

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

In the Matter of)	
)	
JOINT PETITION FOR RULEMAKING OF)	
NATIONAL ASSOCIATION OF)	
BROADCASTERS, et al, SEEKING TO)	GN Docket No. 16-142
AUTHORIZE PERMISSIVE USE OF THE)	
“NEXT GENERATION TV” BROADCAST)	
TELEVISION STANDARD)	
)	

**COMMENTS OF
AGC SYSTEMS LLC**

I. INTRODUCTION

AGC SYSTEMS LLC (“AGC” or “we”) respectfully submits these Comments in response to the aforementioned Joint Petition for Rulemaking (the “*Petition*”), filed April 13, 2016 by National Association of Broadcasters, et al (the “*Petitioners*”),¹ asking that the Commission approve the Next Generation TV transmission standard (“*Next Generation TV*”), approve certain changes to the FCC Rules (the “*Rules*”), and specify that transmission of *Next Generation TV* is ‘television broadcasting’ in parity with the current DTV standard² (the approval and specification, collectively, the “*Permissive Use*”).

¹ *Joint Petition*, [16-142 04-26-2016 National Association of Broadcasters 60001701021.pdf](#)

² Also called “ATSC 1.0”; see: A/53: ATSC DIGITAL TELEVISION STANDARD, <http://atsc.org>.

In summary, we believe that the *Permissive Use* should not cause undue harm to spectrum incumbents, and at the same should provide opportunities for new and innovative use of the spectrum. We therefore support the goals of the *Petition*, and further add our own comments and recommendations.³

II. STATEMENT OF INTEREST IN THIS PROCEEDING

AGC is a consulting firm established in 2003, with offices in New Jersey, and was founded by the undersigned, a widely respected digital television (“DTV”) expert having over 35 years of experience developing broadcast and consumer electronics technologies, as well as having decades of direct participation in the development of the original and subsequent ATSC standards.

This experience includes extensive involvement in the ATSC 1.0 rollout and the U.S. digital television transition, in the areas of business and technology planning and development, public policy, and intellectual property. As one example, we were selected to manage the inter-industry NAB/MSTV Terrestrial Digital Converter Box Project.⁴ One of the results of this project was a key specification used in the highly-successful NTIA Converter Box Program, which is credited as “one of the reasons the digital television transition in the United States went so smoothly.”⁵

AGC is busily engaged in helping clients carry out plans for the rollout of products and services using technologies that will include the ATSC A/321 standard. We

³ The remarks provided here should not be construed as representing, endorsing, or opposing the policy or position of any clients, past or present, of AGC Systems LLC.

⁴ <http://www1.prweb.com/prfiles/2005/06/21/253933/MSTVAGCRelease.pdf>

⁵ http://www.ntia.doc.gov/files/ntia/publications/dtvreport_outsidethebox.pdf

have also been associated with several startup companies developing new technologies using broadcast spectrum and the Internet.

III. RULE CHANGES SHOULD BE MADE TO ALLOW TRANSMISSION USING THE NEXT GENERATION TV STANDARD AS ENABLED BY A/321

The Commission should approve *Next Generation TV*, as codified in ATSC A/321,⁶ as an optional standard that can be adopted by existing and new broadcast licensees. In particular, the Commission should approve the SDSS portion of the physical layer. There are historical precedents that allow for this approval.

In its *Fourth Further Notice* regarding Advanced Television Systems,⁷ the Commission outlined a number of goals, including the following:

- preserving and promoting universal, free, over-the-air television,
- increasing the availability of new products and services to consumers,
- permitting broadcasters the freedom to succeed in a competitive market,
- enabling broadcasters' ability to adapt their services to meet consumer demand, and
- promoting spectrum efficiency and rapid recovery of spectrum.

The *Fourth Further Notice* went on to outline several concepts critical to the success of digital television:

- to ensure that broadcasters have more flexibility in their business, and

⁶ See: ATSC Candidate Standards, <http://atsc.org/standards/candidate-standards/>.

⁷ *Fourth Further Notice of Proposed Rule Making/Third Notice of Inquiry* (the "*Fourth Further Notice*"), MM Docket No. 87-268, 10 FCC Rcd 10541 (1995).

- to enable broadcasters to experiment with innovative offerings and different service packages as they continue to provide at least one free program service and meet their public-interest obligations.

We believe that the goals of the *Fourth Further Notice* remain valid today, and that the *Petitioners'* request, and an expeditious rulemaking allowing the *Permissive Use*, will meet the goals and critical success factors outlined by the Commission in its *Fourth Further Notice*. Although one of the goals of that proceeding was to ensure a successful transition from analog broadcasting to DTV broadcasting, the same arguments apply to preserving broadcasting as a viable medium in today's connected world, and by doing so using the latest digital technologies and services.

The Commission also concluded in the *Fourth Further Notice* that adopting the ATSC A/53 Standard provided for the minimum of regulation needed to provide for a smooth transition. We believe the same argument holds today in the *Petitioners'* request.

IV. RULE CHANGES SHOULD BE MADE TO ESTABLISH BASELINE REQUIREMENTS FOR BROADCASTERS

A. Spectrum Considerations

The *Fourth Further Notice* stated the intent by the Commission to authorize DTV stations under controlled circumstances to minimize interference to NTSC and digital TV service. Although such consideration is no longer needed for NTSC service, the same requirements are still needed for legacy and upcoming DTV transmissions, as well as for new, non-DTV users of the spectrum.

The *Petitioners* state that testing has confirmed that the essential transmission aspects of *Next Generation TV* (i.e., ATSC A/321) are fully compatible with the FCC

Table of Allotments. The *Petitioners* corroborate this statement with a 39-page report⁸ (the “*Report*”) detailing testing to verify that current ATSC A/53 and new ATSC A/321 transmission signals can co-exist in the field while still using the current FCC planning factors referenced in the *Rules*.

The *Report* was produced by Meintel, Sgrignoli, and Wallace,⁹ a well-respected industry consulting firm with extensive background in broadcasting, telecommunications, and consumer electronics engineering; it was commissioned by Pearl LLC,¹⁰ an industry partnership with a membership comprising more than 200 network-affiliated TV stations.

According to the *Report*, the results of the laboratory tests confirm that both ATSC A/53 and ATSC A/321 transmission signals can be accommodated in shared spectrum using the current FCC planning factors as embodied in the FCC OET Bulletin 69,¹¹ with the caveat that the same FCC emission mask requirement is met at the transmitter.

The *Report* concludes that because the interference characteristics of *Next Generation TV* are essentially identical to those of the current DTV standard, permitting introduction of *Next Generation TV* stations in the existing television ecosystem will be straightforward, and will not produce harmful reception conditions compared with current broadcasting.

⁸ Meintel, Scrignoli, and Wallace: *A Report To The Federal Communications Commission Regarding Laboratory Testing of Recent Consumer DTV Receivers With Respect To ATSC 1.0 and ATSC 3.0 DTV Interference*, April 8, 2016.

⁹ <http://www.mswdtv.com/>

¹⁰ <http://www.pearlvt.com/pearl/>

¹¹ OET BULLETIN No. 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 06, 2004.

The *Petitioners* have also asked that the Commission's *Rules* relating to interference protection¹² should be amended to apply equally to both *Next Generation TV* and to current DTV operation.

It is reasonable that the Commission should confirm the data and findings made in the *Report* and, upon such confirmation, issue a Notice of Proposed Rulemaking to modify the *Rules* regarding television broadcast to accept the voluntary use of A/321 as a transmission standard, and to maintain the interference protection provisions of the *Rules*.

The industry has published recommendations on measurement of out-of-band ATSC A/53 transmissions.¹³ As a further aid to broadcasters implementing *Next Generation Services*, we encourage the ATSC to amend this document, if needed, or to develop a similar document regarding A/321 transmission.

B. Baseband Signal Considerations

As the record in the time of the *Fourth Further Notice* had been marked by dissent and contradiction regarding the desirability of allowing different compression formats in the proposed DTV standard, the Commission's decisions were based on the precept of allowing these formats to be tested and decided by the market, while avoiding the risk of a mistaken government intervention in the market; this was also stated by the Commission as being consistent with the deregulatory direction of the Telecommunications Act of 1996.¹⁴ As such, the Commission at that time decided to omit any mandate for compression formats, leaving it to be determined by the market and

¹² See: 47 CFR 74.793, *Digital low power TV and TV translator station protection of broadcast stations*.

¹³ ATSC A/64B – *Transmission Measurement and Compliance for Digital Television*, May 2008.

¹⁴ *Telecommunications Act of 1996* (the "1996 Act"), Pub. L. No. 104-104, 110 Stat. 56 (1996).

consumer demand. History shows that this decision did not compromise or hinder the DTV transition.¹⁵

The new ATSC family of standards includes baseband content delivery mechanisms based on IP delivery and cross-industry agreed specifications for broadcasting audio, video, data, and even Internet content. As such, the use of these content-specific mechanisms parallels the same format-specific carve-out made by the Commission in the *Fourth Further Notice*, i.e., there is considerable risk of mistaken government intervention regarding what are essentially consumer-product features that should be left to be determined by the market and consumer demand.

Indeed, these specific features have been documented by numerous active participants in the ATSC Standards development process. As a consensus-driven activity, these groups are ensuring that broadcast services and consumer products will fully meet the requirements of delivering Next-Generation broadcast services.

In addition, broadcasters have agreed to provide backwards-compatibility with legacy DTV devices by voluntarily committing to simulcasting and channel sharing, thus ensuring that legacy viewers will not be disenfranchised.¹⁶

C. Video Resolution Considerations

The *Petitioners* make the case that *Next Generation TV* will allow 4K video transmissions, as well as provide a basis for other enhancements, if and when the marketplace drives them, without any need for additional regulatory action to permit such

¹⁵ See: Alison Neplokh, *DTV Technology in the US*, Federal Communications Commission, May 2013, and *Analog to Digital Conversion to Fuel already growing DTV Receiver Sales*, Digital Digest, May 2008.

¹⁶ See *Joint Petition* at 2. Local Simulcasting, p. 17.

innovations. These improvements include virtual reality views, the use of High Frame Rates, Wide Color Gamut, and High Dynamic Range.

In its *Fifth Report and Order on Advanced Television Systems*,¹⁷ the Commission declined to impose a requirement that broadcasters provide a minimum amount of High Definition programming and, instead, left this decision to the discretion of licensees. In its decision, the Commission affirmed that broadcasters should have the freedom to innovate and respond to the marketplace in developing the mix of services they will offer, citing the guidance given in the *1996 Act* which sought “[t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.”

For all of the reasons stated above, we therefore agree that broadcasters should not be required to provide any specific set of features or functionality in the *Permissive Use*, including, but not limited to, a minimum level of performance.

V. RULE CHANGES ARE NOT NEEDED FOR CERTAIN SERVICES

The *Petitioners* specifically point out that:

- the FCC Rules should not mandate *Next Generation TV* tuners in receivers,
- there is no need to subsidize converter devices or adapters, or suggest that any other branch of the federal government should do so, and

¹⁷ *Fifth Report and Order In the Matter of Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service*, MM Docket No. 87-268, April 3, 1997.

- no changes are needed to the Commission’s *Rules* concerning special services such as emergency alerts, closed captioning, or video description.

A. Tuners

The *Petitioners* maintain that the All-Channel Receiver Act of 1962 (“ACRA”)¹⁸ need not be changed or extended to *Next Generation TV*, noting that ACRA provides the Commission with the “authority to require” that television sets “be capable of adequately receiving all frequencies” allocated by the FCC for “television broadcasting,” but ACRA does not require the Commission to do so.

The purpose of ACRA was to increase parity between the UHF and VHF television services, which would directly put UHF and VHF broadcasters on even footing as far as viewer access to content.¹⁹ Of course, viewers at the time ACRA was enacted did not have the ubiquity of content sources available today. Thus, it was feared that viewers without access to both VHF and UHF stations would be limited in their content options, and that UHF broadcasters (and the UHF spectrum) could be at risk of demise.

The situation today is quite different. There is a multitude of media options to deliver content, and consumer electronics products are available, at a reasonable cost, to provide that content from a variety of sources. Thus, the intent and provisions of ACRA are no longer relevant in today’s (and tomorrow’s) connected world.

In fact, the Commission has already taken a step in this direction by removing the analog tuner requirement from the *Rules* effective September 1, 2017.²⁰ While the

¹⁸ See 47 U.S.C. 303(s).

¹⁹ See *Notice of Proposed Rulemaking, Rules Relating to the Filing of UHF Noise Figure Performance Measurements*, FCC, ET Docket No. 95-144, 1995.

²⁰ *Third Report and Order and Fourth Notice of Proposed Rulemaking, Amendment of Part 15 of the Commission’s Rules to Eliminate the Analog Tuner Requirement*, FCC ET Docket No. 14-175, December 2015.

purpose of that ruling was to remove an obsolete requirement, there is no need to create a new requirement for *Next Generation TV*, as it is proposed as a voluntary, but not mandatory, service.

Therefore, in light of the proposed discretionary use of *Next Generation TV* by broadcasters, and their pledge to provide a mechanism to avoid disenfranchising legacy viewers who wish to continue to use ATSC 1.0 services and receivers, it makes sense for the Commission to leave the *Rules* regarding *ACRA* unchanged.

B. Converter Boxes

The DTV set-top box (STB) offered analog NTSC viewers a simple way to upgrade to digital reception. Through the efforts of Congress, affordable subsidized coupon-eligible converter boxes became widely available, and were viewed as a key contributor to the success of the DTV transition.²¹

The Petitioners maintain that there is no need to subsidize converters to provide backwards compatibility for viewers. There are multiple reasons to agree with this request. First, because *Next Generation TV* is an optional service, viewers can continue to view content – including lifeline services – using their ATSC 1.0 equipment. Again, because the *Petitioners* have pledged to provide legacy services in a shared simulcast arrangement using ATSC 1.0 transmissions, broadcasts in the current DTV standard will remain available to all viewers.

Of course, should the industry and Commission decide to terminate ATSC 1.0 transmissions at some date in the future, converter boxes may be necessary to provide legacy support at that time. We leave it to future business planners and policymakers to revisit that issue, if and when it arises.

C. Special Services

The *Petitioners* state that no changes are needed to the *Rules* concerning special services such as emergency alerts, closed captioning, or video description. Again, the supporting rationale is that viewers depending on broadcast TV for these services are fully supported by ATSC 1.0 transmissions using their existing receiving equipment.

Beyond that, *Next Generation TV* provides for *all* of these services, and goes further, by offering beneficial enhancements, such as signaling that permits receivers to alert consumers of an emergency even when the receiver is powered off, expanded closed captioning, and video description in multiple languages.²²

VI. EXPEDITED ACTION

The FCC Spectrum Auctions are now underway. FCC Chairman Wheeler has stated that the key goal of the auctions is “to repurpose as much spectrum for mobile broadband as the market demands to meet growing consumer needs, and that means deploying networks using these frequencies in a timely manner.”²³

Similarly, Gary Epstein (Chair, FCC Incentive Auction Task Force) has stated that one of the Commission’s goals is “[to enable] forward auction winners to get access to their newly acquired spectrum as quickly as possible.”²⁴

²¹ See: *Outside the Box - The Digital TV Converter Box Coupon Program*, NTIA, 2010.

²² See: *ATSC 3.0 Expands Closed-Caption Offerings*, A conversation with Chris Homer, chair of the ATSC accessibility group, TV Technology website, <http://www.tvtechnology.com/news/0002/atsc-30-expands-closedcaption-offerings/276791>.

²³ Statement of Tom Wheeler, Chairman, Federal Communications Commission, Before the Committee on Commerce, Science, and Transportation, United States Senate, March 2, 2016.

²⁴ *Prepared Remarks of Gary Epstein*, Chair, FCC Incentive Auction Task Force, 5th Annual Americas Spectrum Management Conference, February 2, 2016.

These and other policy statements, taken together with market conditions, demonstrate that it is imperative that factors affecting existing and new broadcasters (as well as potential new owners of spectrum) should be managed to produce maximum certainty for all stakeholders. To delay the consideration of the Next Generation Television Standard now on the table would result in the injection of great uncertainty into the minds of auction participants, as well as create considerable risk in the efforts of scores of worldwide participants in the standards-development process – including major communications companies and consumer electronics companies – that are poised to release new services and products into the United States (and other) economies.

For these reasons, we encourage the Commission to move expeditiously in its review of the *Petitioners'* request for *Permissive Use* of the Next Generation Television Standard, because such urgency is clearly in the public interest.

VII. CONCLUSION

We believe that the spirit of the *Permissive Use* is to allow a marketplace-driven transition to the Next Generation Television Standard, and that the *Petitioners* (and we) have shown ample evidence of its need for speedy deployment. We therefore urge the Commission, upon consideration of these and other respondents' Comments, to accept the *Petitioners'* request for *Permissive Use* of the Next Generation Television Standard.

We commend the Commission on its efforts to allow incumbent broadcasters and new spectrum users to operate in, and develop, the wireless spectrum with the goal of bringing state-of-the art products and services to consumers. For its part, AGC intends to continue its work to develop new uses, and protect existing users, of wireless spectrum.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Aldo A. Cerzini". The signature is fluid and cursive, with a long horizontal stroke at the end.

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May 26, 2016