"The Digital Television Revolution: HD And Beyond"
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It is a pleasure to participate once again in this outstanding Symposium – named for my old FCC colleague and tennis partner, a friend of many in this audience, and a truly iconic public servant: the great Jim Quello. Just last month, Jim achieved a considerable milestone: 95 years of age. As such, he is only five years away from a major celebratory dinner which is being planned in his honor. We can be sure that Chairman Quello will be on hand that night. The only question is: will the rest of us be able to make it – knowing, that if we conk out before the grand event, Jim will never forgive us. So, speaking personally, Mr. Chairman, count me in for April 21, 2014!

Our nation also is now less than one month away from another notable occasion: the end – at least for broadcast-only households –

of analog television, a technology which has well-served our citizens for some 60 years. But, at the same time, we also are ushering in a dynamic new service: digital television, whose development – at least in the United States – began over two decades ago.

In 1987, the FCC established an all-industry Advisory Committee on what was then called "Advanced Television Service". The mandate of the Committee, which I was privileged to chair for 9 long years, was to recommend to the FCC a new broadcast transmission standard for the country, one that would be applicable to cable and satellite as well. This regulatory norm would be designed to replace the NTSC standard which was adopted way back in 1941 and colorized in the early 1950s.

During the course of the Advisory Committee's prolonged life-span, digital transmission was introduced. Unlike Japan and Western Europe, which had spent many prior years in developing advanced analog TV systems and initially were adverse to moving away from them, our Committee immediately embraced the new technology.

As a result, we were able to recommend (and the FCC largely adopted) a tremendously flexible standard that offers American viewers the very best complex of digital services available anywhere in the world.

Today, almost every full-power U.S. broadcast television station is airing digital signals; thousands of hours of dramatic HDTV pictures and sound (the highest form of digital transmission) are being delivered weekly to American homes by a variety of transmission systems; and over 50% of our households now enjoy world-class DTV receivers (with millions more expected to be sold this year and next, at constantly reduced prices).

In all, the development of digital television in our country has been very impressive. And the undeniable reality – no thanks to me – is that we got it right (something, I respectfully suggest, cannot necessarily be said in other areas of the globe).

And what was it that made our DTV effort so successful? First of all, the new digital standard was not dictated from on high by

government officials with a bureaucratic program and timeline in mind. Instead, we relied on the cream of America's video engineering community – whose technical analyses and conclusions were developed in an open, collegial and peer review process (consistent with the Federal Advisory Committee Act). Moreover, their judgments were subjected to rigorous testing – under fair and objective conditions – in both the laboratory and field.

Furthermore, all industry segments and affected parties were able to participate in our activity. And the standard recommended and adopted was based on a competitive private sector process that ultimately evolved into a consensus, best-of-the-best elements, system: the so-called Grand Alliance, comprised of the major DTV proponents in the Advisory Committee process: AT&T, General Instrument, MIT, Phillips, RCA, Sarnoff Laboratories, and Zenith – and which eventually morphed into the so-called ATSC standard.

Now, D-Day – or, rather, DTV-Day (June 12) – lies just ahead, again for homes and receivers served only by over-the-air broadcast

service. Tremendous planning and monumental efforts have been invested by both government and industry alike – including a national "soft cut-off" of analog TV service planned for this Thursday – to make this deadline date a success for our country. And, happily, studies show that virtually the entire American population is aware of the transition. Nevertheless, my guess is that some people (especially in lower income and non-English speaking homes) will be left behind on this key date. Hopefully, we can quickly identify those folks who require help and provide effective remedial solutions. And, in this regard, it is fortunate that video equipment that converts the digital signals back to analog – so that existing TV sets are still useable – should be available for sometime to come after June 12.

Once the immediate transition has been completed, and after all the focus on these so-called converter boxes has subsided, I believe that we should get back to the task of educating the American public on the benefits inherent in digital transmission. We should encourage our citizens to take the plunge – to invest, if they are able

to do so, in new digital television sets which, after all, offer so many viewer advantages and have become so increasingly affordable. There was a reason why our government engaged in industrial policy to put the country through a prolonged transition process, with all of its attendant dislocation and expense. The fact is that DTV is better and, indeed, HDTV is even better.

In this regard, I always have been an unabashed high definition enthusiast. With its tremendous improvement in pictures and sound, my view during the Advisory Committee days was that HD would drive the digital marketplace – and so it has. And, in the years that lie immediately ahead, we are bound to see increased high resolution programming from every delivery alternative. My hope, however, is that signal compression will not be so intense on some systems as to impair the real HD-viewing experience. Fortunately, continuing compression advancements are making it feasible to deliver outstanding high definition pictures and still have digital bits left over for other revenue-generating offerings.

And, beyond the wonder of HDTV, there are a number of other exciting digital services and applications in the offing – standard definition multicasting (for, perhaps, more local news, weather and sports), subscription services, and myriad data and interactive offerings. All of these options have the potential for both added public service and increased revenue for transmission providers. But, given the large number of DTV receivers that already have been purchased by U.S. consumers, a priority of the industry must be – to the extent possible – to insure backward compatibility to existing equipment for these and future digital offerings.

In my judgment, however, the application with the greatest potential for public and industry benefit is mobile and handheld delivery. Here, the fact that broadcasting is uniquely a wireless service will be a plus for the industry rather than a disadvantage (unlike with so many other video innovations in recent years). Indeed, mobile and handheld DTV may provide, in part, an answer to

a key question: what will be broadcasting's place in the brave new broadband world of tomorrow?

Expert work has been invested of recent in the development of a mobile and handheld digital standard for the delivery of real time television programs and data. However, it also can be applied to non-real time DTV transmissions for later playback – playback of news, weather and sports-clips; targeted advertising; and downloaded TV shows, music, games, Internet fare, etc. And non-real time delivery can be made to a wide range of devices (including entertainment systems, laptop computers, cellular phones, etc.).

After all, in today's fast-paced society, consumers – and, especially, younger ones – want to receive content whenever and wherever they can. Moreover, keep in mind that these offerings can be individually customized to meet the needs and interests of different subscribers. Finally, continued advances in low-cost and high-quality storage technology should be a significant element in

expanding the non-real time aspect of the entire mobile-handheld equation.

Looking even further down the road, but maybe not so very far, let me mention one more potential digital television application. Again, it is a throw-back to an earlier age but one, that in a DTV world, may be even more fascinating to the public than it originally was. I refer to 3-dimensional television. Can't you just imagine, for example, a latter-day Vincent Price fighting his way out of a burning "House of Wax," all in glorious high definition 3-D? Today, some digital receiver manufacturers are introducing high resolution receivers capable of displaying 3-dimensional content – content that eventually may move beyond the gimmicks and novelty illusions with which we are all familiar. As such equipment is introduced, program producers undoubtedly will be incentivized to create and deliver more serious and varied 3-D fare.

Associated costs, bandwidth concerns, and the probable need to establish a 3-dimensional broadcasting standard may combine to

slow the introduction of this new digital video genre. But, nonetheless, 3-D does have a magical allure, especially if TV sets can someday obviate the need for viewers to don those rickety special glasses which we all associate with the service. As one expert has suggested, glasses-free (or "auto-stereoscope") displays represent the "holy grail" for 3D. And while development to date has been decidedly uncertain, my guess is – as with all things digital – this advance will happen sooner than may be expected.

As we have discussed, new digital offerings are available via a variety of providers, including broadcasting, cable, satellite and telephone. All of these sources, of course, are subject to differing regulatory models and degrees of government oversight. And, yet, in a digital environment, the services they deliver are becoming more and more functionally equivalent.

Looking to the future, I believe that the FCC eventually will be required to move toward some form of greater regulatory parity between different communications industries and services. In

particular, it is hard to see how free, largely one-channel broadcasting can continue to be heavily regulated under a public trustee model and, at the same time, compete successfully in what is increasingly a subscription-oriented multichannel universe. On the other hand, some critics might argue that a largely deregulated industry should not receive the kind of so-called "special privileges" that broadcasters historically have enjoyed – like cable and satellite carriage, license renewal expectancy, and even free spectrum.

However, the rise of the Internet – which beckons to become the universal source of entertainment and information – has come in the absence of any kind of government control. And, in considering greater parity of treatment among various transmission systems (including the Internet), the Commission ultimately may decide to regulate not so much up but down – that is, less (not more) regulation for all concerned. I recognize that this suggestion could run against the grain for some policymakers but, in truth, technology

eventually has a way of dictating future government policies no matter what party or governmental philosophy is in vogue.

Ladies and gentlemen, Professor Wildman kindly gave me an unlimited time today in which to deliver this humble keynote – and, clearly, I have exceeded it. So, let me close by thanking all of you for your time and kind attention.