

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Authorizing Permissive Use of the “Next) GN Docket No. 16-142
Generation” Broadcast Television Standard)

COMMENTS OF WI-FI ALLIANCE

Wi-Fi Alliance®^{1/} submits these comments in response to the Notice of Proposed Rulemaking (“*NPRM*”) in the above-referenced proceeding in which the Commission proposes rules permitting television broadcasters to deploy the next generation television transmission standard developed by the Advanced Television System Commission (“ATSC 3.0”) on a voluntary basis.^{2/} Wi-Fi Alliance appreciates the Commission’s commitment to fostering innovation and investment in the broadcast industry. However, the Commission must also remain committed to preserving its decisions that spectrum be available for unlicensed devices in the television broadcast band. It should therefore ensure that implementation and use of the ATSC 3.0 standard will not limit access to unlicensed use of television broadcast spectrum.

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^{2/} See *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, Notice of Proposed Rulemaking, 32 FCC Rcd. 1670 (2017) (“*ATSC 3.0 NPRM*”).

I. INTRODUCTION

Wi-Fi Alliance is a global, non-profit industry association of over 700 leading companies from dozens of countries devoted to connecting everyone and everything everywhere. With technology development, market building, and regulatory programs, Wi-Fi Alliance has enabled widespread adoption of Wi-Fi® worldwide, certifying thousands of Wi-Fi products each year. Certified, interoperable Wi-Fi systems are critical to the Nation's wireless ecosystem, key components of the country's economic growth and catalysts for technological innovation. The mission of Wi-Fi Alliance is to provide a highly effective collaboration forum for Wi-Fi matters, grow the Wi-Fi industry, lead industry growth with new technology specifications and programs, support industry-agreed standards, and deliver greater product connectivity through interoperability, testing, and certification.

As Wi-Fi Alliance has consistently advocated in the Commission's proceedings related to television white space ("TVWS") devices in general and the use of the 600 MHz band in particular, it is critical that the Commission provide access to a sufficient amount of unlicensed spectrum.^{3/} It noted that unlicensed spectrum in the television bands can be used to support Internet of Things and other applications.^{4/} It has also observed that in order to support a business case for white space use of the television band, there must be sufficient spectrum reliably available for unlicensed operations.^{5/}

^{3/} See, e.g., Comments of Wi-Fi Alliance, ET Docket No. 14-165; GN Docket No. 12-268, at 3 (Feb. 4, 2015) ("Wi-Fi Alliance 600 MHz Comments") (commenting that additional unlicensed spectrum must be made available and usable by unlicensed devices); Comments of Wi-Fi Alliance, GN Docket No. 12-268, at 3 (Jan. 8, 2013) (commenting that it is "critically important that the Commission place a high priority on the expansion of available unlicensed spectrum").

^{4/} Wi-Fi Alliance 600 MHz Comments, at 2.

^{5/} Wi-Fi Alliance explained that the success of the TVWS device industry requires certainty that at least two television channels will be available nationwide exclusively for TVWS devices because manufacturers and service providers may not commit to the TVWS market without such assurance that

In the *Incentive Auction Report and Order* the Commission, responsive to requests from Wi-Fi Alliance and others, permitted unlicensed operations in the television bands, 600 MHz guard bands, and on channel 37.^{6/} And, in a pending proceeding, the Commission has proposed to preserve a vacant channel in the UHF band for white space devices.^{7/} This proceeding should not reverse those important actions and *reduce* access to television band spectrum for white space devices, by:

- permitting the use of vacant channels for ATSC 1.0 or 3.0 transmissions;
- requiring TVWS devices to protect multiple transmission streams; or
- allowing broadcast operations to interfere with TVWS devices beyond the broadcast protected stream.

TVWS devices must continue to have access to broadcast television spectrum. To do otherwise would undermine the Commission’s decision “to create certainty for the unlicensed industry” and promote “greater innovation in new devices and services, including increased access for broadband services across the country” to be realized.^{8/}

I. CHANNELS THAT ARE VACANT AFTER THE INCENTIVE AUCTION SHOULD NOT BE USED TO HOST FACILITIES FOR ATSC 1.0 OR ATSC 3.0 TRANSMISSIONS

The *NPRM* seeks comment on whether the Commission should consider permitting broadcasters to use television channels that remain vacant after the incentive auction to serve as

sufficient spectrum will be available. See Comments of Wi-Fi Alliance, MB Docket No. 15-146, at 2-3 (Sept. 30, 2015) (“Wi-Fi Alliance Vacant Channel Comments”).

^{6/} See *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd. 6567, ¶¶264-268 (2014) (“*Incentive Auction Report and Order*”).

^{7/} *Amendment of Parts 15, 73 and 74 of the Commission’s Rules to Provide for the Preservation of One Vacant Channel in the UHF Television Band for Use by White Space Devices and Wireless Microphones*, Notice of Proposed Rulemaking, 30 FCC Rcd. 6711 (2015) (“*TVWS Vacant Channel NPRM*”).

^{8/} See *Incentive Auction Report and Order*, ¶264.

temporary host facilities for ATSC 1.0 or ATSC 3.0 programming.^{9/} Wi-Fi Alliance strongly opposes this proposal. As noted above, companies' TVWS business plans will depend on reliable access to a sufficient amount of spectrum. But, there is a limited amount of spectrum available for unlicensed use in the television bands. While the Commission continues to consider how to assure the availability of vacant UHF channels in the *TVWS Vacant Channel NPRM*, the *Incentive Auction Report and Order* anticipated that one television channel in every market would be available for shared use by TVWS devices.^{10/} Diverting the use of limited vacant channels for ATSC 3.0 implementation will exacerbate the likely scarcity of spectrum for unlicensed operations.

In the *TVWS Vacant Channel NPRM*, the Commission stated that prioritizing and protecting white space is critical to TVWS innovation.^{11/} Allowing broadcasters to use vacant channels will therefore delay and potentially permanently impede the deployment of TVWS technologies. Broadcasters that use the vacant channels – albeit temporarily while the ATSC 3.0 transition occurs – will require licensing of those channels for broadcast use, which is not contemplated in the vacant channel proceeding.^{12/} Nor did the Commission consider this issue in the incentive auction proceeding. Accordingly, making vacant channels unavailable for TVWS use represents a deviation from the carefully considered approach contemplated by the Commission in both of those proceedings. Moreover, because conversion to ATSC 3.0 is proposed to be completely voluntary, it is unclear how long vacant channels may be used to

^{9/} See *ATSC 3.0 NPRM*, ¶14.

^{10/} *Incentive Auction Report and Order*, ¶258 (explaining that the Commission will permit TVWS devices to operate on any unused television channel following the close of the incentive auction and that after public notice and comment, it will designate “one unused channel in the remaining television band in each area for shared use by wireless microphones and TVWS devices”).

^{11/} *TVWS Vacant Channel NPRM*, ¶4.

^{12/} See generally *TVWS Vacant Channel NPRM*.

support the migration. This additional uncertainty – of when there may be sufficient spectrum for unlicensed devices – may irreparably damage the potential success of white space use in the television bands. Accordingly, the Commission should take no action in this proceeding that would limit the use of vacant channels for white space devices.

II. THE COMMISSION MUST SPECIFY A SINGLE COVERAGE CONTOUR FOR PROTECTED TELEVISION STATIONS

The Commission explains that the ATSC 3.0 standard will enable broadcasters to transmit digital television (“DTV”) signals on multiple streams with different parameters.^{13/} Additionally, the signal-to-noise-ratio (“SNR”) for each ATSC 3.0 transmission will vary and be station-specific (*i.e.*, the area where a television signal is received may not match the area that is defined by a single SNR threshold).^{14/}

While the Commission anticipates that this variability will be beneficial to broadcasters,^{15/} it will be problematic for TVWS devices, which will be unable to determine the protection required for multiple ATSC 3.0 transmissions. Today, Section 15.712(a) of the rules requires that fixed and portable white space devices protect a single service area and specifies how the contour of that service area should be calculated. Implementation of ATSC 3.0 should not change the obligation of TVWS devices to protect a single contour and the rules should be modified to provide direction on how that contour should be calculated. Specifically, white space devices should be required to protect only the main (primary) stream of ATSC 3.0 transmissions at the levels specified under the current Part 15 rules. If white space devices are required to protect secondary ATSC 3.0 streams at levels that do not approximate those in Part

^{13/} *ATSC 3.0 NPRM*, ¶47.

^{14/} *Id.*

^{15/} *Id.*

15, they may be unable to operate in areas where the rules permit today. But without additional information, white space devices cannot be expected to even protect the main stream.

Accordingly, the Commission must prescribe how TVWS devices should calculate the protection of the ATSC 3.0 service area in a way that is consistent with how DTV stations are protected today.

Additionally, the Commission should specify appropriate limits on the ATSC 3.0 streams – the main stream and other secondary transmissions. If TVWS devices are required to only provide the level of protection necessary to protect the ATSC 3.0 main stream, but the geographic footprints of other streams extend beyond that, ATSC 3.0 operations may prevent TVWS device use – even if white space devices are not required to protect those additional streams, impeding innovation and investment in the white space device market.

III. ADOPTION OF WI-FI ALLIANCE’S APPROACH WILL PRODUCE A RELIABLE PROTECTION AREA FOR TV STATIONS AND PROTECT UNLICENSED WHITE SPACE OPERATIONS

Wi-Fi Alliance’s recommendation that the Commission clarify that TVWS devices are required to protect only the main ATSC 3.0 transmission stream and provide a methodology for calculating how that main stream should be protected will result in a reliable interference protection area for television broadcast stations and support continued unlicensed operations in the TV bands. *First*, Wi-Fi Alliance’s approach will eliminate the problem created by unlicensed devices potentially being required to protect multiple broadcasting streams using the ATSC 3.0 standard. *Second*, Wi-Fi Alliance’s recommendations will eliminate the requirement for the Commission to address Single Frequency Networks (“SFNs”) in a different manner than they are addressed today.^{16/} *Finally*, TVWS devices will be able to successfully operate outside the

^{16/} The Commission proposed to authorize stations to operate ATSC 3.0 SFNs under the existing distributed transmission systems (“DTS”) rules at Part 73, but with the caveat that all transmitters

protection area of the ATSC 3.0 main stream without suffering interference from secondary ATSC 3.0 streams, because under Wi-Fi Alliance's approach, the ATSC 3.0 standard will not expand the protection area for TV stations.

IV. CONCLUSION

Wi-Fi Alliance appreciates the Commission's efforts to facilitate the deployment of next generation technologies, but the ATSC 3.0 proposal should not impede on TVWS and other unlicensed operations in the TV band. The Commission should not permit broadcasters to use vacant channels preserved for unlicensed operations or require TVWS devices to protect multiple ATSC 3.0 transmissions.

Respectfully submitted,



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operating under a single DTS license follow the same transmission standard. *See ATSC 3.0 NPRM*, ¶¶60-63; *see also* 47 C.F.R. Part 73, subpart E.