

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

In the Matter of)
)
Public Safety and Homeland Security Bureau)
Seeks Partners to Test Expansion of) PS Docket No. 22-160
Coverage for Wireless Emergency Alerts)
When Cell Sites Are Down, Including)
Through the Use of Satellite)

**COMMENTS AND EXPRESSION OF INTEREST OF
AMERICA’S PUBLIC TELEVISION STATIONS**

America’s Public Television Stations (“APTS”)¹ welcomes this opportunity to provide its comments and expression of interest in response to the request of the Public Safety and Homeland Security Bureau (“PSHSB”) of the Federal Communications Commission (the “Commission”) for submissions from entities interested in partnering with the PSHSB to test a technology, method, or other solution for delivering Wireless Emergency Alerts (“WEAs”) to mobile devices to supplement WEA coverage when cell service is down.²

Introduction. APTS encourages the PSHSB to partner with public television to test complementary technologies to help fill in wireless coverage gaps and promote WEA continuity during disasters. In this expression of interest, APTS submits its proposal to test the use of public television datacasting technology through over-the-air broadcasting (both ATSC 1.0 and ATSC 3.0 technology) to deliver a WEA to a home alerting gateway that passes the alert to home

¹ APTS is a nonprofit membership organization ensuring a strong and financially sound public television system and helping member stations provide essential public services in education, public safety and civic leadership to the American people.

² *Public Safety and Homeland Security Bureau Seeks Partners to Test Expansion of Coverage for Wireless Emergency Alerts When Cell Sites Are Down, Including Through the Use of Satellite*, PS Docket No. 22-160, Public Notice, DA 23-995 (rel. Oct. 19, 2023) (the “Public Notice”).

devices, including cell phones, tablets, interactive voice assistants (e.g., Alexa, Siri), and other home connected devices, via Wi-Fi and Bluetooth technologies. Datacasting via public television spectrum, with broadcasting's one-to-many delivery model, is efficient, reliable, and cost effective, has a broad geographic reach, and can serve an important role in WEA contingency planning. Because broadcast television stations rarely share common infrastructure with cellular carriers and have dedicated backup generators for their transmitters, this distribution pathway increases the probability of WEA delivery when cellular systems or commercial power are compromised.

APTS further supports two separate proposals submitted in this proceeding to partner with public television to offer WEA alternatives in a disaster. These separate proposals include (1) the expression of interest submitted by the Public Broadcasting Service ("PBS") to test new uses of PBS's Eyes on IPAWS application and PBS's Warning, Alert, and Response Network ("WARN") alert map technology to help close the gaps in WEA delivery,³ and (2) the expression of interest submitted by PBS North Carolina, together with North Carolina Emergency Management, Device Solutions Inc., Triveni Digital, Inc., and Digital Alert Systems, Inc. (collectively, "PBS North Carolina"), to test the delivery of WEA alerts to cellular devices over NextGen TV (ATSC 3.0) broadcast transmissions via portable, low-cost companion ATSC 3.0 receiver devices with wireless connectivity.⁴

³ Filing of the Public Broadcasting Service, *Public Safety and Homeland Security Bureau Seeks Partners to Test Expansion of Coverage for Wireless Emergency Alerts When Cell Sites Are Down, Including Through the Use of Satellite*, PS Docket No. 22-160, (filed Dec. 18, 2023) (the "Filing of PBS").

⁴ Comments of PBS North Carolina, North Carolina Emergency Management, Device Solutions Inc., Triveni Digital Inc., and Digital Alert Systems Inc., *Public Safety and Homeland Security Bureau Seeks Partners to Test Expansion of Coverage for Wireless Emergency Alerts When Cell Sites Are Down, Including Through the Use of Satellite*, PS Docket No. 22-160 (filed Dec. 18, 2023) ("Comments of PBS North Carolina").

Each of the three public television proposals is technically feasible and can be introduced without significant costs or burdens to consumers. Since the PSHSB has indicated that it intends to partner with as many providers as practical to test solutions that meet its criteria of technical feasibility and minimal cost,⁵ APTS encourages the PSHSB to select each of these three proposals for its partner testing plans.

Background. The Public Notice issued by the PSHSB clearly sets out the importance of WEAs to provide alerts and warnings to individuals who may be in imminent danger, as well as the urgent need for alternatives to ensure that WEAs continue to reach people when cell phone towers and other infrastructure for delivering WEAs are not functioning because of wildfires, hurricanes or other natural or man-made disasters.⁶ Public television, which reaches nearly 97 percent of the American public, has long served as an effective, efficient, reliable, and nearly ubiquitous means of emergency communications. Public television stations have embraced the use of broadcast spectrum for public safety purposes as part of their public service mission.

Through the Emergency Alert System (“EAS”) public television stations deliver alerts and warnings via television broadcast in national emergencies as well as some state and local emergencies. In addition, public television stations broadcast WEA messages distributed through the PBS Warning, Alert, and Response Network (“WARN”). The WARN system connects directly to the Federal Emergency Management Agency’s (“FEMAs”) Integrated Public Alert and Warning System (“IPAWS”), FEMA’s system for providing emergency information to broadcasters via the EAS, to mobile phones via WEAs, and to the National Oceanic and Atmospheric Administration’s weather radio. PBS transmits the WEA messages received

⁵ Public Notice, at 3.

⁶ *Id.* at 1-2.

through IPAWS to its member public television stations for over-the-air broadcast to their communities and as a backup method for WEA delivery to Commercial Mobile Service (“CMS”) Providers.⁷

Local public television stations also use existing television broadcasts for datacasting, using a secure data centric network to deliver encrypted video, files and other data for public safety communications and other innovative uses. Approximately 120 public television stations are already equipped to engage in datacasting to public safety and other recipients, and the number of stations continues to grow. This existing datacasting infrastructure provides statewide coverage in Alabama, Alaska, California, Indiana, Iowa, Kentucky, New Mexico, Oklahoma, Pennsylvania, South Carolina, South Dakota, and Tennessee, as well as in Houston, Boston, and the District of Columbia.

With NextGen TV (ATSC 3.0) technology, and its improved capabilities, public television broadcasters that have transitioned to this technology have the capability to provide public safety communications in an even more robust and efficient manner. For example, ATSC 3.0 datacasting was recently provided by WHUT in Washington, D.C., licensed to Howard University, to send secure video, image, file sharing and alerts during the Marine Corps Marathon event between multiple public safety entities across jurisdictions.⁸

Further, New Mexico PBS, which offers both ATSC 1.0 and ATSC 3.0 services, has worked with local public safety organizations during fire season to datacast emergency response information around the areas impacted by wildfires, particularly when Internet and cellular service is unavailable to local residents. Because New Mexico PBS has both an ATSC 1.0 and

⁷ See Filing of PBS, at 2.

⁸ See <https://apts.org/news/press-releases/nextgen-broadcasting-successfully-used-keep-americans-safe-during-marine-corps-marathon>.

ATSC 3.0 station in the Albuquerque market, they have been able to clearly compare the enhanced capabilities supported by ATSC 3.0 for alerting and public safety use cases, including improved indoor signal penetration and the ability to effectively deliver content to moving receivers.

Digital datacasting via public television spectrum, whether using ATSC 1.0 or ATSC 3.0 technology, serves as a reliable contingent source for emergency communications and can help to fill in wireless coverage gaps and promote WEA continuity during disasters. Public television stations have limited funding, and we do not suggest that the Commission establish new mandates for public television stations arising from this proceeding and these three proposals. However, with more testing and funding, public television stations will be in a better position to continue developing and determining robust and innovative solutions that serve and enhance the safety of their communities.

APTS Proposal to Test the Use of Public Television Datacasting to Send WEAs to Home Devices via a Home Alerting Gateway to Supplement WEA Coverage. APTS proposes to partner with the PSHSB to test the use of public television stations' datacasting technology to send WEAs to a low-cost home alerting gateway which then passes the wireless alerts to other devices in the home, which may include cell phones, tablets, interactive voice assistants (e.g., Alexa, Siri), and other home connected devices, using Wi-Fi and Bluetooth technologies. This proposal, which is described in further detail in the attached Exhibit A, would function with datacasting in both ATSC 1.0 and ATSC 3.0. The home alerting gateway, which is in development and will be ready for testing in early 2024, is inexpensive and easy to install and use. It will work with existing Wi-Fi and Bluetooth capable mobile devices in the home and will

avoid the need for new or upgraded mobile devices. The alerting gateway can be paired with a plug-in battery pack to continue to operate when home power is out.

Local public television stations already receive all WEA messages through the PBS WARN system, and the PBS WARN system is connected directly to IPAWs, so this proposal would not raise any concern about its ability to work with or supplement participating CMS providers' provisioning of WEA. Public television stations have experienced engineers on duty, and all stations have resilient back-up generators to ensure that public television broadcasts are not interrupted during emergencies. Datacasting content is encrypted to prevent spoofing and unauthorized use, and the alerting gateway is location-aware so alerts can be geo-targeted with precise resolution so geographic overshoot also is not a concern with this proposal. Moreover, the public television spectrum used for datacasting is already licensed, so this proposal would not cause any co-channel or adjacent channel interference. No additional or experimental licenses or special temporary authorization would be required to conduct the proposed testing.

APTS proposes initial testing of the datacasting alerting gateway proposal in the Washington, D.C. metro region. This location is already on the air with datacasting in partnership with Howard University's ATSC 3.0 station, WHUT. This station has broad geographic coverage. Following lab testing with PSHSB and FEMA IPAWS, APTS proposes deployment into a small number of homes using multiple mobile device types and with a diverse group of users willing to participate in surveys and an experimental pilot program. APTS proposes to work with PSHSB on development of a testing program, parameters, and data collection, which will include alert delivery reliability performance, accuracy, latency, geo-targeting, and end-user feedback.

APTS' proposal to test datacasting via public television stations to deliver WEAs to home devices through a home alerting gateway is technically feasible and would not impose significant costs or burdens on consumers. We encourage the PSHSB to partner with APTS to test the use of this technology and how it can best be used to fill in wireless coverage gaps and promote continuity of WEAs during disasters.

Additional Public Television Proposals. APTS also supports the expressions of interest submitted by PBS and PBS North Carolina in this proceeding, which further demonstrate the commitment of public television to public safety. PBS proposes to test new public safety uses of the PBS Eyes on IPAWS application and the PBS WARN alert map at <https://warn.pbs.org> to help bridge gaps in wireless alerting coverage when cell service is down.⁹ PBS' proposal includes testing the use of the Eyes on IPAWS application to provide public, non-cellular WEA alerting through roadside signage, outdoor warning systems, and other mass notification systems. PBS further suggests that, with appropriate funding, the PBS WARN alert map could be enhanced to send alerts through the internet to user devices.¹⁰

PBS North Carolina proposes to use the capabilities of ATSC 3.0 (NextGen TV) as a complementary technology to support WEA messaging. PBS North Carolina has previously developed a digital paging system delivered over ATSC 3.0 to reduce the amount of time needed to dispatch information to first responders. In its expression of interest, it proposes to build on the success of this paging effort to test the delivery of WEA alerts to cellular devices via a low-cost portable, companion ATSC 3.0 receiver device via wireless connectivity.¹¹

⁹ Filing of PBS, at 3-5.

¹⁰ *Id.* at 5-7.

¹¹ Comments of PBS North Carolina, at 5-8.

Conclusion. Datacasting via public television stations using both ATSC 1.0 and ATSC 3.0 technology offers an efficient, reliable, robust and cost-effective option to help fill wireless coverage gaps and promote the continuity of WEAs during disasters. APTS' proposal to test datacasting to deliver WEAs to home devices through a home alerting gateway offers technically feasible WEA alternatives for contingency planning purposes without imposing significant costs or burdens on consumers. Accordingly, APTS encourages the PSHSB to partner with APTS to begin testing these options. APTS welcomes the opportunity to provide additional information or answer any questions that the PSHSB may have about these comments and expression of interest.

Respectfully submitted,

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EXHIBIT A



Digital Television Datacasting WEA Alert Gateway Proposal

Enhancing WEA Alerting by Leveraging Existing Public
Television Spectrum

December 2023

APTS
America's Public Television Stations

Datacasting turns a portion of public television spectrum into a new secure wireless data network

Key Characteristics

Broadcast digital transport

- IP encapsulated multicast “bit-pipe”
- Encoded & encrypted data

Content agnostic

- Video
- Computer files
- Alerts
- Messages
- Images

Secure

- Only receivable on targeted devices
- Undetectable on publicly viewed television

Scalable

- Receive scalable without limitation
- Low cost receivers



Why Public Television?

Reach

- High-power / high-tower infrastructure using licensed spectrum - already in place
- Reaches 97% of U.S. Population including Territories

Resiliency

- Towers built to extreme weather/disaster standards
- Hardened with 72+ hour backup generators
- Supported 24/7 by professional engineers
- “four nines” up-time

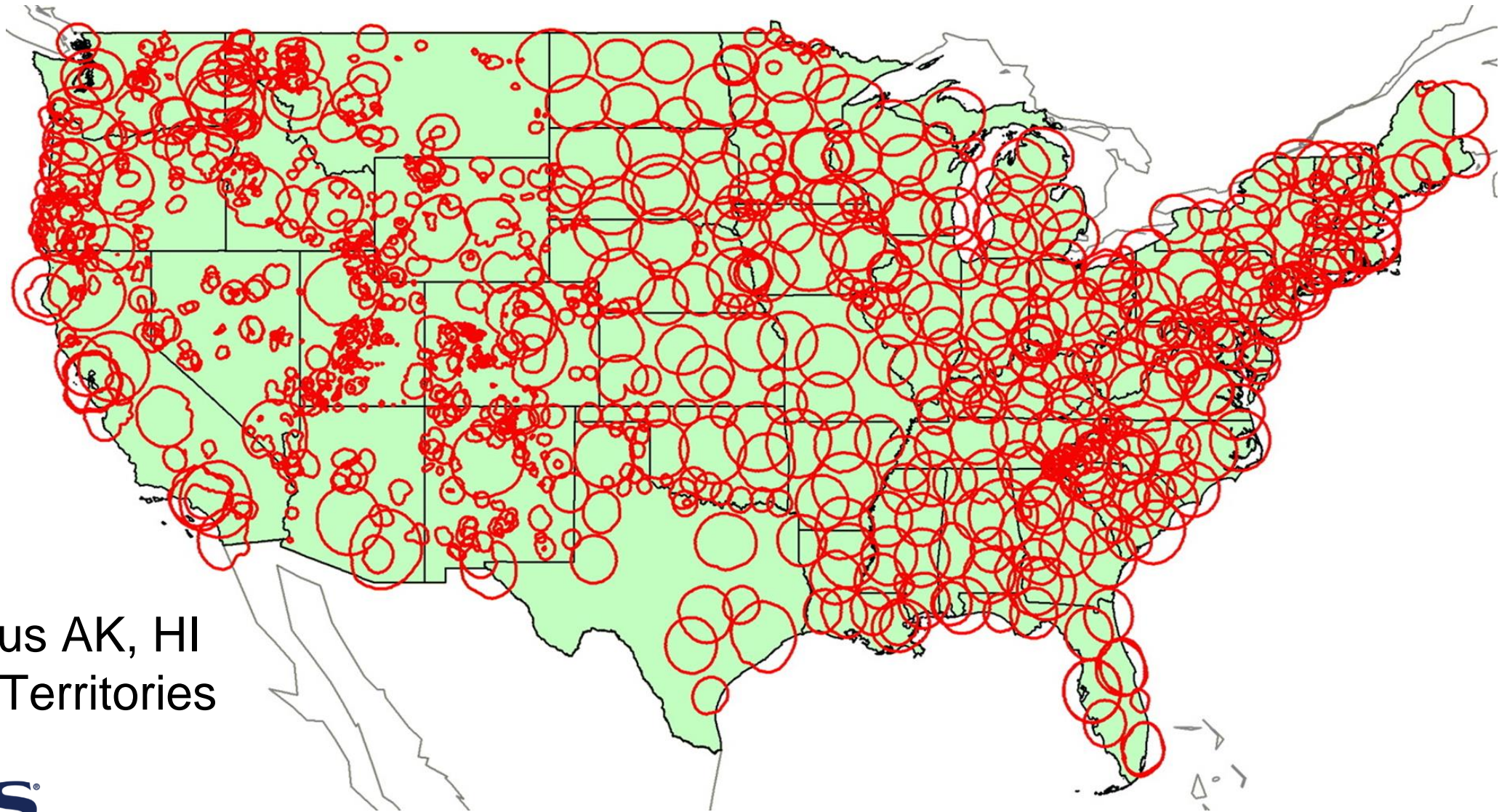
Capacity

- 24x7x365 digital capacity – nominally 1Mbps

Connectivity

- Already connected to fiber, microwave, satellite and high-speed Internet backbones

Public Television Signal Coverage



Plus AK, HI
& Territories

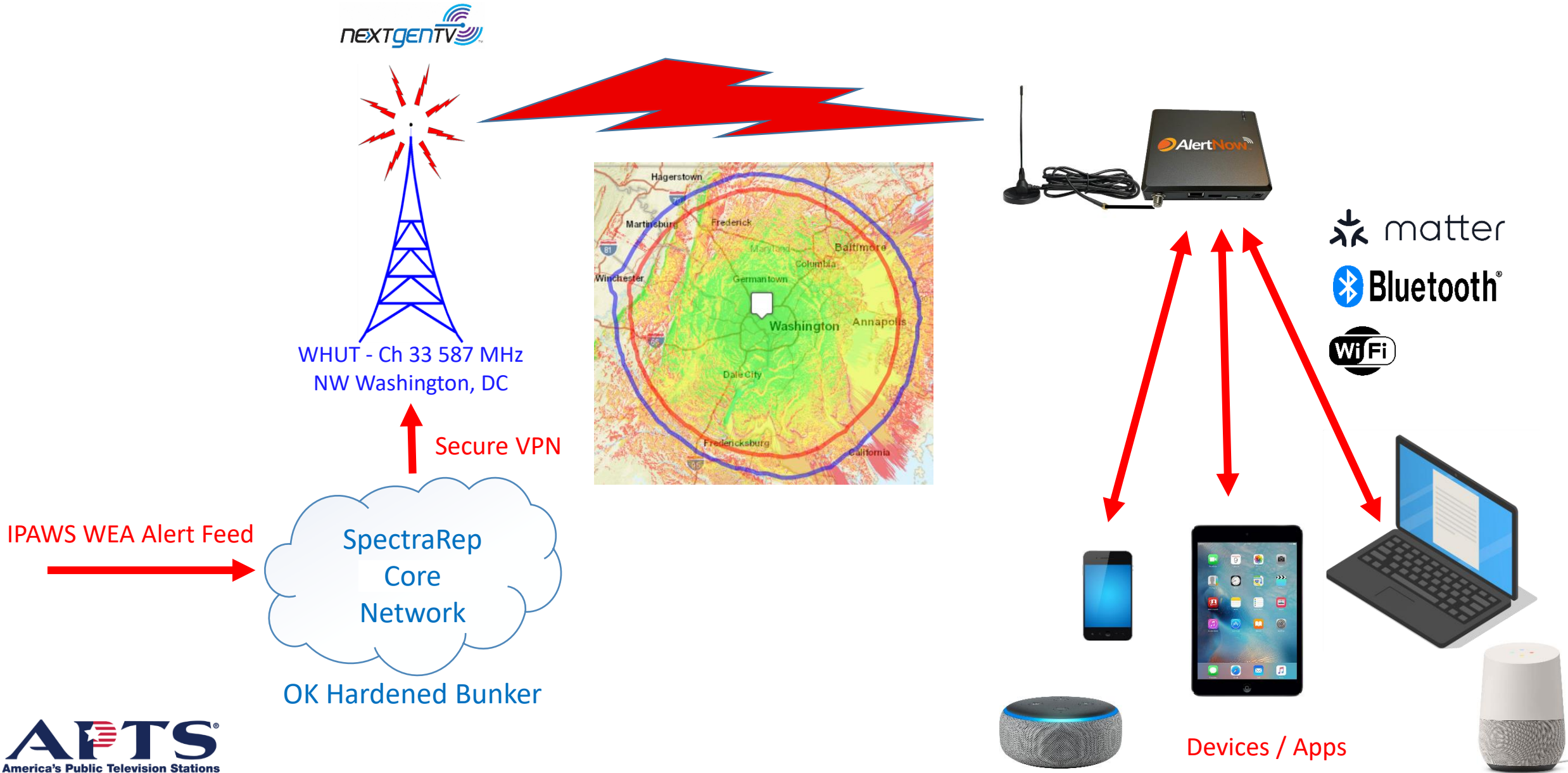
WEA Alert Gateway



- Low-cost in-home device
- TV antenna input - ATSC 1.0 & ATSC 3.0
- Receives encrypted WEA alerts
- Wireless connection to mobile devices
- Wi-Fi, Bluetooth, Ethernet connectivity
- Forwards WEA alerts to wireless device apps in the home
- Guided provisioning and initial setup
- Matter smart home protocol for automatic wireless device discovery and connection
- Remote updates – no broadband connection required



WEA Datacast Alert Gateway Test & Evaluation Configuration



Evaluation Criteria

- Alert delivery reliability
- Alert latency
- Geo-targeting accuracy
- Signal reach and level validation
- Compatibility with different mobile devices
- Ease of installation and provisioning
- User surveys
- Remote updating of firmware over broadcast
- Multiple language support and performance