

U.S. DEPARTMENT OF COMMERCE

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COMMERCE SPECTRUM MANAGEMENT

POLICY ADVISORY COMMITTEE

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COMMITTEE MEETING

+ + + + +

WEDNESDAY,

DECEMBER 9, 2009

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The Commerce Spectrum Management  
Policy Advisory Committee met in the  
Diplomatic Boardroom of the Herbert C. Hoover  
Building, 1401 Constitution Avenue, N.W.,  
Washington, D.C., at 9:30 a.m., Bryan Tramont,  
CSMAC Co-Chair, presiding.

PRESENT:

DALE HATFIELD, Co-Chair  
BRYAN TRAMONT, Co-Chair  
LAWRENCE E. STRICKLING, Asst. Secretary

DAVID E. BORTH, Member  
MICHAEL C. CALABRESE, Member  
MARTIN COOPER, Member  
MARK E. CROSBY, Member  
DAVID L. DONOVAN, Member

GARY EPSTEIN, Member

BRIAN FONTES, Member

HAROLD FURCHTGOTT-ROTH, Member

ROBERT M. GURSS, Member

KEVIN C. KAHN, Member

JAMES A. LEWIS, Member

MARK A. MCHENRY, Member

DARRIN M. MYLET, Member

JANICE OBUCHOWSKI, Member

ROBERT PEPPER, Member

RICHARD REASER JR., Member

GREGORY ROSSTON, Member

R. GERARD SALEMME, Member

JENNIFER WARREN, Member

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1 P-R-O-C-E-E-D-I-N-G-S

2 (9:40 a.m.)

3 CO-CHAIR HATFIELD: I would like  
4 to welcome you all to the second meeting of  
5 the new Commerce Spectrum Management Policy  
6 Advisory Committee. And I am listening here  
7 to opening remarks but I think we could swing  
8 right into the substance of the meeting.

9 Do you have anything Assistant  
10 Secretary, Strickling?

11 CO-CHAIR TRAMONT: Very very quickly I  
12 just wanted know to officially welcome our  
13 three new members, Michael Calabrese, Gary  
14 Epstein, and I think we have got Greg,  
15 hopefully on the phone.

16 And I also wanted to announce that  
17 we have still three vacancies on the  
18 committee. We received a lot of good  
19 nominations several months ago from which we  
20 made the initial selection of Gary, Greg, and  
21 Michael. We are going to put out an official  
22 announcement in the Federal Register seeking

1 additional nominations to fill the last three  
2 slots, which we will then take and combine  
3 with the pool of nominees we still have before  
4 us and make selections to complete the  
5 membership of the committee early next year.

6           What we are looking for first and  
7 foremost are good, talented people who have a  
8 commitment to serving on this group but,  
9 obviously, we are always interested in  
10 expanding the diversity of the expertise we  
11 have on the committee, the parts of the  
12 industry that people come from. We are  
13 interested in geographic diversity. And just  
14 in general, we would like a more diverse  
15 group. So we encourage you to talk the group  
16 up and get folks to either self nominate or to  
17 have you nominate folks. But we do want to go  
18 ahead and get the group up to its full  
19 membership strength as quickly as we can next  
20 year.

21           CO-CHAIR HATFIELD: Okay. Bruce?  
22 Bruce where are you?

1 MR. GOTTLIEB: Right over here.

2 CO-CHAIR HATFIELD: Okay, Bruce  
3 Gottlieb from the FCC will make a presentation  
4 to us. Of course you all know Bruce as chief  
5 counsel and senior legal advisor to Chairman  
6 Genachowski. Bruce?

7 MR. GOTTLIEB: Well, thank you  
8 very much for having me here today. I thought  
9 it was true, I checked with Paul Kirby, he  
10 tells me it is true that this is the first time  
11 in some time that somebody from the FCC has  
12 been over to work this group. So I was  
13 delighted to get the invitation and I am  
14 really happy to be here.

15 I am going to sort of give some of  
16 my own thoughts. I am going to focus a little  
17 bit more on the kinds of issues and questions  
18 that people at the FCC are thinking about. I  
19 am not going to say as much about the  
20 conclusions I think we will reach because  
21 everybody knows we have got a national  
22 broadband plan due in about two months and

1 there is a lot of talk now between staff and  
2 the commissioners and chairmen about exactly  
3 where that is going to come out.

4           But I do think that it is  
5 important to start by saying how sort of  
6 strong the initial working relationship  
7 between the FCC and NTIA has been and also to,  
8 if I may, ask some questions and get some  
9 thoughts from people around the table about  
10 how the FCC can work with this group, how  
11 certain advisory committees that the FCC will  
12 have can work with this group. And because  
13 there are people here who have long and deep  
14 experience about the relationship between NTIA  
15 and FCC, thoughts on how we can coordinate  
16 what we are doing and what NTIA is doing more  
17 effectively are very welcome.

18           Obviously we deal with the same  
19 spectrum, the same laws of physics, the same  
20 technologies. And I was reading through the  
21 list off issues that you are going to be  
22 getting reports on today and I thought that

1 every single one of them is something that  
2 people at the FCC are going to look at with  
3 great interest, adjacent band interference is  
4 something that we spend a lot of time with.  
5 We are very interested in the type of  
6 incentives work you are doing. Transparency  
7 and spectrum inventory are all things that  
8 happen to be top in mind at the FCC right now.

9 I do want to just let people know  
10 that we hope in the next few weeks to be able  
11 to announce a reconstituted Technological  
12 Advisory Committee, which has met at the  
13 Agency for some time. As you know, the TAC  
14 typically deals with a variety of issues not  
15 just spectrum but certainly including  
16 spectrum. I think we will probably be able to  
17 benefit from what you are doing today and what  
18 you are doing in the future and there may be  
19 ways that we can coordinate what TAC is doing  
20 and what you are doing. Everybody around this  
21 table I think are folks who follow what happen  
22 at the FCC very closely and are involved

1 there. So I think there is a lot of  
2 opportunity for working together.

3 In terms of what is going on at  
4 the FCC, oh that's right you can tell this  
5 crowd too much there, I have two kind of major  
6 developments that will really be effecting the  
7 way we think about a spectrum policy.

8 The first is that the Chairman has  
9 announced and we are off to a good start on a  
10 real focus. On the first day he gave a speech  
11 in which he laid out I think it was four  
12 possibly five priorities for this time there.  
13 And one of them was to make sure that the U.S.  
14 leads the world in mobile and that we  
15 accelerate the roll out of 4G, which is going  
16 to be a key priority for him.

17 And the first thing that we did  
18 was to, in the first open meeting, release  
19 notices of inquiry, all of which involve  
20 mobile too, which were exclusively focused on  
21 mobile. The first was a wireless innovation  
22 and investment, NOI, which many of you are

1 probably familiar with. It was part a lot of  
2 good ideas that people in the Agency had that  
3 they wanted to get comment on and that were  
4 taken out of desk drawers and aired. And it  
5 was part an invitation to let anyone in the  
6 industry in academia elsewhere who had new and  
7 interesting ideas to signal to them that they  
8 should come with those and that there is a  
9 spectrum team at the Agency that is very  
10 committed to working on those topics.

11 As many of you are also aware, the  
12 wireless bureau sent some letters to Apple,  
13 AT&T, and Google asking questions about the  
14 handsets and other issues related to  
15 innovation and consumers. And recently there  
16 was one that went out about early termination  
17 fees.

18 The Chairman's second major policy  
19 speech was given at CTIA, where he laid out  
20 his mobile broadband agenda. I won't reprise  
21 all the points of that here. It is available  
22 on our website. And just last month, we moved

1 on a petition that had been standing around  
2 for some time on tower citing.

3           So this is the first set of things  
4 that we are able to do early on in the mobile  
5 agenda. There will be others, some of which  
6 we have talked about, some of which we will  
7 develop through the national broadband.

8           One thing I would highlight that I  
9 think will be of interest here is that the  
10 second NOI was seeking additional information  
11 and comment on the annual wireless competition  
12 report that the Agency has put out. For a  
13 number of years it has been sort of updated  
14 with new facts but the same framework, same  
15 set of topics that it has been for probably  
16 six or seven years. The Chairman was very  
17 interested getting comment on whether there is  
18 new ways to think about these issues,  
19 including in particular a real focus on  
20 spectrum and spectrum holdings and the  
21 relationship between that and competition in  
22 the industry, in the link to consumers, and

1 those sorts of things. So there were a series  
2 of questions on that.

3 I am not entirely clear when the  
4 report will come out. It will probably be in  
5 the first quarter of next year and the goal is  
6 to make it a concrete statement in one place  
7 of all the things the Commission knows, as  
8 well as a lot of reaching out to academics and  
9 a lot of the work the broadband team is doing  
10 in one place that would be of interest to  
11 investors, academics, people across government  
12 who are focused on this issue about the entire  
13 value chain of the commercial mobile  
14 marketplace. I think there will things in  
15 there that will be of interest and relevant to  
16 the work that you are doing.

17 And then of course there is the  
18 national broadband plan. For a lot of  
19 reasons, the chairman began a new stint with  
20 a mandate from Congress to look at the big  
21 picture and to come up with some long-term  
22 statements about policy and direction. That

1 is a very helpful exercise when you are  
2 starting out on that. It actually reminds me  
3 a little bit of how I understand OFCOM  
4 operates where they begin with a strategic  
5 plan and then spend time for the remainder of  
6 the year executing against that plan. I think  
7 that is one way to think about what the  
8 national broadband plan will be with respect  
9 to spectrum policy.

10 I do want to mention one thing  
11 which is that while it is the next big step in  
12 spectrum policy at the FCC, we don't think of  
13 it as the end of the story. Commissioner  
14 Baker recently gave a speech in which he noted  
15 that we needed an ongoing spectrum policy  
16 process and that the exercise of planning,  
17 stating goals and executing against them is  
18 really essential for good long-term spectrum  
19 policy. And I know that the chairman is very  
20 eager to work with her and the other  
21 commissioners on finding ways to do that.

22 So I think the National Broadband

1 Plan, we will see how it works and we will get  
2 a lot of experience from it but we don't think  
3 that that will be the last time that we will  
4 go through this kind of periodic process.

5 I think another thing that we have  
6 heard and that makes a lot of sense is that  
7 building in a certain amount of periodic  
8 review and automatic considerations of  
9 allocations and things like that serves a very  
10 useful function in a large organization,  
11 particularly forcing hard looks at how old  
12 policies and old allocation decisions are  
13 related to current uses and technologies and  
14 finding ways to decide whether everything that  
15 we are doing currently makes sense.

16 So, one of the things that are  
17 going to be in the National Broadband Plan, as  
18 I said, it is a document, it is an effort that  
19 involves a lot of different people and there  
20 are discussions going on right now that will  
21 shape what the final document looks like. But  
22 I think I can talk about a few broad areas

1 that will be helpful, I think.

2           The first is looking at spectrum  
3 usage and data. Congress is considering a  
4 number of bills on the topic and we are, of  
5 course, doing a lot of preparatory work so  
6 that we will be able to respond to those when  
7 we learn what the precise content would be and  
8 if the bill is going to move. It is not hard  
9 to see the tremendous benefit to government,  
10 to industry, to the public to being able see,  
11 for instance, in a given band who the  
12 licensees are, but also in a particular  
13 geography across bands who are the licensees.  
14 That can facilitate a lot of good things.

15           I think that, and I understand  
16 there will be presentation on this later  
17 today, we also would like to know a lot more  
18 and think a lot more about what other metrics  
19 there are to measure whether spectrum is being  
20 used in a reasonable way. There are a lot of  
21 different things that we could use over time  
22 to build out a number of users. But there are

1 others that I think we need to explore,  
2 including if there are ways to monitor the  
3 amount of traffic that you see in the real  
4 world in particular places, in particular  
5 bands. Obviously, different technologies are  
6 going to have very different footprints.  
7 Broadcast, for instance, will look very  
8 different than any kind of mobile broadband  
9 thing but that is certainly one piece of the  
10 picture.

11           Finding ways to estimate the  
12 amount of economic value that particular  
13 spectrum allocations support is obviously,  
14 very interesting, very important. And then  
15 there are other social values that we need to  
16 think about how we can try to measure, or even  
17 if they can't be directly measured, how to  
18 account for and think about that.

19           I am not here to say, I gave  
20 myself an out at the beginning, that I have  
21 answers or conclusions on how all of that  
22 should be done but these are certainly the

1 issues and the questions that people are  
2 asking.

3           There are existing dockets that I  
4 think the Broadband Plan will address and say  
5 things about. It will not be an item that  
6 changes the actual rules or has the force of  
7 an order but it will be an opportunity to  
8 state principles and provide a framework for  
9 moving forward with order of NPRMs or whatever  
10 the appropriate vehicle is coming out.

11           I think as I said, we will say  
12 things about wireless competition that will be  
13 of interest and important. I think we will  
14 say things about public safety spectrum and --  
15 interesting to people.

16           We will say some things about  
17 bands that are currently in the FCC's  
18 inventory like AWS3 and others, as well as  
19 bands that are part of long-standing  
20 proceedings that have real implications for  
21 spectrum use policy, like WCS, S-STARS, and  
22 others. Again, this is not the end of the

1 discussion. This will not result in changes  
2 in allocations or rules but it is something  
3 that we are really looking at.

4 CO-CHAIR TRAMONT: Lucky start  
5 over.

6 (Laughter.)

7 MR. GOTTLIEB: We are working very  
8 hard on spectrum policy and doing important  
9 things.

10 So the last piece is, obviously,  
11 we are looking at various allocation  
12 decisions. We put out some public notices.  
13 The goal here is looking at existing  
14 allocations, older allocations, evaluating  
15 them against current technologies and user  
16 preferences. I think the low star here is  
17 that we want our allocations to actually be  
18 following users, not vice-versa. And the  
19 message I think that is very relevant to the  
20 work that you are focused on is that we  
21 recognize there are no easy pickings on the  
22 spectrum chart. We are looking at commercial

1 allocations to develop spectrum that would  
2 potentially be available for wireless  
3 broadband. Everybody understands this  
4 controversial, this is difficult work. This  
5 raises really difficult policy choices but we  
6 are certainly committed in engaging in those  
7 issues.

8           When you look at the major  
9 auctions, work was started ten years ago or  
10 more. In 2006 we had a major auction that  
11 involved reallocated federal spectrum. In  
12 2007-08, we had a major auction that involved  
13 reallocated commercial spectrum. And so we  
14 are very interested in continuing to be  
15 engaged in that process. It is a long  
16 process. It is a slow process. In the  
17 meantime, we are seeing, you know, in a period  
18 that we have seen 3-X growth in spectrum  
19 available for commercial wireless, we have  
20 seen 30-X growth in usage.

21           And so as we see it, it is not a  
22 question of when spectrum becomes the rate

1 limiting step in mobile broadband -- it is not  
2 a question of whether. It is a question of  
3 when. So we want to start that early and I  
4 think that is going to be a big part of the  
5 Broadband Plan.

6           Because there is no question that  
7 it is going to be a period of years before  
8 there could be any major reallocations that  
9 could lead to an auction, we are also focused  
10 on a variety of new tools for the interim  
11 period, the kinds of things that people are  
12 talking about and discussing include spectrum  
13 fees which is something that has been  
14 proposed, I think, for administrations for  
15 quite some time. We are looking at two-sided  
16 auctions, various proposals for covering  
17 relocation costs that have been in legislation  
18 with the FCC and NTIA have worked on  
19 implementing at various times. I mentioned  
20 providing additional information on how  
21 spectrum is available and underused, with the  
22 goal of increasing use of secondary markets.

1                   Unlicensed is going to be a big  
2 part of this. We are moving forward with work  
3 on white spaces. I put out a PN recently on  
4 database manager, which I think is something  
5 that I knew Julie Knapp and the folks at OET  
6 are very excited about, is a new model for  
7 spectrum management that could potentially  
8 have implications beyond just the white  
9 spaces.

10                   There are, Roger is looking  
11 carefully at new technological approaches for  
12 sharing, including work that we are doing  
13 jointly with NTIA in the test bed, looking  
14 both at opportunities for commercial users to  
15 share with federal users but also vice versa.  
16 And there is a lot of different ways. People  
17 here know far more than I do about how to  
18 accomplish that, sharing spectrums, splitting  
19 geography, various customer and joint venture  
20 relationships, I think are all worth  
21 exploring.

22                   And then we are working

1 collectively to think about ways to promote  
2 innovation and new technologies in the test  
3 beds but also in expanding opportunity for  
4 experimental licenses and streamlining some of  
5 those processes at the FCC. There are a  
6 number of proposals in the innovation and  
7 investment NOI. And we are certainly open to  
8 others from companies that think that there  
9 are things we can do to make it easier to  
10 develop new products and to test them.

11           So that is a summary of what we  
12 are doing. We would love to get thoughts on  
13 any of these topics, but particularly how the  
14 FCC can work with this group to further our  
15 joint objectives.

16           CO-CHAIR TRAMONT: Great. I think  
17 I speak for everyone. We are very excited  
18 about you coming this morning and the  
19 opportunity to work in a cooperative fashion  
20 with the FCC on our task going forward. So  
21 are there any questions for Bruce or comments?

22           MEMBER OBUCHOWSKI: I will raise a

1 pet issue. Enforcement. Sharing is very much  
2 on the table between NTIA and the FCC. And I  
3 think everyone around this table would be  
4 supportive, in the right setting.

5 My experiences of sharing without  
6 enforcement is really just low "reallocation."  
7 So what is the FCC going to do to take a look  
8 at this because at the FCC, enforcement has  
9 been notoriously slow in happening?

10 Frankly, one of the things that  
11 was always occurring with sharing is the  
12 notion that the FCC rarely will enforce when  
13 the Hill is involved and that comes under the  
14 license area. And frankly, even when the FCC  
15 tries to enforce, if you are sitting on a  
16 valuable right spectrum, you take it to court.  
17 And that is a five-year process.

18 So how does enforcement factor  
19 into your thinking about sharing?

20 CO-CHAIR TRAMONT: Before you  
21 respond, ironically, can we use the wireless  
22 mike, though?

1 (Laughter.)

2 MR. GOTTLIEB: Well, I mean, I am  
3 going to answer your question with a question.  
4 First of all, I understand the point you are  
5 making. It is a very, very important one. It  
6 strikes me as a precondition to doing the type  
7 of work that I think we all want to do.

8 And any question is, do you think  
9 that the problems we have seen with the  
10 enforcement process are structural ones that  
11 will require rule changes at the FCC or is it  
12 a matter of commitment by the leadership to  
13 doing the things that you talk about?

14 Obviously, a right without a  
15 remedy is not a right. And we are not  
16 interested in creating any rules or sharing  
17 arrangements that are simply ignored. I think  
18 it obviously has costs for the particular  
19 spectrum usage. It also has costs to the  
20 institution and to our ability to be credible  
21 when we promulgate rules.

22 So this is something we take very

1 seriously. I don't have at top of mind right  
2 now solutions. I could imagine this being a  
3 pretty useful topic, although we would have to  
4 talk about whether it is a committee at the  
5 FCC or a committee here. But I think either  
6 place getting some thinking on how to achieve  
7 this would be very welcome.

8           MEMBER OBUCHOWSKI: Well, I think  
9 that is probably a very broad question for the  
10 whole committee. I mean, from the personal  
11 perspective, technology has to be well placed,  
12 requiring a licensee to embed ID information  
13 and prices. It might be a useful place go to.  
14 I know there are a host of some of the think  
15 tanks that would like to go in the opposite  
16 direction.

17           I think dealing with fear about  
18 regulatory amnesia is kind of a leap of faith  
19 but enough said.

20           So I think there is a regulatory  
21 piece and a technology piece that, at least in  
22 my estimation, have to be central.

1                   CO-CHAIR TRAMONT: Rick and then  
2 Jennifer.

3                   MEMBER REASER: I like the word  
4 precondition. I mean, what has to happen is,  
5 in a world where you are packing things  
6 tighter and tighter together and you are  
7 sharing the spectrum, is that the guy who is  
8 sharing, the guy who is going to share, he has  
9 to have some sort of comfort or certainty that  
10 that whole arrangement is well documented and  
11 that they can go back if somehow that gets  
12 trampled or violated. Whether that is through  
13 -- enforcement sounds like police to me. But  
14 monitoring or having the ability to go back  
15 and redress those issues and have things  
16 stick.

17                   Because many times, some of these  
18 things could be a problem of a bad device, bad  
19 software, lots of different things. But if  
20 the government is not watching that process  
21 and helping to make sure that those things are  
22 all okay in terms of what it is a national

1 resource, no one is going to be interested in  
2 sharing at all.

3 Mr. Marcus, put this paper  
4 together and he sort of talked a little bit  
5 about that whole notion about you know, if you  
6 don't figure out how to share and do all that  
7 kind of stuff and where it goes, even in  
8 regards to an encore appearance.

9 But the point is if a guy who  
10 already is there doesn't feel good that the  
11 arrangement is going to be upheld and  
12 monitored and enforced, then there is going to  
13 be very little incentive for anybody to do  
14 anything. And that needs to be a priority in  
15 terms of any kind of arrangement in terms of  
16 reallocation or sharing or whatever in the  
17 Commission's mind. Otherwise, this thing, we  
18 will be arguing about it for 15 years and  
19 nothing will happen.

20 MEMBER WARREN: To go back to your  
21 question about whether it is regulatory or  
22 leadership and commitment, I think there are

1 regulatory commitments that would need to be  
2 included and thought about such as consumer  
3 protection provisions, whether it is labeling  
4 or some of the things Janice talked about  
5 because one side of this is political and one  
6 way to address political concerns is to make  
7 sure there has been a lot of notice for the  
8 consumer, so that the consumer is not left  
9 hanging.

10           So whether it is labeling or other  
11 methods as I said, Janice and Rick have  
12 already mentioned and time lines and clear  
13 redress of authority. I mean, we have seen  
14 where there have been questions about what the  
15 authority is of the FCC, in certain instances.  
16 So all of those things, I think would be very  
17 helpful when you are wanting to foster an  
18 environment of sharing, particularly among  
19 users that have different regulatory  
20 authorities and frameworks.

21           CO-CHAIR TRAMONT: I think the  
22 garage door example is the one that always

1 comes up. And the problem there of course is  
2 two things. One is a disincentive for federal  
3 government users who share going forward  
4 because they have had that experience because  
5 when there is widespread consumer harm, it is  
6 hard to redress. And the manufacturers don't  
7 internalize the cost of the experience.  
8 Instead, the federal government ends up  
9 internalizing the cost.

10 So unless you have a regime in  
11 place, and I think it is both a regulatory  
12 regime and a commitment on behalf of the  
13 leadership to make some tough choices about  
14 cabining consumer harm and internalizing cost,  
15 it is very hard to move forward.

16 David, you had something else?

17 MEMBER DONOVAN: Yes, I think --  
18 and Bruce thank you for your presentation.

19 I think the fundamental question  
20 to ask is is it structural or otherwise. And  
21 I think to some extent it may be, and I don't  
22 have all the reasons, it has been a while

1 since I have been in the Commission, but it  
2 seems that as we go forward, spectrum  
3 efficiency which heretofore was premised on  
4 sort of unit control notions of how one  
5 licenses spectrum and how fundamentally wepre  
6 going to ship. And that spectrum efficiency,  
7 particularly whether it is in a licensed or  
8 shared environment, spectrum efficiency will  
9 now be the function of the device and how they  
10 work with each other, which means the  
11 Commission's structure, the Commission's  
12 responsibilities if it is to maintain  
13 efficient use of the spectrum, we are going to  
14 ship them out to who is doing the  
15 manufacturing.

16           And that may require statutory  
17 changes. I mean, I remember the old days  
18 where you had the FCC's Marshal's badge and  
19 you had a bunch of guys at the docks in LA  
20 saying no, no, no, this won't work. We are  
21 going to have to go way beyond that.

22           And so I think those are the kinds

1 of things structurally and maybe even  
2 statutory exchanging of FCC's authorities  
3 regarding recalls and things of that nature to  
4 move forward with that to move forward with  
5 that. Because right now I know Julie works  
6 very, very hard. She does a great job with  
7 the certification requirement. But now I  
8 think efficiency will rest solely in the hands  
9 of or primarily in the hands of the devices,  
10 whatever they are in whatever vehicle.

11 So I think that creates an  
12 incredible burden on the FCC structurally.

13 MR. GOTTLIEB: Right. Now  
14 actually, coming back to some of the things  
15 that David has started with, I think what I  
16 heard you saying is that these types of  
17 relatively small enforcement decisions aren't  
18 ones that can be made very quickly by a multi-  
19 member commission, you know, that operates  
20 with a variety of constraints.

21 One question that I don't know the  
22 answer to but that I think will be quite

1 interesting is to look at other agencies that  
2 do enforcement and look at how they have set  
3 up, for instance delegated authority, the use  
4 of ALJs and other things that I think are  
5 designed to get at those types of concerns.

6           Just yesterday I think the Supreme  
7 Court heard oral argument an interesting case  
8 about a board created under the SEC through  
9 Sarbanes-Oxley that was, I think, my  
10 understanding of the case attempting to answer  
11 some of those concerns. So a survey of how  
12 other places in government have dealt with the  
13 issue. But of course beginning, and this is  
14 the thing that people who have practiced  
15 before the Agency for a long time will have a  
16 lot of insight on about the nature and the  
17 route of the problem strikes me as a very  
18 useful contribution.

19           There are plenty of conversations  
20 going around, some in academic circles, but  
21 also on the Hill about FCC reform. And if we  
22 can clearly identify a persistent bias against

1 being able to enforce particular types of  
2 rights, that strikes me as something that a  
3 lot of people would be interested in.

4 CO-CHAIR TRAMONT: David, quickly.

5 MEMBER DONOVAN: Let me just  
6 follow-up because I agree. And I guess where  
7 I wasn't going was to divest the Commission of  
8 jurisdiction. I actually think the Commission  
9 is the right place to deal with this.

10 If you move it into other agencies  
11 and they have conflicting policy, whether it  
12 is a series of equipment coming over. Well  
13 wait a minute we have a trade issue coming on  
14 here. So maybe we will let this one go by.

15 I think what you really want to  
16 have is an independent agency such as the  
17 Commission whose primary mission is to focus  
18 on efficiency.

19 MR. GOTTLIEB: I think we agree.  
20 I just want to make sure that Paul accurately  
21 reflects that I am not proposing to --

22 (Laughter.)

1                   MR. GOTTLIEB:  -- in any way  
2 decrease the jurisdiction of the FCC but  
3 rather to learn the processes of other  
4 agencies and implement them at the FCC.

5                   MEMBER DONOVAN:  The other thing I  
6 think for everybody at this table is how the  
7 process works.  I mean, all of us have been  
8 involved in ALJ proceedings and what have you.  
9 And to the extent there is a situation where  
10 you have interference as an ongoing basis and  
11 whether it is the form of TROs or what have  
12 you, waiting for that process to work its way  
13 through could seriously render some of these  
14 services in dire straits.

15                  CO-CHAIR TRAMONT:  We are short on  
16 time.

17                  MEMBER DONOVAN:  I'm sorry.

18                  MEMBER PEPPER:  I just want to  
19 make a point that David I think you are  
20 overstating the inadequacy of the Commission.  
21 There have been some recent decisions in cases  
22 on equipment where there is delegated

1 authority, where the Commission staff and the  
2 bureau and the Enforcement Bureau have acted  
3 very quickly. So, you know, this is not --

4 MEMBER DONOVAN: Bob, with all due  
5 respect, I have called the 1-800 number in  
6 case of interference. I am not so sure that  
7 that is what we would call the most effective  
8 way to handle --

9 MEMBER PEPPER: No, no. I am not  
10 talking about that at all.

11 CO-CHAIR TRAMONT: Let's have  
12 Kevin quickly and then Gary.

13 MEMBER SALEMME: Yes. I just  
14 wanted to make sure that as this discussion  
15 goes forward, the problem gets considerably  
16 more complex with the two agencies, the NTIA  
17 and the FCC.

18 You know, the FCC is talking about  
19 commercial-commercial sharing and various  
20 issues there. We are talking about government  
21 spectrum and how it might be shared to  
22 commercial uses. This whole thing is a fairly

1 complex interaction set, especially as the  
2 frequencies become even more intermingled with  
3 one another.

4           So as you look at structural  
5 reforms or other things you might suggest  
6 within the Commission or to Congress, you  
7 know, working on how that will work between  
8 these two agencies that are kind of  
9 traditionally command and control kept them  
10 apart, except when you absolutely had to. And  
11 as these things get more flexible, it is going  
12 to get a lot worse.

13           CO-CHAIR TRAMONT: Very critical.

14           MEMBER EPSTEIN: A quick question,  
15 just to shift a little bit. I was interested  
16 when you talked about the first topic on the  
17 Broadband Plan was between usage and data,  
18 something near and dear to this Advisory  
19 Committee's heart.

20           I was just curious about your  
21 initial view about the quality of the  
22 information you already have to put something

1 out in the Broadband Plan in February. How  
2 confident and comfortable you are. Are you  
3 going to ask a lot of questions, or where are  
4 you going to go with that?

5 MR. GOTTLIEB: The most that will  
6 happen in February will be a first step. This  
7 will be an ongoing process. I think there is  
8 first the task of taking all the data at this  
9 database and putting it in a single database  
10 interface and then the process of proving that  
11 data. And if that indicates that the second  
12 is more important than the first, we will just  
13 have to see.

14 But I take your point. I think I  
15 agree with you.

16 CO-CHAIR HATFIELD: I think we  
17 need to wrap up, although I do want to add one  
18 thing. We mustn't forget about unintended  
19 radiation, too. Because I think some of the  
20 problem now is interference with things like  
21 switching power supplies. It is a different  
22 form and I think we need to think about that

1 as well. But I think we need to wrap up and  
2 move right to --

3 MEMBER COOPER: May I just make  
4 one comment?

5 CO-CHAIR HATFIELD: Very quick.  
6 Very, very quick.

7 MEMBER COOPER: Very brief.  
8 Bruce, you mentioned three times an increase  
9 spectrum, 30 times an increase in usage. And  
10 of course, I agree with that.

11 The part I disagree with is that  
12 the only solution to the 30 times is getting  
13 in the spectrum. If we had that attitude  
14 without having tried to use the technology of  
15 50 years ago today, we would have made a  
16 million times more spectrum and that is not an  
17 exaggeration. I don't think we need more  
18 spectrum. We need more use of the technology  
19 and that technology exists today. But if we  
20 continue to propagate this thought of let's  
21 get more spectrum, then we are going to end up  
22 with some big problems.

1 CO-CHAIR HATFIELD: Why don't we  
2 shift then to Karl Nebbia, who is the  
3 Associate Administrator of NTIA and head of  
4 their Office of Spectrum Management? I am  
5 really pleased that we are going to get this  
6 briefing. And I turn it over to Karl.

7 MEMBER NEBBIA: Good morning  
8 everyone. I have asked the lovely Ms. Lauren  
9 to spin the dial and turn the letters for me.  
10 And we appreciate her doing that this morning.

11 (Laughter.)

12 MEMBER NEBBIA: The briefing this  
13 morning is a going to be a little bit like  
14 going to church on Sunday and having the  
15 pastor fast forward through the bible within  
16 an hour and give you everything that he knows.

17 Just starting off, we have got  
18 some general breakdowns of statistics set on  
19 our background of the NTIA spectrum chart,  
20 with the 225, the 3.7 gigahertz range that  
21 everybody kind of things of as the sweet spot.  
22 These statistics are certainly not locked in

1 concrete. Anybody that you ask to look at the  
2 allocation table and come up with these  
3 statistics will come up with slightly  
4 different numbers because allocations are  
5 embedded in footnotes. They are embedded in  
6 other rules and so on. So this is certainly  
7 ballpark.

8           In this range, about 18 percent of  
9 it federal exclusive, 30 percent for non-  
10 federal. The big piece here being shared for  
11 both of us. But as I have said in other  
12 cases, the keys in this range as we really  
13 move away from traditional land mobile  
14 spectrum, most of what is here is radars,  
15 radionavigation, radiolocation, and their  
16 related infrastructure. Oftentimes, it is  
17 fixed. Sometimes it is not. The total  
18 significant interest there is approximately  
19 the federal exclusive plus the shared  
20 together.

21           And as I go through this, there  
22 are probably going to be a few bands that I

1 don't discuss. They are just too small or  
2 they are completely passive and, therefore,  
3 there is no way that you can make use of it,  
4 that sort of thing.

5           Okay, looking at this particular  
6 range, as I have said, I have eliminated a few  
7 of them. Here is a another critical one  
8 because I know as we have talked to people up  
9 on the Hill regarding the legislation, the  
10 folks on the Hill always say and of course we  
11 don't want to have an impact on DoD. Well,  
12 every one of the bands we are going to talk  
13 about today here, I think, has some DoD  
14 interest, with the exception of one that is a  
15 radio astronomy band which we try to keep DoD  
16 out of. So anyway, DoD has got commitments  
17 all along.

18           CO-CHAIR TRAMONT: Karl, did you  
19 say DoD has every commitment on the bands that  
20 are highlighted in that chart right there?

21           MEMBER NEBBIA: In every one  
22 except one that is the radio astronomy band.

1           So what we have done here is that  
2 we have dropped off those bands that do not  
3 have federal interest. And I am going to step  
4 through these as we go along. So please feel  
5 free to ask a question.

6           Also the briefing set that you  
7 have actually has text that is going to be  
8 very shortly up on our spectrum use summary on  
9 the web. There is text up there right now in  
10 a slightly more summarized form. So at any  
11 time in probably the past ten years you could  
12 have looked at this data. It is always  
13 interesting to us how many hits we get and,  
14 oftentimes we realize people don't know this  
15 information is already available. But the  
16 text you have is about to go up on the web in  
17 the next couple of weeks as we do final  
18 editing and so forth. It has been through  
19 IRAC review and all that sort of stuff.

20           So starting out, the first band  
21 actually begins on this side and continues  
22 down there; 225 essentially to 400 megahertz

1 is critical DoD air to air, air to ground  
2 band. It is agreed within NATO and with other  
3 U.S. allies that this is the prime band for  
4 communicating from aircraft to troops on the  
5 ground.

6           Interesting enough, for that  
7 reason it also becomes the mechanism for  
8 controlling and talking to airplanes, military  
9 aircraft and the FAA in fact uses it for that  
10 purpose to lighten the load on other  
11 commercial air traffic control communications  
12 type things. This is the key band for DoD  
13 operating its own mobile satellite activity  
14 and there are thousands of earth stations that  
15 DoD has in this band.

16           Also I should note, in the flight  
17 control there is one segment approximately in  
18 the middle of the band that is actually ILS  
19 for actual control, dealing with landing of  
20 those aircraft. And then at the very top end,  
21 at 3A to 400, DoD has been actively been  
22 building out land mobile trunk systems to meet

1 their needs for about ten years now. And that  
2 is where the garage door openers are and that  
3 is where the conflict has been. But we should  
4 make note of the fact that throughout this  
5 band, the unlicensed community has found this,  
6 because we have to recognize there is only so  
7 many aircraft up in the air at one time, this  
8 has been a band that has been very attractive  
9 for them to build key fobs and other small  
10 distance type devices.

11           So if we look at this band in the  
12 future, even though you might say well we are  
13 going to squeeze DoD in some way, you have got  
14 an awful lot of unlicensed stuff, not a whole  
15 lot like the 700 megahertz microphones and so  
16 on. Next please.

17           From 406 to 420, this is the only  
18 true land mobile band in this whole range we  
19 are going to talk about. There is one other  
20 band below it, 162 to 174 that the feds use.  
21 This band they have been building out mostly  
22 narrow band trunk systems for about the last

1 20 to 25 years. So it is a significant land  
2 mobile commitment band. We also have channels  
3 in there that state and local public safety  
4 interoperate with the feds in that band. So  
5 all of our law enforcement agencies, agencies  
6 that are managing, for instance, national  
7 forests, there are channels in here for  
8 relaying data on environmental levels or water  
9 levels to monitor flooding and a tremendous  
10 number of things.

11 So of all the bands in the table,  
12 this is the second most heavily populated in  
13 terms of total assignments and probably in the  
14 end total equipment. Okay, next please.

15 From 420 to 450, we have got a  
16 number of national defense radars in this  
17 band. There are four major fixed locations  
18 around the country. These radars have been in  
19 existence for a long time, essentially looking  
20 out ward from the United States for incoming.  
21 Okay, they have been there for a long, long  
22 time. These radars are somewhere probably

1 between 10 and 15 stories high. That is not  
2 one you are going to pack up and move and say  
3 we are going to take you to another band  
4 somewhere. But anyway, the distances they get  
5 and so on related to the range.

6           There is also quite a number of  
7 airborne radars in this range, some of them  
8 the DoD is using but also it is getting  
9 increasing use for blur monitoring by DHS and  
10 others. So, that is a significant operation.  
11 And as you know, every time you put an  
12 airplane in the sky, 20,000 feet, 30,000 feet,  
13 40,000 feet, has a pretty significant  
14 footprint.

15           So, there is also a system that  
16 DoD calls EPLRS, which is actually kind of a  
17 combination of location data that they use in  
18 tactical environments and for training. And  
19 there is also RFID activities in there for  
20 monitoring big containers coming into ports  
21 and so on.

22           We also have to note that in this

1 range the radio amateurs have been operating  
2 in there for years compatibly, for the most  
3 part, with the federal agencies. We now have  
4 new medical device proposals to go in there  
5 because, once again, people see this in terms  
6 of less actual use. And then, of course,  
7 there is non-federal RFID activities going on  
8 in there also.

9           This is the one radio astronomy  
10 band I am going to mention and I am going to  
11 mention it here because it is for the most  
12 part radio astronomy. There is not a passive  
13 satellite sense and component in this band.  
14 So it makes it more appealing for geographic  
15 sharing with the radio astronomers. And for  
16 that reason, the medical telemetry community  
17 is already authorized there and operating  
18 around the country. Once again, staying away  
19 from the specific radio astronomy site but  
20 they are already in there.

21           That medical telemetry equipment,  
22 we will just leave it there, that is also used

1 by like VA and military hospitals and so on.

2           Okay, the next band up, 902 to  
3 928, we have got Navy ship radar. So we say  
4 okay they are out at sea, not too much of an  
5 issue there. Some perimeter detection and  
6 wind profilers which, of course, look straight  
7 up. Once again, it is something reasonably  
8 easy to share with.

9           The only issue here is the band is  
10 full of unlicensed systems. This is one of  
11 the bands that has become unknown as an  
12 unlicensed band and, essentially, for the  
13 federal agencies with the exception of  
14 operating offshore in a couple of these very  
15 kind of unusual instances, the band is  
16 practically unusable for the allocated  
17 service. Okay, so it has really become an  
18 unlicensed band. Next.

19           From 960 to 1215, this band is  
20 used around the world for aeronautical radio  
21 navigation aids. I have listed a number of  
22 the systems here. At the very top end of this

1 band is where GPS L5 is going and all the  
2 related international systems like Galileo.

3           And miracle upon miracle, the feds  
4 have come up with a way of using the spectrum  
5 efficiently. DoD JTIDS, which is a data  
6 system, tactical data systems actually  
7 overlays this whole capability of that was  
8 enabled through about 20 to 30 years of  
9 dialogue between the FAA and DoD. It  
10 certainly was not a short decision.

11           This band, I think you would get  
12 arguments all around the world about getting  
13 into this band. It is already heavily used.  
14 We are, at times, having difficulties finding  
15 channels for some of the radionav devices that  
16 they want to install.

17           The next band 1215 to 1300, first  
18 of all we start with GPS, the L2 channel,  
19 which is being used by many commercial groups.  
20 It started off being primarily used for  
21 military aspects but now it is used to help  
22 people get a better, tighter fix from GPS

1 information.

2 Starting in this band also, we  
3 have got air route surveillance radars. These  
4 are those devices that track aircraft coming  
5 across the country, for the most part, at high  
6 altitude. There are both military versions  
7 and FAA versions of these devices. The FAA  
8 devices of course are there to track the civil  
9 aircraft. Military devices not only can  
10 participate in that national airspace activity  
11 but are also then applicable to tactical  
12 situations for tracking aircraft.

13 There is also tethered  
14 surveillance radars in that band. Kind of  
15 when we went up the Hill one time, there was  
16 some interest in this. It kind of sounds like  
17 an old concept. Maybe, you know, something we  
18 should have done but actually it has become a  
19 very new concept and one that we are seeing  
20 expanded a lot. It is a great way of putting  
21 a device up in the air and leaving it there  
22 for long periods of time. The pilot never

1 gets tired and it never runs out of gas.

2 Also, there is a lot of Navy ship-borne type  
3 radars in there also.

4           Okay, 1300 to 1390 is essentially  
5 a continuation of this air route surveillance  
6 radar band. And I should say in that case, in  
7 order to deal with fading issues, and that is  
8 a technical concept, these systems tend to  
9 have two separate frequencies so that it is  
10 not a single frequency system but actually is  
11 operating on both frequencies in order to  
12 avoid having issues regarding fading to make  
13 sure they are getting the signal that they  
14 need.

15           And the critical thing here then  
16 is that in coordinating those frequencies, we  
17 always have to be providing for two at these  
18 locations.

19           Now, the band just below it where  
20 we have had air route surveillance radars for  
21 a long period of time as we have been  
22 operating GPS L2, we essentially stopped using

1 the surveillance radars down that low in the  
2 band with concerns about interference from GPS  
3 L2.

4           The kicker here is that Galileo  
5 and Compass and all these other systems are  
6 being built now to the top side of GPS L2 and  
7 they are going to present the very same  
8 issues. So all those radars that used to  
9 extend down to 1215 are now being packed up  
10 into this range even tighter.

11           GPS L3, I will just mention there  
12 briefly, has to do with identification of  
13 nuclear --

14           MEMBER KAHN: Karl?

15           MEMBER NEBBIA: Yes, sir?

16           MEMBER KAHN: Do you guys know  
17 from the FAA what they expect the impact,  
18 positive or negative on spectrum use of next  
19 gen to be over time?

20           MEMBER NEBBIA: Well here is part  
21 of the issue. One of the logical thoughts  
22 that we immediately go to is every year

1 aircraft is getting GPS information. That is  
2 perfectly possible. You can set up data links  
3 from that aircraft to the ground reporting on  
4 their location. The concern that I hear most  
5 is that we certainly had instances during 9/11  
6 where the folks that took those airplanes  
7 turned the beacon devices off. And people are  
8 concerned that they are still going to have  
9 to, under at least those circumstances, have  
10 those radars up and operating and tracking  
11 whatever comes in.

12 Now the military application is  
13 both the national airspace application and it  
14 is a tactical capability.

15 MEMBER KAHN: Yes, I know that the  
16 military part of it is. I just wondered in  
17 things like --

18 MEMBER NEBBIA: So, that is a  
19 slightly different situation.

20 MEMBER KAHN: -- ADSV and the  
21 like, would they net reduce or not? You are  
22 saying --

1                   MEMBER NEBBIA: So at this point  
2 in the national airspace plan or the radio  
3 navigation plan, there is no commitment at  
4 this point to eliminate these radars.

5                   Now, most of those radars in fact  
6 fix location and that has -- yes?

7                   MEMBER REASER: Just going back a  
8 slide. They really don't tune right around  
9 L2. There is all the JSS radar still both  
10 operating openly. They just don't take up two  
11 megahertz at the old 1227. So that is, they  
12 actually use the band down there to tell staff  
13 entire time to stay out of the center  
14 frequency, so you've got that seeing that sort  
15 of a band issue.

16                   MEMBER NEBBIA: That may be the  
17 case for DoD. I'm not sure it is the case for  
18 FAA.

19                   MEMBER REASER: It's the case for  
20 DoD.

21                   MEMBER NEBBIA: There is another.  
22 Yes, sir.

1                   MEMBER FURCHTGOTT-ROTH: I just  
2 wanted to clarify on your previous slide, were  
3 you saying that the air route surveillance  
4 radars are migrating above 1300 to avoid  
5 interference with the GPS L2?

6                   MEMBER NEBBIA: Probably, from our  
7 sense, we have already kind of avoided, at  
8 least the FAA had avoided that conflict. But  
9 as Galileo -- see, in a number of the GPS  
10 frequency ranges, there is a clear overlay of  
11 the capability from one international system  
12 to another. In this particular range, that is  
13 not there.

14                   So we have L2 at Rick?

15                   MEMBER OBUCHOWSKI: At 1227.

16                   MEMBER NEBBIA: At 1227. Compass  
17 and Galileo are going up higher than that and  
18 trying themselves not to bother each other.  
19 So as they get turned on, I think you are  
20 going to find more of those radars having to  
21 be moved up into this range. I mean, there is  
22 already plenty of them there now but they are

1 going to be, they are, in fact, going to be  
2 freezed.

3                   Okay, this is a true passive band.  
4 And because there is passive sensing from the  
5 sky, there is not too much you can do there.  
6 Next one.

7                   From 1435 to 1525, aeronautical  
8 telemetry, this supports the whole Aviation  
9 Development Program within DoD, supports FAA,  
10 supports aircraft developers around the  
11 country. And as we have been looking at a  
12 number of issues related to this, we are  
13 finding more and more sites that actually  
14 employ these systems. And in this case these  
15 are primarily, and they are primarily  
16 telemetry downlinks from the aircraft. But  
17 once again, if you have an aircraft doing  
18 maneuvers at 40,000 feet, 100 miles away, you  
19 essentially have a very directional beam  
20 antenna trying to pull that data in at the  
21 ground site.

22                   So, the impact of those aircraft

1 flying a couple hundred miles out and so on at  
2 those altitudes is very significant. Okay,  
3 next.

4 GPS L1, in my office we refer to  
5 this as the third rail. Nobody touches it.  
6 We safeguard that with our lives and everybody  
7 in this country right now is using GPS L1. If  
8 not, those other GPS channels. But this one  
9 and the once again related or frequencies next  
10 to it for GLONASS and Galileo are significant.

11 From 1610 or 1670 to 1710, two  
12 major things in there. Radiosondes. Most of  
13 us until we saw "Balloon Boy" recently didn't  
14 realize that a lot of weather data is still  
15 being taken by putting up balloons all over  
16 the country every day and tracking, measuring  
17 data as it goes up through the atmosphere and  
18 reporting that back. Once again, big  
19 footprint. Military operates them. Our  
20 weather service operates them but so do  
21 universities, TV stations, and so on, sending  
22 these devices up.

1                   In the same band, we have got  
2 meteorological satellite downlinks. So the  
3 NOAA birds are reporting down, providing data  
4 back in this band and the country is covered  
5 by earth stations receiving that data and  
6 being used for TV reporting, for other types  
7 of environmental analysis and so on.

8                   From 1755 to 1850, of course lots  
9 of folks are looking at this right now to see  
10 what they can do, having just we are working  
11 through 1710 to 1755. This has a lot of the  
12 stuff that used to be in the 1710 and 1755  
13 band rolled up in there. The precision-guided  
14 munitions, for instance, are now packed in the  
15 tighter range.

16                   We have got these other airborne,  
17 air-to-ground video systems in there that DoD  
18 trains with, guides weapons with. Certainly  
19 we want that to work right when they are doing  
20 that.

21                   DoD's mobile subscriber equipment  
22 DoD is actually employing in the field, stuff

1 that looks basically like tactical PCS or  
2 cellular system as part of their operation, we  
3 do things like shuttle payload control but the  
4 key is, the biggest areas here right now is  
5 DoD satellite control links take up most of  
6 the center of this range. They are at a  
7 series of sights across the country, not just  
8 one or two. And because they are controlling  
9 a satellite, telling it what it needs to do,  
10 it might be tumbling and they need to get it  
11 straightened out, essentially they are trying  
12 to pick up the satellite at the horizon,  
13 following as it goes overhead and talking to  
14 it for as long as they have, until it goes  
15 over the other side.

16           So it is one of those areas that  
17 requires kind of an immediate access when it  
18 comes up. The satellites themselves, of  
19 course, some are being launched today. Some  
20 are launched ten years ago. Most of them  
21 have, I would say probably, and Jennifer would  
22 know better, 20 year life spans,

1 realistically. Some of them have lasted  
2 longer than that. So those systems are going  
3 to have to be controlled at least until they  
4 die.

5           Now, mobile law enforcement  
6 nationwide, this is once again, one of the  
7 miracles of federal spectrum management. We  
8 have a nationwide operation that basically  
9 operates in the same spectrum with all of  
10 these other activities. And it is very  
11 localized but they have to be able to go where  
12 they need to go, do their investigation work  
13 and move on.

14           These systems did operate down to  
15 1710 and essentially at this point, almost all  
16 of them have moved out and essentially have  
17 gone from a 1710 to 1850 range to operate in  
18 to this range. So they have essentially just  
19 lost the spectrum. They have been paid to  
20 move or alter their equipment but they now  
21 have less spectrum than they used to have.

22           Also we did have some testing of

1 these devices in 1710 to 1755 to see if they  
2 were compatible with current day cell phones  
3 were moving in there and both sides there was  
4 just no way they were going to work together.  
5 Okay, next please.

6           From 2025 to 2110 is actually the  
7 control link space for mostly other of the  
8 federal agencies. Now, DoD has some  
9 satellites that are going in with this band in  
10 it also. But as far as I know, DoD, at this  
11 point, is not operating in the earth's  
12 terminals. NASA, NOAA, on the other hand, do  
13 and they operate these various very critical  
14 systems. And also we have to remember the  
15 electronic news gatherers are in that band  
16 also and NASA and NOAA kind of work around  
17 them. And that is one of the reasons why this  
18 band, at least at this point, is not appealing  
19 to DoD is that they have to do a lot, they are  
20 more active than NASA, NOAA generally and  
21 could not be in a spot. We are sorry,  
22 somebody says well I am doing a news broadcast

1 now, you can't control the satellite.

2           Okay, next band up 2020 to 2290.

3 This is actually the key telemetry downlink  
4 recognized worldwide. So those systems that  
5 are talking up and directing satellites in the  
6 other band, the information, the telemetry on  
7 those birds is coming down here. And also in  
8 many cases, the satellites themselves are  
9 talking to one another, relaying data around  
10 the world.

11           And we have some talk internally  
12 here as to whether this would fit a case where  
13 you could operate geographically around the  
14 land sights but then when you look at those  
15 cross-links, creates a whole different  
16 concern.

17           From 2360 to 2395 is the other  
18 major aeronautical telemetry band. Right now,  
19 there are medical device proposals at the  
20 Commission looking to move into that band.  
21 But once again, this band and the band down at  
22 the L band range, 1435, there is a lot of data

1 that goes through these systems. Once again,  
2 high altitude, long distance, very difficult  
3 to do a lot of detailed coordination, although  
4 they do a lot of time coordination and so on.

5           From 2700 to 2900, all the airport  
6 surveillance radars around the country are in  
7 this band. So, every major airport that is  
8 directing aircraft in, once that air route  
9 surveillance system hands them off, they are  
10 all being tracked in. This is probably what  
11 you recognize most when you see the screen  
12 with the person there at the airport directing  
13 traffic. They are probably looking at  
14 something from this output.

15           Also, the NEXRAD weather radars  
16 are moving into this band whole hog because  
17 the next band up where most of the weather  
18 radars are, it is getting filled up.

19           So let me just mention here, in  
20 this case, these weather radars, once again,  
21 are operated by TV stations, universities, in  
22 addition to the federal government. And with

1 each new generation, as we are doing with most  
2 of these radars, we are looking for  
3 improvement improved capability. And that  
4 often, for instance, when you used to see your  
5 weather radar on TV and all it was was the  
6 screen going around and it was either yellow  
7 or black, now you get multi-colors. You zoom  
8 down to your neighborhood, all that kind of  
9 stuff. And that is brought about the by  
10 increased capability of the radar system.

11           Next one up is 2900 to 3100 is the  
12 top end of the airport surveillance radar  
13 range or airport surveillance radars, NEXRAD,  
14 weather radars, there is others. Maritime  
15 beacons. We all love how cute lighthouses are  
16 but the electronic mechanism now is that there  
17 are electronic radar beacons along waterways  
18 that you can use for navigation and so on.

19           There are security radars in there  
20 and there is also radars that are used,  
21 hopefully most of them offshore to monitor  
22 arms control type activities, looking for

1 launches. So if you hear anything from the  
2 North Koreans, maybe it is in here. Okay,  
3 next one.

4           The last band I am going to cover  
5 3100 to 3650 is, I realize, a huge swath of  
6 spectrum. But throughout this band there are  
7 mobile high-powered military radars on the  
8 ground, at sea and in the air. The use of  
9 them generally requires very wide band widths.  
10 The technologies tend toward your capabilities  
11 that use a lot of band width and certainly  
12 they support all of our commitments around the  
13 world.

14           Some people have asked me, well  
15 how about in the United States? Do we really  
16 need these things in the United States? And  
17 I think one of the things we have to recognize  
18 that we do train at home. Every military unit  
19 has to be able to train at home. But there  
20 are times when these devices may be called  
21 into play. I have to believe on 9/11 that  
22 there were certain things lit up that maybe

1 hadn't been lit up before here domestically.

2 But anyway, there are requirements I think  
3 even within the U.S. for these applications.

4 So that is all of the bands in  
5 this range. Yes, sir?

6 MEMBER KAHN: On these kinds of  
7 things, and maybe Jennifer, you may know the  
8 answer to this question more, they operate in  
9 or presumably they are designed to operate in  
10 hostile environments.

11 I would assume that the  
12 interference situation is asymmetric in some  
13 sense, that the radar is going to work. The  
14 question is, is there anything you could put  
15 there underneath it that would still work?

16 MEMBER NEBBIA: I think that is a  
17 good question and, in fact, I think you will  
18 see some of both. You are going to see,  
19 certainly I remember, I was in the Marine  
20 Corps a long time ago, and the big issue back  
21 then was that the Russians were going to jam  
22 us. And that was the doctrine. That was,

1 they were going to try to stop us from talking  
2 and so on.

3 Well, any of you who have watched  
4 recent military activity see that the first  
5 thing that the military has learned how to  
6 deal with is any omissions on the other side.  
7 So actually although you can say that there  
8 are certain systems here that clearly use a  
9 frequency technique or technology that enables  
10 them to be jam-resistant, once they have I  
11 think taken those initial steps, there are  
12 other systems that come into play that are not  
13 so jam resistant and have to be, in many ways,  
14 more sensitive.

15 And for instance, when we got into  
16 the debate on five gigahertz Wi-Fi, everybody  
17 kind of said well why are these systems  
18 sensitive? Well, they are brought in at a  
19 point in time when you have dealt with much of  
20 the other play but you still have to be able  
21 to pick up an incoming fast-moving missile,  
22 that sort of thing.

1           So some of the devices actually  
2 are probably not quite so jam-resistant. They  
3 actually get the ability of them to pick up a  
4 target gets lessened by clutter that they  
5 have, or noise that they are impacted by.

6           But I am happy to say that on this  
7 committee, we have some people and companies  
8 represented here at that are experts in this  
9 field and I know they will help as we move  
10 this forward.

11           MEMBER WARREN: And I think that  
12 is a good topic in subcommittee.

13           MEMBER FURCHTGOTT-ROTH: Yes, I  
14 don't know maybe just as much to the whole  
15 committee is to Karl is that, I think, you  
16 know, following up on what Kevin said, it  
17 would be really useful, and I think this was  
18 mentioned, that we might be able to get a  
19 briefing specifically on the radar in  
20 technology and radar issues.

21           Because just at the end here, you  
22 have described 1,000 megahertz that is used by

1 radar and, in addition to this issue of well  
2 shouldn't they be built to be somewhat  
3 interference resistant anyway, there are other  
4 questions such as presumably the civilian  
5 aircraft being tracked by airports is not  
6 trying to be evasive. You know, they would  
7 like to be seen. So why does it take 300  
8 megahertz to do that if they are using  
9 beacons, for example.

10           So if there is a bunch of  
11 technical questions, it would be kind of  
12 interesting to understand better. And then  
13 things like the lobe issues, you know, back  
14 lobe, side lobe.

15           MEMBER NEBBIA: Okay. Just before  
16 I quit, I certainly think that looking at  
17 radar because it is such a huge portion of the  
18 spectrum is critical for the group in  
19 understanding that better.

20           I did want to mention a couple of  
21 things just before I broke off here. And this  
22 may get discussed more as we start talking

1 about the spectrum inventory, is this issue of  
2 what information becomes useful. We started  
3 discussing some things related to contours and  
4 you have got this on your other briefing  
5 sheet. And what I wanted to indicate here is  
6 that as we are doing our inventory work, in  
7 fact, what we are going to find is that we are  
8 going to define what we provide in terms based  
9 on our understanding. And it would be helpful  
10 for us to have input from all of you  
11 concerning what some of those characteristics  
12 that we should be looking for.

13           So, we have started defining some  
14 characteristics that we think are critical  
15 from our side, from our operations side. But  
16 I just wanted to take note of the fact, let me  
17 just go to the pictures that follow, if I can  
18 here. This is a Word file. It is a little  
19 bit different. Once again, I haven't given a  
20 specific band, all I have indicated here, we  
21 are dealing with a radar band with fixed  
22 locations. And the first picture here is

1 essentially taking the first 20 megahertz of  
2 that spectrum and saying using some  
3 characteristics that we have assumed for the  
4 potential commercial use, what contours we  
5 might come up with. And we have then broken  
6 that out in 20 megahertz segments.

7           So this is the first 20 megahertz.  
8 If I were to break it out in six megahertz,  
9 the picture would look different. So we  
10 picked 20 because everybody is saying 20  
11 megahertz is an LTE requirement. Okay, if  
12 that is not the case, we have to come up with  
13 some other mechanism that is useful.

14           But then you go on, of course, to  
15 the next one which is the next 20. And if you  
16 look at them together, you will notice slight  
17 differences. Okay, so in some geographic  
18 areas, the next 20 is open, whereas it was  
19 occupied the previous 20. So this is one way  
20 of us showing the fact that there may be some  
21 geographic openings that would help us here.

22           But so this is a technique that we

1 would like to consider. But once again, these  
2 pictures are based on assumptions that we  
3 would like your help on. What bandwidth do  
4 you want to look at? What field strength do  
5 want us to mark off as the contour? So these  
6 are things that we need your help in pursuing.

7 So, that brings me close to the  
8 end of my time. So, any other questions this  
9 morning?

10 MEMBER COOPER: Karl, you have  
11 looked at this entire spectrum inventory. The  
12 prior institution's is superb. The  
13 information you have, does that fulfill, in  
14 your mind, some of the needs about this  
15 proposed spectrum the military will ask for?

16 MEMBER NEBBIA: Well there are a  
17 couple of pieces of legislation on the table.  
18 One of them asks more specifically about  
19 frequency and location. That of course,  
20 presents challenges from a security and policy  
21 standpoint. The other is not as specific.  
22 And certainly we can tell a story here that I

1 think becomes understandable to people.

2           So, they get a sense of what it is  
3 that we are doing in these bands, what type of  
4 challenges that may be faced. For instance,  
5 we were talking about the 406 to 420 band and  
6 whether there was something that we could do  
7 with that. Well, one of the agencies raised  
8 their hand and said well, we have all the  
9 state and local folks now operating on  
10 channels in these bands in order to be  
11 interoperable with us. So if you come up with  
12 a move to reduce this band width and that  
13 money comes to us through CSEA, who is going  
14 to pay them to move?

15           So, those types of complications.  
16 But I think we have data necessary, I think to  
17 portray a good picture of how the feds use  
18 spectrum. We are going to certainly have to  
19 be very careful with the security issues and  
20 work closely with the agencies on what kind of  
21 information is releasable and what isn't.

22           MEMBER NEBBIA: You only get one

1 question, now. You got to lose your turn on  
2 the wheel.

3 MEMBER COOPER: I take it that  
4 some of these requirements that they are  
5 asking for, you don't think are either  
6 necessary or that they are more difficult to  
7 achieve. What you are suggesting is that this  
8 is a great basis to start a conversation about  
9 how to use the spectrum better.

10 MEMBER NEBBIA: And I think that  
11 is the kind of discussion -- I mean, you have  
12 to have that kind of discussion. So I am not  
13 really in a position to say.

14 But I would hope by the  
15 presentation today that you at least  
16 understand that it is maybe a different  
17 picture than or are we using 12.5 kilohertz  
18 channels or 6.25. It is a whole different  
19 issue than that. And I think that is, at this  
20 point, about as far as I could go.

21 MEMBER McHENRY: Your chart is  
22 totally misleading. This is where I might

1 detect a radar. The question is, if I emitted  
2 100 milliwatts, would jam the radar. These  
3 are dot plots of where the other guy could use  
4 them. So I think this plot is not --

5 MEMBER NEBBIA: Well that is  
6 important input to us. And I think in the  
7 end, we may have to plot both components,  
8 potentially. But once again, in that case, we  
9 need to know what the input is that we are  
10 looking that may present a problem to us.

11 MEMBER MCHENRY: Whereas, Peter  
12 might jam you so that he can't -- you don't  
13 want to exclude that. That is the use.  
14 Someone else can't do that.

15 MEMBER NEBBIA: Actually, I want  
16 to do both. I do not want to end up in a  
17 situation in the future where we are jamming  
18 a bunch of people and the public is out there,  
19 I just don't understand why I can't operate my  
20 system.

21 MEMBER MYLET: Yes, Karl, this  
22 looks like a book with chapters in it. And

1 then how easy, and how quickly, and I guess  
2 how hostile, to ascertain specificity in this  
3 by agency, by geography, so that you get true  
4 accountability of the asset? Does the radar  
5 cover the entire United States and is two  
6 megahertz? Easy to describe. If it is a land  
7 hold system for special operations, then a  
8 different level of system.

9 MEMBER NEBBIA: That is true.

10 There is no way to get away from that reality.  
11 There is going to be some information that we  
12 can't talk about. We will hope that the  
13 descriptions that we are able to provide will  
14 lead to the necessary discussions on the  
15 policy standpoint for where we might go from  
16 here.

17 The inventory is, you know,  
18 essentially a statement of this is what we  
19 have. It is not the end of any discussion  
20 that might go on. But it is important that  
21 people know it.

22 Also, one of the things that we,

1 and I think we have said this before, if there  
2 is a particular band or particular activity  
3 where somebody says I would really like to try  
4 doing this in this range, we can, I think, get  
5 the doors open to have a more direct  
6 discussion with the people who are operating  
7 there to see what we can proceed with. It is  
8 very hard to do that when we say well, can you  
9 tell us, can we operate unlicensed in here?  
10 Can you tell us, can we just deploy this? And  
11 it is kind of a very wide-open question. And  
12 we know that people would like on the other  
13 side to have flexibility and so on. But to  
14 actually get into discussions about what might  
15 be done five gigahertz, if we had not been  
16 able to get all those parties together and  
17 start working through that directly, there is  
18 just no way that would have happened.

19 Yes?

20 MEMBER DONOVAN: Karl, just for  
21 clarification, I guess, and maybe this is  
22 discussion more than a question. You focused

1 on up to 3 gigs here, essentially. But there  
2 was use beyond 3 gig manner, for example, 5  
3 gigs for example. The voucher bill I think  
4 asked for inventories up to 10, correct?

5 MEMBER NEBBIA: Yes.

6 MEMBER DONOVAN: Would you be able  
7 to, sort of at this chapter one, I know it is  
8 a lot of work, but is there a second chapter  
9 that provides similar information further up?

10 For two reasons. One, I think,  
11 not only just to see what is up there, what  
12 can we use, but to the extent there are  
13 recommendations regarding allegations that are  
14 going to be called beach finders, then maybe  
15 you may need to know where other places are.

16 MEMBER NEBBIA: Sure. And  
17 certainly the unlicensed community I think has  
18 indicated clearly that they are not  
19 necessarily locked in to those lower frequency  
20 ranges. We haven't quite heard that from the  
21 public mobile community that they are happy  
22 about going higher. But we can certainly

1 provide that at a future time.

2 MEMBER DONOVAN: I think that  
3 would be critical for decision-making.

4 MEMBER NEBBIA: Yes?

5 MEMBER FURCHTGOTT-ROTH: Yes, how  
6 much, so thinking just about the range that  
7 you presented, how much would actual spectrum  
8 measurements, you know, add to this picture?  
9 So for example, what OFCOM has done recently  
10 with fairly extensive dry test, does NITA have  
11 any resources currently that would go towards  
12 that or is that something that you would need  
13 in addition to your current resources?

14 MEMBER NEBBIA: Well first of all,  
15 certainly every one of the GPS bands, there is  
16 no question. The signal is operating. L5 is  
17 coming along and going to be used for  
18 aircraft. All of those aviation systems at  
19 960 to 1215 that they are loading up are at  
20 airport facilities and so on. You are not  
21 going to find many cases, if any where you  
22 find somebody who says well, yes, we used to

1 have a system there and we turned it off 20  
2 years ago.

3 All the air route surveillance  
4 equipment, you are going to find documented in  
5 FAA flight information. The same thing with  
6 all those air traffic control locations, the  
7 weather radars are being deployed in greater  
8 numbers.

9 The place where one could argue  
10 that monitoring might have some basis or help  
11 is in those bands where the uses are primarily  
12 mobile. And it is not that we couldn't spend  
13 time doing it but I can tell you, if you go  
14 into the 225 to 400 megahertz DoD band, you  
15 will not see much in the way of activity all  
16 the time.

17 So it really leads to a question,  
18 is that useable in some other way. Once  
19 again, we have got unlicensed in there. We  
20 have got MSS in there. We have got a number  
21 of other things. Some of those particular  
22 uses are also not all that easy to hear, if

1 you run out with your spectrum analyzer. They  
2 are just not that fineable. The same thing  
3 with, you can go into one of these telemetry  
4 bands. And if you are not pointing directly  
5 at where that aircraft is beaming back and you  
6 are picking that thing up, you probably can't  
7 see the aircraft, you are not going to get the  
8 signal. You are not going to have the  
9 capability of doing it.

10 So some of these, you are not  
11 going to get much monitoring data out of but  
12 we are certainly willing to look at that path.

13 MEMBER WARREN: I was going to  
14 say, I think in addition to if there is a  
15 decision about monitoring or not, particularly  
16 when you are looking at DoD bands, there is a  
17 long lag time between acquisition and  
18 deployment. So a snapshot of what is  
19 monitorable now, is in now way indicative of  
20 what it will be in four years, five years.  
21 You can look at 225 to 400 right now to make  
22 expansion up the mobile user system there, the

1 MSS system. There is a lot of other examples.

2 So, I think we could be misleading  
3 ourselves, also, if we at least in some veins,  
4 try to do it that way. But again, the group  
5 has to take into account the acquisition  
6 cycle.

7 CO-CHAIR HATFIELD: But that  
8 doesn't argue against doing the monitoring.

9 MEMBER WARREN: I think it did.

10 CO-CHAIR HATFIELD: If you do the  
11 monitoring, then you have an excuse that this  
12 has been --

13 MEMBER WARREN: It has to be  
14 supplemented with other factual information.

15 CO-CHAIR TRAMONT: We are about  
16 out of time. Is there anything else for Karl?

17 So with that, it is 11:00. So why  
18 don't we reconvene at 11:10 and we will kick  
19 off with the committee reports.

20 (Whereupon, the foregoing meeting  
21 went off the record at 11:02 a.m.  
22 and resumed at 11:15 a.m.)

1 CO-CHAIR TRAMONT: Greg, are you  
2 still on the phone?

3 MEMBER ROSSTON: Yes, I am.

4 CO-CHAIR TRAMONT: Excellent. We  
5 are reconvening.

6 MEMBER ROSSTON: I hope you  
7 enjoyed the coffee break.

8 CO-CHAIR TRAMONT: Exactly. I  
9 hope you were able to take full advantage.

10 All right, very good. We will now  
11 proceed with the subcommittee status reports  
12 and discussions. A quick change in the  
13 schedule. Mark and Jennifer will start and  
14 then Darrin will go second and then David and  
15 then Rick will wrap us up and clean up for the  
16 subcommittee reports.

17 So with that, I will turn it over  
18 to Mark and Jennifer.

19 MEMBER CROSBY: Thank you. I will  
20 start but I need some help. You have the  
21 current version of the document. This one with  
22 the checkmark that one includes edits that

1 were made this morning as I was driving in.

2 CO-CHAIR TRAMONT: Very safely as  
3 you were driving in, for the record.

4 MEMBER CROSBY: I will start by  
5 the committee at this point to --

6 MEMBER BORTH: There is a request  
7 to be closer to the microphone.

8 MEMBER CROSBY: Is that better?  
9 Okay. Goodness.

10 As I was saying, my co-chair and I  
11 will ask her to share with her visions of how  
12 we are doing. Again to my left, Michael  
13 Calabrese, Bob Gurss, Marty Cooper and Gary  
14 Epstein have been participants.

15 This document serves as our  
16 interim paper. I have been asked to say what  
17 our timelines are. We will meet the  
18 timelines. We do plan on meeting with  
19 representatives from NTIA and the FCC to see  
20 where they are, what we can learn, how we can  
21 make this the work of this committee clearer  
22 and more beneficial.

1           I think one of the things we also  
2 want to work on, because it is clearly not in  
3 the legislation. What would be the benefits  
4 of a spectrum, all of the various benefits  
5 that might be made available and probably come  
6 up with some benefits of the spectrum  
7 inventory and how it can help with telecom  
8 policy.

9           One of the things that we did  
10 highlight as we were a little not necessarily  
11 concerned, but we have questions about  
12 appropriate funding for the agencies to  
13 accommodate their mission for a spectrum  
14 inventory. We have a lot of work to do but  
15 after hearing Karl's speech, it looks like we  
16 may not need this for NTIA but we will strive  
17 to persevere and will continue to come up with  
18 what we think might be optimum components of  
19 spectrum inventory.

20           Jennifer.

21           MEMBER WARREN: I think Mark  
22 really covered it. I mean, towards the end on

1 the pages two and three are the questions that  
2 were set out and tentative answers that the  
3 group has put together, and more work that,  
4 you know, we can see, if necessary. There are  
5 follow-up steps, etcetera, that we believe  
6 could be taken and should be taken. And that  
7 would be the next step of our working group.

8 CO-CHAIR TRAMONT: Okay. And for  
9 all of the subcommittees, I think our goal  
10 would be, if possible at the next stage, to  
11 present draft reports and then at the meeting  
12 that follows, give final reports.

13 MEMBER CROSBY: We will get that  
14 done.

15 CO-CHAIR TRAMONT: Excellent. And  
16 I think, as we will discuss at the end of the  
17 meeting, we are trying to roll together the  
18 next session somewhere in February for our  
19 draft report.

20 MEMBER CROSBY: That will be  
21 appropriate, thank you. We will make that.

22 CO-CHAIR TRAMONT: Excellent. So,

1 that is our tentative -- so unless we are able  
2 to assume every subcommittee is driving toward  
3 those two goals.

4 MEMBER NEBBIA: Can I just mention  
5 very quickly, if you have a need for one of  
6 our folks to participate, please let me know  
7 what that specific need is and I will have  
8 somebody participate and specifically try to  
9 provide that input. I would hope also, at the  
10 same time, you might be willing to accept the  
11 idea of some of our people just more or less  
12 getting on your list to just kind of monitor  
13 what is going on. I really want to stay away  
14 from the idea of our people doing a lot of the  
15 work.

16 MEMBER CROSBY: That won't happen.

17 MEMBER NEBBIA: We used to have a  
18 meeting like this where all of our people  
19 wrote the recommendations and the committee  
20 would come in and do this or this.

21 MEMBER CROSBY: I can assure you  
22 that will not happen.

1                   MEMBER NEBBIA: But we are happy  
2 to come and answer questions and so on. I  
3 just don't want our guys to get into to do a  
4 lot of writing and all that.

5                   MEMBER CROSBY: I assure you, that  
6 is not our expectation.

7                   MEMBER NEBBIA: So, you know,  
8 working through the contact, you know, the  
9 working group chairs, please just let me know  
10 if there is a specific request that you have  
11 and then I will have other folks that will  
12 probably contact you saying they would like to  
13 get on your list and then you set them up.

14                  CO-CHAIR TRAMONT: One other thing  
15 I would ask, in light of the inventory, it  
16 seems possible that the agencies will conduct  
17 inventory with or without legislation. So I  
18 think one of the important is to look beyond  
19 what the legislation calls for and speak more  
20 broadly about what could be done even after  
21 legislation.

22                  MEMBER SALEMME: You had mentioned

1 when Karl was doing his presentation that  
2 there is a lag time, especially around  
3 satellites and some of these other  
4 technologies. How would we take this into  
5 account?

6 MEMBER WARREN: That is a very  
7 good question. It does not take that into  
8 account, explicitly. I mean, I know that the  
9 legislators have recognized that there is a  
10 lag time between what is there versus what is  
11 coming and I am not quite sure how that is  
12 going to be addressed in their spectrum  
13 inventory though. But I think that is a very  
14 good point that that should be captured.

15 For example, when the FCC issues a  
16 license, the time when it is actually used in  
17 a satellite context or when NTIA does the  
18 spectrum one certification for a system versus  
19 one that is certification forceage.

20 MEMBER NEBBIA: And certainly one  
21 of the major challenges is some of these  
22 systems have a long life span. You can't pull

1 the satellite back, for instance. But also  
2 one of the things that the agency has been  
3 stressing with me, if you are dealing with an  
4 air navigation type of radar, at any  
5 particular point in time, development work is  
6 going on on that radar to improve its  
7 capability to the future. So, even though you  
8 may say we would like this radar out in ten  
9 years, they are in the middle of the  
10 development program right then with  
11 congressional funding and so on to develop the  
12 next modification of that radar. So you are  
13 not only telling them you are going to plan to  
14 move these devices out, you may be shutting  
15 down development programs or shifting  
16 development programs that come up with new  
17 technology for other bands. So, it is pretty  
18 involved.

19 MEMBER SALEMME: Follow-up  
20 question then. Do you also need to know how  
21 capable those models are to include new  
22 frequency bands or somehow you have to capture

1 those already working?

2 MEMBER WARREN: Did you think that  
3 that needs to be done in the context of a  
4 special inventory? A capability which you  
5 have in setting up the framework?

6 MEMBER SALEMME: Well something  
7 you would say I have actually thought that, my  
8 goal that I include it in development and then  
9 begin to move that forward with authorization  
10 from appropriation for work. And that is one  
11 of the reasons we can't move without that.

12 CO-CHAIR TRAMONT: Well and some  
13 of these factors are equal issues, certainly  
14 what you could call safety community  
15 adjustment contractive sacrifices.

16 So I figure this is probably part  
17 of a larger conversation about when you come  
18 to a certain manager there's no use -- quite  
19 a bit of policy in the commercial bands  
20 claiming two years because of X, Y, and Z.  
21 There is a number of factors that go into this  
22 assessment on the personal hand --

1           MEMBER WARREN: Well two of the  
2 ones that I think come out this year are the  
3 allocation issue and the acquisition issue.  
4 So those are two --

5           We were going to incorporate the  
6 acquisition and allocation issues that have  
7 been flagged here into the draft report that  
8 we will be working on.

9           MEMBER KAHN: One other thing that  
10 might be worth picking up was the point Karl  
11 made, I think in his charts, the contra  
12 charts, that we need to get kind of some kind  
13 of an explicit granularity of what a  
14 meaningful allocation is so that if the  
15 inventory spends a lot of time finding, you  
16 know, to be absurd, 100 kilohertz chunks of  
17 spectrum, it is wasted. It is useless at  
18 work. It may be useless. It might be useless  
19 work, if all of the interest in commercial  
20 applications we are looking at going forward  
21 have a minimum granularity of 5 megahertz or  
22 10 megahertz or something.

1           So some way as we do these things  
2 of providing the right kind of filter on kind  
3 of the value proposition of what you recover.  
4 And I don't know whether that goes in the  
5 inventory or somewhere else but it certainly  
6 would shape what an inventory might look like.

7           MEMBER WARREN: What you also  
8 bring to mind is the fact that we probably  
9 need to look at how the frequencies are also  
10 divided in terms of the international table of  
11 allocations, too, particularly whether it is  
12 for satellites or some of the allied  
13 interoperable equipment that we should be  
14 looking at things probably in comparison to  
15 that, not just how the FCC or NTIA has sliced  
16 and diced it.

17           CO-CHAIR TRAMONT: Darrin.

18           MEMBER MYLET: I mean, this seems  
19 likes an unprecedented opportunity to really  
20 look at inventory as being a very meaningful  
21 operative transparency and accountability. I  
22 mean, that is the case.

1                   And radars are one area that I  
2 think a lot of us are weak on. But if you  
3 look at a radar system being planned, let's  
4 just say as an example, 10 megahertz or 20  
5 megahertz or maybe even less across the entire  
6 United States and it takes ten years for that  
7 system to be built and brought online, is that  
8 spectrum basically thrown into the warehouse  
9 for that period of time or is it used or  
10 allocated by somebody else? Or you know, what  
11 sort of processes and who is accountable to  
12 that? If that is a DoD system, is that DoD is  
13 taking control of that particular asset  
14 accountability?

15                   MEMBER NEBBIA: Well certainly,  
16 there are radio locations, radio navigation  
17 bands in the allocation table, both  
18 internationally and domestically. And anybody  
19 that is developing radar systems is saying to  
20 themselves right now, this is the bandwidth  
21 that I have to operate in and I am going to  
22 build the best system that I can within this

1 context.

2           So for instance, when jamming  
3 became a big issue for DoD and radar systems,  
4 they began to build radars that hopped across  
5 large portions of the spectrum. Now if you  
6 had a public mobile receiver in there, would  
7 you want something that is megawatts hitting  
8 you, even with a short pop as it went by? I  
9 know that there is concerns about the impact  
10 to the receivers themselves from that power.

11           So those things have changed over  
12 time but they are looking at their planning  
13 saying this is how much bandwidth I have and  
14 this is what I am going to work within.

15           MEMBER WARREN: There is another  
16 aspect to his question, which is as you can  
17 see there is not a lot of -- I mean, the  
18 spectrum that is being used for radars is not  
19 just sitting idle. Radar modernization occurs  
20 while existing radars are in operation. The  
21 use doesn't go away. It is just you then  
22 substitute.

1           So I don't remember what the  
2 acronym stands for, you know, the SLEP. I'm  
3 sorry. It is a radar. I was hesitant to say  
4 it. I was hoping you would remember but it is  
5 a radar modernization effort that is ongoing.

6           MEMBER COOPER: Does Cooper's Law  
7 apply to radars as well?

8           MEMBER WARREN: Remind me of  
9 Marty's law.

10          CO-CHAIR TRAMONT: David one more  
11 thing.

12          MEMBER DONOVAN: Yes, just  
13 briefly, just taking a quick look at this. It  
14 looks like you have done a fairly good job  
15 really with assessing utilization --

16                I was wondering whether or not you  
17 could move toward developing some additional  
18 usage on the license side. I know that is a  
19 lot more difficult. You could certainly look  
20 at a number of things. For example, put the  
21 manufacturer on this who is coming on a  
22 specific band. You could look at it from the

1 retail level. You could look at it from the  
2 wholesale level.

3 To the extent that you are doing a  
4 lot of power-based station installation we  
5 need to be able to get it back. To the extent  
6 that services are being provided on a  
7 subscription basis, you may be able to get the  
8 generic subscription data.

9 Not that either one of those are  
10 dead spot on but if we are going to look at  
11 inventory spectrum usage on a going forward  
12 basis, to the extent a license could be a  
13 great part of that regime, I think we ought to  
14 think about looking at some additional metric  
15 of how you measure the spectrum.

16 CO-CHAIR TRAMONT: Bob.

17 MEMBER GURSS: Some of those might  
18 be areas where monitoring might be discreetly  
19 beneficial.

20 I remember a case quite a few  
21 years ago looking at a band where there were  
22 a lot of microwave ovens in use. And someone

1 did some monitoring in LA to see what the  
2 potential for sharing was and, predictably, it  
3 peaked at mealtime.

4 (Laughter.)

5 CO-CHAIR TRAMONT: Anything else  
6 for Jennifer?

7 MEMBER CROSBY: We welcome all  
8 suggestions and comments.

9 MEMBER WARREN: Dave, your  
10 comments were really helpful. Could you  
11 reiterate those in writing by e-mail?

12 MEMBER DONOVAN: Good, God.

13 (Laughter.)

14 MEMBER WARREN: Okay, the  
15 transcript. Thank you.

16 CO-CHAIR TRAMONT: He is so  
17 articulate live, we can just transcribe it.

18 All right, very good. With that,  
19 thank you very much for the report.

20 Darrin?

21 MEMBER MYLET: Okay. So our task  
22 is to focus on transparency. Since spectrum

1 and transparency are obviously over the last  
2 year or so that on Google and the internet  
3 have gone up 10,000-fold, I think, as far as  
4 searches and information requests and I think  
5 rightly so.

6           It appears to me that we do have  
7 artificial scarcity. And I do think it  
8 constrains a lot of things that could be going  
9 in our economy and public safety and grids,  
10 and even mission performance, robust  
11 broadband, all these things are, in my humble  
12 opinion, very dependent upon getting spectrum  
13 transparency and understanding the specifics  
14 about who has what where, how much do they  
15 have or control, and do they use it, and when  
16 will they use it. And I think this crosses  
17 both FCC and NTIA both, both at the federal  
18 and non-federal levels.

19           Now I predict that if we do  
20 transparency right and we do inventory right,  
21 we are going to identify tons of spectrum  
22 across multiple geographies. So the task of

1 this particular subcommittee, you know, I  
2 think if we went around the room and we asked  
3 for specific how do you define spectrum  
4 transparency, we probably would have 20  
5 different answers.

6           So the task group is trying to  
7 identify a definition of spectrum  
8 transparency. And we think we ought to break  
9 it down into internal transparency. So this  
10 is for Karl and the team that have classified  
11 clearances. So that there truly is internal  
12 transparency, what does that mean to those  
13 federal bands and DoD bands? And then there  
14 is external transparency and a push to try and  
15 make as much information about federal  
16 spectrum available so that scholars,  
17 academics, equipment vendors, whoever it may  
18 be can actually start looking at federal  
19 spectrum and how it might be used, as long as  
20 it is not going to affect mission critical or  
21 other types of missions that we know are  
22 really important to specific federal agencies.

1                   So can this data, does this data  
2 exist? Is it going to exist that can be put  
3 into aggregate pictures to describe what I am  
4 talking about? I am going to show some  
5 examples of just one aspect of spectrum  
6 transparency in just a bit, after I go through  
7 a few more comments here.

8                   Why is it important? Again, why  
9 is spectrum transparency important? Again, if  
10 I am in charge of spectrum or I am the  
11 assistant secretary, you know, I might want to  
12 know specifically, how is the spectrum used?  
13 I might want to be able query how many  
14 different agencies are using spectrum here in  
15 D.C. at any given point in time certain? Or  
16 the staff may want to know this question.

17                   So I think the accountability and  
18 oversight is another, I think, important  
19 factor of getting transparency truly out into  
20 the forefront. Then, we can move to benefits  
21 of transparency, real time sharing, secondary  
22 use, and so on. There are so many different

1 entities out there right now looking for  
2 spectrum. You have got the FCC maybe showing  
3 up here as a wolf dressed in sheep's clothes  
4 because I am looking for spectrum.

5 I think also this applies to the  
6 other side. You know, there ought to be  
7 transparency on the FCC side as well. And  
8 that is another topic that our group is going  
9 to tackle as we move forward.

10 There are concerns with external  
11 transparency and our groups have intended to  
12 identify those and bring those to light asking  
13 specific questions, trying to determine, you  
14 know, is it really an important issue as  
15 public safety you have to disclose their  
16 towers, their sites, their locations.

17 Broadcasters have to disclose their specific  
18 sites, locations. And often are those  
19 particular -- have they ever been attacked?  
20 You know, has it caused a disruption in  
21 service by disclosing specific information  
22 about how specific spectrum is used.

1                   Getting to FCC spectrum  
2   transparency because I do think it is part of  
3   the remit, you know, got to FCC.gov and try to  
4   determine how much spectrum different entities  
5   have. How much do they use? And I know for  
6   a fact two of the bigger carriers in the city  
7   control directly 100 or more megahertz of very  
8   good valuable spectrum. Well how much do they  
9   use today and on what basis are they going and  
10  trying to get more? So that we have this  
11  information about specific allocation  
12  assignment at the FCC level. And I think I  
13  heard that today that was the number one  
14  topic, the first topic that was actually  
15  brought up.

16                   So that is exciting and I think  
17  that is needed. And I think internally, I  
18  don't think the federal government should  
19  worry about getting spectrum taken away, if we  
20  can force the FCC to look at their allocation  
21  assignments and how efficient they are as  
22  well. So I think we ought to look across the

1 lines there.

2           Examples of spectrum transparency.

3 I thought today that I would actually show a  
4 system of one of many that may exist out  
5 there. Federal agencies may have their own  
6 systems already that are better than this or  
7 in the works to be done. But pictures can be  
8 worth a thousand words. So this is a  
9 particular system that speaks in real time  
10 records from FCC databases that exist today.  
11 I pulled the outputs. You can go and make a  
12 query and you can see, okay, city. You can  
13 query frequency. You can query channel and at  
14 any given time, in any given geography, who  
15 actually controls that spectrum.

16           Now the million dollar or billion  
17 dollar question maybe is, do they actually use  
18 it. You know, that is a separate question.  
19 And also can you aggregate the different  
20 frequencies and channels and can you create  
21 algorithms to determine how much specifically  
22 do they control in any specific geography.

1                   So, I will ask the lovely Karl  
2 Nebbia.

3                   So this is just an example of a  
4 query that asked for a PCS C Block in Georgia.  
5 And bang, within a matter of seconds it is  
6 displayed on an output. Now utilization,  
7 again, you know, we talked about spectrum  
8 monitoring, you want to throw this in as a  
9 concept, as an idea. Maybe we don't need to  
10 measure all the spectrum nationwide in this  
11 country but there is a group in Boulder that  
12 are very, we met with them I think last year  
13 that have a truck. Perhaps it will be useful  
14 from time to time to reinforce their  
15 capabilities to give them funding so that they  
16 can go out and not only measure federal  
17 utilization, but to measure commercial, and to  
18 make that data transparent and put it out into  
19 the market so people can actually look at it  
20 and see how the commercial sector is actually  
21 using spectrum in specific sites and  
22 locations.

1                   Next slide, please.

2                   CO-CHAIR TRAMONT: Darrin, real  
3 quick. Does this reflect leasing? So does  
4 that reflect ownership of the licenses only or  
5 does it reflect leasing long-term, short-term?  
6 How dynamic is the database now?

7                   MEMBER MYLET: It takes the  
8 records as they exist today. And if it is a  
9 C Block and it is a big block and it hasn't  
10 been partitioned or disaggregated because a  
11 lot of these blocks have not, but if it is the  
12 record, there has been a lot of, over time,  
13 hiding of entities and so on within the FCC  
14 records. So there are methods for us to  
15 determine who might be the real owner of that  
16 particular spectrum, based on an e-mail  
17 address going to the same site as AT&T.

18                  CO-CHAIR TRAMONT: Okay but is not  
19 as linear.

20                  MEMBER MYLET: It is not. Certain  
21 bands are more transparent than other bands.  
22 And again, that is a recommendation I think we

1 need to look at.

2 MEMBER SALEMME: Is this  
3 proprietary software that is being used here  
4 or is this just an off-the-shelf product that  
5 anybody can purchase?

6 MEMBER MYLET: Anybody can  
7 purchase. It is available. You can go out  
8 and get access to this type of system  
9 tomorrow.

10 MEMBER SALEMME: This specific  
11 system is available?

12 MEMBER MYLET: It covers most of  
13 the FCC bands where there is really activity,  
14 where there is really any usefulness, 2-5, 2-  
15 3, 2-1, 1-7 and so on.

16 But again, so here is an example  
17 of comparing, talking about comparing agencies  
18 and assignments, etcetera. So here is where  
19 you can compare maybe two different carriers,  
20 a Sprint or an AT&T. Or maybe if you had this  
21 within the federal side, you could compare how  
22 might Department of Agriculture be using this

1 system versus the Department of Interior, if  
2 they are using two different bands or the same  
3 band.

4 So we do think there are methods  
5 to show transparency of who has the  
6 allocation, how they are actually using that  
7 particular spectrum. You know, this is, I  
8 think, modern transparency.

9 CO-CHAIR TRAMONT: So this data  
10 that you said is the market territories. So  
11 this presumably is what the carriers have on  
12 their map on their websites --

13 MEMBER MYLET: Correct.

14 CO-CHAIR TRAMONT: -- and you are  
15 comparing those to, not a government database.

16 MEMBER MYLET: That is correct.

17 You know, the carriers doesn't have to  
18 disclose how they use their spectrum which,  
19 again, I think would be a very useful  
20 recommendation if we could come up with that  
21 recommendation but you know, to actually  
22 disclose where they actually use their

1 spectrum, their market-based assignments. But  
2 this is just using the information they put  
3 out in public record.

4 MEMBER KAHN: Although you do have  
5 to be a little bit more careful, I think, and  
6 certainly this is not my side of the business  
7 but you know, on spectrum that has been  
8 explicitly auctioned for large sums of money,  
9 you know, the government has already taken a  
10 position on that, at least. Which it said  
11 that is willing to allow a certain amount of  
12 stock piling of spectrum against a believed  
13 business plan. So when you talk about kind of  
14 utilization there, we can't have our cake and  
15 eat it too. There obviously are limits. But  
16 I mean, you know, there is public good,  
17 etcetera. But there also has to be some  
18 balance here that if we are going out to  
19 people and saying go buy the stuff.

20 MEMBER MYLET: Well Kevin, the  
21 point that I am trying to make with  
22 transparency is we are not trying to make a

1 policy.

2 MEMBER KAHN: No, I understand.

3 MEMBER MYLET: You know, this --

4 MEMBER KAHN: I was just referring  
5 to the passion with which you were describing  
6 some of it.

7 MEMBER CROSBY: The other issues  
8 is that it doesn't reflect what may be used.  
9 The companies that are rolling out these  
10 spectrum, they have purchased them.

11 MEMBER MYLET: Yes.

12 MEMBER CROSBY: That information  
13 has to be considered in one form or another.

14 MEMBER WARREN: Well I think that  
15 is a good point of debate when we get into  
16 whatever subcommittee that is going to be,  
17 whether the assignment mechanism makes a  
18 difference or not.

19 But I do think it begs the  
20 question in the very first chart when it talks  
21 about ownership of spectrum. I think there  
22 should be a discussion that we have been using

1 the concept of ownership of spectrum because  
2 I think we would have very different views in  
3 this group already on whether there is that  
4 regardless of the assignment mechanism used.

5 MEMBER KAHN: Well I wasn't, by  
6 the way, I was not discussing ownership or  
7 lease or whatever you want that to view.

8 MEMBER WARREN: But it is tied in.

9 MEMBER KAHN: Just that if we have  
10 said to people, pay us a lot of money and we  
11 will give you the spectrum, we have sort of  
12 taken a position on that.

13 CO-CHAIR TRAMONT: Well, in  
14 exchange for an explicit build-out. Right?

15 MEMBER KAHN: No, no, no. There  
16 is a whole set of time things associated with  
17 that. All I am saying is that those things  
18 have to be reflected in an analysis of this  
19 sort. You just can't say well, here is this  
20 huge block of spectrum and AT&T bought it but  
21 they are not using it.

22 MEMBER CALABRESE: But that is why

1 you need transparency, so that the policy  
2 makers can make the kind of arguments you are  
3 making.

4 MEMBER KAHN: Like I said, I was  
5 simply addressing the passion.

6 CO-CHAIR TRAMONT: Okay, we have a  
7 couple more committee reports. Let's roll  
8 through, if we can.

9 MEMBER MYLET: Okay. So, we will  
10 move on to the next one. You know, here is an  
11 example of spectrum where there was  
12 significant efforts of rule changes and the  
13 spectrum is now being put to a use by entities  
14 around the country. But again, this shows the  
15 particular E Block of ERS spectrum. You know,  
16 this is 196 megahertz of spectrum that has  
17 been allocated and assigned to 42 beta  
18 services, etcetera.

19 Now the interesting thing about  
20 this, if I were to go into the system right  
21 now live and switch to EBS, which is the 100  
22 or so megahertz of this particular band and

1 ask for that information, by default, it would  
2 show all the white space that exists out there  
3 in the 2.5 gigahertz band. And a lot of that  
4 spectrum is sitting in rural parts of this  
5 country waiting for a rainy day.

6           So you know, transparency at the  
7 commercial level will certainly allow us to  
8 identify a lot of other white space "spectrum"  
9 that exists out there. So we have the  
10 transparencies that create this real time  
11 analysis. Next, please.

12           MEMBER FURCHTGOTT-ROTH: Do you  
13 have this more granular?

14           MEMBER MYLET: Yes. This goes  
15 through all 196 megahertz. This is just 106  
16 MEG channel.

17           MEMBER FURCHTGOTT-ROTH: Oh, E-1.  
18 Okay. Fair enough.

19           MEMBER MYLET: This is just E-1.  
20 So we could do all of them. We could bring it  
21 down. You know, this is the level of  
22 specificity I think we have to get to sooner

1 rather than later, in my opinion, across all  
2 spectrum bands.

3           This is an interesting one. So  
4 this shows spectrum ownership by frequency  
5 channel and geography query. So you can pick  
6 in systems and you can say I want to see who  
7 owns a specific block in California. I want  
8 to see it at the county level. I want to see  
9 it over five states. You know, it is  
10 important to be able to do the quantification  
11 and qualification across very specific  
12 geographic footprints of a specific channel  
13 box. Next, please.

14           This is an overlay. So we were  
15 talking mostly there about market-based and  
16 some contour-based. This is an example of  
17 site-based spectrum. And the microwave in our  
18 country, I think that will be focusing in the  
19 short-term the middle mile and microwave is a  
20 technology that I think 90 percent of I think  
21 the back hall in Europe to the bay stations  
22 and microwave. So as we move forward, site-

1 based allocation of assignments, I think they  
2 are going to become even more and more  
3 important, although there is a lot of spectrum  
4 out there already for that today.

5 MEMBER FURCHTGOTT-ROTH: And what  
6 bands of spectrum are covered by this  
7 particular segment?

8 MEMBER MYLET: All of them.

9 MEMBER FURCHTGOTT-ROTH: All the  
10 way up to like 50 gig.

11 MEMBER MYLET: You can go and do a  
12 query of any band, as long as it is FCC, FAA,  
13 or some commercially available format, we have  
14 got it in our system already today.

15 MEMBER EPSTEIN: Including leased  
16 and unlicensed?

17 MEMBER MYLET: Not unlicensed.

18 MEMBER EPSTEIN: But --

19 MEMBER MYLET: This is licensed.

20 This is dedicated hertz, 18 gigahertz, 23  
21 gigahertz.

22 MEMBER FURCHTGOTT-ROTH: There is

1 a lot else going on out there.

2 MEMBER MYLET: Yes. This is just  
3 one --

4 MEMBER FURCHTGOTT-ROTH: Yes, I  
5 know. I understand. You are capturing part  
6 of the picture here.

7 CO-CHAIR HATFIELD: Just to be  
8 clear, though and make sure I understand. I  
9 am showing my age here. When the Commission  
10 has gone to area licensing, the Commission is  
11 not maintaining detailed site-by-site  
12 information, like they do in Australia. So  
13 therefore, if I was really trying to do  
14 detailed engineering, I would not add  
15 information that would need to do a  
16 traditional type interference analysis. What  
17 you have done is overlay what they claim to be  
18 their coverage area, which doesn't tell me  
19 because they may be using fill-in type  
20 repeaters or boosters and there may be cells  
21 and all kinds of stuff out there that I might  
22 have to take into account. So that is far

1 from anything that is in the existing  
2 database.

3 MEMBER MYLET: That is correct.  
4 You are exactly correct.

5 CO-CHAIR HATFIELD: That is true  
6 on the microwave link site?

7 MEMBER MYLET: On the microwave  
8 links, the data is out there. Any FCC common  
9 carrier license, the data is there so it can  
10 be manipulated into a system.

11 MEMBER CALABRESE: Well a  
12 microwave's point is site-based licensing.

13 MEMBER KAHN: Right. That is what  
14 I thought. That why I was trying to --

15 CO-CHAIR HATFIELD: That goes  
16 exactly to my point. We gave up on site-based  
17 White Papers which was good in some ways.

18 MEMBER KAHN: No, no, no. There  
19 are two things going on here that I am just  
20 trying to understand.

21 I thought that this was  
22 specifically a discussion about microwave

1 link.

2 MEMBER MYLET: Yes, this is --

3 MEMBER KAHN: No, no. But that  
4 still is site-based. Right?

5 MEMBER PEPPER: Yes, but I thought  
6 that actually even with the geographic  
7 licenses, as bay stations go in, that there re  
8 requirements of the Commission for filing that  
9 and that there are some questions about lag  
10 time.

11 CO-CHAIR TRAMONT: I think a link  
12 implicates FAA.

13 CO-CHAIR HATFIELD: The FAA.  
14 There are some indirect ways like the FAA  
15 stuff.

16 MEMBER MYLET: This is contour-  
17 based. So if there is a contour filing at the  
18 FCC, you can query it and it would output it  
19 over the specific geography. And you can  
20 query all the contours based in the geography  
21 that you pick. So if you pick a state and you  
22 want to see all the contours, it can be shown.

1 Within a county, if you want to pick the  
2 contours within a county, it can be shown.  
3 Pick nationwide, it gives you all the contours  
4 nationwide.

5 So this is transparency of  
6 specific contour-based assignments as mostly  
7 the cellular and some of the other contours.  
8 Next.

9 Here is an example of spectrum  
10 that is largely in use nationwide, 2.3  
11 megahertz, 20 megahertz channel size or a 30  
12 megahertz channel size with ten megahertz  
13 having S-STARS interference. You can see how  
14 big these auctions were for this particular  
15 spectrum. And again, I think this a topic for  
16 another subcommittee, but auctions don't  
17 always present in the best way to put a  
18 spectrum to a use, let alone a best and  
19 highest use. Thanks.

20 CO-CHAIR TRAMONT: Okay. Any  
21 question for Darrin? And obviously the same  
22 expectation holds on the transparency

1 committee. Hopefully we will move to a draft  
2 report in February with the final report in  
3 March.

4 CO-CHAIR HATFIELD: Darrin was  
5 looking the other way. I wanted to see if you  
6 got the commitment.

7 MEMBER MYLET: Pardon me?

8 CO-CHAIR HATFIELD: Draft report  
9 in February and final report in March.

10 MEMBER MYLET: Yes. We are on  
11 task.

12 MEMBER OBUCHOWSKI: Can I ask, in  
13 this topic, it would be very useful, at least  
14 to me, at the next meeting for us to have a  
15 resemblance of a report from the FCC. Maybe  
16 it was done on Broadband Plan.

17 And spectrum is the issue there, I  
18 would love to hear the band-by-band thinking  
19 of the FCC.

20 CO-CHAIR TRAMONT: Depending on  
21 our timing, because we may or may not be  
22 before the broadband report but I mean, we

1 could reach out to Julie and see if she would  
2 be willing to come over and do it.

3 MEMBER OBUCHOWSKI: The micro was  
4 interesting but on some level with macro is --  
5 you know, people are making very broad  
6 statements about the 800 megahertz for this or  
7 that. And frankly, I have listened to this  
8 for 45 minutes. I don't know where these  
9 statements are coming from. I don't know  
10 where.

11 (Laughter.)

12 MEMBER OBUCHOWSKI: I mean, what  
13 is useful to me here would be if both agencies  
14 setting out who has what.

15 MEMBER EPSTEIN: So that is kind  
16 of why I asked Bruce what kind of data they  
17 had.

18 MEMBER COOPER: So this actually  
19 picks up. So it might be, in terms of the  
20 timing of the next meeting, to do it after  
21 February 17th. So that last week in February  
22 probably makes sense.

1                   MEMBER WARREN: But we won't get  
2 FCC people before the 17th.

3                   MEMBER DONOVAN: Right. Let's  
4 have a special meeting in December on that.  
5 December 20th.

6                   MEMBER EPSTEIN: Exactly. A  
7 special holiday meeting.

8                   CO-CHAIR TRAMONT: All right. We  
9 will begin on the timing of the drafts. Okay,  
10 thank you very much Darrin. Anything else for  
11 Darrin before we move on?

12                   Mr. Donovan, you are up.

13                   MEMBER DONOVAN: We are running  
14 out of time. I will be brief.

15                   We have been working fairly  
16 quickly here. Essentially we have been tasked  
17 with looking at both adjacent channel  
18 interference and sensing. Looking at the  
19 issue, we believe it probably extends beyond  
20 that.

21                   The first step was to identify the  
22 technical mechanics of interference. And

1 David did a good job in preparing a document  
2 which he is doing right now on that point, in  
3 which he identifies all the ways one can  
4 interfere.

5           The next section of the report  
6 that we are working on is interference  
7 avoidance and what are the mechanisms one can  
8 use on a going forward basis with respect to  
9 this. And that would include guard bands,  
10 harmonized spectrum allocations to facilitate  
11 moving a services boat consisting of  
12 international allocations and also  
13 domestically; sharing of light services and  
14 issues, given the intermixing of disparate  
15 services; establish of sensing, state-of-the-  
16 art frequency, agile, cognitive, and software  
17 defined radios; database, a database approach  
18 to the spectrum to interference avoidance.

19           And the more we began to think  
20 about it, the issue of receiver standings and  
21 how one deals with interference at the  
22 receiver level really becomes tough.

1                   Since Janice is on the  
2 subcommittee, I think we will also look at the  
3 enforcement issues as well. So our goal is to  
4 take the full panel of interference issues and  
5 deal with them.

6                   I think one of the things looking  
7 forward and stepping back, as sharing of  
8 spectrum increases, one of the key things that  
9 really has crept up is the ability to avoid  
10 interference as much as defined technically  
11 and the issue of how it is define in terms of  
12 powerful interference. The issue of having  
13 certainty if you get spectrum at an auction or  
14 otherwise of what that means. It is important  
15 you end up with something you wanted.

16                   CO-CHAIR TRAMONT: And one thing  
17 maybe all the committee chairs should keep in  
18 mind is it may be that we do a report. We  
19 don't want to make the report so broad that  
20 they are not meaningful.

21                   MEMBER DONOVAN: Correct.

22                   CO-CHAIR TRAMONT: So it may be

1 that you do a report on some subset of what  
2 you just described.

3 MEMBER DONOVAN: Sure.

4 CO-CHAIR TRAMONT: For this next  
5 one then we do a second report, we can keep  
6 the same committee together. So we will defer  
7 to the committee chairs on what the  
8 recommendations are for subsequent work or how  
9 those things should happen. But I want to  
10 make sure we get enough depth to make a  
11 contribution to the intake in this process.

12 MEMBER NEBBIA: Can I just -- We  
13 do have some new folks. One of the essential  
14 components coming out of any of these reports  
15 are specific recommendations for us to take  
16 on, not ones we need to like find in the text,  
17 somehow pull it out of the talk and so on.  
18 But ultimately at the end of the report, that  
19 there be specific, this is what we recommend  
20 that NTIA do and then that is something that  
21 we take on and begin to work with.

22 CO-CHAIR TRAMONT: This is

1 something we learned the last time. So there  
2 should be a section at the end that says  
3 recommendations and bullets that are very  
4 precise.

5 MEMBER DONOVAN: One question on  
6 that point. For example, in the process of  
7 examining this, let's assume that we found  
8 that, let's stick with something on here, the  
9 Commission needs to increase or alter the  
10 mission requirements for a certain band  
11 because of interference.

12 Are we to make recommendations  
13 that NTIA to recommend to the commission or  
14 how does that work? I don't want to start  
15 stepping on jurisdictional toes.

16 MR. GATTUSO: If I could join in  
17 and preempt the leaders. But this advisory  
18 committee is chartered to advise our Assistant  
19 Secretary. So I think appropriately, the  
20 recommendations should be to the Assistant  
21 Secretary. I field this directly because I  
22 also record how he has responded to the

1 recommendations and it is a little less clear  
2 how we would answer, how would we respond to  
3 the recommendations of somebody else.

4           So speaking from how I understand  
5 it, I think it would be best to phrase them in  
6 terms of recommendations to the Assistant  
7 Secretary. We have numbered the previous ones  
8 and reported to the General Service  
9 Administration numbers. I would like to pick  
10 up California members' proposition.

11           MR. STRICKLING: So let me, maybe  
12 I could just augment that. I mean obviously  
13 I subscribe to what Joe just said, which is  
14 that in addition to managing the federal use  
15 of spectrum, we also advise the President on  
16 all telecommunications issues. But it ought  
17 to be couched in that fashion, which would be  
18 a recommendation that the administration take  
19 the position of the FCC for X because they are  
20 independent and we can't tell them what to do  
21 but we can certainly appear before them with  
22 recommendations.

1                   MEMBER DONOVAN: Fair enough.

2 Thank you.

3                   CO-CHAIR TRAMONT: Anything else  
4 on David's report? Very, good. Mr. Reaser.

5                   MEMBER REASER: I will have the  
6 shortest report.

7                   Our committee is slowly starting.  
8 When I walked into this, I didn't realize I  
9 was really walking into sort of a landmine and  
10 so that you had the new guy be in charge. And  
11 so it is sort of like handling kryptonite, I  
12 understand. But we have a new set of faces  
13 and maybe the new fresh outlook.

14                   The thing that I would bring to  
15 this is something of a different perspective,  
16 because I spent 28 years in the federal  
17 procurement business. So I am very familiar  
18 about how impervious program managers and  
19 certainly government programs are to  
20 incentives and other kinds of things.

21                   So one of the things I will bring  
22 to the table is some other ideas about how you

1     incentivize program managers in the federal  
2     government about how to deal with spectrum,  
3     which is pretty much an unknown for most  
4     program managers, to be honest with you, in  
5     terms of federal program managers. And that  
6     is across the board. They don't really find  
7     out about spectrum until later.

8             But what we are going to be doing  
9     is we will have our first teleconference. We  
10    are going to be on task. We have a recovery  
11    plan and all that kind of stuff.

12            (Laughter.)

13            MEMBER REASER: Just a couple of  
14    the economic stimulus package that we will  
15    talk about as a part of our incentive.

16            But anyway, what I would say, the  
17    first thing we are going to do, there was a  
18    lot of work that was done. The NTIA published  
19    a report in 2008 in November that had a lot of  
20    interesting recommendation. Working Group II  
21    actually addressed this in the last  
22    Commission.

1                   So one of the first things, we are  
2 going to have the new guys and the old guys  
3 that are part of the new committee go back and  
4 take a look at that. One of the first things  
5 we want to do is sort of categorize all of  
6 that and catalogue that with some pros and  
7 cons and then add some new ideas from a guy  
8 who actually came from the side, one of the  
9 persons who was supposed to have been  
10 incentivized by all these wonderful things.  
11 So, I will bring that perspective to you and  
12 then we will talk about that.

13                   Because there is a giant  
14 disconnect between the federal procurement  
15 process and what goes in the spectrum process.  
16 I think that Karl and others are well aware of  
17 that. And I certainly was well aware of that  
18 as a former government program director for 28  
19 years.

20                   So that is one of things we will  
21 try to bring to the table, maybe some new  
22 ideas, some new people. We will have our

1 first meeting next week. One of the things we  
2 need is to get all the contact information.  
3 Apparently now Joe told me that we are going  
4 to now get the rest of the contact information  
5 for the new folks, now that they have embedded  
6 into the system. So we will be able to start  
7 off on that. And we will remain on task and  
8 have some initial, our initial draft report  
9 out on time with some draft recommendations  
10 and so forth. But this is sort of a fairly  
11 daunting task because in some ways  
12 incentivizing government program managers to  
13 do things spectrum wise is an interesting task  
14 and it needs to be done at a fairly low level.

15           And most of the concepts have been  
16 way at the high level, like OMB and those kind  
17 of things. Those are just three-letter  
18 acronyms to some guy out in the field who is  
19 trying to get his credited aircraft or his  
20 radio, whether it is an FAA radio or DHS or  
21 DoD or whatever.

22           So anyway, that is kind of where

1 we are at. And any comments or questions?

2 CO-CHAIR HATFIELD: I guess we are  
3 in the public comment portion of the meeting.  
4 Is there anybody from the public here who  
5 would like to make a comment?

6 MR. FELD: I did have one  
7 question, actually.

8 Well first, my name is Harold  
9 Feld. I am legal director for Public  
10 Knowledge.

11 I was curious with regard to the  
12 question of the transparency issues that  
13 appears to have been spectrum use transparency  
14 which is critically important. And I want to,  
15 by the way, just mention that it is possible,  
16 very painfully but it is possible and I know  
17 because I have done it, to extract the leasing  
18 information for at least some of the bands  
19 from the FCC's ULS database.

20 But that raises the actual  
21 transparency issue that I did want to raise I  
22 was curious if this committee was addressing

1 is the transparency around the FCC's and the  
2 NTIA's and more broadly the federal  
3 government's spectrum allocation proceedings.  
4 There are actually specific provisions in  
5 NTIA's underlying statutes with regard to the  
6 transparency of IRAC, transparency of the  
7 federal spectrum allocation process. And I  
8 was just curious if the committee has any  
9 intention to take that under advisement and  
10 examination as well.

11           MEMBER MYLET: You know, the IRAC  
12 process, I mean, I really I don't think our  
13 team has been exposed to any of those  
14 meetings. I think it might be interesting.  
15 I think other people on my committee have  
16 actually raised that process of understanding  
17 how that process works, how those allocations  
18 have been made in the past, how they might be  
19 made in the future.

20           We are open to all types of  
21 suggestions, Harold. So if you have anything  
22 you would like to submit specifically, we will

1 include it in our review internally.

2 MR. FELD: Where would I submit  
3 those? There is obviously the National  
4 Broadband Plan, which is ongoing and open at  
5 the FCC. But with regard to sort of general  
6 submissions to this committee in specific, is  
7 there some central place to submit the  
8 comments or suggestions?

9 MEMBER MYLET: Would that be to  
10 you, Joe?

11 MR. GATTUSO: I believe so, yes.

12 MEMBER REASER: Darrin doesn't  
13 remember this but we actually talked about  
14 this in quite a bit of detail. This gets into  
15 the issue of internal transparency between and  
16 within the agencies themselves because one of  
17 the postulates that we had in one of our  
18 telecoms was that it is not always clear that  
19 the agencies themselves are internally  
20 transparent, in terms of what goes on.

21 How much does the FCC really know  
22 what is going on in terms of the licensees and

1    how much does NTIA really know what the  
2    functional agencies are doing with respect to  
3    their spectrum as well?

4                   And so one of the things that we  
5    were going to take a look at was the issue of  
6    internal transparency within the government  
7    process itself.  Because it wasn't clear to  
8    because you know, Karl does a great job of  
9    defending the interest of all of these  
10   functional agencies but I think he is maybe  
11   one or two questions deep in terms of what  
12   really goes on.  He is sort of the head of all  
13   this stuff.  And we have actually talked about  
14   that kind of stuff.

15                   CO-CHAIR TRAMONT:  A related issue  
16   is trying to request that the FCC, in the IRAC  
17   process, you all certainly know there has been  
18   talk about trying to figure out a way to have  
19   at least transparency of the parties to FCC  
20   proceedings which are currently in the IRAC  
21   process.

22                   MEMBER REASER:  There is a website

1 that has all of that, by the way. We check it  
2 all the time for our FCC stuff that goes over  
3 there. There are ways of doing that. It is  
4 a little, I think obtuse to look at but I  
5 think I sent you a link to that as a part of  
6 our group.

7 MEMBER WARREN: Can I make a  
8 suggestion? A couple of years ago Karl and I  
9 guess now it would be Eddie, but Karl did a  
10 brief on the IRAC, all the different  
11 subcommittees, what they do, you know, one  
12 committee does the licensing, another  
13 committee does the frequency assignments,  
14 etcetera, etcetera.

15 So even though that is all  
16 publicly available, maybe it would be  
17 beneficial in the subcommittee to ask Eddie or  
18 whoever is appropriate to come and do that  
19 brief. Because if it is really very good and  
20 opened a lot of eyes as to actually how  
21 accessible it is.

22 MEMBER NEBBIA: There is also a

1 process, for instance, for if a group wants to  
2 come in and address the IRAC, there is a  
3 specific process in our rules for allowing  
4 them to do that. Our record on that,  
5 certainly while I was the chairman is that  
6 most of the groups that wanted to come in,  
7 wanted to come in and sell equipment to the  
8 federal government. And I had to finally tell  
9 him we would like to see your presentations in  
10 advance because we are here to do spectrum  
11 management and not buy gear.

12 CO-CHAIR HATFIELD: Than you very  
13 much. Any other?

14 I do have a statement that was  
15 submitted by Mike Markison, but he is not  
16 here. And I would just propose that we make  
17 it a matter and put it into the record,  
18 however that process works. The same way  
19 Harold, I think, if you have comments, we will  
20 put them in the record.

21 And he raises, I don't want to --  
22 his comments speak for themselves but deal

1 with the issue of how you define harmful  
2 interference. And I think that is something  
3 that we are definitely interested in. So I  
4 would propose that we take this into account  
5 as we move forward for the next sort of  
6 segment of our work.

7 CO-CHAIR HATFIELD: Any other  
8 public comment then?

9 Okay, I guess we are up to  
10 scheduling the next meeting.

11 MEMBER CALABRESE: There was one  
12 thing Michael recommended that we have a  
13 briefing maybe from some of our own members on  
14 radar.

15 The question was that it would be  
16 useful at some future meeting to have a  
17 briefing on radar. A couple people mentioned  
18 that. I just wanted to mention that because  
19 I, for one, do not understand how radars work  
20 and I am sure I am not alone in that.

21 CO-CHAIR TRAMONT: I think we have  
22 two topics to be briefed on. We have to have

1 something from the FCC on their mission and  
2 the radar thing and whether we try and do both  
3 of those at the next meeting or whatever.

4 MEMBER NEBBIA: We have  
5 specifically given some of the agencies heads  
6 up that we would probably like to have them  
7 come in and talk about what they do. I think  
8 specifically DoD, FAA, NASA and DHS I think  
9 were the four that we specifically sent  
10 indicators out.

11 CO-CHAIR HATFIELD: Okay, shall we  
12 move to the topic of the next meeting date?

13 We have the proposal is the week  
14 of December 8th, I think. I'm sorry. I'm  
15 showing my age here. Okay, it is February.

16 CO-CHAIR TRAMONT: Well then why  
17 don't we do it after the National Broadband  
18 Plan? I think we are looking at the third  
19 week in February now.

20 MR. GATTUSO: Mr. Chairman?

21 CO-CHAIR TRAMONT: So what we will  
22 try and do is -- this is not -- I'm just going

1 to try do all of this now. So what we need to  
2 check schedules and we will send some  
3 proposals around in the next week to ten days.  
4 But in terms of your work plans, the draft  
5 reports should all be driving toward a  
6 delivery date of that week.

7 CO-CHAIR HATFIELD: Is there any  
8 very major sort of problems in that week like  
9 a major convention or anything like that that  
10 anybody is aware of?

11 MR. GATTUSO: If I may, because we  
12 are now talking about deep into February as  
13 opposed to earlier, per our previous  
14 discussion, perhaps I could share with the  
15 group some thinking that we had at NTIA and  
16 want to find out, would this group be  
17 interested in having a meeting outside of  
18 Washington?

19 The reason I ask specifically is  
20 that NTIA is considering doing an event  
21 possibly on the West Coast, possibly Los  
22 Angeles in the February/March time frame,

1 which works really well for you, Rick. And we  
2 have not developed the plans for that yet. We  
3 are not announcing that.

4 If Mr. Strickling wants to have  
5 viable denial, this is clearly that.

6 CO-CHAIR HATFIELD: I think it is  
7 a great idea.

8 CO-CHAIR TRAMONT: Why don't we  
9 just plan on working through that over the  
10 course of the next week.

11 MR. GATTUSO: And we have had  
12 precedence in meeting elsewhere. Marty was  
13 nice enough to host us in the last cycle, as  
14 well.

15 MEMBER OBUCHOWSKI: You know, I  
16 would like to comment on that. It is a  
17 welcome idea. In my estimation, the National  
18 Broadband Plan is so impactful of the theory  
19 of spectrum for both agencies and that  
20 activity is going to be happening here in  
21 Washington. I don't think that kind of  
22 adjourning someplace else in the month of

1 February is a good idea. Perhaps the meeting  
2 after that would be more useful. It is just  
3 a comment.

4 CO-CHAIR HATFIELD: Anything else?  
5 (Whereupon, at 12:09 p.m., the  
6 foregoing meeting was adjourned.)

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