
DIGITAL BROADCAST SYMPOSIUM

TREVOR UFFELMAN: Good afternoon and welcome to the Digital Broadcast Panel. This panel is being moderated by Richard Wiley, of Wiley, Rein & Fielding. Mr. Wiley is currently a senior partner and the head of Wiley, Rein & Fielding's communications practice. From 1970 to 1977, he served as the General Counsel, Commissioner, and Chairman of the FCC. He is also the former President of the FBA and the FCBA, and former chair of the FCC's advisory committee on advanced television service, and former chair of the ABA section of administrative law and regulatory practice, the ABA forum committee on communications law, and the Board of editors for the ABA journal. He is frequently named as one of the National Law Journal's Top 100 Most Influential Lawyers. Please welcome Mr. Wiley.

RICHARD WILEY: Thank you very much. There are a lot of "formers" that I have been, but I am actually here today. We are really pleased to have all of you here, and it is an honor and privilege for me to return to Catholic University, the Columbus Law School, with my old friends Harvey Zuckman and Bill Fox.

Ladies and Gentlemen, we are going to talk about digital broadcasting, digital television if you will. In 1987, the FCC became aware that research and development had been going on in western Europe and Japan for nearly a decade into what was called "advanced television." Therefore, the FCC decided to jumpstart the U.S. effort in this area by establishing an industry advisory committee, which I was privileged to chair. I was told that it was going to be a two year effort. Nine years later we turned in our final report, but when you are having fun, who is counting? In 1995, the committee recommended a digital broadcasting standard that was applicable to cable and satellite as well, that ultimately would replace the NTSC standard for analog television (which was adopted, if you can believe this, back in 1941, then colorized in the early fifties). The FCC followed through, in 1996, by adopting a digital broadcast standard largely based on the advisory committee's recommendations. Thereafter, it issued service rules for digital broadcasting and gave broadcasters a temporary loan of a second channel within the televi-

sion band for digital television—with the concept of transitioning the country over a period of years from analog television to digital television, ultimately phasing out the channels we are all watching television on, and returning that spectrum to the public for other uses. The transition initially was designed to end in 2006. We will have to see whether that date is going to hold with our panel today. We also are going to examine the current and possible future state of the digital television transition, the services that digital television may provide, the benefits associated with it, and the remaining problems that our panel may see in the transition. As moderator, I suggest that we proceed in a fast moving question-and-answer format that will allow us to cover a lot of ground rapidly and perhaps more interestingly than talking heads. Now to use that format you basically have to have two ingredients. First, a set of provocative, equally unfair questions, and I got some and I know that you will help me a little later. And second, a group of informed, articulate and fearless panelists, and we have those here as well. So very rapidly let's meet them, and I will be brief because they are very well known.

On my far left is Peter Fannon, Vice President of the Washington office for Panasonic, where he directs the company's legislative and government affairs, particularly in digital television. Before joining Panasonic, he was President of the Advanced Television Test Center, which was the official and futuristic laboratory which tested all the advanced television systems that the industry advisory committee referred to them. He did a truly superlative job. I can tell you that from first hand experience.

Next is Rick Chessen. Rick is the Chairman of the FCC's Digital Television Taskforce, and Associate Chief of the Media Bureau. In my opinion, along with Chairman Powell and his immediate boss, Bureau Chief Ken Ferree, Rick has been the hero in stimulating the private sector to move ahead with the digital transition and guiding the Commission to resolve some of the remaining transition issues.

Next, we have Susan Fox, and Susan is going to be

with us for just one question today, the first question, because unfortunately one of her children is sick and she has to leave. Susan, we are really sorry about that, but we understand. She is Vice President for Government Relations for The Walt Disney Company, here in Washington, a company which, of course, owns ABC. Prior to joining Disney, Susan was Deputy Chief of the FCC's Mass Media Bureau, as it was called then, and was the first and very capable head of the commission's DTV Taskforce, the one that Mr. Chessen now heads.

And then we have John Lawson, who is President and CEO of the Association of Public Television Stations, an organization of over 350 stations strong. John has been extremely active and very effective, I know, in guiding the non-commercial stations' convergence to digital television, and helping them explore the various uses of digital technology.

And last but not least, Mr. Michael Godwin, who is the First Deputy Counsel for the Electronic Frontier Foundation. He was also counsel of record in *Reno v. ACLU*. Michael is now senior technology counsel for Public Knowledge, where he specializes in technology policy, including copyright, and, of course, the DTV transition.

So, Susan, I promised you the first question and here it is. I said that I thought that the digital television transition was making progress. Do you also sense that it is finally beginning to make a real move in the marketplace and, if so, why is that happening?

SUSAN FOX: I do. I think that the only possible thing that is harder than keeping three children moderately healthy during cold and flu season, is getting all aspects of the digital television transition actually moving at the same time. You can see that fact with Disney-ABC where we are both a content provider, obviously for the ABC network, but we also own television stations. We are also a content producer in that we make movies that we hope to see aired on television over-the-air for free. I think that over the last eighteen months, due largely to the efforts of Rick Chessen, Chairman Powell, and Ken Ferree, there really has been an agreement that everyone will take a step forward, coupled with everyone's own commercial reasons. The broadcasters, I think, see the very

real push from other potential users of their spectrum coming at them fast and furious. Our spectrum is limited and there are real demands from wireless and other users to get that spectrum. We know that we have got to use it and use it well. The other entities have their own competitive pressures. Cable has competitive pressures, vis-à-vis satellite. My view is that over the last year there have been big changes, certainly since the time that ABC started airing Monday Night Football in high-def because we did it for a season and then we didn't. Coming back on the air in high-def this year was a huge difference. We are now airing a ton of high definition programming prime time, special events, and we even aired the State of the Union Address in high-def. I am not sure what demand there is for the State of the Union in high def, as opposed to the State of the Union in analog, but it is a statement that we are actually going towards general programming being aired in high-def which I think is important. Obviously, there are a lot of perspectives on these issues and this is something that I will miss this afternoon, especially quibbling with Mike about content protection. We were also appreciative of the FCC's efforts throughout the fall to enact the broadcast flag, which will only prohibit free content coming over the air from being redistributed over the Internet, and it won't affect folks' home copying. We think that will have a positive effect as well. As you may or may not know, broadcast television shows are available on the Web, can be file shared and that will only increase, particularly with the high quality of high-def signals. The only other thing that I would say is that I think we are now at a point where everyone has moved forward a step. We are probably waiting collectively for the next round of FCC decisions, which I know John is very active in and obviously Rick is. At that point, I think hopefully that we will see another giant leap that will get us closer to the finish line. I do apologize very much for having to leave, so thank you.

RICHARD WILEY: Thank you. Let us give her a round of applause. (Applause). Good luck, Susan, at home. I am sure that everything will be just fine. Well, our panel is going to be much less attractive now and much less diverse, but we are going to be friendly at least! I will put questions to particular panelists, but I would like to invite other members of the panel to join in if they also

want to comment. Peter, is HDTV, which has a picture quality some five to six times better than analog television, going to be the “killer app,” so to speak, that everybody has been looking for, in digital television?

PETER FANNON: I think that is a fair statement. In fact, I think that it is the only “killer app” for the immediate future, even though the construction of the digital platform through other media make other things possible. Especially interactive programming possible on those media like cable that currently have a two-way connectability. The reality of making all of those things work in a really easy, sort of, transparent way for consumers is very difficult, as twenty years of experimentation has proved. So while interactive programming, and all kinds of additional things above and beyond traditional programming in very high quality, like HDTV, will come, I think that HDTV is the driver. Certainly, my company sees that as the driver currently for people to buy into new television sets. Because now, of course, the screens and displays can truly show the real value that is being transmitted over the air through cable or satellite.

RICHARD WILEY: Mike, did you want to comment?

MICHAEL GODWIN: Yes, I think that Peter is right, HDTV is certainly going to drive the transition more than any other variety of digital television. But I think that it is television, plus time shifting and other kinds of uses consumers make with increasingly digital video recorders, personal video recorders. One of the things people are going to do when they invest in the more expensive digital televisions is to decide how they are going to get the return on that investment, and one way to get the best value for their entertainment dollar is personal video recorders. This actually brings up what Susan alluded to, which is the content protection issue. I think that one of the things that we have seen is that the content providers are very uncomfortable with the range of uses that people have begun to make of the television that they do timeshifting on. So we are going to see an increasing tension. I think that we are seeing it in further FCC proceedings, and we are going to see increasing tension between consumers and the content companies about content protection technologies that may restrict what people

may do with television content more in the future than they are today.

RICHARD WILEY: Rick?

RICK CHESSEN: I agree with what people are saying, that HDTV is certainly a “killer app,” but I am really hopeful that digital is so much more than that, as everybody has been saying. That there is going to be additional “killer apps” in the future. Nobody has mentioned multi-casting yet. I think multi-casting, in certain situations, is going to be very attractive to people, in news, fast-breaking situations. There has been one set of broadcasters in Utah, that are putting together to provide basically a multi-channel video service, a pay service. Something like ten or eleven of the most popular channels are being provided over the air using multi-casting capabilities. I am a big believer in interactive, eventually. I just think that it is a question of when, and not whether. I think the infrastructure gets deployed and the set top box capabilities are set up, and the net connectivity increases, and as the generation, frankly, behind us, gets to adulthood, interactivity is going to play a bigger and bigger role, and the real benefits of digital are going to increase exponentially.

RICHARD WILEY: John, when I was running the advisory committee, one thing that always impressed me was that non-commercial stations came to me and said their vision was, during the daytime, multicasting in which they could divide up the bits into four or five channels of quality similar to what we have today. And then at night, perhaps, high definition for the prime time audience. Is that still the vision of public television?

JOHN LAWSON: It is certainly a large part of it, Dick. I recall asking Mark Richter, our friend who runs the ATFC now, years ago, which was going to be successful—high definition, multicast, or data-casting the PCs. And he said, they will all co-exist and they will all be successful. We are in a period of experimentation right now, where bigband for high definition, particularly for prime-time, but we are staking out new territory. We are moving to multiple program streams in the analog world. For example, WETA, here, has to make a very difficult choice between serving kids, or seniors, or K through 12 education, or post-secondary education. That goes away. So multi-casting will defi-

nately be a part of it. I am sure we will talk about cable carriage in a moment. The really exciting thing that we are finding is data-casting. Where you use the ATSC-6 signal. It is a lot of bandwidth, 19.4 megabits/second, to reach PCs. It is an incredible point to multi-point distribution technology. That is really what DTV is. It is a wireless data distribution system. There is commercial off-the-shelf technology—tuner cards, and antennas to allow you to send big amounts of Internet protocol data over the air. Our stations are pioneering the use of that for education, workforce training, and there is obvious implications for homeland security and emergency communications.

RICHARD WILEY: Now Mike, if broadcasters were to use all the bits for multi-casting or data-casting, do you think that there should be some enhanced public interest obligations on broadcasters beyond the public interest mandate that normally is required of broadcasting?

MICHAEL GODWIN: I don't think that there should be an enhanced public interest obligation. It is not normally how I think about it when we come to the question of multi-casting. What I find myself thinking more often is that there is sort of a different role that multi-casting plays for the public television stations than it does for the commercial networks. This is because the commercial networks are competing for eyeballs in a way that the public stations are not. I think that what the public interest part of public television has been is that they are going to be at the cutting edge of experimentation with multi-casting precisely because they are not, when they engage in multi-casting, they are not competing with themselves for audience and eyeballs. They are actually experimenting with different sectors that are not quite so driven by the need to rack up Nielson points. So to me, the public interest obligation falls, in the multi-casting area, in terms of allowing the greatest degree of experimentation possible for our public television stations.

RICHARD WILEY: I would have asked Susan this next question, but I will put it to John Lawson. Broadcast, cable and satellite networks are transmitting a lot of digital programs today, particularly in the high definition format. We see it more and more with each passing year. The television networks are basically doing most of their

prime time in high definition. But local broadcast stations are only primarily passing through that network programming, at the very most. Very few stations are actually originating digital broadcasts. Do you think that is going to change, John, in the future? And how important would that factor be to moving the digital transition along?

JOHN LAWSON: I think that it is changing. In fact, our stations have raised and spent about \$1 billion for this digital transition. Most of the money came from state governments. Private sources. The federal government is finally stepping in and picking up where the states have left off. The initial requirements from our stations were transmitters and towers and the nuts and bolts of getting the signal out. We monitor this very closely with our stations, as their advocates here in Washington. There is a huge interest in high definition cameras, in studio upgrades, in everything in the production chain you need to do for local production in high definition. I am telling you, as Peter knows, our stations are getting great deals on these cameras. Production costs in many ways are dropping. Post-production is still cheap. I think that we are going to see a rebirth of local programming from public television. Partially it is driven by the need to fill up these multi-cast channels. I also think that the HD itself, and digital interactive capabilities have created a lot of interest in our production community and our stations to really leverage that technology. So, I think that we are going to see more and more high definition, not only produced locally and aired locally, but swapped around the country.

RICHARD WILEY: And you think this is true with commercial broadcasting as well?

JOHN LAWSON: I believe so. I have high definition. I have had it for four years. I don't find the State of the Union address boring, and I actually thought that it was better in high definition. My thing about the local news is, and public affairs, which is the thrust of local programming for commercial stations, high definition allows me to tell more easily if a public official is lying to me (laughter). I think that consumers are going to demand it.

RICHARD WILEY: Peter, through the last seven years since we adopted the standard, there have been a lot of disagreements on the standard (scanning, formats, modulation schemes, etc.). I won't go into technical details. But now after all of that has been concluded, ATSC, the DTV standard setting body, is considering a modification of the standard to help indoor reception and portability or mobility, if you will. Is that going to be a good thing, or could it possibly cause more confusion? Perhaps diminish HDTV, and maybe slow down the transition? What do you think?

PETER FANNON: I think the answer to that is "yes"—literally, it is good news and bad news. The great news about digital is, of course, that you now have disconnected the capability of doing certain things, including in the transmission and what you have at home, from the original source. In the past, it was the exact same mechanism from the camera to the screen in the home. But now they are separable, and you can manage that data stream, as the others have implied here on the panel, in just about any way you wish. And you have a giant broadband pipe to do it. So, it is not surprising that as technologies emerge and new notions come along about services that you want to either change or enhance what is already there. I think that the challenge always is, not just for digital television, but for any medium, and any larger standard setting activity in industry, to be sure that you don't disenfranchise or undercut what you started—with not just good intentions, but for all the right [public policy] reasons. So the ATSC, in this first step for enhancement, has adopted a voluntary add-on mechanism, something that could conceivably, if used [to its maximum extent], sort of clip off the edge of HD quality in a given channel. But, the reverse of that is also true. The more things advance, the more quickly we will be able to find ways to transmit multiple streams of HD, which are currently possible for maybe two or three, if they are film-based, for example, in a single channel and alternatively, five, six or seven [standard definitions channels]. That is going to match up quite soon with the ability in the home to distribute high definition quality, not just one signal around the house, wirelessly or wired, but as many as eight or ten of HD quality simultaneously.

RICHARD WILEY: So you are saying compres-

sion is going to continue to allow us to have more . . . services?

PETER FANNON: Indeed, yes. When these things actually come together, I think that you will find an extraordinary burst of energy and application of R&D to exploit that among programmers, among distributors, among competing service providers, and certainly among manufacturers who are pretty competitive as it is . . . down to that one percent return on investment.

RICHARD WILEY: Mike did you want to comment on this?

MICHAEL GODWIN: Yes, I think that one of the things we are seeing is, to sort of answer your question, is that the adoption of HD has been uncoupled from the broadcasting standard. I think early adopters, the people who are picking through, and increasingly the mainstream of America who are buying these HD sets, are buying them often to hang off of cable systems or home entertainment systems, you know connected to satellite, or even just to watch DVD. So what you have is sources of content that are not broadcast sources of content that are driving—I think more than the broadcast standard is—the adoption of HD as a medium. HD as something of an entertainment preference. That is not to say that ATSC is not doing the right thing by improving upon its standard. I think, in fact, that it is doing the right thing because there have been some glitches in trying to get reception as reliable as we want it to be, especially indoor reception. I think one of the advantages of the fact that people are receiving their television content more through cable and satellite has been that as ATSC improves, it is not going to be a real hitch in the DTV transition. I think it will probably be absorbed without any great difficulty.

RICHARD WILEY: Peter did you want to add something?

PETER FANNON: If I could make a comment. I agree with Mike. Just to put a number underneath it, in the first five years since '98, since August of '98, when the transition effectively was officially launched with the first HD set from Panasonic. And, the first set top, from Panasonic. And, the first switchable HD camera, from

Panasonic. But anyway, just under ten million units of DTV equipment were sold. That is, displays capable of displaying better than conventional TV, all the way up to HD or set tops in some combination. The estimate from the industry is that this year alone, nearly six million additional units will be sold. So we are definitely at that tipping point, or curve in the hockey stick, whatever you want to call it. And I think, as Mike implies, an awful lot of things have come together, as the others have also said, to make this a giant leap forward year for DTV.

RICHARD WILEY: Okay.

MICHAEL GODWIN: Dick, there is one other thing I want to add, and that is that the . . . you talk about compression, and it is really important to remember this. Right now we have a standard that accommodates both interlaced and progressive broadcast. I think that as compression improves and we try to find more ways to squeeze more content into the pipe, you are going to see an increasing shift towards a progressive signal, because it is relatively difficult as a technical matter, it is comparatively difficult to compress interlaced, however.

RICHARD WILEY: Through the scanning lines, as the audience may know, the television picture is delivered, and, worldwide, the format has always been interlaced. Because of the possibilities of having interaction with computers, we also wanted to have progressive scanning. Because a digital set can receive both interlaced and scanning formats, the format really is invisible to the public. Rick Chessen, the last year has really been, I think, a watershed year at the FCC. Chairman Powell, a year or two ago, came out with a plan to move the transition along. Since that time, Rick's task force has been sending up to the Commission a whole bunch of different recommendations that the agency has acted on, to its credit. We have seen the DTV Tuner Mandate. We are still selling twenty-five million analog sets a year—they are going to be around for a long time. So the Commission's idea was to put a DTV tuner in all larger sets, so that they would be digital from the get-go. That has been decided. A second major decision was "Plug and Play," the idea of having integrated sets, so consumers can buy sets, take them home and plug them into the

wall—without set top boxes, just as we do in the analog world. Most recently, there has been the "Broadcast Flag" ruling, to insure that broadcasting programming over the air, in the clear so to speak, isn't "Napsterized"—and put on the Internet for wide distribution. Despite all those wonderful steps forward, there is at least one key matter that remains undecided—"digital must carry." In the analog world, the Supreme Court has said that cable has to must carry local broadcast signals up to certain capacity limitations. But with digital, there is no such finding so far. So when can we expect a decision?

RICK CHESSEN: Ah yes, the timing question . . . Just to give you a little context here. The Commission did make a comprehensive cut at "digital must carry" a couple years ago, in early 2001. The Commission adopted a must carry item that addressed a plethora of issues that are at stake here. Everyone of those issues was the subject of a petition for reconsideration, which is now what is pending before us. There was a hope that the industries themselves could get together and narrow the issues if not decide the issues and come together with a solution. That apparently is not going to happen, so the Commission is now prepared to move forward on our own, and make some decisions that maybe people aren't going to like. But it is up to us to make them.

RICHARD WILEY: Without telling us, what specifically is going to happen—which you can't, I know—can you lay out what are the key issues, the key problems that you have to solve to make this kind of decision?

RICK CHESSEN: Sure. There is sort of two clumps of issues. One is transitional carriage issues, and the other one is digital carriage issues. At the end of the day . . . There will be "digital must carry," and the question is, at the end of the day, what will that look like? The transitional issue is . . . During the transition, until they get back one of their channels, is there some requirements of the cable systems to carry both of these signals that the broadcasters are currently putting out, both the analog and the digital. So, the most extreme version of that would be immediate carriage of both. And, that is called dual carriage. A couple of years ago, the Commission tentatively found that, it was unconstitutional under the First

Amendment. And what makes this whole area very complicated is that you are operating on all these different levels. The statutory level, where there is a statute we have to deal with. The constitutional level, which the Supreme Court addressed in *Turner*, and there are policy issues. Beyond the immediate dual carriage, there is lots of potential phasings over the transition that people have come up with—about when cable operations have to start carrying a digital signal, which system should have to carry it, etc. The other clump is the digital only issues, and that, I think comes down to the question: In the digital world which bits are going to be required to be carried by the cable system? It is more complicated because in analog we have one video screen, and you carry it. In digital, you got, can you strip out some bits if you can't tell the difference in the picture quality? Or is that degrading the picture? It is technically possible, but should they be able to do that? Program related . . . Interactive data that they want to send along to purchase bits, you know, click here, is that going to be required to be sent? So, we have all these different permutations in the digital world that we didn't have in the analog world, that really, each have to be analyzed on all those different levels. And that is what makes it so complicated.

RICHARD WILEY: And, is it possible that cable would have to carry, let's say all the multi-cast programs, that John Lawson's stations might put on?

RICK CHESSEN: Multi-casting is one of those issues that has come up. There is a statutory requirement that the cable operator carry the primary video of the broadcast channel. And two years ago, the Commission found that primary meant one stream. It did not mean multi-cast. If you carry six streams, you only had to carry the primary one. And primary meant a single one. Since then, the broadcasters, including APTS, have come in and argued strenuously that sometimes primary can mean more than one, or it is more ambiguous than the Commission found before, and so therefore, you should pass the statutory hurdle, which drops you into the constitutional bucket. We have had lots of fights about whether multi-cast "must carry" six streams from each broadcaster would be constitutional under the First Amendment. We have had filings from Professor Tribe, at Harvard, and responses from

the broadcasting industry on the constitutional perspective. And then you've got policy arguments about whether broadcasters should have six streams carried when there are other cable networks out there who are looking for carriage, or whether there should be a marketplace . . . negotiations for carriage of those additional streams. The broadcasters say cable still has the ability or incentive to discriminate against us, for the same reason we needed "must carry," we need them to carry all of our signals because it is not a fair negotiation.

RICHARD WILEY: That is a good layout. Mike, wouldn't an FCC requirement for cable carriage of the entire six Megahertz channel encourage broadcasters to experiment with multi-casting and data-casting?

MICHAEL GODWIN: I think that it would. But I think that the constitutional hurdle is a pretty stiff one to leap. I was a constitutional lawyer before I got into this television stuff, and I think that the must carry problem is a particularly difficult problem. As a pure policy question, I think, sure, if your goal is to continue encouraging people to use the broadcast system in a maximum possible way. Of course you want to maximize the audience even for non-commercial television. There are countless reasons to do that. That is an argument for must carry of multi-casting. You know, one of the things that Rick was careful not to indicate was how this was going to come out, and I think that the reason the Commission has been a little bit slow, deciding how it is going to handle this ultimately, has been for the constitutional problems perhaps attached to all of this.

RICHARD WILEY: John, do you think in making that decision, that the Commission might want to distinguish between commercial and non-commercial stations on this whole multi-casting issue?

JOHN LAWSON: Well let me introduce Andrew Cutler, our Associate General Counsel, who is much more qualified to speak to this issue than I am. Let me say, that we have long advocated that the Commission carry all of the digital signals of all of the broadcasters. We still advocate that. It is the only way that the digital transition is going to get done in anybody's lifetime. On the other hand, we have made the case, repeatedly, to

Michael Powell, and the other Commissioners, the staff, to the Hill, if that January 2001 decision on primary video, which was made before Michael Powell's chairmanship.

RICHARD WILEY: Primary video, one program?

JOHN LAWSON: Right. If cable only has to carry one of these programming streams that we put out, it will be fatal to public television. If you want public television to go away, then leave that ruling alone. By that I mean, we have raised a billion dollars for this digital transition. Half of it came from state legislatures. That money was raised on the basis for explicit plans for multi-cast channels. If at the end of the day, we have these Taj Mahal digital facilities, built at great cost—and all of these promises we have made to these legislatures, to the public, to Congress, to deliver these new services are negated, because we can't raise the content money. We can't raise the money for the content, because seventy percent of the audience is not going to be able to see these services. Who would invest in that? So we say, tell us what is primary, and tell us what is secondary. Are our kids secondary? K12 education secondary? Public Affairs? So, we have said that this is not only a life and death situation for us, but we believe that there is a statutory basis for what we call PTV now. If these issues for the commercial values are going to take some more time, we would like the Commission to make the decision now. There is a lot of legal arguments you can make, but it really boils down to this—the NAB and MSTV, right before Thanksgiving, filed their own digital transition carriage plan, and a lot of it was based on re-transmission consent. They can withhold their signals from cable. We don't have that. Cable has compulsory copyright to anything we put out. We can't withhold that signal. But what we got in return for that was guarantee "must carry," and we are saying, to the Commission, you have to honor the spirit of the law, and go ahead and make the decision to make sure that we are carried.

RICHARD WILEY: Rick, very quickly, can you tick off, beyond "must carry," what other transition issues remain to be determined by the Commission?

RICK CHESSEN: Sure we have lots on our plate

besides "must carry." We have coming up our decision in our second periodic review of all of our digital television rules, which is a sort of soup to nuts review of all of the rules in place. The big rules there that are being decided—is when do broadcasters have to go to full power or lose interference protection. The Commission had a policy in place where some broadcasters in smaller markets could come on the air at lower power, and then increase as transition continues. This is when we are going to set that deadline. Also, in that rulemaking, there is something called the simulcast rule, which basically requires broadcasters to, on an increasing basis, provide the same content on their digital stream as they do on their analog stream. The idea is that eventually if you want to turn off that analog stream, people better be able to find that same content on their digital stream as they have on analog. Some people have said this is a hamper to innovation. Some people, like Mark Cuban, who has an HDTV channel, and would like to provide it to broadcast stations, is saying that he can't sign up broadcasters because they are afraid they are not going to be able to meet the current simulcast requirement, because his high definition content is just going to be on the digital channel. So some people are asking us to do away with that requirement. We've got a proceeding going on out there, everything we have been talking about so far only has to do with full power broadcasters. There are thousands and thousands of low power television stations out there and television translators, which basically take the whole power signal and transmit it to remote locations. Especially out in the western mountainous areas, this is a lot of times how people actually get their TV service. None of what we are talking about, none of the rules applied so far, have anything to do with those stations. How do those stations transition into digital? How do they do it technically? How do we find a spectrum? What rules will they have to abide by? That is a big proceeding that is going on. We also have, Dick mentioned Plug-in-Play, so far, what we have on the books, is a one-way Plug-in-Play world, where you can actually plug in your cable and get one way digital programming. We all want to get to the world where you plug in your cable and actually get interactive cable programming, which the current rules don't cover. Negotiations are starting between the Cable TV industries and

others on a two-way agreement and that is something we are going to be following very closely. And the final thing I mention, I guess, is in the broadcast flag, and in Plug-in-Play to some extent, we have set the rules in place, but the particular content protection technologies are not yet approved. People are going to be coming to the Commission and making applications to use their particular technologies with the broadcast flag system, and that is something that the Commission . . . hopefully we are going to get lots and lots of applications from different technologies competing. And, that is something that is going to take a bit of our time.

RICHARD WILEY: Now 2006 was initially planned as the end of this transition. The problems we have talked about, and others, may have slowed down that date. But now we are seeing real progress in the DTV marketplace. Mike, could 2006 still be a possible date to end the transition and get back that valuable spectrum?

MICHAEL GODWIN: Well, I think the short answer is that everybody knows 2006 is not the date. We haven't gotten anything like the adoption in the various broadcast markets of HD technology to support that transition. I think one of the things that, speaking on behalf of both technologists and consumers that I have been interested in, is to see the extent to which that transition can be advanced by the increasing role of information technology companies in providing HD platforms. I think that we have seen in the last couple of years, we have seen everyone from Gateway and Dell to Microsoft, really begin to experiment with ways to deliver digital television. I think one of the things that we have also seen, in an ongoing way, has been a tension between the content companies and information technology platforms; this actually filters back to the bi-directional rulemaking which I think that we are going to see the stuff surface yet once again . . . too many of the content companies, computers are WMD—they are weapons of mass distribution. So they are very reluctant to let computers be part of the playing field here, and that is actually slowing down the transition, only because the computer industry, even more than the CD industry, has been driving new display technologies. They have been giving you more bits and more ways to do things with bits. It is very, very exciting but I think that there is an

impulse on part of the content companies to struggle over this. To try to put up sort of a Chinese wall between content delivery and what people can do with it when they get it, and that is actually slowing the transition.

RICHARD WILEY: Peter, would the end of the transition be expedited if there were the availability to the public of low cost boxes that could convert digital signals back to analog? That may seem a little anomalous. But if we think of those millions and millions of analog sets that we don't want to throw away; and if there were boxes that we could buy for under \$100, let's say, that could convert digital signals back to analog and allow us to still use our analog sets, would that help?

PETER FANNON: Sure, that is part of it, but frankly it is not the magic bullet in my personal view. It might be sort of the last mortar that goes in when you are finishing up the building. Ultimately for example . . .

RICHARD WILEY: You mean the last ten percent or so?

PETER FANNON: Well, the last very modest percent of the population. It is also true that, of course, you are not going to throw all those sets out until there is no off-air use or no other services [such as VHS or video games going] into those existing sets—even though you will need some particular device for getting the new DTV signals into that old set. If it is off air it will be some set top, like it is for cable or satellite already. Practically speaking though, there is an example in Berlin, which last Fall did flip the switch after a couple years of thinking [and several months of] preparation. A so-called "hard switch," and at that stage the Berlin government, backed by a teeny bit by the federal government in Germany decided to subsidize the folks who couldn't afford it, not the hold-outs or those who literally didn't know about it until the night before. When all is said in done, however, don't confuse German off-air television with American. In Berlin, ninety-two percent of the population didn't have off-air; they don't rely on off-air in Germany. They rely much more in France, for example, but it is much less than fifty percent in almost every other western European country, and falling fast, similarly, in

eastern and central Europe. There are certain issues that we can look at and study in fact . . .

RICK CHESSEN: They don't do high definition programming, which obviously makes it easier . . .

RICHARD WILEY: No high definition in Europe?

PETER FANNON: Exactly. So it is a piece of the puzzle. I think what is important is the magic of digital makes lots of things possible. In that same sense, let me come back to that notion of "must carry." Not specifically to the issue of what is carry, but if you bought a television set and it currently works today doing X, Y and Z, and that is why you bought it, if the Commission's action on "must carry" limits it to doing X and cuts off Y and Z, like it did when picture in picture was cut off with the original cable ready standards in the analog world when you put a set top box on it, then you are in big trouble. Then you have a giant consumer backlash. In effect, this isn't just a "must carry" and government issue, it is actually an all-industry issue—you have in effect a backlash against just what you are trying to promote. The government asks everybody to buy in early and soon, and that is why copy protection cannot cut off not only the early adopters but any people who have product today. You can't stop people from using what they purchased in a way that they expected the property to work. So, whatever happens in that particular arena on "must carry," consumer manufacturers, computer companies, others who want to hook up to cable and everything else with their products, want to be sure that what they design into the products goes on working. And, that is just another layer of complexity, which obviously Rick couldn't get into all of the details of it, but it is a truly difficult issue. It is a major consumer issue.

RICHARD WILEY: John, did you want to comment on that?

JOHN LAWSON: Yes, our Board, the Board of the Association of Public Television Stations, directed us in the fall, to develop a plan, under which our stations could embrace a hard date to turn off analog broadcasting. We are impressed by what happened in Berlin. We are impressed with the galloping success of the digital preview service in the UK. For us, turning off analog is

both a goal and strategy. The goal is that we would save \$36 million a year in just electricity costs through just running these analog transmitters. I was in Allentown, Pennsylvania. They had ninety-three percent cable penetration. At what point does it become cheaper to just give everybody over the air a box and you save enough money to pay for them by turning off analog?

RICHARD WILEY: And would you do it, or would the government do it?

JOHN LAWSON: Under that equation, we could give it. But the other part of our plan, the strategy part is that we have to have cable carriage, we have to have some accommodation with digital satellite. We also believe that if we could guarantee the government that we would give back the analog television spectrum we control, twenty-two percent of the total, this is beachfront property, we might be able to keep some of it, frankly, and create a trust fund—something we have wanted since LBJ was in the White House. Even though we would say, let's keep the proceeds, and also, by the way, subsidize set top boxes for poor people, the ripple effect to the economy and for the government in terms of tax receipts of freeing up all this spectrum and putting them to the new uses that are being discussed this morning, I think would be enormous. Under that scenario, if we accept that this transition really is industrial policy—which is a dirty word to some—if the government and broadcasters and we get in this thing together, I think that we could turn off some markets by the end of 2006.

RICHARD WILEY: Mike, I want to give you a chance to comment. The deal was always that broadcasters got the second channel as a temporary loan that very valuable spectrum was being used for analog television which we wanted to get it back to the public; then auction it off for other uses and get the money to the government. How would you feel about John's plan, particularly if it were extended to commercial broadcasting?

MICHAEL GODWIN: Well, I think . . . I am totally against people getting to keep the channels. I think that a deal is a deal. We loan you those channels to do the transition and when the transition is over, you have to give them back.

RICHARD WILEY: Why am I not surprised.

MICHAEL GODWIN: You know . . . I don't know . . . A deal is a deal. This is playground law. I mean it is a thing that you know when you are standing behind home base. The thing that I think that you have touched on, that Peter has touched on that adds a level of complexity, is the content protection stuff. It is taken widely as a given, by a lot of policy makers, that digital television is more subject to piracy than analog television is. That, as a technical matter, is simply false. In fact, the converse is true. Analog television is more subject to piracy than digital television, including piracy over the Internet. Because you can re-digitize analog content. So, to the extent that you are number one, perhaps concerned about content protection, and number two concerned about promoting the transition, it seems to me that the things that allow these goals to converge is to push for cutting off analog broadcasting on a sooner date, and lets move to HD broadcast, lets move to a lot of digital broadcast, which are bigger, they are harder, they need to be compressed before they can be moved around on the Internet, they are not more subject to piracy than analog television, and you remove a level of technical complexity, which is actually mucking up a whole dimension of the Plug-in-Play process, and certainly infected—from top to bottom—the broadcasting flag process. And Rick knows I have been a strong critic of where the Commission has gone with that. Free over-the-air means free over-the-air. We gave the spectrum to broadcasters to do things with it, to find ways to make money, they can do that. Not all of it has to do with controlling what kinds of consumer electronics people have. The fact that people copy programs or share them or put them in their PVRs ought to be something that broadcasters see as an opportunity, and not as a problem, and the same thing goes with the content companies. That is going to take a revolution in how you think about broadcasting that I think hasn't happened yet. I think that is unfortunate to see the process with Plug-in-Play, with the digital transition slowed down, because of what I think are misconceived concerns about content protection.

RICHARD WILEY: Rick, is that right? Do you think the lack of an all-industry agreement here, for copy protection rules, is slowing the transition?

RICK CHESSEN: No, I think that what the FCC has done is going to help quite a bit to insure that the content continues to flow. I heard what Mike said about recognizing the different nature of broadcasting, and I think that our rules, in fact, do that. With broadcast flag and the Plug-in-Play context, we insure that consumers can make as many copies of broadcast content as they want to within their homes. There is absolutely no restriction on making copies of broadcast content. Hopefully, we will even have ways of using the Internet to distribute what they use to send copies of broadcast content to their beach house, to their office, whatever, if you can come up with those technologies. The only thing that we want to guard against is the mass redistribution over the Internet, piracy so to speak—the same thing that happened to the music industry—to happen in the video industry. That is all our rules are designed to protect against—not these kind of regular uses that consumers expect to make of the broadcast content. So, I think that it is the line we are trying to draw.

RICHARD WILEY: Peter, do you want to comment on that?

PETER FANNON: Consumer electronics manufacturers, of course, often feel themselves caught in the middle. This month is the twentieth anniversary of the Supreme Court's *Betamax* decision. A decision that says, in so many words, that if a product has legal uses, it can be sold, even if it has other uses that are deemed inappropriate. That decision has been coming under stronger and stronger attack, all under the guise, dare I say—and Mike please jump in, you are the attorney, not I, but given the so called difference of the digital world where in fact the notion is still correct. You should go after the criminals, you should not go after the device. Nevertheless, the vast majority with very few exceptions—one big company is a single outstanding exception—but the CE [consumer electronics] manufacturing community agrees that the idea of the broadcast flag is a plus, it's sole purpose being to limit redistribution over the Internet, unauthorized redistribution. [Panasonic], along with a handful of others, has over the last eight or ten years tried to step into the mix, at considerable risk obviously to our products reputation, in order to find solutions

that would reasonably protect and certainly respect copyright owners' interests. Because it ultimately is true that if everything is digitally interconnected then it is easy for so-called leakage, if you are a content person, to become a significant problem. In the process, I think the FCC took a great step when they adopted Plug-and-Play and included the so-called encoding rules. For the first time, you have the FCC accepting responsibility and the government blessing such rules and we hope that Congress will ultimately come back and reconfirm this. [The encoding rules mean that] everybody knows what happens with a given kind of content. There are no surprises, nobody is able, after the fact, to switch off the DVD recorder, although because, they didn't like what we were going to do with certain content. Even more importantly, as the others have said, the two ways to stop it, really gets technically complex, but ultimately, the goal that everybody is going for is the ability to exploit the full underlying value of the digital revolution. That is going to require reasonable protections, reasonably implemented, with government [enforcement] backing.

RICHARD WILEY: Mike, I know you want to respond.

MICHAEL GODWIN: Yes, very briefly. The reason we have the encoding rules, the reason the Commission has laid out a landscape of how many times you can copy certain kinds of programming, whether it is limitless copying, or some kinds of limits on the copying. It is all because of Sony and the VCR. Twenty years ago, which the content companies believed was flatly illegal, they flatly opposed and tried to shut down the VCR industry, and the whole time-shifting phenomena, as well as shutting down the ability of people to archive television shows, and certainly to share television shows with each other. The very understanding that we have about what you can do with television when you record it was built on something that was believed to be illegal twenty years ago by the content companies. Now, they are saying the broadcast television that we record has to be restricted in certain ways, has to be restricted according to understandings that we have developed over the past twenty years. But what about future uses, like the VCR and the videotape after market, ultimately generated immense profits and immense streams of revenue for content makers?

What we are doing is closing that off. We are trying to lock down technology to basically a 1986 standard, or 1990 standard, and I think that is a terrible, terrible mistake. Especially when the case has not been made that the digital content is more prone to piracy.

RICHARD WILEY: But in fairness now, if you are a creative individual, you develop a program, and it goes over the Internet, don't you lose the value of your creation?

MICHAEL GODWIN: In fact you may not, because one of the things that happens, for example, let's take a show like *Joan of Arcadia*, a new show on CBS, which has developed a cult following and recently won some awards. A lot of people came to that show late. They may have said, "I want to see what this show's arc is like," they downloaded extra episodes, and suddenly they become regular broadcast television watchers. The economics of these consumption patterns are not simple and they are certainly not as simple as the content companies would have you believe. If you ask a Disney, Fox or CBS for that matter, they will tell you that every copied program is somehow a loss sale, or chipping away at the revenue. I think the economics of watching television are far different from that. Audiences develop over time. People who can use their VCRs to record strip syndication television shows, never the less buy the packaged DVDs and they are often very high priced. This is a very exciting, developing market and I hate to see it shut up because of fears—sort of irrational fears—of digital content over the Internet.

RICHARD WILEY: Rick, I want to give you the last word on that.

RICK CHESSEN: Well, I think that this shows that balance that we have had to strike here, between Mike, who probably would want no restrictions at all, no restrictions on any ability to ship anything around the Internet. Content community of course has their own legitimate concerns about protecting their content and their particular distribution and syndication and release windows, and finding that right balance is difficult. The FCC tries to do this with consumers in mind.

RICHARD WILEY: I have a lot more questions

here that I want to explore if we get a chance. But I want to give the audience an opportunity to ask the questions that you might be interested in.

QUESTION: Do you think that the Commission, in the next evolution of the digital transition, will start to address the quality of the digital televisions and set top box receivers, so that you could actually have a viable over-the-air broadcast television receivers that could provide people with a stripped down basic, low-cost alternative to cable and satellite delivery?

RICK CHESSEN: Well, that is something that we have been following closely. Our preference is generally to let the marketplace in these situations operate as long as things are moving in the direction that they seem to be moving in. We have looked at this a couple times, and in each case the Commission has found that the advances in technology were appropriate and reception capability was making advances quickly enough that the FCC didn't need to get involved with regulating and setting standards. One interesting thing that is going on now with the ATSC is that there is a subcommittee amongst the consumer electronics industry and the broadcast industry that is looking at adopting a set of best practices for television receivers. To try to set some sort of industry floor. I think that they are pretty far along, and from what I hear they are making good progress amongst the industries, which of course can do a much better job amongst themselves like in the Plug-in-Play, and if there is something the Commission needs to do, they could bring it to us. But I am not sure they will, and they may come up with some best practices that will address this issue. But it is something that obviously is a big concern is the reception capability, and something we are watching closely and if we needed to get involved, we probably would.

FOLLOW UP QUESTION: If the Commission felt that it was necessary for the digital transition, to require that digital televisions have a tuner built in, because the marketplace is otherwise not developed in that way, isn't it just as important that those tuners be able to actually receive all six to twelve broadcasting stations if the tuner is operated in an apartment building in DC?

RICK CHESSEN: Is it important that the receivers,

that are mandated, actually work? Is that what you are saying? Yes. The question is whether the marketplace is best at insuring that or whether the government setting rules is best for that, and as I said, we have been through this a couple of times, and we think that the marketplace is making advances. There is this best practices thing going on, that could bear fruit. So, it is something that we are watching closely.

RICHARD WILEY: Other questions?

QUESTION: You talked about how the computer industry and the TV industry were coming together here. Obviously, there are some good sides to that since the computer industry is very dynamic, they make the coolest things. But I guess the down side to that is that the television set is a very simple device and not very complex. Personally, I do not want to buy a new television set every two years to take advantage of new technologies with new software, cable boxes, etc. How do you see that playing out in terms of consumer resistance to that? Will there be bifurcated markets in each zone . . . and secondly, when should I buy my next TV? (Laughter).

RICHARD WILEY: Those are excellent questions. Peter?

PETER FANNON: Second question first. Today. (laughter) With regard to the second question on televisions, not just my company, but others stopped making analog large screen sets years ago. We stopped in 2000. We don't make any. In other words, everything we sell in the large screen format, which is thirty-two or something inches and above, in our case, is wide screen and capable of display at least twice as good as conventional, meaning minimum 480 progressive scan, and usually it has HD capability. And the prices on those are not \$10,000-15,000, as the high end guys were selling analog-only versions just five years ago. You can get a thirty-six inch Zenith HD capable direct view set for \$800, you can get a 53 inch rear screen Panasonic HD projection TV for \$1100. These are HD capable with tuners. By the way, in our case, with one-way cable-capability, cable card, and the new CableCARD, we are the only ones with those at the moment. But when all is said and done the price curves crossed two years ago, and the practicality is that if you go into the stores

now, you will be truly surprised, I think, at what you can buy in terms of quality and choice. There are over 600 DTV products, and it is only in the last year that those computer makers that you alluded to earlier have been cloning them from the CD industry, which was, in fact, the center of innovation for displays. The first question I think is sort of a broader set of issues, and I don't want to hog the time . . . Yes televisions are getting smarter, and goodness knows many computers are smarter still. But I think that both industries believe that they have hit a complexity plateau. And that is part of the reason why you are seeing an emphasis, like it was at last week's consumer electronic show, on simplicity, transparency, ease of use. One button, two steps max. That was the keynote that my company delivered at the Consumer Electronic Show. Happy to send you a disc, if you want to see it. But when all is said and done, it has got to be simple and straight forward for average typical television use. It can be as complex as some application might demand in the computer world, but to the extent that two industries are converging, I would say that the computing industry is looking more and more towards video and visual stimuli, iconography, easy use, less clicks. And the television industry, or the typical consumer electronics company is looking toward ease of use with the same and growing functionalities, and the two are, in fact, coming together in terms of smarts. The great news is, of course, that memory and the cost of processing—all the infrastructure that makes those device smarts work—are coming down rapidly in price; it all continues in the two famous curves that make that possible, and when all is said in done, when you see the prices in the store today, they are not only affordable, but you get a heck of a lot more value for your money than you did for the same money just five years ago.

RICHARD WILEY: Rick, just a quick follow up on that. One part of the plan is to make sure that the public knows the options. Do you think that retailers are really doing their job in explaining what the difference between digital and high definition—and what is available?

RICK CHESSEN: Yes. I think that they are doing a better job, but obviously there is still a little ways to go. I think that these are hard concepts. I

think that these are not easy concepts to explain to anybody . . .

RICHARD WILEY: Even to this audience . . .

RICK CHESSEN: To this audience! Especially this audience. No. There is LCD, DLP . . . in some ways these are good because these are consumer choices that people can make. On the other hand, I am sure when people walk into the store they are confronted. They used to say what size screen do you want, and that was pretty much what you would get. And now, you gotta make a lot of decisions in there, and do research. So it is a lot like other things in the digital world; cell phones are a lot more difficult than they once were to figure out what you want. TV's are going in that direction too, but I think that people are starting to figure out how to sell these things as they are starting to take off and as they get more experience with them. I've noticed a real improvement over that last couple of years at retail. Both in displaying and explaining what consumers are getting.

RICHARD WILEY: John and Mike, I know you both have a quick comment and then we are going to be winding up here.

JOHN LAWSON: To the question . . . Buy it now. I tell you, I have had HD for four years, there is a lot of programming, I can't go back. Complexity is an issue, I have five remotes on my coffee table, but my four year old twins know how to operate at least three of them, so we are making progress. I do think that we are going to have to depend on cable and satellite for a long time, but I do think that there is an opportunity to bring back over the air television. The UK, we are learning more and more about their success there. There are differences, of course. But there are two generations that have grown up with a wire, and if you repack-age it and re-launch it—wireless television, free wireless television, who knows, maybe the broadcasters will give back just a couple of points of market share over a few years.

MICHAEL GODWIN: I think you should buy now, and the reason you should is because the copy protection has not been implemented yet. (laughter) In fact, what I do when I go to Best

Buy, I turn around the TV and I see what outlets are there, and I try to get the biggest number of outputs. I favor the ones with the biggest number of outputs, especially analog outputs, because not only now, but for some time to come, analog outputs won't be protected. So even after broadcast flag is implemented, if you get an HD set today, or even a year from now, if you get a set that has component analog outputs, you can capture an exceedingly high quality signal, you can digitize it and put it on the Internet, if you want to. I am not encouraging you to do that, I am just telling you that you can. It would be wrong.

RICK CHESSEN: It would be wrong.

MICHAEL GODWIN: But you should buy now before these consumer electronics are encumbered with a protection scheme that are going to make a lot of devices incompatible with one another. I think that everyone acknowledges that there is an immense lurking compatibility issue with the competing protection schemes for both broadcast television and cable television, that I think will ultimately cause confusion in the marketplace. I think that this is going to turn into something, if not disastrous, at least very complicating for people who want to make the HD transition, or the DTV transition for themselves. Now is a good time to buy a television set. The price points have fallen and the protection schemes aren't in yet.

RICHARD WILEY: Dean Fox asked me to get the overall symposium back on the time schedule, even though we started quite late. So I am just

going to ask the final question for everyone. What year will the DTV transition end? Peter?

PETER FANNON: The broadcast DTV transition. It is not 2006, but it is not inconceivable that it is 2011 or 2012.

RICHARD WILEY: John?

JOHN LAWSON: Well, to implement the plan we were developing, I think that it is conceivable that we really have to go after it on the receiver side, and if the broadcast industry, frankly looked at re-packaging over the air television, we could conceivably turn off analog, in some markets, in 2008, but there has to be a morality provision, and the whole country I think that it would be sometime after 2010.

RICHARD WILEY: Mike?

MICHAEL GODWIN: Assuming that broadcasting survives the digital television transition, it may be 2020.

RICHARD WILEY: Okay, Rick. I am going to give you the final word on this overall, then you don't have to name the date.

RICK CHESSEN: I think that it will be over when it is over. (laughter)

RICHARD WILEY: Ladies and Gentleman, I think that this has been an outstanding panel, we missed Susan, but let's thank the folks who remained.

