**Sinclair Broadcast Group / ONE Media 3.0**

**ATSC 3.0 Activities**

Sinclair Broadcast Group and its subsidiary, ONE Media 3.0, are highly concentrated on multiple NextGen TV levels from research and development to deployment. Indeed, Sinclair has established an entire internal matrix organization, tapping multiple departments within the company, coalescing around the “Next Generation Wireless Platform.” Its focused strategic intent is to provide a wireless IP data delivery pipe that reaches mobile users with better video, audio, targeted content and advanced emergency information.  NextGen Broadcasting’s ability to reach deep into buildings and moving vehicles, and its easy integration with Internet and advanced cell phone service (like 5G), allows us to support multiple NEW business models in addition to linear TV.

The several ATSC 3.0 projects center on the following active projects:

1) ***NextGen Infrastructure - Station Deployment***. Deployment of 3.0 capabilities on Sinclair and other television stations is underway in multiple markets including Las Vegas, Pittsburgh, Salt Lake City, Nashville and Portland, all of which are targeted for launch this spring and summer. Channel mapping is complete and hosting agreements, programming consents, MVPD notifications and infrastructure installation work is well underway. Working with our partners at Nexstar through our joint venture, SpectrumCo, we have a dozen more market deployments scheduled for this calendar year.

2) ***NexGen Platform***. The heart of NextGen processing is the ATSC 3.0 Core Platform. Exploiting this functionality will permit broadcasters to offer Data Distribution as a Service. We are actively designing this Core Platform with efficiency as a goal using Yield Spectrum Optimization and related techniques.

3) ***NextGen Single Frequency Networks***. SFN capabilities will provide predictable, robust system reception deep indoors and to mobile devices simultaneously from multiple antenna sites using the same frequency. Key metrics are being analyzed from the nation’s first SFN deployment in Dallas orchestrated by Sinclair. Lessons from this system are informing us on how best to deploy these networks in multiple markets by filling in reception coverage “holes” and providing signals to the edges of licensed areas. To that end, we are actively working on regulatory enhancements to SFNs through the FCC’s DTS rulemaking and TV White Spaces proceedings.

4) ***NextGen Reception Services***. With our partners at Pearl TV, we have developed and continue to refine the “last inch” Broadcast App that will take the ATSC 3.0 signal from the receivers in all devices (fixed TVs, gateways and mobile phones) to their display screens and integrate both broadcast and broadband content seamlessly.

5) ***Advanced Emergency Alert and Information***. Among the advanced data services to be provided is geo-targeted information that supports emergency alerting. Working with the AWARN organization, implementation plans have been crafted and a pilot application is being deployed at WJLA, Sinclair’s Washington, DC ABC affiliate.

6) ***NextGen Rights and Content Management***. Operating in a NextGen TV world will require administration of multiple content streams. We are designing programs to facilitate ingest, storage and management of all forms of media content. Administering the copyright restrictions on thousands of content streams and replaying them through a Media Core is a focused goal of this process.

7) ***Core Platform Convergence***. Enabled by the ATSC 3.0 standard, we are on the leading edge of developing the next steps in 5G convergence through a broadcast market exchange that will permit the deployment of a Core Platform (inserting the “smarts” into the network, as the mobile carriers do today) – a dramatically efficient smart network that combines OTT and OTA services and is managed in the cloud. Work is ongoing in the 3GPP and the Indian TSDSI standards-setting organizations as well as the ATSC to enable broadcasters to have a full participatory seat at the 5G developmental table. See, <https://ieeexplore.ieee.org/document/9076649>

8) ***Cast.era***. Through our joint venture with Korea’s SK Telecom, Sinclair is developing focused data provisioning services in a cloud infrastructure along with ultra-low latency OTT broadcasting and personal advertising using SK Telecom’s expertise in designing hybrid 5G/ATSC 3.0 core networks. Based in Arlington, Virginia, adjacent to Sinclair’s broadcast complex at WJLA, Cast.era also has development facilities in Jeju Island, South Korea where it will provide a non-broadcast television perspective to ATSC 3.0 services.

9) ***International Standards Setting***. After spearheading the adoption of ATSC 3.0 as an ITU-approved digital terrestrial television standard, Sinclair is leading an ITU Study Group 6 Rapporteur Group to amend the Digital Implementation Handbook as a guiding document for deployment of NextGen TV around the globe. This coincides with ATSC’s international PT-6 and PT-8 work on the Core Platform, in which we are active participants. Additionally, we are combining with our partners in India to bring direct-to-mobile broadcast capabilities to the world’s highest per capita consumer market for mobile data.

10) ***Chip Design / Broadcast Radio Heads***. Working with our partners at Saankhya Labs in India, we have taken on the task of designing low power consumption ATSC 3.0 chipsets for inclusion in consumer devices. Design is completed and fabrication has begun, making them available to multiple equipment manufacturers. In addition, we are exploring the potential for low tower/low-power, low cost “Radio Head” transmitters that can be deployed in a “cellularized” spectrum reuse way to supplement high power/high tower distribution and make more efficient and uniform use of signal distribution within broadcast markets. This technology can be dropped into 5G deployments as a converged broadcast and mobile broadband solution for content delivery to smartphones, tablets, connected cars and IoT applications.

11) ***Ad Tech Infrastructure***. Hyper-localization in an Internet Protocol world now gives broadcasters the means to target ads in the same way digital platforms can. Our Ad Tech work centers around converging traditional linear traffic systems with anonymous user profiles to enable dynamic ad insertion in digital receivers, all powered by the new common Broadcaster App.

12) ***Patent Pool Formation***. We are active participants in assisting in the formation of a patent pool to help deploy the NextGen standard throughout the world by easing the incorporation of necessary intellectual property in all receive devices by consumer electronics manufacturers.

13) ***ONE Media 3.0 Lab***. Employing its fully outfitted equipment and consumer testing facility along with its mobile testing van, ONE Media is actively providing a proving ground for HD/SD comparisons using the latest encoder compression protocols, wide color gamut and HDR encoding, signaling for electronic service guides and Broadcaster App development.