Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard	)	GN Docket No. 16-142
Amendment of Section 73.626 of the Commission's Rules to Facilitate the Deployment of Single Frequency Networks	)	

COMMENTS OF MICROSOFT CORPORATION

Microsoft commends the broadcast television industry for its efforts to expand coverage in rural areas through the deployment of distributed transmission systems ("DTS") and other technologies. We agree that ATSC 3.0 could address the shortcomings of the ATSC 1.0 standard by allowing practical DTS deployment using single-frequency-networks ("SFNs"). As we stated previously in our comments on the ATSC 3.0 NPRM,[1] SFNs have the potential to enable more efficient use of spectrum than the use of translator stations that today may occupy multiple channels just to transmit one ATSC 1.0 stream.

Microsoft supports efforts to make such networks a more practical option. In doing so, however, we believe the Commission was fundamentally correct in its Next Generation Broadcast Television Standard Report and Order when it concluded that "the rules the

[1] *See* Comments of Microsoft Corporation at 9, GN Docket No. 16-142 (filed May 9, 2017).

Commission already has established to authorize a DTS station generally are adequate to authorize an ATSC 3.0 SFN station."[2] Thus, while we support the use of DTS, we do not support the rule changes proposed in the petition, which appear to go well beyond what is needed to fill coverage gaps within broadcasters' service areas.

I. Any Rule Changes Should Be Closely Tailored to the Need to Fill Coverage Gaps.

Microsoft supports efforts to improve rural service through deployment of DTS based on the new ATSC 3.0 protocol. Although Microsoft does not have broadcast operations, we have extensive experience working with partners to deploy high-speed internet connectivity in hard-to-serve, rural areas using the same frequency band. Therefore, we fully appreciate the special challenges posed by gaps in coverage near the periphery of a service area.

Unfortunately, although the petitioners frame their proposal as a means of allowing broadcasters to fill coverage gaps, the petition goes significantly beyond what is necessary to address that problem. The petition would appear to allow DTS transmitters to be located outside a broadcaster's service area and would impose no limits on broadcasters' ability to expand service beyond that area, as long as they do not increase emissions outside their interfering contour—an area that is roughly a third larger than broadcasters' existing service areas.

Although we would not oppose the Commission exploring situations where the DTS antenna is located within the service contour and, by necessity, the signal beyond the service contour is slightly more than allowed under current rules, it should be appropriately targeted in the following ways.

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[2] *Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd. 9930, ¶ 118 (2017).

First, as a threshold question, the Commission should consider whether this could be accommodated under existing rules that already allow *de minimis* spill over.[3] Petitioners have yet to make a persuasive showing that this flexibility in the existing rules is not sufficient.

Second, and critically, the Commission should not allow broadcasters to enlarge the areas in which they are able to claim interference protection. Although DTS deployments near the periphery of a broadcaster's service area may incidentally enable a limited number of viewers to receive that signal outside of the service area, broadcasters should remain entitled to interference protection only within their defined service areas. This is consistent with existing Commission rules that explicitly provide that broadcasters are only entitled to interference protection within their service areas, even though there may be cases where viewers receive a signal outside of this area due either to anomalous propagation conditions, consumers' use of directional DTV antennas, or another unusual situations.[4]

Allowing broadcasters to claim interference protection beyond their service contours, wherever they could reach with their DTS signal, would amount to giving away a tremendous amount of spectrum without following any of the legally required procedures for licensing broadcast spectrum[5] or processing major modifications of existing licenses.[6] In addition, because broadcasters' interfering contours overlap with one another, a de facto expansion of interference protection into these areas could not be applied between broadcasters unless, potentially, the stations involved had a common owner. Interference between broadcasters attempting to operate

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3 47 C.F.R. § 73.626(f)(2).

4 *See, e.g., id*.; OET Bulletin No. 69 at 2, Table 2 (rel. Feb. 6, 2004) (using service contour values for "defining area subject to calculation").

5 *See* 47 U.S.C. § 309.

6 *See id*.; 47 CFR § 1.929.

on a licensed basis in these interstices would be widespread and the Commission would have no apparent mechanism for resolving any disputes that arise from it.

If the Commission did not take such action, it would cause an unnecessary catastrophe for rural communities that receive high-speed internet via TV White Spaces spectrum. If each broadcaster were permitted to increase the geographic area of its interference protection by one third—all with no auction or other assignment process—already scarce White Spaces spectrum would be taken off the air, especially in rural areas. We do not believe that broadcasters intend this result. However, the Commission should clearly state that it will not permit this outcome if it chooses to move ahead with the petition. Mere ambiguity on this point will chill White Spaces investment that has already been held back significantly by regulatory uncertainty, so an explicit statement from the Commission in any forthcoming order is important. Now that the Commission has succeeded in improving the conditions for White Spaces investment, it should be careful not to needlessly undo that laudable progress.

Third, the Commission should only permit DTS transmitters to be deployed within broadcasters' service areas. DTS deployments outside that area would clearly not be necessary to fill coverage gaps within the service area, but the draft rules in the petition would appear to permit them.

Fourth, the Commission should limit the power levels of these DTS transmitters and ensure that their coverage area is limited to match broadcasters' legitimate need to fill coverage gaps. Under both the existing rules and the rules proposed in the petition, DTS transmitters would not be subject to any power restrictions, leaving open the possibility that, under petitioners' proposed rules, broadcasters could use DTS transmitters to extend service well beyond their service areas in addition to improving coverage within them.

Fifth, the Commission should adjust the DTS application process to ensure that this flexibility is not abused. It should require an applicant to certify, for DTS deployments where a signal would bleed beyond its protected contour, that its objective was solely to fill coverage gaps within its service contour, not to extend service beyond that area.

II. The Commission Should Specifically Consider How to Reduce the Use of Spectrally Inefficient Translator Stations.

In addition to filling in small coverage gaps, the DTS capabilities of ATSC 3.0 could have another important benefit: reducing the number of channels needed to provide seamless coverage in license areas covering rugged terrain. The Salt Lake City market is an excellent example of an area where spectrum has become extremely congested due to a large number of translators used to relay signals over mountains. Because these translators must currently receive a broadcast signal on one channel and transmit on a second, they effectively double the number of channels used by a given station. The fact that these translators are sometimes arranged in a "daisy chain" configuration increases the congestion even further, generally consuming one additional channel for each link in the chain.

If SFN technology allows for coverage gaps to be filled without translators, or for translators to operate on the same channel as the primary feed, this could advance the Commission's goal of improving spectrum efficiency by significantly reducing congestion and improving efficiency in rural areas. Therefore, if it moves forward with the petition, the Commission should specifically evaluate whether the relief sought is necessary to allow translator stations—which are separately licensed—to participate in an SFN rather than using a separate channel, or whether separate rule changes would be needed to facilitate this. The Commission should also consider measures to encourage broadcasters to use this technology to

reduce the spectrum needs of new and existing translators—recognizing that transitioning to SFN operation and giving up dedicated translation channels may be costly and not always in an individual broadcaster's immediate economic interest, even if the overall public interest in using the nation's resources more efficiently clearly favors this outcome.

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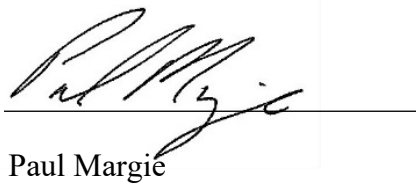
Microsoft recognizes the importance of addressing gaps both in rural internet access and rural broadcast television coverage and supports measures to improve coverage within broadcasters' service areas. Unfortunately, the petition as drafted goes far beyond this stated goal. Therefore, while Microsoft supports the use of DTS transmitters to fill service gaps, it opposes this petition.

Respectfully submitted,



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