states that any rule changes should be closely tailored to the need to fill coverage gaps, not extend service beyond a station's service contour.⁴⁷

9. In their reply, Petitioners claim that their proposals would not expand the area within which a DTS transmitter can be located, would not enlarge the area within which a DTV station is protected from interference, and would not permit a DTV station to increase its antenna height or effective radiated power beyond what is currently allowed.⁴⁸ Petitioners also assert that their proposals are tailored to minimize impact on LPTV and television translator stations and that adopting their proposed rule changes would "provide the enhanced spectrum efficiency Microsoft seeks."⁴⁹ Together with their reply, Petitioners filed a brief technical study analyzing the impact of their proposed rule changes on LPTV stations ("Petitioners' Study").⁵⁰ While Petitioners do not seek interference protection for any spillover stemming from their proposed rule changes, they acknowledge, based on the submitted Petitioners' Study, that impacts to LPTV or translator stations from such spillover are "unavoidable."⁵¹ Nonetheless, Petitioners contend that the Commission should not consider elevating the rights of secondary services as part of this proceeding.⁵² Although Petitioners' Study does not address white space devices, Petitioners respond to Microsoft's concerns with assurances that they do not propose that DTS transmitters could be located outside a station's service area, that broadcasters could enlarge the area within which a DTV station is protected from interference, or that DTS transmitters could cause interference to other broadcast stations above currently permitted levels.⁵³

III. DISCUSSION

10. We seek comment below on changing our DTS rules consistent with the proposals set forth in the Petition. Specifically, we seek comment on whether any change to our DTS rules is necessary or appropriate at this time, and if so, whether to adopt the proposals or whether there are alternatives we should consider. In doing so, we seek comment on whether to permit more than a "minimal amount" of DTS spillover beyond a station's authorized service area, how we should treat DTS signals beyond their current service areas if such spillover is allowed, and, finally, the use of DTS by Class A and LPTV licensees. We also seek comment on whether and to what extent the following or other changes are appropriate for ATSC 3.0, ATSC 1.0, or both.⁵⁴

A. DTS Spillover

11. We seek comment on whether to change our rules to replace the current standard, which limits spillover beyond a reference station's authorized service area to a "minimal amount," with a less

⁴⁶ *Id.* at 3.

⁴⁷ *See id.* at 2-5.

⁴⁸ Petitioners' Reply at 2-3.

⁴⁹ *Id.* at 3-6.

⁵⁰ *Id.* at 4 and Attach. (Meintel, Sgrignoli, & Wallace, LLC, *Analysis of Proposed DTS Rules Change Impact on LPTV Stations* (Nov. 18, 2019) (Petitioners' Study) (finding that, out of thousands of cases studied, 3.73-5.05% of co-channel cases and 2.23-2.84% of adjacent-channel cases had interference in excess of the *de minimis* threshold for LPTV stations).

⁵¹ *Id.* at 2-4.

⁵² *Id.* at 4.

⁵³ *Id.* at 5-6.

⁵⁴ *See, e.g.,* Gray Reply at 2 (asserting that Petitioners' proposal would "benefit both stations operating under the legacy ATSC 1.0 standard as well as stations that have already transitioned or may soon transition to the next generation ATSC 3.0 standard").

restrictive standard.⁵⁵ In particular, we seek comment on Petitioners' claim that such a rule change is needed now as the industry embarks on ATSC 3.0 deployment.⁵⁶ Petitioners maintain that DTS is now both technically and economically feasible with ATSC 3.0 in ways that it has never been with ATSC 1.0.⁵⁷ They contend, however, that the current rules inhibit efficient and economical deployment of additional transmitters near the edges of a station's coverage area.⁵⁸ We seek comment on Petitioners' claims. We also seek comment on the opposing argument that it is premature to change the DTS rules now and that the Commission should allow the ATSC 3.0 marketplace to develop further before considering changes.⁵⁹ If the rules should be changed, we seek comment on the appropriate time to take such action.

12. Petitioners argue that the current DTS rules undercut a key benefit of DTS—facilitating service to hard-to-reach viewers.⁶⁰ We seek comment on whether, and if so how, revising our rules consistent with the proposals in the Petition would benefit viewers. How many more viewers likely would be reached if we changed our rules? Are there additional services that could be provided to broadcast television viewers? Would there be offsetting adverse effects for viewers, and if so, how should we balance those trade-offs with potential benefits to viewers?

13. If we were to revise our rules consistent with the proposals in the Petition, DTS spillover would be permitted outside the boundaries of a station's service area to the extent additional coverage is necessary either to "achieve a practical design" or, as articulated in the current rule, to ensure that "combined coverage from all of the DTS transmitters covers all of the applicant's authorized service

⁵⁵ In addition to limiting spillover, our rules currently require that each DTS transmitter be located within either a station's Table of Distances area or its authorized service area. 47 CFR § 73.626(f)(6); *see 2008 DTS Order*, 23 FCC Rcd at 16750, para. 32. Petitioners and commenters addressing the issue of transmitter location agree that we should maintain this requirement. Microsoft Comments at 2 (interpreting Petitioners' proposed rule changes as "appear[ing] to allow transmitters to be located outside a broadcaster's service area" and opposing such a change); Pearl TV Comments at 3 (asserting that the rule changes proposed in the Petition "*would not permit* the siting of DTS transmitters outside of a station's noise-limited contour, any more than the current rule does, leaving the relevant provision unchanged") (emphasis in original); Petitioners' Reply at 5 (asserting that Petitioners do not propose any alteration to the requirement that DTS transmitters be deployed only within broadcasters' service areas and agreeing with Microsoft's request that deployment of DTS transmitters be permitted only within broadcasters' service areas). We tentatively conclude not to modify this requirement but welcome comment on this issue.

⁵⁶ Petitioners' Reply at 5 (asserting that the pace and success of ATSC 3.0 deployments depend in part on the adoption of its proposed rule changes); *see also* Gray Reply at 2 (stating that immediate action would allow Gray to serve hard-to-reach viewers because the proposed rule changes would enable it to convert multiple stations to DTS, which the current restrictions thus far have prevented); MWG Reply at 2-3 (arguing that the Commission's delay in adopting DTS rules in 2008 prevented most broadcasters transitioning to digital television from taking advantage of DTS and that the Commission should not repeat its mistake); PMG Comments at 2 (arguing that change is needed now in order to capitalize on the progress that broadcasters have made in their efforts to deploy ATSC 3.0); Petitioners' Reply at 5 (asserting that "[t]here is no sound public policy basis for delay in this case").

⁵⁷ Petition at 4 (explaining that the limitations of the ATSC 1.0 transmission standard make it impractical to deploy SFNs but that the ATSC 3.0 transmission system permits a simplified SFN design that is cost-effective); *see also* Nexstar Comments at 6 (stating that "ATSC 3.0 removes one of the barriers to DTS deployment by allowing for a simpler and more cost-effective design for SFNs"); Pearl TV Comments at 2 (claiming that ATSC 3.0 solves the problems that made it difficult to deploy DTS with ATSC 1.0); Scripps Reply at 1 (stating that the "ATSC 3.0 standard permits a simplified SFN design").

⁵⁸ Petition at 2, 4-5.

⁵⁹ *See* NTA Comments at 1-2 (arguing that changing the rules now would be premature and that the Commission should wait three to five years to consider these issues); ARK Reply at 1-3 (arguing that the Commission should give the ATSC 3.0 marketplace time to come into clearer focus before considering further regulatory changes).

⁶⁰ Petition at 4.

area.”⁶¹ In place of the current rule’s “minimal amount” limitation, the extent of spillover permitted would be subject instead to the limitation that (for UHF stations) the DTS transmitter’s 36 dBu F(50, 10) “interference” contour not exceed the reference facility’s 36 dBu F(50, 10) contour.⁶² Petitioners claim that using this value would reduce interference with co-channel Class A and LPTV operations,⁶³ yet, at the same time, they acknowledge that there may be instances where disruption to LPTV stations would be “unavoidable.”⁶⁴ We seek comment on the most likely impact of this approach.

14. In addition, we seek comment on whether to eliminate the current standard that limits spillover to a “minimal amount” necessary to ensure full coverage of the applicant’s service area, and to replace it with a standard based on whether spillover is “necessary to achieve a practical design.” Petitioners contend that the Commission’s policy of allowing only a “*de minimis* extension of a station’s coverage area on a case-by-case basis” is insufficient to facilitate deployment of DTS transmitters near the edges of a station’s coverage area.⁶⁵ We seek comment on claims that the current minimal spillover allowance and the ability to seek a waiver are inadequate to fulfill the promise of DTS and facilitate deployment.⁶⁶ Is “necessary to achieve a practical design” an appropriate standard? What would be its effect? If we adopt it, how should we define “necessary” for purposes of applying this standard? Moreover, how would the Commission appropriately determine what constitutes a “practical design,” and how difficult would it be to administer such a standard? Are there specific factors (e.g., related to logistical issues, speed of deployment, or cost) that we should consider in determining whether a proposed DTS deployment is, in fact, “necessary to achieve a practical design?” Should we require applicants seeking to satisfy this standard to demonstrate that alternatives would be prohibitively costly and/or substantially less beneficial than the applicant’s purportedly “necessary” design? Are there other standards that we should consider? For instance, should we replace the “minimal amount” standard with a more specific quantitative standard, and if so, what should that standard be?

15. We also seek comment on whether to adopt a 36 dBu F(50, 10) “interference” contour as the limiting contour for permissible spillover. Is this proposal reasonable and appropriate? Are Petitioners accurate in asserting that adoption of this contour would reduce interference with co-channel Class A and LPTV operations? For instance, should the Petitioners’ proposal be modified in view of the fact that the DTV co-channel interference desired-to-undesired ratio varies between 15 and 23 dB,

⁶¹ *Id.* at Attach. A. By contrast, under the current DTS rules, each transmitter’s coverage (i.e., its NLSC) must be fully contained within the reference facility’s service area, with only a “minimal amount” of spillover permitted as necessary to ensure that the “combined coverage from all of the DTS transmitters covers all of the applicant’s authorized service area.” 47 CFR § 73.626(f)(1)-(2). Petitioners ask that the Commission modify this restriction to allow a DTS transmitter’s NLSC to extend beyond the reference facility’s NLSC and to no longer limit such spillover to a “minimal amount.”

⁶² Petition at 8-9. Petitioners calculate other dBu values for proposed interference contours for Low and High VHF stations in their revised Table of Distances.

⁶³ *Id.* at 8-10.

⁶⁴ Petitioners’ Reply at 4.

⁶⁵ See Petition at 4-5, 7.

⁶⁶ See *id.* at 2 (arguing that the rules’ restrictions regarding DTS transmitters near the edge of a station’s coverage area reduce the usefulness of DTS); MWG Reply, Attach. at 2 (asserting that relaxing the rules would allow broadcasters to deliver stronger, receivable signals to the edges of their coverage areas, rather than reduce them to an “unusable range”); Nexstar Comments at 3 (claiming that the proposed changes would allow broadcasters “to provide better local service, wider coverage, and more efficient use of spectrum”); ONE Media Comments at 1 (contending that implementing Petitioners’ proposal “would significantly improve” the ability of ATSC 3.0 broadcasters to provide coverage throughout their service areas); Meredith Comments at 1 (asserting that the proposed changes offer “the right balance” between allowing more spillover and minimizing harmful interference).

depending on the signal strength of the desired station?⁶⁷ Is there another contour that could or should be used instead? Should we consider changing the “minimal amount” standard without also adopting the proposed interference contour (or with some different limiting contour)? To what extent could we expect other services, including Class A and LPTV stations, to be operating in the spillover area permitted if we revise our rules consistent with the proposals in the Petition?⁶⁸

16. In addition, we seek comment on issues related to implementation of any changes to the DTS rules.⁶⁹ For example, should we impose power restrictions on DTS transmitters to ensure they are used only to fill coverage gaps?⁷⁰ If so, should we establish a blanket power restriction, or should we tailor power restrictions to the specific circumstances of each case? What should those power restrictions be, if any? Should we require applicants to certify that their objective is to fill coverage gaps and not to extend service?⁷¹ Should the Commission consider the potential for either self-interference or coverage improvements realized from enhanced signals due to operation of co-channel DTS transmitters within stations’ NLSCs? Are there any other technical complexities or effects on any of our other rules that we should consider?⁷² What other implementation issues, if any, should we address?

17. We also seek comment on the implications of changing our DTS rules in light of the original purposes and justifications for those rules. As noted above, revising our rules consistent with the proposals in the Petition would permit DTS signals to reach beyond what the Commission authorized in the *2008 DTS Order*.⁷³ In that proceeding, the Commission determined that a DTS station’s maximum authorized service area should be comparable to that which the DTV station could be authorized to serve with a single transmitter (the Comparable Area Approach).⁷⁴ It prohibited DTS stations from operating on either a primary or secondary basis beyond that limit.⁷⁵ In particular, the Commission rejected requests to adopt an Expanded Area Approach allowing DTS stations to reach an area wider than

⁶⁷ The DTV co-channel interference desired-to-undesired ratio ranges between 15 and 23 depending on the signal strength of the desired station, so hypothetically potential interference to the weakest UHF LPTV signals from a co-channel DTV signal could occur as low as a signal level of $51-23 = 28$ dB μ V/m (8 dB more sensitive than Petitioners’ “interference” contour value), or as low as a signal level of $41-23 = 18$ dB μ V/m to the weakest UHF DTV signals from another co-channel DTV signal (18 dB more sensitive than Petitioners’ “interference” contour value). See 47 CFR § 73.623(c)(3). See also OET Bulletin No. 69. Moreover, we note that in terms of the capability of reception of DTV signals, DTV receivers do not discern between whether a station is LPTV or full-power. Finally, as far as protection of ATSC 3.0 reception, we note that NAB and others in a separate petition requested no changes to the above-mentioned criteria. See Joint Petition for Rulemaking of APTS, the AWARN Alliance, the Consumer Technology Association, and NAB, GN Docket No. 16-142, at 14-17 (filed Apr. 13, 2016), <https://www.fcc.gov/ecfs/filing/60001667342/document/60001701021>.

⁶⁸ As discussed in more detail below, we seek comment specifically on the potential impact on other spectrum users, including LPTV and translator stations, wireless microphones, and white space device users, and whether there are ways we could or should mitigate any effects. See *infra* paras. 34-35.

⁶⁹ Petitioners’ proposal does not seek to make changes to the licensing process currently applicable to DTS stations.

⁷⁰ Microsoft Comments at 5.

⁷¹ See *id.*

⁷² See *Next Gen TV Order*, 32 FCC Rcd at 9988, para. 118 (finding that the record at the time “generally does not address the technical complexities that could be raised . . . or the effect that changes to authorized DTS service areas could have on any of our other rules that depend on station service areas”).

⁷³ *2008 DTS Order*, 23 FCC Rcd at 16741-46, paras. 16-25.

⁷⁴ *Id.* at 16741-42, para. 17.

⁷⁵ *Id.* at 16746, para. 25.

achievable with a traditional single-transmitter station and specifically to the boundaries of their DMAs.⁷⁶ The Commission was also concerned that an Expanded Area Approach “would subvert [its] 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” and would be inconsistent with the statutory requirement to assign new licenses through a competitive bidding process, as appropriate.⁷⁷ In addition, the Commission concluded that “[a]n Expanded Area Approach is not necessary to implement DTS service or obtain its core benefits.”⁷⁸

18. We seek comment on the continuing relevance of these or other conclusions that led the Commission to adopt a Comparable Area Approach in the *2008 DTS Order* and to retain that approach—at least tentatively—in the *2017 Next Gen TV Order*.⁷⁹ Do such conclusions remain current and sound? For example, would the proposal enable broadcasters to serve additional areas without going through a competitive bidding process?⁸⁰ Would that result be an appropriate exercise of our spectrum management authority under the Communications Act?⁸¹ Would revising our rules consistent with the proposals in the Petition effectively amount to adopting the previously rejected Expanded Area Approach? Are the reasons for rejecting the Expanded Area Approach still valid given marketplace developments over the past 12 years?

19. We also seek comment on the potential impact of the proposed rule changes on the Commission’s policy goal of promoting localism. Nexstar asserts that the proposed rule changes would promote localism by enabling more viewers within a service area to access the local news and informational programming of an ATSC 3.0 broadcaster.⁸² Further, several other broadcaster commenters contend that maximizing broadcasters’ ability to utilize DTS would promote localism because the geo-targeted programming capabilities of ATSC 3.0 will allow broadcasters to tailor programming, including news, weather, and emergency alerts, to specific communities.⁸³ We seek comment on these claims.

20. How should we evaluate these claims in light of the fact that the Commission previously rejected an Expanded Area Approach, in part because it felt that permitting broadcasters to reach viewers beyond their authorized service areas could distract them from the primary responsibility of providing programming responsive to the needs and interests of their community of license?⁸⁴ At that time, the

⁷⁶ *Id.* at 16742-46, paras. 18-25. The Commission stated that it was “troubled by the implications of allowing significantly greater coverage for DTS than the coverage that can be achieved by a traditional single-transmitter station.” *Id.* at 16743-44, para. 20.

⁷⁷ *Id.* at 16745-46, para. 24 & n.99.

⁷⁸ *Id.* at 16743, para. 18 (expressing hesitation to make changes based on a new technology like DTS).

⁷⁹ See *2017 Next Gen TV Order*, 32 FCC Rcd at 9988, para. 118.

⁸⁰ Microsoft Comments at 3-4 (claiming that loosening our rules would amount to a spectrum giveaway without following statutorily mandated procedures); *but see* MWG Reply, Attach. at 1, 5 (clarifying that the proposed rule changes would not expand a station’s defined service area).

⁸¹ See *NTCH, Inc. v. FCC*, Nos. 18-1241 *et al.* (D.C. Cir. Feb. 21, 2020), slip op. at 15-19 (stating that “the Commission retains the authority ‘to forgo an auction’ so long as it acts ‘in the public interest’” (citing *M2Z Networks, Inc. v. FCC*, 558 F.3d 554, 563 (D.C. Cir. 2009))).

⁸² Nexstar Comments at 3-5.

⁸³ Graham Media Reply at 1; Scripps Reply at 1; Gray Reply at 3; *see also* ARK Comments at 6.

⁸⁴ *2008 DTS Order*, 23 FCC Rcd at 16743-46, paras. 20-25. ARK supports the Commission’s localism rationale for rejecting an Expanded Area Approach in the *2008 DTS Order*. ARK Reply at 2-3 (supporting the bases for the Commission’s rejection of an Expanded Area Approach, including to avoid conferring new spectrum rights to broadcasters, to preserve opportunities for new stations, and to avoid dramatically expanding coverage rights).

Commission cautioned 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 The Commission also expressed concern that allowing DTS signals to spill over beyond a station’s existing service area and into new communities would foreclose opportunities for the licensing of new LPTV stations to serve those communities.⁸⁶ In advancing their proposal, however, the Petitioners assert that the proposed rule changes would not harm localism because their recommended interference contour would prevent DTS stations from encroaching on the service of stations in adjacent markets.⁸⁷

21. We seek comment on whether, on balance, revising our rules consistent with the proposals in the Petition would hinder or promote our localism goal and the delivery of programming responsive to the needs and interests of local communities. What is the relevance in today’s marketplace of the Commission’s prior conclusions regarding the impact of an Expanded Area Approach on localism? Is there any evidence that these concerns have or would come to pass as a result of DTS use? To what extent have LPTV stations entered areas that DTS stations might otherwise have served? What would be the effect on localism if the proposed rule changes precluded future LPTV service in spillover areas?

22. To inform our analysis of proposed rule changes, we seek comment on the deployment of DTS, both now and in the future. As noted above, the *Next Gen TV Order* made clear that, in addition to ATSC 1.0 broadcasters, ATSC 3.0 broadcasters also are currently permitted to deploy SFNs under the Commission’s existing DTS rules.⁸⁸ We seek comment on the current and reasonably foreseeable future state of DTS deployment using either ATSC 1.0 or ATSC 3.0. At present, there are fewer than two dozen active DTS stations.⁸⁹ To what extent are current DTS deployments providing benefits, including those envisioned in the *2008 DTS Order*? What factors, if any, are inhibiting additional DTS deployments or restricting the realization of such benefits today? Are there types of locations or circumstances where DTS has proven, or is expected to prove, particularly valuable? Are there characteristics of ATSC 3.0 that are particularly conducive to DTS use, and, if so, what are they? How does the potential for co-channel interference within a station’s DTS service area differ between a deployment using ATSC 1.0 and a deployment using ATSC 3.0, and what are the potential benefits in improved coverage realized by each technology due to the enhancement of signal strength within an NLSC? Are there specific types of deployments, network configurations, or uses that ATSC 3.0 enables that are infeasible or impractical under ATSC 1.0?⁹⁰ In particular, we seek comment from broadcasters intending or considering whether to deploy DTS networks. What challenges do they face?

23. To what extent would broadcasters decline to deploy DTS transmitters if the rule is not changed? To what extent could directional antennas or other solutions obviate or reduce the need for a rule change? In other words, can DTS transmitters employ a directional antenna to reach viewers at the

⁸⁵ *2008 DTS Order*, 23 FCC Rcd at 16743, para. 20; *see also* 47 CFR § 73.626(f)(4) (requiring that coverage from one or more DTS transmitters must provide principal community coverage).

⁸⁶ *2008 DTS Order*, 23 FCC Rcd at 16742-46, paras. 18-25.

⁸⁷ Petition at 7-9; *see also* ONE Media Comments at 2 (claiming that Petitioners’ proposed rule changes would give ATSC 3.0 broadcasters flexibility, while preserving localism and avoiding interference).

⁸⁸ *Next Gen TV Order*, 32 FCC Rcd at 9988, para. 118.

⁸⁹ FCC, Licensing and Management System, <https://enterpriseefiling.fcc.gov/dataentry/login.html>.

⁹⁰ *See* Petition at 4 (asserting that the limitations of the ATSC 1.0 transmission standard make it impractical to deploy SFNs but that the ATSC 3.0 transmission system permits a simplified SFN design that is cost-effective); Nexstar Comments at 6 (stating that “ATSC 3.0 removes one of the barriers to DTS deployment by allowing for a simpler and more cost-effective design for SFNs”); Pearl TV Comments at 2 (claiming that ATSC 3.0 solves the problems that made it difficult to deploy DTS with ATSC 1.0); Scripps Reply at 1 (stating that the “ATSC 3.0 standard permits a simplified SFN design”).

edge of a station's coverage area without spilling beyond that area?⁹¹ If so, are there additional costs associated with the deployment of a directional antenna that make it a less attractive option? Are there terrain-specific factors that render the use of directional antennas impractical in some situations? We invite commenters to provide specific real-world examples of circumstances where use of DTS signals would be impractical under the current rules but would be viable if the rules were changed. How common are such situations?

24. We also ask commenters to quantify, to the extent possible, not just the need for rule changes but also the benefits and costs of adopting rule changes, including rule changes that are consistent with the proposals in the Petition. What are the costs associated with deploying, operating, and maintaining a DTS transmitter or network of transmitters? How significantly do these costs differ when adding one or more transmitters to an existing structure versus constructing a new facility? On average, how many transmitters could we expect each station to deploy if we modify our rules as suggested herein? Would the changes proposed herein reduce the cost of deployment of DTS and, if so, how and to what degree? For example, would fewer DTS transmitters be required? What other quantifiable benefits would flow from changing our rules? What are the potential impacts of more numerous DTS deployments? Would it require the construction of new towers, or would stations be able to use existing towers or other structures? What would be the costs stemming from proposed rule changes, particularly to other licensees that may be affected or displaced by the changes? We ask that, in responding, commenters quantify the specific costs entailed with deployment and any specific savings that would flow from the proposed technical changes.

25. In addition to costs and benefits associated with deployment, are there costs or benefits we should consider related to spectrum efficiency? For example, several commenters point to the more efficient use of spectrum that can be achieved by using DTS transmitters instead of translators, given that DTS transmitters broadcast on the same channel as the main transmitter.⁹² Microsoft contends that the Commission should encourage broadcasters to relinquish their dedicated translator channels and transition their translator facilities to DTS, thereby freeing up spectrum for other uses.⁹³ We seek comment on Microsoft's suggestion. If rule changes would increase opportunities to create DTS networks, how much more spectrum is likely to become available as a result of no longer needing translators to rebroadcast the primary station's signal? How likely is that recovered spectrum to be used and for what purposes?⁹⁴

B. Treatment of the Spillover Area

26. If we modify our DTS rules to change our restriction that currently limits DTS spillover to a "minimal amount," the next fundamental issue we ask commenters to address is the level of interference protection that should be afforded to, and expected from, DTS station signals in the spillover area. Notably, Petitioners do not seek interference protection for DTS signals in the spillover area, but they acknowledge that such signals could cause disruption to secondary services in some instances.⁹⁵ We seek comment below regarding how other spectrum users, including LPTV and translator stations,

⁹¹ See NTA Comments at 2 (noting that translators use directional antennas, selected tower sites, and reduced power to provide service along a contour and arguing that ATSC 3.0 broadcasters deploying DTS could use existing technology to do the same).

⁹² Petition at 4, 9, 11; Microsoft Comments at 5-6; Nexstar Comments at 5-7; Pearl TV Comments at 4; Smith and Fisher Comments at 1; MWG Reply, Attach. at 3; NTA Comments at 3; *see also* TEGNA Reply at 1; Gray Reply at 2.

⁹³ See Microsoft Comments at 5-6.

⁹⁴ See MWG Reply, Attach. at 3 (observing that shifting operations from translators to DTS transmitters would make spectrum available for Class A and LPTV stations or other translators).

⁹⁵ See Petitioners' Reply at 2-4.

wireless microphones, and white spaces devices, could be affected by such rule changes and whether there are steps we could and should take to mitigate such impacts.

27. As an initial matter, we seek comment on what regulatory status, if any, should be granted to DTS signals beyond the reference station's service area. In the *2008 DTS Order*, the Commission rejected requests to confer either primary or secondary status to DTS transmissions that spilled over a station's authorized service area.⁹⁶ As discussed above, the Commission's rationales included treating single-transmitter and DTS stations consistently, protecting localism, and preserving opportunities for new low-power stations.⁹⁷ The Commission also noted that DTS broadcasters can achieve the same benefits as a secondary service by using digital on-channel translator/LPTV stations under Part 74 of the Commission's rules.⁹⁸ We seek comment on these prior conclusions. Do they remain sound? How, if at all, should we take account of changes in the intervening 12 years when considering these conclusions? What would be the effects if a DTS transmitter's spillover signal were given secondary status versus being afforded no protection at all?⁹⁹ How would such decisions affect new or existing spectrum users, including those discussed below?

28. In particular, we seek comment on the effects of any rule changes on Class A, LPTV, and translator stations. Several commenters urge the Commission to ensure that Class A stations, LPTV stations, TV translators, and the holders of construction permits for such facilities would not be affected or displaced by any rule changes.¹⁰⁰ Petitioners contend that their proposed interference contour of 36 dBu F(50, 10) would ensure that DTS stations would not interfere with co-channel Class A and LPTV operations.¹⁰¹ They also claim that their suggested limit would prevent DTS stations from encroaching on the service of stations in adjacent markets.¹⁰² Despite Petitioners' assurances, a number of commenters, while supportive of DTS generally, express concern about potential interference to their operations.¹⁰³ In responding to commenters' concerns, Petitioners acknowledge that "there may be instances where disruption is unavoidable," namely to LPTV stations.¹⁰⁴ Petitioners further contend that nothing in their proposal would change the interference protection rights of LPTV and TV translator stations—which are afforded protection only with respect to secondary and unlicensed users—and that the Commission should not consider elevating those rights as part of this proceeding.¹⁰⁵ We seek comment on this view. How accurate is Petitioners' claim that the proposed interference contour would not cause interference

⁹⁶ *2008 DTS Order*, 23 FCC Rcd at 16743-46, paras. 20-25; *see also* 47 CFR § 73.626(e) (providing that, for purposes of interference protection, a DTS station's population served excludes "the population in areas that are outside both the DTV station's authorized service area and the Table of Distances area").

⁹⁷ *2008 DTS Order*, 23 FCC Rcd at 16743-46, paras. 20-25.

⁹⁸ *Id.* at 16746, para. 25.

⁹⁹ Petitioners do not seek interference protection in spillover areas. *See, e.g.*, Petitioners' Reply at 2 (clarifying that Petitioners' proposal does not seek to "enlarge the area within which a DTV station is protected from interference"); MWG Reply at 1 (stating that the "protected service area defined for each station licensed under the modified DTS rule would be identical to the protected service area defined for that station under the current DTS rule").

¹⁰⁰ ARK Comments at 3-7; ARK Reply at 2-3; LPTV Coalition Comments at 1-2; NTA Comments at 1-2.

¹⁰¹ Petition at 8-10; *see also* MWG Reply, Attach. at 3 (agreeing that Class A and LPTV stations would remain protected).

¹⁰² Petition at 9.

¹⁰³ ARK Comments at 3-7; ARK Reply at 2-3; LPTV Coalition Comments at 1-2; NTA Comments at 1-2.

¹⁰⁴ Petitioners' Reply at 4-5; *see also* Petitioners' Study at 2-3 (noting the study's focus on LPTV stations and predicting that "the deployment of SFNs will in many cases negate the need for nearby translators and would not likely have any significant impact on distant translators, as well as freeing up additional spectrum that could be used for displaced stations should the need arise").

¹⁰⁵ Petitioners' Reply at 4.

issues for existing co-channel Class A and LPTV stations?¹⁰⁶ Moreover, we seek comment on ARK's concern regarding interference to LPTV stations operating on adjacent channels, rather than on co-channels.¹⁰⁷ How often is this type of interference likely to occur?

29. Further, we seek comment on Petitioners' interference study, which calculated that, under the parameters used in the study, 3.73 to 5.05% of co-channel LPTV stations and 2.23 to 2.84% of adjacent-channel LPTV stations would experience interference above a "2% threshold" as determined by performing an "OET-69 interference study."¹⁰⁸ Does Petitioners' Study analyze the full range of interference concerns that LPTV stations would face? Are the assumptions it relies on reasonable?¹⁰⁹ Are its conclusions valid? Are there areas that warrant additional study?

30. We note that in 2018 Congress acted to reimburse licensees of LPTV stations and TV translators for expenses incurred as a result of displacements precipitated by the broadcast incentive auction.¹¹⁰ To the extent that changing the DTS rules would risk causing another round of displacement for these licensees, or otherwise nullify the time, money, and effort spent to relocate LPTV and translator operations following the incentive auction repack, we seek comment on whether such action would be consistent with congressional intent regarding LPTV and translator services.¹¹¹ Should the number or percentage of displaced LPTV licensees impact our consideration of this issue?

31. In addition, NTA warns that allowing new DTS facilities to overlap the contours of existing LPTV and TV translators could harm viewers who rely on such existing stations to provide over-the-air television.¹¹² NTA proposes a 41 dBuV/m protected contour for ATSC 3.0 translators and LPTV stations. It claims that a 41 dBuV/m contour would promote spectrum efficiency and would enable more

¹⁰⁶ Petition at 8-10.

¹⁰⁷ ARK Comments at 7.

¹⁰⁸ Petitioners' Reply at 4-5 and Petitioners' Study at 4-5.; *see also* Petition at 8-9 (deriving an interference contour of 36 dBu by using a desired-to-undesired ratio of 15 dB).

¹⁰⁹ For instance, Petitioners' Study is presented as a "worst-case scenario" because it "maximizes the interference potential of each hypothetical [DTS] facility" due to significant distance separations between the hypothetical DTS transmitter sites and the locations of the reference stations studied. Petitioners' Study at 3-4. At those distances, Petitioners claim that, due to the "short spacing" between stations in the repacked television spectrum, it is unlikely that DTS transmitters actually could operate with the effective radiated power (ERP) analyzed. Petitioners' Reply at 4. However, the analysis assumes four DTS sites for each full-power reference station, placed at cardinal bearings (N 0°, 90°, 180°, and 270°, E T), 10 kilometers within the outer edge of the NLSC, at either 50 or 150 meters above ground level with an antenna pattern "established for each [DTS] facility that would limit its interference contour so that it did not exceed the reference station's interference contour" and considers interference only to LPTV stations. Petitioners' Study at 3-4.

¹¹⁰ *See* Consolidated Appropriations Act 2018, Pub. L. No. 115-141, at Division E, Title V, § 511, 132 Stat. 348 (2018) (codified at 47 U.S.C. § 1452(j)-(n)); *see also* *LPTV, TV Translator, and FM Broadcast Station Reimbursement, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, MB Docket No. 18-214, GN Docket No. 12-268, Report and Order, FCC 19-21 (Mar. 15, 2019) (establishing reimbursement procedures for LPTV, TV translator, and FM broadcast stations affected by the incentive auction and resulting spectrum repack).

¹¹¹ In addition, ARK asserts that allowing full-power licensees to extend their existing contours in a manner that impinges on LPTV stations would contravene Congress' intent in the Middle-Class Tax Relief and Job Creation Act of 2012 not to alter LPTV rights. ARK Comments at 4 (citing 47 USC § 1452(b)(5) and quoting Congress' instruction that "[n]othing in this subsection shall be construed to alter the spectrum usage rights of low-power television stations"). Given, however, that Petitioners are not proposing that we take any action in this proceeding pursuant to that Act, we tentatively conclude that this specific statutory provision does not preclude us from adopting the proposal.

¹¹² NTA Comments at 2.

consumers in sparsely populated areas to receive the benefits of ATSC 3.0 through LPTV and translator service.¹¹³ MWG posits that Class A stations, LPTV stations, and TV translators stand to benefit from the proposed rule changes as more spectrum would become available for other services to the extent translators shift operations to DTS.¹¹⁴ MWG further contends that the ability of full-power stations to increase their signal strength in peripheral areas using DTS would allow other services in those areas also to operate at higher power levels (while still maintaining a sufficient desired-to-undesired ratio) without causing impermissible interference to the full-power stations.¹¹⁵ We seek comment on NTA's proposal and MWG's claims.

32. Moreover, we seek comment on whether there is a way to accomplish our objectives without jeopardizing other services. For instance, could we protect existing LPTV and translator stations by treating spillover from DTS signals as secondary facilities with respect to interference caused to such LPTV and translator services?¹¹⁶ Would this approach minimize potential disruption to existing LPTV and translator stations, and if so, to what extent? In addition, if we treated spillover from DTS signals as secondary facilities, to what extent would we be limiting opportunities for new LPTV and translator stations to be licensed in spillover areas? How should we think about the Commission's concern expressed in the *2008 DTS Order* that an Expanded Area Approach would limit opportunities for new licensees, including LPTV stations, in spillover areas?¹¹⁷ Is this concern still as relevant today as it was in 2008?

33. In addition, NPR urges the Commission to address the interference risk that DTV Channel 6 stations pose generally to NCE FM stations in the adjacent band.¹¹⁸ Specifically, NPR asks the Commission to require broadcasters to use more stringent filters in the construction and operation of DTS facilities for DTV Channel 6 stations and to impose specific filtering requirements like the Commission established for DTV channels 14 and 17.¹¹⁹ It appears that at least some of NPR's concerns may relate to the use of DTV Channel 6, generally, rather than the use of DTS, in particular. We seek comment on

¹¹³ *Id.* at 3.

¹¹⁴ MWG Reply, Attach. at 3.

¹¹⁵ *Id.*

¹¹⁶ We envision that, under such an approach, if interference complaints were received from affected LPTV or translator viewers within the spillover area, the onus would be on the DTS facility to resolve the problem, for example, by means of a directional antenna and/or power reduction. By contrast, with regard to alleged interference inside the authorized service area, the DTS facility would be treated as primary and would be under no obligation to resolve interference complaints from LPTV or translator viewers.

¹¹⁷ *2008 DTS Order*, 23 FCC Rcd at 16742-43, para. 18.

¹¹⁸ NPR Comments at 2; *see also* 47 CFR §§ 74.790(i), 73.624(c) and (g); *Amendments of Parts 73 and 74 to Improve the Low Power FM Radio Service Technical Rules, Modernization of Media Regulation Initiative*, MB Docket Nos. 19-193, 17-105, Notice of Proposed Rulemaking, FCC 19-74, 2019 WL 3491955, at *5 (Jul. 30, 2019) (proposing, among other things, to sunset, as of July 13, 2021, the requirement that reserved band NCE FM stations protect TV6 stations); *Media Bureau Seeks to Update the Record on the Operation of Analog Radio Services by Digital LPTV Stations as Ancillary or Supplementary Services*, MB Docket No. 03-185, Public Notice, DA 19-1231, 2019 WL 6606684, at *2-3 (MB Dec. 4, 2019) (seeking to update the record regarding whether LPTV stations licensed on channel 6 should be permitted after transitioning to digital service to continue to operate analog FM radio-type services on an ancillary or supplementary basis); *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*, MB Docket No. 03-185, Third Notice of Proposed Rulemaking, 29 FCC Rcd 12536 (2014).

¹¹⁹ NPR Comments at 2, 5. NPR also provides a study purporting to find that the current DTV standard regarding out-of-band emissions may not protect reserved band NCE FM stations adequately from ATSC 3.0 transmissions. *Id.* at 3-4 and Attach.

NPR's concerns, including whether such concerns are sufficiently specific to DTS use that we should consider them in the context of this proceeding.¹²⁰

34. We also seek comment on the potential effects of revising our rules consistent with the proposals in the Petition, or any alternative approaches, on licensed and unlicensed wireless microphone operations in the TV spectrum. If we treated spillover from DTS signals as secondary facilities with respect to the interference caused to other services, as noted above, to what extent could we limit the potential for harmful interference to licensed wireless microphones? Should we additionally consider potential impacts that DTS transmissions will have on unlicensed wireless microphones?

35. In addition, we seek comment on the potential effects that revising our rules consistent with the proposals in the Petition, or any alternative approaches, would have on white space device users. Microsoft, a supporter of white space device operations, asserts that Petitioners' proposed rule changes "go well beyond" what full-power television stations need to do in order to fill coverage gaps in their service areas and that television stations using DTS should not be granted interference protection outside their defined service areas.¹²¹ Should we consider, as Microsoft suggests, the potential impact that DTS transmissions will have on white space devices providing services to rural communities via TV spectrum, such as high-speed broadband?¹²² We seek comment on MWG's contrary position that there would be little risk to white space devices given MWG's view that DTS build-out is likely to be uneconomical in the areas where white spaces are used to serve rural consumers.¹²³ What effect, if any, would the Commission's proposed measures to promote the use of white spaces have on DTS use, and vice versa?¹²⁴

C. Use of DTS by Class A and Low Power Stations

36. Finally, we seek comment on the use of DTS by Class A and LPTV licensees. In the *2008 DTS Order*, the Commission approved the use of DTS technologies on an experimental basis by a single digital Class A, LPTV, or TV translator station to provide service within its authorized service area, finding that there was not an adequate record at that time to resolve the technical issues for LPTV, as they differ from full-power television stations.¹²⁵ Furthermore, the Commission concluded that it did not have "sufficient indication of widespread interest in DTS among individual low power stations;" that LPTV stations serve smaller geographic areas than full-power stations, making the likelihood of needing DTS to provide service relatively low; and that Class A and LPTV stations, which were not subject to the 2009 DTV transition, did not have the same urgent need for DTS to provide post-transition service.¹²⁶ The Commission indicated that it would revisit its decision if there were a "demonstrated interest in or need for DTS as an alternative for individual low power stations on a permanent basis."¹²⁷

37. Have things changed in the past 12 years that make the use of DTS more attractive for Class A or LPTV stations today? For instance, have changes in the marketplace including, but not limited

¹²⁰ We note that Petitioners' reply comments do not address NPR's concerns.

¹²¹ Microsoft Comments at 2-4.

¹²² *Id.* at 4 (claiming that an explicit statement from the Commission is needed to ensure continued investment in the use of white spaces).

¹²³ MWG Reply, Attach. at 5.

¹²⁴ See *TV White Spaces NPRM* at paras. 8-52.

¹²⁵ *2008 DTS Order*, 23 FCC Rcd at 16760-61, paras. 53-54. As noted above, in the *2008 DTS Order*, the Commission also allowed licensees of multiple digital Class A and LPTV stations to operate through interconnected single-frequency DTS networks, i.e., to operate a network of stations co-channel using their multiple licenses. *Id.* at 16761-64, paras. 55-59. No commenter has suggested that we change the interconnected single-frequency network rules.

¹²⁶ *Id.* at 16761, para. 54.

¹²⁷ *Id.*

to, the DTV transition, technological innovations such as ATSC 3.0, and the spectrum repack, affected the Commission's prior conclusions regarding DTS use by Class A and LPTV stations in any way? Is there additional information we should consider that might lead us to different conclusions now?

38. In this proceeding, some commenters recommend allowing the DTS rules that apply to full-power television stations to apply also to Class A and LPTV stations. Columbus Broadcasting requests that Class A television stations be permitted to use DTS in the same manner as full-power television stations.¹²⁸ ARK, a strategic partner of LPTV licensees in the deployment of ATSC 3.0, similarly requests that the Commission harmonize the DTS rules for full-power television and LPTV stations, asserting that "the use of very low power DTS transmitters will play a very significant role in the addition of utility value and performance for ATSC 3.0 networks" and that, depending on the local topography, foliage and buildings, it intends to deploy DTS transmitters that are optimized for specific local conditions.¹²⁹ We seek comment on the Columbus Broadcasting and ARK proposals or any other proposals to expand permitted uses of DTS technologies by Class A and/or LPTV stations. What would be the impact of these proposals, if adopted? Moreover, we seek comment on whether any rule changes we adopt in this proceeding for full-power stations should also be applied to Class A and/or LPTV stations.

IV. PROCEDURAL MATTERS

39. *Initial Regulatory Flexibility Analysis.* As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹³⁰ the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) relating to this NPRM. The IRFA is set forth in Appendix A.

40. *Initial Paperwork Reduction Act Analysis.* This document may result in new or revised information collection requirements subject to the Paperwork Reduction Act of 1995, Public Law 104-13 (44 U.S.C. §§ 3501 through 3520). If the Commission adopts any new or revised information collection requirement, the Commission will publish a notice in the *Federal Register* inviting the public to comment on the requirement, as required by the Paperwork Reduction Act of 1995, Public Law 104-13 (44 U.S.C. §§ 3501-3520). In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. § 3506(c)(4), the Commission seeks specific comment on how it might "further reduce the information collection burden for small business concerns with fewer than 25 employees."

41. *Ex Parte Rules – Permit-But-Disclose.* The proceeding this Notice initiates shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.¹³¹ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers

¹²⁸ Columbus Broadcasting Comments at 1.

¹²⁹ ARK Comments at 4-5.

¹³⁰ *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. 857 (1996). The SBREFA was enacted as Title II of the Contract with America Advancement Act of 1996 (CWAAA).

¹³¹ 47 CFR §§ 1.1200 *et seq.*

where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

42. *Filing Comments and Replies.* Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://apps.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

43. *People with Disabilities.* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

44. *Availability of Documents.* Comments, reply comments, and *ex parte* submissions will be available for public inspection during regular business hours in the FCC Reference Center, Federal Communications Commission, 445 12th Street, SW, CY-A257, Washington, DC 20554. These documents will also be available via ECFS. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat.

45. *Additional Information.* For additional information on this proceeding, contact Ty Bream, Media Bureau, Industry Analysis Division, at Ty.Bream@fcc.gov or (202) 418-0644.

V. ORDERING CLAUSES

46. Accordingly, **IT IS ORDERED** that, pursuant to the authority contained in section 1.407 of the Commission's rules, 47 CFR § 1.407, the Joint Petition for Rulemaking of America's Public Television Stations and the National Association of Broadcasters **IS GRANTED** to the extent specified herein.

47. Accordingly, **IT IS ORDERED** that, pursuant to the authority found in sections 1, 4, 7, 301, 302, 303, 307, 308, 309, 316, 319, 324, and 336 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 157, 301, 302, 303, 307, 308, 309, 316, 319, 324 and 336, this Notice of Proposed Rulemaking **IS ADOPTED**.

48. **IT IS FURTHER ORDERED** that, pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments on the Notice of Proposed Rulemaking in GN Docket Nos. 16-142 on or before thirty (30) days after publication in the *Federal Register* and reply comments on or before forty five (45) days after publication in the *Federal Register*.

49. **IT IS FURTHER ORDERED** that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, **SHALL SEND** a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Act Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

PROPOSED RULES

Part 73 of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

PART 73—RADIO BROADCAST SERVICES

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

AUTHORITY: 47 U.S.C. 154, 155, 301, 303, 307, 309, 310, 334, 336, and 339.

2. Amend section 73.626 by revising paragraphs (c) and (f) to read as follows:

§ 73.626 DTV Distributed Transmission Systems.

* * * * *

(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 and the maximum interference area that can be created by its facilities.

Channel	Zone	Service Area		Interference Area	
		F(50,90) field strength (dBu)	Distance from reference point	F(50,10) field strength (dBu)	Distance from reference point
2-6	1	28	108 km (67 mi)	28	184 km (114 mi)
2-6	2 and 3	28	128 km (80 mi)	28	209 km (130 mi)
7-13	1	36	101 km (63 mi)	33	182 km (113 mi)
7-13	2 and 3	36	123 km (77 mi)	33	208 km (129 mi)
14-51	1, 2, and 3	41	103 km (64 mi)	36	245 km (153 mi)

* * * * *

(f) * * *

(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 necessary to achieve a practical design or to meet the requirements of paragraph (f)(1) of this section. In no event shall the F(50,10) interference contour of any DTS transmitter extend beyond that of its reference facility (described in paragraph (c)(2) of this section). The interference contour field strength is given in the Table of Distances (in paragraph (c) of this section) and is calculated using Figure 9a, 10a, or 10c of § 73.699 (F(50,10) charts);

* * * * *

(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 as corrected for the receiving antenna directivity in the direction of each transmitter.

APPENDIX B

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ the Federal Communications Commission (Commission) has prepared this present Initial Regulatory Flexibility Analysis (IRFA) concerning the possible significant economic impact on small entities by the policies and rules proposed in the Notice of Proposed Rulemaking (NPRM). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments provided on the first page of the NPRM. The Commission will send a copy of the NPRM, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).² In addition, the NPRM and IRFA (or summaries thereof) will be published in the Federal Register.³

A. Need for, and Objectives of, the Proposed Rules

2. This NPRM seeks comment on changes to the Commission's rules governing the use of a distributed transmission system (DTS), or single frequency network (SFN), by a broadcast television station in light of continuing developments in ATSC 3.0, the new "Next Gen" broadcast television transmission standard, the potential benefits of DTS, and the Commission's interest in encouraging use of DTS. Traditionally, a broadcast television station transmits its signal from a single elevated transmission site central to the service area, resulting in a stronger signal available near the transmitter and a weaker signal as the distance from the transmitter increases.⁴ Non-uniform terrain or morphological features can also weaken signals, regardless of distance from the transmitter.⁵ One way for a station to augment its signal strength is to provide fill-in service using one or more separately licensed secondary transmission sites that operate on a different radiofrequency (RF) channel than the main facility, i.e., a television translator.⁶ By contrast, a distributed transmission system employs two or more transmission sites located around a station's service area,⁷ each using the same RF channel and synchronized to manage self-interference.⁸ DTS therefore offers an alternative to traditional full-power television transmission and the use of secondary translators on additional frequencies.

3. More than a decade ago, the Commission first recognized the potential uses and benefits of DTS technologies, when the transition from analog to digital broadcasting brought with it the ability to transmit multiple television signals on the same channel without causing harmful interference, thus making DTS feasible for television for the first time. In November 2008, the Commission adopted a

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. 857 (1996). The SBREFA was enacted as Title II of the Contract With America Advancement Act of 1996 (CWAAA).

² See 5 U.S.C. § 603(a).

³ See *id.*

⁴ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 60.

⁵ Petition at 3.

⁶ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 60; see also Petition at 4.

⁷ *2008 DTS Order*, 23 FCC Rcd at 16734, para. 4.

⁸ *Next Gen TV NPRM*, 32 FCC Rcd at 1697, para. 61. Through synchronization of the transmitted signal, DTV receivers treat the multiple signals as reflections or "ghosts" and use "adaptive equalizer" circuitry to cancel and combine them to produce a single signal. *2008 DTS Order*, 23 FCC Rcd at 16734, para. 4.

Report and Order establishing rules for the use of DTS in the DTV service.⁹ In the *2008 DTS Order*, the Commission noted that DTS could allow stations to reach more viewers in their coverage areas, distributes more uniform and higher-level signals near the edges of stations' coverage areas, improves indoor reception and reception on mobile devices, offers an alternative to stations limited by tower height and placement restrictions, increases spectrum efficiency by allowing networks to use the same channel for all operations, enhances the ability of broadcasters to compete with multichannel video programming distributors, and allows broadcasters to continue to reach viewers that lost service as a result of the digital transition.¹⁰

4. Specifically, in the *2008 DTS Order*, the Commission adopted rules permitting a full-power DTV station to transmit using multiple lower power transmitter sites operating on the same frequency.¹¹ In crafting these rules, the Commission defined a DTS station's maximum authorized service area to be to an area "comparable to that which the DTV station could be authorized to serve with a single transmitter."¹² This was referred to as the "Comparable Area Approach."¹³ To define the boundaries of this comparable service area (i.e., a DTS station's maximum service area), the Commission established a "Table of Distances," which it derived from the hypothetical maximum service area that a DTV station would be allowed to apply for under the Commission's rules.¹⁴ The maximum service area defined by Table of Distances is centered around the station's reference facility.¹⁵ Among other things, the Commission's rules require that each DTS transmitter must be located within either the reference station's Table of Distances area¹⁶ or its authorized service area.¹⁷ In addition, each DTS transmitter's

⁹ See generally *2008 DTS Order*. The order addressed, among other things, the regulatory status afforded to DTS transmitters, the maximum authorized service area for a DTS network, the location of DTS transmitters, licensing and technical rules, and the use of DTS transmitters by Class A and low power television (LPTV) stations.

¹⁰ See *2008 DTS Order*, 23 FCC Rcd at 16738-40, para. 14.

¹¹ See *id.* at 16734, para. 6.

¹² *Id.* at 16741-42, para. 17.

¹³ *Id.* In adopting the "Comparable Area Approach," the Commission rejected proposals for an "Expanded Area Approach," which would have permitted DTS stations to expand coverage beyond their single-transmitter service areas (e.g., to cover their entire DMAs). *Id.* at 16743-46, paras. 20-25.

¹⁴ *Id.* at 16746, para. 25; see also 47 CFR § 73.626(c) (describing by channel and zone "a station's maximum service area that can be obtained in applying for a DTS authorization"). The distance provided in the Table of Distances assumes the maximum antenna height and power that a single-transmitter station is permitted to apply for under Commission rules. *2008 DTS Order*, 23 FCC Rcd at 16741-42, para. 17, n.67. The distance in the table is "hypothetical" because it assumes approval of the maximized facilities. *Id.* Stations, however, must still apply for facilities to serve such a maximized coverage area and obtain Commission approval. *Id.* In addition, stations must obtain Federal Aviation Administration and state and local government approvals as may be necessary for such facilities. *Id.* By contrast, a station applying for DTS facilities would not be required to apply first for Commission approval of its hypothetical single-transmitter maximum facilities because the Commission has established the Table of Distances for such purposes. *Id.*

¹⁵ *2008 DTS Order*, 23 FCC Rcd at 16748-49, para. 29; see also 47 CFR § 73.626(c)(2). Based on a station's location and band (Low VHF, High VHF, or UHF), the Table of Distances reflects a predicted noise-limited service contour (NLSC) for a given station's non-DTS, single-transmitter facility (i.e., the reference facility). Specifically, the table provides the distance for the radius of a circle to be drawn around a station's "reference point," i.e., a geographic point specific to each station that was defined during the DTV transition process.

¹⁶ *2008 DTS Order*, 23 FCC Rcd at 16750, para. 32; see also 47 CFR 73.626(f).

coverage (i.e., its noise-limited service contour (NLSC)) must be contained within either the 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 to ensure that the combined coverage from all of its DTS transmitters covers all of the station's authorized service area.¹⁸ The Commission affords primary regulatory status to DTS transmitters within the areas they are authorized to serve.¹⁹ Finally, the rules allow licensees of multiple digital Class A, low power television (LPTV), and/or television translator stations to operate through interconnected single frequency DTS networks, i.e., to operate a network of stations co-channel using their multiple licenses.²⁰

5. On October 3, 2019, Petitioners filed a joint petition for rulemaking seeking to amend section 73.626 of the Commission's rules relating to DTS.²¹ The Petition asks the Commission to "amend its methodology for determining DTS service limits while preserving the current interference requirements."²² Petitioners contend that the DTS rules, which currently allow DTS signals to spill over by only a "minimal amount" beyond a station's authorized service area, "limit broadcasters' ability to deploy additional [DTS] transmitters near the edge of a station's coverage area, hampering the deployment of [DTS] networks."²³ Petitioners do not seek to place DTS transmitters beyond a station's authorized service area.²⁴ Rather, Petitioners ask the Commission to change the DTS rules to permit

(Continued from previous page) _____

¹⁷ *2008 DTS Order*, 23 FCC Rcd at 16750, para. 32; *see also* 47 CFR 73.626(b) (defining a station's "authorized service area" 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"). The Commission explained that, in the vast majority of cases, a circle drawn according to the Table of Distances would equal or exceed a station's non-DTS, single-transmitter authorized service area, but the DTS rules provide for those exceptional circumstances in which it is not the case (e.g., in areas where irregular terrain causes a station's service area to be distorted). *2008 DTS Order*, 23 FCC Rcd at 16747-51, paras. 27-33.

¹⁸ *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33; *see also* 47 CFR 73.626(f)(2). The coverage for each DTS transmitter (i.e., its NLSC) is determined based on the F(50,90) field strength given in the Table of Distances (e.g., 41 dBu for UHF stations), calculated in accordance with Section 73.625(b). *2008 DTS Order*, 23 FCC Rcd at 16750-51, para. 33; *see also* 47 CFR 73.626(d). The combined coverage of a DTS station is the logical union of the coverage of all DTS transmitters. *Id.*

¹⁹ *2008 DTS Order*, 23 FCC Rcd at 16740-41, para. 15 (concluding that "primary status within a station's authorized service area is essential for stations to implement a successful DTS network and obtain the benefits offered by DTS techniques"); *see also* 47 CFR 73.626(e) (defining the population to be protected from interference for a DTS station as "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" and stating that "[o]nly population that is predicted to receive service...from at least one individual DTS transmitter will be considered"). Moreover, the Commission concluded that it would permit, in some limited circumstances, incidental (or *de minimis*) secondary service beyond the station's service area where such service results from the necessary placement of transmitters near the edge of the station's service area. *2008 DTS Order*, 23 FCC Rcd at 16746, para. 25, n.102.

²⁰ *2008 DTS Order*, 23 FCC Rcd at 16761-64, paras. 55-59. The Commission also approved the use of DTS technologies on an experimental basis by a single digital Class A, LPTV, or TV translator station to provide service within its authorized service area, i.e., operating a reference facility and one or more transmitters using a single Class A or LPTV license in the manner permitted for full-power DTS stations. *Id.* at 16760-61, paras. 53-54.

²¹ Petition at 2-3. *See* 47 CFR § 73.626.

²² Petition at 2.

²³ *Id.* Petitioners assert that broadcasters planning ATSC 3.0 deployments are interested in exploring the advanced capabilities of ATSC 3.0 to facilitate the use of DTS. *Id.* at 1. Petitioners further assert that updating the Commission's DTS rules would result in (1) significantly more cost-effective deployment of DTS due to a simplified design, (2) improvements in service, particularly near the edge of a station's coverage area, (3) improved mobile reception, and (4) improved spectrum efficiency by reducing the need for television translators using separate channels. *Id.* at 2.

stations more flexibility in the placement of their DTS transmitters, particularly near the edge of a station's coverage area.²⁵ Specifically, Petitioners propose that the placement of DTS transmitters would be limited by what Petitioners refer to as the DTS transmitter's "interference contour," which could not exceed that of the reference facility.²⁶ Petitioners assert that their requested rule changes would allow them to "unlock" the "numerous" benefits of DTS operations beyond what the current DTS rules enable, such as further improving service throughout a station's coverage area, improving mobile reception, and allowing more efficient use of broadcast spectrum by reducing the need for television translators using separate channels.²⁷

6. The NPRM seeks comment on changing the Commission's DTS rules consistent with the proposals set forth in the Petition. In the NPRM, the Commission seeks comment on whether any change to its DTS rules is necessary or appropriate at this time, and if so, whether to adopt the rule changes proposed in the NPRM or whether there are alternatives it should consider, how to treat DTS signals beyond their current service areas if such spillover is allowed, and, finally, the use of DTS by Class A and LPTV licensees. The Commission also seeks comment on whether and to what extent the following or other changes are appropriate for ATSC 3.0, ATSC 1.0, or both.²⁸ In doing so, the Commission seeks comment on whether to amend the current DTS spillover allowance in Section 73.626 of the Commission's rules from a "minimal amount" beyond a station's authorized service area to the amount of DTS spillover "necessary to achieve a practical design."

B. Legal Basis

7. The proposed action is authorized pursuant to sections 1, 4, 7, 301, 302, 303, 307, 308, 309, 316, 319, 324, and 336 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 157, 301, 302, 303, 307, 308, 309, 316, 319, 324 and 336.

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

8. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.²⁹ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."³⁰ In addition, the term "small business" has the

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²⁴ Petitioners' Reply at 2.

²⁵ Petition at 3-11.

²⁶ Petitioners request that, for UHF stations, the Commission permit a DTS transmitter's NLSC, which for UHF stations is a 41 dBu F(50,90) contour, to exceed the reference facility's NLSC, so long as the DTS transmitter's 36 dBu F(50,10) "interference" contour does not exceed the reference facility's 36 dBu F(50,10) contour. Petition at 8. Petitioners state that they selected this value to avoid interference with Class A and LPTV operations, i.e., the "interference" contour value is 36 dBu because the service contour field strength of Class A and LPTV stations is 51 dBu and the nominal desired-to-undesired ratio necessary to avoid interference is 15 dB (51 - 15 = 36 dBu). Petitioners' proposal also applies the 15 dBu desired-to-undesired ratio to the NLSC value for Low-VHF and High-VHF channels, resulting in the contour values in their proposed Table of Distances. *Id.* at 8, Attach. A. The desired-to-undesired ratio is a measure of the strength of the broadcast signal for a particular channel (i.e., the desired signal) compared with the strength of undesired broadcast signals in the same channel (i.e., other, undesired signals from nearby facilities).

²⁷ Petition at 1-2, 11.

²⁸ *See, e.g.*, Gray Reply at 2 (noting that Petitioners' proposal would "benefit both stations operating under the legacy ATSC 1.0 standard as well as stations that have already transitioned or may soon transition to the next generation ATSC 3.0 standard").

²⁹ 5 U.S.C. § 603(b)(3).

³⁰ *Id.* § 601(6).

same meaning as the term “small business concern” under the Small Business Act.³¹ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.³² Below, we provide a description of such small entities, as well as an estimate of the number of such small entities, where feasible.

9. *Television Broadcasting.* Rule changes, if adopted, could apply to television broadcast licensees and potential licensees of television stations. This Economic Census category “comprises establishments primarily engaged in broadcasting images together with sound.”³³ These establishments operate television broadcast studios and facilities for the programming and transmission of programs to the public.³⁴ 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 studio, from an affiliated network, or from external sources. The SBA has created the following small business size standard for such businesses: those having \$38.5 million or less in annual receipts.³⁵ The 2012 Economic Census reports that 751 firms in this category operated in that year. Of this number, 656 had annual receipts of less than \$25 million.³⁶ Based on this data we therefore estimate that the majority of commercial television broadcasters are small entities under the applicable SBA size standard.

10. Additionally, the Commission has estimated the number of licensed commercial television stations to be 1,374.³⁷ Of this total, 1,263 stations (or 91.9%) had revenues of \$41.5 million or less in 2018, according to Commission staff review of the BIA Kelsey Inc. Media Access Pro Television Database (BIA) on June 5, 2019, and therefore these licensees qualify as small entities under the SBA definition. In addition, the Commission estimates the number of licensed noncommercial educational (NCE) television stations to be 388.³⁸ The Commission does not compile and does not have access to information on the revenue of NCE stations that would permit it to determine how many such stations would qualify as small entities.

11. We note, however, that in assessing whether a business concern qualifies as “small” under the above definition, business (control) affiliations³⁹ must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue

³¹ *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).

³² 15 U.S.C. § 632.

³³ *2012 NAICS Definitions* (NAICS Code 515120).

³⁴ *Id.*

³⁵ 13 CFR § 121.201 (2012) (NAICS Code 515120).

³⁶ U.S. Census Bureau, Table No. EC1251SSSZ4, *Information: Subject Series - Establishment and Firm Size: Receipts Size of Firms for the United States: 2012* (Jan. 8, 2016), https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2012_US_51SSSZ4&prodType=table.

³⁷ Press Release, FCC, Broadcast Station Totals as of December 31, 2019 (Jan. 3, 2020) (Broadcast Station Totals), <https://docs.fcc.gov/public/attachments/DOC-361678A1.pdf>.

³⁸ *Id.*

³⁹ “[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 the power to control both.” 13 CFR § 21.103(a)(1).

figure on which it is based does not include or aggregate revenues from affiliated companies. In addition, another element of the definition of “small business” requires that an 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 broadcast station is dominant in its field of operation. Accordingly, the estimate of small businesses to which rules may apply does not exclude any television station from the definition of a small business on this basis and is therefore possibly over-inclusive.

12. *Class A, LPTV, and TV translator stations.* Rule changes, if adopted, could also apply to licensees of Class A stations, 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. As noted above, the SBA defines such businesses as a small business if they have \$41.5 million or less in annual receipts.⁴⁰

13. There are 387 Class A stations.⁴¹ Given the nature of these services, the Commission presumes that all of these stations qualify as small entities under the applicable SBA size standard. In addition, there are 1,892 LPTV stations and 3,621 TV translator stations.⁴² Given the nature of these services as secondary and in some cases purely a “fill-in” service, we will presume that all of these entities qualify as small entities under the above SBA small business size standard. 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 \$41.5 million and thus may be categorized as small, except to the extent that revenues of affiliated non-translator or booster entities should be considered.

14. *Radio Broadcasting.* Given the potential impact of Petitioners’ proposal and other proposals on other spectrum users, radio broadcasting stations, in particular noncommercial educational FM stations, may be affected by rule changes.⁴³

15. The U.S. Economic Census radio broadcasting category “comprises establishments primarily engaged in broadcasting aural programs by radio to the public.”⁴⁴ Programming may originate in the establishment’s own studio, from an affiliated network, or from external sources. The SBA has created the following small business size standard for this category: those having \$38.5 million or less in annual receipts.⁴⁵ Census data for 2012 show that 2,849 firms in this category operated in that year.⁴⁶ Of this number, 2,806 firms had annual receipts of less than \$25 million, and 43 firms had annual receipts of \$25 million or more.⁴⁷ Because the Census has no additional classifications that could serve as a basis for

⁴⁰ 13 CFR § 121.201, NAICS Code 515120.

⁴¹ Press Release, FCC, Broadcast Station Totals as of December 31, 2019 (Jan. 3, 2020) (Broadcast Station Totals), <https://docs.fcc.gov/public/attachments/DOC-361678A1.pdf>.

⁴² Broadcast Station Totals, *supra* note 37.

⁴³ See NPR Comments at 2 (raising concerns about potential interference for noncommercial educational FM stations).

⁴⁴ U.S. Census Bureau, 2017 NAICS Definitions, “515112 Radio Stations,” <http://www.census.gov/cgi-bin/sssd/naics/naicsrch>.

⁴⁵ 13 CFR § 121.201, NAICS Code 515112.

⁴⁶ U.S. Census Bureau, American FactFinder, http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ4&prodType=table.

⁴⁷ *Id.*

determining the number of stations whose receipts exceeded \$38.5 million in that year, we conclude that the majority of radio broadcast stations were small entities under the applicable SBA size standard.

16. Apart from the U.S. Census, the Commission has estimated the number of licensed AM radio stations to be 4,593⁴⁸ and the number of commercial FM radio stations to be 6,772, along with 8,182 FM translator and booster stations.⁴⁹ As of [September 2019, 4,294 AM stations and 6,739 FM stations had revenues of \$41.5 million or less, according to Commission staff review of the BIA Kelsey Inc. Media Access Pro Television Database (BIA). In addition, the Commission has estimated the number of noncommercial educational (NCE) FM radio stations to be 4,135.⁵⁰ NCE stations are non-profit, and therefore considered to be small entities.⁵¹ Therefore, we estimate that the majority of radio broadcast stations are small entities.

17. *Low Power FM Stations.* The same SBA definition that applies to radio stations applies to low power FM stations. As noted, the SBA has created the following small business size standard for this category: those having \$41.5 million or less in annual receipts.⁵² While the U.S. Census provides no specific data for these stations, the Commission has estimated the number of licensed low power FM stations to be 2,169.⁵³ Given the fact that low power FM stations may only be licensed to not-for-profit organizations or institutions that must be based in their community and are typically small, volunteer-run groups, we will presume that these licensees qualify as small entities under the SBA definition.

18. We note again, however, that in assessing whether a business concern qualifies as “small” under the above definition, business (control) affiliations⁵⁴ must be included. Because we do not include or aggregate revenues from affiliated companies in determining whether an entity meets the applicable revenue threshold, our estimate of the number of small radio broadcast stations affected is likely overstated. In addition, as noted above, one element of the definition of “small business” is that an 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 radio broadcast station is dominant in its field of operation. Accordingly, our estimate of small radio stations potentially affected by the rule revisions discussed in the NPRM includes those that could be dominant in their field of operation. For this reason, such estimate likely is over-inclusive.

19. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.⁵⁵ Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.⁵⁶ The SBA has established a small business size standard for this industry of

⁴⁸ Broadcast Station Totals, *supra* note 37.

⁴⁹ Broadcast Station Totals, *supra* note 37.

⁵⁰ *Id.*

⁵¹ 5 U.S.C. § 601(4), (6).

⁵² 13 CFR § 121.201, NAICS Code 515112.

⁵³ *Broadcast Station Totals, supra* note 37.

⁵⁴ “[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 the power to control both.” 13 CFR § 21.103(a)(1).

⁵⁵ The NAICS Code for this service is 334220. 13 CFR § 121.201. *See also* U.S. Census Bureau, 2012 NAICS Definitions, “334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing” <https://factfinder.census.gov/faces/affhelp/jsf/pages/metadata.xhtml?lang=en&type=ib&id=ib.en./ECN.NAICS2012.334220#>.

⁵⁶ *Id.*

1,250 employees or less.⁵⁷ U.S. Census Bureau data for 2012 shows that 841 establishments operated in this industry in that year.⁵⁸ Of that number, 828 establishments operated with fewer than 1,000 employees, 7 establishments operated with between 1,000 and 2,499 employees, and 6 establishments operated with 2,500 or more employees.⁵⁹ Based on this data, we conclude that a majority of manufacturers in this industry are small.

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

20. In this section, we identify the reporting, recordkeeping, and other compliance requirements proposed in the NPRM and consider whether small entities are affected disproportionately by any such requirements. As discussed above, this NPRM seeks comment on changes to the Commission's rules governing the use of a DTS by a broadcast television station in light of continuing developments in ATSC 3.0, the new "Next Gen" broadcast television transmission standard, the potential benefits of DTS, and the Commission's interest in encouraging use of DTS. The use of DTS is at the discretion of the broadcast licensee. The NPRM does not impose any new mandatory reporting, recordkeeping, or compliance requirements for small entities, unless such entities, i.e., licensees, choose to use DTS. The NPRM thus will not impose additional obligations or expenditure of resources on small businesses. However, we note that the adoption of the proposed rules may require modification of current requirements and processes for entities that choose to use DTS, such as modification of FCC forms, including but not limited to, FCC Forms 301 and 340.⁶⁰

21. *Reporting Requirements.* The NPRM does not propose to adopt new reporting requirements.

22. *Recordkeeping Requirements.* The NPRM does not propose to adopt new recordkeeping requirements.

23. *Other Compliance Requirements.* The NPRM does not propose to adopt other new compliance requirements.

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

24. 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 and reporting requirements under the rule for such small 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."⁶¹

25. The premise of the proposed rules is to facilitate DTS deployment by TV broadcasters, large and small alike, and thereby benefit their viewers. Among other benefits, greater DTS deployment could enable broadcasters to improve service throughout a station's coverage area, improve indoor and mobile reception, and use broadcast spectrum more efficiently.

⁵⁷ 13 CFR § 121.201, NAICS Code 334220.

⁵⁸ U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1231SG2, Manufacturing: Summary Series: General Summary: Industry Statistics for Subsectors and Industries by Employment Size: 2012, NAICS Code 334220, https://factfinder.census.gov/bkmk/table/1.0/en/ECN/2012_US/31SG2//naics~334220.

⁵⁹ *Id.*

⁶⁰ The FCC Forms are available via the Commission's website at <https://www.fcc.gov/licensing-databases/forms>.

⁶¹ 5 U.S.C. § 603(c)(1)-(c)(4).

26. Nevertheless, the Commission considers in the NPRM specific steps it could take and significant alternatives to the proposed rules that could minimize potential economic impact on small entities such as other spectrum users, including LPTV and translator stations, wireless microphones, and white space devices, that could be affected by rule changes consistent with those proposed in the Petition. Potential economic costs and burdens that could impact small businesses include, for example, interference arising from DTS spillover. Specifically, in addition to issues raised by commenters, the NPRM seeks comment on alternatives to the proposed rule changes, i.e., the “necessary to achieve a practical design” standard, including, but not limited to, (1) making no changes to the DTS rules at this time or (2) changing the “minimal amount” standard⁶² without also adopting the proposed interference contour.⁶³ In addition, the Commission considers the alternatives of (1) protecting existing LPTV and translator stations (including those that are small entities) by treating newly authorized spillover from DTS transmitters as secondary facilities (i.e., in contrast to the primary regulatory status afforded to DTS transmitters within the areas they are authorized to serve) with respect to interference potentially caused to such LPTV and translator services or (2) affording no protection to newly authorized spillover from DTS transmitters.

27. The Commission’s evaluation of the comments filed on these topics as well as on other questions in the NPRM will shape the final conclusions it reaches and the actions it ultimately takes in this proceeding to minimize any significant economic impact that may occur on small entities.

F. Federal Rules that May Duplicate, Overlap, or Conflict With the Proposed Rule

28. None.

⁶² As noted above, the Commission’s rules currently require that each DTS transmitter’s coverage (i.e., its NLSC) must be contained within either the 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 to ensure that the combined coverage from all of its DTS transmitters covers all of the station’s authorized service area.

⁶³ Petitioners propose that the Commission adopt a 36 dBu F(50, 10) “interference contour” as the limiting contour for permissible DTS spillover.