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Television's New Rocket Fuel

Now is the time to dig into the new business opportunities that are about to emerge with the introduction of the **ATSC 3.0** TV standard.

By **PAUL A. CICELSKI**

IMAGINE THAT THE NEW LOS ANGELES RAMS football team somehow manages to make it to the Super Bowl next year. (Sorry, St. Louis.) We all know that every television set in Los Angeles could be simultaneously tuned to the game using unsophisticated and inexpensive “rabbit ear” antennas, allowing millions of viewers to watch the broadcast of the game at the same time over-the-air.

While rabbit ears may seem dated today, they have their advantages: ubiquitous service to millions of consumers from a single transmitter site. That aspect of broadcast TV is the very definition of “efficient.” What’s more, TV signals are delivered to the viewing public free of charge.

Now imagine all those Angelenos (11.5 million people) trying to use their smart phones and tablets to watch the game simultaneously, streaming via their wireless mobile networks. It wouldn’t work.

The network stress of millions of Super Bowl viewers trying to use their mobile devices at the same time would cripple the wireless networks in that market.

All of that’s about to change. Before long, consumers will be able to effortlessly access mobile broadcast signals on smart phones, laptops and tablets without the need to subscribe to phone carriers or multichannel video program distributors (MVPDs). That’s one of the biggest advantages of a new technical broadcast standard, ATSC 3.0.

It’s viewed as a “holy grail” by TV broadcasters in the know, and it’s likely to be formally approved by the Federal Communications Commission (FCC) soon. If all goes as planned, the introduction of ATSC 3.0 will coincide with the spectrum repack that will follow the broadcast spectrum auction that is now underway.

This new technical advancement will pay



THE STANDARD'S 13 GOALS

The Advanced Television Systems Committee, an international nonprofit organization that creates voluntary standards for digital television, developed 13 usage scenarios for ATSC 3.0:

- **FLEXIBLE USE OF SPECTRUM** - The ability to adapt to technology changes and a more efficient use of spectrum, including delivering “one-to-many” signals to mass audiences using broadcast or broadband delivery methods;
- **ROBUSTNESS** - Resistance to noise, attenuation and interference, which allows expanded reception within a broadcast station’s coverage area;
- **MOBILE** - Specific design for indoor and outdoor mobile television reception, including reception in moving vehicles or in basements of homes and buildings;
- **ULTRA-HIGH DEFINITION TV** - A horizontal screen resolution of approximately 4,000 pixels or (eventually) 8,000 pixels (providing around four times the number of pixels current 1080p TV sets display today);
- **HYBRID SERVICES** - The creation of new services to augment regular broadcasts, such as interactivity with consumers;
- **MULTI-VIEWS** - The ability to transmit and display multiple forms of synchronized content;
- **ENHANCED VIDEO** - 3D imagery delivered via broadcast or hybrid transmission paths;
- **ENHANCED AUDIO** - Sometimes described as “3D audio,” with theater-quality sound;
- **ENHANCED ACCESSIBILITY** - Captions and other services to benefit those with disabilities or consumers who don’t speak English;
- **ADVANCED EMERGENCY ALERTING** - A broadcast/IP public warning system, distributed with high reliability and instantaneous distribution;
- **PERSONALIZATION/INTERACTIVITY** - IP-based architecture allowing two-way communications between the broadcaster and the consumer;
- **TARGETED ADVERTISING** - Including geospecific and two-way messages;
- **UNIVERSAL STANDARD** - A single world-wide standard.

dividends for those that take the time to understand it, and its potential new uses and applications. Now is the time for broadcasters and their investors to diligently consider new business models and transition plans for migration to the new standard.

KEY ADVANTAGES

Before considering the new revenue potential, let's look at exactly what this new technology standard provides.

ATSC 3.0 is an entirely new broadcast wireless Internet Protocol (IP) service that uses a TV station's over-the-air signals, rather than the frequently congested wireless broadband networks used for watching mobile video today.

When it's approved (as is expected), TV stations will be able to use ATSC 3.0 technology within their over-the-air signal coverage areas. The new standard will allow more channels to fit into less spectrum, enabling TV broadcasters to provide a full range of ancillary uses of their spectrum that are not available today.

The standard will allow two-way IP communications between broadcasters and consumers because it's all IP-based. It will deliver 4K ultra-high-definition (UHD) TV signals, with crisp "3D" audio tracks and an assortment of programs customized to the individual tastes of consumers.

Importantly, ATSC 3.0 also allows

REASONS FOR

There are always questions about whether any new technology will actually emerge trouble free. But initial tests have been promising.

Sinclair Broadcast Group and equipment manufacturers showed off some trials at the Consumer Electronics Show earlier this year, successfully producing high-dynamic range, over-the-air 4K UHD TV signals that were picked up by prototype equipment.

Additionally, a Sinclair joint venture with One Media and others, began operating an ATSC 3.0 "single frequency network" (SFN) between TV stations located in Washington, D.C. and Baltimore. The SFN field test has been a success, showing that the full range of next-generation capabilities of ATSC 3.0 do function in a real-world environment.

Sinclair and LG Electronics also transmitted the first-ever broadcast of the AWARN emergency alert technology at the National

highly advanced emergency alerting, such as Advanced Warning and Response Network (AWARN), and other public service capabilities. Broadcasters will be able to transmit content in multiple languages, using the same signal, and provide enhanced closed captioning and other services for the visually and hearing impaired.

What's more, stations can offer advertising targeted to specific viewers, based on demographics, economic classifications and behavioral traits. And it will also allow advertisers to transmit customized messages to specific geographic locations within a station's market.

There are two primary challenges facing ATSC 3.0. The technology is not "backwards" compatible with today's TV sets (although a simple converter would work in most instances). And current smartphones and tablets do not have tuners that can receive ATSC 3.0 broadcast signals.

BUSINESS OPPORTUNITIES

Assuming the FCC approves the new standard (a formal request for approval was filed with the agency in April), the primary monetizing options for ATSC 3.0, at least early on, will likely revolve around:

■ **Enhancements** – in the form of 4K UHD mobile video images for consumers and increased broadcast television viewership through added multichannel capacity

and programming;

■ **Advanced Advertising** – such as geo-targeting, dynamic ad insertion and interactive advertising;

■ **Wholesaling Data Capacity** – which will allow broadcasters to use their spectrum to offload Internet and mobile video traffic from wireless providers, freeing up more capacity for already congested cellular networks;

■ **New Business and Ancillary Services** – including over-the-air subscription-based services, bypassing MVPDs, Internet

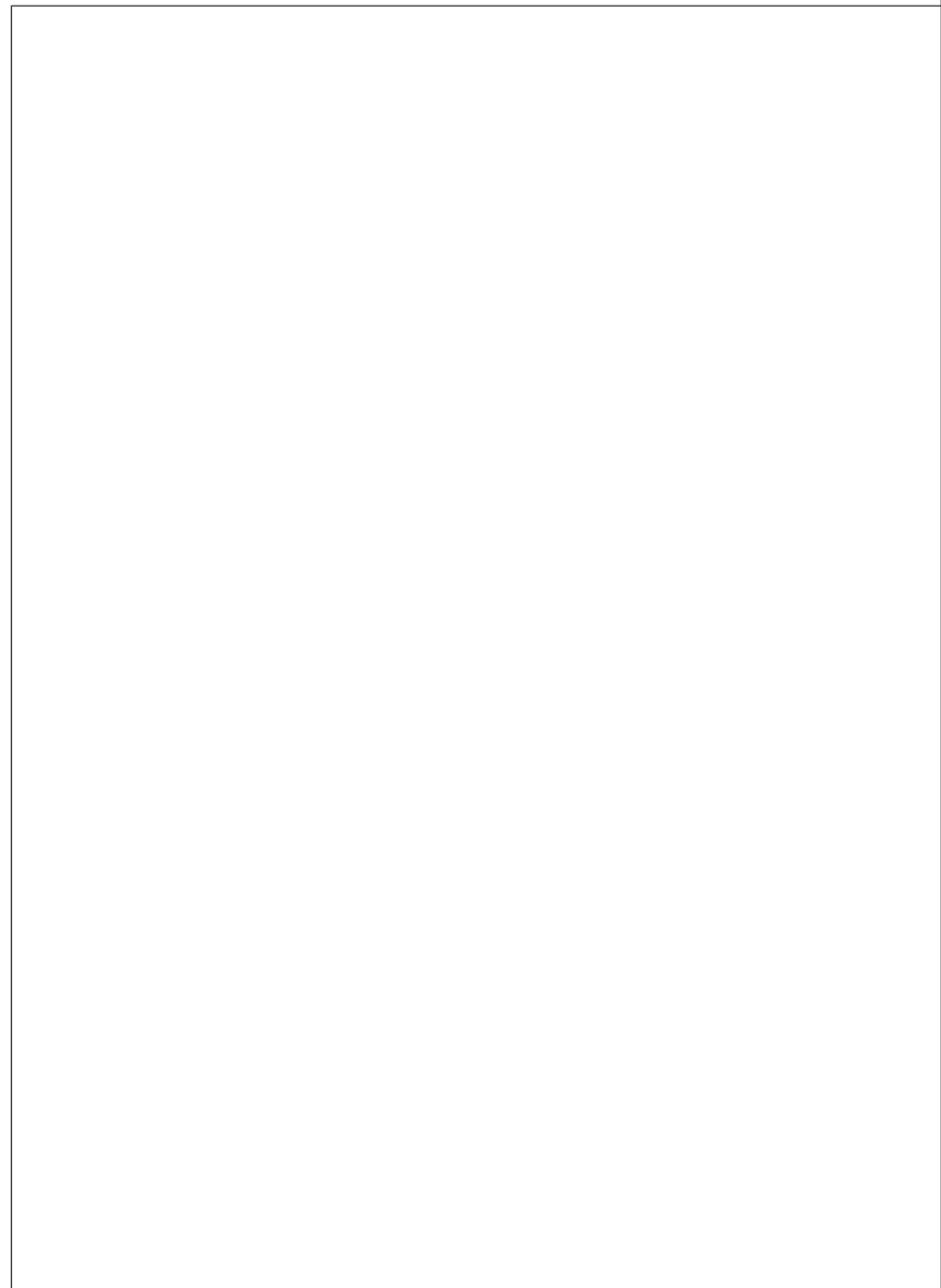
service providers (ISPs) and wireless carriers.

■ **Automotive Connectivity** – such as newer and cheaper services to vehicle manufacturers;

■ **Single Frequency Networks** – strengthening market coverage by sending the same signal to multiple transmitters.

We all know that TV broadcasting is already a big business. According to a recent study by Woods and Poole Economics, U.S. TV stations generate more than \$32

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OPTIMISM

Association of Broadcasters show in April. The alert was received with a simple antenna at the Las Vegas Convention Center and utilized a new LG ATSC 3.0 chip tuner/demodulator.

In addition, equipment manufacturers in South Korea have successfully demonstrated end-to-end transmission and reception of 4K UHD television and HD mobile television signals simultaneously in a single 6 MHz channel.

There is a sense of urgency among Korean equipment manufacturers to rapidly move ATSC 3.0 from the "candidate standard" to the "final standard." The Korean government wants to use the new technology in time for the 2018 Winter Olympics in PyeongChang.

The likelihood of commercial product deployment in time for the Winter Olympics in Korea should provide added incentive for the Federal Communications Commission to quickly adopt ATSC 3.0 in the U.S.

ATSC 3.0—Continued from page 23

billion annually. Another recent study by the Pearl TV broadcast consortium concluded that the TV industry could generate an additional \$12 billion to \$20 billion annually by using ATSC 3.0 technology.

By providing broadcast/IP content directly to consumers using the efficiency of over-the-air TV signals, the new standard will allow TV broadcasters to become an even more vigorous competitor in the distribution of linear digital HDTV programming.

In addition, as mentioned earlier, there are social aspects to consider. The new stan-

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dard's emergency alert service could save lives and the well being of communities, in more vital ways than currently exist.

We have unfortunately witnessed the occasional failure of wireless mobile networks during times of emergency. In those instances, broadcast TV and radio stations become the only means of delivering critical, life-saving information to the public.

ATSC 3.0 signals will allow critical information to be delivered in rich media formats, such as video, still photos, radar images and plume models, and can even cause a powered off device to "wake up" during emergencies.

The standard will also allow simultaneous broadcast of alerts in multiple languages to non-English speaking consumers, and will include advanced closed captioning and other services to assist the visually and hearing impaired.

There's no doubt about it: with the enhanced television 4K viewing experience and IP-based capabilities of the ATSC 3.0 standard, broadcast television will not only improve its signal quality and services, but become a more profitable business competitor for years to come.

Paul A. Cicelski is an attorney with Lerman Senter PLLC. He can be reached at (202) 416-6756 or pcicelski@lermansenter.com.